

Woodburn Apartments

Traffic Impact Analysis
Woodburn, Oregon

Date:

May 6, 2019

Prepared for:

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RENEWS: 12/31/2020





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Executive Summary

1. A 204-unit apartment complex is proposed at the location of 1340 and 1310 N Pacific Highway in Woodburn, Oregon. Access to the site will be provided via the proposed fourth leg of the intersection of Alexandra Avenue at Pacific Highway.
2. The proposed development is projected to generate 73 trips during the morning peak hour, with 19 trips entering and 54 trips exiting the site, and 90 trips during the evening peak hour, with 55 trips entering and 35 trips exiting the site.
3. Based on the review of the most recent five years of available crash data, the intersection of Alexandra Avenue at Pacific Highway does not have any evident safety deficiencies. The intersection of Molalla Avenue/Mt Hood Avenue at Pacific Highway has a crash rate that exceeds one crash per million entering vehicles. More than half of the reported collisions were rear-end collisions resulting in property damage only or possible injuries. Due to the crash type and severity, no significant safety deficiency is apparent and no mitigation is recommended.
4. The proposed site access at Pacific Highway requires a minimum of 390 feet in either direction. Sight distance was measured to be in excess of 600 feet to the north and south of the proposed site access. Adequate sight distance is available for safe operation of the site access.
5. Due to insufficient minor and major street traffic volumes, signal warrants for the intersection of Alexandra Avenue at Pacific Highway are not met under any analysis scenarios.
6. Capacity analysis results show the intersection of Molalla Avenue/Mt Hood Avenue at Pacific Highway exceeding the state's v/c target during the evening peak hour under existing conditions. This result is anticipated by the City of Woodburn as it is identified within the City's TSP, where several mitigation alternatives have been planned. No mitigation is recommended in conjunction with the proposed development. All other intersection analysis scenarios are shown to meet the applicable performance standards.



Introduction

The purpose of this study is to provide an analysis of potential traffic impacts of the proposed 204-unit apartment complex to be located at 1340 and 1310 N Pacific Highway on the surrounding transportation system and to recommend any required mitigative measures. The analysis includes an estimate of trip generation and distribution of the proposed development as well as an operational analysis. An aerial image of the site vicinity is shown in Figure 1 with the project site highlighted in red.

According to the requirements for a traffic study outlined in the Analysis Procedures Manual¹, ODOT requires analysis at all state highway intersections that will increase by either 50 peak hour trips or 300 ADT. The scope of work has been coordinated with both local and state jurisdictions and includes the following intersections:

1. Molalla Road/Mt Hood Avenue at Pacific Highway
2. Alexandra Avenue at Pacific Highway

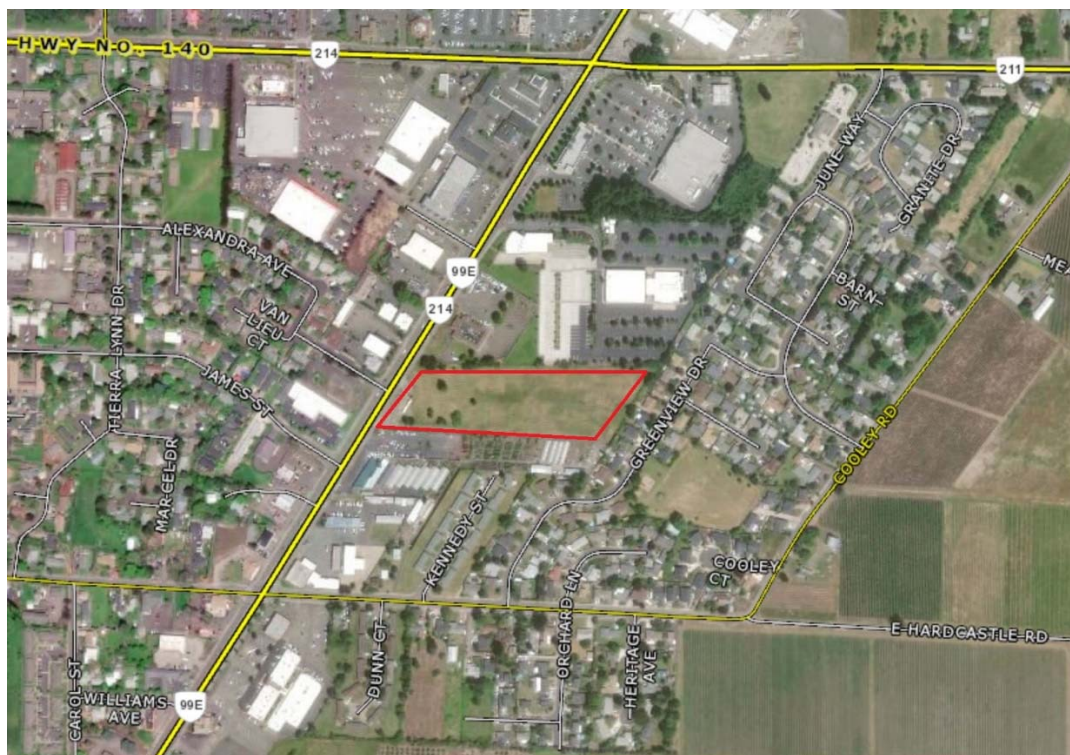


Figure 1 - Aerial Image of Site Vicinity

¹ ODOT Transportation Planning Analysis Unit, *Analysis Procedures Manual (APM)*, November 2018



Project Area Description

The subject site is located on the eastern side of Pacific Highway, south of Mollala Road/Mt Hood Avenue, and north of Hardcastle Road. Surrounding uses include restaurants, retail, and offices. Access to the site will be provided via the fourth leg of the intersection of Alexandra Avenue at Pacific Highway. A site plan for the proposed development is provided in the technical appendix.

Supporting Transportation Facilities

There are six study roadways near the site that are anticipated to carry the majority of site trips to and from the proposed development. The characteristics of these roadways are summarized in Table 1.

Table 1 - Summary of Study Area Roadways

Street Name	Jurisdiction	Classification	Speed (MPH)	Curbs	Side-walks	On-Street Parking	Bike Lanes
Alexandra Avenue	City	Local	25	Yes	Yes	Yes	No
Molalla Road	ODOT	Minor Arterial	35	Partial	Partial	No	Yes
Mt Hood Avenue	ODOT	Principal Arterial	35	Yes	Yes	No	Partial
Pacific Highway	ODOT	Principal Arterial	35	Yes	Yes	No	Yes

Study Intersections

Through coordination with the ODOT and the City of Woodburn, two study intersections were identified for evaluation. The existing characteristics of these intersections are summarized in Table 2. The existing and proposed intersection configurations are shown in Figure 2 on page 4.

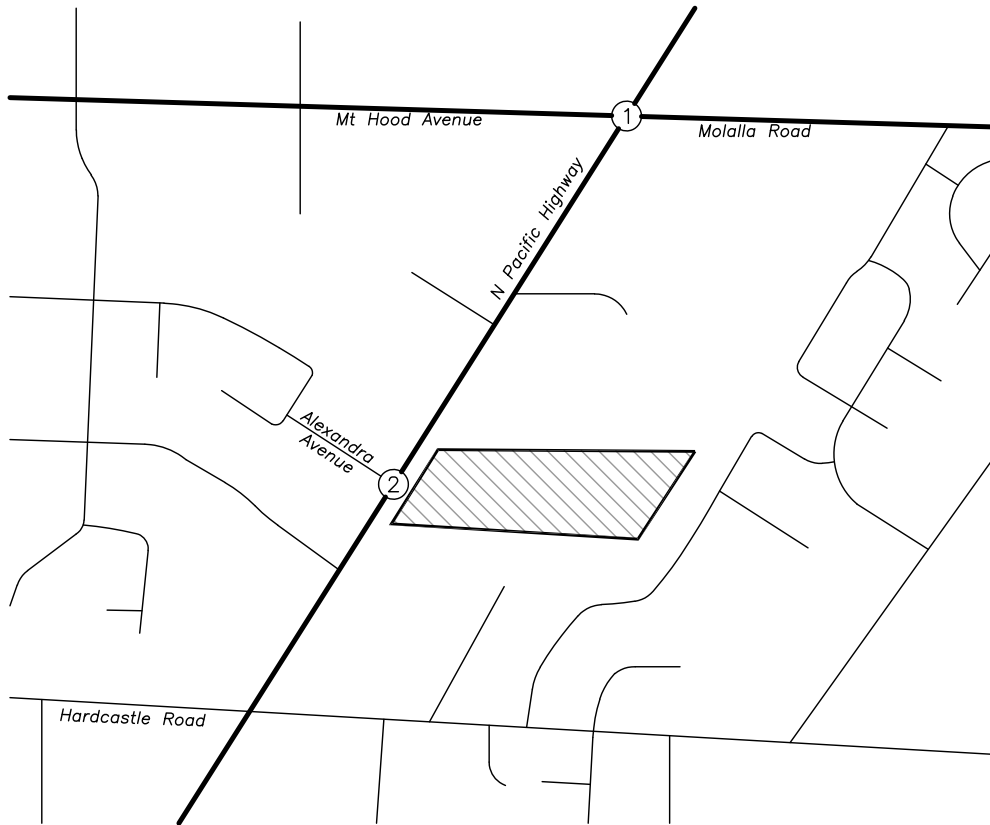
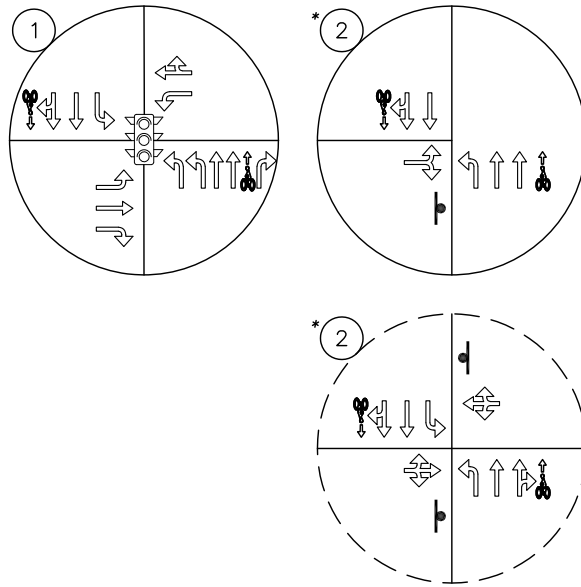
Table 2 - Summary of Study Area Intersections

Intersection	Geometry	Control Type	Phasing/Stopped Approaches
Molalla Road/Mt Hood Avenue at Pacific Highway	4-legged	Traffic Signal	Protected Left-Turns, Yield Controlled EB Right-Turn
Alexandra Avenue at Pacific Highway	3-legged	Stop Sign	Eastbound Stop-Controlled

LEGEND

-  STUDY INTERSECTION (EXISTING)
-  STUDY INTERSECTION (PROPOSED)
-  STOP SIGN
-  TRAFFIC SIGNAL
-  BIKE LANE
-  PROJECT SITE
-  ARTERIAL ROADWAY
-  COLLECTOR ROADWAY
-  LOCAL ROADWAY

* TWO-WAY LEFT-TURN LANE PROVIDED FOR NORTHBOUND AND SOUTHBOUND MOVEMENTS



STUDY INTERSECTION CONFIGURATIONS



FIGURE 2

PAGE 4



Site Trips

Trip Generation

To estimate the number of trips that will be generated by the site, trip rates from the *Trip Generation Manual*² were used. Trip rates for land-use code #221, *Multi-Family Housing (Mid-Rise)*, were used to estimate the trip generation due to the number stories of the proposed development.

The trip generation calculations show that the proposed use of the site will generate a total of 73 trips during the morning peak hour, 90 trips during the evening peak hour, and 1,110 trips on a typical weekday. The trip generation calculation results are summarized in Table 3.

Table 3 - Trip Generation Summary

Land Use Code	Size	Morning Peak Hour			Evening Peak Hour			Weekday Total
		In	Out	Total	In	Out	Total	
221 – Multifamily Housing (Mid-Rise)	204 units	19	54	73	55	35	90	1,110

Trip Distribution

The directional distribution of site trips to and from the proposed development was estimated based on locations of likely trip destinations, locations of major transportation facilities in the site vicinity, and existing travel patterns at the study intersections.

The following trip distribution was estimated and used for analysis:

- Approximately 50% percent of site trips will travel to/from the north along Interstate 5.
- Approximately 15% of site trips will travel to/from the south along Hillsboro Silverton Highway.
- Approximately 15% of site trips will travel to/from the south along Pacific Highway.
- Approximately 15% of site trips will travel to/from the north along Pacific Highway.
- Approximately 5% of site trips will travel to/from the west along Hardcastle Avenue.

The site trip assignment and distribution are shown in Figure 3 on page 6.

² Institute of Transportation Engineers (ITE), *Trip Generation Manual*, 10th Edition, 2017.

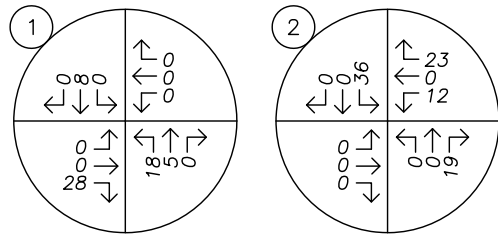
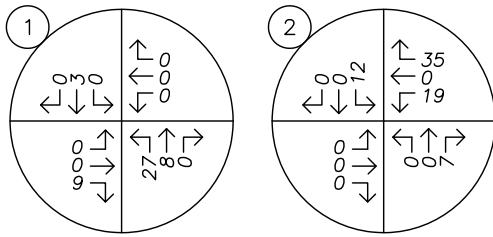
LEGEND

XX% PERCENT OF PROJECT TRIPS

TRIP GENERATION			
	IN	OUT	TOTAL
AM	19	54	73
PM	55	35	90

AM PEAK HOUR

PM PEAK HOUR



SITE TRIP DISTRIBUTION & ASSIGNMENT
 Proposed Development Plan – Site Trips
 AM & PM Peak Hours



FIGURE 3

PAGE 6



Traffic Volumes

Existing Conditions

Traffic counts were conducted at the study intersections on Tuesday, April 9, 2019 between 3:00 PM and 6:00 PM and on Wednesday, April 10, 2019 between 6:00 AM and 9:00 AM. The intersection of Molalla Avenue/Mt Hood Avenue at Pacific Highway experienced a morning peak hour between 6:45 AM and 7:45 AM and an evening peak hour between 4:00 PM and 5:00 PM. The intersection of Alexandra Avenue at Pacific Highway experienced a peak hour between 6:45 AM and 7:45 AM and an evening peak hour between 4:25 PM and 5:25 PM. Each intersection's respective morning and evening peak hours were used for analysis.

Background Conditions

Future traffic volumes for ODOT highways were projected in conformance with the requirements established in ODOT's Analysis Procedures Manual. This included the determination of the 30th-highest hour volumes based on seasonal trend variations. A seasonal adjustment factor of 1.052 was used based on a commuter trend.

Growth rates along ODOT facilities were calculated based on data from ODOT's Future Volume Table. The following tables summarizes the growth rates used for analysis. Each growth rate was applied over a two-year period to estimate background conditions before accounting for trips to be generated by the proposed development. All assumptions were confirmed with ODOT Region 2 staff.

Table 4 - Growth Rate Assumptions

Facility	Growth Rate
Pacific Highway	2.18% per year
Highway 211/214	1.89% per year
Alexandra Avenue	2% per year

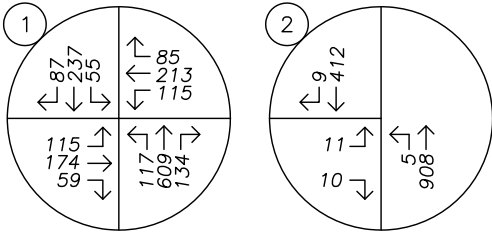
Buildout Conditions

Peak hour trips calculated to be generated by the proposed development, as described earlier within the Site Trips section, were added to the projected year 2021 background traffic volumes to obtain the expected year 2021 buildout volumes.

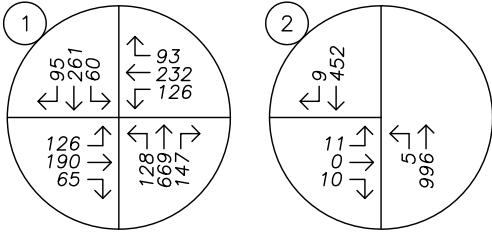
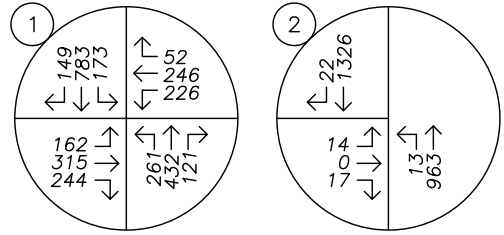
Figure 4 on page 8 shows the traffic volumes for the year 2019 existing conditions, 2021 background conditions, and 2021 buildout conditions.

AM PEAK HOUR

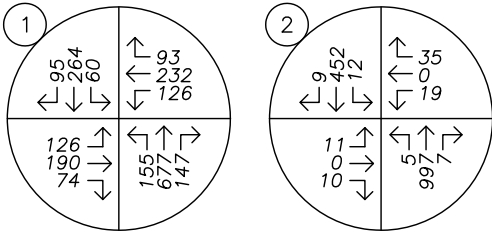
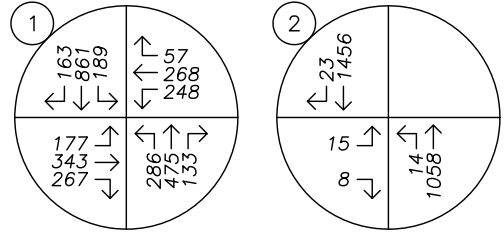
PM PEAK HOUR



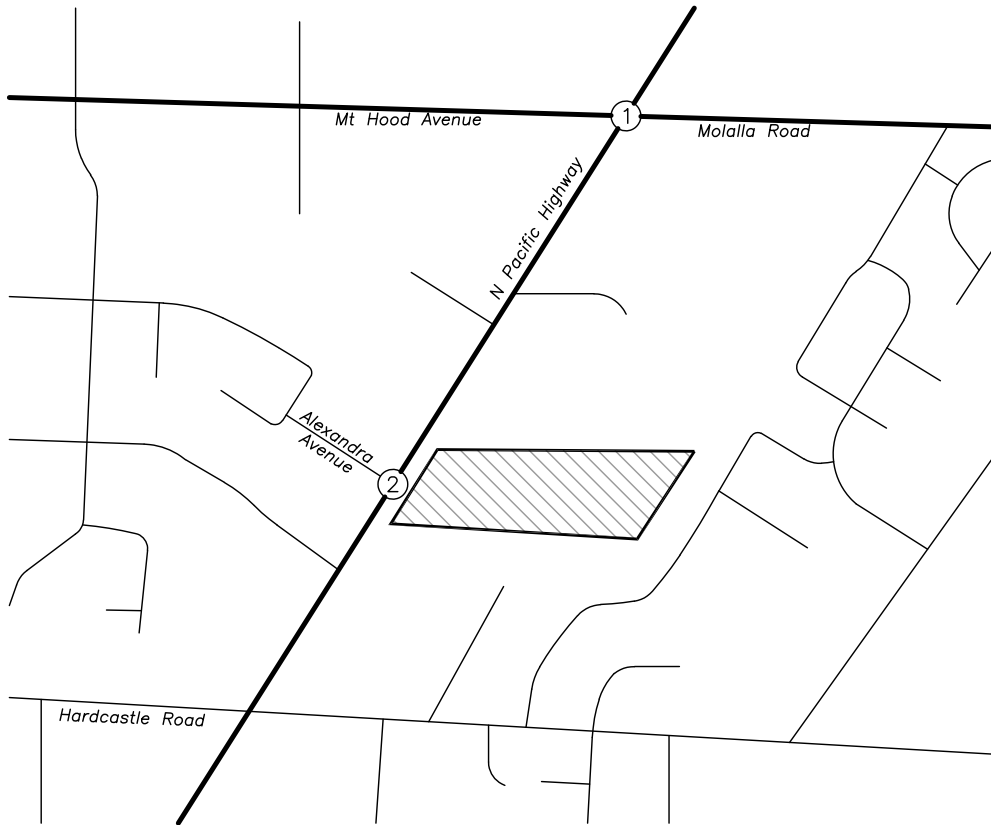
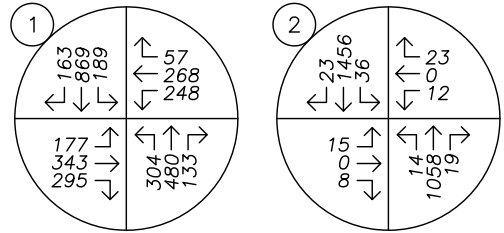
Year 2019 Existing



Year 2021 Background



Year 2021 Buildout



TRAFFIC VOLUMES
Existing, Background, & Buildout Conditions
AM & PM Peak Hours





Safety Analysis

Crash Data Analysis

Using data obtained from the ODOT's Crash Analysis and Reporting Unit, a review of the most recent available five years of crash history (January 2012 to December 2016) at the study intersections was performed. The crash data was evaluated based on the number of crashes, the type of collisions, the severity of the collisions, and the resulting crash rate for the intersection. Crash rates provide the ability to compare safety risks at different intersections by accounting for both the number of crashes that have occurred during the study period and the number of vehicles that typically travel through the intersection. Crash rates were calculated using the common assumption that traffic counted during the evening peak period represents approximately 10 percent of the annual average daily traffic (ADT) at the intersection. Crash rates in excess of 1.0 crashes per million entering vehicles (CMEV) may be indicative of design deficiencies and therefore require a need for further investigation and possible mitigation.

