



# **Exhibit G**

## **Traffic Impact Analysis**

April 6, 2023

Project #: 27938

Chris Kerr  
City of Woodburn  
270 Montgomery Street  
Woodburn, OR 97071

Casey Knecht, PE  
Oregon Department of Transportation Region 2  
455 Airport Road SE, Building A  
Salem, OR 97301-5397

***RE: Chick-fil-A Restaurant Traffic Impact Analysis***

Dear Chris and Casey,

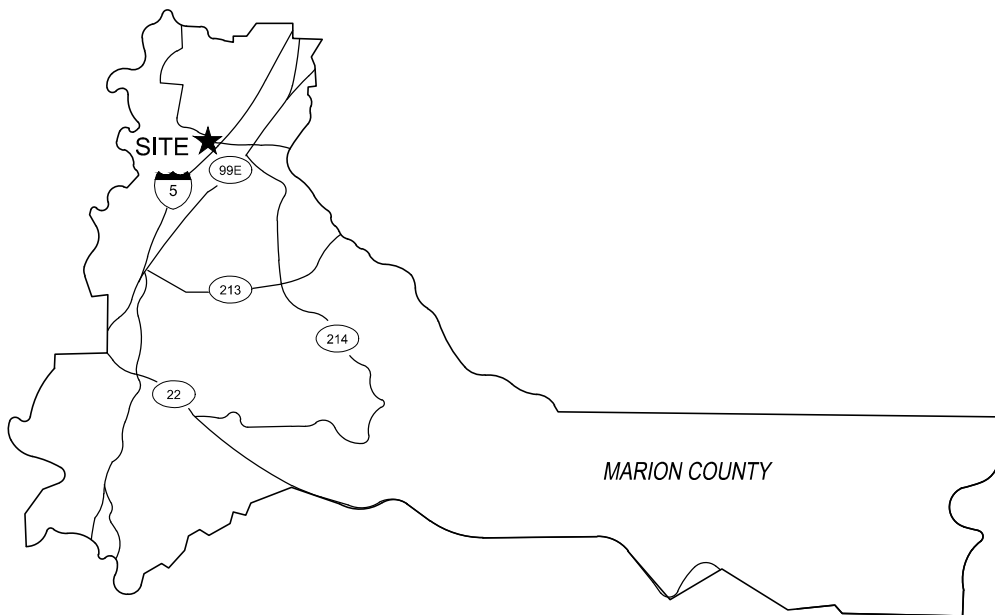
This letter documents the results of a Traffic Impact Analysis (TIA) for the Chick-fil-A proposed in the southeast corner of the Woodland Avenue/OR 219 intersection in Woodburn. Subject to applicable Oregon Department of Transportation (ODOT) and/or City concurrence, we recommend Chick-fil-A do the following in conjunction with the proposed restaurant:

- Place a new STOP (R1-1) sign for vehicles exiting the site at the west and central site access driveways onto Hillyer Lane Avenue in accordance with ODOT standards and the *Manual on Uniform Traffic Control Devices* (MUTCD).
- Place and maintain all vegetation and other above ground objects adjacent to the site access points to provide adequate minimum sight distance accordance with the applicable ODOT and/or City of Woodburn requirements.
- Collaborate with the City and ODOT to address opening period traffic conditions through development (and implementation if needed) of an opening period traffic management plan.

Additional details of the methodology, findings, and recommendations are provided herein.

## INTRODUCTION

Chick-fil-A proposes to develop the vacant parcel located in the southeast corner of the Woodland Avenue/OR 219 intersection. As proposed, a 2,872 square foot restaurant with a drive-through would be constructed with vehicular access provided via Hillyer Lane. Figure 1 displays the site vicinity, and Figure 2 displays the proposed site plan.



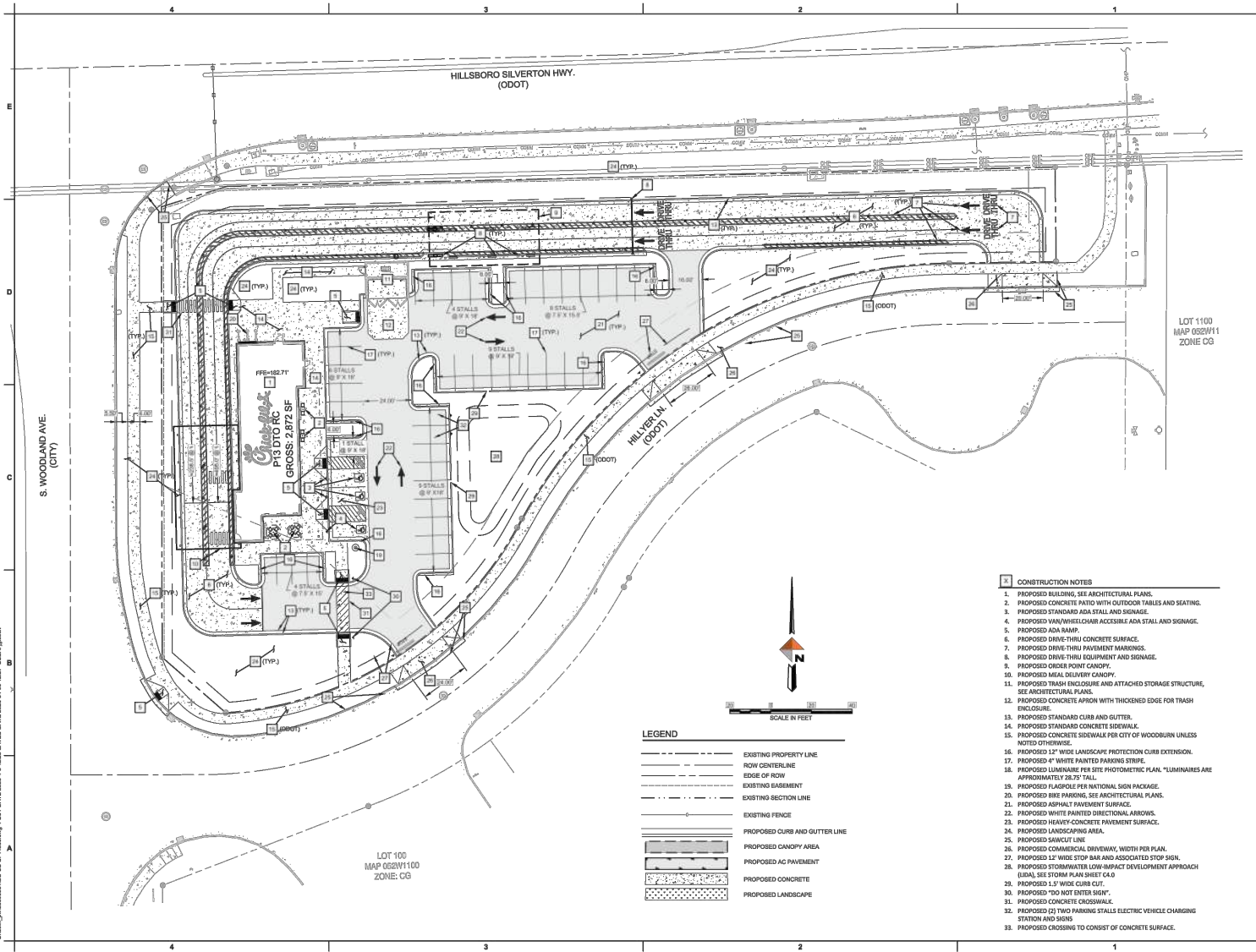
# - STUDY INTERSECTION

**Site Vicinity Map  
Woodburn, Oregon**

**Figure  
1**

H:\27\27938 - Woodburn Chick-fil-A\report\figs\27938\_Figures.dwg Apr 05, 2023 - 3:58pm - mmannion Layout Tab: Fig02 - Proposed Site Plan

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**LEGEND**

	EXISTING PROPERTY LINE
	ROW CENTERLINE
	EDGE OF ROW
	EXISTING EASEMENT
	EXISTING SECTION LINE
	EXISTING FENCE
	PROPOSED CURB AND GUTTER LINE
	PROPOSED CANOPY AREA
	PROPOSED AC PAVEMENT
	PROPOSED CONCRETE
	PROPOSED LANDSCAPE

- CONSTRUCTION NOTES**
1. PROPOSED BUILDING, SEE ARCHITECTURAL PLANS.
  2. PROPOSED CONCRETE PATIO WITH OUTDOOR TABLES AND SEATING.
  3. PROPOSED STANDARD ADA STALL AND SIGNAGE.
  4. PROPOSED VAN/WHEELCHAIR ACCESSIBLE ADA STALL AND SIGNAGE.
  5. PROPOSED ADA RAMP.
  6. PROPOSED DRIVE-THRU CONCRETE SURFACE.
  7. PROPOSED DRIVE-THRU PAVEMENT MARKINGS.
  8. PROPOSED DRIVE-THRU EQUIPMENT AND SIGNAGE.
  9. PROPOSED ORDER POINT CANOPY.
  10. PROPOSED MEAL DELIVERY CANOPY.
  11. PROPOSED TRASH ENCLOSURE AND ATTACHED STORAGE STRUCTURE, SEE ARCHITECTURAL PLANS.
  12. PROPOSED CONCRETE APRON WITH THICKENED EDGE FOR TRASH ENCLOSURE.
  13. PROPOSED STANDARD CURB AND GUTTER.
  14. PROPOSED STANDARD CONCRETE SIDEWALK.
  15. PROPOSED CONCRETE SIDEWALK PER CITY OF WOODBURN UNLESS NOTED OTHERWISE.
  16. PROPOSED 12" WIDE LANDSCAPE PROTECTION CURB EXTENSION.
  17. PROPOSED 4" WHITE PAINTED PARKING STRIP.
  18. PROPOSED LUMINAIRE PER SITE PHOTOMETRIC PLAN. LUMINAIRES ARE APPROXIMATELY 22.25' TALL.
  19. PROPOSED FLAGPOLE PER NATIONAL SIGN PACKAGE.
  20. PROPOSED BIKE PARKING, SEE ARCHITECTURAL PLANS.
  21. PROPOSED ASPHALT PAVEMENT SURFACE.
  22. PROPOSED WHITE PAINTED DIRECTIONAL ARROWS.
  23. PROPOSED HEAVY CONCRETE PAVEMENT SURFACE.
  24. PROPOSED LANDSCAPING AREA.
  25. PROPOSED SAWCUT LINE.
  26. PROPOSED COMMERCIAL DRIVEWAY, WIDTH PER PLAN.
  27. PROPOSED 12" WIDE STORM BASE AND ASSOCIATED TOP SIGN.
  28. PROPOSED STORMWATER LOW-IMPACT DEVELOPMENT APPROACH (LIDIA), SEE STORM PLAN SHEET C4.0.
  29. PROPOSED 1.5" WIDE CURB CUT.
  30. PROPOSED "DO NOT ENTER SIGN".
  31. PROPOSED CONCRETE CROSSWALK.
  32. PROPOSED (2) TWO PARKING STALLS ELECTRIC VEHICLE CHARGING STATION AND SIGNS.
  33. PROPOSED CROSSING TO CONSIST OF CONCRETE SURFACE.



**CHICK-FIL-A**  
219 AND WOODLAND  
WOODBURN, OREGON

**FSR# 05192**

NO.	DATE	DESCRIPTION

SWKS PROJECT #	5086.01
PROJECT FOR	LAND USE
DATE	05/03/2023
DRAWN BY	J.S.

**SITE PLAN**  
SHEET NUMBER: **C2.0**

SITE PLAN PROVIDED BY DOWL

**Concept Site Plan  
Woodburn, Oregon**

**Figure  
2**



The drive-through lane is proposed on the north and west sides of the building with access proposed via Hillyer Lane at three locations (the eastern most access will serve as an inbound only movement for the drive-through while the central and west accesses are proposed to be full movement. Further, as shown in the in Figure 2, the proposed Chick-fil-A site has been designed to maximize on-site queueing space available for customers using the drive-through. Two order lines are provided, with meal delivery provided in both lanes. The drive-through is designed to store up to 46 vehicles. The proposed restaurant is expected to be fully built-out and occupied by 2024.

## STUDY SCOPE

This study identifies the transportation-related impacts associated with the proposed restaurant and was prepared in accordance with Woodburn Development Ordinance (WDO) 3.04.05. This site is located within the Interchange Management Area Overlay District (IMA) for the OR 214/I-5 interchange; however, is outside of any of the defined areas in Table 2.05A and thus is not subject to the IMA provisions per WDO 2.05.02B “Applicability”.

This report documents evaluation of the following transportation items:

- Existing conditions analysis;
- Build-out year (2024) background conditions analysis (does not include site traffic);
- Trip generation estimates for the proposed restaurant;
- Trip distribution and assignment;
- Build-out year (2024) total traffic conditions analysis, including trips associated with the proposed restaurant; and
- Site access considerations.

Conclusions and recommendations are provided at the end of the report.

## Study Intersections

Per discussions and scoping confirmation with the City’s on-call traffic engineering consultant and ODOT representatives, operations of the following intersections were included in the analysis:

- OR 219/Willow Lane
- OR 219/Woodland Avenue
- OR 219/N Arney Road
- OR 214/I-5 Southbound (SB) Ramp Terminal
- OR 214/I-5 Northbound (NB) Ramp Terminal
- OR 214/Evergreen Road
- Hillyer Lane/Woodland Avenue
- Hillyer Lane/proposed access points (3)

In addition, review of crash patterns was conducted at the intersection of Evergreen Road/Stacy Allison Way and projected site-generated trip assignments are documented at the OR 219/Butteville Road roundabout for future in-process trip tracking purposes as requested by the City.

### Traffic Analysis Time Periods

Study intersection operations were analyzed using peak 15-minute flow rates experienced during the weekday PM commuter peak hour occurring between 3:00 and 6:00 PM.

## ANALYSIS METHODOLOGY AND APPLICABLE STANDARDS

All level-of-service analyses described in this report were performed in accordance with the procedures stated in the *Highway Capacity Manual 6<sup>th</sup> Edition* (HCM 6<sup>th</sup>, Reference 1). The operations analysis presented in this report was completed using Synchro 11 software and the queuing analysis was completed using SimTraffic. In addition, per ODOT's *Analysis Procedures Manual* (APM) an ideal saturation flow rate of 1,750 vehicles per hour of green per lane was applied at all intersections (APM, Reference 2).

### Performance Measures and Operating Standards

Intersection level of service (LOS) and volume-to-capacity ratio (v/c) were assessed at each of the study intersections and compared to the operating targets adopted by ODOT and the City.

#### ***ODOT Mobility Targets***

ODOT uses volume-to-capacity (v/c) ratios to assess intersection operations. Table 6 of the *Oregon Highway Plan* (OHP) provides v/c ratio targets for all signalized/roundabout and unsignalized intersections located outside the Portland metropolitan area. Based on the OHP, the following applies:

- OR 219/Woodland Avenue and OR 214 intersections to the east of and including Evergreen Road are subject to a mobility target of 0.95
- OR 219/Willow Lane is subject to a mobility target of 0.95 for both the major and minor approaches
- OR 219/I-5 ramp terminals are subject to a mobility target of 0.80
- Hillyer Lane/Woodland Avenue and Hillyer Lane/Access points are subject to a mobility target of 0.95

ODOT's APM provides a methodology for estimating v/c at signalized intersections using Synchro HCM 6<sup>th</sup> Edition outputs based on the sum of the critical movements at an intersection.

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## **City of Woodburn Operating Standards**

The City's Transportation System Plan (TSP) identifies the following mobility targets at city owned intersections.

- LOS E for signalized intersections
- 1.0 v/c ratio for signalized intersections
- 0.90 v/c ratio for the critical movements at unsignalized intersections

## **EXISTING CONDITIONS**

This section summarizes the existing characteristics of the transportation system and adjacent land uses near the proposed restaurant as well as an evaluation of existing intersection operations for motor vehicles at the study intersections. Kittelson staff performed a field visit in December 2022 to document site conditions, adjacent land uses, existing traffic operations, and transportation facilities.

### **Site Conditions and Adjacent Land Uses**

The project site is vacant today and has no curb cuts for vehicle access. The site is bordered by Woodland Avenue to the west, OR 219 to the north, Hillyer's Mid-City Ford to the east and to the south by a vacant parcel as well as the delivery access for the WinCo Food Distribution Center. The area directly north of the site across OR 219 includes retail uses while residential homes are located to the north and west of the OR 219/Woodland Avenue intersection. Today, Woodland Avenue south of OR 219 provides access to the WinCo Food Distribution Center, the Do It Best Corp. Distribution Center, Hillyer's Mid-City Ford, the project site, and the vacant parcel zoned for industrial uses to the south.

### **Transportation Facilities**

Table 1 identifies the characteristics of key roadways located within the project site vicinity. Existing lane configurations and traffic control devices at the study intersections are shown in Figure 3.

**Table 1. Existing Transportation Facilities**

Roadway	Classification (bold indicates jurisdictional ownership)	Cross Section	Posted Speed (mph)	Sidewalks Present?	Bike Lanes Present?	On-Street Parking Allowed?
Interstate 5 (I-5)	<b>Interstate Highway – ODOT</b>	6 lanes	65	No	No	No
OR 219 (Hillsboro-Silverton Highway No. 140)	<b>District/Local Interest Road – ODOT</b> Major Arterial – City of Woodburn	2-5 lanes	35/55 <sup>1</sup>	Yes <sup>2</sup>	Yes	No
OR 214 (Hillsboro-Silverton Highway No. 140)	<b>District/Local Interest Road – ODOT</b> Major Arterial – City of Woodburn	3-5 lanes	30 <sup>3</sup>	Yes	Yes	No
Woodland Avenue	<b>Access Street – City of Woodburn</b>	2 lanes	25	Yes	No	No
Willow Avenue	<b>Local Street – City of Woodburn</b>	2 lanes	25	No	No	Yes
Evergreen Road	<b>Minor Arterial – City of Woodburn</b> (South of OR 214 only)	3 lanes	30/25 <sup>5</sup>	Yes <sup>6</sup>	North of OR 214 only	No
Arney Road	<b>Access Street – City of Woodburn</b>	2 lanes	No posted speed	Yes	No	No
Hillyer Lane	<b>Unclassified – ODOT</b> Local Street – City of Woodburn <sup>4</sup>	2 lanes	No posted speed	Yes <sup>7</sup>	No	No

<sup>1</sup> The posted speed on OR 219 is 35 miles per hour (mph) from Butteville Road to the I-5 ramp terminals. West of Butteville Road, the posted speed is 55 mph.

<sup>2</sup> Sidewalks are present along both sides of OR 219 east of Willow Avenue. There are no existing sidewalks west of Willow Avenue, however sidewalks will be built with the future OR 219/Butteville Road roundabout.

<sup>3</sup> Posted school zone speed of 20 mph in effect school days 7 AM-5PM near Lincoln Elementary School/French Prairie Middle School

<sup>4</sup> Per Figure 2 of the City’s TSP, Hillyer Lane is classified as a local street but identified as a state highway. Per ODOT representatives, there is no assigned highway number nor mile points for Hillyer Lane as the facility was intended to be transferred to the City.

<sup>5</sup> Speed limit is 30 mph north of OR 214 and 25 mph south of OR 214

<sup>6</sup> Sidewalks are present north of OR 214 and south of OR 214 to Stacy Allison Way. No sidewalks are provided south of Stacy Allison Way.

<sup>7</sup> Sidewalks are present along the northern side of Hillyer Lane (proposed project site frontage)

***Pedestrian and Bicycle Facilities***

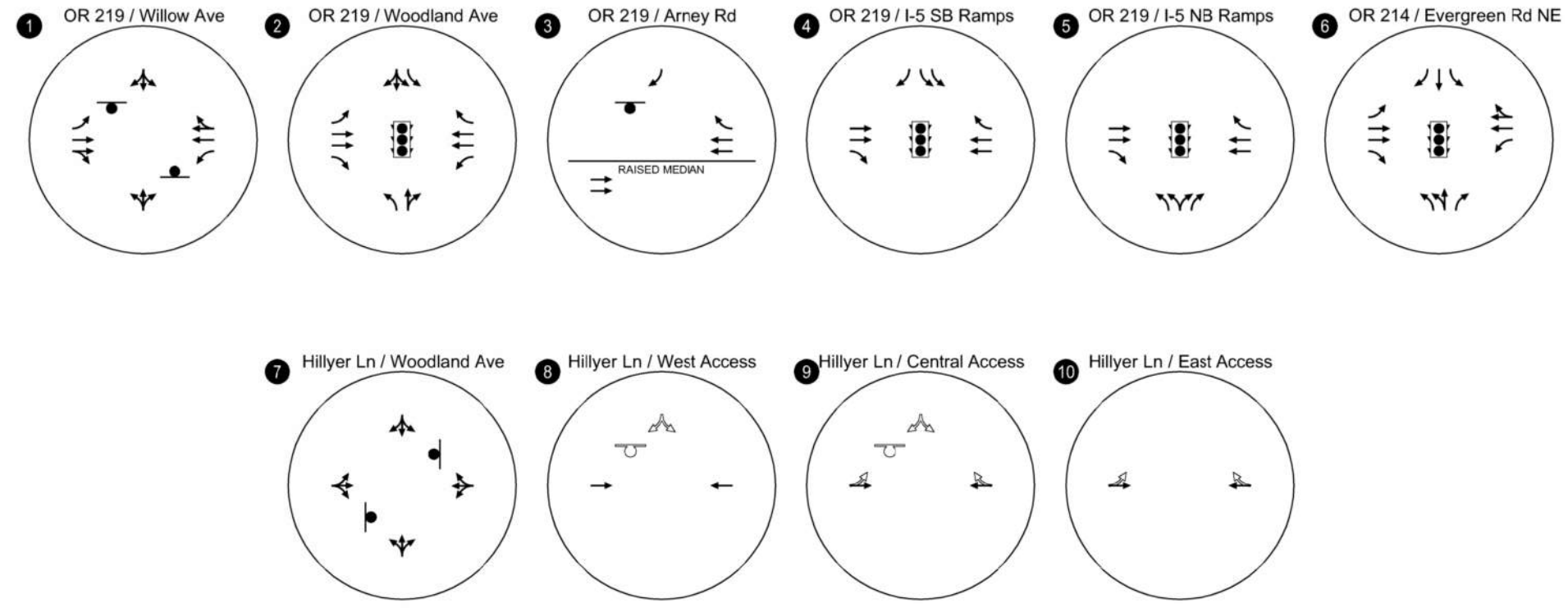
People walking can access the proposed site today via existing sidewalks along OR 219, Woodland Avenue and Hillyer Lane.

Designated bicycle lanes are provided along OR 219 north of Hillyer Lane nearby the site. Bicycle access to the restaurant is provided via bicycle lanes on OR 219 to reach Woodland Avenue and Hillyer Lane where they would share both roadways with motorists.

***Transit Facilities***

Woodburn Transit Service provides transit service in the general site vicinity (Reference 3). The nearest bus stop is approximately 0.5 mile from the site frontage, located on northwestern corner of the OR 214/Evergreen Road intersection. There are no bus routes to the west of the I-5. The available bus service operates from 8:00 AM to 6:00 PM, with approximately one-hour headways.





-  - STOP SIGN
-  - TRAFFIC SIGNAL
-  - EXISTING LANE CONFIGURATION AND TRAFFIC CONTROL
-  - FUTURE LANE CONFIGURATION AND TRAFFIC CONTROL

**Lane Configurations & Traffic Control Devices  
Woodburn, OR**

Figure  
**3**

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## Traffic Volumes and Peak Hour Operations

Turning movement counts were conducted at the study intersections in September 2022 while local schools were holding classes in-person and construction-related activity was occurring associated with the Amazon Distribution Center being constructed to the west of the site (no roadway lane closures were in place at study intersections at the time of the traffic counts). Traffic counts were conducted on a mid-week day between 3:00 and 6:00 PM. *Appendix "A" contains the turning movement counts.*

### Seasonal Adjustments

Per the ODOT APM, a seasonal factor was applied to all study intersections along the corridor to reflect "30<sup>th</sup> highest hour" conditions. To determine an appropriate seasonal factor, three methodologies were investigated per ODOT's APM: On-Site ATR Method, ATR Characteristic Table Method, and ATR Seasonal Trend Method.

#### On-Site ATR Method

The On-Site ATR Method is used when an Automatic Traffic Recorder (ATR) is within or near the project area. ATR #24-020 is the closest ATR station to Woodburn, located approximately 4.25 miles to the west on OR 219. However, the average annual daily traffic at this ATR site is not within ten percent of recent traffic volumes collected along OR 219 in the vicinity of the I-5 interchange (10 percent is the criteria cited by the ATM). As such and per the APM guidance, the On-Site ATR method was not utilized.

#### ATR Characteristics Table

The ATR Characteristic Table provides general characteristics for each ATR in Oregon and is typically used when there is not a nearby ATR within the immediate study area. A review of the Characteristic Table did not find an ATR that closely matches the conditions along OR 219 within the vicinity of the study site. As such and per the APM guidance, this methodology was not used.

#### ATR Seasonal Trend Method

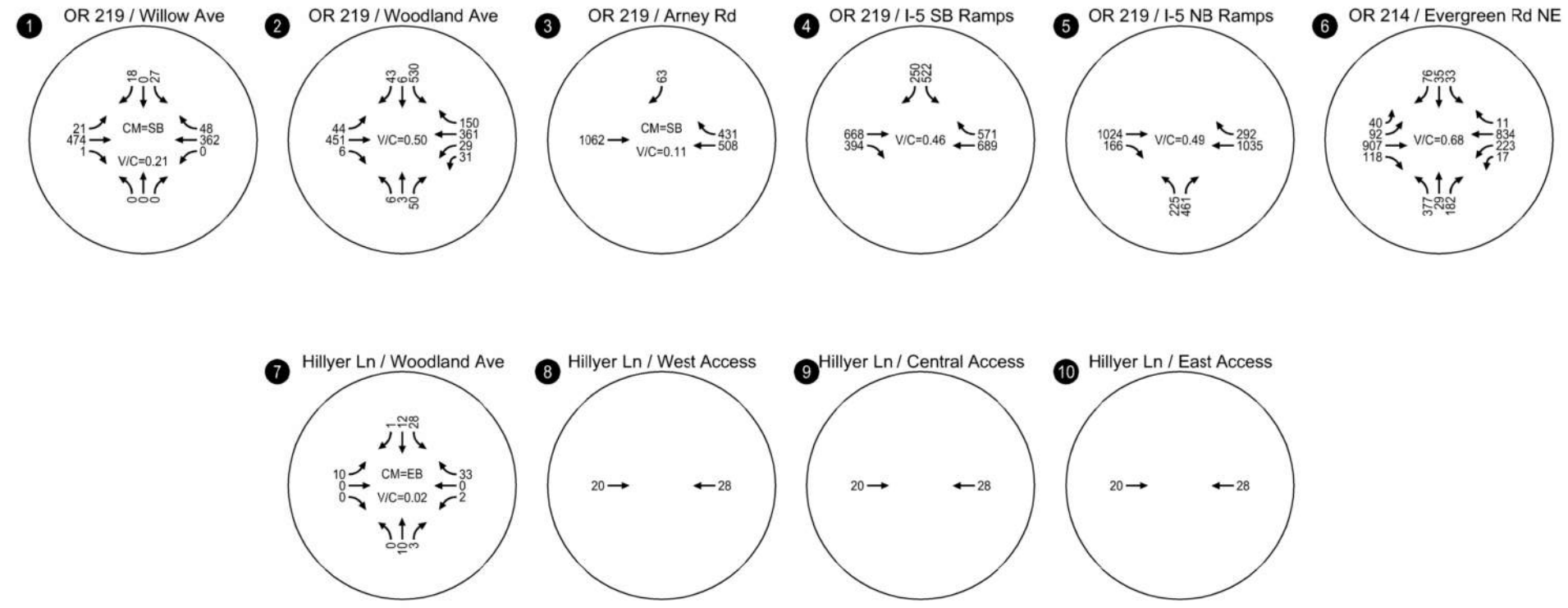
The seasonal trend table is used when there is not an ATR nearby or in a representative area. This method averages seasonal trend groupings from the ATR Characteristics Table. For movements at intersections along OR 219, an average of the "commuter" and "summer" trends was deemed appropriate as it has been used and approved in other recent planning studies in the project vicinity. Table 2 identifies the seasonal trend adjustments.

**Table 2. ATR Seasonal Trend Method for Commuter and Summer Trends**

	September Count Month (September 1)	September Count Month (September 15)	Seasonal Trend Peak Period Factor
Commuter	0.9608	0.9649	0.9336
Summer	0.9088	0.9355	0.8279

The average Commuter seasonal adjustment for the September 2022 counts is 1.03 (i.e.,  $((0.9608+0.9649)/2)/0.9336$ ), and the Summer seasonal adjustment is 1.11 (i.e.,  $((0.9088+0.9355)/2)/0.8279$ ). As such, an average of the Commuter and Summer season adjustments is 1.07. Accordingly, the average adjustment calculation of 1.07 was applied to existing traffic volumes at all the study intersections.

The turning movement volumes and associated intersection operational performance metrics for the 30<sup>th</sup> highest hour conditions (herein referred to as the “weekday PM peak hour”) are displayed in Figure 4. As shown, the study intersections currently satisfy City and ODOT standards. *Appendix “B” contains the existing traffic conditions worksheets.*



CM = CRITICAL MOVEMENT (UNSIGNALIZED)  
 V/C = INTERSECTION VOLUME-TO-CAPACITY RATIO (SIGNALIZED)  
 CRITICAL MOVEMENT VOLUME-TO-CAPACITY RATIO (UNSIGNALIZED)

**Existing Traffic Conditions  
 Weekday PM Peak Hour  
 Woodburn, OR**

Figure  
**4**

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## Intersection Crash History

ODOT provided crash records at the study intersections for the period from January 1, 2016 through December 31, 2020. The crash type classifications at each intersection were reviewed to assess whether crash patterns might be identifiable. *Appendix “C” provides the ODOT crash report which provides more details on the reported crashes.* Table 3 summarizes the ODOT crash data.

**Table 3. Reported Crash History (January 1, 2016 – December 31, 2020)**

	Location	Crash Type							Severity			Total
		Rear-end	Turning	Angle	Side Swipe	Fixed Object	Ped/Bike	Head-On	PDO <sup>1</sup>	Injury	Fatal	
1	OR 219/Willow Lane	1	3	0	0	1	0	0	0	5	0	5
2	OR 219/Woodland Avenue	3	4	1	0	1	1	0	3	7	0	10
3	OR 219/N Arney Road	3	0	0	0	0	0	0	1	2	0	3
4	OR 214/I-5 Southbound Ramp Terminal	28	6	0	1	1	0	0	9	27	0	36
5	OR 214/I-5 Northbound Ramp Terminal	14	24	0	1	2	0	0	21	20	0	41
6	OR 214/Evergreen Road	9	40	7	1	1	0	0	20	38	0	58
7	Hillyer Lane/Woodland Avenue	0	0	0	0	0	0	0	0	0	0	0
8	Stacy Allison Way/Evergreen Road	1	5	0	0	1	1	0	5	3	0	8

<sup>1</sup>PDO – Property Damage Only

One reported crash involved a person walking and one involved a cyclist:

- In December 2017 on a clear dry day, a motorist struck a pedestrian crossing at the Stacey Allison Way/Evergreen Road intersection. Per the crash report the vehicle did not yield the pedestrian right-of-way.
- In May 2019 on a clear dry day, a motorist struck a cyclist crossing at the OR 219/Woodland Avenue intersection. Per the crash report the vehicle did not yield the cyclist right-of-way.

In addition to the crash types, intersection crash rates were calculated and compared to statewide crash rate performance thresholds. For this analysis, the observed crash rate was calculated and compared with the 90<sup>th</sup> percentile crash rates for the appropriate rural/urban intersections by traffic control (3 versus 4-legged configurations as appropriate). The critical crash rate is calculated for each intersection based on the average crash rate for each facility and serves as a threshold for further analysis. Per the ODOT APM, intersections with crash rates that exceed the 90<sup>th</sup> percentile values shown in APM Exhibit 4-1 should be flagged for further analysis. The intersection crash rate assessment for the study intersections is summarized in Table 4.

**Table 4. Intersection Crash Rate Assessment (January 1, 2016 – December 31, 2020)**

	Location	Total Crashes	Observed Crash Rate	Intersection Type (Urban)	90 <sup>th</sup> Percentile Crash Rate by Land Type and Traffic Control	Observed Crash Rate > Critical Crash Rate?
1	OR 219/Willow Lane	5	0.31	4ST	0.408	No
2	OR 219/Woodland Avenue	10	0.35	4SG	0.86	No
3	OR 219/N Arney Road	3	0.09	3ST	0.293	No
4	OR 214/I-5 Southbound Ramp Terminal	36	0.69	3SG	0.509	Yes
5	OR 214/I-5 Northbound Ramp Terminal	41	0.75	3SG	0.509	Yes
6	OR 214/Evergreen Road	58	1.15	4SG	0.86	Yes
7	Hillyer Lane/Woodland Avenue	0	0.00	4ST	0.408	No
8	Stacy Allison Way/Evergreen Road	8	0.76	3ST	0.293	Yes

\*Per million entering vehicles

\*\*3ST = 3-leg, stop-controlled; 4ST = 4-leg, stop-controlled; 3SG = 3-leg, signalized; 4SG = 4-leg, signalized

In reviewing the crash data, it is noted that the Stacy Allison Way/Evergreen Road intersection was recently reconstructed (additional through lanes and a center left-turn lane added on OR 219 in conjunction with the Amazon Distribution Center construction); as such the crash data is not reflective of current conditions.

Table 4 reveals that the observed crash rates at the both ramp terminals and the OR 214/Evergreen Road intersection exceeded the 90<sup>th</sup> percentile crash rates for similar observed intersections across the state. As such, further assessment of each intersection’s crash data is provided below.

***OR 219/I-5 SB Ramp Terminal***

As shown in the tables, the predominate crash type recorded was associated with rear-end crashes and further review showed that many were associated with the southbound movement from the offramp to OR 219 westbound. However, there are no discernable time period or roadway condition patterns noted amongst these crashes. It is noted that the right-turn lane queue storage on the southbound offramp was recently extended (in 2022) in conjunction with the Amazon Distribution Center construction.

***OR 219/I-5 NB Ramp Terminal***

As shown in the tables, there were a proportionately higher number of turning movement crash types recorded and closer review indicates that the predominate crash type was associated with the northbound left-turn movement from the offramp to OR 219 westbound. However, there are no discernable time period or roadway condition patterns noted amongst these crashes.

### **OR 214/Evergreen Road**

As shown in the tables, a proportionately high number of westbound left-turn crashes (20) from OR 214 onto Evergreen Road southbound were recorded. Of the 20 crashes, 6 were attributed to the permissive flashing yellow arrow phase. While there are no discernable time period or roadway condition patterns, it is noted that this left-turn movement is turning across multiple opposing through lanes and a right-turn movement with a large curb radius. Based on this crash history, it is recommended that ODOT continue to monitor the intersection for any new emerging or continued crash patterns.

### **Stacey Allison Way/Evergreen Road**

As shown, the predominate crash type was associated with the eastbound left-turn movement from the Stacey Allison to Evergreen northbound. However, there are no discernable time period or roadway condition patterns noted amongst these crashes.

Based on the above review, we did not identify any changes to the study intersections as part of the proposed restaurant.

## **TRAFFIC IMPACT ANALYSIS**

The traffic impact analysis identifies how the study intersections are anticipated to operate with the proposed Chick-fil-A upon opening in the year 2024. The impact of site-generated weekday PM peak trips was examined as follows:

- Planned developments and transportation improvements in the site vicinity were identified;
- Year background traffic conditions (prior to occupancy of the restaurant) were assessed;
- Peak hour site-generated trips were estimated for the restaurant;
- A trip distribution pattern was prepared, and the site-generated trips were distributed to the study area intersections;
- Total traffic conditions were assessed with occupancy of the restaurant;
- Intersection mitigation needs were identified; and
- On-site drive-through queuing and site access considerations were evaluated.

### **Background Traffic Conditions**

The background traffic analysis identifies how the study intersections will operate in 2024 prior to occupancy of the proposed Chick-fil-A. The background analysis includes assumed local and regional traffic growth but does not include the trips associated with the site development.

A two percent linear annual growth rate was applied to the seasonally adjusted 2022 traffic volumes to account for general local and regional traffic growth. This rate is consistent with historical growth

rates and rates used in other recent traffic impact studies in the local vicinity and was approved through the study scoping process.

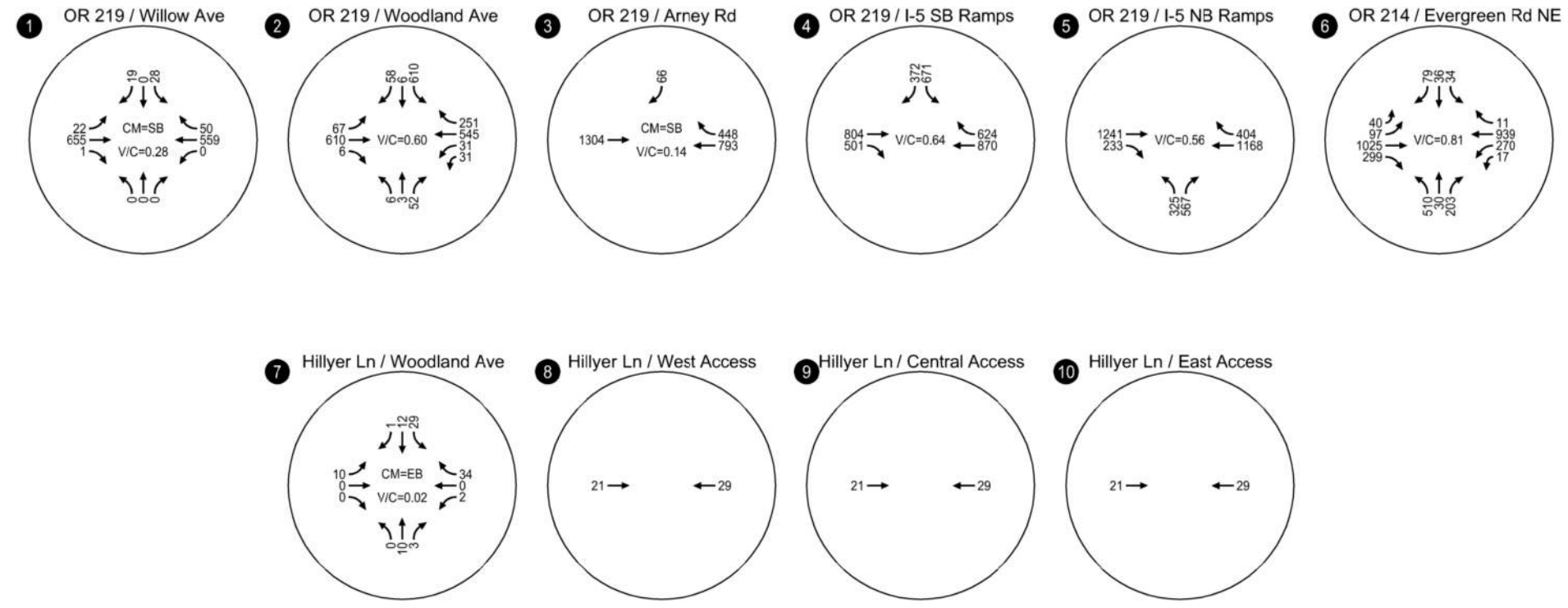
In addition to the local/regional growth, the following in-process developments were identified and included in the background traffic volumes:

- Woodland Crossing Apartments
- Woodland Senior Living Apartments
- Port of Willamette
- Project Basie (Amazon Distribution Center)
- Specht
- Kalugin/Brighton Pointe
- Allison Way Apartments
- Taco Bell (near OR 214/99E)
- Woodburn East Apartments
- Woodburn Place Apartments

Although some of the in-process developments listed above have an anticipated build-out after the proposed Chick-fil-A build-out in 2024, all of the in-process trips were included in 2024 background traffic volumes.

Figure 5 summarizes the forecast year 2024 background traffic conditions for the weekday PM peak hours. As shown, all of the study intersections are forecast to satisfy the applicable City standards and ODOT mobility targets. *Appendix "D" contains the year 2024 background traffic conditions worksheets.*





CM = CRITICAL MOVEMENT (UN SIGNALIZED)  
 V/C = INTERSECTION VOLUME-TO-CAPACITY RATIO (SIGNALIZED)  
 CRITICAL MOVEMENT VOLUME-TO-CAPACITY RATIO (UN SIGNALIZED)

**2024 Background Traffic Conditions  
 Weekday PM Peak Hour  
 Woodburn, OR**

Figure  
**5**

H:\127127938 - Woodburn Chick-fil-A\report\fig127938\_Figures.dwg Apr 05, 2023 - 4:13pm - mmannion Layout Tab: Fig05 - Background Traffic Conditions

## Proposed Redevelopment

Chick-fil-A proposes to construct a 2,872 fast food restaurant with a drive-through lane on the north and west sides of the proposed building. The site will include approximately 40 parking stalls located east of the building and south of the drive-through lanes.

### *Estimated Trip Generation*

In May 2022, a trip generation study was conducted at four Chick-fil-A sites in the greater Portland area and compared the results to the rates shown in the 11<sup>th</sup> Edition of the *Trip Generation Manual*, as published by the Institute of Transportation Engineers (ITE). The four sites studied were located in Tanasbourne (open March 2016), on Beaverton-Hillsdale Highway (open June 2019), in the Cedar Hills Crossing area (open July 2019), and on TV Highway in Hillsboro (open April 14, 2022). Trip generation rates were calculated based on the data collected at these four sites per the ITE *Trip Generation Handbook* methodology.

The resultant trip rates (as measured as vehicle trips per 1,000 square feet of building) observed at the four sites during the weekday PM peak hour is provided in Appendix "E". In reviewing the data, we note the following:

- Although Tanasbourne has been open the longest of the four sites surveyed (Tanasbourne and the existing Clackamas Chick-fil-A opened at the same time), the trip generation rates at this store are higher than the others given its proximity to US 26 and NW 185<sup>th</sup> Avenue.
- The TV Highway location that was added in 2022 helps to serve Hillsboro/Aloha customers previously served by Tanasbourne. Despite its being open for approximately five weeks at the time of traffic count data collection, this store has the lowest trip rates of the four locations surveyed. Chick-fil-A indicates that it is common for their new stores in an existing market to not experience the same level of grand opening interest as compared to openings in new markets.

Further, in response to Woodburn scoping review comments, we collected 24-hours of traffic counts at the nearby Keizer Station Chick-fil-A on November 11, 2022, which opened for service on August 4, 2022. The Keizer data was consistent with the other Oregon sites in finding that the AM peak hour rate is substantially lower than the PM peak hour rate (thus the AM peak hour was not further analyzed in this study). Of the sites where data was collected, the Tanasbourne site was found to have the highest trip rates measured during the PM peak period.

With these considerations in mind but still to provide a reasonable estimate of potential trip generation, the average rate of the three highest sites measured were used in the TIA (i.e., the rates exclude the data from the TV Highway site and the Cedar Hills Boulevard site). A comparison of the average rates using the three higher versus all five sites as well as to the rates reflected in the *Trip Generation Manual* is shown below:

- Weekday PM peak hour trips/1,000 square feet based on all five sites = 46.9
- Weekday PM peak hour trips/1,000 square feet based on three sites (excluding TV Highway and Cedar Hills Boulevard) = 55.1
- Weekday PM peak hour trips/1,000 square feet from the *Trip Generation Manual* = 33.0

Table 5 summarizes the estimated trip generation using the average of the three highest Oregon sites measured in 2022.

**Table 5. Estimated Trip Generation**

Land Use	Data Source	Size	Daily Trips	Weekday PM Peak Hour Trips		
				Total	In	Out
Chick-fil-A	Oregon Site Data	2,872 SF	1,794	158	79	79
<i>Less Pass-by Trips*</i>			897	-87	-44	-43
Net New Trips			897	71	35	36

\* Assumed pass-by trip rates is 50% for daily and 55% for the PM peak hour per ITE *Trip Generation Manual, 11<sup>th</sup> Edition* for a fast food restaurant with drive-through.

The trip generation study at the Keizer site included daily data collection and is the basis for the daily trip estimates shown in Table 5 (no other daily trip data has been collected for the other sites).

***Trip Distribution/Assignment***

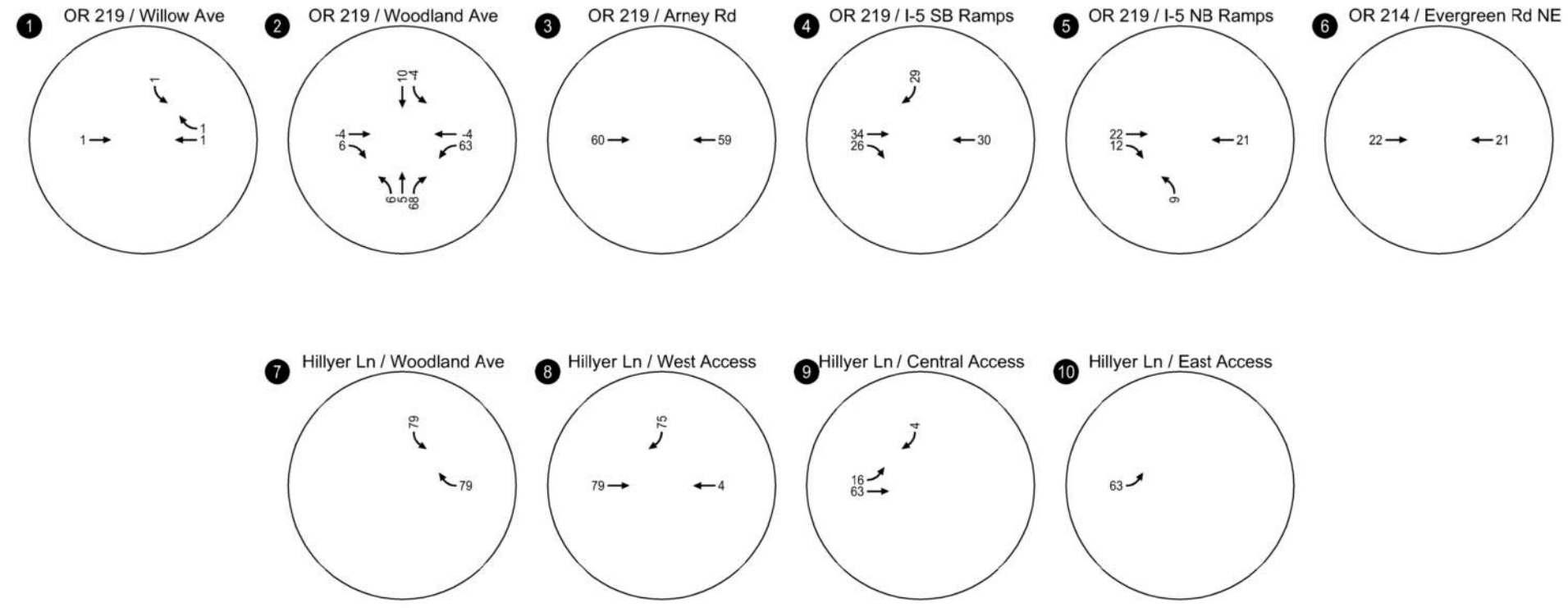
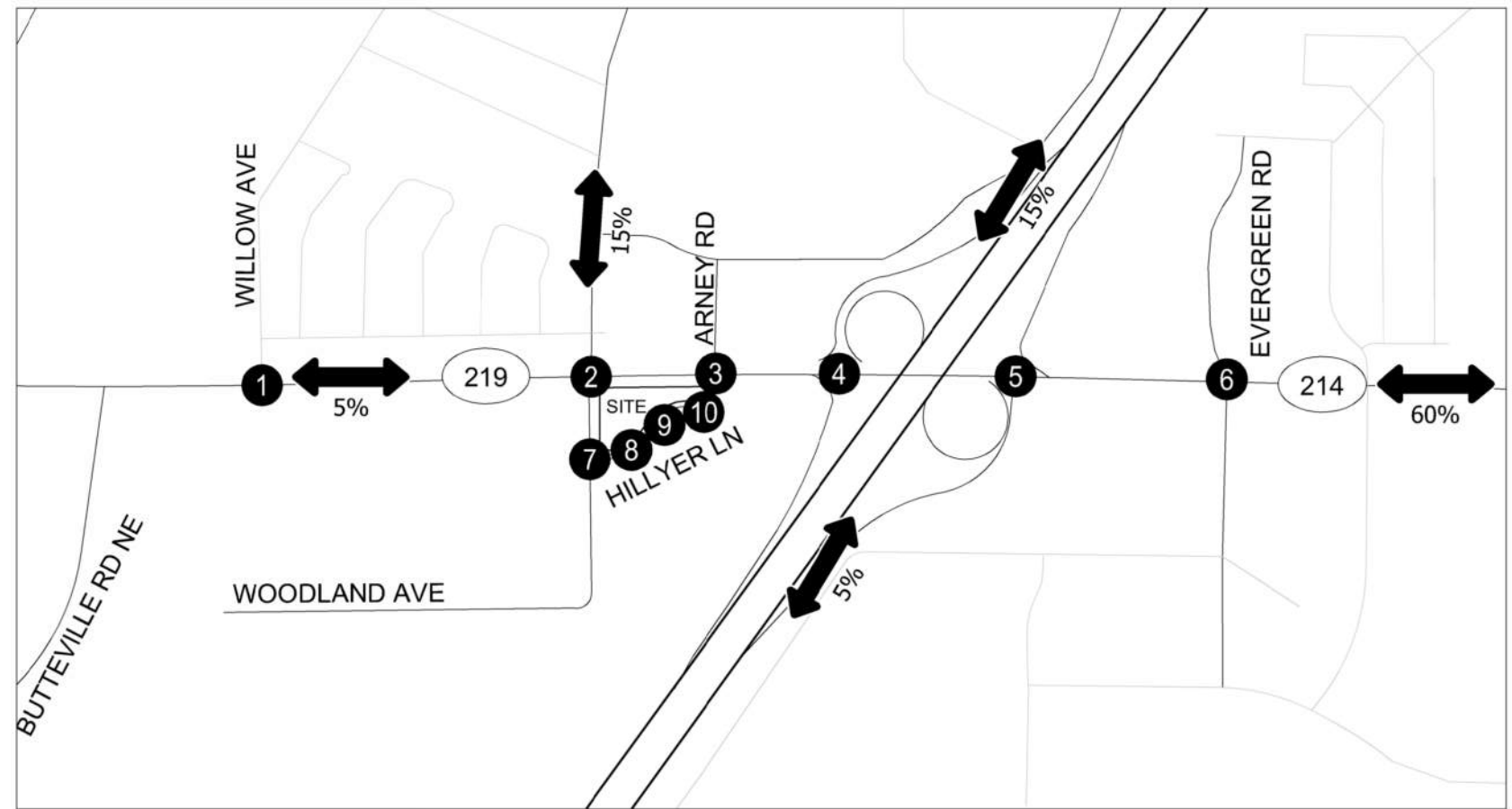
The trip distribution pattern for the proposed restaurant was developed based on existing travel patterns, the location of major trip origins and destinations in the study area as well as the proximity of I-5. It was assumed that 30 percent of the pass-by trips will travel from OR 219 and/or Woodland Avenue adjacent to the site while the remaining 70 percent of pass-by trips will travel from I-5 (pass-by trips from I-5 were all treated as net new trips to all of the study intersections).

The trip distribution pattern as well as weekday PM peak hour site-generated trips associated with the proposed Chick-fil-A is summarized in Figure 6. Note that for the purposes of the analyses, all inbound site trips were assigned to the center and east site access (some customers could use the west access to enter the site as proposed, reducing site-generated trips at the center access). *Appendix “F” provides the pass-by and net new trip assignment figures along with projected site-generated trip assignments at the OR 219/Butteville Road roundabout for the City’s future in-process trip tracking purposes.*

**Year 2024 Total Traffic Conditions**

The total traffic conditions analysis forecasts how the study intersections will operate with the traffic generated by the proposed Chick-fil-A. The site-generated traffic shown in Figure 6 was added to the year 2024 background traffic volumes shown in Figure 5 to arrive at the total traffic volumes for the weekday PM peak hour shown in Figure 7. Figure 7 also presents the corresponding traffic operations at the study intersections. As shown, the study intersections are forecast to continue operating acceptably after opening of the Chick-fil-A.

*Appendix “G” contains the 2024 Total Traffic Conditions intersection analysis worksheets.*

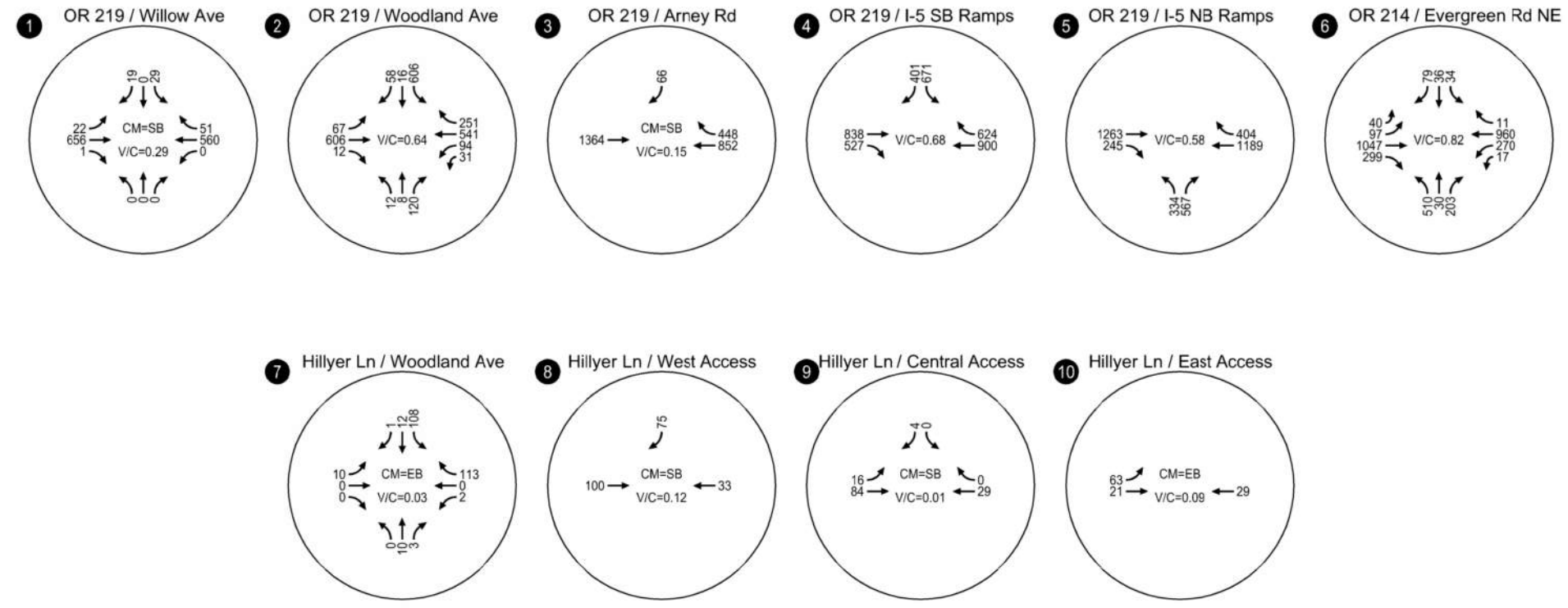
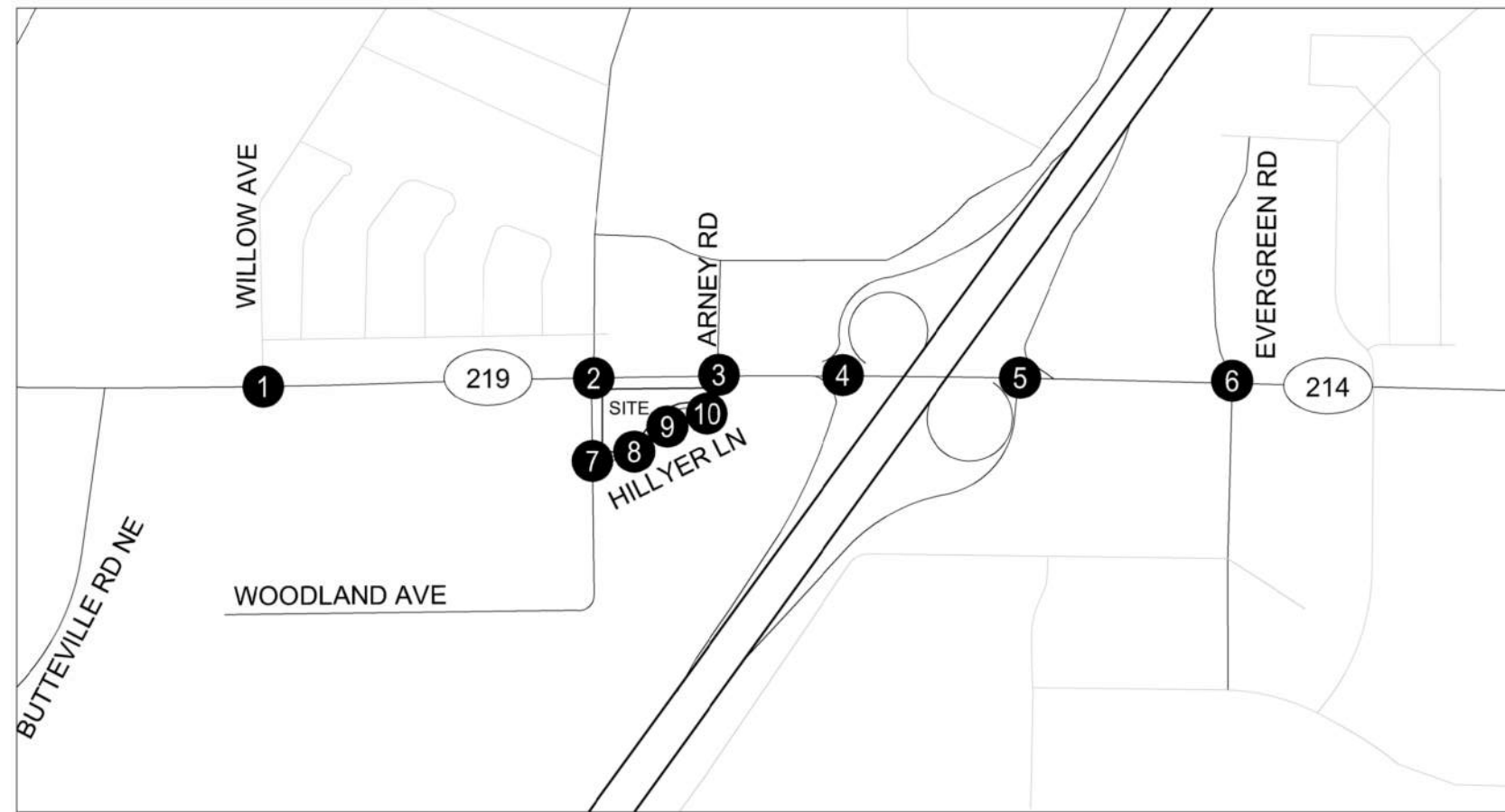


\*NEGATIVE VOLUMES REFLECT PASS-BY TRIPS

Estimated Trip Distribution Pattern & Site Generated Trip Assignment  
Weekday PM Peak Hour  
Woodburn, OR

Figure  
6

H:\27127938 - Woodburn Chick-fil-A\report\figs\27938\_Figures.dwg Apr 05, 2023 4:14pm - mmannion Layout Tab: Fig6 - Site Trips



CM = CRITICAL MOVEMENT (UNSIGNALIZED)  
 V/C = INTERSECTION VOLUME-TO-CAPACITY RATIO (SIGNALIZED)  
 CRITICAL MOVEMENT VOLUME-TO-CAPACITY RATIO (UNSIGNALIZED)

**2024 Total Traffic Conditions  
 Weekday PM Peak Hour  
 Woodburn, OR**

Figure  
**7**

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## 95<sup>th</sup> Percentile Queuing Analysis

A 95<sup>th</sup>-percentile queuing analysis was performed using SimTraffic (for all intersections except OR 219/Willow Lane where the reported queues were obtained from Synchro) and is included in Appendix H. Table 6 summarizes the existing and future 95<sup>th</sup>-percentile queues during the weekday PM peak hour. The results reflect the average of five simulation runs and were prepared following ODOT simulation guidance/default settings as identified in the *Analysis Procedures Manual*.

Reported queues in Table 6 are rounded up to the nearest vehicle length (assumed to be 25 feet). Movements shown in red text exceed the available queue storage.

As shown in Table 6, the study intersections nearest the project site are projected to accommodate the forecast 95<sup>th</sup> percentile queues. East of I-5, the OR 214/Evergreen Road intersection is projected to experience some 95<sup>th</sup> percentile queues that exceed the available storage under background conditions prior to the proposed Chick-fil-A restaurant development. These queuing results are similar to those documented in past TIAs and planning studies conducted in Woodburn. As shown, the movements that are projected to experience queue spillback include the eastbound and westbound left-turn lanes on OR 214 and the westbound through/right lanes. Based on the existing right-of-way and building locations, there is no apparent opportunity to extend the left-turn lane storage at the intersection, nor is there an ability to increase the westbound through storage between Evergreen Road and the Oregon Way intersection to the east short of adding a third through lane on OR 214 throughout the area.

In reviewing the difference between the background and total traffic queue projections, it is clear there is some random variability in the SimTraffic simulation model runs that results in projected vehicle queues increasing or decreasing by approximately one car length for most movements. The proposed Chick-fil-A restaurant is not expected to add any westbound left turns and few, if any eastbound left-turns at the OR 214/Evergreen Road intersection. We note the only capacity related improvement identified in the City's TSP for the OR 214/Evergreen Road intersection is to "Investigate corridor signal timing and coordination adjustments in coordination with ODOT." Based on these findings, no queuing-based mitigations were identified for implementation at the OR 214/Evergreen Road intersection in conjunction with the proposed Chick-fil-A.



**Table 6. Weekday PM Peak Hour Projected 95<sup>th</sup> Percentile Queues**

Intersection	Movement	Storage (feet)	95 <sup>th</sup> -percentile Queue (feet)			Adequate Storage Provided?
			Existing	Background	2024 Total	
OR 219/ Willow Lane	NBLTR	100	0	0	0	Yes
	SBLTR	50	75	50	50	Yes
OR 219/ Woodland Avenue	EBL	225	75	100	100	Yes
	EBTR	Continuous (>500)	175	250	300	Yes
	EBR	125	50	50	75	Yes
	WBL	225	100	100	150	Yes
	WBT	425 <sup>1</sup>	150	225	250	Yes
	WBR	100 <sup>2</sup>	75	125	125	Yes
	NBL	100	50	50	50	Yes
	NBTR	260 <sup>3</sup>	125	175	200	Yes
SBLTR	500 <sup>4</sup>	250	325	375	Yes	
OR 219/N Arney Road	SBR	200	50	50	75	Yes
OR 214/ I-5 Southbound Ramp Terminal	EBT	Continuous (>500)	200	250	250	Yes
	WBT	Continuous (>500)	250	375	325	Yes
	SBL	Continuous (>500)	250	325	300	Yes
	SBR	Continuous (>500)	100	225	200	Yes
OR 214/ I-5 Northbound Ramp Terminal	EBT	Continuous (>500)	350	450	400	Yes
	WBT	Continuous (>500)	375	400	450	Yes
	NBLTR	Continuous (>500)	300	350	350	Yes
OR 214/ Evergreen Road	EBL	175 <sup>5</sup>	175	275	250	No
	EBT	800 <sup>6</sup>	350	500	500	Yes
	WBL	375	350	475	425	No
	WBTR	500	475	525	500	No
	NBLT	325 <sup>7</sup>	300	350	350	Yes
	NBR	275	125	200	175	Yes
	SBL	75 <sup>8</sup>	100	100	100	Yes
	SBTR	375 <sup>9</sup>	275	225	275	Yes
Hillyer Lane/ Woodland Avenue	EBLTR	100	50	50	25	Yes
	WBLTR	100	75	75	75	Yes
Hillyer Ln./West Access	SBR	25 <sup>10</sup>	-	-	75	Yes
Hillyer Ln./Central Access	SBLR	25	-	-	25	Yes

Where: EB = Eastbound, WB = Westbound, NB = Northbound, SB = Southbound, L = left-turn, TR = shared through/right, LTR = shared left/through/right, N/A = Lane configuration not applicable to this analysis scenario

<sup>1</sup> 425 feet reflects approximate distance to southbound right-out at N Arney Road. Additional storage available for OR 219 westbound through lanes with I-5 southbound ramp intersection located over 900 feet to the east.

<sup>2</sup> 100 feet reflects the striped storage, however, an additional 75 feet is provided within the deceleration lane.

<sup>3</sup> Hillyer Lane is located approximately 260 feet south of the northbound stop bar on S Woodland Avenue at OR 219.

<sup>4</sup> Robin Avenue is located approximately 500 feet north of the southbound stop bar on S Woodland Avenue at OR 219.

<sup>5</sup> 175 feet reflects the striped storage, however, an additional 75 feet is provided within the deceleration lane.

<sup>6</sup> Distance shown reflects storage area between eastbound stop bar on OR 219 at Evergreen Road and I-5 Northbound Ramp. Right-turn only access on OR 219 at Lawson Avenue is located approximately 350 feet west of Evergreen Road.

<sup>7</sup> 325 feet reflects the striped storage, however additional space is provided in the two-way left-turn lane.

<sup>8</sup> 75 feet reflects the striped storage, however there is additional left-turn storage area provided to Tom Tennant Drive (south).

<sup>9</sup> 375 feet reflects the available storage until Tom Tennant Drive (north).

<sup>10</sup> 25 feet reflects the available storage until blocking some parking stalls, however there is approximately 75 feet available before backing to the drive through area.

## PROPOSED SITE PLAN CONSIDERATIONS

This section of the report addresses delivery circulation, the proposed site accesses, and drive through queuing.

### Delivery Vehicle Circulation

Delivery vehicles (WB-67 design vehicle) are expected to enter the site via the central site access on Hillyer Lane and exit the site at the west access on Hillyer Lane. Use of the central and west access points for entry and exit through a counter-clockwise maneuver through the site is necessary for the delivery truck that will serve the building given 1) the site shape and area of the site property does not allow the WB-67 design vehicle to complete a loop on-site entering and exiting the central access and 2) the intent of Chick-fil-A to contain delivery vehicle maneuvers on site and not result in backing movement to/from Hillyer Lane.

### Site Access & Circulation

The proposed site plan shown in Figure 2 includes three access driveways. One of the three driveways is limited to entry only and the combination of the three is proposed to reduce potential systemic impacts of the restaurant access. We note that Chick-fil-A is able to actively cone off internal driveways and sign additional on-site drive through storage; an example of which is shown below in Photo 1.

**Photo 1. View of Example Chick-fil-A Temporary Parking Lot Drive Through Extension (Keizer, OR)**



**Image Source: Chick-fil-A**



The three proposed accesses include:

- East access – proposed for drive-through entry only, the location of this driveway is at the far east side of the project site, allowing for maximum on-site drive through queue storage. Chick-fil-A proposes to use this access only during peak demand periods and would have it coned off when not in use.
- Central access – this access will serve as the main entry to the site, accommodating customers who park on site to complete walk-up orders and/or outdoor dining, off-peak drive through entry, employee parking, and delivery vehicle entry. During peak demand, Chick-fil-A staff will use sign boards to direct drive-through customers to enter at the far east access on Hillyer Lane. The central access will also accommodate exit maneuvers.
- West access – this access is being designed to full turn movements but the site circulation and parking indicates that it will likely function as a defacto egress only during most times of the day. The location of this driveway conveniently allows for drive through traffic to exit the restaurant while having minimal interaction with on-site parking areas (compared to circulating back through the parking area to reach the central access) and people waking between parking and the restaurant. In addition, this access accommodates the egress movement for site delivery vehicles as noted above. Entry at this access would allow for direct access to customers who are parking on-site and could be used during opening period conditions as an additional point for Chick-fil-A to actively direct vehicles onto the site to temporarily queue on site in the parking area while waiting for the drive through lane.

Installation of a new STOP (R1-1) sign leaving the project site at the west and central site access driveways onto Hillyer Lane Avenue is recommended in accordance with ODOT standards and the *Manual on Uniform Traffic Control Devices (MUTCD)*.

## Drive Through Queuing

The site has been designed to maximize on-site queueing space available for customers using the drive-through. Two order lines are provided, with meal delivery provided in both lanes. The drive-through is designed to store up to 46 vehicles during peak demands.

Weekday drive-through queuing studies were conducted at the four Chick-fil-A sites at the same time as the trip generation studies in 2022 and at the Keizer site in November 2022. Additionally, Saturday midday queues were collected at the Keizer site in December 2022. *The results of the queuing studies are provided in Appendix "E"*. As shown, the overall maximum observed queue was 34 vehicles during the PM peak hour and 31 vehicles during the peak Saturday midday. Based on the queuing study, the proposed site plan has adequate drive-through storage to serve typical operating queues entirely on-site.

Development (and implementation, if needed) of a traffic management plan is recommended of Chick-fil-A in collaboration with the City and ODOT to address opening period traffic conditions<sup>1</sup>. The plan could consider elements such as temporary flagging/direction of traffic on-site and along Hillyer Lane if needed, drive-through queue management contingencies to avoid queue spill back to Woodland Avenue (for example, this could be in the form of additional on-site temporary drive through queue storage from the west access to the central access on-site) as well as other temporary techniques.

### Site Driveway Sight Distance

Available intersection sight distance at the proposed site driveways on Hillyer Lane will be documented in the project civil engineering design plans. We recommend that Chick-fil-A place and maintain all vegetation and other above ground objects adjacent to both site access points to provide adequate sight distance in accordance with applicable ODOT and/or City of Woodburn requirements.

## FINDINGS AND RECOMMENDATIONS

The traffic impact analysis assessed the impacts of the proposed Chick-fil-A, and has found the following:

- The study intersections operate acceptably today and are continued to satisfy the applicable ODOT mobility targets and City operating requirements with Chick-fil-A open.
- The proposed on-site drive through queuing lanes are anticipated to accommodate the restaurant demands and not extend onto Hillyer Lane during typical conditions.

### Recommendations

Subject to applicable ODOT and/or City concurrence, we recommend Chick-fil-A do the following in conjunction with the proposed development:

- Place a new STOP (R1-1) sign for vehicles exiting the site at the west and central site access driveways onto Hillyer Lane Avenue in accordance with ODOT standards and the MUTCD.

---

<sup>1</sup> We note that Chick-fil-A also opened their new Keizer Station restaurant to the south in August 2022. Chick-fil-A representatives report that no formal traffic management plan was required; however, the restaurant operator met with the City police department in advance to review a plan to minimize any restaurant traffic backing to the public street including engagement of City police officers to manage traffic. We understand the restaurant implemented temporary extra drive-through storage within the site parking lot and that drive through queues are being accommodated on-site despite the restaurant being the first in the greater Salem-Keizer area and in close proximity to I-5.

- Place and maintain all vegetation and other above ground objects adjacent to the site access points to provide adequate minimum sight distance accordance with the applicable ODOT and/or City of Woodburn requirements.
- Collaborate with the City and ODOT to address opening period traffic conditions through development (and implementation if needed) of an opening period traffic management plan.
- Collaborate with the City and ODOT to address opening period traffic conditions through development (and implementation if needed) of an opening period traffic management plan.

Please contact us if you have any questions regarding our analysis findings or recommendations.

Sincerely,  
KITTELSON & ASSOCIATES, INC.



Chris Brehmer, PE  
Senior Principal Engineer



Julia Kuhn, PE  
Senior Principal Engineer



Megan Mannion  
Transportation Analyst

Cc: Andrew Hunt; 4G Development and Consulting, Inc.  
Steve Schwartz, Chick-fil-A, Inc.  
Mike Towle, PE; DOWL



## REFERENCES

1. Transportation Research Board. *Highway Capacity Manual, 6<sup>th</sup> Edition*. 2016.
2. Oregon Department of Transportation. *Analysis Procedures Manual Version 2*. November 2022.
3. Woodburn Transit System. *Bus Schedule*. <https://www.woodburn-or.gov/transit>

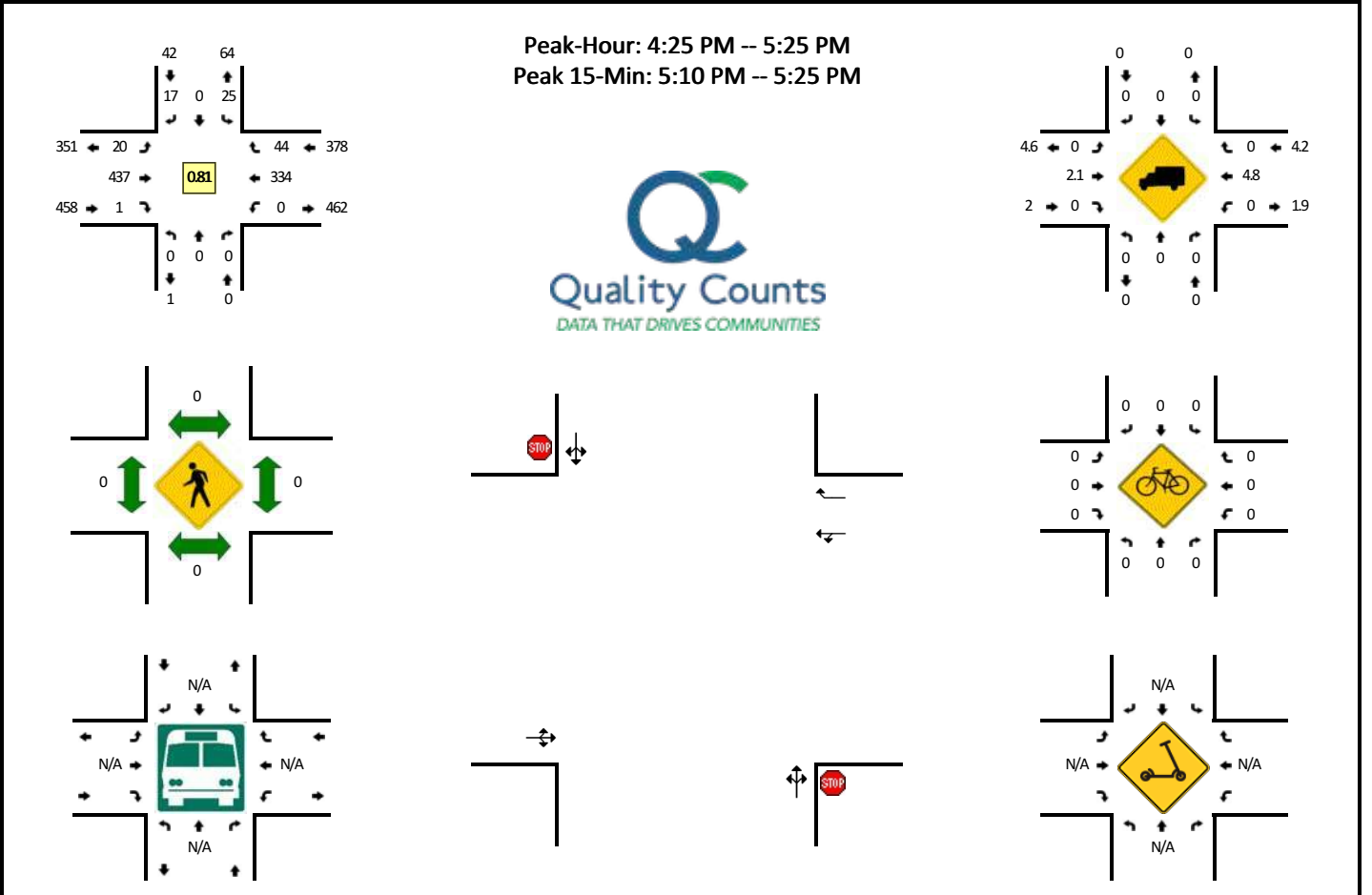
## APPENDIX

- A. Traffic Counts
- B. Existing Traffic Conditions Analysis Worksheets
- C. ODOT Crash Data
- D. 2024 Background Traffic Conditions Analysis Worksheets
- E. Observed Chick-fil-A Trip Rates and Queues
- F. Pass-by and Net New Trip Assignment Figures & OR 219/Butteville Road Site Trip Assignment
- G. 2024 Total Traffic Conditions Analysis Worksheets
- H. Queuing Worksheets

**Appendix A**  
Traffic Counts

**LOCATION:** Willow Ave/Church Dwy -- OR-219  
**CITY/STATE:** Woodburn, OR

**QC JOB #:** 15936854  
**DATE:** Thu, Sep 8 2022

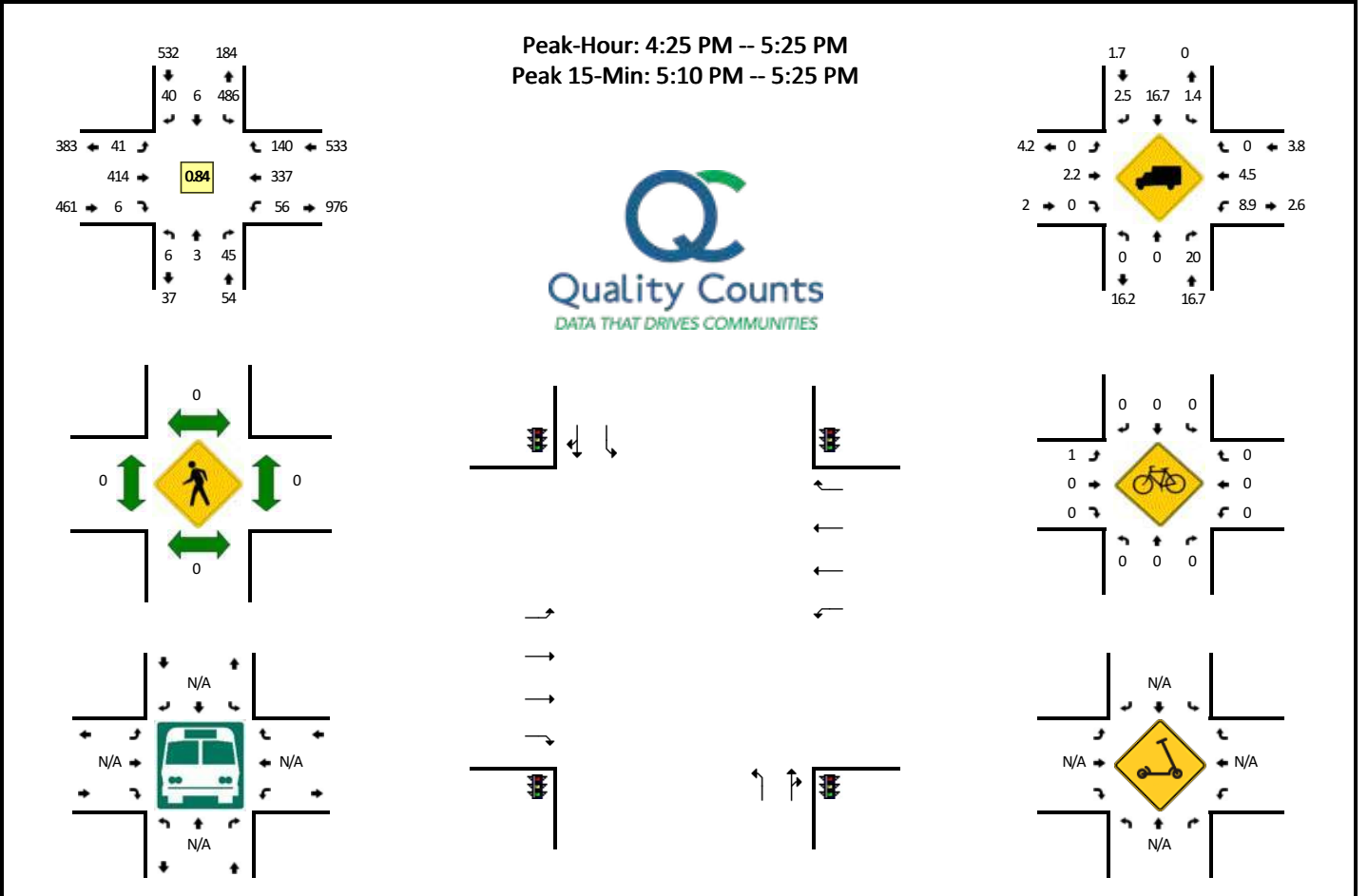


5-Min Count Period Beginning At	Willow Ave/Church Dwy (Northbound)				Willow Ave/Church Dwy (Southbound)				OR-219 (Eastbound)				OR-219 (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	0	0	0	0	0	2	0	2	37	0	0	0	24	7	0	72	
4:05 PM	0	0	0	0	3	0	2	0	0	28	0	0	0	23	9	0	65	
4:10 PM	0	0	0	0	4	0	1	0	9	38	0	0	0	16	4	0	72	
4:15 PM	0	0	0	0	5	0	1	0	6	33	0	0	0	22	7	0	74	
4:20 PM	0	0	0	0	2	0	2	0	1	33	0	0	0	31	0	0	69	
4:25 PM	0	0	0	0	3	0	1	0	3	29	0	0	0	29	1	0	66	
4:30 PM	0	0	0	0	3	0	2	0	2	27	0	0	0	19	2	0	55	
4:35 PM	0	0	0	0	4	0	1	0	4	32	0	0	0	22	5	0	68	
4:40 PM	0	0	0	0	1	0	1	0	0	28	0	0	0	30	5	0	65	
4:45 PM	0	0	0	0	2	0	1	0	1	44	1	0	0	34	0	0	83	
4:50 PM	0	0	0	0	0	0	3	0	0	35	0	0	0	24	1	0	63	
4:55 PM	0	0	0	0	1	0	1	0	1	40	0	0	0	18	3	0	64	816
5:00 PM	0	0	0	0	4	0	0	0	2	27	0	0	0	30	5	0	68	812
5:05 PM	0	0	0	0	2	0	0	0	3	29	0	0	0	36	5	0	75	822
5:10 PM	0	0	0	0	2	0	1	0	3	24	0	0	0	30	5	0	65	815
5:15 PM	0	0	0	0	3	0	1	0	0	72	0	0	0	30	6	0	112	853
5:20 PM	0	0	0	0	0	0	5	0	1	50	0	0	0	32	6	0	94	878
5:25 PM	0	0	0	0	0	0	3	0	2	38	0	0	0	33	6	0	82	894
5:30 PM	0	0	0	0	2	0	0	0	0	30	0	1	0	19	4	0	56	895
5:35 PM	0	0	0	0	1	0	1	0	1	31	0	0	0	34	6	0	74	901
5:40 PM	0	0	0	0	3	0	0	0	0	38	0	0	0	35	2	0	78	914
5:45 PM	0	0	0	0	0	0	2	0	1	29	0	0	0	33	1	0	66	897
5:50 PM	0	0	0	0	5	0	2	0	2	27	0	0	1	26	2	0	65	899
5:55 PM	0	0	0	0	0	0	1	0	0	25	0	0	0	21	0	0	47	882
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	0	0	0	0	20	0	28	0	16	584	0	0	0	368	68	0	1084	
Heavy Trucks	0	0	0	0	0	0	0	0	0	4	0	0	0	32	0	0	36	
Buses																		
Pedestrians		0				0				0				0			0	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Scoters																	0	