With regard to crash severity, ODOT classifies crashes in the following categories:

- Property Damage Only (*PDO*);
- Possible Injury – Complaint of Pain (*Injury C*);
- Non-Incapacitating Injury (*Injury B*);
- Incapacitating Injury – Bleeding, Broken Bones (*Injury A*); and
- Fatality or Fatal Injury.

Table 5 provides a summary of crash types while Table 6 summarizes crash severities and rates for each of the study intersections. Detailed ODOT crash reports are included in the technical appendix to this report.



Table 5 - Crash Type Summary

Intersection	Crash Type								Total
	Rear End	Turn	Angle	Fixed Object	Side Swipe	Back	Ped	Head	
Molalla Road/Mt Hood Avenue at Pacific Highway	47	3	2	3	4	1	3	2	65
Alexandra Avenue at Pacific Highway	1	0	0	0	1	0	0	0	2

Table 6 - Crash Severity and Rate Summary

Intersection	Crash Severity					Total	AADT	Crash Rate
	PDO	C	B	A	Fatal			
Molalla Road/Mt Hood Avenue at Pacific Highway	33	25	6	1	0	65	31,640	1.12
Alexandra Avenue at Pacific Highway	1	1	0	0	0	2	23,550	0.05

Based on a review of the crash data, the intersection of Alexandra Avenue at Pacific Highway does not show any signs of design flaws or a need for mitigation.

The intersection of Molalla Road/Mt Hood Avenue at Pacific Avenue had three crashes which involved a pedestrian and one crash which resulted in an incapacitating injury (*Injury A*). The intersection also has a calculated crash rate above 1.0 CMEV. An in-depth analysis of this intersection is detailed in the following sections.

Vulnerable User Collisions

The three pedestrian collisions were caused by drivers not yielding to pedestrian right-of-way. Two crashes resulted in non-incapacitating injuries and one resulted in a possible injury. All injuries were sustained by the pedestrian involved in the collision.

High Severity Collisions

Two vehicles were involved in a fixed object collision which resulted in each driver sustaining incapacitating injuries. The driver of the westbound vehicle was under the influence of alcohol while speeding and driving recklessly.

Crash Rate Analysis

Rear-end collisions account for 72 percent of the reported crashes at this intersection. Of the 47 rear-end collisions, 24 resulted in property damage only, 20 resulted in possible injuries, and 3 resulted in non-incapacitating injuries. A majority of the rear-end collisions occurred for the eastbound through movement (19 crashes) and were caused by drivers following too closely (29 crashes). A possible explanation of the high number of these crashes could be the installation of red-light cameras in late 2013/early 2014. Red-light cameras are meant to greatly decrease the *severity* of crashes caused when vehicles attempt to run a red light.



This means the goal is not necessarily to decrease the number of crashes at an intersection, but the number of incapacitating injuries or fatalities that occur as a result of a collision. Also, rear-end crashes are common at high-volume, congested signalized intersections. Due to the low severity of these rear-end crashes, 44 of 47 resulting in possible injury or property damage only, no significant safety deficiencies are projected for this intersection.

Sight Distance

Intersection sight distance was measured and evaluated in accordance with the standards established in *A Policy on Geometric Design of Highways and Streets*³. According to AASHTO, the driver's eye is assumed to be 15 feet from the near edge of the nearest travel lane of the intersecting street and at a height of 3.5 feet above the approach street pavement. Vehicle/object height is assumed to be 3.5 feet above the cross-street pavement. Using a vehicle/object height equal to the driver's eye height makes intersection sight distances reciprocal (if one driver can see another vehicle, then the driver of that vehicle can also see the first vehicle).

The required intersection sight distance for a roadway with a posted speed limit of 35 mph is 390 feet. Sight distance was measured to be in excess of 600 feet to the north and south of the proposed site access. Intersection sight distance is met at the proposed site access.

³ American Association of State Highway and Transportation Officials, *A Policy on Geometric Design of Highways and Streets*, 2004



Operational Analysis

Capacity Analysis

To determine the level-of-service at the study intersections, a capacity analysis was conducted. The analysis was conducted using the signalized and unsignalized intersection analysis methodologies in the *Highway Capacity Manual (HCM)* published by the Transportation Research Board. Level-of-service (LOS) can range from A, which indicates little or no delay, to F, which indicates a significant amount of congestion and delay.

Oregon 211/214 (Molalla Avenue/Mt Hood Avenue) has a maximum volume-to-capacity (v/c) ratio of 0.85 should be maintained based on its classification as a district highway. Oregon 99E (Pacific Highway) has a maximum v/c ratio of 0.80 based on its classification as a regional highway.

Signal timing information for the intersection of Molalla Avenue/Mt Hood Avenue at Pacific Highway was provided by ODOT and used for analysis. Results that are above the applicable performance standard are shown in bold. Detailed LOS descriptions are included in the appendix to this report.

Table 7 - Intersection Operational Analysis Summary

	Morning Peak Hour			Evening Peak Hour		
	Delay	LOS	V/C	Delay	LOS	V/C
Molalla Avenue/Mt Hood Avenue at Pacific Highway						
Existing Conditions	31	C	0.67	51	D	0.88
Year 2021 Background Conditions	34	C	0.71	61	E	0.95
Year 2021 Buildout Conditions	34	C	0.72	65	E	0.99
Alexandra Avenue at Pacific Highway						
Existing Conditions	11	B	0.04	22	C	0.13
Year 2021 Background Conditions	12	B	0.04	26	D	0.17
Year 2021 Buildout Conditions	17	C	0.16	35	E	0.23

The intersection of Molalla Avenue/Mt Hood at Pacific Highway is estimated to operate above the v/c target under all evening peak hour analysis scenarios. The v/c target is exceeded under existing conditions, prior to adding the impacts of the proposed development. While the intersection does not meet the v/c target identified by ODOT, the intersection is projected to operate under capacity in all analysis scenarios.

The City of Woodburn Transportation System Plan⁴ projects the intersection of Molalla Avenue/Mt Hood Avenue (Highway 214/211) at Pacific Highway (OR 99E) will operate above capacity by 2020 if no improvements are made to the system. Since this intersection performance has been projected by the City of Woodburn since the TSP's publication in 2005, mitigation alternatives were not analyzed in conjunction with the proposed development.

⁴ Woodburn Transportation System Plan (TSP), January 2005, CH2MHill and Kittleson & Associates



It should be noted that the two-stage left-turn lane is critical to the operation of the intersection of Alexandra Avenue at Pacific Highway. It is recommended that the northbound left-turn lane arrow be removed so that drivers are aware that this storage is available.

Preliminary Traffic Signal Warrants

Traffic signal warrants were examined for all unsignalized study intersections based on the methodologies in the Manual on Uniform Traffic Control Devices (MUTCD). This includes the intersection of Alexandra Avenue at Pacific Highway.

Warrant 1, *Eight Hour Vehicular Volumes*, was used from the MUTCD published by the Federal Highway Administration in 2009. Warrants were evaluated based on the common assumption that traffic counted during the evening peak hour represents ten percent of the ADT. Volumes were used for the year 2021 buildout conditions. Due to low major and minor street traffic volumes, signal warrants were not met at the site access intersection. Detailed information on the traffic signal warrant analysis is included in the attached appendix.



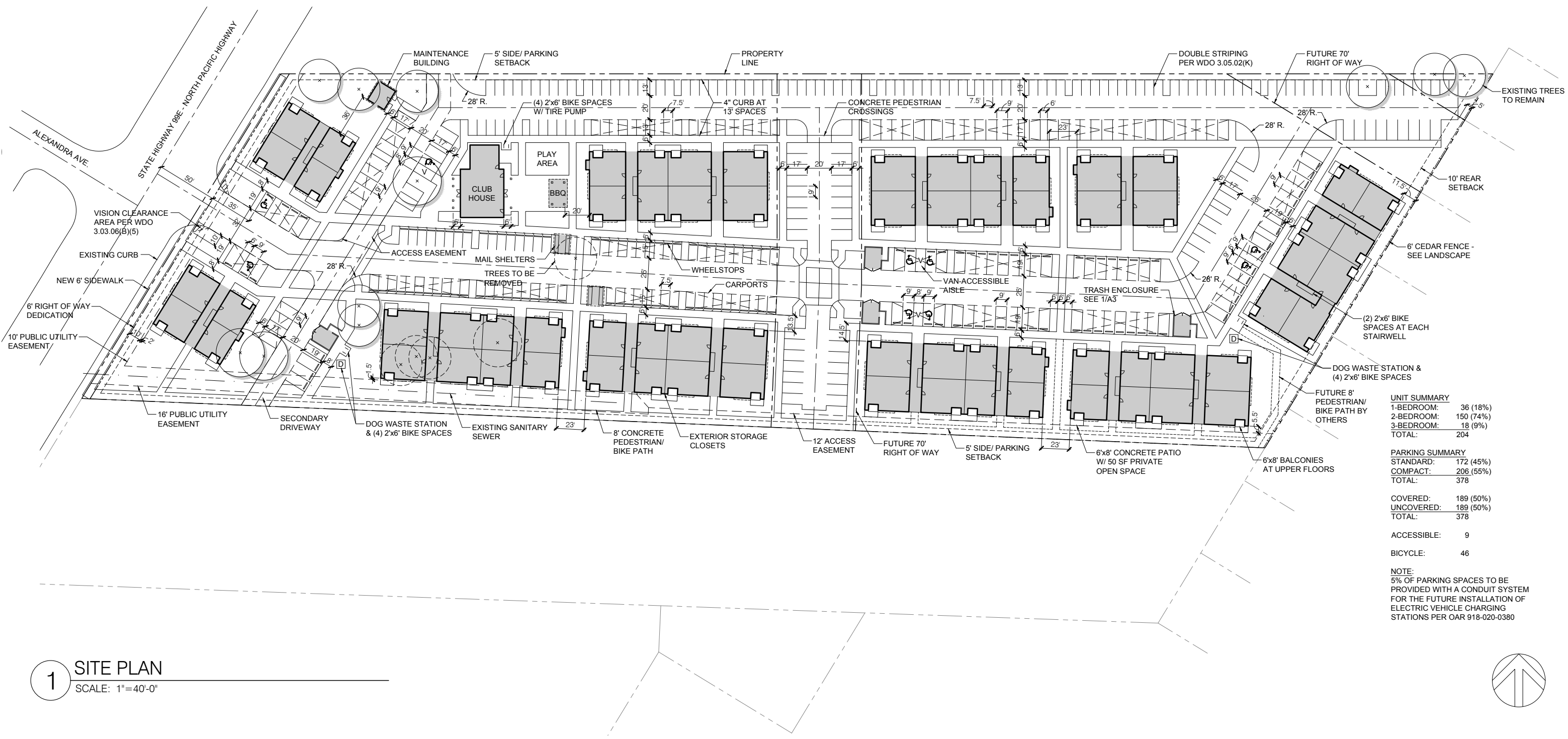
Conclusions

The proposed apartment complex in Woodburn, Oregon is not anticipated to significantly change the existing performance or safety of the surrounding transportation system. Notable findings and/or recommendations are summarized below.

- The intersection of Molalla Avenue/Mt Hood Avenue at Pacific Highway has a crash rate that exceeds one crash per million entering vehicles. Due to the type and severity of the reported crashes at this intersection, it is estimated that the high number of collisions are caused by the installation of red-light cameras. No significant safety deficiencies are detected, and no mitigation is recommended.
- Capacity analysis results show the intersection of Molalla Avenue/Mt Hood Avenue at Pacific Highway exceeding the state's v/c target during the evening peak hour under existing conditions. This result is anticipated by the City of Woodburn as it is identified within the City's TSP, where several mitigation alternatives have been analyzed. No mitigation is recommended in conjunction with the proposed development.
- It is recommended that the northbound left-turn lane arrow on Pacific Highway at Alexandra Avenue be removed upon completion of the proposed development to ensure left-turning vehicles are able to utilize the two-stage left-turning movement at the site access intersection.



Appendix



UNIT SUMMARY

1-BEDROOM:	36 (18%)
2-BEDROOM:	150 (74%)
3-BEDROOM:	18 (9%)
TOTAL:	204

PARKING SUMMARY

STANDARD:	172 (45%)
COMPACT:	206 (55%)
TOTAL:	378

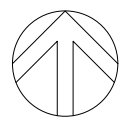
COVERED:	189 (50%)
UNCOVERED:	189 (50%)
TOTAL:	378

ACCESSIBLE: 9

BICYCLE: 46

NOTE:
5% OF PARKING SPACES TO BE PROVIDED WITH A CONDUIT SYSTEM FOR THE FUTURE INSTALLATION OF ELECTRIC VEHICLE CHARGING STATIONS PER OAR 918-020-0380

1 SITE PLAN
SCALE: 1"=40'-0"





TRIP GENERATION CALCULATIONS

Land Use: Multifamily Housing (Mid-Rise)
Land Use Code: 221
Setting/Location: General Urban/Suburban
Variable: Dwelling Units
Variable Value: 204

AM PEAK HOUR

Trip Rate: 0.36

	Enter	Exit	Total
Directional Distribution	26%	74%	
Trip Ends	19	54	73

PM PEAK HOUR

Trip Rate: 0.44

	Enter	Exit	Total
Directional Distribution	61%	39%	
Trip Ends	55	35	90

WEEKDAY

Trip Rate: 5.44

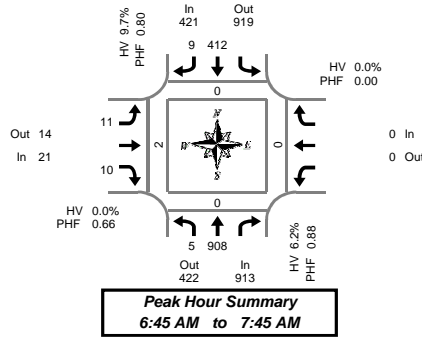
	Enter	Exit	Total
Directional Distribution	50%	50%	
Trip Ends	555	555	1,110

SATURDAY

Trip Rate: 4.91

	Enter	Exit	Total
Directional Distribution	50%	50%	
Trip Ends	501	501	1,002

Total Vehicle Summary



Hwy 99 & Alexandra Ave

Wednesday, April 10, 2019
6:00 AM to 9:00 AM

5-Minute Interval Summary 6:00 AM to 9:00 AM

Interval Start Time	Northbound Hwy 99			Southbound Hwy 99			Eastbound Alexandra Ave			Westbound Alexandra Ave			Interval Total	Pedestrians Crosswalk			
	L	T	Bikes	T	R	Bikes	L	R	Bikes			Bikes			North	South	East
6:00 AM	0	41	0	11	0	0	0	1	0			0	53	0	0	0	0
6:05 AM	0	59	0	14	0	0	0	0	0			0	73	0	0	0	0
6:10 AM	0	49	0	19	1	0	1	2	0			0	72	0	0	0	0
6:15 AM	1	62	0	20	0	0	0	0	0			0	83	0	0	0	0
6:20 AM	0	55	0	24	0	0	0	0	0			0	79	0	0	0	1
6:25 AM	0	69	1	24	0	0	1	0	0			0	94	0	0	0	0
6:30 AM	0	73	0	33	0	0	0	0	0			0	106	0	0	0	0
6:35 AM	2	78	0	23	0	0	0	1	0			0	104	0	0	0	0
6:40 AM	1	84	0	28	0	0	0	0	0			0	113	0	0	0	0
6:45 AM	0	79	0	29	0	0	3	1	0			0	112	0	0	0	1
6:50 AM	1	84	0	30	0	0	0	2	0			0	117	0	0	0	0
6:55 AM	0	87	0	22	1	0	1	1	0			0	112	0	0	0	0
7:00 AM	0	87	0	29	0	0	0	0	0			0	116	0	0	0	0
7:05 AM	0	69	0	35	0	0	3	1	0			0	108	0	0	0	1
7:10 AM	0	77	0	21	0	0	1	1	0			0	100	0	0	0	0
7:15 AM	0	76	0	44	1	0	0	1	0			0	121	0	0	0	0
7:20 AM	0	73	0	40	0	0	0	1	0			0	114	0	0	0	0
7:25 AM	1	70	0	40	3	0	2	1	0			0	117	0	0	0	0
7:30 AM	2	62	0	47	1	0	1	1	0			0	114	0	0	0	0
7:35 AM	1	71	0	32	2	0	0	0	0			0	106	0	0	0	0
7:40 AM	0	74	0	43	1	1	0	0	0			0	118	0	0	0	0
7:45 AM	0	62	0	38	0	0	0	0	0			0	100	0	0	0	0
7:50 AM	0	60	0	50	1	0	0	0	0			0	111	0	0	0	0
7:55 AM	0	50	0	38	1	1	1	1	0			0	91	0	0	0	0
8:00 AM	1	52	0	41	2	0	1	0	0			0	97	0	0	0	1
8:05 AM	0	55	0	35	0	0	1	2	0			0	93	0	0	0	0
8:10 AM	1	54	0	23	0	0	0	0	0			0	78	0	0	0	0
8:15 AM	0	43	0	54	0	0	1	1	0			0	99	0	0	0	0
8:20 AM	0	50	0	30	1	0	1	1	0			0	83	0	0	0	0
8:25 AM	1	53	0	44	0	0	0	0	0			0	98	0	0	0	0
8:30 AM	0	53	0	38	1	1	0	0	0			0	92	0	0	0	0
8:35 AM	1	51	0	40	1	0	1	0	0			0	94	0	0	0	0
8:40 AM	1	65	0	32	2	0	0	2	0			0	102	0	0	0	0
8:45 AM	1	48	0	43	1	0	1	1	0			0	95	0	0	0	0
8:50 AM	0	57	0	31	1	0	0	0	0			0	89	0	0	0	0
8:55 AM	1	68	0	37	0	0	0	1	0			0	107	0	0	0	0
Total Survey	16	2,299	1	1,182	21	3	20	23	0			0	3,561	0	0	0	4

15-Minute Interval Summary 6:00 AM to 9:00 AM

Interval Start Time	Northbound Hwy 99			Southbound Hwy 99			Eastbound Alexandra Ave			Westbound Alexandra Ave			Interval Total	Pedestrians Crosswalk			
	L	T	Bikes	T	R	Bikes	L	R	Bikes			Bikes			North	South	East
6:00 AM	0	149	0	44	1	0	1	3	0			0	198	0	0	0	0
6:15 AM	1	186	1	68	0	0	1	0	0			0	256	0	0	0	1
6:30 AM	3	235	0	84	0	0	0	1	0			0	323	0	0	0	0
6:45 AM	1	250	0	81	1	0	4	4	0			0	341	0	0	0	1
7:00 AM	0	233	0	85	0	0	4	2	0			0	324	0	0	0	1
7:15 AM	1	218	0	124	4	0	2	3	0			0	352	0	0	0	0
7:30 AM	3	207	0	122	4	1	1	1	0			0	338	0	0	0	0
7:45 AM	0	172	0	126	2	1	1	1	0			0	302	0	0	0	0
8:00 AM	2	161	0	99	2	0	2	2	0			0	268	0	0	0	1
8:15 AM	1	146	0	128	1	0	2	2	0			0	280	0	0	0	0
8:30 AM	2	169	0	110	4	1	1	2	0			0	288	0	0	0	0
8:45 AM	2	173	0	111	2	0	1	2	0			0	291	0	0	0	0
Total Survey	16	2,299	1	1,182	21	3	20	23	0			0	3,561	0	0	0	4

Peak Hour Summary 6:45 AM to 7:45 AM

By Approach	Northbound Hwy 99				Southbound Hwy 99				Eastbound Alexandra Ave				Westbound Alexandra Ave				Total	Pedestrians Crosswalk			
	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes		North	South	East	West
Volume	913	422	1,335	0	421	919	1,340	1	21	14	35	0	0	0	0	0	1,355	0	0	0	2
%HV	6.2%				9.7%				0.0%				0.0%				7.2%				
PHF	0.88				0.80				0.66				0.00				0.96				

By Movement	Northbound Hwy 99			Southbound Hwy 99			Eastbound Alexandra Ave			Westbound Alexandra Ave			Total
	L	T	Total	T	R	Total	L	R	Total			Total	
Volume	5	908	913	412	9	421	11	10	21	0	0	0	1,355
%HV	20.0%	6.2%	NA	6.2%	NA	10.0%	0.0%	9.7%	0.0%	NA	0.0%	0.0%	7.2%
PHF	0.31	0.88	0.88	0.81	0.38	0.80	0.69	0.63	0.66	NA	NA	NA	0.00