*Comments:*

**LOCATION:** Woodland Ave -- OR-219  
**CITY/STATE:** Woodburn, OR

**QC JOB #:** 15936846  
**DATE:** Thu, Sep 8 2022

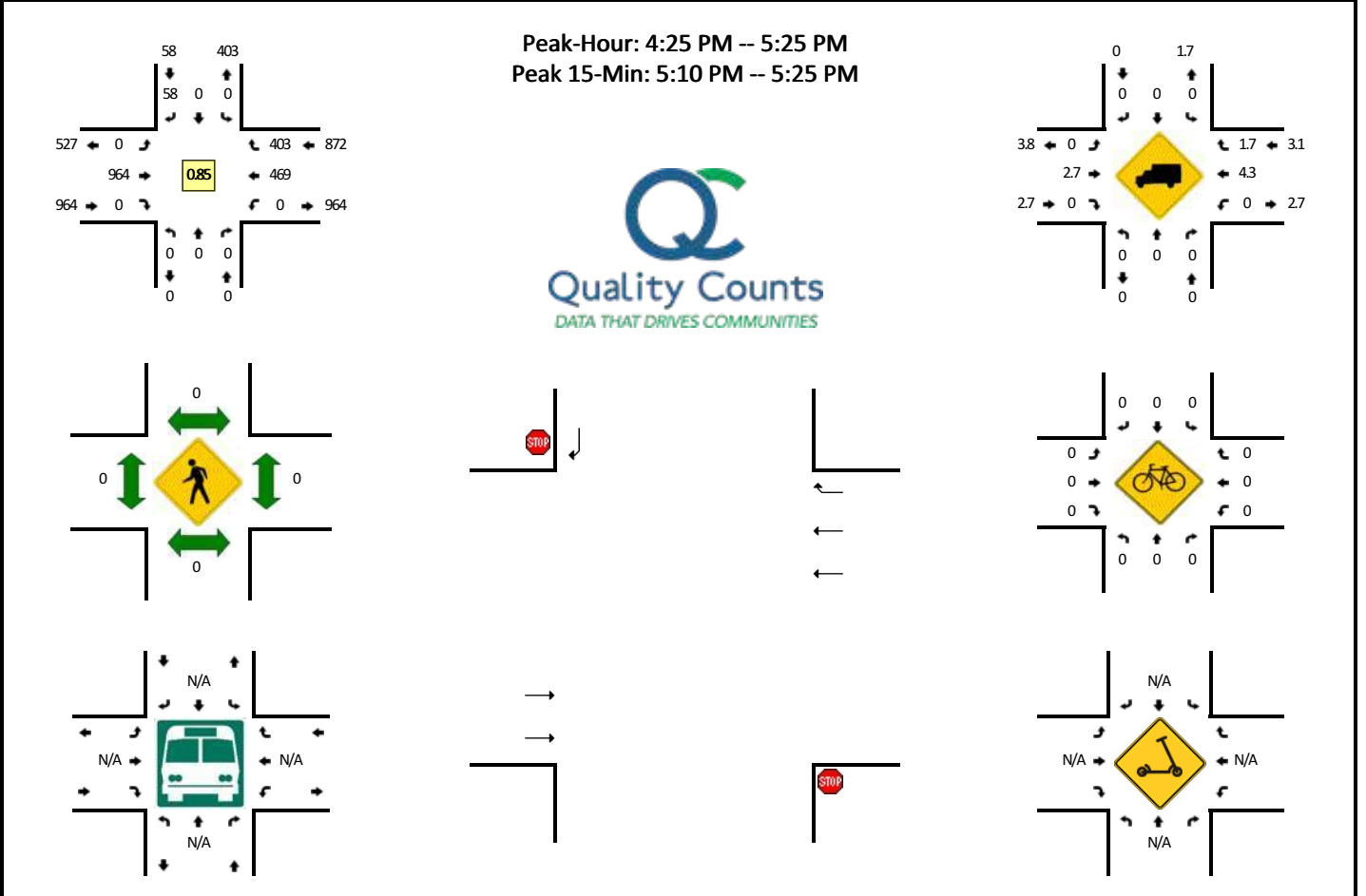


5-Min Count Period Beginning At	Woodland Ave (Northbound)				Woodland Ave (Southbound)				OR-219 (Eastbound)				OR-219 (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	1	0	5	0	45	0	5	0	5	33	2	0	2	32	6	2	138	
4:05 PM	1	0	3	0	44	0	5	0	1	28	0	0	1	18	8	2	111	
4:10 PM	0	2	6	0	55	1	1	0	2	35	0	0	3	25	7	2	139	
4:15 PM	1	2	8	0	46	0	7	0	5	33	0	0	3	23	15	2	145	
4:20 PM	2	0	6	0	46	0	1	0	3	31	0	0	0	19	11	1	120	
4:25 PM	0	0	3	0	47	1	3	0	4	30	0	0	2	33	11	7	141	
4:30 PM	1	0	3	0	45	0	3	0	4	28	1	0	2	13	13	0	113	
4:35 PM	1	1	4	0	38	2	1	0	2	26	0	0	1	22	6	4	108	
4:40 PM	2	1	2	0	43	0	4	0	3	28	1	0	1	31	9	0	125	
4:45 PM	0	1	2	0	42	1	5	0	3	39	0	0	4	28	8	2	135	
4:50 PM	0	0	4	0	46	2	2	0	4	35	1	0	1	20	11	0	126	
4:55 PM	0	0	3	0	28	0	4	0	1	39	0	0	4	20	14	3	116	1517
5:00 PM	0	0	7	0	32	0	5	0	4	26	0	0	3	30	11	3	121	1500
5:05 PM	1	0	5	0	31	0	4	0	7	26	0	0	3	30	15	2	124	1513
5:10 PM	0	0	6	0	54	0	4	0	2	21	0	0	2	35	10	4	138	1512
5:15 PM	1	0	4	0	34	0	1	0	6	61	3	0	1	32	19	2	164	1531
5:20 PM	0	0	2	0	46	0	4	0	1	55	0	0	1	43	13	4	169	1580
5:25 PM	1	0	1	0	40	0	4	0	3	32	0	0	0	23	10	2	116	1555
5:30 PM	0	0	4	0	34	0	2	0	11	21	1	0	4	30	6	1	114	1556
5:35 PM	0	0	3	0	38	0	3	0	2	31	0	0	0	31	7	3	118	1566
5:40 PM	0	0	0	0	44	0	3	0	5	37	2	0	1	36	8	1	137	1578
5:45 PM	0	0	2	0	28	0	4	0	1	26	2	0	3	24	11	4	105	1548
5:50 PM	0	0	1	0	43	0	5	0	6	20	0	0	1	23	15	1	115	1537
5:55 PM	0	0	1	0	33	0	3	0	3	26	0	0	4	20	10	1	101	1522
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	4	0	48	0	536	0	36	0	36	548	12	0	16	440	168	40	1884	
Heavy Trucks	0	0	0		4	0	0		0	4	0		0	32	0		40	
Buses																		
Pedestrians		0				0				0				0			0	
Bicycles	0	0	0		0	0	0		4	0	0		0	0	0		4	
Scoters																		

Comments:

**LOCATION:** N Arney Rd -- OR-219  
**CITY/STATE:** Woodburn, OR

**QC JOB #:** 15936849  
**DATE:** Thu, Sep 8 2022



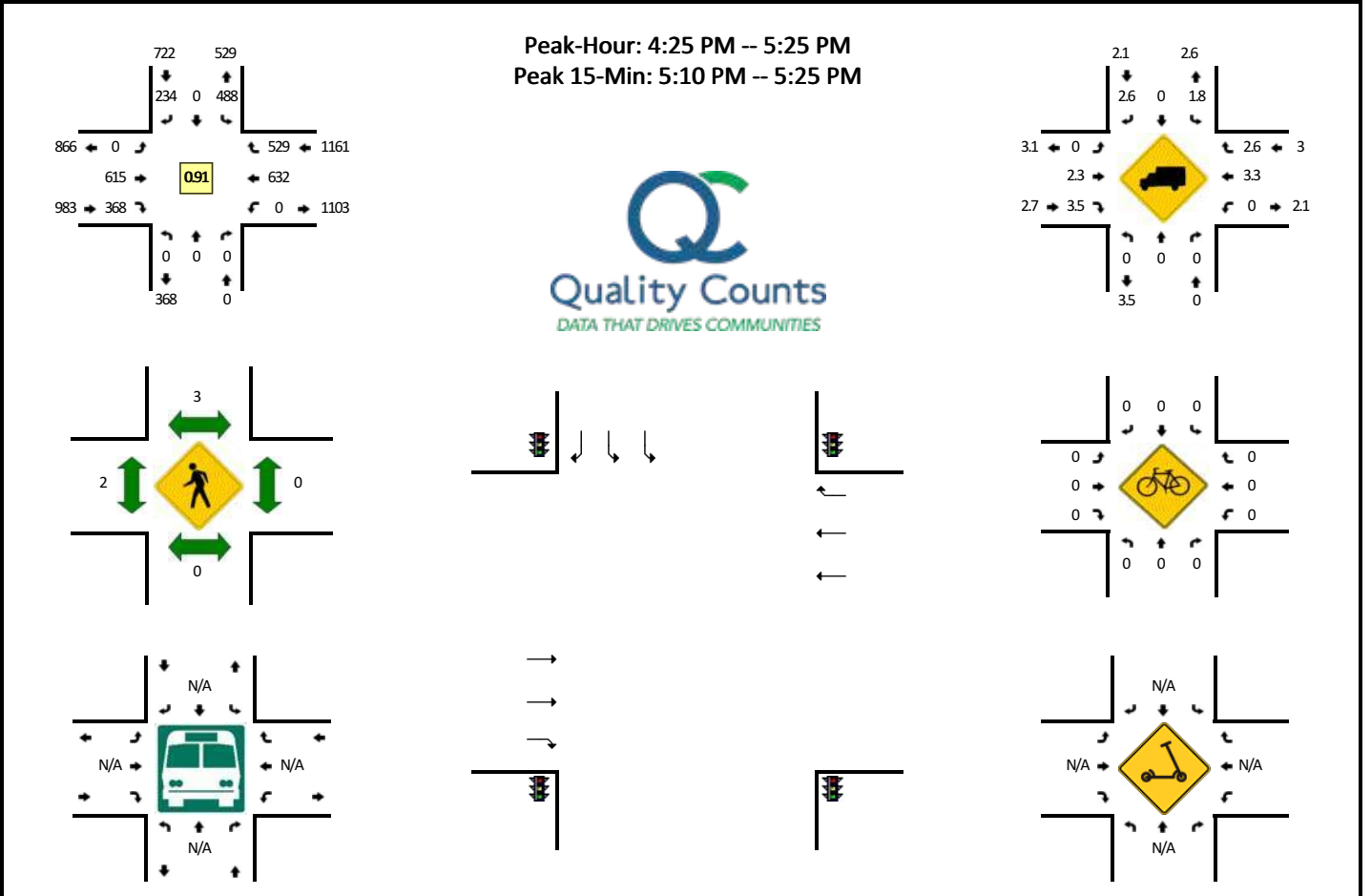
5-Min Count Period Beginning At	N Arney Rd (Northbound)				N Arney Rd (Southbound)				OR-219 (Eastbound)				OR-219 (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	0	0	0	0	0	2	0	0	82	0	0	0	35	40	0	159	
4:05 PM	0	0	0	0	0	0	1	0	0	74	0	0	0	28	30	0	133	
4:10 PM	0	0	0	0	0	0	2	0	0	91	0	0	0	36	32	0	161	
4:15 PM	0	0	0	0	0	0	3	0	0	102	0	0	0	42	36	0	183	
4:20 PM	0	0	0	0	0	0	3	0	0	89	0	0	0	37	33	0	162	
4:25 PM	0	0	0	0	0	0	6	0	0	84	0	0	0	38	31	0	159	
4:30 PM	0	0	0	0	0	0	4	0	0	80	0	0	0	28	35	0	147	
4:35 PM	0	0	0	0	0	0	3	0	0	69	0	0	0	31	25	0	128	
4:40 PM	0	0	0	0	0	0	3	0	0	72	0	0	0	36	26	0	137	
4:45 PM	0	0	0	0	0	0	4	0	0	85	0	0	0	38	38	0	165	
4:50 PM	0	0	0	0	0	0	2	0	0	86	0	0	0	29	44	0	161	
4:55 PM	0	0	0	0	0	0	8	0	0	71	0	0	0	41	28	0	148	
5:00 PM	0	0	0	0	0	0	8	0	0	66	0	0	0	34	25	0	133	1843
5:05 PM	0	0	0	0	0	0	4	0	0	64	0	0	0	52	42	0	162	1817
5:10 PM	0	0	0	0	0	0	5	0	0	82	0	0	0	40	41	0	168	1846
5:15 PM	0	0	0	0	0	0	6	0	0	102	0	0	0	54	26	0	188	1853
5:20 PM	0	0	0	0	0	0	5	0	0	103	0	0	0	48	42	0	198	1858
5:25 PM	0	0	0	0	0	0	6	0	0	76	0	0	0	35	37	0	154	1889
5:30 PM	0	0	0	0	0	0	3	0	0	64	0	0	0	31	37	0	135	1877
5:35 PM	0	0	0	0	0	0	5	0	0	75	0	0	0	37	26	0	143	1892
5:40 PM	0	0	0	0	0	0	3	0	0	83	0	0	0	42	38	0	166	1921
5:45 PM	0	0	0	0	0	0	6	0	0	60	0	0	0	35	26	0	127	1883
5:50 PM	0	0	0	0	0	0	1	0	0	66	0	0	0	45	28	0	140	1862
5:55 PM	0	0	0	0	0	0	3	0	0	63	0	0	0	28	28	0	122	1836
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	0	0	0	0	0	0	64	0	0	1148	0	0	0	568	436	0	2216	
Heavy Trucks	0	0	0	0	0	0	0	0	0	12	0	0	0	28	16	0	56	
Buses																	0	
Pedestrians			0				0			0				0			0	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Scoters																	0	

Comments:



**LOCATION:** I-5 SB Ramps -- OR-219  
**CITY/STATE:** Woodburn, OR

**QC JOB #:** 15936847  
**DATE:** Thu, Sep 8 2022



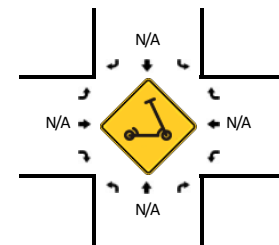
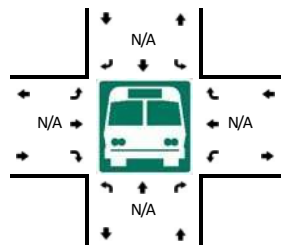
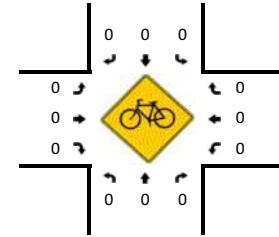
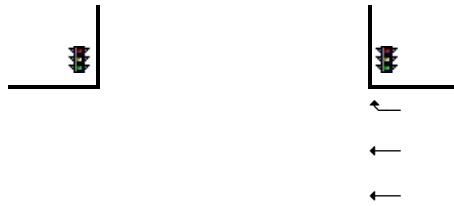
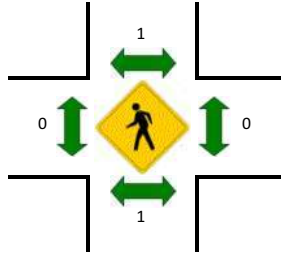
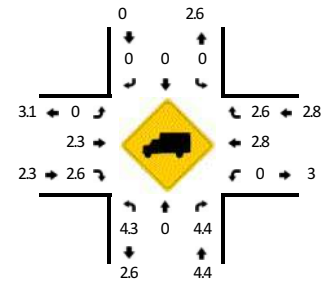
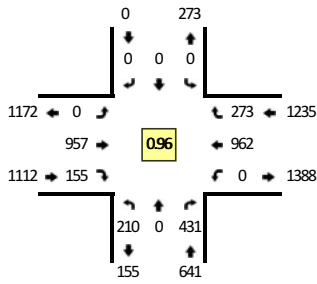
5-Min Count Period Beginning At	I-5 SB Ramps (Northbound)				I-5 SB Ramps (Southbound)				OR-219 (Eastbound)				OR-219 (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	0	0	0	39	0	20	0	0	56	26	0	0	53	38	0	232	
4:05 PM	0	0	0	0	29	0	17	0	0	44	30	0	0	40	41	0	201	
4:10 PM	0	0	0	0	33	0	26	0	0	62	31	0	0	41	41	0	234	
4:15 PM	0	0	0	0	39	0	17	0	0	56	44	0	0	58	43	0	257	
4:20 PM	0	0	0	0	49	0	22	0	0	59	30	0	0	50	45	0	255	
4:25 PM	0	0	0	0	53	0	16	0	0	48	28	0	0	52	46	0	243	
4:30 PM	0	0	0	0	35	0	20	0	0	55	34	0	0	45	47	0	236	
4:35 PM	0	0	0	0	39	0	14	0	0	51	21	0	0	41	36	0	202	
4:40 PM	0	0	0	0	35	0	13	0	0	39	31	0	0	49	38	0	205	
4:45 PM	0	0	0	0	47	0	26	0	0	54	41	0	0	51	38	0	257	
4:50 PM	0	0	0	0	33	0	18	0	0	46	30	0	0	54	45	0	226	
4:55 PM	0	0	0	0	43	0	21	0	0	47	38	0	0	43	53	0	245	
5:00 PM	0	0	0	0	37	0	15	0	0	48	19	0	0	43	40	0	202	2793
5:05 PM	0	0	0	0	44	0	27	0	0	42	21	0	0	72	55	0	261	2763
5:10 PM	0	0	0	0	54	0	23	0	0	52	32	0	0	57	49	0	267	2823
5:15 PM	0	0	0	0	33	0	19	0	0	68	34	0	0	61	43	0	258	2856
5:20 PM	0	0	0	0	35	0	22	0	0	65	39	0	0	64	39	0	264	2857
5:25 PM	0	0	0	0	41	0	18	0	0	45	30	0	0	53	44	0	231	2866
5:30 PM	0	0	0	0	34	0	18	0	0	44	21	0	0	51	34	0	202	2854
5:35 PM	0	0	0	0	38	0	11	0	0	54	19	0	0	49	37	0	208	2820
5:40 PM	0	0	0	0	46	0	24	0	0	64	19	0	0	57	29	0	239	2826
5:45 PM	0	0	0	0	37	0	21	0	0	37	23	0	0	42	31	0	191	2794
5:50 PM	0	0	0	0	29	0	18	0	0	46	19	0	0	50	34	0	196	2764
5:55 PM	0	0	0	0	41	0	12	0	0	43	16	0	0	43	30	0	185	2704
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	0	0	0	0	488	0	256	0	0	740	420	0	0	728	524	0	3156	
Heavy Trucks	0	0	0	0	12	0	12	0	0	8	8	0	0	32	8	0	80	
Buses																		
Pedestrians		0				4				4				0			8	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Scooters																		

*Comments:*

**LOCATION:** I-5 NB Ramps -- OR-219/OR-214  
**CITY/STATE:** Woodburn, OR

**QC JOB #:** 15936848  
**DATE:** Thu, Sep 8 2022

**Peak-Hour: 4:25 PM -- 5:25 PM**  
**Peak 15-Min: 5:05 PM -- 5:20 PM**

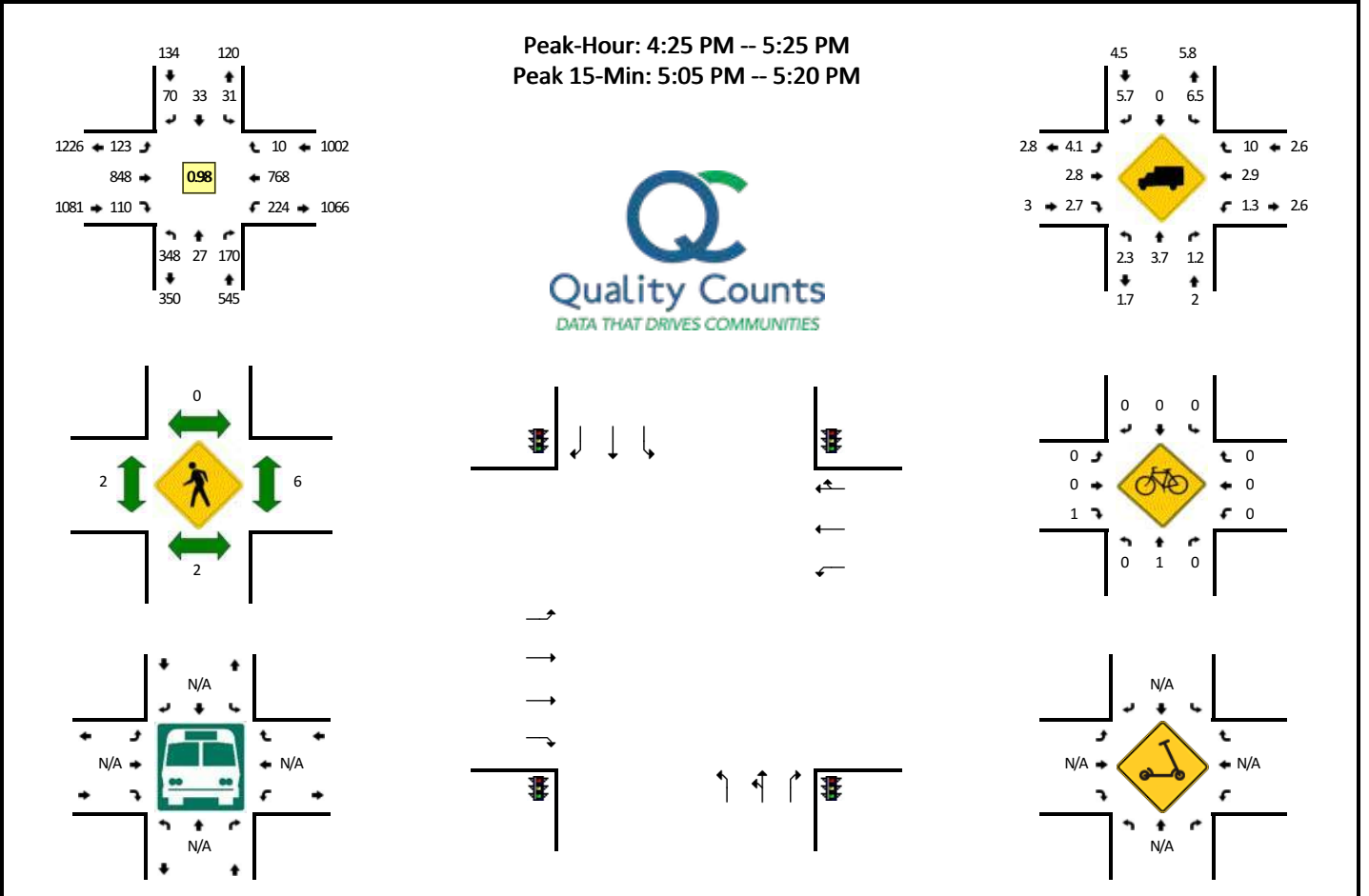


5-Min Count Period Beginning At	I-5 NB Ramps (Northbound)				I-5 NB Ramps (Southbound)				OR-219/OR-214 (Eastbound)				OR-219/OR-214 (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	17	0	43	0	0	0	0	0	0	84	15	0	0	74	19	0	252	
4:05 PM	10	0	31	0	0	0	0	0	0	64	12	0	0	70	23	0	210	
4:10 PM	15	0	36	0	0	0	0	0	0	81	18	0	0	73	25	0	248	
4:15 PM	16	0	32	0	0	0	0	0	0	83	12	0	0	84	23	0	250	
4:20 PM	17	0	35	0	0	0	0	0	0	100	10	0	0	80	26	0	268	
4:25 PM	18	0	46	0	0	0	0	0	0	87	11	0	0	87	25	0	274	
4:30 PM	17	0	39	0	0	0	0	0	0	79	17	0	0	66	20	0	238	
4:35 PM	15	0	37	0	0	0	0	0	0	82	9	0	0	61	29	0	233	
4:40 PM	15	0	35	0	0	0	0	0	0	70	8	0	0	76	25	0	229	
4:45 PM	19	0	30	0	0	0	0	0	0	92	10	0	0	76	25	0	252	
4:50 PM	14	0	39	0	0	0	0	0	0	70	11	0	0	80	23	0	237	
4:55 PM	13	0	44	0	0	0	0	0	0	81	11	0	0	86	22	0	257	2948
5:00 PM	12	0	44	0	0	0	0	0	0	76	8	0	0	83	16	0	239	2935
5:05 PM	26	0	21	0	0	0	0	0	0	80	12	0	0	93	29	0	261	2986
5:10 PM	17	0	32	0	0	0	0	0	0	82	13	0	0	92	19	0	255	2993
5:15 PM	25	0	29	0	0	0	0	0	0	87	21	0	0	80	20	0	262	3005
5:20 PM	19	0	35	0	0	0	0	0	0	71	24	0	0	82	20	0	251	2988
5:25 PM	18	0	43	0	0	0	0	0	0	80	11	0	0	83	22	0	257	2971
5:30 PM	20	0	46	0	0	0	0	0	0	63	12	0	0	67	18	1	227	2960
5:35 PM	14	0	38	0	0	0	0	0	0	75	14	0	0	75	24	0	240	2967
5:40 PM	16	0	49	0	0	0	0	0	0	91	19	0	0	67	15	0	257	2995
5:45 PM	14	0	32	0	0	0	0	0	0	65	14	0	0	60	24	0	209	2952
5:50 PM	13	0	21	0	0	0	0	0	0	61	13	0	0	75	25	0	208	2923
5:55 PM	12	0	22	0	0	0	0	0	0	75	7	0	0	56	24	0	196	2862
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	272	0	328	0	0	0	0	0	0	996	184	0	0	1060	272	0	3112	
Heavy Trucks	24	0	20		0	0	0		0	24	4		0	20	8		100	
Buses																		
Pedestrians		4				0				0				0			4	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Scoters																		

Comments:

**LOCATION:** Evergreen Rd -- OR-214  
**CITY/STATE:** Woodburn, OR

**QC JOB #:** 15936851  
**DATE:** Thu, Sep 8 2022

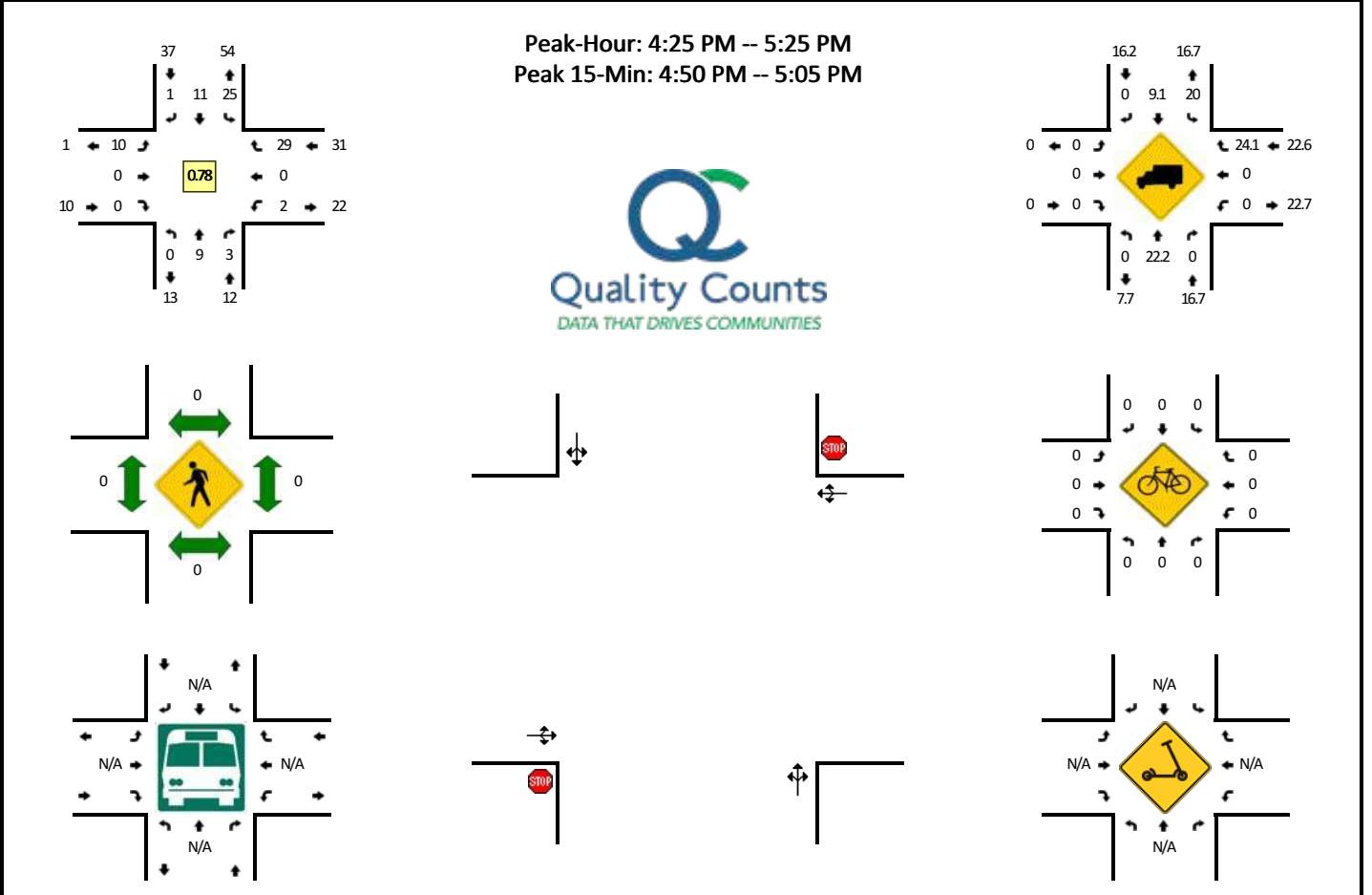


5-Min Count Period Beginning At	Evergreen Rd (Northbound)				Evergreen Rd (Southbound)				OR-214 (Eastbound)				OR-214 (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	22	6	15	0	2	2	13	0	6	81	11	2	20	54	2	0	236	
4:05 PM	24	0	15	0	3	2	6	0	5	60	7	2	12	59	0	3	198	
4:10 PM	32	2	15	0	0	2	6	0	7	69	9	3	15	59	2	1	222	
4:15 PM	36	2	18	0	2	1	2	0	7	68	13	5	20	61	2	4	241	
4:20 PM	28	3	14	0	5	3	12	0	6	66	11	5	13	61	1	0	228	
4:25 PM	35	2	12	0	1	1	6	0	9	89	12	0	0	74	2	0	243	
4:30 PM	23	3	10	0	3	2	10	0	8	74	7	3	27	46	0	2	218	
4:35 PM	27	1	17	0	2	5	2	0	8	76	6	7	12	54	1	1	219	
4:40 PM	19	0	9	0	3	5	3	0	9	73	7	3	25	72	2	1	231	
4:45 PM	35	4	12	0	0	2	7	0	6	63	10	2	19	57	1	3	221	
4:50 PM	23	2	20	0	4	3	6	0	10	75	12	4	22	70	0	1	252	
4:55 PM	30	4	14	0	4	2	6	0	3	61	7	3	18	70	1	2	225	2734
5:00 PM	23	3	16	0	5	2	6	0	6	68	10	6	12	65	0	4	226	2724
5:05 PM	37	2	14	0	5	6	11	0	7	69	8	5	18	70	1	0	253	2779
5:10 PM	34	2	17	0	1	2	3	0	5	47	13	3	14	69	1	1	212	2769
5:15 PM	31	1	19	0	2	2	4	0	5	81	11	1	23	62	0	1	243	2771
5:20 PM	31	3	10	0	1	1	6	0	7	72	7	3	17	59	1	1	219	2762
5:25 PM	37	2	17	0	0	2	2	0	3	68	15	3	23	65	0	1	238	2757
5:30 PM	18	1	18	0	3	3	5	0	5	79	12	6	15	55	0	0	220	2759
5:35 PM	19	2	20	0	0	4	5	0	7	72	9	2	12	69	0	0	221	2761
5:40 PM	28	1	21	0	3	1	8	0	6	88	11	1	21	43	1	0	233	2763
5:45 PM	22	2	23	0	3	0	4	0	6	74	10	5	25	57	1	0	232	2774
5:50 PM	28	2	16	0	5	4	3	0	2	47	6	5	8	61	2	2	191	2713
5:55 PM	21	1	19	0	1	7	6	0	6	63	5	5	17	49	1	4	205	2693
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	408	20	200	0	32	40	72	0	68	788	128	36	220	804	8	8	2832	
Heavy Trucks	16	4	0		4	0	8		8	32	8		4	4	0		88	
Buses																		
Pedestrians		0				0				0				8			8	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Scoters																		

Comments:

**LOCATION:** S Woodland Ave -- Commercial Dwy/Hillyer Ln  
**CITY/STATE:** Woodburn, OR

**QC JOB #:** 15936845  
**DATE:** Thu, Sep 8 2022

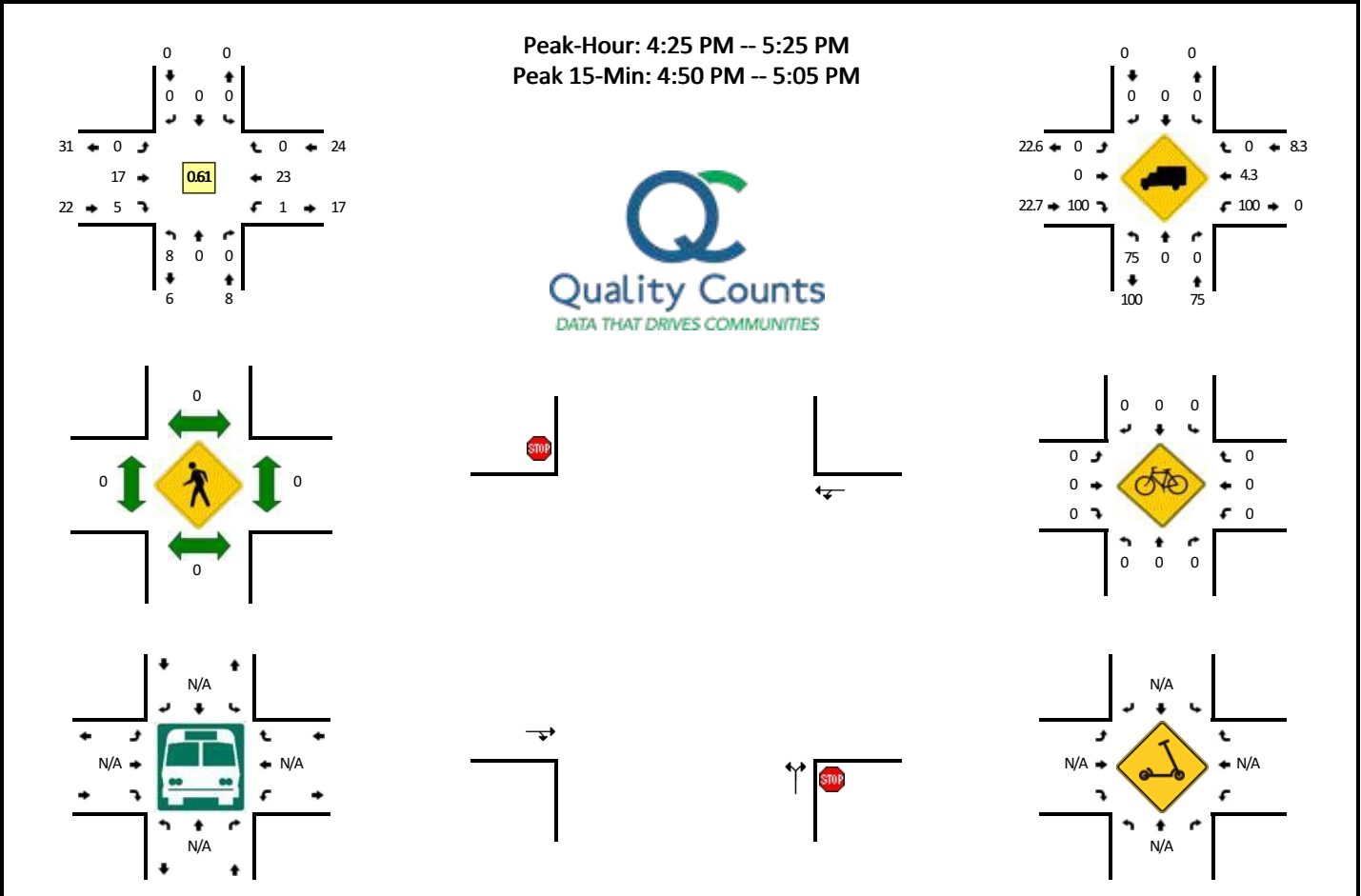


5-Min Count Period Beginning At	S Woodland Ave (Northbound)				S Woodland Ave (Southbound)				Commercial Dwy/Hillyer Ln (Eastbound)				Commercial Dwy/Hillyer Ln (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	6	0	0	2	2	0	0	0	0	0	0	0	0	1	0	11	
4:05 PM	0	2	0	0	1	0	0	0	0	0	0	0	0	0	1	0	4	
4:10 PM	0	1	0	0	2	1	0	0	1	4	0	0	0	0	3	0	12	
4:15 PM	0	5	0	0	1	1	0	0	0	4	0	0	0	0	2	0	13	
4:20 PM	0	4	0	0	0	1	0	0	0	2	0	0	0	0	1	0	8	
4:25 PM	0	0	0	0	0	3	0	0	0	0	0	0	0	0	4	0	7	
4:30 PM	0	2	0	0	2	1	0	0	0	0	0	0	0	0	1	0	6	
4:35 PM	0	2	0	0	1	0	0	0	1	1	0	0	0	0	3	0	8	
4:40 PM	0	0	0	0	1	1	0	0	1	1	0	0	0	0	2	0	6	
4:45 PM	0	1	0	0	2	2	0	0	1	0	0	0	0	0	1	0	7	
4:50 PM	0	2	1	0	4	0	0	0	0	1	0	0	0	0	1	0	9	
4:55 PM	0	1	0	0	3	1	0	0	0	0	0	0	0	0	4	0	9	100
5:00 PM	0	0	0	0	3	0	0	0	0	2	0	0	0	2	4	0	11	100
5:05 PM	0	1	2	0	1	1	0	0	1	0	0	0	0	0	3	0	9	105
5:10 PM	0	0	0	0	0	0	0	0	1	2	0	0	0	0	3	0	7	100
5:15 PM	0	0	0	0	2	1	0	0	1	2	0	0	0	0	2	0	8	95
5:20 PM	0	0	0	0	0	1	0	0	0	1	0	0	0	0	1	0	3	90
5:25 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	4	87
5:30 PM	0	0	0	0	0	4	0	0	0	0	0	0	0	0	2	0	6	87
5:35 PM	0	0	0	0	1	0	0	0	0	0	0	0	0	0	3	0	4	83
5:40 PM	0	0	0	0	1	2	0	0	0	0	0	0	0	0	1	0	4	81
5:45 PM	0	1	0	0	1	4	0	0	0	0	0	0	0	0	0	0	6	80
5:50 PM	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	2	73
5:55 PM	0	0	0	0	2	1	0	0	1	0	0	0	0	0	0	0	4	68
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	0	12	4	0	40	4	0	0	0	12	0	0	0	8	0	36	0	116
Heavy Trucks	0	8	0	0	12	0	0	0	0	0	0	0	0	0	0	4	0	24
Buses																		0
Pedestrians		0				0					0				0			0
Bicycles	0	0	0		0	0	0			0	0	0		0	0	0		0
Scoters																		0

Comments:

**LOCATION:** Commercial Dwy -- Hillyer Ln  
**CITY/STATE:** Woodburn, OR

**QC JOB #:** 15936850  
**DATE:** Thu, Sep 8 2022



5-Min Count Period Beginning At	Commercial Dwy (Northbound)				Commercial Dwy (Southbound)				Hillyer Ln (Eastbound)				Hillyer Ln (Westbound)				Total	Hourly Totals			
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U					
4:00 PM	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	1	0	0	0	3	
4:05 PM	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	2	
4:10 PM	1	0	0	0	0	0	0	0	0	0	2	0	0	0	2	0	0	0	0	5	
4:15 PM	1	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	3	
4:20 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1	
4:25 PM	2	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	5	
4:30 PM	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	2	
4:35 PM	2	0	0	0	0	0	0	0	0	0	0	1	0	0	3	0	0	0	0	6	
4:40 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	
4:45 PM	0	0	0	0	0	0	0	0	0	0	1	1	0	0	1	0	0	0	0	3	
4:50 PM	0	0	0	0	0	0	0	0	0	0	4	1	0	0	1	0	0	0	0	6	
4:55 PM	1	0	0	0	0	0	0	0	0	0	2	1	0	0	3	0	0	0	0	7	44
5:00 PM	0	0	0	0	0	0	0	0	0	0	2	1	0	0	6	0	0	0	0	9	50
5:05 PM	2	0	0	0	0	0	0	0	0	0	3	0	0	0	1	0	0	0	0	6	54
5:10 PM	1	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	4	53
5:15 PM	0	0	0	0	0	0	0	0	0	0	2	0	0	0	1	1	0	0	0	4	54
5:20 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	54
5:25 PM	3	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	4	53
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	2	53
5:35 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	3	0	0	0	0	4	51
5:40 PM	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	2	52
5:45 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	50
5:50 PM	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	2	46
5:55 PM	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	2	41
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total				
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U					
All Vehicles	4	0	0	0	0	0	0	0	0	0	32	12	0	0	40	0	0	0	0	88	
Heavy Trucks	4	0	0	0	0	0	0	0	0	0	0	12	0	0	0	0	0	0	0	16	
Buses																					
Pedestrians		0				0					0				0					0	
Bicycles	0	0	0		0	0	0			0	0	0		0	0	0			0		
Scoters																					

Comments:























**Appendix B**  
Existing Traffic Conditions  
Analysis Worksheets

# HCM Signalized Intersection Capacity Analysis

# Existing Traffic Conditions

## 1: Woodland Ave & OR-219

PM Peak Hour

													
Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	
Lane Configurations													
Traffic Volume (vph)	44	451	6	31	29	361	150	6	3	50	530	6	
Future Volume (vph)	44	451	6	31	29	361	150	6	3	50	530	6	
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	
Grade (%)		0%				0%			0%			3%	
Total Lost time (s)	4.0	4.5	4.0		4.0	4.5	4.0	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95	1.00		1.00	0.95	1.00	1.00	1.00		0.95	0.95	
Frt	1.00	1.00	0.85		1.00	1.00	0.85	1.00	0.86		1.00	0.98	
Flt Protected	0.95	1.00	1.00		0.95	1.00	1.00	0.95	1.00		0.95	0.96	
Satd. Flow (prot)	1630	3260	1305		1585	3197	1473	1662	1247		1540	1514	
Flt Permitted	0.95	1.00	1.00		0.95	1.00	1.00	0.95	1.00		0.95	0.96	
Satd. Flow (perm)	1630	3260	1305		1585	3197	1473	1662	1247		1540	1514	
Peak-hour factor, PHF	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	
Adj. Flow (vph)	52	537	7	37	35	430	179	7	4	60	631	7	
RTOR Reduction (vph)	0	0	4	0	0	0	69	0	56	0	0	4	
Lane Group Flow (vph)	52	537	3	0	72	430	110	7	8	0	347	338	
Heavy Vehicles (%)	2%	2%	14%	0%	10%	4%	1%	0%	0%	22%	1%	33%	
Turn Type	Prot	NA	pm+ov	Prot	Prot	NA	pm+ov	Split	NA		Split	NA	
Protected Phases	5	2	8	1	1	6	4	8	8		4	4	
Permitted Phases			2				6						
Actuated Green, G (s)	9.2	23.5	28.7		7.6	21.9	48.7	5.2	5.2		26.8	26.8	
Effective Green, g (s)	9.2	23.5	28.7		7.6	21.9	48.7	5.2	5.2		26.8	26.8	
Actuated g/C Ratio	0.12	0.30	0.36		0.10	0.28	0.61	0.07	0.07		0.34	0.34	
Clearance Time (s)	4.0	4.5	4.0		4.0	4.5	4.0	4.0	4.0		4.0	4.0	
Vehicle Extension (s)	2.5	4.2	2.5		2.5	4.2	2.5	2.5	2.5		2.5	2.5	
Lane Grp Cap (vph)	188	962	470		151	879	901	108	81		518	509	
v/s Ratio Prot	0.03	c0.16	0.00		0.05	c0.13	0.04	0.00	c0.01		c0.23	0.22	
v/s Ratio Perm			0.00				0.03						
v/c Ratio	0.28	0.56	0.01		0.48	0.49	0.12	0.06	0.10		0.67	0.66	
Uniform Delay, d1	32.2	23.7	16.3		34.1	24.2	6.5	34.9	35.0		22.6	22.6	
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	0.6	0.9	0.0		1.7	0.6	0.0	0.2	0.4		3.0	2.9	
Delay (s)	32.7	24.6	16.3		35.8	24.8	6.5	35.1	35.4		25.6	25.5	
Level of Service	C	C	B		D	C	A	D	D		C	C	
Approach Delay (s)		25.2				21.2			35.4			25.5	
Approach LOS		C				C			D			C	
<b>Intersection Summary</b>													
HCM 2000 Control Delay			24.3									HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio			0.57										
Actuated Cycle Length (s)			79.6									Sum of lost time (s)	16.5
Intersection Capacity Utilization			52.3%									ICU Level of Service	A
Analysis Period (min)			15										























c Critical Lane Group

Movement	SBR
Lane Configurations	
Traffic Volume (vph)	43
Future Volume (vph)	43
Ideal Flow (vphpl)	1750
Grade (%)	
Total Lost time (s)	
Lane Util. Factor	
Fr <sub>t</sub>	
Fl <sub>t</sub> Protected	
Satd. Flow (prot)	
Fl <sub>t</sub> Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.84
Adj. Flow (vph)	51
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Heavy Vehicles (%)	0%
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	
Intersection Summary	



HCM 6th Signalized Intersection Summary  
1: Woodland Ave & OR-219

Existing Traffic Conditions  
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (veh/h)	44	451	6	31	29	361	150	6	3	50	530	6
Future Volume (veh/h)	44	451	6	31	29	361	150	6	3	50	530	6
Initial Q (Qb), veh	0	0	0		0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00		1.00		1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1723	1723	1559		1614	1695	1736	1750	1750	1450	1688	1251
Adj Flow Rate, veh/h	52	537	2		35	430	97	7	4	0	679	0
Peak Hour Factor	0.84	0.84	0.84		0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Percent Heavy Veh, %	2	2	14		10	4	1	0	0	22	1	33
Cap, veh/h	110	1018	434		60	878	811	28	30	0	896	349
Arrive On Green	0.07	0.31	0.31		0.04	0.27	0.27	0.02	0.02	0.00	0.28	0.00
Sat Flow, veh/h	1641	3273	1321		1537	3221	1471	1667	1750	0	3214	1251
Grp Volume(v), veh/h	52	537	2		35	430	97	7	4	0	679	0
Grp Sat Flow(s),veh/h/ln	1641	1637	1321		1537	1611	1471	1667	1750	0	1607	1251
Q Serve(g_s), s	1.4	6.3	0.0		1.0	5.2	1.5	0.2	0.1	0.0	9.0	0.0
Cycle Q Clear(g_c), s	1.4	6.3	0.0		1.0	5.2	1.5	0.2	0.1	0.0	9.0	0.0
Prop In Lane	1.00		1.00		1.00		1.00	1.00		0.00	1.00	
Lane Grp Cap(c), veh/h	110	1018	434		60	878	811	28	30	0	896	349
V/C Ratio(X)	0.47	0.53	0.00		0.58	0.49	0.12	0.25	0.13	0.00	0.76	0.00
Avail Cap(c_a), veh/h	704	3159	1298		659	3109	1830	1072	1126	0	3102	1207
HCM Platoon Ratio	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00
Uniform Delay (d), s/veh	21.0	13.2	10.5		22.0	14.2	5.0	22.6	22.6	0.0	15.4	0.0
Incr Delay (d2), s/veh	2.3	0.6	0.0		6.5	0.6	0.1	3.3	1.5	0.0	1.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	2.0	0.0		0.5	1.7	0.7	0.1	0.1	0.0	2.9	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	23.3	13.9	10.5		28.5	14.9	5.1	25.9	24.1	0.0	16.4	0.0
LnGrp LOS	C	B	B		C	B	A	C	C	A	B	A
Approach Vol, veh/h		591				562			11			679
Approach Delay, s/veh		14.7				14.1			25.2			16.4
Approach LOS		B				B			C			B
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	5.8	19.0		17.0	7.6	17.2		4.8				
Change Period (Y+Rc), s	4.0	4.5		4.0	4.5	* 4.5		4.0				
Max Green Setting (Gmax), s	20.0	45.0		45.0	20.0	* 45		30.0				
Max Q Clear Time (g_c+I1), s	3.0	8.3		11.0	3.4	7.2		2.2				
Green Ext Time (p_c), s	0.0	6.2		2.0	0.1	5.5		0.0				

Intersection Summary												
HCM 6th Ctrl Delay											15.2	
HCM 6th LOS											B	

Notes

- User approved pedestrian interval to be less than phase max green.
- User approved volume balancing among the lanes for turning movement.
- User approved ignoring U-Turning movement.

Movement	SBR
Lane Configurations	
Traffic Volume (veh/h)	43
Future Volume (veh/h)	43
Initial Q (Qb), veh	0
Ped-Bike Adj(A_pbT)	1.00
Parking Bus, Adj	1.00
Work Zone On Approach	
Adj Sat Flow, veh/h/ln	1701
Adj Flow Rate, veh/h	0
Peak Hour Factor	0.84
Percent Heavy Veh, %	0
Cap, veh/h	0
Arrive On Green	0.00
Sat Flow, veh/h	0
Grp Volume(v), veh/h	0
Grp Sat Flow(s),veh/h/ln	0
Q Serve(g_s), s	0.0
Cycle Q Clear(g_c), s	0.0
Prop In Lane	0.00
Lane Grp Cap(c), veh/h	0
V/C Ratio(X)	0.00
Avail Cap(c_a), veh/h	0
HCM Platoon Ratio	1.00
Upstream Filter(l)	0.00
Uniform Delay (d), s/veh	0.0
Incr Delay (d2), s/veh	0.0
Initial Q Delay(d3),s/veh	0.0
%ile BackOfQ(50%),veh/ln	0.0
Unsig. Movement Delay, s/veh	
LnGrp Delay(d),s/veh	0.0
LnGrp LOS	A
Approach Vol, veh/h	
Approach Delay, s/veh	
Approach LOS	

Timer - Assigned Phs

\* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.  
 User approved changes to right turn type.

Intersection						
Int Delay, s/veh	0.3					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑	↑		↑
Traffic Vol, veh/h	0	1062	508	431	0	63
Future Vol, veh/h	0	1062	508	431	0	63
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	125	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	3	0	-	0	-
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	0	2	5	2	0	0
Mvmt Flow	0	1249	598	507	0	74

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	-	0	-	0	299
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-
Critical Hdwy	-	-	-	-	6.9
Critical Hdwy Stg 1	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	3.3
Pot Cap-1 Maneuver	0	-	-	-	703
Stage 1	0	-	-	-	-
Stage 2	0	-	-	-	-
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	-	703
Mov Cap-2 Maneuver	-	-	-	-	-
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-













Approach	EB	WB	SB
HCM Control Delay, s	0	0	10.7
HCM LOS			B

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	703
HCM Lane V/C Ratio	-	-	-	0.105
HCM Control Delay (s)	-	-	-	10.7
HCM Lane LOS	-	-	-	B
HCM 95th %tile Q(veh)	-	-	-	0.4

# HCM Signalized Intersection Capacity Analysis













## 3: I-5 SB Ramps & OR-219

Existing Traffic Conditions  
PM Peak Hour

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		↑↑	↗		↑↑	↗				↖↗		↗	
Traffic Volume (vph)	0	668	394	0	689	571	0	0	0	522	0	250	
Future Volume (vph)	0	668	394	0	689	571	0	0	0	522	0	250	
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	
Grade (%)		3%			-4%			0%			5%		
Total Lost time (s)		4.5	4.0		4.5	4.0				4.5		2.5	
Lane Util. Factor		0.95	1.00		0.95	1.00				0.97		1.00	
Frbp, ped/bikes		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	
Frt		1.00	0.85		1.00	0.85				1.00		0.85	
Flt Protected		1.00	1.00		1.00	1.00				0.95		1.00	
Satd. Flow (prot)		3211	1436		3261	1456				3113		1408	
Flt Permitted		1.00	1.00		1.00	1.00				0.95		1.00	
Satd. Flow (perm)		3211	1436		3261	1456				3113		1408	
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	
Adj. Flow (vph)	0	734	433	0	757	627	0	0	0	574	0	275	
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	40	
Lane Group Flow (vph)	0	734	433	0	757	627	0	0	0	574	0	235	
Confl. Peds. (#/hr)	2					2	1					1	
Heavy Vehicles (%)	0%	2%	2%	0%	4%	2%	0%	0%	0%	1%	0%	3%	
Turn Type		NA	Free		NA	Free				Prot		custom	
Protected Phases		2			6					4		4 5	
Permitted Phases			Free			Free							
Actuated Green, G (s)		67.5	100.0		58.1	100.0				23.5		33.4	
Effective Green, g (s)		67.5	100.0		58.1	100.0				23.5		35.4	
Actuated g/C Ratio		0.68	1.00		0.58	1.00				0.24		0.35	
Clearance Time (s)		4.5			4.5					4.5			
Vehicle Extension (s)		6.0			4.0					2.5			
Lane Grp Cap (vph)		2167	1436		1894	1456				731		498	
v/s Ratio Prot		0.23			0.23					c0.18		c0.17	
v/s Ratio Perm			0.30			c0.43							
v/c Ratio		0.34	0.30		0.40	0.43				0.79		0.47	
Uniform Delay, d1		6.8	0.0		11.4	0.0				35.9		25.0	
Progression Factor		1.00	1.00		0.76	1.00				1.00		1.00	
Incremental Delay, d2		0.4	0.5		0.6	0.9				5.4		0.5	
Delay (s)		7.3	0.5		9.3	0.9				41.2		25.6	
Level of Service		A	A		A	A				D		C	
Approach Delay (s)		4.8			5.5			0.0			36.2		
Approach LOS		A			A			A			D		
<b>Intersection Summary</b>													
HCM 2000 Control Delay			12.9									HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.56										
Actuated Cycle Length (s)			100.0									Sum of lost time (s)	11.0
Intersection Capacity Utilization			44.8%									ICU Level of Service	A
Analysis Period (min)			15										
c Critical Lane Group													

HCM 6th Signalized Intersection Summary  
3: I-5 SB Ramps & OR-219

Existing Traffic Conditions  
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↗		↑↑	↗				↖↖		↗
Traffic Volume (veh/h)	0	668	394	0	689	571	0	0	0	522	0	250
Future Volume (veh/h)	0	668	394	0	689	571	0	0	0	522	0	250
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1674	1674	0	1840	1867				1601	0	1573
Adj Flow Rate, veh/h	0	734	0	0	757	0				574	0	231
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91				0.91	0.91	0.91
Percent Heavy Veh, %	0	2	2	0	4	2				1	0	3
Cap, veh/h	0	2172		0	2387					671	0	329
Arrive On Green	0.00	0.68	0.00	0.00	1.00	0.00				0.23	0.00	0.25
Sat Flow, veh/h	0	3264	1419	0	3587	1582				2958	0	1333
Grp Volume(v), veh/h	0	734	0	0	757	0				574	0	231
Grp Sat Flow(s),veh/h/ln	0	1590	1419	0	1748	1582				1479	0	1333
Q Serve(g_s), s	0.0	9.5	0.0	0.0	0.0	0.0				18.6	0.0	15.8
Cycle Q Clear(g_c), s	0.0	9.5	0.0	0.0	0.0	0.0				18.6	0.0	15.8
Prop In Lane	0.00		1.00	0.00		1.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	2172		0	2387					671	0	329
V/C Ratio(X)	0.00	0.34		0.00	0.32					0.86	0.00	0.70
Avail Cap(c_a), veh/h	0	2172		0	2387					1050	0	500
HCM Platoon Ratio	1.00	1.00	1.00	1.00	2.00	2.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	0.00	0.00	0.85	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	6.5	0.0	0.0	0.0	0.0				37.1	0.0	34.3
Incr Delay (d2), s/veh	0.0	0.4	0.0	0.0	0.3	0.0				3.6	0.0	2.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	2.9	0.0	0.0	0.1	0.0				7.0	0.0	11.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	7.0	0.0	0.0	0.3	0.0				40.7	0.0	36.3
LnGrp LOS	A	A		A	A					D	A	D
Approach Vol, veh/h		734			757						805	
Approach Delay, s/veh		7.0			0.3						39.4	
Approach LOS		A			A						D	
Timer - Assigned Phs		2		4		6						
Phs Duration (G+Y+Rc), s		72.8		27.2		72.8						
Change Period (Y+Rc), s		4.5		4.5		4.5						
Max Green Setting (Gmax), s		55.5		35.5		35.5						
Max Q Clear Time (g_c+I1), s		11.5		20.6		2.0						
Green Ext Time (p_c), s		15.3		2.1		8.7						

Intersection Summary













HCM 6th Ctrl Delay	16.1
HCM 6th LOS	B

Notes

Unsignalized Delay for [EBR, WBR] is excluded from calculations of the approach delay and intersection delay.













HCM Signalized Intersection Capacity Analysis  
4: I-5 NB Ramps & OR-219/OR-214

Existing Traffic Conditions  
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↗		↑↑	↗	↗	↕	↗			
Traffic Volume (vph)	0	1024	166	0	1035	292	225	0	461	0	0	0
Future Volume (vph)	0	1024	166	0	1035	292	225	0	461	0	0	0
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Grade (%)		-4%			3%			2%			0%	
Total Lost time (s)		4.5	4.0		4.5	4.0	4.5	4.5	4.5			
Lane Util. Factor		0.95	1.00		0.95	1.00	0.95	0.91	0.95			
Frbp, ped/bikes		1.00	0.98		1.00	0.98	1.00	1.00	1.00			
Flpb, ped/bikes		1.00	1.00		1.00	1.00	1.00	1.00	1.00			
Frt		1.00	0.85		1.00	0.85	1.00	0.86	0.85			
Flt Protected		1.00	1.00		1.00	1.00	0.95	1.00	1.00			
Satd. Flow (prot)		3325	1443		3180	1407	1503	1303	1345			
Flt Permitted		1.00	1.00		1.00	1.00	0.95	1.00	1.00			
Satd. Flow (perm)		3325	1443		3180	1407	1503	1303	1345			
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	0	1067	173	0	1078	304	234	0	480	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	67	67	0	0	0
Lane Group Flow (vph)	0	1067	173	0	1078	304	211	186	183	0	0	0
Confl. Peds. (#/hr)	1		1	1		1						
Heavy Vehicles (%)	0%	2%	3%	0%	3%	2%	4%	0%	4%	0%	0%	0%
Turn Type		NA	Free		NA	Free	Split	NA	Perm			
Protected Phases		2			6		8	8				
Permitted Phases			Free			Free			8			
Actuated Green, G (s)		70.7	100.0		70.7	100.0	20.3	20.3	20.3			
Effective Green, g (s)		70.7	100.0		70.7	100.0	20.3	20.3	20.3			
Actuated g/C Ratio		0.71	1.00		0.71	1.00	0.20	0.20	0.20			
Clearance Time (s)		4.5			4.5		4.5	4.5	4.5			
Vehicle Extension (s)		4.0			6.0		2.5	2.5	2.5			
Lane Grp Cap (vph)		2350	1443		2248	1407	305	264	273			
v/s Ratio Prot		0.32			c0.34		0.14	c0.14				
v/s Ratio Perm			0.12			0.22			0.14			
v/c Ratio		0.45	0.12		0.48	0.22	0.69	0.70	0.67			
Uniform Delay, d1		6.3	0.0		6.5	0.0	36.9	37.1	36.8			
Progression Factor		2.07	1.00		1.22	1.00	1.00	1.00	1.00			
Incremental Delay, d2		0.6	0.2		0.6	0.3	6.1	7.7	5.8			
Delay (s)		13.7	0.2		8.5	0.3	43.1	44.8	42.5			
Level of Service		B	A		A	A	D	D	D			
Approach Delay (s)		11.8			6.7			43.5			0.0	
Approach LOS		B			A			D			A	
<b>Intersection Summary</b>												
HCM 2000 Control Delay			16.5				HCM 2000 Level of Service				B	
HCM 2000 Volume to Capacity ratio			0.53									
Actuated Cycle Length (s)			100.0				Sum of lost time (s)				9.0	
Intersection Capacity Utilization			58.9%				ICU Level of Service				B	
Analysis Period (min)			15									
c Critical Lane Group												

HCM 6th Signalized Intersection Summary  
4: I-5 NB Ramps & OR-219/OR-214

Existing Traffic Conditions  
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↗		↑↑	↗	↗	↕	↗			
Traffic Volume (veh/h)	0	1024	166	0	1035	292	225	0	461	0	0	0
Future Volume (veh/h)	0	1024	166	0	1035	292	225	0	461	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	0	1867	1853	0	1660	1674	1674	1728	1674			
Adj Flow Rate, veh/h	0	1067	0	0	1078	0	156	0	494			
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96			
Percent Heavy Veh, %	0	2	3	0	3	2	4	0	4			
Cap, veh/h	0	2498		0	2221		328	0	584			
Arrive On Green	0.00	1.00	0.00	0.00	0.94	0.00	0.21	0.00	0.21			
Sat Flow, veh/h	0	3641	1571	0	3237	1419	1594	0	2837			
Grp Volume(v), veh/h	0	1067	0	0	1078	0	156	0	494			
Grp Sat Flow(s),veh/h/ln	0	1774	1571	0	1577	1419	1594	0	1418			
Q Serve(g_s), s	0.0	0.0	0.0	0.0	4.0	0.0	8.6	0.0	16.7			
Cycle Q Clear(g_c), s	0.0	0.0	0.0	0.0	4.0	0.0	8.6	0.0	16.7			
Prop In Lane	0.00		1.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	0	2498		0	2221		328	0	584			
V/C Ratio(X)	0.00	0.43		0.00	0.49		0.48	0.00	0.85			
Avail Cap(c_a), veh/h	0	2498		0	2221		566	0	1007			
HCM Platoon Ratio	1.00	2.00	2.00	1.00	1.33	1.33	1.00	1.00	1.00			
Upstream Filter(I)	0.00	0.83	0.00	0.00	0.80	0.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	0.0	0.0	0.0	0.0	1.1	0.0	35.0	0.0	38.2			
Incr Delay (d2), s/veh	0.0	0.4	0.0	0.0	0.6	0.0	0.8	0.0	2.6			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	0.0	0.2	0.0	0.0	0.9	0.0	3.4	0.0	5.9			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	0.4	0.0	0.0	1.7	0.0	35.7	0.0	40.8			
LnGrp LOS	A	A		A	A		D	A	D			
Approach Vol, veh/h		1067			1078			650				
Approach Delay, s/veh		0.4			1.7			39.6				
Approach LOS		A			A			D				
Timer - Assigned Phs		2				6		8				
Phs Duration (G+Y+Rc), s		74.9				74.9		25.1				
Change Period (Y+Rc), s		4.5				4.5		4.5				
Max Green Setting (Gmax), s		55.5				55.5		35.5				
Max Q Clear Time (g_c+I1), s		2.0				6.0		18.7				
Green Ext Time (p_c), s		15.6				26.3		1.8				

Intersection Summary

HCM 6th Ctrl Delay	10.0
HCM 6th LOS	B

Notes

User approved volume balancing among the lanes for turning movement.  
Unsignalized Delay for [EBR, WBR] is excluded from calculations of the approach delay and intersection delay.

# HCM Signalized Intersection Capacity Analysis

## 5: Evergreen Rd & OR-214

Existing Traffic Conditions  
PM Peak Hour

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (vph)	40	92	907	118	17	223	834	11	377	29	182	33
Future Volume (vph)	40	92	907	118	17	223	834	11	377	29	182	33
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Grade (%)			0%				3%			0%		
Total Lost time (s)		4.0	4.5	4.5		4.0	4.5		4.5	4.5	4.5	4.5
Lane Util. Factor		1.00	0.95	1.00		1.00	0.95		0.95	0.95	1.00	1.00
Frbp, ped/bikes		1.00	1.00	0.97		1.00	1.00		1.00	1.00	0.98	1.00
Flpb, ped/bikes		1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00
Frt		1.00	1.00	0.85		1.00	1.00		1.00	1.00	0.85	1.00
Flt Protected		0.95	1.00	1.00		0.95	1.00		0.95	0.96	1.00	0.95
Satd. Flow (prot)		1628	3260	1420		1622	3168		1533	1546	1448	1599
Flt Permitted		0.24	1.00	1.00		0.20	1.00		0.95	0.96	1.00	0.95
Satd. Flow (perm)		415	3260	1420		337	3168		1533	1546	1448	1599
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	41	94	926	120	17	228	851	11	385	30	186	34
RTOR Reduction (vph)	0	0	0	66	0	0	1	0	0	0	152	0
Lane Group Flow (vph)	0	135	926	54	0	245	861	0	208	207	34	34
Confl. Peds. (#/hr)				3		3			2		5	5
Heavy Vehicles (%)	0%	3%	2%	2%	0%	1%	3%	17%	3%	4%	1%	4%
Turn Type	D.P+P	D.P+P	NA	Perm	D.P+P	D.P+P	NA		Split	NA	Perm	Split
Protected Phases	5	5	2		1	1	6		8	8		4
Permitted Phases	6	6		2	2	2					8	
Actuated Green, G (s)		57.7	44.6	44.6		57.7	48.7		18.4	18.4	18.4	6.4
Effective Green, g (s)		57.7	44.6	44.6		57.7	48.7		18.4	18.4	18.4	6.4
Actuated g/C Ratio		0.58	0.45	0.45		0.58	0.49		0.18	0.18	0.18	0.06
Clearance Time (s)		4.0	4.5	4.5		4.0	4.5		4.5	4.5	4.5	4.5
Vehicle Extension (s)		2.5	6.2	6.2		2.5	6.2		2.5	2.5	2.5	2.5
Lane Grp Cap (vph)		348	1453	633		362	1542		282	284	266	102
v/s Ratio Prot		0.03	0.28			c0.09	0.27		c0.14	0.13		c0.02
v/s Ratio Perm		0.19		0.04		c0.30					0.02	
v/c Ratio		0.39	0.64	0.08		0.68	0.56		0.74	0.73	0.13	0.33
Uniform Delay, d1		10.8	21.4	15.9		26.1	18.1		38.5	38.4	34.1	44.8
Progression Factor		1.22	1.20	1.63		1.00	1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2		0.5	1.9	0.2		4.5	1.5		9.1	8.5	0.2	1.4
Delay (s)		13.7	27.7	26.3		30.6	19.5		47.6	46.9	34.3	46.2
Level of Service		B	C	C		C	B		D	D	C	D
Approach Delay (s)			25.9				22.0			43.3		
Approach LOS			C				C			D		
<b>Intersection Summary</b>												
HCM 2000 Control Delay			28.9				HCM 2000 Level of Service			C		
HCM 2000 Volume to Capacity ratio			0.66									
Actuated Cycle Length (s)			100.0				Sum of lost time (s)		17.5			
Intersection Capacity Utilization			77.8%				ICU Level of Service		D			
Analysis Period (min)			15									
c Critical Lane Group												



HCM Signalized Intersection Capacity Analysis  
5: Evergreen Rd & OR-214

Existing Traffic Conditions  
PM Peak Hour



Movement	SBT	SBR
Lane Configurations	↑	↑
Traffic Volume (vph)	35	76
Future Volume (vph)	35	76
Ideal Flow (vphpl)	1750	1750
Grade (%)	0%	
Total Lost time (s)	4.5	4.5
Lane Util. Factor	1.00	1.00
Frpb, ped/bikes	1.00	0.99
Flpb, ped/bikes	1.00	1.00
Frt	1.00	0.85
Flt Protected	1.00	1.00
Satd. Flow (prot)	1750	1410
Flt Permitted	1.00	1.00
Satd. Flow (perm)	1750	1410
Peak-hour factor, PHF	0.98	0.98
Adj. Flow (vph)	36	78
RTOR Reduction (vph)	0	73
Lane Group Flow (vph)	36	5
Confl. Peds. (#/hr)		2
Heavy Vehicles (%)	0%	4%
Turn Type	NA	Perm
Protected Phases	4	
Permitted Phases		4
Actuated Green, G (s)	6.4	6.4
Effective Green, g (s)	6.4	6.4
Actuated g/C Ratio	0.06	0.06
Clearance Time (s)	4.5	4.5
Vehicle Extension (s)	2.5	2.5
Lane Grp Cap (vph)	112	90
v/s Ratio Prot	0.02	
v/s Ratio Perm		0.00
v/c Ratio	0.32	0.06
Uniform Delay, d1	44.7	44.0
Progression Factor	1.00	1.00
Incremental Delay, d2	1.2	0.2
Delay (s)	45.9	44.1
Level of Service	D	D
Approach Delay (s)	45.0	
Approach LOS	D	
<b>Intersection Summary</b>		

# HCM 6th Signalized Intersection Summary

## 5: Evergreen Rd & OR-214

Existing Traffic Conditions  
PM Peak Hour



Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations		↔	↕	↗		↔	↕		↖	↕	↗	↘
Traffic Volume (veh/h)	40	92	907	118	17	223	834	11	377	29	182	33
Future Volume (veh/h)	40	92	907	118	17	223	834	11	377	29	182	33
Initial Q (Qb), veh		0	0	0		0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00		1.00		1.00		1.00	1.00		1.00	1.00
Parking Bus, Adj		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach			No				No			No		
Adj Sat Flow, veh/h/ln		1709	1723	1723		1688	1660	1469	1709	1695	1736	1695
Adj Flow Rate, veh/h		94	926	0		228	851	10	406	0	0	34
Peak Hour Factor		0.98	0.98	0.98		0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %		3	2	2		1	3	17	3	4	1	4
Cap, veh/h		399	1064			552	1805	21	493	0		107
Arrive On Green		0.04	0.32	0.00		0.28	0.57	0.57	0.15	0.00	0.00	0.07
Sat Flow, veh/h		1628	3273	1460		1607	3193	38	3255	0	1471	1615
Grp Volume(v), veh/h		94	926	0		228	420	441	406	0	0	34
Grp Sat Flow(s),veh/h/ln		1628	1637	1460		1607	1577	1653	1628	0	1471	1615
Q Serve(g_s), s		2.4	26.6	0.0		4.2	15.8	15.8	12.1	0.0	0.0	2.0
Cycle Q Clear(g_c), s		2.4	26.6	0.0		4.2	15.8	15.8	12.1	0.0	0.0	2.0
Prop In Lane		1.00		1.00		1.00		0.02	1.00		1.00	1.00
Lane Grp Cap(c), veh/h		399	1064			552	892	935	493	0		107
V/C Ratio(X)		0.24	0.87			0.41	0.47	0.47	0.82	0.00		0.32
Avail Cap(c_a), veh/h		559	1064			552	892	935	667	0		250
HCM Platoon Ratio		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)		0.85	0.85	0.00		1.00	1.00	1.00	1.00	0.00	0.00	1.00
Uniform Delay (d), s/veh		9.7	31.8	0.0		26.2	12.9	12.9	41.1	0.0	0.0	44.5
Incr Delay (d2), s/veh		0.2	8.4	0.0		0.4	1.8	1.7	5.5	0.0	0.0	1.2
Initial Q Delay(d3),s/veh		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln		0.8	11.5	0.0		4.1	5.7	6.0	5.2	0.0	0.0	0.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh		9.8	40.2	0.0		26.6	14.7	14.6	46.6	0.0	0.0	45.8
LnGrp LOS		A	D			C	B	B	D	A		D
Approach Vol, veh/h			1020				1089			406		
Approach Delay, s/veh			37.4				17.1			46.6		
Approach LOS			D				B			D		
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	32.2	37.0		11.1	8.2	61.0		19.6				
Change Period (Y+Rc), s	4.5	* 4.5		4.5	4.0	4.5		4.5				
Max Green Setting (Gmax), s	14.0	* 33		15.5	14.0	32.5		20.5				
Max Q Clear Time (g_c+I1), s	6.2	28.6		4.0	4.4	17.8		14.1				
Green Ext Time (p_c), s	0.3	3.1		0.1	0.1	9.4		0.7				

### Intersection Summary

HCM 6th Ctrl Delay	30.5
HCM 6th LOS	C

### Notes

- User approved pedestrian interval to be less than phase max green.
- User approved volume balancing among the lanes for turning movement.
- User approved ignoring U-Turning movement.

HCM 6th Signalized Intersection Summary  
5: Evergreen Rd & OR-214

Existing Traffic Conditions  
PM Peak Hour



Movement	SBT	SBR
Lane Configurations	↑	↑
Traffic Volume (veh/h)	35	76
Future Volume (veh/h)	35	76
Initial Q (Qb), veh	0	0
Ped-Bike Adj(A_pbT)		1.00
Parking Bus, Adj	1.00	1.00
Work Zone On Approach	No	
Adj Sat Flow, veh/h/ln	1750	1695
Adj Flow Rate, veh/h	36	0
Peak Hour Factor	0.98	0.98
Percent Heavy Veh, %	0	4
Cap, veh/h	116	
Arrive On Green	0.07	0.00
Sat Flow, veh/h	1750	1437
Grp Volume(v), veh/h	36	0
Grp Sat Flow(s),veh/h/ln	1750	1437
Q Serve(g_s), s	2.0	0.0
Cycle Q Clear(g_c), s	2.0	0.0
Prop In Lane		1.00
Lane Grp Cap(c), veh/h	116	
V/C Ratio(X)	0.31	
Avail Cap(c_a), veh/h	271	
HCM Platoon Ratio	1.00	1.00
Upstream Filter(I)	1.00	0.00
Uniform Delay (d), s/veh	44.5	0.0
Incr Delay (d2), s/veh	1.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	0.0
Unsig. Movement Delay, s/veh		
LnGrp Delay(d),s/veh	45.6	0.0
LnGrp LOS	D	
Approach Vol, veh/h	70	
Approach Delay, s/veh	45.7	
Approach LOS	D	

Timer - Assigned Phs

\* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [NBR, EBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Intersection												
Int Delay, s/veh	6.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	10	0	0	2	0	33	0	10	3	28	12	1
Future Vol, veh/h	10	0	0	2	0	33	0	10	3	28	12	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	78	78	78	78	78	78	78	78	78	78	78	78
Heavy Vehicles, %	0	0	0	0	0	24	0	40	0	29	8	0
Mvmt Flow	13	0	0	3	0	42	0	13	4	36	15	1

Major/Minor	Minor2		Minor1		Major1			Major2				
Conflicting Flow All	124	105	16	103	103	15	16	0	0	17	0	0
Stage 1	88	88	-	15	15	-	-	-	-	-	-	-
Stage 2	36	17	-	88	88	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.44	4.1	-	-	4.39	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.516	2.2	-	-	2.461	-	-
Pot Cap-1 Maneuver	855	789	1069	882	791	1004	1615	-	-	1441	-	-
Stage 1	925	826	-	1010	887	-	-	-	-	-	-	-
Stage 2	985	885	-	925	826	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	804	769	1069	865	771	1004	1615	-	-	1441	-	-
Mov Cap-2 Maneuver	804	769	-	865	771	-	-	-	-	-	-	-
Stage 1	925	805	-	1010	887	-	-	-	-	-	-	-
Stage 2	943	885	-	902	805	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	9.6	8.8	0	5.2
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1615	-	-	804	995	1441	-
HCM Lane V/C Ratio	-	-	-	0.016	0.045	0.025	-
HCM Control Delay (s)	0	-	-	9.6	8.8	7.6	0
HCM Lane LOS	A	-	-	A	A	A	A
HCM 95th %tile Q(veh)	0	-	-	0	0.1	0.1	-

Intersection												
Int Delay, s/veh	1.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕	↕		↕			↕	
Traffic Vol, veh/h	21	474	1	0	362	48	0	0	0	27	0	18
Future Vol, veh/h	21	474	1	0	362	48	0	0	0	27	0	18
Conflicting Peds, #/hr	0	0	0	0	0	0	2	0	0	0	0	2
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	0	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	81	81	81	81	81	81	81	81	81	81	81	81
Heavy Vehicles, %	0	2	0	0	5	0	0	0	0	0	0	0
Mvmt Flow	26	585	1	0	447	59	0	0	0	33	0	22

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	506	0	0	586	0	0	1128	1144	586	1085	1085	449
Stage 1	-	-	-	-	-	-	638	638	-	447	447	-
Stage 2	-	-	-	-	-	-	490	506	-	638	638	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1069	-	-	999	-	-	183	202	514	196	218	614
Stage 1	-	-	-	-	-	-	468	474	-	595	577	-
Stage 2	-	-	-	-	-	-	564	543	-	468	474	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1069	-	-	999	-	-	171	195	514	191	210	613
Mov Cap-2 Maneuver	-	-	-	-	-	-	171	195	-	191	210	-
Stage 1	-	-	-	-	-	-	451	457	-	574	577	-
Stage 2	-	-	-	-	-	-	543	543	-	451	457	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.4	0	0	22.2
HCM LOS			A	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	-	1069	-	-	999	-	-	264
HCM Lane V/C Ratio	-	0.024	-	-	-	-	-	0.21
HCM Control Delay (s)	0	8.5	0	-	0	-	-	22.2
HCM Lane LOS	A	A	A	-	A	-	-	C
HCM 95th %tile Q(veh)	-	0.1	-	-	0	-	-	0.8

**Appendix C**  
Crash Data

ACTION CODE TRANSLATION LIST

ACTION CODE	SHORT DESCRIPTION	LONG DESCRIPTION
000	NONE	NO ACTION OR NON-WARRANTED
001	SKIDDED	SKIDDED
002	ON/OFF V	GETTING ON OR OFF STOPPED OR PARKED VEHICLE
003	LOAD OVR	OVERHANGING LOAD STRUCK ANOTHER VEHICLE, ETC.
006	SLOW DN	SLOWED DOWN
007	AVOIDING	AVOIDING MANEUVER
008	PAR PARK	PARALLEL PARKING
009	ANG PARK	ANGLE PARKING
010	INTERFERE	PASSENGER INTERFERING WITH DRIVER
011	STOPPED	STOPPED IN TRAFFIC NOT WAITING TO MAKE A LEFT TURN
012	STP/L TRN	STOPPED BECAUSE OF LEFT TURN SIGNAL OR WAITING, ETC.
013	STP TURN	STOPPED WHILE EXECUTING A TURN
014	EMR V PKD	EMERGENCY VEHICLE LEGALLY PARKED IN THE ROADWAY
015	GO A/STOP	PROCEED AFTER STOPPING FOR A STOP SIGN/FLASHING RED.
016	TRN A/RED	TURNUED ON RED AFTER STOPPING
017	LOSTCTRL	LOST CONTROL OF VEHICLE
018	EXIT DWY	ENTERING STREET OR HIGHWAY FROM ALLEY OR DRIVEWAY
019	ENTR DWY	ENTERING ALLEY OR DRIVEWAY FROM STREET OR HIGHWAY
020	STR ENTR	BEFORE ENTERING ROADWAY, STRUCK PEDESTRIAN, ETC. ON SIDEWALK OR SHOULDER
021	NO DRVR	CAR RAN AWAY - NO DRIVER
022	PREV COL	STRUCK, OR WAS STRUCK BY, VEHICLE OR PEDESTRIAN IN PRIOR COLLISION BEFORE ACC. STABILIZED
023	STALLED	VEHICLE STALLED OR DISABLED
024	DRVR DEAD	DEAD BY UNASSOCIATED CAUSE
025	FATIGUE	FATIGUED, SLEEPY, ASLEEP
026	SUN	DRIVER BLINDED BY SUN
027	HDLGHTS	DRIVER BLINDED BY HEADLIGHTS
028	ILLNESS	PHYSICALLY ILL
029	THRU MED	VEHICLE CROSSED, PLUNGED OVER, OR THROUGH MEDIAN BARRIER
030	PURSUIT	PURSUING OR ATTEMPTING TO STOP A VEHICLE
031	PASSING	PASSING SITUATION
032	PRKOFFRD	VEHICLE PARKED BEYOND CURB OR SHOULDER
033	CROS MED	VEHICLE CROSSED EARTH OR GRASS MEDIAN
034	X N/SGNL	CROSSING AT INTERSECTION - NO TRAFFIC SIGNAL PRESENT
035	X W/ SGNL	CROSSING AT INTERSECTION - TRAFFIC SIGNAL PRESENT
036	DIAGONAL	CROSSING AT INTERSECTION - DIAGONALLY
037	BTWN INT	CROSSING BETWEEN INTERSECTIONS
038	DISTRACT	DRIVER'S ATTENTION DISTRACTED
039	W/TRAF-S	WALKING, RUNNING, RIDING, ETC., ON SHOULDER WITH TRAFFIC
040	A/TRAF-S	WALKING, RUNNING, RIDING, ETC., ON SHOULDER FACING TRAFFIC
041	W/TRAF-P	WALKING, RUNNING, RIDING, ETC., ON PAVEMENT WITH TRAFFIC
042	A/TRAF-P	WALKING, RUNNING, RIDING, ETC., ON PAVEMENT FACING TRAFFIC
043	PLAYINRD	PLAYING IN STREET OR ROAD
044	PUSH MV	PUSHING OR WORKING ON VEHICLE IN ROAD OR ON SHOULDER
045	WORK ON	WORKING IN ROADWAY OR ALONG SHOULDER
046	W/ TRAFIC	NON-MOTORIST WALKING, RUNNING, RIDING, ETC. WITH TRAFFIC
047	A/ TRAFIC	NON-MOTORIST WALKING, RUNNING, RIDING, ETC. FACING TRAFFIC
050	LAY ON RD	STANDING OR LYING IN ROADWAY
051	ENT OFFRD	ENTERING / STARTING IN TRAFFIC LANE FROM OFF ROAD
052	MERGING	MERGING

ACTION CODE TRANSLATION LIST

ACTION CODE	SHORT DESCRIPTION	LONG DESCRIPTION
055	SPRAY	BLINDED BY WATER SPRAY
088	OTHER	OTHER ACTION
099	UNK	UNKNOWN ACTION



CAUSE CODE TRANSLATION LIST

CAUSE CODE	SHORT DESCRIPTION	LONG DESCRIPTION
00	NO CODE	NO CAUSE ASSOCIATED AT THIS LEVEL
01	TOO-FAST	TOO FAST FOR CONDITIONS (NOT EXCEED POSTED SPEED
02	NO-YIELD	DID NOT YIELD RIGHT-OF-WAY
03	PAS-STOP	PASSED STOP SIGN OR RED FLASHER
04	DIS SIG	DISREGARDED TRAFFIC SIGNAL
05	LEFT-CTR	DROVE LEFT OF CENTER ON TWO-WAY ROAD; STRADDLING
06	IMP-OVER	IMPROPER OVERTAKING
07	TOO-CLOS	FOLLOWED TOO CLOSELY
08	IMP-TURN	MADE IMPROPER TURN
09	DRINKING	ALCOHOL OR DRUG INVOLVED
10	OTHR-IMP	OTHER IMPROPER DRIVING
11	MECH-DEF	MECHANICAL DEFECT
12	OTHER	OTHER (NOT IMPROPER DRIVING)
13	IMP LN C	IMPROPER CHANGE OF TRAFFIC LANES
14	DIS TCD	DISREGARDED OTHER TRAFFIC CONTROL DEVICE
15	WRNG WAY	WRONG WAY ON ONE-WAY ROAD; WRONG SIDE DIVIDED RO
16	FATIGUE	DRIVER DROWSY/FATIGUED/SLEEPY
17	ILLNESS	PHYSICAL ILLNESS
18	IN RDWY	NON-MOTORIST ILLEGALLY IN ROADWAY
19	NT VISBL	NON-MOTORIST NOT VISIBLE; NON-REFLECTIVE CLOTHIN
20	IMP PKNG	VEHICLE IMPROPERLY PARKED
21	DEF STER	DEFECTIVE STEERING MECHANISM
22	DEF BRKE	INADEQUATE OR NO BRAKES
24	LOADSHFT	VEHICLE LOST LOAD OR LOAD SHIFTED
25	TIREFAIL	TIRE FAILURE
26	PHANTOM	PHANTOM / NON-CONTACT VEHICLE
27	INATTENT	INATTENTION
28	NM INATT	NON-MOTORIST INATTENTION
29	F AVOID	FAILED TO AVOID VEHICLE AHEAD
30	SPEED	DRIVING IN EXCESS OF POSTED SPEED
31	RACING	SPEED RACING (PER PAR)
32	CARELESS	CARELESS DRIVING (PER PAR)
33	RECKLESS	RECKLESS DRIVING (PER PAR)
34	AGGRESV	AGGRESSIVE DRIVING (PER PAR)
35	RD RAGE	ROAD RAGE (PER PAR)
40	VIEW OBS	VIEW OBSCURED
50	USED MDN	IMPROPER USE OF MEDIAN OR SHOULDER
51	FAIL LN	FAILED TO MAINTAIN LANE
52	OFF RD	RAN OFF ROAD