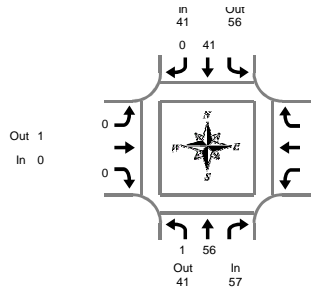
Rolling Hour Summary 6:00 AM to 9:00 AM

Interval Start Time	Northbound Hwy 99			Southbound Hwy 99			Eastbound Alexandra Ave			Westbound Alexandra Ave			Interval Total	Pedestrians Crosswalk			
	L	T	Bikes	T	R	Bikes	L	R	Bikes			Bikes			North	South	East
6:00 AM	5	820	1	277	2	0	6	8	0			0	1,118	0	0	0	2
6:15 AM	5	904	1	318	1	0	9	7	0			0	1,244	0	0	0	3
6:30 AM	5	936	0	374	5	0	10	10	0			0	1,340	0	0	0	2
6:45 AM	5	908	0	412	9	1	11	10	0			0	1,355	0	0	0	2
7:00 AM	4	830	0	457	10	2	8	7	0			0	1,316	0	0	0	1
7:15 AM	6	758	0	471	12	2	6	7	0			0	1,260	0	0	0	1
7:30 AM	6	686	0	475	9	2	6	6	0			0	1,188	0	0	0	1
7:45 AM	5	648	0	463	9	2	6	7	0			0	1,138	0	0	0	1
8:00 AM	7	649	0	448	9	1	6	8	0			0	1,127	0	0	0	1

Heavy Vehicle Summary



Clay Carney
(503) 833-2740



Hwy 99 & Alexandra Ave

Wednesday, April 10, 2019

6:00 AM to 9:00 AM

Peak Hour Summary
6:45 AM to 7:45 AM

Heavy Vehicle 5-Minute Interval Summary

6:00 AM to 9:00 AM

Interval Start Time	Northbound Hwy 99			Southbound Hwy 99			Eastbound Alexandra Ave			Westbound Alexandra Ave			Interval Total
	L	T	Total	T	R	Total	L	R	Total	Total	Total		
6:00 AM	0	1	1	0	0	0	0	0	0	0	0	1	
6:05 AM	0	1	1	2	0	2	0	0	0	0	0	3	
6:10 AM	0	3	3	2	0	2	0	0	0	0	0	5	
6:15 AM	0	2	2	1	0	1	0	0	0	0	0	3	
6:20 AM	0	2	2	3	0	3	0	0	0	0	0	5	
6:25 AM	0	2	2	5	0	5	0	0	0	0	0	7	
6:30 AM	0	3	3	5	0	5	0	0	0	0	0	8	
6:35 AM	0	3	3	5	0	5	0	0	0	0	0	8	
6:40 AM	0	4	4	1	0	1	0	0	0	0	0	5	
6:45 AM	0	5	5	2	0	2	0	0	0	0	0	7	
6:50 AM	0	2	2	5	0	5	0	0	0	0	0	7	
6:55 AM	0	7	7	3	0	3	0	0	0	0	0	10	
7:00 AM	0	2	2	2	0	2	0	0	0	0	0	4	
7:05 AM	0	1	1	5	0	5	0	0	0	0	0	6	
7:10 AM	0	7	7	3	0	3	0	0	0	0	0	10	
7:15 AM	0	7	7	4	0	4	0	0	0	0	0	11	
7:20 AM	0	1	1	3	0	3	0	0	0	0	0	4	
7:25 AM	1	5	6	3	0	3	0	0	0	0	0	9	
7:30 AM	0	7	7	4	0	4	0	0	0	0	0	11	
7:35 AM	0	9	9	3	0	3	0	0	0	0	0	12	
7:40 AM	0	3	3	4	0	4	0	0	0	0	0	7	
7:45 AM	0	5	5	4	0	4	0	0	0	0	0	9	
7:50 AM	0	8	8	5	0	5	0	0	0	0	0	13	
7:55 AM	0	3	3	7	0	7	0	0	0	0	0	10	
8:00 AM	0	3	3	4	0	4	0	0	0	0	0	7	
8:05 AM	0	5	5	8	0	8	0	0	0	0	0	13	
8:10 AM	0	3	3	7	0	7	0	0	0	0	0	10	
8:15 AM	0	4	4	9	0	9	0	0	0	0	0	13	
8:20 AM	0	3	3	7	0	7	0	0	0	0	0	10	
8:25 AM	0	9	9	4	0	4	0	0	0	0	0	13	
8:30 AM	0	2	2	6	0	6	0	0	0	0	0	8	
8:35 AM	0	5	5	9	0	9	0	0	0	0	0	14	
8:40 AM	0	6	6	5	1	6	0	0	0	0	0	12	
8:45 AM	0	3	3	6	0	6	0	0	0	0	0	9	
8:50 AM	0	5	5	5	1	6	0	0	0	0	0	11	
8:55 AM	0	7	7	5	0	5	0	0	0	0	0	12	
Total Survey	1	148	149	156	2	158	0	0	0	0	0	307	

Heavy Vehicle 15-Minute Interval Summary

6:00 AM to 9:00 AM

Interval Start Time	Northbound Hwy 99			Southbound Hwy 99			Eastbound Alexandra Ave			Westbound Alexandra Ave			Interval Total
	L	T	Total	T	R	Total	L	R	Total	Total	Total		
6:00 AM	0	5	5	4	0	4	0	0	0	0	0	9	
6:15 AM	0	6	6	9	0	9	0	0	0	0	0	15	
6:30 AM	0	10	10	11	0	11	0	0	0	0	0	21	
6:45 AM	0	14	14	10	0	10	0	0	0	0	0	24	
7:00 AM	0	10	10	10	0	10	0	0	0	0	0	20	
7:15 AM	1	13	14	10	0	10	0	0	0	0	0	24	
7:30 AM	0	19	19	11	0	11	0	0	0	0	0	30	
7:45 AM	0	16	16	16	0	16	0	0	0	0	0	32	
8:00 AM	0	11	11	19	0	19	0	0	0	0	0	30	
8:15 AM	0	16	16	20	0	20	0	0	0	0	0	36	
8:30 AM	0	13	13	20	1	21	0	0	0	0	0	34	
8:45 AM	0	15	15	16	1	17	0	0	0	0	0	32	
Total Survey	1	148	149	156	2	158	0	0	0	0	0	307	

Heavy Vehicle Peak Hour Summary

6:45 AM to 7:45 AM

By Approach	Northbound Hwy 99			Southbound Hwy 99			Eastbound Alexandra Ave			Westbound Alexandra Ave			Total
	In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total	
Volume	57	41	98	41	56	97	0	1	1	0	0	0	98
PHF	0.65			0.85			0.00			0.00			0.77

By Movement	Northbound Hwy 99			Southbound Hwy 99			Eastbound Alexandra Ave			Westbound Alexandra Ave			Total
	L	T	Total	T	R	Total	L	R	Total	Total	Total		
Volume	1	56	57	41	0	41	0	0	0	0	0	98	
PHF	0.25	0.67	0.65	0.85	0.00	0.85	0.00	0.00	0.00	0.00	0.00	0.77	

Heavy Vehicle Rolling Hour Summary

6:00 AM to 9:00 AM

Interval Start Time	Northbound Hwy 99			Southbound Hwy 99			Eastbound Alexandra Ave			Westbound Alexandra Ave			Interval Total
	L	T	Total	T	R	Total	L	R	Total	Total	Total		
6:00 AM	0	35	35	34	0	34	0	0	0	0	0	69	
6:15 AM	0	40	40	40	0	40	0	0	0	0	0	80	
6:30 AM	1	47	48	41	0	41	0	0	0	0	0	89	
6:45 AM	1	56	57	41	0	41	0	0	0	0	0	98	
7:00 AM	1	58	59	47	0	47	0	0	0	0	0	106	
7:15 AM	1	59	60	56	0	56	0	0	0	0	0	116	
7:30 AM	0	62	62	66	0	66	0	0	0	0	0	128	
7:45 AM	0	56	56	75	1	76	0	0	0	0	0	132	
8:00 AM	0	55	55	75	2	77	0	0	0	0	0	132	

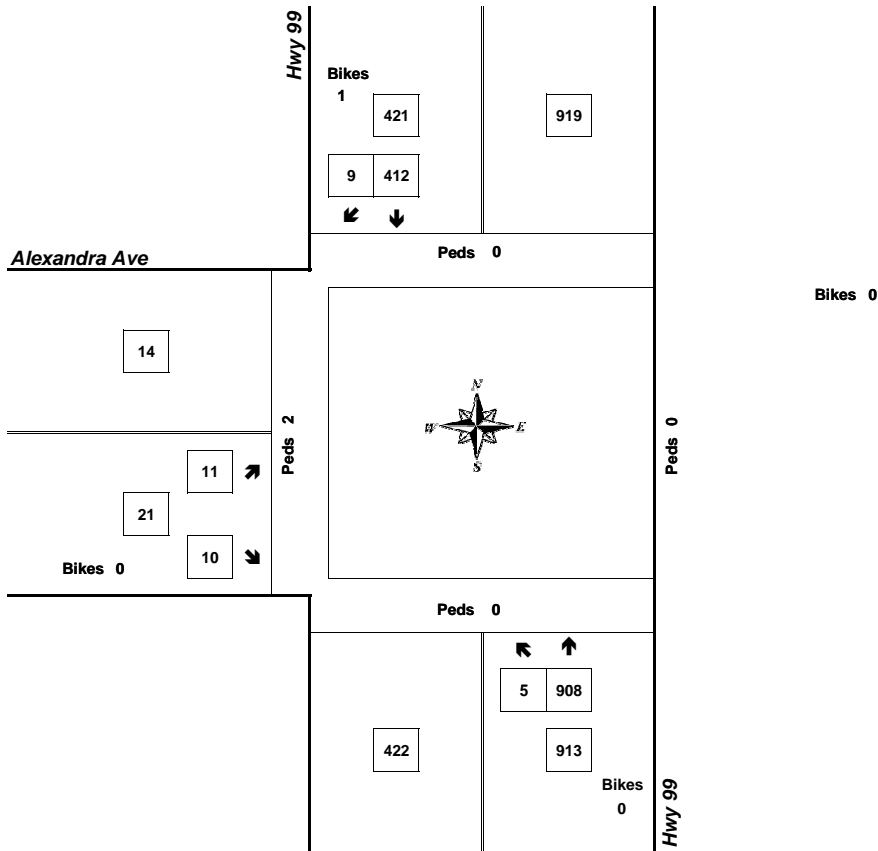
Peak Hour Summary



Clay Carney
(503) 833-2740

Hwy 99 & Alexandra Ave

6:45 AM to 7:45 AM
Wednesday, April 10, 2019



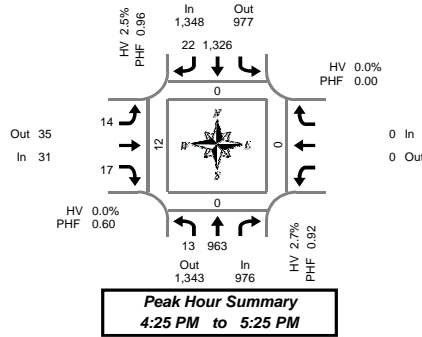
Approach	PHF	HV%	Volume
EB	0.66	0.0%	21
WB	0.00	0.0%	0
NB	0.88	6.2%	913
SB	0.80	9.7%	421
Intersection	0.96	7.2%	1,355

Count Period: 6:00 AM to 9:00 AM

Total Vehicle Summary



Clay Carney
(503) 833-2740



Hwy 99 & Alexandra Ave

Tuesday, April 09, 2019
3:00 PM to 6:00 PM

5-Minute Interval Summary 3:00 PM to 6:00 PM

Interval Start Time	Northbound Hwy 99			Southbound Hwy 99			Eastbound Alexandra Ave			Westbound Alexandra Ave			Interval Total	Pedestrians Crosswalk			
	L	T	Bikes	T	R	Bikes	L	R	Bikes			Bikes		North	South	East	West
3:00 PM	2	77	0	80	2	0	1	3	0			0	166	0	0	0	0
3:05 PM	0	77	0	72	1	0	2	1	0			0	153	0	0	0	1
3:10 PM	0	56	0	74	1	0	0	1	0			0	132	0	0	0	1
3:15 PM	0	85	0	66	3	0	0	3	0			0	157	0	0	0	0
3:20 PM	1	53	0	81	2	0	2	0	0			0	139	0	0	0	1
3:25 PM	1	85	0	69	1	0	0	0	0			0	156	0	0	0	0
3:30 PM	2	69	0	105	0	0	0	1	0			0	177	0	0	0	1
3:35 PM	1	78	0	83	0	0	1	1	0			0	164	0	0	0	0
3:40 PM	0	70	0	84	2	1	0	1	0			0	157	0	0	0	1
3:45 PM	1	69	0	103	1	0	1	1	0			0	176	0	0	0	1
3:50 PM	2	80	1	78	1	0	0	0	0			0	161	0	0	0	1
3:55 PM	0	80	0	103	1	0	0	1	0			0	185	0	0	0	0
4:00 PM	0	69	0	119	3	0	1	1	0			0	193	0	0	0	0
4:05 PM	2	93	0	111	0	0	1	2	0			0	209	0	0	0	0
4:10 PM	1	71	0	115	3	0	2	0	0			0	192	0	0	0	0
4:15 PM	0	63	0	113	2	0	0	2	0			0	180	0	0	0	0
4:20 PM	2	77	0	100	1	0	1	3	0			0	184	0	0	0	0
4:25 PM	1	69	0	104	5	0	0	1	0			0	180	0	0	0	1
4:30 PM	0	64	0	104	0	0	3	0	0			0	171	0	0	0	1
4:35 PM	0	91	0	122	0	1	0	0	0			0	213	0	0	0	0
4:40 PM	2	84	0	110	5	0	1	1	0			0	203	0	0	0	0
4:45 PM	1	87	0	101	2	0	3	1	0			0	195	0	0	0	2
4:50 PM	0	79	0	123	0	0	0	0	0			0	202	0	0	0	3
4:55 PM	2	89	1	100	2	0	1	3	0			0	197	0	0	0	2
5:00 PM	4	72	0	107	4	0	1	2	0			0	190	0	0	0	2
5:05 PM	0	81	0	122	0	0	1	4	0			0	208	0	0	0	0
5:10 PM	0	99	0	116	3	0	2	2	0			0	222	0	0	0	0
5:15 PM	2	75	0	96	0	0	2	2	0			0	177	0	0	0	0
5:20 PM	1	73	0	121	1	0	0	1	0			0	197	0	0	0	1
5:25 PM	2	77	0	98	1	0	0	0	0			0	178	0	0	0	0
5:30 PM	0	78	0	89	2	0	0	0	0			0	169	0	0	0	1
5:35 PM	2	68	0	103	0	0	1	2	0			0	176	0	0	0	0
5:40 PM	2	58	0	106	2	0	0	0	0			0	168	0	0	0	2
5:45 PM	1	69	0	83	1	0	0	1	0			0	155	0	0	0	1
5:50 PM	1	67	0	74	1	0	1	0	0			0	144	0	0	0	0
5:55 PM	0	75	0	105	3	0	1	1	0			0	185	0	0	0	0
Total Survey	36	2,708	2	3,540	56	3	29	42	0			0	6,411	0	0	0	23

15-Minute Interval Summary 3:00 PM to 6:00 PM

Interval Start Time	Northbound Hwy 99			Southbound Hwy 99			Eastbound Alexandra Ave			Westbound Alexandra Ave			Interval Total	Pedestrians Crosswalk			
	L	T	Bikes	T	R	Bikes	L	R	Bikes			Bikes		North	South	East	West
3:00 PM	2	211	0	226	4	1	3	5	0			0	451	0	0	0	2
3:15 PM	2	223	0	216	6	0	2	3	0			0	452	0	0	0	1
3:30 PM	3	217	0	272	2	1	1	3	0			0	498	0	0	0	2
3:45 PM	3	229	1	284	3	0	1	2	0			0	522	0	0	0	2
4:00 PM	3	233	0	345	6	0	4	3	0			0	594	0	0	0	0
4:15 PM	3	209	0	317	5	0	1	6	0			0	544	0	0	0	1
4:30 PM	2	239	0	336	5	1	4	1	0			0	587	0	0	0	1
4:45 PM	3	255	1	324	4	0	4	4	0			0	594	0	0	0	7
5:00 PM	4	252	0	345	7	0	4	8	0			0	620	0	0	0	2
5:15 PM	5	225	0	315	2	0	2	3	0			0	552	0	0	0	1
5:30 PM	4	204	0	298	4	0	1	2	0			0	513	0	0	0	3
5:45 PM	2	211	0	262	5	0	2	2	0			0	484	0	0	0	1
Total Survey	36	2,708	2	3,540	56	3	29	42	0			0	6,411	0	0	0	23

Peak Hour Summary 4:25 PM to 5:25 PM

By Approach	Northbound Hwy 99				Southbound Hwy 99				Eastbound Alexandra Ave				Westbound Alexandra Ave				Total	Pedestrians Crosswalk			
	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes		North	South	East	West
Volume	976	1,343	2,319	1	1,348	977	2,325	1	31	35	66	0	0	0	0	0	2,355	0	0	0	12
%HV	2.7%				2.5%				0.0%				0.0%				2.5%				
PHF	0.92				0.96				0.60				0.00				0.95				

By Movement	Northbound Hwy 99			Southbound Hwy 99			Eastbound Alexandra Ave			Westbound Alexandra Ave			Total				
	L	T	Total	T	R	Total	L	R	Total			Total					
Volume	13	963	976	1,326	22	1,348	14	17	31			0	2,355				
%HV	0.0%	2.7%	NA	2.7%	NA	2.6%	0.0%	2.5%	0.0%	NA	0.0%	0.0%	NA	NA	NA	0.0%	2.5%
PHF	0.54	0.92	0.92	0.96	0.79	0.96	0.70	0.47	0.60			0.00	0.95				

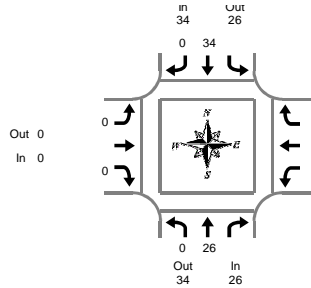
Rolling Hour Summary 3:00 PM to 6:00 PM

Interval Start Time	Northbound Hwy 99			Southbound Hwy 99			Eastbound Alexandra Ave			Westbound Alexandra Ave			Interval Total	Pedestrians Crosswalk			
	L	T	Bikes	T	R	Bikes	L	R	Bikes			Bikes		North	South	East	West
3:00 PM	10	880	1	998	15	2	7	13	0			0	1,923	0	0	0	7
3:15 PM	11	902	1	1,117	17	1	8	11	0			0	2,066	0	0	0	5
3:30 PM	12	888	1	1,218	19	1	7	14	0			0	2,158	0	0	0	5
3:45 PM	11	910	1	1,282	22	1	10	12	0			0	2,247	0	0	0	4
4:00 PM	11	936	1	1,322	23	1	13	14	0			0	2,319	0	0	0	9
4:15 PM	12	955	1	1,322	24	1	13	19	0			0	2,345	0	0	0	11
4:30 PM	14	971	1	1,320	18	1	14	16	0			0	2,353	0	0	0	11
4:45 PM	16	936	1	1,282	17	0	11	17	0			0	2,279	0	0	0	13
5:00 PM	15	892	0	1,220	18	0	9	15	0			0	2,169	0	0	0	7