COLLISION TYPE CODE TRANSLATION LIST

COLL CODE	SHORT DESCRIPTION	LONG DESCRIPTION
&	OTH	MISCELLANEOUS
-	BACK	BACKING
0	PED	PEDESTRIAN
1	ANGL	ANGLE
2	HEAD	HEAD-ON
3	REAR	REAR-END
4	SS-M	SIDESWIPE - MEETING
5	SS-O	SIDESWIPE - OVERTAKING
6	TURN	TURNING MOVEMENT
7	PARK	PARKING MANEUVER
8	NCOL	NON-COLLISION
9	FIX	FIXED OBJECT OR OTHER OBJECT

CRASH TYPE CODE TRANSLATION LIST

CRASH TYPE	SHORT DESCRIPTION	LONG DESCRIPTION
&	OVERTURN	OVERTURNED
0	NON-COLL	OTHER NON-COLLISION
1	OTH RDWY	MOTOR VEHICLE ON OTHER ROADWAY
2	PRKD MV	PARKED MOTOR VEHICLE
3	PED	PEDESTRIAN
4	TRAIN	RAILWAY TRAIN
6	BIKE	PEDALCYCLIST
7	ANIMAL	ANIMAL
8	FIX OBJ	FIXED OBJECT
9	OTH OBJ	OTHER OBJECT
A	ANGL-STP	ENTERING AT ANGLE - ONE VEHICLE STOPPED
B	ANGL-OTH	ENTERING AT ANGLE - ALL OTHERS
C	S-STRGHT	FROM SAME DIRECTION - BOTH GOING STRAIGHT
D	S-1TURN	FROM SAME DIRECTION - ONE TURN, ONE STRAIGHT
E	S-1STOP	FROM SAME DIRECTION - ONE STOPPED
F	S-OTHER	FROM SAME DIRECTION-ALL OTHERS, INCLUDING PARKING
G	O-STRGHT	FROM OPPOSITE DIRECTION - BOTH GOING STRAIGHT
H	O-1 L-TURN	FROM OPPOSITE DIRECTION-ONE LEFT TURN, ONE STRAIGHT
I	O-1STOP	FROM OPPOSITE DIRECTION - ONE STOPPED
J	O-OTHER	FROM OPPOSITE DIRECTION-ALL OTHERS INCL. PARKING

DRIVER LICENSE CODE TRANSLATION LIST

LIC CODE	SHORT DESC	LONG DESCRIPTION
0	NONE	NOT LICENSED (HAD NEVER BEEN LICENSED)
1	OR-Y	VALID OREGON LICENSE
2	OTH-Y	VALID LICENSE, OTHER STATE OR COUNTRY
3	SUSP	SUSPENDED/REVOKED
4	EXP	EXPIRED
8	N-VAL	OTHER NON-VALID LICENSE
9	UNK	UNKNOWN IF DRIVER WAS LICENSED AT TIME OF CRASH

DRIVER RESIDENCE CODE TRANSLATION LIST

RES CODE	SHORT DESC	LONG DESCRIPTION
1	OR<25	OREGON RESIDENT WITHIN 25 MILE OF HOME
2	OR>25	OREGON RESIDENT 25 OR MORE MILES FROM HOME
3	OR-?	OREGON RESIDENT - UNKNOWN DISTANCE FROM HOME
4	N-RES	NON-RESIDENT
9	UNK	UNKNOWN IF OREGON RESIDENT

ERROR CODE TRANSLATION LIST

ERROR CODE	SHORT DESCRIPTION	FULL DESCRIPTION
000	NONE	NO ERROR
001	WIDE TRN	WIDE TURN
002	CUT CORN	CUT CORNER ON TURN
003	FAIL TRN	FAILED TO OBEY MANDATORY TRAFFIC TURN SIGNAL, SIGN OR LANE MARKINGS
004	L IN TRF	LEFT TURN IN FRONT OF ONCOMING TRAFFIC
005	L PROHIB	LEFT TURN WHERE PROHIBITED
006	FRM WRNG	TURNED FROM WRONG LANE
007	TO WRONG	TURNED INTO WRONG LANE
008	ILLEG U	U-TURNED ILLEGALLY
009	IMP STOP	IMPROPERLY STOPPED IN TRAFFIC LANE
010	IMP SIG	IMPROPER SIGNAL OR FAILURE TO SIGNAL
011	IMP BACK	BACKING IMPROPERLY (NOT PARKING)
012	IMP PARK	IMPROPERLY PARKED
013	UNPARK	IMPROPER START LEAVING PARKED POSITION
014	IMP STRT	IMPROPER START FROM STOPPED POSITION
015	IMP LGHT	IMPROPER OR NO LIGHTS (VEHICLE IN TRAFFIC)
016	INATTENT	INATTENTION (FAILURE TO DIM LIGHTS PRIOR TO 4/1/97)
017	UNSF VEH	DRIVING UNSAFE VEHICLE (NO OTHER ERROR APPARENT)
018	OTH PARK	ENTERING/EXITING PARKED POSITION W/ INSUFFICIENT CLEARANCE; OTHER IMPROPER PARKING MANEUVER
019	DIS DRIV	DISREGARDED OTHER DRIVER'S SIGNAL
020	DIS SGNL	DISREGARDED TRAFFIC SIGNAL
021	RAN STOP	DISREGARDED STOP SIGN OR FLASHING RED
022	DIS SIGN	DISREGARDED WARNING SIGN, FLARES OR FLASHING AMBER
023	DIS OFCR	DISREGARDED POLICE OFFICER OR FLAGMAN
024	DIS EMER	DISREGARDED SIREN OR WARNING OF EMERGENCY VEHICLE
025	DIS RR	DISREGARDED RR SIGNAL, RR SIGN, OR RR FLAGMAN
026	REAR-END	FAILED TO AVOID STOPPED OR PARKED VEHICLE AHEAD OTHER THAN SCHOOL BUS
027	BIKE ROW	DID NOT HAVE RIGHT-OF-WAY OVER PEDALCYCLIST
028	NO ROW	DID NOT HAVE RIGHT-OF-WAY
029	PED ROW	FAILED TO YIELD RIGHT-OF-WAY TO PEDESTRIAN
030	PAS CURV	PASSING ON A CURVE
031	PAS WRNG	PASSING ON THE WRONG SIDE
032	PAS TANG	PASSING ON STRAIGHT ROAD UNDER UNSAFE CONDITIONS
033	PAS X-WK	PASSED VEHICLE STOPPED AT CROSSWALK FOR PEDESTRIAN
034	PAS INTR	PASSING AT INTERSECTION
035	PAS HILL	PASSING ON CREST OF HILL
036	N/PAS ZN	PASSING IN "NO PASSING" ZONE
037	PAS TRAF	PASSING IN FRONT OF ONCOMING TRAFFIC
038	CUT-IN	CUTTING IN (TWO LANES - TWO WAY ONLY)
039	WRNGSIDE	DRIVING ON WRONG SIDE OF THE ROAD (2-WAY UNDIVIDED ROADWAYS)

ERROR CODE TRANSLATION LIST

ERROR CODE	SHORT DESCRIPTION	FULL DESCRIPTION
040	THRU MED	DRIVING THROUGH SAFETY ZONE OR OVER ISLAND
041	F/ST BUS	FAILED TO STOP FOR SCHOOL BUS
042	F/SLO MV	FAILED TO DECREASE SPEED FOR SLOWER MOVING VEHICLE
043	TOO CLOSE	FOLLOWING TOO CLOSELY (MUST BE ON OFFICER'S REPORT)
044	STRDL LN	STRADDLING OR DRIVING ON WRONG LANES
045	IMP CHG	IMPROPER CHANGE OF TRAFFIC LANES
046	WRNG WAY	WRONG WAY ON ONE-WAY ROADWAY; WRONG SIDE DIVIDED ROAD
047	BASCRULE	DRIVING TOO FAST FOR CONDITIONS (NOT EXCEEDING POSTED SPEED)
048	OPN DOOR	OPENED DOOR INTO ADJACENT TRAFFIC LANE
049	IMPEDING	IMPEDING TRAFFIC
050	SPEED	DRIVING IN EXCESS OF POSTED SPEED
051	RECKLESS	RECKLESS DRIVING (PER PAR)
052	CARELESS	CARELESS DRIVING (PER PAR)
053	RACING	SPEED RACING (PER PAR)
054	X N/SGNL	CROSSING AT INTERSECTION, NO TRAFFIC SIGNAL PRESENT
055	X W/SGNL	CROSSING AT INTERSECTION, TRAFFIC SIGNAL PRESENT
056	DIAGONAL	CROSSING AT INTERSECTION - DIAGONALLY
057	BTWN INT	CROSSING BETWEEN INTERSECTIONS
059	W/TRAF-S	WALKING, RUNNING, RIDING, ETC., ON SHOULDER WITH TRAFFIC
060	A/TRAF-S	WALKING, RUNNING, RIDING, ETC., ON SHOULDER FACING TRAFFIC
061	W/TRAF-P	WALKING, RUNNING, RIDING, ETC., ON PAVEMENT WITH TRAFFIC
062	A/TRAF-P	WALKING, RUNNING, RIDING, ETC., ON PAVEMENT FACING TRAFFIC
063	PLAYINRD	PLAYING IN STREET OR ROAD
064	PUSH MV	PUSHING OR WORKING ON VEHICLE IN ROAD OR ON SHOULDER
065	WORK IN RD	WORKING IN ROADWAY OR ALONG SHOULDER
070	LAY ON RD	STANDING OR LYING IN ROADWAY
071	NM IMP USE	IMPROPER USE OF TRAFFIC LANE BY NON-MOTORIST
073	ELUDING	ELUDING / ATTEMPT TO ELUDE
079	F NEG CURV	FAILED TO NEGOTIATE A CURVE
080	FAIL LN	FAILED TO MAINTAIN LANE
081	OFF RD	RAN OFF ROAD
082	NO CLEAR	DRIVER MISJUDGED CLEARANCE
083	OVRSTEER	OVER-CORRECTING
084	NOT USED	CODE NOT IN USE
085	OVRLOAD	OVERLOADING OR IMPROPER LOADING OF VEHICLE WITH CARGO OR PASSENGERS
097	UNA DIS TC	UNABLE TO DETERMINE WHICH DRIVER DISREGARDED TRAFFIC CONTROL DEVICE

EVENT CODE TRANSLATION LIST

EVENT CODE	SHORT DESCRIPTION	LONG DESCRIPTION
001	FEL/JUMP	OCCUPANT FELL, JUMPED OR WAS EJECTED FROM MOVING VEHICLE
002	INTERFER	PASSENGER INTERFERED WITH DRIVER
003	BUG INTF	ANIMAL OR INSECT IN VEHICLE INTERFERED WITH DRIVER
004	INDRCT PED	PEDESTRIAN INDIRECTLY INVOLVED (NOT STRUCK)
005	SUB-PED	"SUB-PED": PEDESTRIAN INJURED SUBSEQUENT TO COLLISION, ETC.
006	INDRCT BIK	PEDALCYCLIST INDIRECTLY INVOLVED (NOT STRUCK)
007	HITCHKR	HITCHHIKER (SOLICITING A RIDE)
008	PSNGR TOW	PASSENGER OR NON-MOTORIST BEING TOWED OR PUSHED ON CONVEYANCE
009	ON/OFF V	GETTING ON/OFF STOPPED/PARKED VEHICLE (OCCUPANTS ONLY; MUST HAVE PHYSICAL CONTACT W/ VEHICLE)
010	SUB OTRN	OVERTURNED AFTER FIRST HARMFUL EVENT
011	MV PUSHD	VEHICLE BEING PUSHED
012	MV TOWED	VEHICLE TOWED OR HAD BEEN TOWING ANOTHER VEHICLE
013	FORCED	VEHICLE FORCED BY IMPACT INTO ANOTHER VEHICLE, PEDALCYCLIST OR PEDESTRIAN
014	SET MOTN	VEHICLE SET IN MOTION BY NON-DRIVER (CHILD RELEASED BRAKES, ETC.)
015	RR ROW	AT OR ON RAILROAD RIGHT-OF-WAY (NOT LIGHT RAIL)
016	LT RL ROW	AT OR ON LIGHT-RAIL RIGHT-OF-WAY
017	RR HIT V	TRAIN STRUCK VEHICLE
018	V HIT RR	VEHICLE STRUCK TRAIN
019	HIT RR CAR	VEHICLE STRUCK RAILROAD CAR ON ROADWAY
020	JACKKNIFE	JACKKNIFE; TRAILER OR TOWED VEHICLE STRUCK TOWING VEHICLE
021	TRL OTRN	TRAILER OR TOWED VEHICLE OVERTURNED
022	CN BROKE	TRAILER CONNECTION BROKE
023	DETACH TRL	DETACHED TRAILING OBJECT STRUCK OTHER VEHICLE, NON-MOTORIST, OR OBJECT
024	V DOOR OPN	VEHICLE DOOR OPENED INTO ADJACENT TRAFFIC LANE
025	WHEELOFF	WHEEL CAME OFF
026	HOOD UP	HOOD FLEW UP
028	LOAD SHIFT	LOST LOAD, LOAD MOVED OR SHIFTED
029	TIREFAIL	TIRE FAILURE
030	PET	PET: CAT, DOG AND SIMILAR
031	LVSTOCK	STOCK: COW, CALF, BULL, STEER, SHEEP, ETC.
032	HORSE	HORSE, MULE, OR DONKEY
033	HRSE&RID	HORSE AND RIDER
034	GAME	WILD ANIMAL, GAME (INCLUDES BIRDS; NOT DEER OR ELK)
035	DEER ELK	DEER OR ELK, WAPITI
036	ANML VEH	ANIMAL-DRAWN VEHICLE
037	CULVERT	CULVERT, OPEN LOW OR HIGH MANHOLE
038	ATENUATN	IMPACT ATTENUATOR
039	PK METER	PARKING METER
040	CURB	CURB (ALSO NARROW SIDEWALKS ON BRIDGES)
041	JIGGLE	JIGGLE BAR OR TRAFFIC SNAKE FOR CHANNELIZATION
042	GDRL END	LEADING EDGE OF GUARDRAIL
043	GARDRAIL	GUARD RAIL (NOT METAL MEDIAN BARRIER)
044	BARRIER	MEDIAN BARRIER (RAISED OR METAL)
045	WALL	RETAINING WALL OR TUNNEL WALL
046	BR RAIL	BRIDGE RAILING OR PARAPET (ON BRIDGE OR APPROACH)
047	BR ABUTMNT	BRIDGE ABUTMENT (INCLUDED "APPROACH END" THRU 2013)
048	BR COLMN	BRIDGE PILLAR OR COLUMN
049	BR GIRDR	BRIDGE GIRDER (HORIZONTAL BRIDGE STRUCTURE OVERHEAD)
050	ISLAND	TRAFFIC RAISED ISLAND
051	GORE	GORE
052	POLE UNK	POLE - TYPE UNKNOWN
053	POLE UTL	POLE - POWER OR TELEPHONE
054	ST LIGHT	POLE - STREET LIGHT ONLY
055	TRF SGNL	POLE - TRAFFIC SIGNAL AND PED SIGNAL ONLY
056	SGN BRDG	POLE - SIGN BRIDGE
057	STOPSIGN	STOP OR YIELD SIGN

EVENT CODE TRANSLATION LIST

EVENT CODE	SHORT DESCRIPTION	LONG DESCRIPTION
058	OTH SIGN	OTHER SIGN, INCLUDING STREET SIGNS
059	HYDRANT	HYDRANT
060	MARKER	DELINEATOR OR MARKER (REFLECTOR POSTS)
061	MAILBOX	MAILBOX
062	TREE	TREE, STUMP OR SHRUBS
063	VEG OHED	TREE BRANCH OR OTHER VEGETATION OVERHEAD, ETC.
064	WIRE/CBL	WIRE OR CABLE ACROSS OR OVER THE ROAD
065	TEMP SGN	TEMPORARY SIGN OR BARRICADE IN ROAD, ETC.
066	PERM SGN	PERMANENT SIGN OR BARRICADE IN/OFF ROAD
067	SLIDE	SLIDES, FALLEN OR FALLING ROCKS
068	FRGN OBJ	FOREIGN OBSTRUCTION/DEBRIS IN ROAD (NOT GRAVEL)
069	EQP WORK	EQUIPMENT WORKING IN/OFF ROAD
070	OTH EQP	OTHER EQUIPMENT IN OR OFF ROAD (INCLUDES PARKED TRAILER, BOAT)
071	MAIN EQP	WRECKER, STREET SWEEPER, SNOW PLOW OR SANDING EQUIPMENT
072	OTHER WALL	ROCK, BRICK OR OTHER SOLID WALL
073	IRRGL PVMT	OTHER BUMP (NOT SPEED BUMP), POTHOLE OR PAVEMENT IRREGULARITY (PER PAR)
074	OVERHD OBJ	OTHER OVERHEAD OBJECT (HIGHWAY SIGN, SIGNAL HEAD, ETC.); NOT BRIDGE
075	CAVE IN	BRIDGE OR ROAD CAVE IN
076	HI WATER	HIGH WATER
077	SNO BANK	SNOW BANK
078	LO-HI EDGE	LOW OR HIGH SHOULDER AT PAVEMENT EDGE
079	DITCH	CUT SLOPE OR DITCH EMBANKMENT
080	OBJ FRM MV	STRUCK BY ROCK OR OTHER OBJECT SET IN MOTION BY OTHER VEHICLE (INCL. LOST LOADS)
081	FLY-OBJ	STRUCK BY ROCK OR OTHER MOVING OR FLYING OBJECT (NOT SET IN MOTION BY VEHICLE)
082	VEH HID	VEHICLE OBSCURED VIEW
083	VEG HID	VEGETATION OBSCURED VIEW
084	BLDG HID	VIEW OBSCURED BY FENCE, SIGN, PHONE BOOTH, ETC.
085	WIND GUST	WIND GUST
086	IMMERSED	VEHICLE IMMERSED IN BODY OF WATER
087	FIRE/EXP	FIRE OR EXPLOSION
088	FENC/BLD	FENCE OR BUILDING, ETC.
089	OTHR CRASH	CRASH RELATED TO ANOTHER SEPARATE CRASH
090	TO 1 SIDE	TWO-WAY TRAFFIC ON DIVIDED ROADWAY ALL ROUTED TO ONE SIDE
091	BUILDING	BUILDING OR OTHER STRUCTURE
092	PHANTOM	OTHER (PHANTOM) NON-CONTACT VEHICLE
093	CELL PHONE	CELL PHONE (ON PAR OR DRIVER IN USE)
094	VIOL GDL	TEENAGE DRIVER IN VIOLATION OF GRADUATED LICENSE PGM
095	GUY WIRE	GUY WIRE
096	BERM	BERM (EARTHEN OR GRAVEL MOUND)
097	GRAVEL	GRAVEL IN ROADWAY
098	ABR EDGE	ABRUPT EDGE
099	CELL WTNSD	CELL PHONE USE WITNESSED BY OTHER PARTICIPANT
100	UNK FIXD	FIXED OBJECT, UNKNOWN TYPE.
101	OTHER OBJ	NON-FIXED OBJECT, OTHER OR UNKNOWN TYPE
102	TEXTING	TEXTING
103	WZ WORKER	WORK ZONE WORKER
104	ON VEHICLE	PASSENGER RIDING ON VEHICLE EXTERIOR
105	PEDAL PSGR	PASSENGER RIDING ON PEDALCYCLE
106	MAN WHLCHR	PEDESTRIAN IN NON-MOTORIZED WHEELCHAIR
107	MTR WHLCHR	PEDESTRIAN IN MOTORIZED WHEELCHAIR
108	OFFICER	LAW ENFORCEMENT / POLICE OFFICER
109	SUB-BIKE	"SUB-BIKE": PEDALCYCLIST INJURED SUBSEQUENT TO COLLISION, ETC.
110	N-MTR	NON-MOTORIST STRUCK VEHICLE
111	S CAR VS V	STREET CAR/TROLLEY (ON RAILS OR OVERHEAD WIRE SYSTEM) STRUCK VEHICLE
112	V VS S CAR	VEHICLE STRUCK STREET CAR/TROLLEY (ON RAILS OR OVERHEAD WIRE SYSTEM)
113	S CAR ROW	AT OR ON STREET CAR OR TROLLEY RIGHT-OF-WAY

EVENT CODE TRANSLATION LIST

EVENT CODE	SHORT DESCRIPTION	LONG DESCRIPTION
114	RR EQUIP	VEHICLE STRUCK RAILROAD EQUIPMENT (NOT TRAIN) ON TRACKS
115	DSTRCT GPS	DISTRACTED BY NAVIGATION SYSTEM OR GPS DEVICE
116	DSTRCT OTH	DISTRACTED BY OTHER ELECTRONIC DEVICE
117	RR GATE	RAIL CROSSING DROP-ARM GATE
118	EXPNSN JNT	EXPANSION JOINT
119	JERSEY BAR	JERSEY BARRIER
120	WIRE BAR	WIRE OR CABLE MEDIAN BARRIER
121	FENCE	FENCE
123	OBJ IN VEH	LOOSE OBJECT IN VEHICLE STRUCK OCCUPANT
124	SLIPPERY	SLIDING OR SWERVING DUE TO WET, ICY, SLIPPERY OR LOOSE SURFACE (NOT GRAVEL)
125	SHLDR	SHOULDER GAVE WAY
126	BOULDER	ROCK(S), BOULDER (NOT GRAVEL; NOT ROCK SLIDE)
127	LAND SLIDE	ROCK SLIDE OR LAND SLIDE
128	CURVE INV	CURVE PRESENT AT CRASH LOCATION
129	HILL INV	VERTICAL GRADE / HILL PRESENT AT CRASH LOCATION
130	CURVE HID	VIEW OBSCURED BY CURVE
131	HILL HID	VIEW OBSCURED BY VERTICAL GRADE / HILL
132	WINDOW HID	VIEW OBSCURED BY VEHICLE WINDOW CONDITIONS
133	SPRAY HID	VIEW OBSCURED BY WATER SPRAY
134	TORRENTIAL	TORRENTIAL RAIN (EXCEPTIONALLY HEAVY RAIN)
135	RAIL OCC	INJURED OCCUPANT OF RAILWAY TRAIN, LIGHT RAIL, STREET CAR OR CABLE CAR

FUNCTIONAL CLASSIFICATION TRANSLATION LIST

FUNC CLASS	DESCRIPTION
01	RURAL PRINCIPAL ARTERIAL - INTERSTATE
02	RURAL PRINCIPAL ARTERIAL - OTHER
06	RURAL MINOR ARTERIAL
07	RURAL MAJOR COLLECTOR
08	RURAL MINOR COLLECTOR
09	RURAL LOCAL
11	URBAN PRINCIPAL ARTERIAL - INTERSTATE
12	URBAN PRINCIPAL ARTERIAL - OTHER FREEWAYS AND EXP
14	URBAN PRINCIPAL ARTERIAL - OTHER
16	URBAN MINOR ARTERIAL
17	URBAN MAJOR COLLECTOR
18	URBAN MINOR COLLECTOR
19	URBAN LOCAL
78	UNKNOWN RURAL SYSTEM
79	UNKNOWN RURAL NON-SYSTEM
98	UNKNOWN URBAN SYSTEM
99	UNKNOWN URBAN NON-SYSTEM

HIGHWAY COMPONENT TRANSLATION LIST

CODE	DESCRIPTION
0	MAINLINE STATE HIGHWAY
1	COULET
3	FRONTAGE ROAD
6	CONNECTION
8	HIGHWAY - OTHER

INJURY SEVERITY CODE TRANSLATION LIST

CODE	SHORT DESC	LONG DESCRIPTION
1	KILL	FATAL INJURY (K)
2	INJA	SUSPECTED SERIOUS INJURY (A)
3	INJB	SUSPECTED MINOR INJURY (B)
4	INJC	POSSIBLE INJURY (C)
5	PRI	DIED PRIOR TO CRASH
7	NO<5	NO INJURY - 0 TO 4 YEARS OF AGE
9	NONE	NO APPARENT INJURY (O)

LIGHT CONDITION CODE TRANSLATION LIST

CODE	SHORT DESC	LONG DESCRIPTION
0	UNK	UNKNOWN
1	DAY	DAYLIGHT
2	DLIT	DARKNESS - WITH STREET LIGHTS
3	DARK	DARKNESS - NO STREET LIGHTS
4	DAWN	DAWN (TWILIGHT)
5	DUSK	DUSK (TWILIGHT)

MEDIAN TYPE CODE TRANSLATION LIST

CODE	SHORT DESC	LONG DESCRIPTION
0	NONE	NO MEDIAN
1	RSDMD	SOLID MEDIAN BARRIER
2	DIVMD	EARTH, GRASS OR PAVED MEDIAN

MILEAGE TYPE CODE TRANSLATION LIST

CODE	LONG DESCRIPTION
0	REGULAR MILEAGE
T	TEMPORARY
Y	SPUR
Z	OVERLAPPING

**MOVEMENT TYPE CODE TRANSLATION LIST**

CODE	SHORT DESC	LONG DESCRIPTION
0	UNK	UNKNOWN
1	STRGHT	STRAIGHT AHEAD
2	TURN-R	TURNING RIGHT
3	TURN-L	TURNING LEFT
4	U-TURN	MAKING A U-TURN
5	BACK	BACKING
6	STOP	STOPPED IN TRAFFIC
7	PRKD-P	PARKED - PROPERLY
8	PRKD-I	PARKED - IMPROPERLY
9	PARKNG	PARKING MANEUVER

**NON-MOTORIST LOCATION CODE TRANSLATION LIST**

CODE	LONG DESCRIPTION
00	AT INTERSECTION - NOT IN ROADWAY
01	AT INTERSECTION - INSIDE CROSSWALK
02	AT INTERSECTION - IN ROADWAY, OUTSIDE CROSSWALK
03	AT INTERSECTION - IN ROADWAY, XWALK AVAIL UNKNWN
04	NOT AT INTERSECTION - IN ROADWAY
05	NOT AT INTERSECTION - ON SHOULDER
06	NOT AT INTERSECTION - ON MEDIAN
07	NOT AT INTERSECTION - WITHIN TRAFFIC RIGHT-OF-WAY
08	NOT AT INTERSECTION - IN BIKE PATH OR PARKING LANE
09	NOT-AT INTERSECTION - ON SIDEWALK
10	OUTSIDE TRAFFICWAY BOUNDARIES
13	AT INTERSECTION - IN BIKE LANE
14	NOT AT INTERSECTION - IN BIKE LANE
15	NOT AT INTERSECTION - INSIDE MID-BLOCK CROSSWALK
16	NOT AT INTERSECTION - IN PARKING LANE
18	OTHER, NOT IN ROADWAY
99	UNKNOWN LOCATION

**ROAD CHARACTER CODE TRANSLATION LIST**

CODE	SHORT DESC	LONG DESCRIPTION
0	UNK	UNKNOWN
1	INTER	INTERSECTION
2	ALLEY	DRIVEWAY OR ALLEY
3	STRGHT	STRAIGHT ROADWAY
4	TRANS	TRANSITION
5	CURVE	CURVE (HORIZONTAL CURVE)
6	OPENAC	OPEN ACCESS OR TURNOUT
7	GRADE	GRADE (VERTICAL CURVE)
8	BRIDGE	BRIDGE STRUCTURE
9	TUNNEL	TUNNEL

**PARTICIPANT TYPE CODE TRANSLATION LIST**

CODE	SHORT DESC	LONG DESCRIPTION
0	OCC	UNKNOWN OCCUPANT TYPE
1	DRVR	DRIVER
2	PSNG	PASSENGER
3	PED	PEDESTRIAN
4	CONV	PEDESTRIAN USING A PEDESTRIAN CONVEYAL
5	PTOW	PEDESTRIAN TOWING OR TRAILERING AN OB.
6	BIKE	PEDALCYCLIST
7	BTOW	PEDALCYCLIST TOWING OR TRAILERING AN O
8	PRKD	OCCUPANT OF A PARKED MOTOR VEHICLE
9	OTHR	OTHER TYPE OF NON-MOTORIST

**TRAFFIC CONTROL DEVICE CODE TRANSLATION LIST**

CODE	SHORT DESC	LONG DESCRIPTION
000	NONE	NO CONTROL
001	TRF SIGNAL	TRAFFIC SIGNALS
002	FLASHBCN-R	FLASHING BEACON - RED (STOP)
003	FLASHBCN-A	FLASHING BEACON - AMBER (SLOW)
004	STOP SIGN	STOP SIGN
005	SLOW SIGN	SLOW SIGN
006	REG-SIGN	REGULATORY SIGN
007	YIELD	YIELD SIGN
008	WARNING	WARNING SIGN
009	CURVE	CURVE SIGN
010	SCHL X-ING	SCHOOL CROSSING SIGN OR SPECIAL SIGNAL
011	OFCR/FLAG	POLICE OFFICER, FLAGMAN - SCHOOL PATROL
012	BRDG-GATE	BRIDGE GATE - BARRIER
013	TEMP-BARR	TEMPORARY BARRIER
014	NO-PASS-ZN	NO PASSING ZONE
015	ONE-WAY	ONE-WAY STREET
016	CHANNEL	CHANNELIZATION
017	MEDIAN BAR	MEDIAN BARRIER
018	PILOT CAR	PILOT CAR
019	SP PED SIG	SPECIAL PEDESTRIAN SIGNAL
020	X-BUCK	CROSSBUCK
021	THR-GN-SIG	THROUGH GREEN ARROW OR SIGNAL
022	L-GRN-SIG	LEFT TURN GREEN ARROW, LANE MARKINGS, OR SIGNAL
023	R-GRN-SIG	RIGHT TURN GREEN ARROW, LANE MARKINGS, OR SIGNAL
024	WIGWAG	WIGWAG OR FLASHING LIGHTS W/O DROP-ARM GATE
025	X-BUCK WRN	CROSSBUCK AND ADVANCE WARNING
026	WW W/ GATE	FLASHING LIGHTS WITH DROP-ARM GATES
027	OVRHD SGNL	SUPPLEMENTAL OVERHEAD SIGNAL (RR XING ONLY)
028	SP RR STOP	SPECIAL RR STOP SIGN
029	ILUM GRD X	ILLUMINATED GRADE CROSSING
037	RAMP METER	METERED RAMP
038	RUMBLE STR	RUMBLE STRIP
040	AUTO. FLAG	AUTOMATED FLAGGER ASSISTANCE DEVICE
090	L-TURN REF	LEFT TURN REFUGE (WHEN REFUGE IS INVOLVED)
091	R-TURN ALL	RIGHT TURN AT ALL TIMES SIGN, ETC.
092	EMR SGN/FL	EMERGENCY SIGNS OR FLARES
093	ACCEL LANE	ACCELERATION OR DECELERATION LANES
094	R-TURN PRO	RIGHT TURN PROHIBITED ON RED AFTER STOPPING
095	BUS STPSGN	BUS STOP SIGN AND RED LIGHTS



099 UNKNOWN UNKNOWN OR NOT DEFINITE

VEHICLE TYPE CODE TRANSLATION LIST

CODE	SHORT DESC	LONG DESCRIPTION
00	PDO	NOT COLLECTED FOR PDO CRASHES
01	PSNGR CAR	PASSENGER CAR, PICKUP, LIGHT DELIVERY, ETC.
02	BOBTAIL	TRUCK TRACTOR WITH NO TRAILERS (BOBTAIL)
03	FARM TRCTR	FARM TRACTOR OR SELF-PROPELLED FARM EQUIPMENT
04	SEMI TOW	TRUCK TRACTOR WITH TRAILER/MOBILE HOME IN TOW
05	TRUCK	TRUCK WITH NON-DETACHABLE BED, PANEL, ETC.
06	MOPED	MOPED, MINIBIKE, SEATED MOTOR SCOOTER, MOTOR BIKE
07	SCHL BUS	SCHOOL BUS (INCLUDES VAN)
08	OTH BUS	OTHER BUS
09	MTRCYCLE	MOTORCYCLE, DIRT BIKE
10	OTHER	OTHER: FORKLIFT, BACKHOE, ETC.
11	MOTRHOME	MOTORHOME
12	TROLLEY	MOTORIZED STREET CAR/TROLLEY (NO RAILS/WIRES)
13	ATV	ATV
14	MTRSCTR	MOTORIZED SCOOTER (STANDING)
15	SNOWMOBILE	SNOWMOBILE
99	UNKNOWN	UNKNOWN VEHICLE TYPE

WEATHER CONDITION CODE TRANSLATION LIST

CODE	SHORT DESC	LONG DESCRIPTION
0	UNK	UNKNOWN
1	CLR	CLEAR
2	CLD	CLOUDY
3	RAIN	RAIN
4	SLT	SLEET
5	FOG	FOG
6	SNOW	SNOW
7	DUST	DUST
8	SMOK	SMOKE
9	ASH	ASH

OREGON DEPARTMENT OF TRANSPORTATION - POLICY, DATA AND ANALYSIS DIVISION  
 TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT  
 CRASH SUMMARIES BY YEAR BY COLLISION TYPE

Intersectional Crashes at OR-219, Hillsboro-Silverton Hwy (#140) & Willow Ave (Ln) in Woodburn, OR.  
 January 1, 2016 through December 31, 2020

COLLISION TYPE	FATAL CRASHES	NON- FATAL CRASHES	PROPERTY DAMAGE ONLY	TOTAL CRASHES	PEOPLE KILLED	PEOPLE INJURED	TRUCKS	DRY SURF	WET SURF	DAY	DARK	INTER- SECTION	INTER- SECTION RELATED	OFF- ROAD
YEAR: 2020														
FIXED / OTHER OBJECT	0	1	0	1	0	1	0	1	0	0	1	1	0	1
2020 TOTAL	0	1	0	1	0	1	0	1	0	0	1	1	0	1
YEAR: 2019														
REAR-END	0	1	0	1	0	1	0	1	0	1	0	1	0	0
2019 TOTAL	0	1	0	1	0	1	0	1	0	1	0	1	0	0
YEAR: 2018														
TURNING MOVEMENTS	0	2	0	2	0	3	0	2	0	1	1	2	0	0
2018 TOTAL	0	2	0	2	0	3	0	2	0	1	1	2	0	0
YEAR: 2016														
TURNING MOVEMENTS	0	1	0	1	0	2	0	1	0	0	1	1	0	0
2016 TOTAL	0	1	0	1	0	2	0	1	0	0	1	1	0	0
FINAL TOTAL	0	5	0	5	0	7	0	5	0	2	3	5	0	1

**Disclaimers:** Effective 2016, collection of “Property Damage Only” (PDO) crash data elements was reduced for vehicles and participants. Age, Gender, License, Error and other elements are no longer available for PDO crash reporting. Please keep this in mind when comparing 2016 PDO crash data to prior years.

A higher number of crashes may be reported as of 2011 compared to prior years. This does not necessarily reflect an increase in annual crashes. The higher numbers may result from a change to an internal departmental process that allows the Crash Analysis and Reporting Unit to add previously unavailable, non-fatal crash reports to the annual data file. Please be aware of this change when comparing pre-2011 crash statistics. For all disclaimers, see [https://www.oregon.gov/ODOT/Data/documents/Crash\\_Data\\_Disclaimers.pdf](https://www.oregon.gov/ODOT/Data/documents/Crash_Data_Disclaimers.pdf).



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 TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT  
 CRASH SUMMARIES BY YEAR BY COLLISION TYPE

Intersectional Crashes at OR-219, Hillsboro-Silverton Hwy (#140) & Woodland Ave in Woodburn, OR.  
 January 1, 2016 through December 31, 2020

COLLISION TYPE	FATAL CRASHES	NON- FATAL CRASHES	PROPERTY DAMAGE ONLY	TOTAL CRASHES	PEOPLE KILLED	PEOPLE INJURED	TRUCKS	DRY SURF	WET SURF	DAY	DARK	INTER- SECTION	INTER- SECTION RELATED	OFF- ROAD
YEAR: 2020														
FIXED / OTHER OBJECT	0	1	0	1	0	1	0	1	0	1	0	1	0	1
REAR-END	0	2	0	2	0	2	1	1	1	2	0	2	0	0
2020 TOTAL	0	3	0	3	0	3	1	2	1	3	0	3	0	1
YEAR: 2019														
TURNING MOVEMENTS	0	2	2	4	0	6	1	4	0	2	2	4	0	0
2019 TOTAL	0	2	2	4	0	6	1	4	0	2	2	4	0	0
YEAR: 2017														
TURNING MOVEMENTS	0	1	0	1	0	2	0	0	1	0	1	1	0	0
2017 TOTAL	0	1	0	1	0	2	0	0	1	0	1	1	0	0
YEAR: 2016														
ANGLE	0	0	1	1	0	0	1	0	1	1	0	1	0	0
REAR-END	0	1	0	1	0	2	0	1	0	0	1	1	0	0
2016 TOTAL	0	1	1	2	0	2	1	1	1	1	1	2	0	0
FINAL TOTAL	0	7	3	10	0	13	3	7	3	6	4	10	0	1

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 CRASH SUMMARIES BY YEAR BY COLLISION TYPE

Intersectional Crashes at OR-219, Hillsboro-Silverton Hwy (#140) & Arney Rd in Woodburn, OR.  
 January 1, 2016 through December 31, 2020

COLLISION TYPE	FATAL CRASHES	NON- FATAL CRASHES	PROPERTY DAMAGE ONLY	TOTAL CRASHES	PEOPLE KILLED	PEOPLE INJURED	TRUCKS	DRY SURF	WET SURF	DAY	DARK	INTER- SECTION	INTER- SECTION RELATED	OFF- ROAD
YEAR: 2017														
REAR-END	0	1	1	2	0	1	0	0	2	1	1	2	0	0
2017 TOTAL	0	1	1	2	0	1	0	0	2	1	1	2	0	0
YEAR: 2016														
REAR-END	0	1	0	1	0	1	0	0	0	0	1	1	0	0
2016 TOTAL	0	1	0	1	0	1	0	0	0	0	1	1	0	0
FINAL TOTAL	0	2	1	3	0	2	0	0	2	1	2	3	0	0

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OREGON DEPARTMENT OF TRANSPORTATION - POLICY, DATA AND ANALYSIS DIVISION  
TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT  
CRASH SUMMARIES BY YEAR BY COLLISION TYPE

Intersectional Crashes at OR-214, Hillsboro-Silverton Hwy (#140) & I-5 SB Ramps in Woodburn, OR. Includes Crashes at Turn Legs.  
January 1, 2016 through December 31, 2020

COLLISION TYPE	FATAL CRASHES	NON- FATAL CRASHES	PROPERTY DAMAGE ONLY	TOTAL CRASHES	PEOPLE KILLED	PEOPLE INJURED	TRUCKS	DRY SURF	WET SURF	DAY	DARK	INTER- SECTION	INTER- SECTION RELATED	OFF- ROAD
YEAR: 2020														
FIXED / OTHER OBJECT	0	0	1	1	0	0	0	0	1	0	1	0	0	1
REAR-END	0	2	2	4	0	3	0	3	1	3	1	4	0	0
2020 TOTAL	0	2	3	5	0	3	0	3	2	3	2	4	0	1
YEAR: 2019														
REAR-END	0	5	2	7	0	13	0	5	1	7	0	6	1	0
SIDESWIPE - OVERTAKING	0	1	0	1	0	3	0	1	0	0	1	1	0	0
TURNING MOVEMENTS	0	0	1	1	0	0	0	1	0	0	1	1	0	0
2019 TOTAL	0	6	3	9	0	16	0	7	1	7	2	8	1	0
YEAR: 2018														
REAR-END	0	7	0	7	0	10	0	6	1	7	0	7	0	0
2018 TOTAL	0	7	0	7	0	10	0	6	1	7	0	7	0	0
YEAR: 2017														
REAR-END	0	6	2	8	0	13	0	7	1	8	0	8	0	0
TURNING MOVEMENTS	0	2	0	2	0	3	0	1	1	2	0	2	0	0
2017 TOTAL	0	8	2	10	0	16	0	8	2	10	0	10	0	0
YEAR: 2016														
REAR-END	0	2	0	2	0	2	0	2	0	2	0	2	0	0
TURNING MOVEMENTS	0	2	1	3	0	4	0	3	0	2	1	3	0	0
2016 TOTAL	0	4	1	5	0	6	0	5	0	4	1	5	0	0
FINAL TOTAL	0	27	9	36	0	51	0	29	6	31	5	34	1	1

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

140 HILLSBORO-SILVERTON

Intersectional Crashes at OR-214, Hillsboro-Silverton Hwy (#140) & I-5 SB Ramps in Woodburn, OR. Includes Crashes at Turn Legs.  
 January 1, 2016 through December 31, 2020

SER#	E A / C O	DATE	COUNTY	RD#	FC	CONN #	RD CHAR	INT-TYP	INT-REL	OFFRD	WTHR	CRASH TYP	SPCL USE	MOVE	A S	P R T C	I N J	G E	L I C N S	P E D	L O C	E R R O R	A C T N	E V E N T	C A U S E
04513	N N N	Y 08/16/2016	MARION	1	14		INTER	CROSS	N		N CLR	ANGL-OTH	01 NONE	0 STRGHT										33,04	
	CITY	N Tue 2P	WOODBURN	MN	0	HILLSBORO-SILV HY	CN		N	TRF SIGNAL	N DRY	TURN	PRVTE	E W									000	00	
			WOODBURN UA		36.73	SB EX HILLS-SILV C2	01	0			N DAY	INJ	PSNGR CAR			01	DRVR	INJB	42 F	OR-Y		051,020	000	33,04	
No	45	9	3.96 -122	52	55.34																				
					014000100S00		1																		
													02 NONE	0 TURN-L										000	00
													PRVTE	N E											
													PSNGR CAR			01	DRVR	INJA	73 F	OR-Y		000	000	00	
01406	N N N N N	Y 04/11/2017	MARION	1	14		INTER	3-LEG	N		N CLD	ANGL-OTH	01 NONE	0 STRGHT										04	
	CITY	N Tue 5P	WOODBURN	MN	0	HILLSBORO-SILV HY	CN		N	TRF SIGNAL	N DRY	TURN	PRVTE	E W									022	00	
			WOODBURN UA		36.73	SB EX HILLS-SILV C2	01	0			N DAY	INJ	PSNGR CAR			01	DRVR	INJB	86 F	OR-Y		020	022	04	
No	45	9	3.96 -122	52	55.44																				
					014000100S00		1																		
													02 NONE	0 TURN-L										000	00
													PRVTE	N E											
													PSNGR CAR			01	DRVR	INJC	46 F	OR-Y		000	000	00	