Heavy Vehicle Summary



Clay Carney
(503) 833-2740



Hwy 99 & Alexandra Ave

Tuesday, April 09, 2019
3:00 PM to 6:00 PM

Peak Hour Summary
4:25 PM to 5:25 PM

Heavy Vehicle 5-Minute Interval Summary

3:00 PM to 6:00 PM

Interval Start Time	Northbound Hwy 99			Southbound Hwy 99			Eastbound Alexandra Ave			Westbound Alexandra Ave			Interval Total
	L	T	Total	T	R	Total	L	R	Total			Total	
3:00 PM	0	2	2	4	0	4	0	0	0	0	0	0	6
3:05 PM	0	7	7	2	0	2	0	1	1	0	0	0	10
3:10 PM	0	4	4	5	0	5	0	0	0	0	0	0	9
3:15 PM	0	5	5	4	0	4	0	0	0	0	0	0	9
3:20 PM	0	2	2	2	0	2	0	0	0	0	0	0	4
3:25 PM	0	5	5	3	0	3	0	0	0	0	0	0	8
3:30 PM	0	5	5	5	0	5	0	1	1	0	0	0	11
3:35 PM	0	7	7	3	0	3	0	0	0	0	0	0	10
3:40 PM	0	5	5	1	0	1	0	0	0	0	0	0	6
3:45 PM	0	4	4	5	0	5	0	0	0	0	0	0	9
3:50 PM	0	4	4	3	0	3	0	0	0	0	0	0	7
3:55 PM	0	8	8	5	0	5	0	0	0	0	0	0	13
4:00 PM	0	3	3	4	0	4	0	0	0	0	0	0	7
4:05 PM	0	3	3	4	0	4	0	0	0	0	0	0	7
4:10 PM	0	6	6	5	0	5	0	0	0	0	0	0	11
4:15 PM	0	2	2	5	0	5	0	0	0	0	0	0	7
4:20 PM	0	4	4	6	0	6	0	0	0	0	0	0	10
4:25 PM	0	2	2	4	0	4	0	0	0	0	0	0	6
4:30 PM	0	3	3	1	0	1	0	0	0	0	0	0	4
4:35 PM	0	7	7	4	0	4	0	0	0	0	0	0	11
4:40 PM	0	1	1	6	0	6	0	0	0	0	0	0	7
4:45 PM	0	1	1	3	0	3	0	0	0	0	0	0	4
4:50 PM	0	1	1	1	0	1	0	0	0	0	0	0	2
4:55 PM	0	1	1	1	0	1	0	0	0	0	0	0	2
5:00 PM	0	2	2	3	0	3	0	0	0	0	0	0	5
5:05 PM	0	4	4	0	0	0	0	0	0	0	0	0	4
5:10 PM	0	0	0	4	0	4	0	0	0	0	0	0	4
5:15 PM	0	2	2	4	0	4	0	0	0	0	0	0	6
5:20 PM	0	2	2	3	0	3	0	0	0	0	0	0	5
5:25 PM	0	3	3	1	0	1	0	0	0	0	0	0	4
5:30 PM	0	0	0	1	0	1	0	0	0	0	0	0	1
5:35 PM	0	0	0	2	0	2	0	0	0	0	0	0	2
5:40 PM	0	1	1	2	0	2	0	0	0	0	0	0	3
5:45 PM	0	1	1	1	0	1	0	0	0	0	0	0	2
5:50 PM	0	2	2	1	0	1	0	0	0	0	0	0	3
5:55 PM	0	3	3	3	0	3	0	0	0	0	0	0	6
Total Survey	0	112	112	111	0	111	0	2	2	0	0	0	225

Heavy Vehicle 15-Minute Interval Summary

3:00 PM to 6:00 PM

Interval Start Time	Northbound Hwy 99			Southbound Hwy 99			Eastbound Alexandra Ave			Westbound Alexandra Ave			Interval Total
	L	T	Total	T	R	Total	L	R	Total			Total	
3:00 PM	0	13	13	11	0	11	0	1	1	0	0	0	25
3:15 PM	0	12	12	9	0	9	0	0	0	0	0	0	21
3:30 PM	0	17	17	9	0	9	0	1	1	0	0	0	27
3:45 PM	0	16	16	13	0	13	0	0	0	0	0	0	29
4:00 PM	0	12	12	13	0	13	0	0	0	0	0	0	25
4:15 PM	0	8	8	15	0	15	0	0	0	0	0	0	23
4:30 PM	0	11	11	11	0	11	0	0	0	0	0	0	22
4:45 PM	0	3	3	5	0	5	0	0	0	0	0	0	8
5:00 PM	0	6	6	7	0	7	0	0	0	0	0	0	13
5:15 PM	0	7	7	8	0	8	0	0	0	0	0	0	15
5:30 PM	0	1	1	5	0	5	0	0	0	0	0	0	6
5:45 PM	0	6	6	5	0	5	0	0	0	0	0	0	11
Total Survey	0	112	112	111	0	111	0	2	2	0	0	0	225

Heavy Vehicle Peak Hour Summary

4:25 PM to 5:25 PM

By Approach	Northbound Hwy 99			Southbound Hwy 99			Eastbound Alexandra Ave			Westbound Alexandra Ave			Total
	In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total	
Volume	26	34	60	34	26	60	0	0	0	0	0	0	60
PHF	0.54			0.65			0.00			0.00			0.68

By Movement	Northbound Hwy 99			Southbound Hwy 99			Eastbound Alexandra Ave			Westbound Alexandra Ave			Total
	L	T	Total	T	R	Total	L	R	Total			Total	
Volume	0	26	26	34	0	34	0	0	0	0	0	0	60
PHF	0.00	0.54	0.54	0.65	0.00	0.65	0.00	0.00	0.00	0.00	0.00	0.00	0.68

Heavy Vehicle Rolling Hour Summary

3:00 PM to 6:00 PM

Interval Start Time	Northbound Hwy 99			Southbound Hwy 99			Eastbound Alexandra Ave			Westbound Alexandra Ave			Interval Total
	L	T	Total	T	R	Total	L	R	Total			Total	
3:00 PM	0	58	58	42	0	42	0	2	2	0	0	0	102
3:15 PM	0	57	57	44	0	44	0	1	1	0	0	0	102
3:30 PM	0	53	53	50	0	50	0	1	1	0	0	0	104
3:45 PM	0	47	47	52	0	52	0	0	0	0	0	0	99
4:00 PM	0	34	34	44	0	44	0	0	0	0	0	0	78
4:15 PM	0	28	28	38	0	38	0	0	0	0	0	0	66
4:30 PM	0	27	27	31	0	31	0	0	0	0	0	0	58
4:45 PM	0	17	17	25	0	25	0	0	0	0	0	0	42
5:00 PM	0	20	20	25	0	25	0	0	0	0	0	0	45

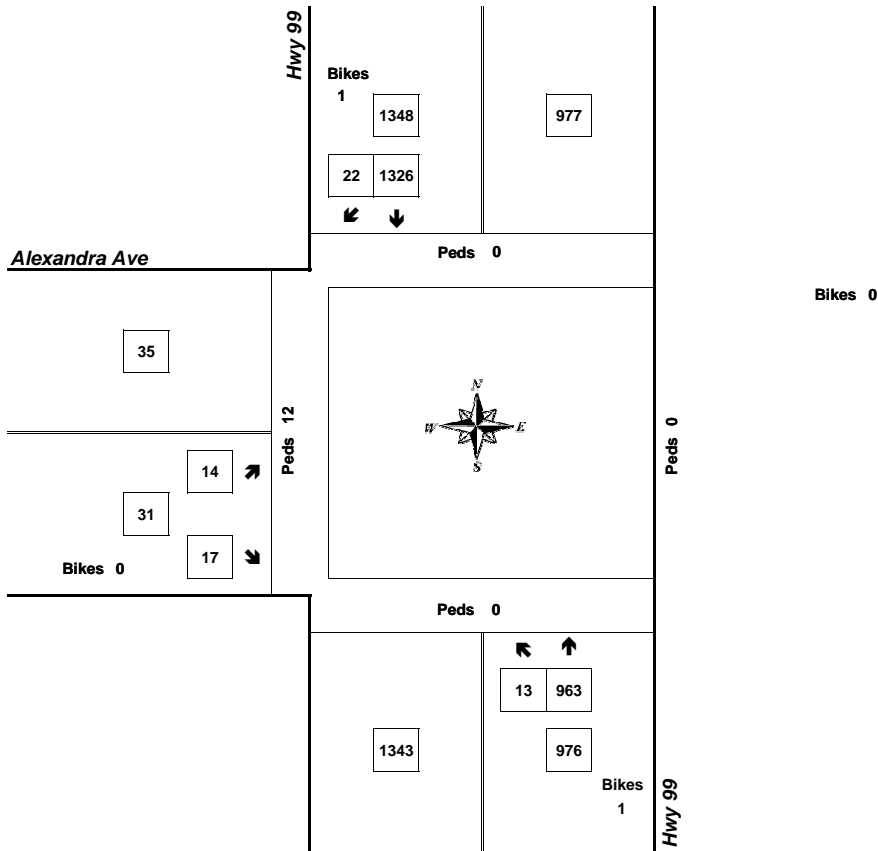
Peak Hour Summary



Clay Carney
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Hwy 99 & Alexandra Ave

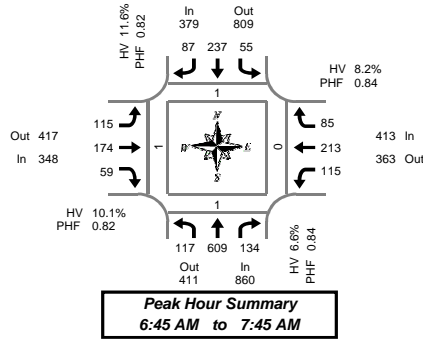
4:25 PM to 5:25 PM
Tuesday, April 09, 2019



Approach	PHF	HV%	Volume
EB	0.60	0.0%	31
WB	0.00	0.0%	0
NB	0.92	2.7%	976
SB	0.96	2.5%	1,348
Intersection	0.95	2.5%	2,355

Count Period: 3:00 PM to 6:00 PM

Total Vehicle Summary



Hwy 99 & Molalla Rd

Wednesday, April 10, 2019
6:00 AM to 9:00 AM

5-Minute Interval Summary 6:00 AM to 9:00 AM

Interval Start Time	Northbound Hwy 99				Southbound Hwy 99				Eastbound Molalla Rd				Westbound Molalla Rd				Interval Total	Pedestrians Crosswalk			
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes		North	South	East	West
6:00 AM	2	31	6	0	3	8	4	0	10	4	0	0	0	12	7	0	87	0	0	0	0
6:05 AM	3	43	6	0	4	9	4	0	17	11	4	0	5	14	4	0	124	0	0	0	0
6:10 AM	6	34	13	0	2	13	3	0	4	8	2	0	9	16	4	0	111	0	0	0	0
6:15 AM	3	39	9	0	5	15	3	0	6	13	1	0	5	14	7	0	120	0	0	0	0
6:20 AM	5	45	3	0	1	7	7	0	6	9	4	0	10	13	4	0	114	0	0	0	0
6:25 AM	11	43	6	0	0	9	4	0	11	7	6	0	7	8	9	0	121	0	0	0	0
6:30 AM	3	57	9	0	7	14	2	0	7	10	4	0	13	14	6	0	146	0	0	0	0
6:35 AM	6	72	10	0	2	14	2	0	11	12	5	0	2	20	6	0	162	0	0	0	0
6:40 AM	5	50	5	0	9	13	5	0	8	16	5	0	13	9	5	0	143	0	0	0	0
6:45 AM	10	58	9	0	5	19	6	0	11	19	5	0	6	17	12	0	177	0	0	0	0
6:50 AM	16	59	10	0	5	10	6	0	16	16	2	0	14	16	6	0	176	0	0	0	0
6:55 AM	9	59	18	0	6	11	5	0	4	15	2	0	7	13	8	0	157	0	0	0	1
7:00 AM	8	61	15	0	3	19	9	0	9	13	6	0	6	21	3	0	173	0	0	0	0
7:05 AM	9	49	13	0	7	22	3	0	9	11	2	0	9	19	8	0	161	0	0	0	0
7:10 AM	12	50	9	0	3	11	10	0	12	18	4	0	2	17	6	0	154	0	0	0	0
7:15 AM	8	40	12	0	4	19	7	0	11	15	7	0	22	23	7	0	175	0	0	0	0
7:20 AM	6	53	15	0	4	25	9	0	13	19	7	0	9	19	4	0	183	0	0	0	0
7:25 AM	10	44	8	0	1	25	10	0	8	11	3	0	11	21	7	0	159	1	0	0	0
7:30 AM	10	37	9	0	6	24	5	0	5	14	11	0	8	13	8	0	150	0	0	0	0
7:35 AM	8	51	6	0	5	29	9	0	6	11	4	0	8	12	7	0	156	0	1	0	0
7:40 AM	11	48	10	0	6	23	8	0	11	12	6	0	13	22	9	0	179	0	0	0	0
7:45 AM	14	40	10	0	4	33	7	0	10	8	3	0	4	16	4	0	153	0	0	0	0
7:50 AM	7	30	7	0	4	34	7	0	8	11	8	0	13	19	4	0	152	0	1	0	0
7:55 AM	15	22	2	0	7	19	7	0	8	12	10	0	9	14	6	0	131	0	0	0	0
8:00 AM	10	35	4	0	3	24	5	0	6	10	8	0	15	21	15	0	156	0	0	0	1
8:05 AM	8	29	7	0	5	19	5	0	6	10	4	0	9	10	6	0	118	0	0	0	0
8:10 AM	17	36	3	0	6	18	3	0	11	6	6	0	7	18	9	0	140	0	2	0	0
8:15 AM	6	28	6	0	5	29	5	0	7	9	9	0	7	10	4	0	127	0	0	0	0
8:20 AM	12	27	10	0	6	22	5	0	6	8	7	0	2	12	4	0	121	0	0	0	0
8:25 AM	12	21	9	0	4	27	9	0	3	17	7	0	9	20	7	0	145	0	0	0	0
8:30 AM	14	26	1	0	3	20	8	0	6	12	9	0	5	15	3	0	122	0	0	0	0
8:35 AM	10	33	6	0	10	16	10	0	5	16	11	0	7	14	3	0	141	1	0	0	0
8:40 AM	27	28	6	0	2	23	9	0	14	17	7	0	9	12	6	0	160	0	1	0	1
8:45 AM	12	31	5	0	7	23	6	0	8	13	8	0	11	19	7	0	150	0	0	1	0
8:50 AM	12	30	6	0	5	20	9	1	10	18	15	1	5	22	6	0	158	0	0	0	0
8:55 AM	15	26	14	0	2	23	14	0	6	12	16	0	4	16	4	0	152	0	0	0	0
Total Survey	354	1,465	297	0	161	689	230	1	309	443	218	1	292	571	225	0	5,254	2	5	1	3

15-Minute Interval Summary 6:00 AM to 9:00 AM

Interval Start Time	Northbound Hwy 99				Southbound Hwy 99				Eastbound Molalla Rd				Westbound Molalla Rd				Interval Total	Pedestrians Crosswalk			
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes		North	South	East	West
6:00 AM	11	108	25	0	9	30	11	0	31	23	6	0	11	42	15	0	322	0	0	0	0
6:15 AM	19	127	18	0	6	31	14	0	23	29	11	0	22	35	20	0	355	0	0	0	0
6:30 AM	14	179	24	0	18	41	9	0	26	38	14	0	28	43	17	0	451	0	0	0	0
6:45 AM	35	176	37	0	16	40	17	0	31	50	9	0	27	46	26	0	510	0	0	0	1
7:00 AM	29	160	37	0	13	52	22	0	30	42	12	0	17	57	17	0	488	0	0	0	0
7:15 AM	24	137	35	0	9	69	26	0	32	45	17	0	42	63	18	0	517	1	0	0	0
7:30 AM	29	136	25	0	17	76	22	0	22	37	21	0	29	47	24	0	485	0	1	0	0
7:45 AM	36	92	19	0	15	86	21	0	26	31	21	0	26	49	14	0	436	0	1	0	0
8:00 AM	35	100	14	0	14	61	13	0	23	26	18	0	31	49	30	0	414	0	2	0	1
8:15 AM	32	76	25	0	15	78	19	0	16	34	23	0	18	42	15	0	393	0	0	0	0
8:30 AM	51	87	13	0	15	59	27	0	25	45	27	0	21	41	12	0	423	1	1	0	1
8:45 AM	39	87	25	0	14	66	29	1	24	43	39	1	20	57	17	0	460	0	0	1	0
Total Survey	354	1,465	297	0	161	689	230	1	309	443	218	1	292	571	225	0	5,254	2	5	1	3

Peak Hour Summary 6:45 AM to 7:45 AM

By Approach	Northbound Hwy 99				Southbound Hwy 99				Eastbound Molalla Rd				Westbound Molalla Rd				Total	Pedestrians Crosswalk			
	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes		North	South	East	West
Volume	860	411	1,271	0	379	809	1,188	0	348	417	765	0	413	363	776	0	2,000	1	1	0	1
%HV	6.6%				11.6%				10.1%				8.2%				8.5%				
PHF	0.84				0.82				0.82				0.84				0.97				

By Movement	Northbound Hwy 99				Southbound Hwy 99				Eastbound Molalla Rd				Westbound Molalla Rd				Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
Volume	117	609	134	860	55	237	87	379	115	174	59	348	115	213	85	413	2,000
%HV	9.4%	6.1%	6.7%	6.6%	20.0%	9.7%	11.5%	11.6%	5.2%	10.3%	18.6%	10.1%	4.3%	10.3%	8.2%	8.2%	8.5%
PHF	0.84	0.85	0.73	0.84	0.81	0.76	0.84	0.82	0.80	0.84	0.70	0.82	0.68	0.85	0.82	0.84	0.97

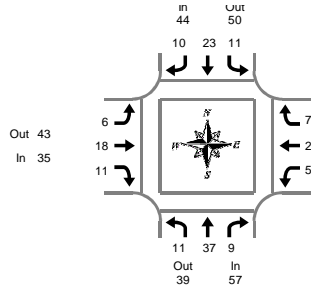
Rolling Hour Summary 6:00 AM to 9:00 AM

Interval Start Time	Northbound Hwy 99				Southbound Hwy 99				Eastbound Molalla Rd				Westbound Molalla Rd				Interval Total	Pedestrians Crosswalk			
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes		North	South	East	West
6:00 AM	79	590	104	0	49	142	51	0	111	140	40	0	88	166	78	0	1,638	0	0	0	1
6:15 AM	97	642	116	0	53	164	62	0	110	159	46	0	94	181	80	0	1,804	0	0	0	1
6:30 AM	102	652	133	0	56	202	74	0	119	175	52	0	114	209	78	0	1,966	1	0	0	1
6:45 AM	117	609	134	0	55	237	87	0	115	174	59	0	115	213	85	0	2,000	1	1	0	1
7:00 AM	118	525	116	0	54	283	91	0	110	155	71	0	114	216	73	0	1,926	1	2	0	0
7:15 AM	124	465	93	0	55	292	82	0	103	139	77	0	128	208	86	0	1,852	1	4	0	1
7:30 AM	132	404	83	0	61	301	75	0	87	128	83	0	104	187	83	0	1,728	0	4	0	1
7:45 AM	154	355	71	0	59	284	80	0	90	136	89	0	96	181	71	0	1,666	1	4	0	2
8:00 AM	157	350	77	0	58	264	88	1	88	148	107	1	90	189	74	0	1,690	1	3	1	2

Heavy Vehicle Summary



Clay Carney
(503) 833-2740



Hwy 99 & Molalla Rd

Wednesday, April 10, 2019
6:00 AM to 9:00 AM

Peak Hour Summary
6:45 AM to 7:45 AM

Heavy Vehicle 5-Minute Interval Summary

6:00 AM to 9:00 AM

Interval Start Time	Northbound Hwy 99			Southbound Hwy 99			Eastbound Molalla Rd			Westbound Molalla Rd			Interval Total				
	L	T	R	L	T	R	L	T	R	L	T	R					
6:00 AM	0	1	0	1	0	0	1	1	2	2	0	4	0	2	0	2	8
6:05 AM	1	0	0	1	1	1	0	0	2	0	0	1	1	0	0	1	5
6:10 AM	0	3	0	3	1	0	0	1	0	0	1	1	1	1	0	2	7
6:15 AM	1	1	0	2	1	1	1	3	0	1	0	1	0	3	1	4	10
6:20 AM	0	1	0	1	0	2	1	3	1	1	1	3	0	0	2	2	9
6:25 AM	0	1	1	2	0	1	1	2	2	0	5	7	0	0	0	0	11
6:30 AM	0	2	0	2	0	2	0	2	1	2	0	3	3	1	0	4	11
6:35 AM	2	2	0	4	0	1	0	1	2	0	2	4	1	1	0	2	11
6:40 AM	2	1	1	4	0	0	0	0	1	0	0	1	1	0	1	2	7
6:45 AM	0	5	1	6	1	1	0	2	0	1	0	1	1	0	0	1	10
6:50 AM	1	1	0	2	2	2	0	4	0	0	0	0	2	0	0	2	8
6:55 AM	0	5	0	5	0	1	0	1	1	0	1	2	0	1	1	2	10
7:00 AM	1	2	3	6	2	1	1	4	0	0	1	1	0	2	0	2	13
7:05 AM	1	2	0	3	1	4	2	7	1	0	0	1	0	3	0	3	14
7:10 AM	1	4	0	5	0	0	1	1	1	2	4	7	0	0	2	2	15
7:15 AM	1	4	2	7	2	2	1	5	1	3	1	5	1	1	0	2	19
7:20 AM	0	4	0	4	1	3	2	6	0	5	0	5	0	3	0	3	18
7:25 AM	1	0	0	1	0	2	1	3	1	2	0	3	1	5	1	7	14
7:30 AM	3	4	1	8	1	1	2	4	1	2	3	6	0	1	2	3	21
7:35 AM	2	5	0	7	0	2	0	2	0	1	1	2	0	1	1	2	13
7:40 AM	0	1	2	3	1	4	0	5	0	2	0	2	0	5	0	5	15
7:45 AM	2	1	2	5	0	4	0	4	0	3	0	3	1	1	0	2	14
7:50 AM	1	5	2	8	0	3	0	3	0	1	1	2	1	4	0	5	18
7:55 AM	3	0	0	3	0	4	0	4	2	4	2	8	1	4	2	7	22
8:00 AM	1	1	1	3	0	1	0	1	1	1	1	3	0	3	1	4	11
8:05 AM	1	4	1	6	1	6	0	7	0	0	0	0	1	2	0	3	16
8:10 AM	2	2	0	4	2	3	0	5	1	1	2	4	0	7	1	8	21
8:15 AM	1	2	0	3	1	7	1	9	0	1	0	1	1	0	0	1	14
8:20 AM	1	1	3	5	1	4	2	7	0	3	1	4	1	1	0	2	18
8:25 AM	2	4	2	8	2	3	1	6	0	1	1	2	0	3	0	3	19
8:30 AM	2	2	0	4	2	4	2	8	3	3	0	6	2	2	1	5	23
8:35 AM	3	1	1	5	1	3	1	5	0	0	3	3	1	3	1	5	18
8:40 AM	2	4	0	6	0	3	2	5	0	1	2	3	0	1	0	1	15
8:45 AM	3	0	1	4	0	2	1	3	2	0	2	4	1	4	0	5	16
8:50 AM	3	6	1	10	0	1	0	1	0	2	3	5	0	3	0	3	19
8:55 AM	1	5	1	7	0	0	1	1	0	3	3	6	1	2	1	4	18
Total Survey	45	87	26	158	24	79	25	128	24	48	42	114	23	70	18	111	511