OREGON DEPARTMENT OF TRANSPORTATION - POLICY, DATA AND ANALYSIS DIVISION  
TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT  
CRASH SUMMARIES BY YEAR BY COLLISION TYPE

Intersectional Crashes at OR-214, Hillsboro-Silverton Hwy (#140) & I-5 NB Ramps in Woodburn, OR. Includes Crashes on Turn Legs.  
January 1, 2016 through December 31, 2020

COLLISION TYPE	FATAL CRASHES	NON- FATAL CRASHES	PROPERTY DAMAGE ONLY	TOTAL CRASHES	PEOPLE KILLED	PEOPLE INJURED	TRUCKS	DRY SURF	WET SURF	DAY	DARK	INTER- SECTION	INTER- SECTION RELATED	OFF- ROAD
YEAR: 2020														
FIXED / OTHER OBJECT	0	1	0	1	0	2	0	1	0	1	0	0	0	1
REAR-END	0	2	3	5	0	3	0	5	0	4	1	5	0	0
SIDESWIPE - OVERTAKING	0	0	1	1	0	0	0	1	0	0	1	1	0	0
TURNING MOVEMENTS	0	1	3	4	0	2	0	3	1	3	1	4	0	0
2020 TOTAL	0	4	7	11	0	7	0	10	1	8	3	10	0	1
YEAR: 2019														
FIXED / OTHER OBJECT	0	0	1	1	0	0	0	0	1	1	0	0	0	1
REAR-END	0	2	0	2	0	2	0	2	0	2	0	2	0	0
TURNING MOVEMENTS	0	1	2	3	0	1	0	2	1	3	0	3	0	0
2019 TOTAL	0	3	3	6	0	3	0	4	2	6	0	5	0	1
YEAR: 2018														
REAR-END	0	1	0	1	0	1	0	1	0	1	0	1	0	0
TURNING MOVEMENTS	0	3	2	5	0	3	0	4	0	5	0	5	0	0
2018 TOTAL	0	4	2	6	0	4	0	5	0	6	0	6	0	0
YEAR: 2017														
REAR-END	0	1	2	3	0	1	0	3	0	3	0	2	0	0
TURNING MOVEMENTS	0	2	5	7	0	3	1	5	2	4	3	7	0	0
2017 TOTAL	0	3	7	10	0	4	1	8	2	7	3	9	0	0
YEAR: 2016														
REAR-END	0	2	1	3	0	3	0	3	0	3	0	3	0	0
TURNING MOVEMENTS	0	4	1	5	0	6	0	2	3	2	3	5	0	0
2016 TOTAL	0	6	2	8	0	9	0	5	3	5	3	8	0	0
FINAL TOTAL	0	20	21	41	0	27	1	32	8	32	9	38	0	2

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

001 PACIFIC Intersectional Crashes at OR-214, Hillsboro-Silverton Hwy (#140) & I-5 NB Ramps in Woodburn, OR. Includes Crashes on Turn Legs.  
 January 1, 2016 through December 31, 2020

SER#	INVEST	UNLOC?	E A / C O DATE	COUNTY	RD#	FC	CONN #	INT-TYP	SPCL USE	MOVE	A S	PED	ACTN	EVENT	CAUSE
DR	U	P	E L M H R DAY/TIME	CITY	CMPT/MLG	FIRST STREET	RD CHAR	(MEDIAN)	TRLR QTY	FROM	G E	LICNS	LOC	ERROR	
SR	U	P	DAY/TIME	CITY	MILEPNT	SECOND STREET	DIRECT	LEGS	OWNER	TO	X RES	LOC	ERROR		
U	P	G S W	LAT/LONG	URBAN AREA	LRS	INTERSECTION SEQ#	LOCTN	(#LANES)	V#	VEH TYPE	E X RES	LOC	ERROR		
									02	NONE	9	TURN-R			
									N/A	S E				000	00
									PSNGR	CAR	01	DRVR	NONE	00	U UNK
													000	000	00
02745	NNY		09/10/2020	MARION	1	11	1	INTER	01	NONE	9	STRGHT			29
CITY	Y		Thu 4A	WOODBURN	CN	0	HILLSBORO-SILV HY	S	N/A	S N				000	00
				WOODBURN UA	271.93	NB EX HILLS-SILV C1	06	0	PSNGR	CAR	01	DRVR	NONE	00	U UNK
No	45	9	3.78 -122	52 45.76	0001YM100S00	1							000	000	00
									02	NONE	9	STOP			
									N/A	S N				011	00
									PSNGR	CAR	01	DRVR	NONE	00	U UNK
													000	000	00
02078	NNN		06/03/2019	MARION	1	11	1	INTER	01	NONE	0	STRGHT			29
NONE	N		Mon 2P	WOODBURN	CN	0	HILLSBORO-SILV HY	SW	PRVTE	SW NE				000	00
				WOODBURN UA	271.93	NB EX HILLS-SILV C1	06	0	PSNGR	CAR	01	DRVR	NONE	38	M OR-Y
No	45	9	3.79 -122	52 45.75	0001YM100S00	1							026	OR<25	29
									02	NONE	0	STOP			
									PRVTE	SW NE				011	00
									PSNGR	CAR	01	DRVR	INJC	65	F OR-Y
													000	OR<25	00
02627	NNN		07/13/2019	MARION	1	11	1	INTER	01	NONE	0	STRGHT			29
NONE	N		Sat 7P	WOODBURN	CN	0	HILLSBORO-SILV HY	SW	PRVTE	SW NE				000	00
				WOODBURN UA	271.93	NB EX HILLS-SILV C1	06	0	PSNGR	CAR	01	DRVR	NONE	24	M OR-Y
No	45	9	3.80 -122	52 45.73	0001YM100S00	1							026	OR>25	29
									02	NONE	0	STOP			
									PRVTE	SW NE				011	00
									PSNGR	CAR	01	DRVR	INJC	51	F OR-Y
													000	OR<25	00
00878	NNN		03/02/2020	MARION	1	11	1	INTER	01	NONE	9	STRGHT			29
NONE	N		Mon 12P	WOODBURN	CN	0	HILLSBORO-SILV HY	SW	N/A	SW NE				000	00
				WOODBURN UA	271.93	NB EX HILLS-SILV C1	06	0	PSNGR	CAR	01	DRVR	NONE	00	U UNK
No	45	9	3.77 -122	52 45.76	0001YM100S00	1							000	UNK	00
									02	NONE	9	STOP			
									N/A	SW NE				011	00
									PSNGR	CAR	01	DRVR	NONE	00	U UNK
													000	UNK	00











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

140 HILLSBORO-SILVERTON

Intersectional Crashes at OR-214, Hillsboro-Silverton Hwy (#140) & I-5 NB Ramps in Woodburn, OR. Includes Crashes on Turn Legs.  
 January 1, 2016 through December 31, 2020

SER#	INVEST	UNLOC?	E A / C O DATE	COUNTY	RD#	FC	CONN #	CMPT/MLG	FIRST STREET	RD CHAR	INT-TYP	INT-REL	OFFRD	WTHR	CRASH TYP	SPCL USE	MOVE	A S	P E	LICNS	PED	ACTN	EVENT	CAUSE
D C J L K	L A T / L O N G	U R B A N A R E A	M I L E P N T	S E C O N D S T R E E T	D I R E C T	(# L A N E S)	C N T L	R N D B T	S U R F	C O L L T Y P	T R L R Q T Y	O W N E R	F R O M	P R T C	I N J	S V R T Y	E X R E S	L O C	E R R O R					
																02 NONE	9	STRGHT						
																N/A	E W					000	00	
																PSNGR	CAR		01	DRVR	NONE	00	U UNK	000
																						000	00	
00066	NNN		01/04/2016	MARION	1	11				INTER	CROSS	N		N SNOW	ANGL-OTH	01	NONE	0	STRGHT					
NO RPT	N		Mon 7P	WOODBURN	MN	0	HILLSBORO-SILV HY	CN						N SNO	TURN	PRVTE	W E					000	00	
				WOODBURN UA		36.86	NB EX HILLS-SILV C1	04		1				N DLIT	INJ	PSNGR	CAR		01	DRVR	NONE	41	F OR-Y	020
No	45	9	3.79 -122	52 45.31		014000100S00		1														000	04	
																02 NONE	0	TURN-L						
																PRVTE	SW W					000	00	
																PSNGR	CAR		01	DRVR	INJC	26	M OR-Y	000
																						000	00	
																						000	00	
																02 PSNG	INJC	28	F			000	00	
00221	NNN		01/14/2016	MARION	1	11				INTER	CROSS	N		N RAIN	S-OTHER	01	NONE	0	TURN-R					
NO RPT	N		Thu 2P	WOODBURN	MN	0	HILLSBORO-SILV HY	CN						N WET	TURN	PRVTE	SW E					000	00	
				WOODBURN UA		36.86	NB EX HILLS-SILV C1	04		1				N DAY	INJ	PSNGR	CAR		01	DRVR	NONE	24	F OR-Y	042
No	45	9	3.79 -122	52 45.31		014000100S00		1														000	07	
																02 NONE	0	TURN-R						
																PRVTE	SW E					000	00	
																PSNGR	CAR		01	DRVR	INJC	33	F OR-Y	000
																						000	00	
																						000	00	
																02 PSNG	INJC	07	F			000	00	
04679	NNN		10/23/2016	MARION	1	14				INTER	CROSS	N		N RAIN	ANGL-OTH	01	NONE	0	TURN-R					
CITY	N		Sun 5A	WOODBURN	MN	0	HILLSBORO-SILV HY	CN						N WET	TURN	PRVTE	SE E					000	00	
				WOODBURN UA		36.86	NB EF HILLS-SILV C2	04		1				N DLIT	INJ	PSNGR	CAR		01	DRVR	INJC	27	M OR-Y	097
No	45	9	3.79 -122	52 45.31		014000100S00		1														000	00	
																02 NONE	0	STRGHT						
																PRVTE	W E					000	00	
																PSNGR	CAR		01	DRVR	NONE	61	F OR-Y	097
																						000	00	
																						000	00	
																						000	00	
																						000	00	
01974	NNN		05/21/2017	MARION	1	14				INTER	3-LEG	N		N CLR	S-OTHER	01	NONE	0	TURN-R					
NONE	N		Sun 5P	WOODBURN	MN	0	HILLSBORO-SILV HY	CN						N DRY	TURN	PRVTE	SW E					000	00	
				WOODBURN UA		36.86	NB EX HILLS-SILV C1	04		0				N DAY	INJ	PSNGR	CAR		01	DRVR	NONE	69	F OR-Y	000
No	45	9	3.79 -122	52 45.74		014000100S00		1														000	00	
																02 NONE	0	TURN-R						
																PRVTE	SW E					000	00	
																PSNGR	CAR		01	DRVR	INJC	20	M OR-Y	000
																						000	00	
																						000	00	
																						000	00	
																02 PSNG	INJC	25	F			000	00	









OREGON DEPARTMENT OF TRANSPORTATION - POLICY, DATA AND ANALYSIS DIVISION  
TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT  
CRASH SUMMARIES BY YEAR BY COLLISION TYPE

Intersectional Crashes at OR-214, Hillsboro-Silverton Hwy (#140) & Evergreen Rd in Woodburn, OR. Includes Crashes at Turn Legs.  
January 1, 2016 through December 31, 2020

COLLISION TYPE	FATAL CRASHES	NON- FATAL CRASHES	PROPERTY DAMAGE ONLY	TOTAL CRASHES	PEOPLE KILLED	PEOPLE INJURED	TRUCKS	DRY SURF	WET SURF	DAY	DARK	INTER- SECTION	INTER- SECTION RELATED	OFF- ROAD
YEAR: 2020														
ANGLE	0	0	1	1	0	0	0	0	1	1	0	1	0	0
REAR-END	0	2	0	2	0	3	0	2	0	2	0	2	0	0
TURNING MOVEMENTS	0	9	0	9	0	22	0	7	2	6	3	9	0	0
2020 TOTAL	0	11	1	12	0	25	0	9	3	9	3	12	0	0
YEAR: 2019														
ANGLE	0	2	0	2	0	3	0	1	1	1	1	2	0	0
REAR-END	0	2	1	3	0	5	0	2	1	2	1	3	0	0
TURNING MOVEMENTS	0	4	2	6	0	10	0	4	1	4	1	6	0	0
2019 TOTAL	0	8	3	11	0	18	0	7	3	7	3	11	0	0
YEAR: 2018														
ANGLE	0	1	1	2	0	4	0	2	0	1	1	2	0	0
FIXED / OTHER OBJECT	0	0	1	1	0	0	0	0	1	0	1	1	0	1
SIDESWIPE - OVERTAKING	0	1	0	1	0	1	0	1	0	1	0	1	0	0
TURNING MOVEMENTS	0	3	4	7	0	5	0	6	1	5	2	7	0	0
2018 TOTAL	0	5	6	11	0	10	0	9	2	7	4	11	0	1
YEAR: 2017														
ANGLE	0	1	0	1	0	5	0	1	0	1	0	1	0	0
REAR-END	0	0	1	1	0	0	0	0	1	1	0	1	0	0
TURNING MOVEMENTS	0	6	5	11	0	8	0	10	1	7	4	11	0	0
2017 TOTAL	0	7	6	13	0	13	0	11	2	9	4	13	0	0
YEAR: 2016														
ANGLE	0	0	1	1	0	0	0	0	1	0	1	1	0	0
REAR-END	0	2	1	3	0	2	0	2	0	1	2	3	0	0
TURNING MOVEMENTS	0	5	2	7	0	10	0	5	2	4	3	7	0	0
2016 TOTAL	0	7	4	11	0	12	0	7	3	5	6	11	0	0
FINAL TOTAL	0	38	20	58	0	78	0	43	13	37	20	58	0	1

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

140 HILLSBORO-SILVERTON

Intersectional Crashes at OR-214, Hillsboro-Silverton Hwy (#140) & Evergreen Rd in Woodburn, OR. Includes Crashes at Turn Legs.  
 January 1, 2016 through December 31, 2020

SER#	E A / C O DATE	COUNTY	RD#	FC	CONN #	INT-TYP	SPCL USE	MOVE	A S	PED	ACTN	EVENT	CAUSE					
INVEST	E L M H R DAY/TIME	CITY	CMPT/MLG	FIRST STREET	RD CHAR	(MEDIAN)	TRLR QTY	FROM	G E	LICNS	ERROR							
UNLOC?	D C J L K LAT/LONG	URBAN AREA	MILEPNT	SECOND STREET	DIRECT	LEGS	OWNER	TO	E X	RES	LOC							
			LRS	INTERSECTION SEQ#	LOCTN	(#LANES)	V#	VEH TYPE	P#	TYPE	SVRTY							
							02	NONE	0	STOP		011	013	00				
							PRVTE	E W										
							PSNGR	CAR	01	DRVR	NONE	57	F	OR-Y	000	022	00	
														OR<25				
							03	NONE	0	STOP		011		00				
							PRVTE	E W										
							PSNGR	CAR	01	DRVR	INJC	30	F	OR-Y	000	000	00	
														OR<25				
							02	PSNG	INJC	37	M			000	000	00	00	
00267	NNNNN 01/24/2018	MARION	1	14		INTER	01	NONE	9	TURN-L			050,055	08				
CITY	N Wed 5A	WOODBURN	MN	0	EVERGREEN RD	W	N/A	S W				000		00				
		WOODBURN UA	37.02		HILLSBORO-SILV HY	05								00			00	
No	45 9 3.52 -122 52 32.54		014000100S00		1			PSNGR	CAR	01	DRVR	NONE	00	U	UNK	000	000	00
														UNK				
01019	NNN 03/11/2016	MARION	1	14		INTER	01	NONE	0	STRGHT			27,29	00				
NO RPT	N Fri 5A	WOODBURN	MN	0	EVERGREEN RD	W		W E				000		00				
		WOODBURN UA	37.02		HILLSBORO-SILV HY	06								00			27,29	
No	45 9 3.52 -122 52 32.54		014000100S00		1			PSNGR	CAR	01	DRVR	NONE	27	M	OR-Y	016,026	038	27,29
														OR<25				
							02	NONE	0	STOP		011		00				
							PRVTE	W E										
							PSNGR	CAR	01	DRVR	INJC	43	M	OR-Y	000	000	00	
														OR<25				
02760	NNN 07/21/2019	MARION	1	14		INTER	01	NONE	9	STRGHT			29	00				
NONE	N Sun 9A	WOODBURN	MN	0	EVERGREEN RD	W		W E				000		00				
		WOODBURN UA	37.02		HILLSBORO-SILV HY	06								00			00	
No	45 9 3.56 -122 52 32.62		014000100S00		1			PSNGR	CAR	01	DRVR	NONE	00	U	UNK	000	000	00
														UNK				
							02	NONE	9	STOP		011		00				
							N/A	W E										
							PSNGR	CAR	01	DRVR	NONE	00	U	UNK	000	000	00	
														UNK				
00161	NNN 01/15/2018	MARION	1	14		INTER	01	NONE	0	U-TURN			02	00				
NONE	N Mon 5P	WOODBURN	MN	0	EVERGREEN RD	CN		UN UN				000		00				
		WOODBURN UA	37.02		HILLSBORO-SILV HY	00								00			02	
No	45 9 3.52 -122 52 32.54		014000100S00		1			PSNGR	CAR	01	DRVR	NONE	30	F	OR-Y	028	000	02
														OR<25				
							02	NONE	0	STRGHT		000		00				
							PRVTE	UN UN										
							PSNGR	CAR	01	DRVR	INJC	70	F	OR-Y	000	000	00	
														OR<25				

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

140 HILLSBORO-SILVERTON

Intersectional Crashes at OR-214, Hillsboro-Silverton Hwy (#140) & Evergreen Rd in Woodburn, OR. Includes Crashes at Turn Legs.  
 January 1, 2016 through December 31, 2020

SER#	INVEST	UNLOC?	D	C	J	L	K	LAT/LONG	URBAN AREA	RD#	FC	CONN #	RD CHAR	DIRECT	INT-TYP	(MEDIAN)	INT-REL	OFFRD	WTHR	CRASH TYP	SPCL USE	TRLR QTY	MOVE	PRTC	INJ	A	S	G	E	LICNS	PED	LOC	ERROR	ACTN	EVENT	CAUSE							
																																					E	A	/	C	O	DATE	COUNTY
00907	Y	N	N					03/09/2018	MARION	1	14		INTER	CN	CROSS	N			N CLR	ANGL-OTH	01	NONE	9	STRGHT											04,01	00							
NONE								Fri 10P	WOODBURN	MN	0	EVERGREEN RD							N DRY	ANGL		N/A	UN	UN										000	000	00							
No	45	9		3.52	-122	52	32.54		WOODBURN UA	37.02		HILLSBORO-SILV HY	01		3			N DLIT	PDO		PSNGR	CAR		01	DRVR	NONE	00	U	UNK		000	000	000	000	00								
										014000100S00																										000	000	00					
																																					000	000	00				
01701	N	N	N					05/03/2019	MARION	1	14		INTER	CN	CROSS	N			N CLR	ANGL-OTH	01	NONE	0	STRGHT											04	00							
NONE								Fri 10P	WOODBURN	MN	0	EVERGREEN RD							N DRY	TURN		PRVTE	E	W											000	000	00						
No	45	9		3.52	-122	52	32.54		WOODBURN UA	37.02		HILLSBORO-SILV HY	01		3			N DLIT	INJ		PSNGR	CAR		01	DRVR	INJC	22	F	OTH-Y		097	000	000	000	000	00							
										014000100S00																												000	000	00			
																																						000	000	00			
01890	N	N	N					05/20/2019	MARION	1	14		INTER	CN	CROSS	N			N UNK	O-1 L-TURN	01	NONE	9	TURN-L											02	00							
NONE								Mon UNK	WOODBURN	MN	0	EVERGREEN RD							N UNK	TURN		N/A	UN	UN											000	000	000	000	00				
No	45	9		3.52	-122	52	32.54		WOODBURN UA	37.02		HILLSBORO-SILV HY	01		3			N UNK	PDO		PSNGR	CAR		01	DRVR	NONE	00	U	UNK		000	000	000	000	000	000	000	000	00				
										014000100S00																													000	000	00		
																																							000	000	00		
03374	N	N	N	N	N			09/03/2019	MARION	1	14		INTER	CN	CROSS	N			N CLR	ANGL-OTH	01	NONE	0	STRGHT											001	04	00						
CITY								Tue 7P	WOODBURN	MN	0	EVERGREEN RD							N DRY	ANGL		PRVTE	E	W											000	000	000	000	00				
No	45	9		3.53	-122	52	32.56		WOODBURN UA	37.02		HILLSBORO-SILV HY	01		3			N DAY	INJ		MTRCYCLE				01	DRVR	INJC	39	M	SUSP		020	000	001	000	001	000	000	000	04			
										014000100S00																														000	000	00	
																																								000	000	00	
																																								000	000	00	
00305	N	N	N					01/22/2016	MARION	1	14		INTER	CN	CROSS	N			N CLR	O-1 L-TURN	01	NONE	9	STRGHT												02	00						
CITY								Fri 3P	WOODBURN	MN	0	EVERGREEN RD							N DRY	TURN		N/A	E	W												000	000	000	000	00			
No	45	9		3.52	-122	52	32.54		WOODBURN UA	37.02		HILLSBORO-SILV HY	02		0			N DAY	PDO		PSNGR	CAR		01	DRVR	NONE	00	U	UNK		000	000	000	000	000	000	000	000	000	000	000	00	
										014000100S00																															000	000	00











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

140 HILLSBORO-SILVERTON

Intersectional Crashes at OR-214, Hillsboro-Silverton Hwy (#140) & Evergreen Rd in Woodburn, OR. Includes Crashes at Turn Legs.
January 1, 2016 through December 31, 2020

Table with columns: SER#, INVEST, UNLOC?, E A / C O DATE, COUNTY, RD#, FC, CONN #, CMPT/MLG, FIRST STREET, RD CHAR, INT-TYP, INT-REL, OFFRD WTHR, CRASH TYP, SPCL USE, MOVE, PRTG INJ, A S, LICNS, PED, ACTN, EVENT, CAUSE. Includes data for various crash events with details on location, date, and severity.

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

Table with columns: SER#, INVEST, UNLOC?, D, C, J, L, K, E, A, /, C, O, DATE, COUNTY, CITY, URBAN AREA, RD#, FC, CONN #, CMPT/MLG, FIRST STREET, MILEPNT, SECOND STREET, LRS, INTERSECTION SEQ#, INT-TYP, INT-REL, OFFRD, WTHR, CRASH TYP, SPCL USE, MOVE, PRT, INJ, A, S, LICNS, PED, ERROR, ACTN, EVENT, CAUSE. Includes intersectional crashes at OR-214, Hillsboro-Silverton Hwy (#140) & Evergreen Rd in Woodburn, OR.







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

140 HILLSBORO-SILVERTON

Intersectional Crashes at OR-214, Hillsboro-Silverton Hwy (#140) & Evergreen Rd in Woodburn, OR. Includes Crashes at Turn Legs.
January 1, 2016 through December 31, 2020

Table with columns: SER#, INVEST, UNLOC, DATE, COUNTY, RD#, FC, CONN #, INT-TYP, CRASH TYP, SPCL USE, MOVE, PRTC, INJ, A S, LICNS, PED, ERROR, ACTN, EVENT, CAUSE. Contains three main crash records for 02120, 03629, and 01670.



OREGON DEPARTMENT OF TRANSPORTATION - POLICY, DATA AND ANALYSIS DIVISION  
 TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT  
 CRASH SUMMARIES BY YEAR BY COLLISION TYPE

Intersectional Crashes at Wodland Ave & Hillyer Ln in Woodburn, OR.  
 January 1, 2016 through December 31, 2020

COLLISION TYPE	FATAL CRASHES	NON- FATAL CRASHES	PROPERTY DAMAGE ONLY	TOTAL CRASHES	PEOPLE KILLED	PEOPLE INJURED	TRUCKS	DRY SURF	WET SURF	DAY	DARK	INTER- SECTION	INTER- SECTION RELATED	OFF- ROAD
YEAR:														
TOTAL														
FINAL TOTAL														

**Disclaimers:** Effective 2016, collection of “Property Damage Only” (PDO) crash data elements was reduced for vehicles and participants. Age, Gender, License, Error and other elements are no longer available for PDO crash reporting. Please keep this in mind when comparing 2016 PDO crash data to prior years.

A higher number of crashes may be reported as of 2011 compared to prior years. This does not necessarily reflect an increase in annual crashes. The higher numbers may result from a change to an internal departmental process that allows the Crash Analysis and Reporting Unit to add previously unavailable, non-fatal crash reports to the annual data file. Please be aware of this change when comparing pre-2011 crash statistics. For all disclaimers, see [https://www.oregon.gov/ODOT/Data/documents/Crash\\_Data\\_Disclaimers.pdf](https://www.oregon.gov/ODOT/Data/documents/Crash_Data_Disclaimers.pdf).



OREGON DEPARTMENT OF TRANSPORTATION - POLICY, DATA AND ANALYSIS DIVISION  
 TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT  
 CRASH SUMMARIES BY YEAR BY COLLISION TYPE

Crashes on Hillyer Ln in Woodburn, OR.  
 January 1, 2016 through December 31, 2020

COLLISION TYPE	FATAL CRASHES	NON- FATAL CRASHES	PROPERTY DAMAGE ONLY	TOTAL CRASHES	PEOPLE KILLED	PEOPLE INJURED	TRUCKS	DRY SURF	WET SURF	DAY	DARK	INTER- SECTION	INTER- SECTION RELATED	OFF- ROAD
YEAR:														
TOTAL														
FINAL TOTAL														

**Disclaimers:** Effective 2016, collection of “Property Damage Only” (PDO) crash data elements was reduced for vehicles and participants. Age, Gender, License, Error and other elements are no longer available for PDO crash reporting. Please keep this in mind when comparing 2016 PDO crash data to prior years.

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OREGON DEPARTMENT OF TRANSPORTATION - POLICY, DATA AND ANALYSIS DIVISION  
 TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT  
 CRASH SUMMARIES BY YEAR BY COLLISION TYPE

Intersectional Crashes at Evergreen Rd & Stacy Allison Wy in Woodburn, OR.  
 January 1, 2016 through December 31, 2020

COLLISION TYPE	FATAL CRASHES	NON- FATAL CRASHES	PROPERTY DAMAGE ONLY	TOTAL CRASHES	PEOPLE KILLED	PEOPLE INJURED	TRUCKS	DRY SURF	WET SURF	DAY	DARK	INTER- SECTION	INTER- SECTION RELATED	OFF- ROAD
YEAR: 2020														
TURNING MOVEMENTS	0	0	2	2	0	0	0	2	0	2	0	2	0	1
2020 TOTAL	0	0	2	2	0	0	0	2	0	2	0	2	0	1
YEAR: 2019														
REAR-END	0	0	1	1	0	0	0	0	1	0	1	1	0	0
TURNING MOVEMENTS	0	2	0	2	0	2	0	1	0	1	1	2	0	0
2019 TOTAL	0	2	1	3	0	2	0	1	1	1	2	3	0	0
YEAR: 2018														
TURNING MOVEMENTS	0	0	1	1	0	0	0	1	0	1	0	1	0	0
2018 TOTAL	0	0	1	1	0	0	0	1	0	1	0	1	0	0
YEAR: 2017														
PEDESTRIAN	0	1	0	1	0	1	0	1	0	1	0	1	0	0
2017 TOTAL	0	1	0	1	0	1	0	1	0	1	0	1	0	0
YEAR: 2016														
TURNING MOVEMENTS	0	0	1	1	0	0	0	1	0	1	0	1	0	0
2016 TOTAL	0	0	1	1	0	0	0	1	0	1	0	1	0	0
FINAL TOTAL	0	3	5	8	0	3	0	6	1	6	2	8	0	1

**Disclaimers:** Effective 2016, collection of "Property Damage Only" (PDO) crash data elements was reduced for vehicles and participants. Age, Gender, License, Error and other elements are no longer available for PDO crash reporting. Please keep this in mind when comparing 2016 PDO crash data to prior years.

A higher number of crashes may be reported as of 2011 compared to prior years. This does not necessarily reflect an increase in annual crashes. The higher numbers may result from a change to an internal departmental process that allows the Crash Analysis and Reporting Unit to add previously unavailable, non-fatal crash reports to the annual data file. Please be aware of this change when comparing pre-2011 crash statistics. For all disclaimers, see [https://www.oregon.gov/ODOT/Data/documents/Crash\\_Data\\_Disclaimers.pdf](https://www.oregon.gov/ODOT/Data/documents/Crash_Data_Disclaimers.pdf).



























**Appendix D**  
2024 Background Traffic Conditions  
Analysis Worksheets

HCM Signalized Intersection Capacity Analysis  
1: Woodland Ave & OR-219

2023 Background Traffic Conditions  
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	67	610	6	31	31	545	251	6	3	52	610	6
Future Volume (vph)	67	610	6	31	31	545	251	6	3	52	610	6
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Grade (%)		0%				0%			0%			3%
Total Lost time (s)	4.0	4.5	4.0		4.0	4.5	4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	0.95	1.00		1.00	0.95	1.00	1.00	1.00		0.95	0.95
Frt	1.00	1.00	0.85		1.00	1.00	0.85	1.00	0.86		1.00	0.97
Flt Protected	0.95	1.00	1.00		0.95	1.00	1.00	0.95	1.00		0.95	0.96
Satd. Flow (prot)	1630	3260	1305		1583	3197	1473	1662	1246		1540	1512
Flt Permitted	0.95	1.00	1.00		0.95	1.00	1.00	0.95	1.00		0.95	0.96
Satd. Flow (perm)	1630	3260	1305		1583	3197	1473	1662	1246		1540	1512
Peak-hour factor, PHF	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Adj. Flow (vph)	80	726	7	37	37	649	299	7	4	62	726	7
RTOR Reduction (vph)	0	0	5	0	0	0	94	0	59	0	0	4
Lane Group Flow (vph)	80	726	2	0	74	649	205	7	7	0	407	391
Heavy Vehicles (%)	2%	2%	14%	0%	10%	4%	1%	0%	0%	22%	1%	33%
Turn Type	Prot	NA	pm+ov	Prot	Prot	NA	pm+ov	Split	NA		Split	NA
Protected Phases	5	2	8	1	1	6	4	8	8		4	4
Permitted Phases			2			6						
Actuated Green, G (s)	8.9	26.1	30.8		7.9	25.1	58.5	4.7	4.7		33.4	33.4
Effective Green, g (s)	8.9	26.1	30.8		7.9	25.1	58.5	4.7	4.7		33.4	33.4
Actuated g/C Ratio	0.10	0.29	0.35		0.09	0.28	0.66	0.05	0.05		0.38	0.38
Clearance Time (s)	4.0	4.5	4.0		4.0	4.5	4.0	4.0	4.0		4.0	4.0
Vehicle Extension (s)	2.5	4.2	2.5		2.5	4.2	2.5	2.5	2.5		2.5	2.5
Lane Grp Cap (vph)	163	960	453		141	905	972	88	66		580	569
v/s Ratio Prot	0.05	c0.22	0.00		0.05	c0.20	0.08	0.00	c0.01		c0.26	0.26
v/s Ratio Perm			0.00				0.06					
v/c Ratio	0.49	0.76	0.01		0.52	0.72	0.21	0.08	0.11		0.70	0.69
Uniform Delay, d1	37.7	28.4	18.9		38.6	28.6	5.9	39.9	40.0		23.4	23.2
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	1.7	3.7	0.0		2.7	3.0	0.1	0.3	0.5		3.6	3.1
Delay (s)	39.4	32.1	18.9		41.2	31.6	6.0	40.2	40.5		26.9	26.3
Level of Service	D	C	B		D	C	A	D	D		C	C
Approach Delay (s)		32.7				24.8			40.5			26.6
Approach LOS		C				C			D			C

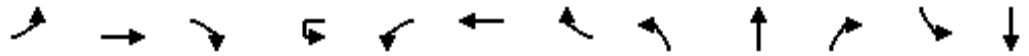
Intersection Summary			
HCM 2000 Control Delay	28.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	88.6	Sum of lost time (s)	16.5
Intersection Capacity Utilization	60.0%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBR
Lane Configurations	
Traffic Volume (vph)	58
Future Volume (vph)	58
Ideal Flow (vphpl)	1750
Grade (%)	
Total Lost time (s)	
Lane Util. Factor	
Fr <sub>t</sub>	
Fl <sub>t</sub> Protected	
Satd. Flow (prot)	
Fl <sub>t</sub> Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.84
Adj. Flow (vph)	69
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Heavy Vehicles (%)	0%
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d <sub>1</sub>	
Progression Factor	
Incremental Delay, d <sub>2</sub>	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	
Intersection Summary	

HCM 6th Signalized Intersection Summary  
1: Woodland Ave & OR-219

2023 Background Traffic Conditions  
PM Peak Hour



Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (veh/h)	67	610	6	31	31	545	251	6	3	52	610	6
Future Volume (veh/h)	67	610	6	31	31	545	251	6	3	52	610	6
Initial Q (Qb), veh	0	0	0		0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00		1.00		1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No				No
Adj Sat Flow, veh/h/ln	1723	1723	1559		1614	1695	1736	1750	1750	1450	1688	1251
Adj Flow Rate, veh/h	80	726	1		37	649	187	7	4	0	791	0
Peak Hour Factor	0.84	0.84	0.84		0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Percent Heavy Veh, %	2	2	14		10	4	1	0	0	22	1	33
Cap, veh/h	103	1350	567		55	1221	1016	27	29	0	1000	389
Arrive On Green	0.06	0.41	0.41		0.04	0.38	0.38	0.02	0.02	0.00	0.31	0.00
Sat Flow, veh/h	1641	3273	1321		1537	3221	1471	1667	1750	0	3214	1251
Grp Volume(v), veh/h	80	726	1		37	649	187	7	4	0	791	0
Grp Sat Flow(s),veh/h/ln	1641	1637	1321		1537	1611	1471	1667	1750	0	1607	1251
Q Serve(g_s), s	3.5	12.3	0.0		1.8	11.5	3.3	0.3	0.2	0.0	16.6	0.0
Cycle Q Clear(g_c), s	3.5	12.3	0.0		1.8	11.5	3.3	0.3	0.2	0.0	16.6	0.0
Prop In Lane	1.00		1.00		1.00		1.00	1.00		0.00	1.00	
Lane Grp Cap(c), veh/h	103	1350	567		55	1221	1016	27	29	0	1000	389
V/C Ratio(X)	0.78	0.54	0.00		0.67	0.53	0.18	0.26	0.14	0.00	0.79	0.00
Avail Cap(c_a), veh/h	446	2000	829		417	1968	1357	679	713	0	1964	764
HCM Platoon Ratio	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00
Uniform Delay (d), s/veh	34.0	16.3	12.0		35.1	17.8	4.0	35.8	35.7	0.0	23.2	0.0
Incr Delay (d2), s/veh	9.1	0.5	0.0		9.8	0.6	0.1	3.6	1.6	0.0	1.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.6	4.4	0.0		0.8	4.1	2.1	0.1	0.1	0.0	6.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	43.1	16.8	12.0		44.9	18.3	4.2	39.4	37.3	0.0	24.3	0.0
LnGrp LOS	D	B	B		D	B	A	D	D	A	C	A
Approach Vol, veh/h		807				873			11			791
Approach Delay, s/veh		19.4				16.4			38.6			24.3
Approach LOS		B				B			D			C
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.7	34.9		26.9	9.1	32.4		5.2				
Change Period (Y+Rc), s	4.0	4.5		4.0	4.5	* 4.5		4.0				
Max Green Setting (Gmax), s	20.0	45.0		45.0	20.0	* 45		30.0				
Max Q Clear Time (g_c+I1), s	3.8	14.3		18.6	5.5	13.5		2.3				
Green Ext Time (p_c), s	0.1	12.9		4.3	0.2	14.4		0.0				

Intersection Summary

HCM 6th Ctrl Delay	20.0
HCM 6th LOS	C

Notes

- User approved pedestrian interval to be less than phase max green.
- User approved volume balancing among the lanes for turning movement.
- User approved ignoring U-Turning movement.



Movement	SBR
<b>Lane Configurations</b>	
Traffic Volume (veh/h)	58
Future Volume (veh/h)	58
Initial Q (Qb), veh	0
Ped-Bike Adj(A_pbT)	1.00
Parking Bus, Adj	1.00
<b>Work Zone On Approach</b>	
Adj Sat Flow, veh/h/ln	1701
Adj Flow Rate, veh/h	0
Peak Hour Factor	0.84
Percent Heavy Veh, %	0
Cap, veh/h	0
Arrive On Green	0.00
Sat Flow, veh/h	0
Grp Volume(v), veh/h	0
Grp Sat Flow(s),veh/h/ln	0
Q Serve(g_s), s	0.0
Cycle Q Clear(g_c), s	0.0
Prop In Lane	0.00
Lane Grp Cap(c), veh/h	0
V/C Ratio(X)	0.00
Avail Cap(c_a), veh/h	0
HCM Platoon Ratio	1.00
Upstream Filter(l)	0.00
Uniform Delay (d), s/veh	0.0
Incr Delay (d2), s/veh	0.0
Initial Q Delay(d3),s/veh	0.0
%ile BackOfQ(50%),veh/ln	0.0
<b>Unsig. Movement Delay, s/veh</b>	
LnGrp Delay(d),s/veh	0.0
LnGrp LOS	A
<b>Approach Vol, veh/h</b>	
<b>Approach Delay, s/veh</b>	
<b>Approach LOS</b>	

**Timer - Assigned Phs**

\* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.  
 User approved changes to right turn type.

Intersection						
Int Delay, s/veh	0.3					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑	↑		↑
Traffic Vol, veh/h	0	1304	793	448	0	66
Future Vol, veh/h	0	1304	793	448	0	66
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	125	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	3	0	-	0	-
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	0	2	5	2	0	0
Mvmt Flow	0	1534	933	527	0	78













Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	-	0	-	0	467
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-
Critical Hdwy	-	-	-	-	6.9
Critical Hdwy Stg 1	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	3.3
Pot Cap-1 Maneuver	0	-	-	-	548
Stage 1	0	-	-	-	-
Stage 2	0	-	-	-	-
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	-	548
Mov Cap-2 Maneuver	-	-	-	-	-
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	12.7
HCM LOS			B

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	548
HCM Lane V/C Ratio	-	-	-	0.142
HCM Control Delay (s)	-	-	-	12.7
HCM Lane LOS	-	-	-	B
HCM 95th %tile Q(veh)	-	-	-	0.5

HCM Signalized Intersection Capacity Analysis  
3: I-5 SB Ramps & OR-219













2023 Background Traffic Conditions  
PM Peak Hour

														
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR		
Lane Configurations		↑↑	↗		↑↑	↗				↖↗		↗		
Traffic Volume (vph)	0	804	501	0	870	624	0	0	0	671	0	372		
Future Volume (vph)	0	804	501	0	870	624	0	0	0	671	0	372		
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750		
Grade (%)		3%			-4%			0%			5%			
Total Lost time (s)		4.5	4.0		4.5	4.0				4.5		2.5		
Lane Util. Factor		0.95	1.00		0.95	1.00				0.97		1.00		
Frbp, ped/bikes		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		
Frt		1.00	0.85		1.00	0.85				1.00		0.85		
Flt Protected		1.00	1.00		1.00	1.00				0.95		1.00		
Satd. Flow (prot)		3211	1436		3261	1456				3113		1408		
Flt Permitted		1.00	1.00		1.00	1.00				0.95		1.00		
Satd. Flow (perm)		3211	1436		3261	1456				3113		1408		
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91		
Adj. Flow (vph)	0	884	551	0	956	686	0	0	0	737	0	409		
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	16		
Lane Group Flow (vph)	0	884	551	0	956	686	0	0	0	737	0	393		
Confl. Peds. (#/hr)	2					2	1					1		
Heavy Vehicles (%)	0%	2%	2%	0%	4%	2%	0%	0%	0%	1%	0%	3%		
Turn Type		NA	Free		NA	Free				Prot		custom		
Protected Phases		2			6					4		4 5		
Permitted Phases			Free			Free								
Actuated Green, G (s)		60.1	100.0		49.8	100.0				30.9		41.7		
Effective Green, g (s)		60.1	100.0		49.8	100.0				30.9		43.7		
Actuated g/C Ratio		0.60	1.00		0.50	1.00				0.31		0.44		
Clearance Time (s)		4.5			4.5					4.5				
Vehicle Extension (s)		6.0			4.0					2.5				
Lane Grp Cap (vph)		1929	1436		1623	1456				961		615		
v/s Ratio Prot		0.28			c0.29					c0.24		c0.28		
v/s Ratio Perm			0.38			0.47								
v/c Ratio		0.46	0.38		0.59	0.47				0.77		0.64		
Uniform Delay, d1		11.0	0.0		17.8	0.0				31.3		22.0		
Progression Factor		1.00	1.00		0.93	1.00				1.00		1.00		
Incremental Delay, d2		0.8	0.8		1.3	0.9				3.6		1.9		
Delay (s)		11.8	0.8		17.8	0.9				34.8		23.9		
Level of Service		B	A		B	A				C		C		
Approach Delay (s)		7.6			10.8			0.0			30.9			
Approach LOS		A			B			A			C			
<b>Intersection Summary</b>														
HCM 2000 Control Delay			15.1									HCM 2000 Level of Service	B	
HCM 2000 Volume to Capacity ratio			0.67											
Actuated Cycle Length (s)			100.0							11.0				
Intersection Capacity Utilization			58.3%										ICU Level of Service	B
Analysis Period (min)			15											
c Critical Lane Group														

# HCM 6th Signalized Intersection Summary

## 3: I-5 SB Ramps & OR-219

2023 Background Traffic Conditions  
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↗		↑↑	↗				↖↖		↗
Traffic Volume (veh/h)	0	804	501	0	870	624	0	0	0	671	0	372
Future Volume (veh/h)	0	804	501	0	870	624	0	0	0	671	0	372
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1674	1674	0	1840	1867				1601	0	1573
Adj Flow Rate, veh/h	0	884	0	0	956	0				737	0	391
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91				0.91	0.91	0.91
Percent Heavy Veh, %	0	2	2	0	4	2				1	0	3
Cap, veh/h	0	1844		0	2026					977	0	467
Arrive On Green	0.00	0.58	0.00	0.00	1.00	0.00				0.33	0.00	0.35
Sat Flow, veh/h	0	3264	1419	0	3587	1582				2958	0	1333
Grp Volume(v), veh/h	0	884	0	0	956	0				737	0	391
Grp Sat Flow(s),veh/h/ln	0	1590	1419	0	1748	1582				1479	0	1333
Q Serve(g_s), s	0.0	16.2	0.0	0.0	0.0	0.0				22.2	0.0	27.0
Cycle Q Clear(g_c), s	0.0	16.2	0.0	0.0	0.0	0.0				22.2	0.0	27.0
Prop In Lane	0.00		1.00	0.00		1.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1844		0	2026					977	0	467
V/C Ratio(X)	0.00	0.48		0.00	0.47					0.75	0.00	0.84
Avail Cap(c_a), veh/h	0	1844		0	2026					1050	0	500
HCM Platoon Ratio	1.00	1.00	1.00	1.00	2.00	2.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	0.00	0.00	0.74	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	12.2	0.0	0.0	0.0	0.0				29.9	0.0	29.9
Incr Delay (d2), s/veh	0.0	0.9	0.0	0.0	0.6	0.0				2.8	0.0	10.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	5.6	0.0	0.0	0.2	0.0				8.1	0.0	19.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	13.1	0.0	0.0	0.6	0.0				32.6	0.0	40.8
LnGrp LOS	A	B		A	A					C	A	D
Approach Vol, veh/h		884			956						1128	
Approach Delay, s/veh		13.1			0.6						35.5	
Approach LOS		B			A						D	
Timer - Assigned Phs		2		4		6						
Phs Duration (G+Y+Rc), s		62.5		37.5		62.5						
Change Period (Y+Rc), s		4.5		4.5		4.5						
Max Green Setting (Gmax), s		55.5		35.5		35.5						
Max Q Clear Time (g_c+I1), s		18.2		29.0		2.0						
Green Ext Time (p_c), s		23.5		4.1		17.7						

### Intersection Summary













HCM 6th Ctrl Delay	17.6
HCM 6th LOS	B

### Notes

Unsignalized Delay for [EBR, WBR] is excluded from calculations of the approach delay and intersection delay.

HCM Signalized Intersection Capacity Analysis  
4: I-5 NB Ramps & OR-219/OR-214

2023 Background Traffic Conditions  
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↗		↑↑	↗	↗	↕	↗			
Traffic Volume (vph)	0	1241	233	0	1168	404	325	0	567	0	0	0
Future Volume (vph)	0	1241	233	0	1168	404	325	0	567	0	0	0
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Grade (%)		-4%			3%			2%			0%	
Total Lost time (s)		4.5	4.0		4.5	4.0	4.5	4.5	4.5			
Lane Util. Factor		0.95	1.00		0.95	1.00	0.95	0.91	0.95			
Frbp, ped/bikes		1.00	0.98		1.00	0.98	1.00	1.00	1.00			
Flpb, ped/bikes		1.00	1.00		1.00	1.00	1.00	1.00	1.00			
Frt		1.00	0.85		1.00	0.85	1.00	0.87	0.85			
Flt Protected		1.00	1.00		1.00	1.00	0.95	0.99	1.00			
Satd. Flow (prot)		3325	1443		3180	1407	1503	1306	1345			
Flt Permitted		1.00	1.00		1.00	1.00	0.95	0.99	1.00			
Satd. Flow (perm)		3325	1443		3180	1407	1503	1306	1345			
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	0	1293	243	0	1217	421	339	0	591	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	36	36	0	0	0
Lane Group Flow (vph)	0	1293	243	0	1217	421	305	276	277	0	0	0
Confl. Peds. (#/hr)	1		1	1		1						
Heavy Vehicles (%)	0%	2%	3%	0%	3%	2%	4%	0%	4%	0%	0%	0%
Turn Type		NA	Free		NA	Free	Split	NA	Perm			
Protected Phases		2			6		8	8				
Permitted Phases			Free			Free			8			
Actuated Green, G (s)		65.6	100.0		65.6	100.0	25.4	25.4	25.4			
Effective Green, g (s)		65.6	100.0		65.6	100.0	25.4	25.4	25.4			
Actuated g/C Ratio		0.66	1.00		0.66	1.00	0.25	0.25	0.25			
Clearance Time (s)		4.5			4.5		4.5	4.5	4.5			
Vehicle Extension (s)		4.0			6.0		2.5	2.5	2.5			
Lane Grp Cap (vph)		2181	1443		2086	1407	381	331	341			
v/s Ratio Prot		c0.39			0.38		0.20	c0.21				
v/s Ratio Perm			0.17			0.30			0.21			
v/c Ratio		0.59	0.17		0.58	0.30	0.80	0.83	0.81			
Uniform Delay, d1		9.7	0.0		9.6	0.0	34.9	35.3	35.1			
Progression Factor		1.64	1.00		0.97	1.00	1.00	1.00	1.00			
Incremental Delay, d2		1.0	0.2		0.9	0.4	11.1	16.1	13.4			
Delay (s)		16.8	0.2		10.2	0.4	46.1	51.4	48.5			
Level of Service		B	A		B	A	D	D	D			
Approach Delay (s)		14.2			7.7			48.7			0.0	
Approach LOS		B			A			D			A	
<b>Intersection Summary</b>												
HCM 2000 Control Delay			19.4				HCM 2000 Level of Service				B	
HCM 2000 Volume to Capacity ratio			0.66									
Actuated Cycle Length (s)			100.0				Sum of lost time (s)				9.0	
Intersection Capacity Utilization			70.2%				ICU Level of Service				C	
Analysis Period (min)			15									
c Critical Lane Group												

HCM 6th Signalized Intersection Summary  
4: I-5 NB Ramps & OR-219/OR-214

2023 Background Traffic Conditions  
PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↗		↑↑	↗	↗	↕	↗			
Traffic Volume (veh/h)	0	1241	233	0	1168	404	325	0	567	0	0	0
Future Volume (veh/h)	0	1241	233	0	1168	404	325	0	567	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	0	1867	1853	0	1660	1674	1674	1728	1674			
Adj Flow Rate, veh/h	0	1293	0	0	1217	0	226	0	675			
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96			
Percent Heavy Veh, %	0	2	3	0	3	2	4	0	4			
Cap, veh/h	0	2192		0	1949		466	0	829			
Arrive On Green	0.00	1.00	0.00	0.00	0.62	0.00	0.29	0.00	0.29			
Sat Flow, veh/h	0	3641	1571	0	3237	1419	1594	0	2837			
Grp Volume(v), veh/h	0	1293	0	0	1217	0	226	0	675			
Grp Sat Flow(s),veh/h/ln	0	1774	1571	0	1577	1419	1594	0	1418			
Q Serve(g_s), s	0.0	0.0	0.0	0.0	24.0	0.0	11.7	0.0	22.1			
Cycle Q Clear(g_c), s	0.0	0.0	0.0	0.0	24.0	0.0	11.7	0.0	22.1			
Prop In Lane	0.00		1.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	0	2192		0	1949		466	0	829			
V/C Ratio(X)	0.00	0.59		0.00	0.62		0.49	0.00	0.81			
Avail Cap(c_a), veh/h	0	2192		0	1949		566	0	1007			
HCM Platoon Ratio	1.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.00	0.77	0.00	0.00	0.68	0.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	0.0	0.0	0.0	0.0	11.9	0.0	29.2	0.0	32.9			
Incr Delay (d2), s/veh	0.0	0.9	0.0	0.0	1.0	0.0	0.6	0.0	4.0			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	0.0	0.3	0.0	0.0	8.0	0.0	4.5	0.0	7.9			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	0.9	0.0	0.0	12.9	0.0	29.8	0.0	36.9			
LnGrp LOS	A	A		A	B		C	A	D			
Approach Vol, veh/h		1293			1217			901				
Approach Delay, s/veh		0.9			12.9			35.1				
Approach LOS		A			B			D				
Timer - Assigned Phs		2			6			8				
Phs Duration (G+Y+Rc), s		66.3			66.3			33.7				
Change Period (Y+Rc), s		4.5			4.5			4.5				
Max Green Setting (Gmax), s		55.5			55.5			35.5				
Max Q Clear Time (g_c+I1), s		2.0			26.0			24.1				
Green Ext Time (p_c), s		33.1			24.9			5.1				

Intersection Summary

HCM 6th Ctrl Delay	14.2
HCM 6th LOS	B

Notes

User approved volume balancing among the lanes for turning movement.  
Unsignalized Delay for [EBR, WBR] is excluded from calculations of the approach delay and intersection delay.

HCM Signalized Intersection Capacity Analysis  
5: Evergreen Rd & OR-214

2023 Background Traffic Conditions  
PM Peak Hour



Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations		↔	↕	↗		↔	↕	↗	↖	↕	↗	↖
Traffic Volume (vph)	40	97	1025	299	17	270	939	11	510	30	203	34
Future Volume (vph)	40	97	1025	299	17	270	939	11	510	30	203	34
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Grade (%)			0%				3%			0%		
Total Lost time (s)		4.0	4.5	4.5		4.0	4.5		4.5	4.5	4.5	4.5
Lane Util. Factor		1.00	0.95	1.00		1.00	0.95		0.95	0.95	1.00	1.00
Frbp, ped/bikes		1.00	1.00	0.97		1.00	1.00		1.00	1.00	0.98	1.00
Flpb, ped/bikes		1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00
Frt		1.00	1.00	0.85		1.00	1.00		1.00	1.00	0.85	1.00
Flt Protected		0.95	1.00	1.00		0.95	1.00		0.95	0.96	1.00	0.95
Satd. Flow (prot)		1628	3260	1420		1622	3169		1533	1544	1448	1599
Flt Permitted		0.18	1.00	1.00		0.12	1.00		0.95	0.96	1.00	0.95
Satd. Flow (perm)		311	3260	1420		213	3169		1533	1544	1448	1599
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	41	99	1046	305	17	276	958	11	520	31	207	35
RTOR Reduction (vph)	0	0	0	182	0	0	1	0	0	0	160	0
Lane Group Flow (vph)	0	140	1046	123	0	293	968	0	276	275	47	35
Confl. Peds. (#/hr)				3		3			2		5	5
Heavy Vehicles (%)	0%	3%	2%	2%	0%	1%	3%	17%	3%	4%	1%	4%
Turn Type	D.P+P	D.P+P	NA	Perm	D.P+P	D.P+P	NA		Split	NA	Perm	Split
Protected Phases	5	5	2		1	1	6		8	8		4
Permitted Phases	6	6		2	2	2					8	
Actuated Green, G (s)		54.3	40.2	40.2		54.3	44.8		22.5	22.5	22.5	5.7
Effective Green, g (s)		54.3	40.2	40.2		54.3	44.8		22.5	22.5	22.5	5.7
Actuated g/C Ratio		0.54	0.40	0.40		0.54	0.45		0.22	0.22	0.22	0.06
Clearance Time (s)		4.0	4.5	4.5		4.0	4.5		4.5	4.5	4.5	4.5
Vehicle Extension (s)		2.5	6.2	6.2		2.5	6.2		2.5	2.5	2.5	2.5
Lane Grp Cap (vph)		293	1310	570		314	1419		344	347	325	91
v/s Ratio Prot		0.05	0.32			c0.13	0.31		c0.18	0.18		c0.02
v/s Ratio Perm		0.21		0.09		c0.37					0.03	
v/c Ratio		0.48	0.80	0.22		0.93	0.68		0.80	0.79	0.14	0.38
Uniform Delay, d1		13.5	26.3	19.6		32.6	21.9		36.6	36.5	31.0	45.5
Progression Factor		1.05	1.11	1.40		1.00	1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2		0.7	4.2	0.7		33.6	2.7		12.3	11.4	0.1	2.0
Delay (s)		14.9	33.5	28.2		66.2	24.6		49.0	47.9	31.2	47.4
Level of Service		B	C	C		E	C		D	D	C	D
Approach Delay (s)			30.6				34.3			43.7		
Approach LOS			C				C			D		

Intersection Summary

HCM 2000 Control Delay	35.2	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.86		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	17.5
Intersection Capacity Utilization	85.3%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis  
5: Evergreen Rd & OR-214

2023 Background Traffic Conditions  
PM Peak Hour



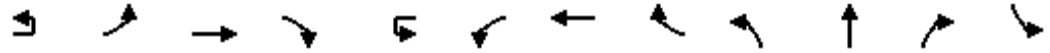
Movement	SBT	SBR
Lane Configurations	↑	↗
Traffic Volume (vph)	36	79
Future Volume (vph)	36	79
Ideal Flow (vphpl)	1750	1750
Grade (%)	0%	
Total Lost time (s)	4.5	4.5
Lane Util. Factor	1.00	1.00
Frpb, ped/bikes	1.00	0.99
Flpb, ped/bikes	1.00	1.00
Frt	1.00	0.85
Flt Protected	1.00	1.00
Satd. Flow (prot)	1750	1410
Flt Permitted	1.00	1.00
Satd. Flow (perm)	1750	1410
Peak-hour factor, PHF	0.98	0.98
Adj. Flow (vph)	37	81
RTOR Reduction (vph)	0	76
Lane Group Flow (vph)	37	5
Confl. Peds. (#/hr)		2
Heavy Vehicles (%)	0%	4%
Turn Type	NA	Perm
Protected Phases	4	
Permitted Phases		4
Actuated Green, G (s)	5.7	5.7
Effective Green, g (s)	5.7	5.7
Actuated g/C Ratio	0.06	0.06
Clearance Time (s)	4.5	4.5
Vehicle Extension (s)	2.5	2.5
Lane Grp Cap (vph)	99	80
v/s Ratio Prot	0.02	
v/s Ratio Perm		0.00
v/c Ratio	0.37	0.06
Uniform Delay, d1	45.4	44.6
Progression Factor	1.00	1.00
Incremental Delay, d2	1.7	0.2
Delay (s)	47.2	44.8
Level of Service	D	D
Approach Delay (s)	46.0	
Approach LOS	D	

Intersection Summary



HCM 6th Signalized Intersection Summary  
5: Evergreen Rd & OR-214

2023 Background Traffic Conditions  
PM Peak Hour



Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations		↔	↕	↗		↔	↕		↖	↕	↗	↘
Traffic Volume (veh/h)	40	97	1025	299	17	270	939	11	510	30	203	34
Future Volume (veh/h)	40	97	1025	299	17	270	939	11	510	30	203	34
Initial Q (Qb), veh		0	0	0		0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00		1.00		1.00		1.00	1.00		1.00	1.00
Parking Bus, Adj		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach			No				No			No		
Adj Sat Flow, veh/h/ln		1709	1723	1723		1688	1660	1469	1709	1695	1736	1695
Adj Flow Rate, veh/h		99	1046	0		276	958	10	542	0	0	35
Peak Hour Factor		0.98	0.98	0.98		0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %		3	2	2		1	3	17	3	4	1	4
Cap, veh/h		331	1064			459	1669	17	617	0		108
Arrive On Green		0.05	0.32	0.00		0.24	0.52	0.52	0.19	0.00	0.00	0.07
Sat Flow, veh/h		1628	3273	1460		1607	3198	33	3255	0	1471	1615
Grp Volume(v), veh/h		99	1046	0		276	472	496	542	0	0	35
Grp Sat Flow(s),veh/h/ln		1628	1637	1460		1607	1577	1654	1628	0	1471	1615
Q Serve(g_s), s		2.8	31.7	0.0		10.1	20.5	20.5	16.2	0.0	0.0	2.1
Cycle Q Clear(g_c), s		2.8	31.7	0.0		10.1	20.5	20.5	16.2	0.0	0.0	2.1
Prop In Lane		1.00		1.00		1.00		0.02	1.00		1.00	1.00
Lane Grp Cap(c), veh/h		331	1064			459	823	863	617	0		108
V/C Ratio(X)		0.30	0.98			0.60	0.57	0.57	0.88	0.00		0.32
Avail Cap(c_a), veh/h		483	1064			459	823	863	667	0		250
HCM Platoon Ratio		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)		0.73	0.73	0.00		1.00	1.00	1.00	1.00	0.00	0.00	1.00
Uniform Delay (d), s/veh		12.4	33.5	0.0		31.4	16.3	16.3	39.4	0.0	0.0	44.5
Incr Delay (d2), s/veh		0.3	19.9	0.0		1.9	2.9	2.8	11.8	0.0	0.0	1.3
Initial Q Delay(d3),s/veh		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln		1.0	15.1	0.0		5.9	7.7	8.0	7.4	0.0	0.0	0.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh		12.7	53.4	0.0		33.4	19.2	19.1	51.2	0.0	0.0	45.8
LnGrp LOS		B	D			C	B	B	D	A		D
Approach Vol, veh/h			1145				1244			542		
Approach Delay, s/veh			49.9				22.3			51.2		
Approach LOS			D				C			D		
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	28.3	37.0		11.2	8.7	56.7		23.5				
Change Period (Y+Rc), s	4.5	* 4.5		4.5	4.0	4.5		4.5				
Max Green Setting (Gmax), s	14.0	* 33		15.5	14.0	32.5		20.5				
Max Q Clear Time (g_c+I1), s	12.1	33.7		4.1	4.8	22.5		18.2				
Green Ext Time (p_c), s	0.2	0.0		0.2	0.2	8.5		0.7				

Intersection Summary

HCM 6th Ctrl Delay	38.6
HCM 6th LOS	D

Notes

- User approved pedestrian interval to be less than phase max green.
- User approved volume balancing among the lanes for turning movement.
- User approved ignoring U-Turning movement.



Movement	SBT	SBR
Lane Configurations	↑	↑
Traffic Volume (veh/h)	36	79
Future Volume (veh/h)	36	79
Initial Q (Qb), veh	0	0
Ped-Bike Adj(A_pbT)		1.00
Parking Bus, Adj	1.00	1.00
Work Zone On Approach	No	
Adj Sat Flow, veh/h/ln	1750	1695
Adj Flow Rate, veh/h	37	0
Peak Hour Factor	0.98	0.98
Percent Heavy Veh, %	0	4
Cap, veh/h	117	
Arrive On Green	0.07	0.00
Sat Flow, veh/h	1750	1437
Grp Volume(v), veh/h	37	0
Grp Sat Flow(s),veh/h/ln	1750	1437
Q Serve(g_s), s	2.0	0.0
Cycle Q Clear(g_c), s	2.0	0.0
Prop In Lane		1.00
Lane Grp Cap(c), veh/h	117	
V/C Ratio(X)	0.32	
Avail Cap(c_a), veh/h	271	
HCM Platoon Ratio	1.00	1.00
Upstream Filter(I)	1.00	0.00
Uniform Delay (d), s/veh	44.5	0.0
Incr Delay (d2), s/veh	1.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	0.0
Unsig. Movement Delay, s/veh		
LnGrp Delay(d),s/veh	45.6	0.0
LnGrp LOS	D	
Approach Vol, veh/h	72	
Approach Delay, s/veh	45.7	
Approach LOS	D	

Timer - Assigned Phs

\* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [NBR, EBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Intersection												
Int Delay, s/veh	6.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	10	0	0	2	0	34	0	10	3	29	12	1
Future Vol, veh/h	10	0	0	2	0	34	0	10	3	29	12	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	78	78	78	78	78	78	78	78	78	78	78	78
Heavy Vehicles, %	0	0	0	0	0	24	0	40	0	29	8	0
Mvmt Flow	13	0	0	3	0	44	0	13	4	37	15	1

Major/Minor	Minor2		Minor1		Major1			Major2				
Conflicting Flow All	127	107	16	105	105	15	16	0	0	17	0	0
Stage 1	90	90	-	15	15	-	-	-	-	-	-	-
Stage 2	37	17	-	90	90	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.44	4.1	-	-	4.39	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.516	2.2	-	-	2.461	-	-
Pot Cap-1 Maneuver	851	787	1069	880	789	1004	1615	-	-	1441	-	-
Stage 1	922	824	-	1010	887	-	-	-	-	-	-	-
Stage 2	984	885	-	922	824	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	798	767	1069	862	768	1004	1615	-	-	1441	-	-
Mov Cap-2 Maneuver	798	767	-	862	768	-	-	-	-	-	-	-
Stage 1	922	803	-	1010	887	-	-	-	-	-	-	-
Stage 2	941	885	-	898	803	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	9.6	8.8	0	5.2
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1615	-	-	798	995	1441	-	-
HCM Lane V/C Ratio	-	-	-	0.016	0.046	0.026	-	-
HCM Control Delay (s)	0	-	-	9.6	8.8	7.6	0	-
HCM Lane LOS	A	-	-	A	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0	0.1	0.1	-	-

Intersection												
Int Delay, s/veh	1.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↵	↕		↵	↕			↕			↕	
Traffic Vol, veh/h	22	655	1	0	559	50	0	0	0	28	0	19
Future Vol, veh/h	22	655	1	0	559	50	0	0	0	28	0	19
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	-	100	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	81	81	81	81	81	81	81	81	81	81	81	81
Heavy Vehicles, %	0	2	0	0	5	0	0	0	0	0	0	0
Mvmt Flow	27	809	1	0	690	62	0	0	0	35	0	23

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	752	0	0	810	0	0	1209	1616	405	1180	1585	376
Stage 1	-	-	-	-	-	-	864	864	-	721	721	-
Stage 2	-	-	-	-	-	-	345	752	-	459	864	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.5	6.5	6.9	7.5	6.5	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-	6.5	5.5	-	6.5	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.5	5.5	-	6.5	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	867	-	-	825	-	-	141	105	601	148	109	627
Stage 1	-	-	-	-	-	-	319	374	-	389	435	-
Stage 2	-	-	-	-	-	-	649	421	-	557	374	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	867	-	-	825	-	-	133	102	601	144	106	627
Mov Cap-2 Maneuver	-	-	-	-	-	-	133	102	-	144	106	-
Stage 1	-	-	-	-	-	-	309	362	-	377	435	-
Stage 2	-	-	-	-	-	-	625	421	-	540	362	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.3	0	0	28.7
HCM LOS			A	D

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	-	867	-	-	825	-	-	209
HCM Lane V/C Ratio	-	0.031	-	-	-	-	-	0.278
HCM Control Delay (s)	0	9.3	-	-	0	-	-	28.7
HCM Lane LOS	A	A	-	-	A	-	-	D
HCM 95th %tile Q(veh)	-	0.1	-	-	0	-	-	1.1

**Appendix E**  
Observed Chick-fil-A Trip Rates and Queues

**Table 1: Observed Trip Rates (per 1000 SF)**

			AM Peak Hour			PM Peak Hour		
Site	Size (SF)	Daily	TOTAL	IN	OUT	TOTAL	IN	OUT
Tanasbourne	4,962	-	26.60	51%	49%	60.46	50%	50%
Beaverton-Hillsdale	4,845	-	12.38	50%	50%	47.06	53%	47%
Cedars Hills	4,815	-	13.50	55%	45%	38.21	48%	52%
TV Highway	5,166	-	12.39	56%	44%	30.97	54%	46%
Keizer Station	5,199	624.74	15.96	53%	47%	57.90	57%	43%
<b>Average</b>		<b>624.74</b>	<b>16.17</b>	<b>53%</b>	<b>47%</b>	<b>46.92</b>	<b>52%</b>	<b>48%</b>

**Table 2: Observed Trip Rates (per 1000 SF)**

			AM Peak Hour			PM Peak Hour		
Site	Size (SF)	Daily	TOTAL	IN	OUT	TOTAL	IN	OUT
Tanasbourne	4,962	-	26.60	51%	49%	60.46	50%	50%
Beaverton-Hillsdale	4,845	-	12.38	50%	50%	47.06	53%	47%
Keizer Station	5,199	624.74	15.96	53%	47%	57.90	57%	43%
<b>Average</b>		<b>624.74</b>	<b>18.32</b>	<b>51%</b>	<b>49%</b>	<b>55.14</b>	<b>53%</b>	<b>47%</b>

**Table 3: Observed AM Peak Hour Queuing**

Site	95 <sup>th</sup> Percentile Queue	Max Queue
Tanasbourne	7	8
Beaverton-Hillsdale	4	6
Cedars Hills	6	8
TV Highway	7	7
Keizer Station	5	6

**Table 4: Observed Mid-day Peak Hour Queuing**

Site	95 <sup>th</sup> Percentile Queue	Max Queue
Tanasbourne	23	24
Beaverton-Hillsdale	22	23
Cedars Hills	13	14
TV Highway	16	19
Keizer Station	21	23

**Table 5: Observed PM Peak Hour Queuing**

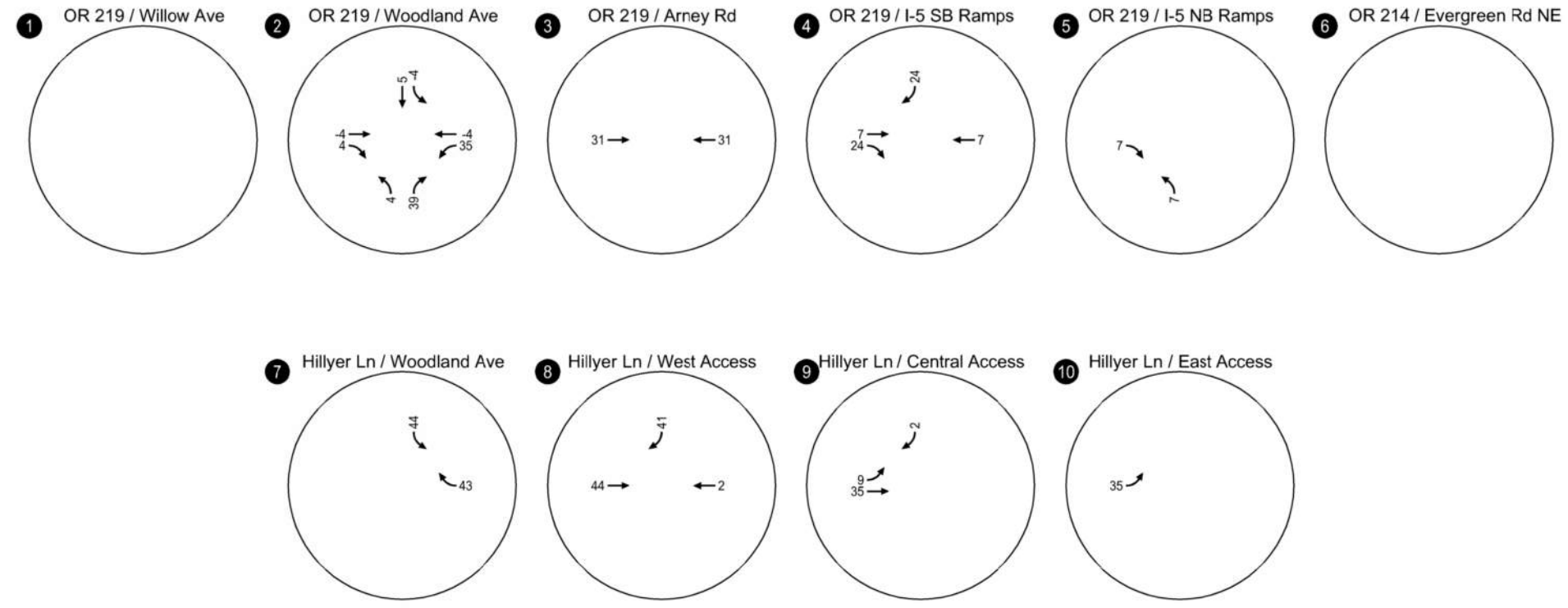
Site	95 <sup>th</sup> Percentile Queue	Max Queue
Tanasbourne	25	29
Beaverton-Hillsdale	21	22
Cedars Hills	15	18
TV Highway	15	16
Keizer Station	<b>33</b>	<b>34</b>

**Table 6: Observed Saturday Mid-day Peak Hour Queuing**

Site	95 <sup>th</sup> Percentile Queue	Max Queue
Keizer Station	30	31

**Appendix F**  
Pass-by and Net New Trip Assignment Figures &  
OR 219/Butteville Road Site Trip Assignment

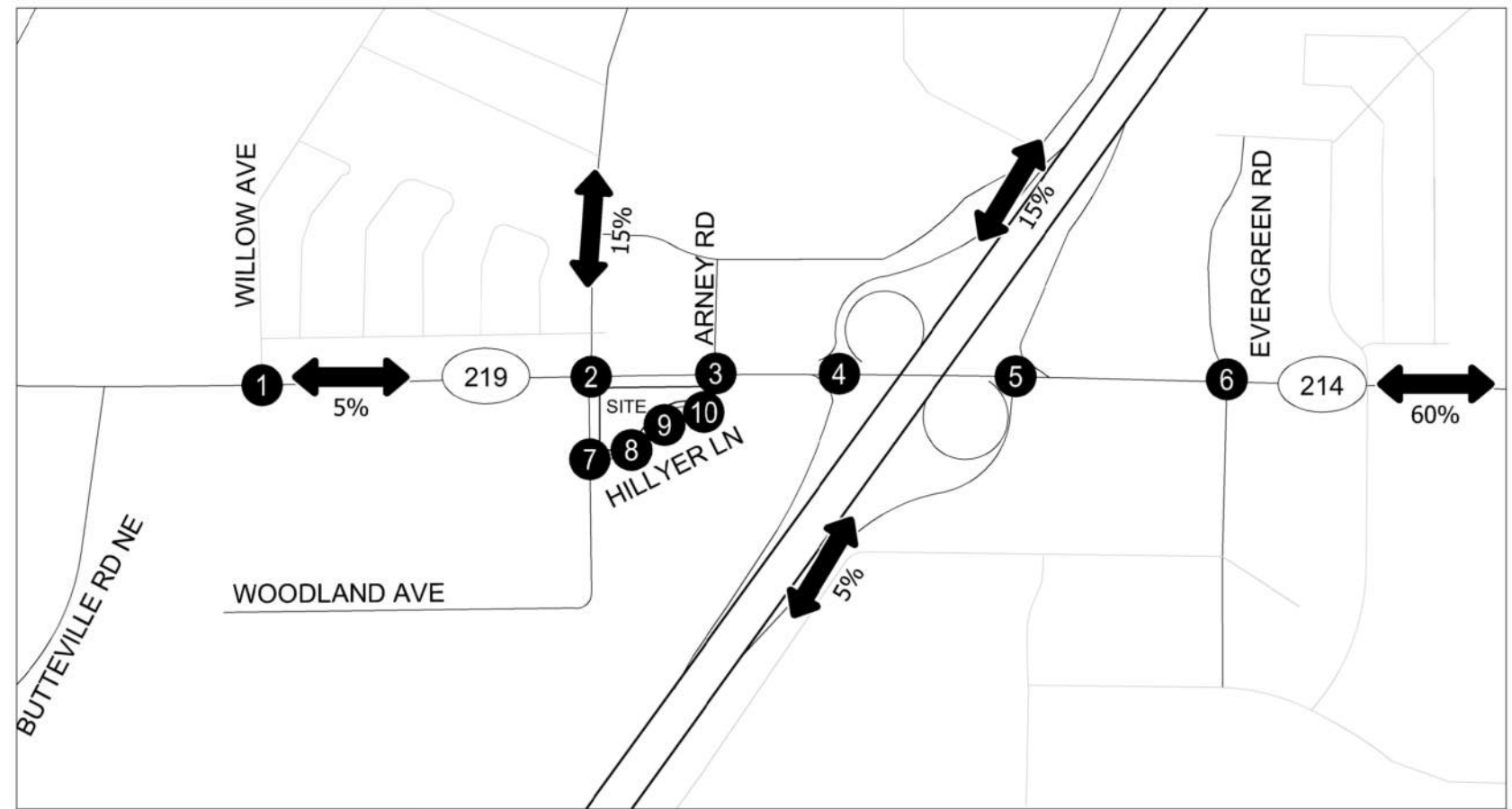




**Pass By Trip Assignment  
Weekday PM Peak Hour  
Woodburn, OR**

Figure  
**F-1**

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\*SITE TRIPS PROVIDED AT OR 219 / BUTTEVILLE RD FOR TRIP TRACKING PURPOSES ONLY

Net New Site Trips  
Weekday PM Peak Hour  
Woodburn, OR

Figure  
F - 2

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




















**Appendix G** 2024 Total Traffic Conditions Analysis Worksheets

# HCM Signalized Intersection Capacity Analysis

2023 Total Traffic Conditions

1: Woodland Ave & OR-219

PM Peak Hour

												
Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	67	606	12	31	94	541	251	12	8	120	606	16
Future Volume (vph)	67	606	12	31	94	541	251	12	8	120	606	16
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Grade (%)		0%				0%			0%			3%
Total Lost time (s)	4.0	4.5	4.0		4.0	4.5	4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	0.95	1.00		1.00	0.95	1.00	1.00	1.00		0.95	0.95
Frt	1.00	1.00	0.85		1.00	1.00	0.85	1.00	0.86		1.00	0.97
Flt Protected	0.95	1.00	1.00		0.95	1.00	1.00	0.95	1.00		0.95	0.96
Satd. Flow (prot)	1630	3260	1305		1602	3197	1473	1662	1376		1540	1500
Flt Permitted	0.95	1.00	1.00		0.95	1.00	1.00	0.95	1.00		0.95	0.96
Satd. Flow (perm)	1630	3260	1305		1602	3197	1473	1662	1376		1540	1500
Peak-hour factor, PHF	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Adj. Flow (vph)	80	721	14	37	112	644	299	14	10	143	721	19
RTOR Reduction (vph)	0	0	9	0	0	0	102	0	133	0	0	5
Lane Group Flow (vph)	80	721	5	0	149	644	197	14	20	0	411	393
Heavy Vehicles (%)	2%	2%	14%	0%	5%	4%	1%	0%	0%	10%	1%	33%
Turn Type	Prot	NA	pm+ov	Prot	Prot	NA	pm+ov	Split	NA		Split	NA
Protected Phases	5	2	8	1	1	6	4	8	8		4	4
Permitted Phases			2				6					
Actuated Green, G (s)	14.0	28.7	36.0		15.5	30.2	65.6	7.3	7.3		35.4	35.4
Effective Green, g (s)	14.0	28.7	36.0		15.5	30.2	65.6	7.3	7.3		35.4	35.4
Actuated g/C Ratio	0.14	0.28	0.35		0.15	0.29	0.63	0.07	0.07		0.34	0.34
Clearance Time (s)	4.0	4.5	4.0		4.0	4.5	4.0	4.0	4.0		4.0	4.0
Vehicle Extension (s)	2.5	4.2	2.5		2.5	4.2	2.5	2.5	2.5		2.5	2.5
Lane Grp Cap (vph)	220	904	454		240	933	934	117	97		527	513
v/s Ratio Prot	0.05	c0.22	0.00		0.09	c0.20	0.07	0.01	c0.01		c0.27	0.26
v/s Ratio Perm			0.00				0.06					
v/c Ratio	0.36	0.80	0.01		0.62	0.69	0.21	0.12	0.21		0.78	0.77
Uniform Delay, d1	40.6	34.7	22.0		41.2	32.5	8.0	45.0	45.3		30.5	30.3
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	0.7	5.3	0.0		4.3	2.5	0.1	0.3	0.8		6.9	6.5
Delay (s)	41.4	40.0	22.1		45.5	34.9	8.1	45.4	46.1		37.4	36.8
Level of Service	D	D	C		D	C	A	D	D		D	D
Approach Delay (s)		39.8				29.0			46.0			37.1
Approach LOS		D				C			D			D

### Intersection Summary

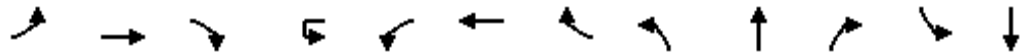
HCM 2000 Control Delay	35.3	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	103.4	Sum of lost time (s)	16.5
Intersection Capacity Utilization	68.6%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBR
Lane Configurations	
Traffic Volume (vph)	58
Future Volume (vph)	58
Ideal Flow (vphpl)	1750
Grade (%)	
Total Lost time (s)	
Lane Util. Factor	
Fr <sub>t</sub>	
Fl <sub>t</sub> Protected	
Satd. Flow (prot)	
Fl <sub>t</sub> Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.84
Adj. Flow (vph)	69
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Heavy Vehicles (%)	0%
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d <sub>1</sub>	
Progression Factor	
Incremental Delay, d <sub>2</sub>	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	
Intersection Summary	

HCM 6th Signalized Intersection Summary  
1: Woodland Ave & OR-219

2023 Total Traffic Conditions  
PM Peak Hour



Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (veh/h)	67	606	12	31	94	541	251	12	8	120	606	16
Future Volume (veh/h)	67	606	12	31	94	541	251	12	8	120	606	16
Initial Q (Qb), veh	0	0	0		0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00		1.00		1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No				No
Adj Sat Flow, veh/h/ln	1723	1723	1559		1682	1695	1736	1750	1750	1614	1688	1251
Adj Flow Rate, veh/h	80	721	3		112	644	178	14	10	0	793	0
Peak Hour Factor	0.84	0.84	0.84		0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Percent Heavy Veh, %	2	2	14		5	4	1	0	0	10	1	33
Cap, veh/h	138	1189	521		142	1165	984	52	54	0	987	384
Arrive On Green	0.08	0.36	0.36		0.09	0.36	0.36	0.03	0.03	0.00	0.31	0.00
Sat Flow, veh/h	1641	3273	1321		1602	3221	1471	1667	1750	0	3214	1251
Grp Volume(v), veh/h	80	721	3		112	644	178	14	10	0	793	0
Grp Sat Flow(s),veh/h/ln	1641	1637	1321		1602	1611	1471	1667	1750	0	1607	1251
Q Serve(g_s), s	3.7	14.2	0.1		5.4	12.6	3.6	0.6	0.4	0.0	17.9	0.0
Cycle Q Clear(g_c), s	3.7	14.2	0.1		5.4	12.6	3.6	0.6	0.4	0.0	17.9	0.0
Prop In Lane	1.00		1.00		1.00		1.00	1.00		0.00	1.00	
Lane Grp Cap(c), veh/h	138	1189	521		142	1165	984	52	54	0	987	384
V/C Ratio(X)	0.58	0.61	0.01		0.79	0.55	0.18	0.27	0.18	0.00	0.80	0.00
Avail Cap(c_a), veh/h	417	1871	796		407	1842	1293	635	667	0	1838	715
HCM Platoon Ratio	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00
Uniform Delay (d), s/veh	34.7	20.5	14.5		35.1	20.1	4.9	37.3	37.2	0.0	25.1	0.0
Incr Delay (d2), s/veh	2.8	0.8	0.0		6.9	0.6	0.1	2.0	1.2	0.0	1.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.5	5.2	0.0		2.3	4.6	2.3	0.3	0.2	0.0	6.6	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	37.5	21.2	14.5		42.1	20.7	5.0	39.3	38.3	0.0	26.3	0.0
LnGrp LOS	D	C	B		D	C	A	D	D	A	C	A
Approach Vol, veh/h		804				934			24			793
Approach Delay, s/veh		22.8				20.3			38.9			26.3
Approach LOS		C				C			D			C
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	11.0	33.1		28.2	11.1	33.0		6.4				
Change Period (Y+Rc), s	4.0	4.5		4.0	4.5	* 4.5		4.0				
Max Green Setting (Gmax), s	20.0	45.0		45.0	20.0	* 45		30.0				
Max Q Clear Time (g_c+I1), s	7.4	16.2		19.9	5.7	14.6		2.6				
Green Ext Time (p_c), s	0.3	12.4		4.3	0.2	13.9		0.1				

Intersection Summary

HCM 6th Ctrl Delay	23.1
HCM 6th LOS	C

Notes

- User approved pedestrian interval to be less than phase max green.
- User approved volume balancing among the lanes for turning movement.
- User approved ignoring U-Turning movement.

Movement	SBR
<b>Lane Configurations</b>	
Traffic Volume (veh/h)	58
Future Volume (veh/h)	58
Initial Q (Qb), veh	0
Ped-Bike Adj(A_pbT)	1.00
Parking Bus, Adj	1.00
<b>Work Zone On Approach</b>	
Adj Sat Flow, veh/h/ln	1701
Adj Flow Rate, veh/h	0
Peak Hour Factor	0.84
Percent Heavy Veh, %	0
Cap, veh/h	0
Arrive On Green	0.00
Sat Flow, veh/h	0
Grp Volume(v), veh/h	0
Grp Sat Flow(s),veh/h/ln	0
Q Serve(g_s), s	0.0
Cycle Q Clear(g_c), s	0.0
Prop In Lane	0.00
Lane Grp Cap(c), veh/h	0
V/C Ratio(X)	0.00
Avail Cap(c_a), veh/h	0
HCM Platoon Ratio	1.00
Upstream Filter(l)	0.00
Uniform Delay (d), s/veh	0.0
Incr Delay (d2), s/veh	0.0
Initial Q Delay(d3),s/veh	0.0
%ile BackOfQ(50%),veh/ln	0.0
<b>Unsig. Movement Delay, s/veh</b>	
LnGrp Delay(d),s/veh	0.0
LnGrp LOS	A
<b>Approach Vol, veh/h</b>	
<b>Approach Delay, s/veh</b>	
<b>Approach LOS</b>	

**Timer - Assigned Phs**

\* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.  
 User approved changes to right turn type.