Heavy Vehicle 15-Minute Interval Summary

6:00 AM to 9:00 AM

Interval Start Time	Northbound Hwy 99			Southbound Hwy 99			Eastbound Molalla Rd			Westbound Molalla Rd			Interval Total				
	L	T	R	L	T	R	L	T	R	L	T	R					
6:00 AM	1	4	0	5	2	1	1	4	2	2	2	6	2	3	0	5	20
6:15 AM	1	3	1	5	1	4	3	8	3	2	6	11	0	3	3	6	30
6:30 AM	4	5	1	10	0	3	0	3	4	2	2	8	5	2	1	8	29
6:45 AM	1	11	1	13	3	4	0	7	1	1	1	3	3	1	1	5	28
7:00 AM	3	8	3	14	3	5	4	12	2	2	5	9	0	5	2	7	42
7:15 AM	2	8	2	12	3	7	4	14	2	10	1	13	2	9	1	12	51
7:30 AM	5	10	3	18	2	7	2	11	5	4	10	0	7	3	3	10	49
7:45 AM	6	6	4	16	0	11	0	11	2	8	3	13	3	9	2	14	54
8:00 AM	4	7	2	13	3	10	0	13	2	2	3	7	1	12	2	15	48
8:15 AM	4	7	5	16	4	14	4	22	0	5	2	7	2	4	0	6	51
8:30 AM	7	7	1	15	3	10	5	18	3	4	5	12	3	6	2	11	56
8:45 AM	7	11	3	21	0	3	2	5	2	5	8	15	2	9	1	12	53
Total Survey	45	87	26	158	24	79	25	128	24	48	42	114	23	70	18	111	511

Heavy Vehicle Peak Hour Summary

6:45 AM to 7:45 AM

By Approach	Northbound Hwy 99			Southbound Hwy 99			Eastbound Molalla Rd			Westbound Molalla Rd			Total
	In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total	
Volume	57	39	96	44	50	94	35	43	78	34	38	72	170
PHF	0.79			0.79			0.51			0.65			0.80

By Movement	Northbound Hwy 99				Southbound Hwy 99				Eastbound Molalla Rd				Westbound Molalla Rd				Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
Volume	11	37	9	57	11	23	10	44	6	18	11	35	5	22	7	34	170
PHF	0.46	0.77	0.75	0.79	0.69	0.82	0.50	0.79	0.50	0.45	0.55	0.51	0.42	0.61	0.44	0.65	0.80

Heavy Vehicle Rolling Hour Summary

6:00 AM to 9:00 AM

Interval Start Time	Northbound Hwy 99				Southbound Hwy 99				Eastbound Molalla Rd				Westbound Molalla Rd				Interval Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
6:00 AM	7	23	3	33	6	12	4	22	10	7	11	28	10	9	5	24	107
6:15 AM	9	27	6	42	7	16	7	30	10	7	14	31	8	11	7	26	129
6:30 AM	10	32	7	49	9	19	8	36	9	15	9	33	10	17	5	32	150
6:45 AM	11	37	9	57	11	23	10	44	6	18	11	35	5	22	7	34	170
7:00 AM	16	32	12	60	8	30	10	48	7	25	13	45	5	30	8	43	196
7:15 AM	17	31	11	59	8	35	6	49	7	25	11	43	6	37	8	51	202
7:30 AM	19	30	14	63	9	42	6	57	5	20	12	37	6	32	7	45	202
7:45 AM	21	27	12	60	10	45	9	64	7	19	13	39	9	31	6	46	209
8:00 AM	22	32	11	65	10	37	11	58	7	16	18	41	8	31	5	44	208

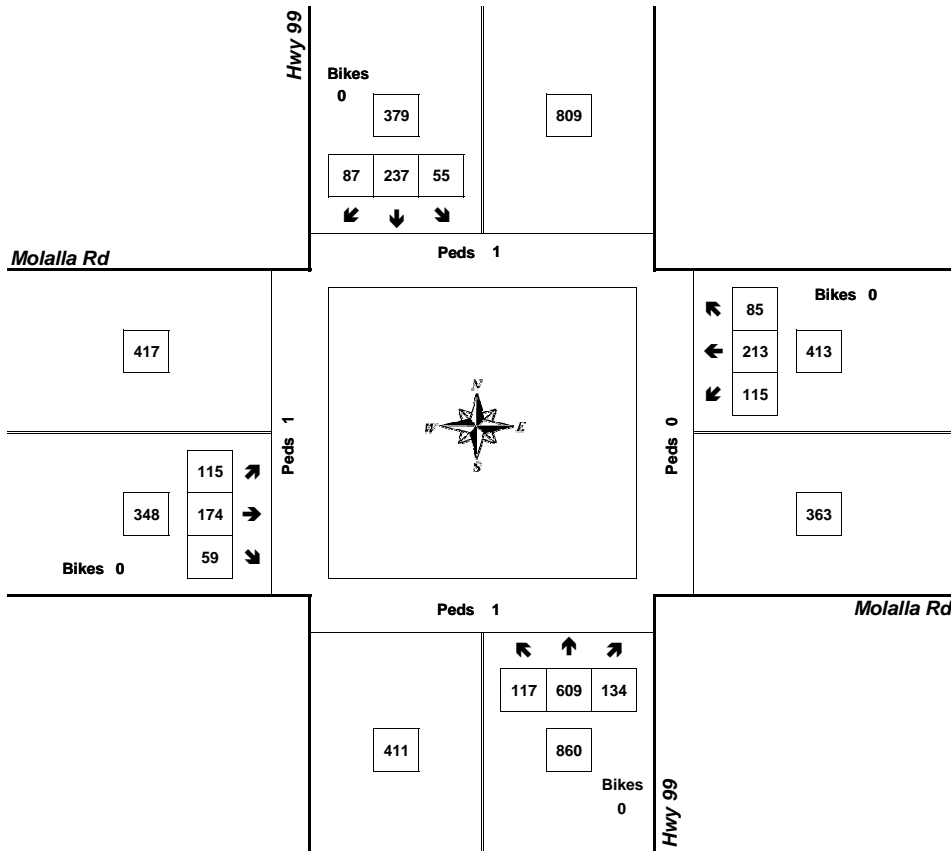
Peak Hour Summary



Clay Carney
(503) 833-2740

Hwy 99 & Molalla Rd

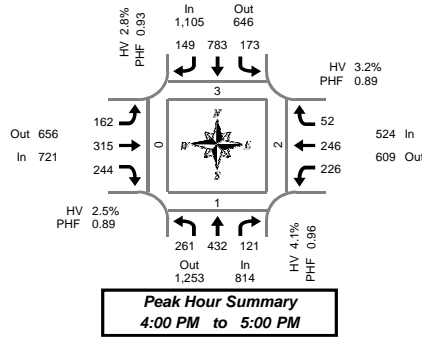
6:45 AM to 7:45 AM
Wednesday, April 10, 2019



Approach	PHF	HV%	Volume
EB	0.82	10.1%	348
WB	0.84	8.2%	413
NB	0.84	6.6%	860
SB	0.82	11.6%	379
Intersection	0.97	8.5%	2,000

Count Period: 6:00 AM to 9:00 AM

Total Vehicle Summary



Hwy 99 & Molalla Rd

Tuesday, April 09, 2019
3:00 PM to 6:00 PM

Peak Hour Summary
4:00 PM to 5:00 PM

5-Minute Interval Summary

3:00 PM to 6:00 PM

Interval Start Time	Northbound Hwy 99				Southbound Hwy 99				Eastbound Molalla Rd				Westbound Molalla Rd				Interval Total	Pedestrians Crosswalk			
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes		North	South	East	West
3:00 PM	11	46	12	0	12	38	13	0	3	27	23	0	16	12	6	0	219	0	0	0	0
3:05 PM	10	32	6	0	14	40	9	1	12	16	21	0	15	22	5	0	202	0	0	0	0
3:10 PM	18	23	14	0	8	42	7	0	14	26	15	0	3	20	3	0	191	0	1	0	1
3:15 PM	19	44	8	0	5	40	6	0	9	19	22	0	5	20	9	0	206	0	0	0	0
3:20 PM	19	22	2	0	13	33	11	0	15	21	15	0	20	13	2	0	186	0	0	0	0
3:25 PM	26	34	9	0	9	35	10	0	16	16	20	0	9	25	5	0	214	0	0	0	0
3:30 PM	16	45	8	0	12	82	11	0	13	22	25	0	12	18	5	0	269	0	0	0	1
3:35 PM	14	20	11	0	18	47	9	0	5	32	20	0	15	17	2	0	210	0	2	0	0
3:40 PM	26	30	11	0	12	44	9	0	10	22	17	0	21	28	6	0	236	0	0	0	1
3:45 PM	18	44	7	0	13	68	10	0	20	24	12	0	10	19	6	0	251	0	1	2	0
3:50 PM	23	38	8	0	9	48	6	0	16	28	13	0	12	20	6	0	227	0	0	1	0
3:55 PM	24	38	12	0	14	37	9	0	3	13	28	0	27	27	9	0	241	0	2	0	0
4:00 PM	22	41	8	0	12	74	12	0	21	26	24	0	17	19	3	0	279	1	0	0	0
4:05 PM	19	47	16	0	11	66	15	0	17	36	22	0	10	14	3	0	276	0	0	0	0
4:10 PM	20	28	4	0	14	52	9	0	12	29	16	0	24	21	6	0	235	0	0	0	0
4:15 PM	32	28	13	0	15	76	10	0	13	25	13	0	19	18	7	0	270	1	0	0	0
4:20 PM	13	53	10	0	10	71	8	0	12	14	21	0	14	22	4	0	252	0	0	0	0
4:25 PM	19	34	8	0	22	47	12	0	3	22	24	0	31	23	3	0	248	0	0	0	0
4:30 PM	35	18	7	0	13	58	15	0	14	23	20	0	11	25	8	0	247	0	1	0	0
4:35 PM	14	35	15	0	15	94	17	0	14	19	19	0	14	16	4	0	276	0	0	0	0
4:40 PM	22	37	9	0	20	55	10	0	15	34	29	0	16	20	4	0	271	0	0	1	0
4:45 PM	28	34	6	0	15	45	14	0	15	22	18	0	30	29	7	0	263	1	0	0	0
4:50 PM	17	34	10	0	11	87	19	0	14	28	21	0	18	22	2	0	283	0	0	0	0
4:55 PM	20	42	15	1	15	58	8	0	12	37	17	0	22	17	1	0	264	0	0	0	0
5:00 PM	26	30	10	0	15	56	15	0	6	23	21	0	24	25	8	0	259	0	0	0	0
5:05 PM	20	35	11	0	7	67	14	0	16	21	31	0	19	14	3	0	258	1	2	1	0
5:10 PM	9	51	13	0	6	54	16	0	13	22	24	0	21	19	2	0	250	0	0	0	2
5:15 PM	21	25	8	0	20	44	9	0	14	18	16	0	20	23	6	0	224	0	0	0	1
5:20 PM	21	39	5	0	13	64	15	0	15	26	24	0	18	15	4	0	259	0	0	0	0
5:25 PM	25	40	14	0	13	60	14	0	12	15	22	0	15	18	1	0	249	0	0	0	0
5:30 PM	16	24	7	0	13	50	8	0	18	32	9	0	16	23	2	0	218	0	1	1	0
5:35 PM	27	27	7	0	12	62	7	0	13	23	18	0	17	27	4	0	244	0	0	1	0
5:40 PM	12	37	5	0	13	63	10	0	15	19	23	0	14	11	5	0	227	4	0	2	0
5:45 PM	10	37	8	0	16	44	9	0	13	33	12	0	13	16	9	0	220	0	1	1	0
5:50 PM	20	28	12	0	5	41	4	0	17	21	17	0	18	18	6	0	207	0	0	0	0
5:55 PM	16	32	12	1	15	60	4	0	7	22	17	0	21	12	8	0	226	1	1	1	0
Total Survey	708	1,253	341	2	458	2,002	384	1	457	856	709	0	607	708	174	0	8,657	9	12	12	6

15-Minute Interval Summary

3:00 PM to 6:00 PM

Interval Start Time	Northbound Hwy 99				Southbound Hwy 99				Eastbound Molalla Rd				Westbound Molalla Rd				Interval Total	Pedestrians Crosswalk			
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes		North	South	East	West
3:00 PM	39	101	32	0	32	120	29	1	29	69	59	0	34	54	14	0	612	0	1	0	1
3:15 PM	64	100	19	0	27	108	27	0	40	56	57	0	34	58	16	0	606	0	0	0	0
3:30 PM	56	95	30	0	42	173	29	0	28	76	62	0	48	63	13	0	715	0	2	0	2
3:45 PM	65	120	27	0	36	153	25	0	39	65	53	0	49	66	21	0	719	0	3	3	0
4:00 PM	61	116	28	0	37	192	36	0	50	91	62	0	51	54	12	0	790	1	0	0	0
4:15 PM	64	116	31	0	47	194	30	0	28	81	58	0	64	63	14	0	770	1	0	1	0
4:30 PM	71	90	31	0	48	207	42	0	43	76	68	0	41	61	16	0	794	0	1	1	0
4:45 PM	65	110	31	1	41	190	41	0	41	87	56	0	70	68	10	0	810	1	0	0	0
5:00 PM	55	116	34	0	28	177	45	0	35	66	76	0	64	58	13	0	767	1	2	1	2
5:15 PM	67	104	27	0	46	168	38	0	41	59	62	0	53	56	11	0	732	0	0	0	1
5:30 PM	55	88	19	0	38	175	25	0	46	74	50	0	47	61	11	0	689	4	1	4	0
5:45 PM	46	97	32	1	36	145	17	0	37	76	46	0	52	46	23	0	653	1	2	2	0
Total Survey	708	1,253	341	2	458	2,002	384	1	457	856	709	0	607	708	174	0	8,657	9	12	12	6

Peak Hour Summary

4:00 PM to 5:00 PM

By Approach	Northbound Hwy 99				Southbound Hwy 99				Eastbound Molalla Rd				Westbound Molalla Rd				Total	Pedestrians Crosswalk			
	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes		North	South	East	West
Volume	814	1,253	2,067	1	1,105	646	1,751	0	721	656	1,377	0	524	609	1,133	0	3,164	3	1	2	0
%HV	4.1%				2.8%				2.5%				3.2%				3.1%				
PHF	0.96				0.93				0.89				0.89				0.97				

By Movement	Northbound Hwy 99				Southbound Hwy 99				Eastbound Molalla Rd				Westbound Molalla Rd				Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
Volume	261	432	121	814	173	783	149	1,105	162	315	244	721	226	246	52	524	3,164
%HV	1.9%	4.6%	6.6%	4.1%	1.7%	3.1%	2.7%	2.8%	3.1%	1.9%	2.9%	2.5%	1.8%	4.1%	5.8%	3.2%	3.1%
PHF	0.92	0.93	0.92	0.96	0.87	0.95	0.85	0.93	0.81	0.87	0.90	0.89	0.81	0.87	0.76	0.89	0.97

Rolling Hour Summary

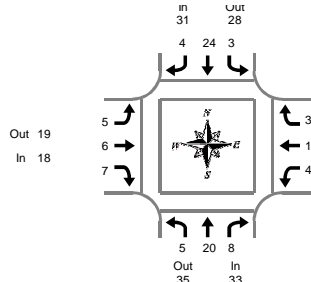
3:00 PM to 6:00 PM

Interval Start Time	Northbound Hwy 99				Southbound Hwy 99				Eastbound Molalla Rd				Westbound Molalla Rd				Interval Total	Pedestrians Crosswalk			
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes		North	South	East	West
3:00 PM	224	416	108	0	137	554	110	1	136	266	231	0	165	241	64	0	2,652	0	6	3	3
3:15 PM	246	431	104	0	142	626	117	0	157	288	234	0	182	241	62	0	2,830	1	5	3	2
3:30 PM	246	447	116	0	162	712	120	0	145	293	235	0	212	246	60	0	2,994	2	5	4	2
3:45 PM	261	442	117	0	168	746	133	0	160	293	241	0	205	244	63	0	3,073	2	4	5	0
4:00 PM	261	432	121	1	173	783	149	0	162	315	244	0	226	246	52	0	3,164	3	1	2	0
4:15 PM	255	432	127	1	164	768	158	0	147	290	258	0	239	250	53	0	3,141	3	3	3	2
4:30 PM	258	420	123	1	163	742	166	0	160	288	262	0	228	243	50	0	3,103	2	3	2	3
4:45 PM	242	418	111	1	153	710	149	0	163	286	244	0	234	243	45	0	2,998	6	3	5	3
5:00 PM	223	405	112	1	148	665	125	0	159	275	234	0	216	221	58	0	2,841	6	5	7	3

Heavy Vehicle Summary



Clay Carney
(503) 833-2740



Hwy 99 & Molalla Rd

Tuesday, April 09, 2019
3:00 PM to 6:00 PM

Peak Hour Summary
4:00 PM to 5:00 PM

Heavy Vehicle 5-Minute Interval Summary 3:00 PM to 6:00 PM

Interval Start Time	Northbound Hwy 99			Southbound Hwy 99			Eastbound Molalla Rd			Westbound Molalla Rd			Interval Total				
	L	T	R	L	T	R	L	T	R	L	T	R					
3:00 PM	1	1	1	3	0	0	0	0	0	1	1	2	0	0	2	6	
3:05 PM	0	2	1	3	0	1	0	1	0	3	0	3	0	4	0	4	11
3:10 PM	0	1	2	3	0	0	0	0	1	1	2	1	3	0	4	9	
3:15 PM	2	5	0	7	0	4	0	4	0	1	0	1	0	0	1	13	
3:20 PM	1	1	1	3	1	1	0	2	1	2	0	3	0	0	1	9	
3:25 PM	1	4	2	7	0	0	2	2	1	0	1	2	0	2	0	13	
3:30 PM	1	3	0	4	1	3	0	4	0	0	3	1	0	3	4	15	
3:35 PM	0	3	3	6	0	2	2	4	0	0	0	0	2	1	1	4	14
3:40 PM	1	4	0	5	0	0	1	1	0	0	0	0	1	2	3	6	12
3:45 PM	0	4	1	5	0	5	1	6	0	0	1	1	0	1	0	1	13
3:50 PM	0	5	0	5	1	1	1	3	0	3	1	4	1	1	0	2	14
3:55 PM	2	4	1	7	0	1	0	1	0	1	1	2	2	0	2	4	14
4:00 PM	1	2	0	3	0	3	0	3	0	0	0	0	1	0	1	7	7
4:05 PM	0	1	1	2	0	0	0	0	2	0	1	3	1	1	0	2	7
4:10 PM	1	3	1	5	1	3	0	4	2	1	1	4	1	1	0	2	15
4:15 PM	0	2	0	2	0	3	0	3	0	0	0	0	0	1	1	2	7
4:20 PM	1	3	2	6	0	5	0	5	0	0	0	0	0	2	0	2	13
4:25 PM	0	1	0	1	1	1	1	3	0	0	0	0	1	1	0	2	6
4:30 PM	0	2	0	2	1	0	0	1	1	1	0	2	0	2	1	3	8
4:35 PM	1	4	2	7	0	4	0	4	0	0	0	0	0	0	1	1	12
4:40 PM	1	1	0	2	0	4	2	6	0	2	1	3	1	0	0	1	12
4:45 PM	0	0	1	1	0	1	0	1	0	1	2	3	0	0	0	0	5
4:50 PM	0	1	0	1	0	0	0	0	0	1	1	2	0	1	0	1	4
4:55 PM	0	0	1	1	0	0	1	1	0	0	1	1	0	0	0	3	3
5:00 PM	0	0	0	0	0	2	1	3	0	1	2	3	0	1	0	1	7
5:05 PM	1	3	0	4	0	1	0	1	0	0	0	0	1	1	1	3	8
5:10 PM	0	0	0	0	1	3	0	4	0	0	0	0	1	1	0	2	6
5:15 PM	0	0	1	1	1	2	0	3	0	0	1	1	0	0	0	0	5
5:20 PM	1	1	0	2	0	1	0	1	1	1	1	3	1	0	0	1	7
5:25 PM	2	2	0	4	1	0	3	4	1	0	1	2	0	2	0	2	12
5:30 PM	0	0	0	0	0	1	0	1	1	0	0	1	0	1	0	1	3
5:35 PM	0	0	0	0	0	0	0	0	1	1	1	3	0	0	0	0	3
5:40 PM	0	1	0	1	1	6	0	7	1	0	0	1	0	1	0	1	10
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0	3	3
5:50 PM	0	1	0	1	0	1	0	1	3	2	0	5	0	0	0	7	7
5:55 PM	0	3	1	4	0	2	0	2	0	0	1	1	0	1	0	1	8
Total Survey	18	68	22	108	10	61	15	86	15	22	23	60	19	34	14	67	321

Heavy Vehicle 15-Minute Interval Summary 3:00 PM to 6:00 PM

Interval Start Time	Northbound Hwy 99			Southbound Hwy 99			Eastbound Molalla Rd			Westbound Molalla Rd			Interval Total				
	L	T	R	L	T	R	L	T	R	L	T	R					
3:00 PM	1	4	4	9	0	1	0	1	0	4	2	6	3	7	0	10	26
3:15 PM	4	10	3	17	1	5	2	8	2	3	1	6	1	2	1	4	35
3:30 PM	2	10	3	15	1	5	3	9	0	0	3	3	4	3	7	14	41
3:45 PM	2	13	2	17	1	7	2	10	0	4	3	7	3	2	2	7	41
4:00 PM	2	6	2	10	1	6	0	7	4	1	2	7	2	3	0	5	29
4:15 PM	1	6	2	9	1	9	1	11	0	0	0	0	1	4	1	6	26
4:30 PM	2	7	2	11	1	8	2	11	1	3	1	5	1	2	2	5	32
4:45 PM	0	1	2	3	0	1	1	2	0	2	4	6	0	1	0	1	12
5:00 PM	1	3	0	4	1	6	1	8	0	1	2	3	2	3	1	6	21
5:15 PM	3	3	1	7	2	3	3	8	2	1	3	6	1	2	0	3	24
5:30 PM	0	1	0	1	1	7	0	8	3	1	1	5	0	2	0	2	16
5:45 PM	0	4	1	5	0	3	0	3	3	2	1	6	1	3	0	4	18
Total Survey	18	68	22	108	10	61	15	86	15	22	23	60	19	34	14	67	321

Heavy Vehicle Peak Hour Summary 4:00 PM to 5:00 PM

By Approach	Northbound Hwy 99			Southbound Hwy 99			Eastbound Molalla Rd			Westbound Molalla Rd			Total
	In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total	
Volume	33	35	68	31	28	59	18	19	37	17	17	34	99
PHF	0.63			0.65			0.56			0.61			0.71

By Movement	Northbound Hwy 99				Southbound Hwy 99				Eastbound Molalla Rd				Westbound Molalla Rd				Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
Volume	5	20	8	33	3	24	4	31	5	6	7	18	4	10	3	17	99
PHF	0.63	0.63	0.67	0.63	0.38	0.55	0.50	0.65	0.31	0.38	0.44	0.56	0.50	0.50	0.38	0.61	0.71

Heavy Vehicle Rolling Hour Summary 3:00 PM to 6:00 PM

Interval Start Time	Northbound Hwy 99				Southbound Hwy 99				Eastbound Molalla Rd				Westbound Molalla Rd				Interval Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
3:00 PM	9	37	12	58	3	18	7	28	2	11	9	22	11	14	10	35	143
3:15 PM	10	39	10	59	4	23	7	34	6	8	9	23	10	10	10	30	146
3:30 PM	7	35	9	51	4	27	6	37	4	5	8	17	10	12	10	32	137
3:45 PM	7	32	8	47	4	30	5	39	5	8	6	19	7	11	5	23	128
4:00 PM	5	20	8	33	3	24	4	31	5	6	7	18	4	10	3	17	99
4:15 PM	4	17	6	27	3	24	5	32	1	6	7	14	4	10	4	18	91
4:30 PM	6	14	5	25	4	18	7	29	3	7	10	20	4	8	3	15	89
4:45 PM	4	8	3	15	4	17	5	26	5	5	10	20	3	8	1	12	73
5:00 PM	4	11	2	17	4	19	4	27	8	5	7	20	4	10	1	15	79

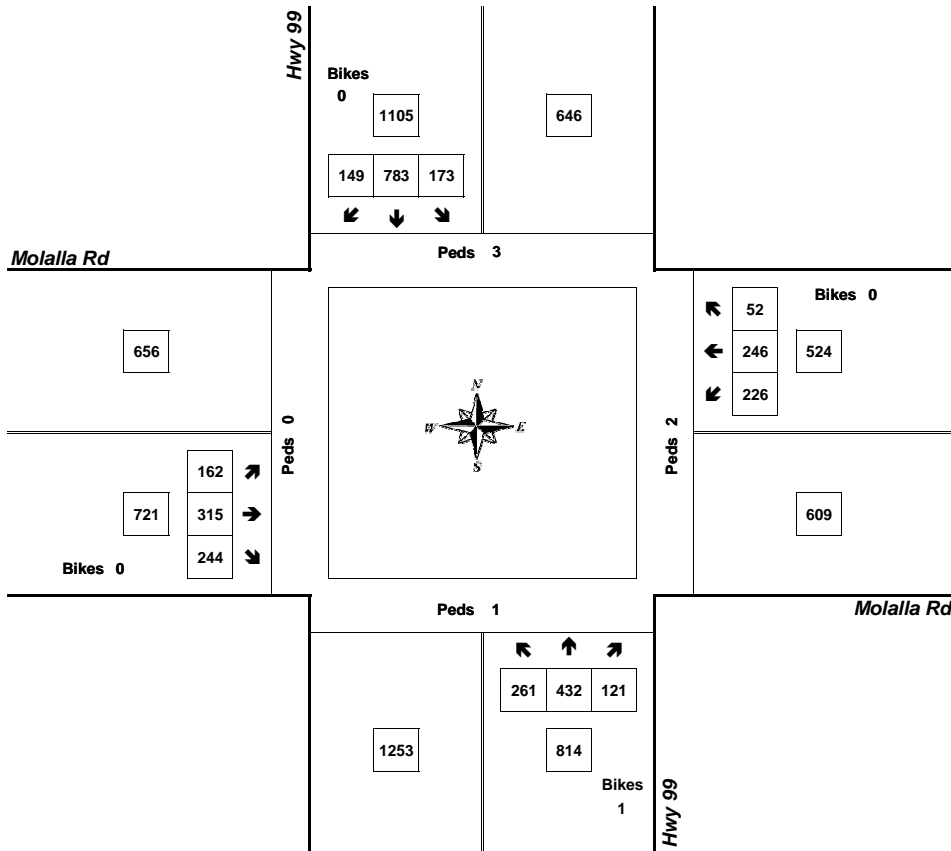
Peak Hour Summary



Clay Carney
(503) 833-2740

Hwy 99 & Molalla Rd

4:00 PM to 5:00 PM
Tuesday, April 09, 2019



Approach	PHF	HV%	Volume
EB	0.89	2.5%	721
WB	0.89	3.2%	524
NB	0.96	4.1%	814
SB	0.93	2.8%	1,105
Intersection	0.97	3.1%	3,164

Count Period: 3:00 PM to 6:00 PM

OREGON DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT
CONTINUOUS SYSTEM CRASH LISTING

081: PACIFIC HIGHWAY EAST

Highway 081 ALL ROAD TYPES, MP 31.5 to 32 01/01/2012 to 12/31/2016, Both Add and Non-Add mileage

17 - 20 of 50 Crash records shown.

SER#	P	R	S	W	DATE	COUNTY	RD#	FC	CONN#	RD CHAR	INT-TYPE	SPCL USE	TRLR	QTY	MOVE	A	S	G	E	LICNS	PED	ERROR	ACT	EVENT	CAUSE				
INVEST	E	A	U	C	O	CITY	COMPNT	FIRST	STREET	DIRECT	(MEDIAN)	INT-REL	OFFRD	WTHR	CRASH	TRLR	QTY	MOVE	PRTC	INJ	G	E	LICNS	PED	ERROR	ACT	EVENT	CAUSE	
RD DPT	E	L	G	H	R	URBAN AREA	MLG	TYP	SECOND	STREET	LOCTN	LEGS	TRAF-	RNDBT	SURF	COLL	OWNER	FROM	PRTC	INJ	G	E	LICNS	PED	ERROR	ACT	EVENT	CAUSE	
UNLOC?	D	C	S	L	K	LONG	MILEPNT	LRS			(#LANES)	CONTL	DRVWY	LIGHT	SVRTY	V#	TYPE	TO	P#	TYPE	SVRVTY	E	X	RES	LOC	ERROR	ACT	EVENT	CAUSE
02591	N	N	N	N	N	08/02/2014	MARION	1	14	INTER	CROSS	N	N	CLR	O-1STOP	01	NONE	0	STRGHT										10
CITY					SA	WOODBURN	MN	0	HILLSBORO-SILV HY	NE		TRF	SIGNAL	N	DRY	HEAD	PRVTE	SW-NE								000	000	00	
N					12P	WOODBURN UA	31.70		PACIFIC HY 99E	06	1			N	DAY	INJ	PSNGR	CAR		01	DRVR	INJC	36	M	SUSP	080	000	10	
N					45 9 4.6608479	-122 49 52.377168			008100100S00																				
																02	NONE	0	STOP										
																PRVTE		NE-SW									011	000	00
																PSNGR	CAR		01	DRVR	INJB	56	F	OR-Y	000	000	000	00	
03793	N	N	N		10/26/2014	MARION	1	14		INTER	CROSS	N	N	RAIN	S-1STOP	01	NONE	0	STRGHT									07	
NO RPT					SU	WOODBURN	MN	0	HILLSBORO-SILV HY	NE		TRF	SIGNAL	N	WET	REAR	PRVTE	NE-SW								000	000	00	
N					4P	WOODBURN UA	31.70		PACIFIC HY 99E	06	1			N	DAY	PDO	PSNGR	CAR		01	DRVR	NONE	00	M	OR-Y	026	000	07	
N					45 9 4.66	-122 49 52.38			008100100S00																				
																02	NONE	0	STOP										
																PRVTE		NE-SW									011	000	00
																PSNGR	CAR		01	DRVR	NONE	37	F	OR-Y	000	000	000	00	
02858	N	N	N		07/24/2015	MARION	1	14		INTER	CROSS	N	N	CLR	S-1STOP	01	NONE	0	STRGHT									29	
NONE					FR	WOODBURN	MN	0	HILLSBORO-SILV HY	NE		TRF	SIGNAL	N	DRY	REAR	PRVTE	NE-SW								000	000	00	
N					UNK	WOODBURN UA	31.70		PACIFIC HY 99E	06	1			N	DAY	PDO	PSNGR	CAR		01	DRVR	NONE	51	F	OR-Y	026	000	29	
N					45 9 4.66	-122 49 52.38			008100100S00																				
																02	NONE	0	STOP										
																PRVTE		NE-SW									011	000	00
																PSNGR	CAR		01	DRVR	NONE	00	M	OR-Y	000	000	000	00	
03475	N	Y	N	N	09/11/2015	MARION	1	14		INTER	CROSS	N	N	CLR	S-1STOP	01	NONE	0	STRGHT									013	07
CITY					FR	WOODBURN	MN	0	HILLSBORO-SILV HY	NE		TRF	SIGNAL	N	DRY	REAR	PRVTE	NE-SW								000	000	00	
N					8P	WOODBURN UA	31.70		PACIFIC HY 99E	06	1			N	DLIT	PDO	PSNGR	CAR		01	DRVR	NONE	67	M	OR-Y	043,026	000	07	
N					45 9 4.66	-122 49 52.38			008100100S00																				
																02	NONE	0	STOP										
																PRVTE		NE-SW									011	013	00
																PSNGR	CAR		01	DRVR	NONE	27	F	OR-Y	000	022	000	00	
																02	NONE	0	STOP										
																PRVTE		NE-SW									011	013	00
																PSNGR	CAR		02	PSNG	NO<5	01	M			000	000	00	
																03	UNKN	0	STOP										
																UNKN		NE-SW									011	000	00
																PSNGR	CAR		01	DRVR	NONE	00	Unk	UNK	UNK	000	000	000	00

Disclaimer: The information contained in this report is compiled from individual driver and police crash reports submitted to the Oregon Department of Transportation as required in ORS 811.720. The Crash Analysis and Reporting Unit is committed to providing the highest quality crash data to customers. However, because submittal of crash report forms is the responsibility of the individual driver, the Crash Analysis and Reporting Unit can not guarantee that all qualifying crashes are represented nor can assurances be made that all details pertaining to a single crash are accurate. Note: Legislative changes to DMV's vehicle crash reporting requirement, effective 01/01/2004, may result in fewer property damage only crashes being eligible for inclusion in the Statewide Crash Data File.

OREGON DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT
CONTINUOUS SYSTEM CRASH LISTING

081: PACIFIC HIGHWAY EAST

Highway 081 ALL ROAD TYPES, MP 31.5 to 32 01/01/2012 to 12/31/2016, Both Add and Non-Add mileage

30 - 33 of 50 Crash records shown.

SER#	P	R	S	W	DATE	COUNTY	RD#	FC	CONN#	RD CHAR	INT-TYPE	SPCL USE	MOVE		A	S	LICNS			PED	ERROR		ACT	EVENT	CAUSE						
INVEST	E	A	U	C	O	CITY	COMPNT	FIRST	STREET	DIRECT	(MEDIAN)	INT-REL	OFFRD	WTHR	CRASH	TRLR	QTY	FROM	PRTC	INJ	G	E	X	RES	LOC	ERROR	ACT	EVENT	CAUSE		
RD DPT	E	L	G	H	R	URBAN AREA	MLG	TYP	SECOND	STREET	LOCTN	LEGS	TRAF-	RNDBT	SURF	COLL	OWNER	FROM	PRTC	INJ	G	E	X	RES	LOC	ERROR	ACT	EVENT	CAUSE		
UNLOC?	D	C	S	L	K	LAT	LONG	MILEPNT	LRS		(#LANES)	CONTL	DRVWY	LIGHT	SVRTY	V#	TYPE	TO	P#	TYPE	SVRTY	E	X	RES	LOC	ERROR	ACT	EVENT	CAUSE		
																02	NONE	0	STRGHT												
																	PRVTE	S	-N									000	013	00	
																	PSNGR	CAR	01	DRVR	INJC	49	M	OR-Y		000	022		00		
																	02	NONE	0	STRGHT											
																	PRVTE	S	-N									000	013	00	
																	PSNGR	CAR	02	PSNG	INJC	10	M			000	000		00		
																	02	NONE	0	STRGHT											
																	PRVTE	S	-N									000	013	00	
																	PSNGR	CAR	03	PSNG	INJC	17	M			000	000		00		
																	03	NONE	0	STRGHT											
																	PRVTE	S	-N									000		00	
																	PSNGR	CAR	01	DRVR	NONE	71	M	OR-Y		000	000		00		
01709	N	N	N		05/11/2015	MARION	1	14		INTER	CROSS	N	N	CLR	ANGL-OTH	01	NONE	0	TURN-R											02	
CITY					MO	WOODBURN	MN	0	WOODBURN-ESTACADA H	CN				DRY	TURN		PRVTE	E	-N									000	00		
N					12P	WOODBURN UA	31.70		PACIFIC HY 99E	02	1			DAY	PDO		PSNGR	CAR	01	DRVR	NONE	19	F	OR-Y		028	000		02		
N					45 9 4.66	-122 49 52.38			008100100S00																						
																	02	NONE	1	STRGHT											
																	PRVTE	S	-N									000		00	
																	SEMI	TOW	01	DRVR	NONE	30	M	OTH-Y		000	000		00		
02787	N	N	N		07/04/2016	MARION	1	14		INTER	CROSS	N	N	CLR	ANGL-OTH	01	NONE	0	STRGHT											04	
CITY					MO	WOODBURN	MN	0	WOODBURN-ESTACADA H	CN				DRY	ANGL		PRVTE	W	-E									000	00		
N					9P	WOODBURN UA	31.70		PACIFIC HY 99E	04	1			DARK	INJ		PSNGR	CAR	01	DRVR	INJC	28	F	OR-Y		097	000		00		
N					45 9 4.66	-122 49 52.38			008100100S00																						
																	02	NONE	0	STRGHT											
																	PRVTE	S	-N									000		00	
																	PSNGR	CAR	01	DRVR	NONE	39	M	OR-Y		097	000		00		
05246	N	N	N	N	12/29/2015	MARION	1	14		STRGHT		N	N	RAIN	S-1STOP	01	NONE	0	STRGHT											29	
CITY					TU	WOODBURN	MN	0	PACIFIC HY 99E	S	(NONE)	L-GRN-SIG	N	WET	REAR		PRVTE	S	-N									000	00		
N					7A	WOODBURN UA	31.72		WOODBURN-ESTACADA H	05				DAY	PDO		PSNGR	CAR	01	DRVR	NONE	60	M	OR-Y		026	000		29		
N					45 9 3.78	-122 49 53.17			008100100S00		(05)																				
																	02	NONE	0	STOP											
																	PRVTE	S	-N									011	00		
																	PSNGR	CAR	01	DRVR	NONE	30	F	OR-Y		000	000		00		
03606	N	N	N		10/17/2013	MARION	1	14		STRGHT		N	N	CLR	S-STRGHT	01	NONE	1	STRGHT											13	
NONE					TH	WOODBURN	MN	0	PACIFIC HY 99E	S	(RSDMD)	UNKNOWN	N	DRY	SS-O		PRVTE	S	-N									000	00		
N					12P	WOODBURN UA	31.73		WOODBURN-ESTACADA H	05				DAY	PDO		SEMI	TOW	01	DRVR	NONE	51	M	OR-Y		045	000		13		
N					45 9 3.328776	-122 49 53.5778759			008100100S00		(04)																				

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TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT

CONTINUOUS SYSTEM CRASH LISTING

081: PACIFIC HIGHWAY EAST

Highway 081 ALL ROAD TYPES, MP 31.5 to 32 01/01/2012 to 12/31/2016, Both Add and Non-Add mileage

49 - 50 of 50 Crash records shown.

SER#	P	R	S	W	DATE	COUNTY	RD#	FC	CONN#	RD CHAR	INT-TYPE	SPCL USE	TRLR	QTY	MOVE	A	S	G	E	LICNS	PED	ERROR	ACT	EVENT	CAUSE		
INVEST	E	A	U	C	O	DAY	CITY	COMPNT	FIRST STREET	DIRECT	(MEDIAN)	INT-REL	OFFRD	WTHR	CRASH	OWNER	FROM	PRTC	INJ	E	X	RES	LOC				
RD DPT	E	L	G	H	R	TIME	URBAN AREA	MLG	TYP	SECOND STREET	LOCTN	LEGS	TRAF-	RNDBT	SURF	COLL	TO										
UNLOC?	D	C	S	L	K	LAT	LONG	MILEPNT	LRS	(#LANES)	CONTL	DRVWY	LIGHT	SVRTY	V#	TYPE		P#	TYPE	SVRTY							
															02	NONE	0										
03056	N	N	N	N	N	07/22/2016	MARION	1	14	STRGHT	N		N	CLR	S-STRGHT	01	NONE	9								29	
CITY						FR	WOODBURN	MN	0	PACIFIC HY 99E	NE	(NONE)	L-TURN REF	N	DRY	REAR	N/A									00	
N						5P	WOODBURN UA	31.96		ALEXANDRA AVE	05			N	DAY	PDO										00	
N						45 8 53.07	-122 50 2.57			008100100S00	(05)															00	
																										00	
																										00	
																										00	

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140: HILLSBORO-SILVERTON

Highway 140 ALL ROAD TYPES, MP 39.1 to 39.3 01/01/2012 to 12/31/2016, Both Add and Non-Add mileage

30 - 34 of 56 Crash records shown.

SER#	P	R	S	W	DATE	COUNTY	RD#	FC	CONN#	RD CHAR	INT-TYPE	SPCL USE	TRLR	QTY	MOVE	A	S	G	E	LICNS	PED	ERROR	ACT	EVENT	CAUSE							
INVEST	E	A	U	C	O	CITY	COMPNT	FIRST STREET	DIRECT	(MEDIAN)	INT-REL	OFFRD	WTHR	CRASH	OWNER	FROM	PRTC	INJ	G	E	LICNS	PED	ERROR	ACT	EVENT	CAUSE						
RD DPT	E	L	G	H	R	URBAN AREA	MLG	TYP	SECOND STREET	LOCTN	LEGS	TRAF-	RNDBT	SURF	COLL	OWNER	FROM	PRTC	INJ	G	E	LICNS	PED	ERROR	ACT	EVENT	CAUSE					
UNLOC?	D	C	S	L	K	LONG	MILEPNT	LRS			(#LANES)	CONTL	DRVWY	LIGHT	SVRTY	V#	TYPE	TO	P#	TYPE	SVRTY	E	X	RES	LOC	ERROR	ACT	EVENT	CAUSE			
															02	NONE	0	STRGHT														
															PRVTE		W	-E														
															PSNGR	CAR			01	DRVR	INJC	64	M	OR-Y		000		000		00		
01567	N	Y	N		05/01/2015	MARION	1	14							01	NONE	0	STRGHT										013	07			
NO RPT					FR	WOODBURN	MN	0	HILLSBORO-SILV HY	W	(NONE)	UNKNOWN	N	DRY	REAR	PRVTE		W	-E									000		00		
N					7P	WOODBURN UA	39.22		PACIFIC HY 99E	03			N	DAY	INJ	PSNGR	CAR			01	DRVR	NONE	38	M	OR-Y		026		000		07	
N					45 9 4.8	-122 49 57.7			014000100S00		(04)																					
															02	NONE	0	STOP														
															PRVTE		W	-E											011	013	00	
															PSNGR	CAR			01	DRVR	INJC	34	M	OR-Y		000		022		00		
															03	NONE	0	STOP														
															PRVTE		W	-E											011		00	
															PSNGR	CAR			01	DRVR	NONE	24	M	OR-Y		000		000		00		
03208	N	N	N		09/22/2012	MARION	1	14							01	NONE	0	STRGHT														
NONE					SA	WOODBURN	MN	0	HILLSBORO-SILV HY	W	(NONE)	R-TURN ALL	N	DRY	SS-O	PRVTE		W	-E										000		00	
N					7A	WOODBURN UA	39.23		PACIFIC HY 99E	03			N	DAY	PDO	PSNGR	CAR			01	DRVR	NONE	30	M	OR-Y		045		000		13	
N					45 9 4.7769395	-122 49 56.9401556			014000100S00		(03)																					
															02	NONE	0	STRGHT														
															PRVTE		W	-E												000		00
															PSNGR	CAR			01	DRVR	NONE	20	M	OR-Y		000		000		00		
02029	N	N	N	N	06/21/2013	MARION	1	14							01	NONE	0	TURN-R														
CITY					FR	WOODBURN	MN	0	HILLSBORO-SILV HY	W	(NONE)	R-TURN ALL	N	DRY	TURN	PRVTE		SW	-E										018		00	
N					10A	WOODBURN UA	39.23		PACIFIC HY 99E	03			N	DAY	INJ	PSNGR	CAR			01	DRVR	NONE	45	F	OR-Y		028		000		02	
N					45 9 4.7767679	-122 49 56.9346599			014000100S00		(05)																					
															02	NONE	0	STRGHT														
															PRVTE		W	-E												000		00
															PSNGR	CAR			01	DRVR	INJB	85	F	OR-Y		000		000		00		
00166	N	N	N	N	01/16/2015	MARION	1	14							01	NONE	0	STRGHT														
CITY					FR	WOODBURN	MN	0	HILLSBORO-SILV HY	W	(NONE)	UNKNOWN	N	DRY	TURN	PRVTE		W	-E										000		00	
N					4P	WOODBURN UA	39.23		PACIFIC HY 99E	03			N	DAY	INJ	PSNGR	CAR			01	DRVR	INJC	53	M	OR-Y		000		000		00	
N					45 9 4.78	-122 49 56.94			014000100S00		(03)																					
															02	NONE	0	TURN-L														
															PRVTE		E	-SW											019		00	
															PSNGR	CAR			01	DRVR	INJC	59	F	OR-Y		028,004,005	000	000		02		

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OREGON DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT
CONTINUOUS SYSTEM CRASH LISTING

140: HILLSBORO-SILVERTON

Highway 140 ALL ROAD TYPES, MP 39.1 to 39.3 01/01/2012 to 12/31/2016, Both Add and Non-Add mileage

35 - 38 of 56 Crash records shown.

SER#	P	R	S	W	DATE	COUNTY	RD#	FC	CONN#	RD CHAR	INT-TYPE	SPCL USE	TRLR	QTY	MOVE	A	S	UNLOC?	D	C	S	L	K	LAT	LONG	MILEPNT	LRS	ACT	EVENT	CAUSE			
INVEST	E	A	U	C	O	CITY	COMPNT	FIRST	STREET	DIRECT	(MEDIAN)	INT-REL	OFFRD	WTHR	CRASH	OWNER	FROM	PRTC	INJ	G	E	LICNS	PED	ERROR	ACT	EVENT	CAUSE						
RD DPT	E	L	G	H	R	URBAN AREA	MLG	TYP	SECOND	STREET	LOCTN	LEGS	TRAF-	RNDBT	SURF	COLL	OWNER	FROM	PRTC	INJ	G	E	LICNS	PED	ERROR	ACT	EVENT	CAUSE					
UNLOC?	D	C	S	L	K	LONG	MILEPNT	LRS	(#LANES)	CONTL	DRVWY	LIGHT	SVRTY	V#	TYPE	TO	P#	TYPE	SVRTY	E	X	RES	LOC	ERROR	ACT	EVENT	CAUSE						
00009	N	N	N		01/02/2015	MARION	1	14		ALLEY	N		N	CLR	ANGL-OTH	01	NONE	0												02			
NONE					FR	WOODBURN	MN	0	HILLSBORO-SILV	HY	W	(NONE)	UNKNOWN	N	DRY	TURN	PRVTE	SW-W											018	00			
N					12P	WOODBURN UA	39.23		PACIFIC HY 99E	05				N	DAY	PDO	PSNGR	CAR											028	000	02		
N					45 9 4.78	-122 49 56.94			014000100S00			(04)																					
																	02	NONE	0														
																	STRGHT	E -W												000	000	00	
																	01	DRVR	NONE	58	F	OR-Y	OR<25						000	000	00		
05598	N	N	N		12/16/2016	MARION	1	14		STRGHT	Y		N	UNK	S-1STOP	01	NONE	9												29			
NONE					FR	WOODBURN	MN	0	HILLSBORO-SILV	HY	W	(NONE)	UNKNOWN	N	UNK	REAR	N/A	W -E												000	00		
N					4P	WOODBURN UA	39.24		PACIFIC HY 99E	00				N	DAY	PDO	PSNGR	CAR												000	000	00	
N					45 9 4.76	-122 49 56.18			014000100S00			(04)																					
																	02	NONE	9														
																	STOP	W -E													011	00	
																	01	DRVR	NONE	00	Unk	UNK	UNK						000	000	00		
01538	N	N	N		05/09/2012	MARION	1	14		ALLEY	N		N	CLR	O-1 L-TURN	01	NONE	0													02		
CITY					WE	WOODBURN	MN	0	HILLSBORO-SILV	HY	W	(NONE)	UNKNOWN	N	DRY	TURN	PRVTE	E -SW												019	00		
N					6P	WOODBURN UA	39.24		PACIFIC HY 99E	03				N	DAY	INJ	PSNGR	CAR												004,028	000	02	
N					45 9 4.7578604	-122 49 56.1901106			014000100S00			(03)																					
																	02	NONE	0														
																	STRGHT	W -E													000	00	
																	01	DRVR	INJC	30	F	OR-Y	OR<25						000	000	00		
03446	N	N	N		10/04/2013	MARION	1	14		STRGHT	N		N	CLR	S-1STOP	01	NONE	0													013	07	
CITY					FR	WOODBURN	MN	0	HILLSBORO-SILV	HY	W	(NONE)	UNKNOWN	N	DRY	REAR	PRVTE	W -E													000	00	
N					5P	WOODBURN UA	39.25		PACIFIC HY 99E	03				N	DAY	INJ	PSNGR	CAR													026	000	07
N					45 9 4.7381039	-122 49 55.4148839			014000100S00			(04)																					
																	02	NONE	0														
																	STOP	W -E													011	013	00
																	01	DRVR	INJC	22	F	OR-Y	OR<25						000	000	00		
																	03	NONE	0														
																	STOP	W -E													022	00	
																	01	DRVR	INJC	35	M	OR-Y	OR<25						000	000	00		
00054	N	N	N		01/07/2014	MARION	1	14		STRGHT	Y		N	RAIN	S-1STOP	01	NONE	0													07		
NONE					TU	WOODBURN	MN	0	HILLSBORO-SILV	HY	W	(NONE)	UNKNOWN	N	WET	REAR	PRVTE	W -E													000	00	
N					3P	WOODBURN UA	39.25		PACIFIC HY 99E	03				N	DAY	INJ	PSNGR	CAR													026	000	07
N					45 9 4.738176	-122 49 55.416684			014000100S00			(03)																					

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TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT

CONTINUOUS SYSTEM CRASH LISTING

140: HILLSBORO-SILVERTON

Highway 140 ALL ROAD TYPES, MP 39.1 to 39.3 01/01/2012 to 12/31/2016, Both Add and Non-Add mileage

39 - 43 of 56 Crash records shown.

Table with columns: SER#, INVEST, RD DPT, UNLOC?, S, D, P, R, S, W DATE, COUNTY, RD# FC, CONN#, RD CHAR, INT-TYPE, SPCL USE, TRLR QTY, MOVE, PRTC, INJ, G, E, LICNS, PED, ERROR, ACT, EVENT, CAUSE. Contains detailed crash data for various locations including Marion and Woodburn.

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TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT

CONTINUOUS SYSTEM CRASH LISTING

140: HILLSBORO-SILVERTON

Highway 140 ALL ROAD TYPES, MP 39.1 to 39.3 01/01/2012 to 12/31/2016, Both Add and Non-Add mileage

53 - 56 of 56 Crash records shown.

SER#	P	R	S	W	DATE	COUNTY	RD#	FC	CONN#	RD CHAR	INT-TYPE	SPCL USE	TRLR	QTY	MOVE	A	S	G	E	LICNS	PED	ERROR	ACT	EVENT	CAUSE								
INVEST	E	A	U	C	O	DAY	CITY	COMPNT	FIRST STREET	DIRECT	(MEDIAN)	INT-REL	OFFRD	WTHR	CRASH	OWNER	FROM	PRTC	INJ	RES	LOC	ERROR	ACT	EVENT	CAUSE								
RD DPT	E	L	G	H	R	TIME	URBAN AREA	MLG	TYP	SECOND STREET	LOCTN	LEGS	TRAF-	RNDBT	SURF	COLL	OWNER	FROM	P#	TYPE	SVR	TY	RES	LOC	ERROR	ACT	EVENT	CAUSE					
UNLOC?	D	C	S	L	K	LAT	LONG	MILEPNT	LRS	(#LANES)	CONTL	DRVWY	LIGHT	SVR	TY	V#	TYPE	TO	P#	TYPE	SVR	TY	RES	LOC	ERROR	ACT	EVENT	CAUSE					
01912	N	N	N		06/10/2012	MARION	1	14		INTER	CROSS	N	N	CLR	S-1STOP	01	NONE	0															
NONE				SU		WOODBURN	MN	0	HILLSBORO-SILV HY	W			N	DRY	REAR	PRVTE	W -E									000	000	27	00				
N				6P		WOODBURN UA	39.29		PACIFIC HY 99E	06	1		N	DAY	INJ	PSNGR CAR			01	DRVR	NONE	16	F	OTH-Y	016,026	000		27					
N				45 9 4.66	08535	-122 49 52.3771564			014000100S00																								
																02	NONE	0															
																PRVTE	W -E																
																PSNGR CAR			01	DRVR	INJB	25	F	OR-Y	000	000	000	000	00	00			
05183	N	N	N	N	12/23/2015	MARION	1	14		INTER	CROSS	N	N	RAIN	O-1STOP	01	NONE	0															
CITY				WE		WOODBURN	MN	0	HILLSBORO-SILV HY	W			N	WET	BACK	PRVTE	E -W																
N				1P		WOODBURN UA	39.29		PACIFIC HY 99E	06	1		N	DAY	INJ	PSNGR CAR			01	DRVR	NONE	58	M	OR-Y	011	000		10					
N				45 9 4.66		-122 49 52.38			014000100S00																								
																02	NONE	0															
																PRVTE	W -E																
																PSNGR CAR			01	DRVR	INJC	31	F	OR-Y	000	000	000	000	00	00	00		
00603	N	N	N		02/09/2015	MARION	1	14		INTER	CROSS	N	N	CLR	S-1STOP	01	NONE	0															
NONE				MO		WOODBURN	MN	0	HILLSBORO-SILV HY	W			N	DRY	REAR	PRVTE	W -E																
N				UNK		WOODBURN UA	39.29		PACIFIC HY 99E	06	0		N	DAY	PDO	PSNGR CAR			01	DRVR	NONE	00	Unk	UNK	026	000		29					
N				45 9 4.66		-122 49 52.38			014000100S00																								
																02	NONE	0															
																PRVTE	W -E																
																PSNGR CAR			01	DRVR	NONE	45	M	OR-Y	000	000	000	000	00	00	00	00	
01653	N	N	N	N	05/07/2015	MARION	1	14		INTER	CROSS	N	N	CLR	S-1STOP	01	NONE	0															
CITY				TH		WOODBURN	MN	0	HILLSBORO-SILV HY	W			N	DRY	REAR	PRVTE	W -E																
N				2P		WOODBURN UA	39.29		PACIFIC HY 99E	06	1		N	DAY	PDO	PSNGR CAR			01	DRVR	NONE	23	M	OR-Y	043,026	000		07					
N				45 9 4.66		-122 49 52.38			014000100S00																								
																02	NONE	0															
																PRVTE	W -E																
																PSNGR CAR			01	DRVR	NONE	42	M	OR-Y	000	000	000	000	00	00	00	00	

Disclaimer: The information contained in this report is compiled from individual driver and police crash reports submitted to the Oregon Department of Transportation as required in ORS 811.720. The Crash Analysis and Reporting Unit is committed to providing the highest quality crash data to customers. However, because submittal of crash report forms is the responsibility of the individual driver, the Crash Analysis and Reporting Unit can not guarantee that all qualifying crashes are represented nor can assurances be made that all details pertaining to a single crash are accurate. Note: Legislative changes to DMV's vehicle crash reporting requirement, effective 01/01/2004, may result in fewer property damage only crashes being eligible for inclusion in the Statewide Crash Data File.

HCM Signalized Intersection Capacity Analysis

1: Pacific Highway & Mt Hood Avenue/Molalla Road

05/06/2019



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↑	↗	↖	↗		↖↗	↑↑	↗	↖	↑↗	
Traffic Volume (vph)	115	174	59	115	213	85	117	609	134	55	237	87
Future Volume (vph)	115	174	59	115	213	85	117	609	134	55	237	87
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	4.5	5.5	5.5	4.5	5.5		4.5	5.5	5.5	4.5	5.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		0.97	0.95	1.00	1.00	0.95	
Frpb, ped/bikes	1.00	1.00	0.99	1.00	1.00		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	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.96		1.00	1.00	0.85	1.00	0.96	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1511	1591	1334	1539	1545		3014	3107	1390	1484	2838	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1511	1591	1334	1539	1545		3014	3107	1390	1484	2838	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	119	179	61	119	220	88	121	628	138	57	244	90
RTOR Reduction (vph)	0	0	44	0	12	0	0	0	98	0	31	0
Lane Group Flow (vph)	119	179	17	119	296	0	121	628	40	57	303	0
Confl. Peds. (#/hr)			1			1						1
Heavy Vehicles (%)	10%	10%	10%	8%	8%	8%	7%	7%	7%	12%	12%	12%
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA	Perm	Prot	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2						8			
Actuated Green, G (s)	9.9	24.1	24.1	9.8	24.0		6.5	24.6	24.6	6.8	24.9	
Effective Green, g (s)	9.9	24.1	24.1	9.8	24.0		6.5	24.6	24.6	6.8	24.9	
Actuated g/C Ratio	0.12	0.28	0.28	0.11	0.28		0.08	0.29	0.29	0.08	0.29	
Clearance Time (s)	4.5	5.5	5.5	4.5	5.5		4.5	5.5	5.5	4.5	5.5	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	175	449	376	176	434		229	896	400	118	828	
v/s Ratio Prot	c0.08	0.11		0.08	c0.19		c0.04	c0.20		0.04	0.11	
v/s Ratio Perm			0.01						0.03			
v/c Ratio	0.68	0.40	0.05	0.68	0.68		0.53	0.70	0.10	0.48	0.37	
Uniform Delay, d1	36.2	24.7	22.2	36.2	27.3		37.9	27.1	22.2	37.6	23.9	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	10.4	0.6	0.1	9.8	4.4		2.2	2.5	0.1	3.1	0.3	
Delay (s)	46.5	25.3	22.3	46.1	31.6		40.1	29.6	22.3	40.7	24.2	
Level of Service	D	C	C	D	C		D	C	C	D	C	
Approach Delay (s)		31.8			35.7			29.9			26.6	
Approach LOS		C			D			C			C	

Intersection Summary

HCM 2000 Control Delay	30.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	85.3	Sum of lost time (s)	20.0
Intersection Capacity Utilization	63.0%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Intersection						
Int Delay, s/veh	0.2					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	11	10	5	908	412	9
Future Vol, veh/h	11	10	5	908	412	9
Conflicting Peds, #/hr	0	0	2	0	0	1
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	165	-	-	-
Veh in Median Storage, #	2	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	0	0	6	6	10	10
Mvmt Flow	11	10	5	946	429	9

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	919	221	441	0	-	0
Stage 1	436	-	-	-	-	-
Stage 2	483	-	-	-	-	-
Critical Hdwy	6.8	6.9	4.22	-	-	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.26	-	-	-
Pot Cap-1 Maneuver	274	789	1087	-	-	-
Stage 1	625	-	-	-	-	-
Stage 2	592	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	272	787	1087	-	-	-
Mov Cap-2 Maneuver	469	-	-	-	-	-
Stage 1	624	-	-	-	-	-
Stage 2	588	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	11.4	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1087	-	581	-	-
HCM Lane V/C Ratio	0.005	-	0.038	-	-
HCM Control Delay (s)	8.3	-	11.4	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

HCM Signalized Intersection Capacity Analysis

1: Pacific Highway & Mt Hood Avenue/Molalla Road

05/06/2019



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↑	↗	↖	↗		↖↗	↑↑	↗	↖	↑↗	
Traffic Volume (vph)	162	315	244	226	246	52	261	432	121	173	783	149
Future Volume (vph)	162	315	244	226	246	52	261	432	121	173	783	149
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	4.5	5.5	5.5	4.5	5.5		4.5	5.5	5.5	4.5	5.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		0.97	0.95	1.00	1.00	0.95	
Frbp, ped/bikes	1.00	1.00	0.99	1.00	1.00		1.00	1.00	0.97	1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.97		1.00	1.00	0.85	1.00	0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1614	1699	1424	1614	1649		3101	3197	1393	1614	3151	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1614	1699	1424	1614	1649		3101	3197	1393	1614	3151	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	167	325	252	233	254	54	269	445	125	178	807	154
RTOR Reduction (vph)	0	0	195	0	7	0	0	0	90	0	13	0
Lane Group Flow (vph)	167	325	57	233	301	0	269	445	35	178	948	0
Confl. Peds. (#/hr)			1			3			2			
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	4%	4%	4%	3%	3%	3%
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA	Perm	Prot	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2						8			
Actuated Green, G (s)	15.2	25.8	25.8	19.2	29.8		12.3	31.5	31.5	17.3	36.5	
Effective Green, g (s)	15.2	25.8	25.8	19.2	29.8		12.3	31.5	31.5	17.3	36.5	
Actuated g/C Ratio	0.13	0.23	0.23	0.17	0.26		0.11	0.28	0.28	0.15	0.32	
Clearance Time (s)	4.5	5.5	5.5	4.5	5.5		4.5	5.5	5.5	4.5	5.5	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	215	385	322	272	431		335	884	385	245	1010	
v/s Ratio Prot	0.10	c0.19		c0.14	c0.18		0.09	0.14		c0.11	c0.30	
v/s Ratio Perm			0.04						0.02			
v/c Ratio	0.78	0.84	0.18	0.86	0.70		0.80	0.50	0.09	0.73	0.94	
Uniform Delay, d1	47.7	42.1	35.5	46.0	38.0		49.6	34.6	30.5	46.0	37.6	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	16.0	15.4	0.3	22.3	4.9		13.0	0.5	0.1	10.2	15.5	
Delay (s)	63.7	57.5	35.7	68.3	42.9		62.6	35.0	30.6	56.2	53.1	
Level of Service	E	E	D	E	D		E	D	C	E	D	
Approach Delay (s)		51.5			53.8			43.2			53.6	
Approach LOS		D			D			D			D	

Intersection Summary			
HCM 2000 Control Delay	50.5	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.88		
Actuated Cycle Length (s)	113.8	Sum of lost time (s)	20.0
Intersection Capacity Utilization	85.0%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

HCM 2010 TWSC
 2: Pacific Highway & Alexnadra Avenue

05/06/2019

Intersection						
Int Delay, s/veh	0.4					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	W		W	↑↑	↑↑	
Traffic Vol, veh/h	14	17	13	963	1326	22
Future Vol, veh/h	14	17	13	963	1326	22
Conflicting Peds, #/hr	0	0	12	0	0	12
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	165	-	-	-
Veh in Median Storage, #	2	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	0	3	3	3	3
Mvmt Flow	15	18	14	1014	1396	23

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	1953	721	1431	0	-	0
Stage 1	1419	-	-	-	-	-
Stage 2	534	-	-	-	-	-
Critical Hdwy	6.8	6.9	4.16	-	-	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.23	-	-	-
Pot Cap-1 Maneuver	57	374	466	-	-	-
Stage 1	193	-	-	-	-	-
Stage 2	558	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	54	370	466	-	-	-
Mov Cap-2 Maneuver	174	-	-	-	-	-
Stage 1	191	-	-	-	-	-
Stage 2	535	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	21.9	0.2	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	466	-	245	-	-
HCM Lane V/C Ratio	0.029	-	0.133	-	-
HCM Control Delay (s)	13	-	21.9	-	-
HCM Lane LOS	B	-	C	-	-
HCM 95th %tile Q(veh)	0.1	-	0.5	-	-

HCM Signalized Intersection Capacity Analysis

1: Pacific Highway & Mt Hood Avenue/Molalla Road

05/06/2019



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	126	190	65	126	232	93	128	669	147	60	261	95
Future Volume (vph)	126	190	65	126	232	93	128	669	147	60	261	95
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	4.5	5.5	5.5	4.5	5.5		4.5	5.5	5.5	4.5	5.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		0.97	0.95	1.00	1.00	0.95	
Frbp, ped/bikes	1.00	1.00	0.99	1.00	1.00		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	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.96		1.00	1.00	0.85	1.00	0.96	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1511	1591	1334	1539	1545		3014	3107	1390	1484	2840	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1511	1591	1334	1539	1545		3014	3107	1390	1484	2840	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	130	196	67	130	239	96	132	690	152	62	269	98
RTOR Reduction (vph)	0	0	49	0	13	0	0	0	106	0	32	0
Lane Group Flow (vph)	130	196	18	130	322	0	132	690	46	62	335	0
Confl. Peds. (#/hr)			1			1						1
Heavy Vehicles (%)	10%	10%	10%	8%	8%	8%	7%	7%	7%	12%	12%	12%
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA	Perm	Prot	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2						8			
Actuated Green, G (s)	13.4	25.1	25.1	13.5	25.2		9.2	28.3	28.3	7.0	26.1	
Effective Green, g (s)	13.4	25.1	25.1	13.5	25.2		9.2	28.3	28.3	7.0	26.1	
Actuated g/C Ratio	0.14	0.27	0.27	0.14	0.27		0.10	0.30	0.30	0.07	0.28	
Clearance Time (s)	4.5	5.5	5.5	4.5	5.5		4.5	5.5	5.5	4.5	5.5	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	215	425	356	221	414		295	936	418	110	789	
v/s Ratio Prot	c0.09	0.12		0.08	c0.21		c0.04	c0.22		0.04	0.12	
v/s Ratio Perm			0.01						0.03			
v/c Ratio	0.60	0.46	0.05	0.59	0.78		0.45	0.74	0.11	0.56	0.42	
Uniform Delay, d1	37.8	28.7	25.5	37.6	31.8		40.0	29.5	23.7	42.0	27.8	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	4.7	0.8	0.1	4.0	8.9		1.1	3.1	0.1	6.5	0.4	
Delay (s)	42.5	29.5	25.6	41.6	40.7		41.0	32.5	23.8	48.4	28.1	
Level of Service	D	C	C	D	D		D	C	C	D	C	
Approach Delay (s)		33.2			40.9			32.3			31.1	
Approach LOS		C			D			C			C	

Intersection Summary

HCM 2000 Control Delay	34.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	93.9	Sum of lost time (s)	20.0
Intersection Capacity Utilization	67.4%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM 2010 TWSC
 2: Pacific Highway & Alexnadra Avenue

05/06/2019

Intersection						
Int Delay, s/veh	0.2					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	11	10	5	997	452	9
Future Vol, veh/h	11	10	5	997	452	9
Conflicting Peds, #/hr	0	0	2	0	0	1
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	100	-	-	-
Veh in Median Storage, #	2	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	0	0	6	6	10	10
Mvmt Flow	11	10	5	1039	471	9

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	1008	242	482	0	-	0
Stage 1	478	-	-	-	-	-
Stage 2	530	-	-	-	-	-
Critical Hdwy	6.8	6.9	4.22	-	-	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.26	-	-	-
Pot Cap-1 Maneuver	240	765	1049	-	-	-
Stage 1	595	-	-	-	-	-
Stage 2	560	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	238	764	1049	-	-	-
Mov Cap-2 Maneuver	438	-	-	-	-	-
Stage 1	594	-	-	-	-	-
Stage 2	556	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	11.8	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1049	-	550	-	-
HCM Lane V/C Ratio	0.005	-	0.04	-	-
HCM Control Delay (s)	8.4	-	11.8	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

HCM Signalized Intersection Capacity Analysis

1: Pacific Highway & Mt Hood Avenue/Molalla Road

05/06/2019



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	177	343	267	248	268	57	286	475	133	189	861	163
Future Volume (vph)	177	343	267	248	268	57	286	475	133	189	861	163
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	4.5	5.5	5.5	4.5	5.5		4.5	5.5	5.5	4.5	5.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		0.97	0.95	1.00	1.00	0.95	
Frpb, ped/bikes	1.00	1.00	0.99	1.00	1.00		1.00	1.00	0.97	1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.97		1.00	1.00	0.85	1.00	0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1614	1699	1424	1614	1649		3101	3197	1392	1614	3151	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1614	1699	1424	1614	1649		3101	3197	1392	1614	3151	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	182	354	275	256	276	59	295	490	137	195	888	168
RTOR Reduction (vph)	0	0	208	0	7	0	0	0	99	0	13	0
Lane Group Flow (vph)	182	354	67	256	328	0	295	490	38	195	1043	0
Confl. Peds. (#/hr)			1			3			2			
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	4%	4%	4%	3%	3%	3%
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA	Perm	Prot	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2						8			
Actuated Green, G (s)	15.5	26.6	26.6	20.2	31.3		12.5	32.9	32.9	19.1	39.5	
Effective Green, g (s)	15.5	26.6	26.6	20.2	31.3		12.5	32.9	32.9	19.1	39.5	
Actuated g/C Ratio	0.13	0.22	0.22	0.17	0.26		0.11	0.28	0.28	0.16	0.33	
Clearance Time (s)	4.5	5.5	5.5	4.5	5.5		4.5	5.5	5.5	4.5	5.5	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	210	380	318	274	434		326	885	385	259	1047	
v/s Ratio Prot	0.11	c0.21		c0.16	0.20		c0.10	0.15		0.12	c0.33	
v/s Ratio Perm			0.05						0.03			
v/c Ratio	0.87	0.93	0.21	0.93	0.76		0.90	0.55	0.10	0.75	1.00	
Uniform Delay, d1	50.6	45.2	37.5	48.6	40.2		52.6	36.7	31.9	47.6	39.6	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	29.1	29.3	0.3	36.9	7.4		27.0	0.8	0.1	11.7	26.8	
Delay (s)	79.7	74.5	37.9	85.5	47.6		79.6	37.4	32.0	59.3	66.3	
Level of Service	E	E	D	F	D		E	D	C	E	E	
Approach Delay (s)		63.3			64.0			50.1			65.2	
Approach LOS		E			E			D			E	
Intersection Summary												
HCM 2000 Control Delay			60.7				HCM 2000 Level of Service			E		
HCM 2000 Volume to Capacity ratio			0.95									
Actuated Cycle Length (s)			118.8			Sum of lost time (s)			20.0			
Intersection Capacity Utilization			91.5%			ICU Level of Service			F			
Analysis Period (min)			15									
c Critical Lane Group												

HCM 2010 TWSC
 2: Pacific Highway & Alexnadra Avenue

05/06/2019

Intersection						
Int Delay, s/veh	0.4					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	15	18	14	1058	1456	23
Future Vol, veh/h	15	18	14	1058	1456	23
Conflicting Peds, #/hr	0	0	12	0	0	12
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	165	-	-	-
Veh in Median Storage, #	2	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	0	3	3	3	3
Mvmt Flow	16	19	15	1114	1533	24

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	2143	790	1569	0	-	0
Stage 1	1557	-	-	-	-	-
Stage 2	586	-	-	-	-	-
Critical Hdwy	6.8	6.9	4.16	-	-	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.23	-	-	-
Pot Cap-1 Maneuver	43	337	412	-	-	-
Stage 1	162	-	-	-	-	-
Stage 2	525	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	40	333	412	-	-	-
Mov Cap-2 Maneuver	146	-	-	-	-	-
Stage 1	160	-	-	-	-	-
Stage 2	500	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	25.5	0.2	0
HCM LOS	D		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	412	-	210	-	-
HCM Lane V/C Ratio	0.036	-	0.165	-	-
HCM Control Delay (s)	14.1	-	25.5	-	-
HCM Lane LOS	B	-	D	-	-
HCM 95th %tile Q(veh)	0.1	-	0.6	-	-

HCM Signalized Intersection Capacity Analysis

1: Pacific Highway & Mt Hood Avenue/Molalla Road

05/06/2019



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↑	↗	↖	↗		↖↗	↑↑	↗	↖	↑↗	
Traffic Volume (vph)	126	190	74	126	232	93	155	677	147	60	264	95
Future Volume (vph)	126	190	74	126	232	93	155	677	147	60	264	95
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	4.5	5.5	5.5	4.5	5.5		4.5	5.5	5.5	4.5	5.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		0.97	0.95	1.00	1.00	0.95	
Frbp, ped/bikes	1.00	1.00	0.99	1.00	1.00		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	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.96		1.00	1.00	0.85	1.00	0.96	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1511	1591	1334	1539	1545		3014	3107	1390	1484	2841	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1511	1591	1334	1539	1545		3014	3107	1390	1484	2841	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	130	196	76	130	239	96	160	698	152	62	272	98
RTOR Reduction (vph)	0	0	56	0	13	0	0	0	106	0	31	0
Lane Group Flow (vph)	130	196	20	130	322	0	160	698	46	62	339	0
Confl. Peds. (#/hr)			1			1						1
Heavy Vehicles (%)	10%	10%	10%	8%	8%	8%	7%	7%	7%	12%	12%	12%
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA	Perm	Prot	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2						8			
Actuated Green, G (s)	13.4	25.1	25.1	13.5	25.2		10.2	28.6	28.6	7.0	25.4	
Effective Green, g (s)	13.4	25.1	25.1	13.5	25.2		10.2	28.6	28.6	7.0	25.4	
Actuated g/C Ratio	0.14	0.27	0.27	0.14	0.27		0.11	0.30	0.30	0.07	0.27	
Clearance Time (s)	4.5	5.5	5.5	4.5	5.5		4.5	5.5	5.5	4.5	5.5	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	214	423	355	220	413		326	943	422	110	766	
v/s Ratio Prot	c0.09	0.12		0.08	c0.21		c0.05	c0.22		0.04	0.12	
v/s Ratio Perm			0.02						0.03			
v/c Ratio	0.61	0.46	0.06	0.59	0.78		0.49	0.74	0.11	0.56	0.44	
Uniform Delay, d1	37.9	28.9	25.7	37.8	31.9		39.6	29.5	23.6	42.1	28.5	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	4.8	0.8	0.1	4.2	9.0		1.2	3.2	0.1	6.5	0.4	
Delay (s)	42.7	29.7	25.8	42.0	40.9		40.7	32.6	23.7	48.6	28.9	
Level of Service	D	C	C	D	D		D	C	C	D	C	
Approach Delay (s)		33.2			41.2			32.6			31.8	
Approach LOS		C			D			C			C	

Intersection Summary		
HCM 2000 Control Delay	34.3	HCM 2000 Level of Service
HCM 2000 Volume to Capacity ratio	0.72	C
Actuated Cycle Length (s)	94.2	Sum of lost time (s)
Intersection Capacity Utilization	67.6%	20.0
Analysis Period (min)	15	ICU Level of Service
		C

c Critical Lane Group

Intersection												
Int Delay, s/veh	0.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↕	↕		↕	↕	
Traffic Vol, veh/h	11	0	10	19	0	35	5	997	7	12	452	9
Future Vol, veh/h	11	0	10	19	0	35	5	997	7	12	452	9
Conflicting Peds, #/hr	0	0	0	0	0	0	2	0	0	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	-	-	-	-	-	-	100	-	-	100	-	-
Veh in Median Storage, #	-	2	-	-	2	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	96	92	96	96	96	96	96	96	92	92	96	96
Heavy Vehicles, %	0	2	0	2	2	2	6	6	2	2	10	10
Mvmt Flow	11	0	10	20	0	36	5	1039	8	13	471	9

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	1034	1561	242	1315	1561	523	482	0	0	1046	0	0
Stage 1	504	504	-	1053	1053	-	-	-	-	-	-	-
Stage 2	530	1057	-	262	508	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.54	6.9	7.54	6.54	6.94	4.22	-	-	4.14	-	-
Critical Hdwy Stg 1	6.5	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4.02	3.3	3.52	4.02	3.32	2.26	-	-	2.22	-	-
Pot Cap-1 Maneuver	189	111	765	116	111	499	1049	-	-	661	-	-
Stage 1	524	539	-	242	301	-	-	-	-	-	-	-
Stage 2	506	300	-	720	537	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	172	108	764	112	108	499	1049	-	-	661	-	-
Mov Cap-2 Maneuver	360	252	-	224	261	-	-	-	-	-	-	-
Stage 1	521	527	-	241	300	-	-	-	-	-	-	-
Stage 2	467	299	-	696	525	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	12.8	17.3	0	0.3
HCM LOS	B	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1049	-	-	481	348	661	-
HCM Lane V/C Ratio	0.005	-	-	0.045	0.162	0.02	-
HCM Control Delay (s)	8.4	-	-	12.8	17.3	10.6	-
HCM Lane LOS	A	-	-	B	C	B	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0.6	0.1	-

HCM Signalized Intersection Capacity Analysis

1: Pacific Highway & Mt Hood Avenue/Molalla Road

05/06/2019



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↑	↗	↖	↗		↖↗	↑↑	↗	↖	↖↗	
Traffic Volume (vph)	177	343	295	248	268	57	304	480	133	189	869	163
Future Volume (vph)	177	343	295	248	268	57	304	480	133	189	869	163
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	4.5	5.5	5.5	4.5	5.5		4.5	5.5	5.5	4.5	5.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		0.97	0.95	1.00	1.00	0.95	
Frbp, ped/bikes	1.00	1.00	0.99	1.00	1.00		1.00	1.00	0.98	1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.97		1.00	1.00	0.85	1.00	0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1614	1699	1425	1614	1650		3101	3197	1397	1614	3152	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1614	1699	1425	1614	1650		3101	3197	1397	1614	3152	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	182	354	304	256	276	59	313	495	137	195	896	168
RTOR Reduction (vph)	0	0	191	0	7	0	0	0	94	0	13	0
Lane Group Flow (vph)	182	354	113	256	328	0	313	495	43	195	1051	0
Confl. Peds. (#/hr)			1			3			2			
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	4%	4%	4%	3%	3%	3%
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA	Perm	Prot	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2						8			
Actuated Green, G (s)	16.1	27.6	27.6	18.5	30.0		12.5	37.0	37.0	14.5	39.0	
Effective Green, g (s)	16.1	27.6	27.6	18.5	30.0		12.5	37.0	37.0	14.5	39.0	
Actuated g/C Ratio	0.14	0.23	0.23	0.16	0.26		0.11	0.31	0.31	0.12	0.33	
Clearance Time (s)	4.5	5.5	5.5	4.5	5.5		4.5	5.5	5.5	4.5	5.5	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	220	398	334	253	420		329	1005	439	199	1045	
v/s Ratio Prot	0.11	c0.21		c0.16	0.20		0.10	0.15		c0.12	c0.33	
v/s Ratio Perm			0.08						0.03			
v/c Ratio	0.83	0.89	0.34	1.01	0.78		0.95	0.49	0.10	0.98	1.01	
Uniform Delay, d1	49.4	43.5	37.4	49.5	40.8		52.2	32.7	28.5	51.4	39.3	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	21.8	20.7	0.6	59.6	9.2		36.8	0.4	0.1	57.3	29.3	
Delay (s)	71.2	64.3	38.0	109.2	49.9		89.0	33.1	28.6	108.7	68.6	
Level of Service	E	E	D	F	D		F	C	C	F	E	
Approach Delay (s)		56.3			75.6			50.9			74.8	
Approach LOS		E			E			D			E	

Intersection Summary

HCM 2000 Control Delay	64.5	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.99		
Actuated Cycle Length (s)	117.6	Sum of lost time (s)	20.0
Intersection Capacity Utilization	92.5%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Intersection												
Int Delay, s/veh	0.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↕	↕		↕	↕	
Traffic Vol, veh/h	15	0	18	12	0	23	14	1058	19	36	1456	23
Future Vol, veh/h	15	0	18	12	0	23	14	1058	19	36	1456	23
Conflicting Peds, #/hr	0	0	0	0	0	0	12	0	0	0	0	12
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, #	-	2	-	-	2	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	92	95	95	95	95	95	95	92	92	95	95
Heavy Vehicles, %	0	2	0	2	2	2	3	3	2	2	3	3
Mvmt Flow	16	0	19	13	0	24	15	1114	21	39	1533	24

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	2221	2799	790	1998	2800	567	1569	0	0	1134	0	0
Stage 1	1635	1635	-	1153	1153	-	-	-	-	-	-	-
Stage 2	586	1164	-	845	1647	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.54	6.9	7.54	6.54	6.94	4.16	-	-	4.14	-	-
Critical Hdwy Stg 1	6.5	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4.02	3.3	3.52	4.02	3.32	2.23	-	-	2.22	-	-
Pot Cap-1 Maneuver	25	18	337	35	18	467	412	-	-	612	-	-
Stage 1	107	157	-	210	270	-	-	-	-	-	-	-
Stage 2	468	267	-	324	155	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	22	16	333	31	16	467	412	-	-	612	-	-
Mov Cap-2 Maneuver	94	113	-	155	108	-	-	-	-	-	-	-
Stage 1	102	145	-	202	260	-	-	-	-	-	-	-
Stage 2	428	257	-	286	143	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	35.1	20	0.2	0.3
HCM LOS	E	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	412	-	-	154	276	612	-
HCM Lane V/C Ratio	0.036	-	-	0.226	0.133	0.064	-
HCM Control Delay (s)	14.1	-	-	35.1	20	11.3	-
HCM Lane LOS	B	-	-	E	C	B	-
HCM 95th %tile Q(veh)	0.1	-	-	0.8	0.5	0.2	-

Traffic Signal Warrant Analysis



Project: 19060 - Alexandra Ave Apartments
 Date: 4/22/2019
 Scenario: Year 2021 Buildout Conditions

Major Street:	Pacific Highway	Minor Street:	Alexandra Avenue
Number of Lanes:	2	Number of Lanes:	1
PM Peak Hour Volumes:	2606	PM Peak Hour Volumes:	29

Warrant Used:

 X 100 percent of standard warrants used
 70 percent of standard warrants used due to 85th percentile speed in excess of 40 mph or isolated community with population less than 10,000.

Number of Lanes for Moving Traffic on Each Approach:		ADT on Major St. (total of both approaches)	ADT on Minor St. (higher-volume approach)		
<u>Major St.</u>	<u>Minor St.</u>	<u>Warrants</u>	<u>Warrants</u>	<u>Warrants</u>	<u>Warrants</u>
WARRANT 1, CONDITION A					
		100%	70%	100%	70%
1	1	8,850	6,200	2,650	1,850
2 or more	1	10,600	7,400	2,650	1,850
2 or more	2 or more	10,600	7,400	3,550	2,500
1	2 or more	8,850	6,200	3,550	2,500
WARRANT 1, CONDITION B					
1	1	13,300	9,300	1,350	950
2 or more	1	15,900	11,100	1,350	950
2 or more	2 or more	15,900	11,100	1,750	1,250
1	2 or more	13,300	9,300	1,750	1,250

Note: ADT volumes assume 8th highest hour is 5.6% of the daily volume

	Approach Volumes	Minimum Volumes	Is Signal Warrant Met?
<i>Warrant 1</i>			
<i>Condition A: Minimum Vehicular Volume</i>			
Major Street	26,060	10,600	
Minor Street*	290	2,650	No
<i>Condition B: Interruption of Continuous Traffic</i>			
Major Street	26,060	15,900	
Minor Street*	290	1,350	No
<i>Combination Warrant</i>			
Major Street	26,060	12,720	
Minor Street*	290	2,120	No

* Minor street right-turning traffic volumes reduced by 25%