Intersection						
Int Delay, s/veh	0.3					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑	↑		↑
Traffic Vol, veh/h	0	1364	852	448	0	66
Future Vol, veh/h	0	1364	852	448	0	66
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	125	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	3	0	-	0	-
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	0	2	5	2	0	0
Mvmt Flow	0	1605	1002	527	0	78

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	-	0	-	0	501
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-
Critical Hdwy	-	-	-	-	6.9
Critical Hdwy Stg 1	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	3.3
Pot Cap-1 Maneuver	0	-	-	-	521
Stage 1	0	-	-	-	-
Stage 2	0	-	-	-	-
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	-	521
Mov Cap-2 Maneuver	-	-	-	-	-
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-













Approach	EB	WB	SB
HCM Control Delay, s	0	0	13.1
HCM LOS			B

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	521
HCM Lane V/C Ratio	-	-	-	0.149
HCM Control Delay (s)	-	-	-	13.1
HCM Lane LOS	-	-	-	B
HCM 95th %tile Q(veh)	-	-	-	0.5















HCM Signalized Intersection Capacity Analysis  
3: I-5 SB Ramps & OR-219

2023 Total Traffic Conditions  
PM Peak Hour

														
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR		
Lane Configurations		↑↑	↗		↑↑	↗				↖↗		↗		
Traffic Volume (vph)	0	838	527	0	900	624	0	0	0	671	0	401		
Future Volume (vph)	0	838	527	0	900	624	0	0	0	671	0	401		
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750		
Grade (%)		3%			-4%			0%			5%			
Total Lost time (s)		4.5	4.0		4.5	4.0				4.5		2.5		
Lane Util. Factor		0.95	1.00		0.95	1.00				0.97		1.00		
Frbp, ped/bikes		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		
Frt		1.00	0.85		1.00	0.85				1.00		0.85		
Flt Protected		1.00	1.00		1.00	1.00				0.95		1.00		
Satd. Flow (prot)		3211	1436		3261	1456				3113		1408		
Flt Permitted		1.00	1.00		1.00	1.00				0.95		1.00		
Satd. Flow (perm)		3211	1436		3261	1456				3113		1408		
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91		
Adj. Flow (vph)	0	921	579	0	989	686	0	0	0	737	0	441		
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	13		
Lane Group Flow (vph)	0	921	579	0	989	686	0	0	0	737	0	428		
Confl. Peds. (#/hr)	2					2	1					1		
Heavy Vehicles (%)	0%	2%	2%	0%	4%	2%	0%	0%	0%	1%	0%	3%		
Turn Type		NA	Free		NA	Free				Prot		custom		
Protected Phases		2			6					4		4 5		
Permitted Phases			Free			Free								
Actuated Green, G (s)		59.1	100.0		48.6	100.0				31.9		42.9		
Effective Green, g (s)		59.1	100.0		48.6	100.0				31.9		44.9		
Actuated g/C Ratio		0.59	1.00		0.49	1.00				0.32		0.45		
Clearance Time (s)		4.5			4.5					4.5				
Vehicle Extension (s)		6.0			4.0					2.5				
Lane Grp Cap (vph)		1897	1436		1584	1456				993		632		
v/s Ratio Prot		0.29			c0.30					c0.24		c0.30		
v/s Ratio Perm			0.40			0.47								
v/c Ratio		0.49	0.40		0.62	0.47				0.74		0.68		
Uniform Delay, d1		11.7	0.0		19.0	0.0				30.4		21.8		
Progression Factor		1.00	1.00		0.85	1.00				1.00		1.00		
Incremental Delay, d2		0.9	0.8		1.6	1.0				2.9		2.6		
Delay (s)		12.6	0.8		17.6	1.0				33.3		24.4		
Level of Service		B	A		B	A				C		C		
Approach Delay (s)		8.1			10.8			0.0			29.9			
Approach LOS		A			B			A			C			
<b>Intersection Summary</b>														
HCM 2000 Control Delay			15.0									HCM 2000 Level of Service	B	
HCM 2000 Volume to Capacity ratio			0.69											
Actuated Cycle Length (s)			100.0							11.0			Sum of lost time (s)	
Intersection Capacity Utilization			61.2%										ICU Level of Service	B
Analysis Period (min)			15											
c Critical Lane Group														

HCM 6th Signalized Intersection Summary  
3: I-5 SB Ramps & OR-219

2023 Total Traffic Conditions  
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↗		↑↑	↗				↖↗		↗
Traffic Volume (veh/h)	0	838	527	0	900	624	0	0	0	671	0	401
Future Volume (veh/h)	0	838	527	0	900	624	0	0	0	671	0	401
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1674	1674	0	1840	1867				1601	0	1573
Adj Flow Rate, veh/h	0	921	0	0	989	0				737	0	427
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91				0.91	0.91	0.91
Percent Heavy Veh, %	0	2	2	0	4	2				1	0	3
Cap, veh/h	0	1800		0	1978					1018	0	486
Arrive On Green	0.00	0.57	0.00	0.00	1.00	0.00				0.34	0.00	0.36
Sat Flow, veh/h	0	3264	1419	0	3587	1582				2958	0	1333
Grp Volume(v), veh/h	0	921	0	0	989	0				737	0	427
Grp Sat Flow(s),veh/h/ln	0	1590	1419	0	1748	1582				1479	0	1333
Q Serve(g_s), s	0.0	17.7	0.0	0.0	0.0	0.0				21.8	0.0	30.0
Cycle Q Clear(g_c), s	0.0	17.7	0.0	0.0	0.0	0.0				21.8	0.0	30.0
Prop In Lane	0.00		1.00	0.00		1.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1800		0	1978					1018	0	486
V/C Ratio(X)	0.00	0.51		0.00	0.50					0.72	0.00	0.88
Avail Cap(c_a), veh/h	0	1800		0	1978					1050	0	500
HCM Platoon Ratio	1.00	1.00	1.00	1.00	2.00	2.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	0.00	0.00	0.72	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	13.3	0.0	0.0	0.0	0.0				28.6	0.0	29.7
Incr Delay (d2), s/veh	0.0	1.0	0.0	0.0	0.7	0.0				2.3	0.0	15.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	6.2	0.0	0.0	0.2	0.0				7.8	0.0	21.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	14.3	0.0	0.0	0.7	0.0				30.9	0.0	45.6
LnGrp LOS	A	B		A	A					C	A	D
Approach Vol, veh/h		921			989						1164	
Approach Delay, s/veh		14.3			0.7						36.3	
Approach LOS		B			A						D	
Timer - Assigned Phs		2		4		6						
Phs Duration (G+Y+Rc), s		61.1		38.9		61.1						
Change Period (Y+Rc), s		4.5		4.5		4.5						
Max Green Setting (Gmax), s		55.5		35.5		35.5						
Max Q Clear Time (g_c+I1), s		19.7		32.0		2.0						
Green Ext Time (p_c), s		23.7		2.5		18.3						

Intersection Summary













HCM 6th Ctrl Delay	18.2
HCM 6th LOS	B

Notes

Unsignalized Delay for [EBR, WBR] is excluded from calculations of the approach delay and intersection delay.

HCM Signalized Intersection Capacity Analysis  
4: I-5 NB Ramps & OR-219/OR-214

2023 Total Traffic Conditions  
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↗		↑↑	↗	↗	↕	↗			
Traffic Volume (vph)	0	1263	245	0	1189	404	334	0	567	0	0	0
Future Volume (vph)	0	1263	245	0	1189	404	334	0	567	0	0	0
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Grade (%)		-4%			3%			2%			0%	
Total Lost time (s)		4.5	4.0		4.5	4.0	4.5	4.5	4.5			
Lane Util. Factor		0.95	1.00		0.95	1.00	0.95	0.91	0.95			
Frbp, ped/bikes		1.00	0.98		1.00	0.98	1.00	1.00	1.00			
Flpb, ped/bikes		1.00	1.00		1.00	1.00	1.00	1.00	1.00			
Frt		1.00	0.85		1.00	0.85	1.00	0.87	0.85			
Flt Protected		1.00	1.00		1.00	1.00	0.95	0.99	1.00			
Satd. Flow (prot)		3325	1443		3180	1407	1503	1307	1345			
Flt Permitted		1.00	1.00		1.00	1.00	0.95	0.99	1.00			
Satd. Flow (perm)		3325	1443		3180	1407	1503	1307	1345			
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	0	1316	255	0	1239	421	348	0	591	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	33	33	0	0	0
Lane Group Flow (vph)	0	1316	255	0	1239	421	313	280	280	0	0	0
Confl. Peds. (#/hr)	1		1	1		1						
Heavy Vehicles (%)	0%	2%	3%	0%	3%	2%	4%	0%	4%	0%	0%	0%
Turn Type		NA	Free		NA	Free	Split	NA	Perm			
Protected Phases		2			6		8	8				
Permitted Phases			Free			Free			8			
Actuated Green, G (s)		65.4	100.0		65.4	100.0	25.6	25.6	25.6			
Effective Green, g (s)		65.4	100.0		65.4	100.0	25.6	25.6	25.6			
Actuated g/C Ratio		0.65	1.00		0.65	1.00	0.26	0.26	0.26			
Clearance Time (s)		4.5			4.5		4.5	4.5	4.5			
Vehicle Extension (s)		4.0			6.0		2.5	2.5	2.5			
Lane Grp Cap (vph)		2174	1443		2079	1407	384	334	344			
v/s Ratio Prot		c0.40			0.39		0.21	c0.21				
v/s Ratio Perm			0.18			0.30			0.21			
v/c Ratio		0.61	0.18		0.60	0.30	0.82	0.84	0.81			
Uniform Delay, d1		9.9	0.0		9.8	0.0	35.0	35.2	34.9			
Progression Factor		1.56	1.00		0.93	1.00	1.00	1.00	1.00			
Incremental Delay, d2		1.0	0.2		1.0	0.4	12.2	16.2	13.3			
Delay (s)		16.5	0.2		10.1	0.4	47.2	51.4	48.2			
Level of Service		B	A		B	A	D	D	D			
Approach Delay (s)		13.9			7.6			48.9			0.0	
Approach LOS		B			A			D			A	
<b>Intersection Summary</b>												
HCM 2000 Control Delay			19.3				HCM 2000 Level of Service				B	
HCM 2000 Volume to Capacity ratio			0.67									
Actuated Cycle Length (s)			100.0				Sum of lost time (s)				9.0	
Intersection Capacity Utilization			70.8%				ICU Level of Service				C	
Analysis Period (min)			15									
c	Critical Lane Group											

HCM 6th Signalized Intersection Summary  
4: I-5 NB Ramps & OR-219/OR-214

2023 Total Traffic Conditions  
PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↗		↑↑	↗	↖	↕	↗			
Traffic Volume (veh/h)	0	1263	245	0	1189	404	334	0	567	0	0	0
Future Volume (veh/h)	0	1263	245	0	1189	404	334	0	567	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	0	1867	1853	0	1660	1674	1674	1728	1674			
Adj Flow Rate, veh/h	0	1316	0	0	1239	0	232	0	681			
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96			
Percent Heavy Veh, %	0	2	3	0	3	2	4	0	4			
Cap, veh/h	0	2185		0	1942		469	0	835			
Arrive On Green	0.00	1.00	0.00	0.00	0.62	0.00	0.29	0.00	0.29			
Sat Flow, veh/h	0	3641	1571	0	3237	1419	1594	0	2837			
Grp Volume(v), veh/h	0	1316	0	0	1239	0	232	0	681			
Grp Sat Flow(s),veh/h/ln	0	1774	1571	0	1577	1419	1594	0	1418			
Q Serve(g_s), s	0.0	0.0	0.0	0.0	24.9	0.0	12.0	0.0	22.3			
Cycle Q Clear(g_c), s	0.0	0.0	0.0	0.0	24.9	0.0	12.0	0.0	22.3			
Prop In Lane	0.00		1.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	0	2185		0	1942		469	0	835			
V/C Ratio(X)	0.00	0.60		0.00	0.64		0.49	0.00	0.82			
Avail Cap(c_a), veh/h	0	2185		0	1942		566	0	1007			
HCM Platoon Ratio	1.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.00	0.77	0.00	0.00	0.67	0.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	0.0	0.0	0.0	0.0	12.2	0.0	29.1	0.0	32.8			
Incr Delay (d2), s/veh	0.0	1.0	0.0	0.0	1.1	0.0	0.6	0.0	4.2			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	0.0	0.3	0.0	0.0	8.2	0.0	4.6	0.0	8.0			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	1.0	0.0	0.0	13.2	0.0	29.7	0.0	36.9			
LnGrp LOS	A	A		A	B		C	A	D			
Approach Vol, veh/h		1316			1239			913				
Approach Delay, s/veh		1.0			13.2			35.1				
Approach LOS		A			B			D				
Timer - Assigned Phs		2			6			8				
Phs Duration (G+Y+Rc), s		66.1			66.1			33.9				
Change Period (Y+Rc), s		4.5			4.5			4.5				
Max Green Setting (Gmax), s		55.5			55.5			35.5				
Max Q Clear Time (g_c+I1), s		2.0			26.9			24.3				
Green Ext Time (p_c), s		33.8			24.5			5.1				

Intersection Summary

HCM 6th Ctrl Delay	14.3
HCM 6th LOS	B

Notes

User approved volume balancing among the lanes for turning movement.  
Unsignalized Delay for [EBR, WBR] is excluded from calculations of the approach delay and intersection delay.

HCM Signalized Intersection Capacity Analysis  
5: Evergreen Rd & OR-214

2023 Total Traffic Conditions  
PM Peak Hour

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (vph)	40	97	1047	299	17	270	960	11	510	30	203	34
Future Volume (vph)	40	97	1047	299	17	270	960	11	510	30	203	34
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Grade (%)			0%				3%			0%		
Total Lost time (s)		4.0	4.5	4.5		4.0	4.5		4.5	4.5	4.5	4.5
Lane Util. Factor		1.00	0.95	1.00		1.00	0.95		0.95	0.95	1.00	1.00
Frbp, ped/bikes		1.00	1.00	0.97		1.00	1.00		1.00	1.00	0.98	1.00
Flpb, ped/bikes		1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00
Frt		1.00	1.00	0.85		1.00	1.00		1.00	1.00	0.85	1.00
Flt Protected		0.95	1.00	1.00		0.95	1.00		0.95	0.96	1.00	0.95
Satd. Flow (prot)		1628	3260	1420		1622	3170		1533	1544	1448	1599
Flt Permitted		0.17	1.00	1.00		0.12	1.00		0.95	0.96	1.00	0.95
Satd. Flow (perm)		296	3260	1420		200	3170		1533	1544	1448	1599
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	41	99	1068	305	17	276	980	11	520	31	207	35
RTOR Reduction (vph)	0	0	0	182	0	0	1	0	0	0	160	0
Lane Group Flow (vph)	0	140	1068	123	0	293	990	0	276	275	47	35
Confl. Peds. (#/hr)				3		3			2		5	5
Heavy Vehicles (%)	0%	3%	2%	2%	0%	1%	3%	17%	3%	4%	1%	4%
Turn Type	D.P+P	D.P+P	NA	Perm	D.P+P	D.P+P	NA		Split	NA	Perm	Split
Protected Phases	5	5	2		1	1	6		8	8		4
Permitted Phases	6	6		2	2	2					8	
Actuated Green, G (s)		54.3	40.2	40.2		54.3	44.8		22.5	22.5	22.5	5.7
Effective Green, g (s)		54.3	40.2	40.2		54.3	44.8		22.5	22.5	22.5	5.7
Actuated g/C Ratio		0.54	0.40	0.40		0.54	0.45		0.22	0.22	0.22	0.06
Clearance Time (s)		4.0	4.5	4.5		4.0	4.5		4.5	4.5	4.5	4.5
Vehicle Extension (s)		2.5	6.2	6.2		2.5	6.2		2.5	2.5	2.5	2.5
Lane Grp Cap (vph)		287	1310	570		309	1420		344	347	325	91
v/s Ratio Prot		0.05	0.33			c0.13	0.31		c0.18	0.18		c0.02
v/s Ratio Perm		0.22		0.09		c0.38					0.03	
v/c Ratio		0.49	0.82	0.22		0.95	0.70		0.80	0.79	0.14	0.38
Uniform Delay, d1		13.7	26.6	19.6		33.2	22.2		36.6	36.5	31.0	45.5
Progression Factor		1.04	1.10	1.33		1.00	1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2		0.8	4.6	0.7		37.2	2.9		12.3	11.4	0.1	2.0
Delay (s)		15.0	33.8	26.8		70.4	25.0		49.0	47.9	31.2	47.4
Level of Service		B	C	C		E	C		D	D	C	D
Approach Delay (s)			30.6				35.4			43.7		
Approach LOS			C				D			D		
<b>Intersection Summary</b>												
HCM 2000 Control Delay			35.6				HCM 2000 Level of Service			D		
HCM 2000 Volume to Capacity ratio			0.87									
Actuated Cycle Length (s)			100.0				Sum of lost time (s)		17.5			
Intersection Capacity Utilization			86.0%				ICU Level of Service		E			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis  
5: Evergreen Rd & OR-214

2023 Total Traffic Conditions  
PM Peak Hour

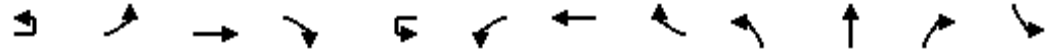


Movement	SBT	SBR
Lane Configurations	↑	↗
Traffic Volume (vph)	36	79
Future Volume (vph)	36	79
Ideal Flow (vphpl)	1750	1750
Grade (%)	0%	
Total Lost time (s)	4.5	4.5
Lane Util. Factor	1.00	1.00
Frpb, ped/bikes	1.00	0.99
Flpb, ped/bikes	1.00	1.00
Frt	1.00	0.85
Flt Protected	1.00	1.00
Satd. Flow (prot)	1750	1410
Flt Permitted	1.00	1.00
Satd. Flow (perm)	1750	1410
Peak-hour factor, PHF	0.98	0.98
Adj. Flow (vph)	37	81
RTOR Reduction (vph)	0	76
Lane Group Flow (vph)	37	5
Confl. Peds. (#/hr)		2
Heavy Vehicles (%)	0%	4%
Turn Type	NA	Perm
Protected Phases	4	
Permitted Phases		4
Actuated Green, G (s)	5.7	5.7
Effective Green, g (s)	5.7	5.7
Actuated g/C Ratio	0.06	0.06
Clearance Time (s)	4.5	4.5
Vehicle Extension (s)	2.5	2.5
Lane Grp Cap (vph)	99	80
v/s Ratio Prot	0.02	
v/s Ratio Perm		0.00
v/c Ratio	0.37	0.06
Uniform Delay, d1	45.4	44.6
Progression Factor	1.00	1.00
Incremental Delay, d2	1.7	0.2
Delay (s)	47.2	44.8
Level of Service	D	D
Approach Delay (s)	46.0	
Approach LOS	D	

Intersection Summary

HCM 6th Signalized Intersection Summary  
5: Evergreen Rd & OR-214

2023 Total Traffic Conditions  
PM Peak Hour



Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations		↔	↕	↗		↔	↕		↖	↕	↗	↘
Traffic Volume (veh/h)	40	97	1047	299	17	270	960	11	510	30	203	34
Future Volume (veh/h)	40	97	1047	299	17	270	960	11	510	30	203	34
Initial Q (Qb), veh		0	0	0		0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00		1.00		1.00		1.00	1.00		1.00	1.00
Parking Bus, Adj		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach			No				No			No		
Adj Sat Flow, veh/h/ln		1709	1723	1723		1688	1660	1469	1709	1695	1736	1695
Adj Flow Rate, veh/h		99	1068	0		276	980	10	542	0	0	35
Peak Hour Factor		0.98	0.98	0.98		0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %		3	2	2		1	3	17	3	4	1	4
Cap, veh/h		323	1064			455	1669	17	617	0		108
Arrive On Green		0.05	0.32	0.00		0.24	0.52	0.52	0.19	0.00	0.00	0.07
Sat Flow, veh/h		1628	3273	1460		1607	3199	33	3255	0	1471	1615
Grp Volume(v), veh/h		99	1068	0		276	483	507	542	0	0	35
Grp Sat Flow(s),veh/h/ln		1628	1637	1460		1607	1577	1654	1628	0	1471	1615
Q Serve(g_s), s		2.8	32.5	0.0		10.4	21.1	21.1	16.2	0.0	0.0	2.1
Cycle Q Clear(g_c), s		2.8	32.5	0.0		10.4	21.1	21.1	16.2	0.0	0.0	2.1
Prop In Lane		1.00		1.00		1.00		0.02	1.00		1.00	1.00
Lane Grp Cap(c), veh/h		323	1064			455	823	863	617	0		108
V/C Ratio(X)		0.31	1.00			0.61	0.59	0.59	0.88	0.00		0.32
Avail Cap(c_a), veh/h		475	1064			455	823	863	667	0		250
HCM Platoon Ratio		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)		0.72	0.72	0.00		1.00	1.00	1.00	1.00	0.00	0.00	1.00
Uniform Delay (d), s/veh		12.6	33.8	0.0		31.6	16.5	16.5	39.4	0.0	0.0	44.5
Incr Delay (d2), s/veh		0.3	24.4	0.0		2.0	3.1	2.9	11.8	0.0	0.0	1.3
Initial Q Delay(d3),s/veh		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln		1.0	16.1	0.0		5.9	7.9	8.3	7.4	0.0	0.0	0.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh		12.9	58.1	0.0		33.6	19.5	19.4	51.2	0.0	0.0	45.8
LnGrp LOS		B	F			C	B	B	D	A		D
Approach Vol, veh/h			1167				1266			542		
Approach Delay, s/veh			54.3				22.6			51.2		
Approach LOS			D				C			D		
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	28.3	37.0		11.2	8.7	56.7		23.5				
Change Period (Y+Rc), s	4.5	* 4.5		4.5	4.0	4.5		4.5				
Max Green Setting (Gmax), s	14.0	* 33		15.5	14.0	32.5		20.5				
Max Q Clear Time (g_c+I1), s	12.4	34.5		4.1	4.8	23.1		18.2				
Green Ext Time (p_c), s	0.2	0.0		0.2	0.2	8.0		0.7				

Intersection Summary

HCM 6th Ctrl Delay	40.4
HCM 6th LOS	D

Notes

- User approved pedestrian interval to be less than phase max green.
- User approved volume balancing among the lanes for turning movement.
- User approved ignoring U-Turning movement.

HCM 6th Signalized Intersection Summary  
5: Evergreen Rd & OR-214

2023 Total Traffic Conditions  
PM Peak Hour



Movement	SBT	SBR
Lane Configurations	↑	↑
Traffic Volume (veh/h)	36	79
Future Volume (veh/h)	36	79
Initial Q (Qb), veh	0	0
Ped-Bike Adj(A_pbT)		1.00
Parking Bus, Adj	1.00	1.00
Work Zone On Approach	No	
Adj Sat Flow, veh/h/ln	1750	1695
Adj Flow Rate, veh/h	37	0
Peak Hour Factor	0.98	0.98
Percent Heavy Veh, %	0	4
Cap, veh/h	117	
Arrive On Green	0.07	0.00
Sat Flow, veh/h	1750	1437
Grp Volume(v), veh/h	37	0
Grp Sat Flow(s),veh/h/ln	1750	1437
Q Serve(g_s), s	2.0	0.0
Cycle Q Clear(g_c), s	2.0	0.0
Prop In Lane		1.00
Lane Grp Cap(c), veh/h	117	
V/C Ratio(X)	0.32	
Avail Cap(c_a), veh/h	271	
HCM Platoon Ratio	1.00	1.00
Upstream Filter(I)	1.00	0.00
Uniform Delay (d), s/veh	44.5	0.0
Incr Delay (d2), s/veh	1.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	0.0
Unsig. Movement Delay, s/veh		
LnGrp Delay(d),s/veh	45.6	0.0
LnGrp LOS	D	
Approach Vol, veh/h	72	
Approach Delay, s/veh	45.7	
Approach LOS	D	

Timer - Assigned Phs

\* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [NBR, EBR, SBR] is excluded from calculations of the approach delay and intersection delay.



Intersection												
Int Delay, s/veh	7.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	10	0	0	2	0	113	0	10	3	108	12	1
Future Vol, veh/h	10	0	0	2	0	113	0	10	3	108	12	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	78	78	78	78	78	78	78	78	78	78	78	78
Heavy Vehicles, %	0	0	0	0	0	8	0	40	0	9	8	0
Mvmt Flow	13	0	0	3	0	145	0	13	4	138	15	1

Major/Minor	Minor2		Minor1		Major1			Major2				
Conflicting Flow All	380	309	16	307	307	15	16	0	0	17	0	0
Stage 1	292	292	-	15	15	-	-	-	-	-	-	-
Stage 2	88	17	-	292	292	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.28	4.1	-	-	4.19	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.372	2.2	-	-	2.281	-	-
Pot Cap-1 Maneuver	581	609	1069	649	610	1047	1615	-	-	1556	-	-
Stage 1	720	675	-	1010	887	-	-	-	-	-	-	-
Stage 2	925	885	-	720	675	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	466	554	1069	604	555	1047	1615	-	-	1556	-	-
Mov Cap-2 Maneuver	466	554	-	604	555	-	-	-	-	-	-	-
Stage 1	720	614	-	1010	887	-	-	-	-	-	-	-
Stage 2	797	885	-	655	614	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	12.9		9.1		0		6.7	
HCM LOS	B		A					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1615	-	-	466	1034	1556	-	-
HCM Lane V/C Ratio	-	-	-	0.028	0.143	0.089	-	-
HCM Control Delay (s)	0	-	-	12.9	9.1	7.5	0	-
HCM Lane LOS	A	-	-	B	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0.5	0.3	-	-

Intersection												
Int Delay, s/veh	1.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↕		↘	↕			↕			↕	↕
Traffic Vol, veh/h	22	656	1	0	560	51	0	0	0	29	0	19
Future Vol, veh/h	22	656	1	0	560	51	0	0	0	29	0	19
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	-	100	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	81	81	81	81	81	81	81	81	81	81	81	81
Heavy Vehicles, %	0	2	0	0	5	0	0	0	0	0	0	0
Mvmt Flow	27	810	1	0	691	63	0	0	0	36	0	23

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	754	0	0	811	0	0	1211	1619	406	1182	1588	377
Stage 1	-	-	-	-	-	-	865	865	-	723	723	-
Stage 2	-	-	-	-	-	-	346	754	-	459	865	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.5	6.5	6.9	7.5	6.5	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-	6.5	5.5	-	6.5	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.5	5.5	-	6.5	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	865	-	-	824	-	-	140	104	600	147	109	626
Stage 1	-	-	-	-	-	-	319	374	-	388	434	-
Stage 2	-	-	-	-	-	-	649	420	-	557	374	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	865	-	-	824	-	-	132	101	600	143	106	626
Mov Cap-2 Maneuver	-	-	-	-	-	-	132	101	-	143	106	-
Stage 1	-	-	-	-	-	-	309	362	-	376	434	-
Stage 2	-	-	-	-	-	-	625	420	-	540	362	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.3	0	0	29.4
HCM LOS			A	D

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	-	865	-	-	824	-	-	206
HCM Lane V/C Ratio	-	0.031	-	-	-	-	-	0.288
HCM Control Delay (s)	0	9.3	-	-	0	-	-	29.4
HCM Lane LOS	A	A	-	-	A	-	-	D
HCM 95th %tile Q(veh)	-	0.1	-	-	0	-	-	1.1

Intersection						
Int Delay, s/veh	3.2					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↑			↑
Traffic Vol, veh/h	0	100	33	0	0	75
Future Vol, veh/h	0	100	33	0	0	75
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	61	61	61	61	61	61
Heavy Vehicles, %	0	0	4	0	0	0
Mvmt Flow	0	164	54	0	0	123

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	-	0	-
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	-	-
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	-
Pot Cap-1 Maneuver	0	-	-
Stage 1	0	-	-
Stage 2	0	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	-
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	9
HCM LOS			A

Minor Lane/Major Mvmt	EBT	WBT	SBLn1
Capacity (veh/h)	-	-	1019
HCM Lane V/C Ratio	-	-	0.121
HCM Control Delay (s)	-	-	9
HCM Lane LOS	-	-	A
HCM 95th %tile Q(veh)	-	-	0.4

Intersection						
Int Delay, s/veh	1.2					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕	↕		↕	
Traffic Vol, veh/h	16	84	29	0	0	4
Future Vol, veh/h	16	84	29	0	0	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	61	61	61	61	61	61
Heavy Vehicles, %	0	0	4	0	0	0
Mvmt Flow	26	138	48	0	0	7

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	48	0	-	0	238 48
Stage 1	-	-	-	-	48 -
Stage 2	-	-	-	-	190 -
Critical Hdwy	4.1	-	-	-	6.4 6.2
Critical Hdwy Stg 1	-	-	-	-	5.4 -
Critical Hdwy Stg 2	-	-	-	-	5.4 -
Follow-up Hdwy	2.2	-	-	-	3.5 3.3
Pot Cap-1 Maneuver	1572	-	-	-	755 1027
Stage 1	-	-	-	-	980 -
Stage 2	-	-	-	-	847 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1572	-	-	-	741 1027
Mov Cap-2 Maneuver	-	-	-	-	741 -
Stage 1	-	-	-	-	962 -
Stage 2	-	-	-	-	847 -

Approach	EB	WB	SB
HCM Control Delay, s	1.2	0	8.5
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1572	-	-	-	1027
HCM Lane V/C Ratio	0.017	-	-	-	0.006
HCM Control Delay (s)	7.3	0	-	-	8.5
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0.1	-	-	-	0

# MOVEMENT SUMMARY

Site: 102 [Hillyer Ln/Site Driveway 3 (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.1.200

New Site  
 Site Category: (None)  
 Stop (Two-Way)

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[ Total HV ]	%	[ Total HV ]	%				[ Veh. veh	Dist ]				
East: Hillyer Ln															
6	T1	All MCs	48	4.0	48	4.0	0.027	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	39.8
16	R2	All MCs	2	0.0	2	0.0	0.027	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	37.8
Approach			49	3.9	49	3.9	0.027	0.0	NA	0.0	0.0	0.00	0.00	0.00	39.8
West: Hillyer Ln															
5	L2	All MCs	103	0.0	103	0.0	0.085	3.6	LOS A	0.4	9.5	0.13	0.04	0.13	33.5
2	T1	All MCs	34	0.0	34	0.0	0.085	0.7	LOS A	0.4	9.5	0.13	0.04	0.13	35.4
Approach			138	0.0	138	0.0	0.085	2.8	NA	0.4	9.5	0.13	0.04	0.13	34.0
All Vehicles			187	1.0	187	1.0	0.085	2.1	NA	0.4	9.5	0.10	0.03	0.10	35.3

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).  
 Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.  
 LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).  
 Minor Road Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).  
 NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).  
 Two-Way Sign Control Capacity Model: SIDRA Standard (HCM).  
 Delay Model: HCM Delay Formula (Stopline Delay: Geometric Delay is not included).  
 Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.  
 Gap-Acceptance Capacity Formula: Traditional M1.  
 HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.  
 Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

## **Appendix H** Queuing Worksheets

Intersection: 1: Woodland Ave & OR-219

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	T	R	UL	T	T	R	L	TR	L	LTR
Maximum Queue (ft)	84	166	197	55	118	159	135	68	52	170	203	251
Average Queue (ft)	33	63	95	6	43	76	54	22	6	48	95	126
95th Queue (ft)	70	121	163	34	87	137	104	57	31	124	165	226
Link Distance (ft)		1400	1400			480	480			256	526	526
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	250			150	240			120	120			
Storage Blk Time (%)			1				0			4		
Queuing Penalty (veh)			0				1			0		

Intersection: 2: OR-219 & N Arney Rd

Movement	WB	WB	SB
Directions Served	T	R	R
Maximum Queue (ft)	22	78	52
Average Queue (ft)	1	7	23
95th Queue (ft)	11	40	41
Link Distance (ft)	448		275
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)		125	
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 3: I-5 SB Ramps & OR-219

Movement	EB	EB	WB	WB	WB	SB	SB	SB
Directions Served	T	T	T	T	R	L	L	R
Maximum Queue (ft)	217	239	269	276	180	278	236	196
Average Queue (ft)	95	119	115	150	22	167	141	9
95th Queue (ft)	162	197	210	247	111	244	220	76
Link Distance (ft)	448	448	694	694	694	656	656	656
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)								
Storage Blk Time (%)			0					
Queuing Penalty (veh)			0					

Intersection: 4: I-5 NB Ramps & OR-219/OR-214

Movement	EB	EB	WB	WB	WB	NB	NB	NB
Directions Served	T	T	T	T	R	L	LTR	R
Maximum Queue (ft)	394	431	353	448	218	210	316	300
Average Queue (ft)	192	208	169	210	11	97	201	136
95th Queue (ft)	318	338	298	353	93	178	289	259
Link Distance (ft)	694	694	765	765		505	505	505
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)					360			
Storage Blk Time (%)				0				
Queuing Penalty (veh)				1				

Intersection: 5: Evergreen Rd & OR-214

Movement	EB	EB	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB
Directions Served	UL	T	T	R	UL	T	TR	L	LT	R	L	T
Maximum Queue (ft)	232	356	359	102	342	444	429	279	327	122	109	226
Average Queue (ft)	83	168	186	6	175	212	209	150	193	38	31	65
95th Queue (ft)	167	308	329	60	344	455	433	248	281	106	78	161
Link Distance (ft)		765	765			1183	1183		1145			276
Upstream Blk Time (%)												0
Queuing Penalty (veh)												0
Storage Bay Dist (ft)	180			280	400			600		280	70	
Storage Blk Time (%)	0	6	2		5	0			1		2	31
Queuing Penalty (veh)	0	7	2		22	1			3		2	34

Intersection: 5: Evergreen Rd & OR-214

Movement	SB
Directions Served	R
Maximum Queue (ft)	125
Average Queue (ft)	28
95th Queue (ft)	104
Link Distance (ft)	
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	50
Storage Blk Time (%)	0
Queuing Penalty (veh)	0



Intersection: 6: S Woodland Ave & Commercial Dwy/Hillyer Ln

Movement	EB	WB	SB
Directions Served	LTR	LTR	LTR
Maximum Queue (ft)	35	78	18
Average Queue (ft)	9	28	0
95th Queue (ft)	32	64	8
Link Distance (ft)	188		256
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 8: Willow Ave/Church Dwy & OR-219

Movement	EB	WB	SB
Directions Served	LTR	LT	LTR
Maximum Queue (ft)	96	19	72
Average Queue (ft)	12	1	24
95th Queue (ft)	58	10	51
Link Distance (ft)	962	1400	463
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 9: Hillyer Ln & Site Driveway 1

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

Intersection: 1: Woodland Ave & OR-219

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	T	R	UL	T	T	R	L	TR	L	LTR
Maximum Queue (ft)	116	234	284	80	116	277	250	173	75	227	304	366
Average Queue (ft)	50	92	137	5	45	122	100	37	7	63	132	183
95th Queue (ft)	99	179	235	42	88	219	202	107	39	161	248	314
Link Distance (ft)		1400	1400			480	480			256	526	526
Upstream Blk Time (%)										0		
Queuing Penalty (veh)										0		
Storage Bay Dist (ft)	250			150	240			120	120			
Storage Blk Time (%)		0	6			1	3	0		11		
Queuing Penalty (veh)		0	0			0	8	0		1		

Intersection: 2: OR-219 & N Arney Rd

Movement	WB	WB	SB
Directions Served	T	R	R
Maximum Queue (ft)	122	76	59
Average Queue (ft)	8	6	26
95th Queue (ft)	105	37	49
Link Distance (ft)	448		275
Upstream Blk Time (%)	0		
Queuing Penalty (veh)	0		
Storage Bay Dist (ft)		125	
Storage Blk Time (%)		0	
Queuing Penalty (veh)		0	

Intersection: 3: I-5 SB Ramps & OR-219

Movement	EB	EB	EB	WB	WB	WB	SB	SB	SB
Directions Served	T	T	R	T	T	R	L	L	R
Maximum Queue (ft)	244	280	130	417	428	296	347	316	321
Average Queue (ft)	126	158	4	203	239	42	206	189	57
95th Queue (ft)	210	245	67	348	371	176	301	281	214
Link Distance (ft)	448	448		694	694	694	656	656	656
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (ft)			280						
Storage Blk Time (%)		0							
Queuing Penalty (veh)		1							

Intersection: 4: I-5 NB Ramps & OR-219/OR-214

Movement	EB	EB	WB	WB	WB	NB	NB	NB
Directions Served	T	T	T	T	R	L	LTR	R
Maximum Queue (ft)	476	477	409	435	372	320	384	345
Average Queue (ft)	270	296	221	255	38	141	245	187
95th Queue (ft)	420	441	357	379	208	241	343	300
Link Distance (ft)	694	694	765	765		505	505	505
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)					360			
Storage Blk Time (%)				1	0			
Queuing Penalty (veh)				2	0			

Intersection: 5: Evergreen Rd & OR-214

Movement	EB	EB	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB
Directions Served	UL	T	T	R	UL	T	TR	L	LT	R	L	T
Maximum Queue (ft)	255	568	598	355	466	634	591	365	404	296	105	168
Average Queue (ft)	122	268	288	111	283	287	283	199	238	63	36	53
95th Queue (ft)	259	483	500	330	465	502	473	314	346	185	84	128
Link Distance (ft)		765	765			1183	1183		1145			276
Upstream Blk Time (%)		0	0									0
Queuing Penalty (veh)		0	1									0
Storage Bay Dist (ft)	180			280	400			600		280	70	
Storage Blk Time (%)	0	16	8		7	2			4		2	29
Queuing Penalty (veh)	2	22	25		33	6			17		3	33

Intersection: 5: Evergreen Rd & OR-214

Movement	SB
Directions Served	R
Maximum Queue (ft)	124
Average Queue (ft)	27
95th Queue (ft)	97
Link Distance (ft)	
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	50
Storage Blk Time (%)	0
Queuing Penalty (veh)	0

Intersection: 6: S Woodland Ave & Commercial Dwy/Hillyer Ln

Movement	EB	WB	SB
Directions Served	LTR	LTR	LTR
Maximum Queue (ft)	46	82	17
Average Queue (ft)	10	28	1
95th Queue (ft)	34	65	7
Link Distance (ft)	188		256
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 8: Willow Ave/Church Dwy & OR-219

Movement	EB	SB
Directions Served	LTR	LTR
Maximum Queue (ft)	288	66
Average Queue (ft)	36	26
95th Queue (ft)	163	56
Link Distance (ft)	962	463
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 9: Hillyer Ln & Site Driveway 1

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

Intersection: 1: Woodland Ave & OR-219

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	T	R	UL	T	T	R	L	TR	L	LTR
Maximum Queue (ft)	116	284	332	123	191	334	263	192	81	270	358	410
Average Queue (ft)	46	114	170	10	78	132	105	41	12	88	144	201
95th Queue (ft)	87	215	278	62	146	242	196	111	45	199	286	367
Link Distance (ft)		1400	1400			480	480			256	526	526
Upstream Blk Time (%)										1	0	1
Queuing Penalty (veh)										1	0	0
Storage Bay Dist (ft)	250			150	240			120	120			
Storage Blk Time (%)		0	13		0	1	4		0	10		
Queuing Penalty (veh)		0	2		0	2	12		0	1		

Intersection: 2: OR-219 & N Arney Rd

Movement	WB	WB	WB	SB
Directions Served	T	T	R	R
Maximum Queue (ft)	10	23	33	74
Average Queue (ft)	0	1	1	28
95th Queue (ft)	7	12	11	52
Link Distance (ft)	448	448		275
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)			125	
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 3: I-5 SB Ramps & OR-219

Movement	EB	EB	EB	WB	WB	WB	SB	SB	SB
Directions Served	T	T	R	T	T	R	L	L	R
Maximum Queue (ft)	259	284	132	329	335	231	296	298	284
Average Queue (ft)	122	150	5	178	204	13	186	179	48
95th Queue (ft)	216	241	68	296	319	94	281	269	199
Link Distance (ft)	448	448		694	694	694	656	656	656
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (ft)			280						
Storage Blk Time (%)		0							
Queuing Penalty (veh)		1							

Intersection: 4: I-5 NB Ramps & OR-219/OR-214

Movement	EB	EB	WB	WB	WB	NB	NB	NB
Directions Served	T	T	T	T	R	L	LTR	R
Maximum Queue (ft)	400	435	386	584	407	250	373	309
Average Queue (ft)	229	252	216	260	37	133	232	168
95th Queue (ft)	355	386	362	435	212	228	335	281
Link Distance (ft)	694	694	765	765		505	505	505
Upstream Blk Time (%)				0			0	
Queuing Penalty (veh)				0			0	
Storage Bay Dist (ft)					360			
Storage Blk Time (%)				1				
Queuing Penalty (veh)				4				

Intersection: 5: Evergreen Rd & OR-214

Movement	EB	EB	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB
Directions Served	UL	T	T	R	UL	T	TR	L	LT	R	L	T
Maximum Queue (ft)	254	556	607	355	411	526	504	349	388	212	133	256
Average Queue (ft)	106	263	278	98	252	255	254	191	236	58	38	61
95th Queue (ft)	231	473	489	311	409	481	456	309	348	166	92	169
Link Distance (ft)		765	765			1183	1183		1145			276
Upstream Blk Time (%)		0	0									1
Queuing Penalty (veh)		0	0									0
Storage Bay Dist (ft)	180			280	400			600		280	70	
Storage Blk Time (%)		16	7		5	2			4		2	28
Queuing Penalty (veh)		22	22		25	6			18		2	31

Intersection: 5: Evergreen Rd & OR-214

Movement	SB
Directions Served	R
Maximum Queue (ft)	125
Average Queue (ft)	21
95th Queue (ft)	92
Link Distance (ft)	
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	50
Storage Blk Time (%)	0
Queuing Penalty (veh)	0

Intersection: 6: S Woodland Ave & Commercial Dwy/Hillyer Ln

Movement	EB	WB	SB
Directions Served	LTR	LTR	LTR
Maximum Queue (ft)	30	88	9
Average Queue (ft)	6	38	1
95th Queue (ft)	26	64	7
Link Distance (ft)	188	208	256
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 8: Willow Ave/Church Dwy & OR-219

Movement	EB	SB
Directions Served	LTR	LTR
Maximum Queue (ft)	389	93
Average Queue (ft)	51	31
95th Queue (ft)	221	69
Link Distance (ft)	962	463
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 9: Hillyer Ln & Site Driveway 1

Movement	SB
Directions Served	R
Maximum Queue (ft)	70
Average Queue (ft)	32
95th Queue (ft)	58
Link Distance (ft)	121
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 10: Hillyer Ln & Site Driveway 2

Movement	EB	SB
Directions Served	LT	LR
Maximum Queue (ft)	19	33
Average Queue (ft)	1	5
95th Queue (ft)	10	23
Link Distance (ft)	72	82
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 11: Hillyer Ln & Site Driveway 3

Movement	EB
Directions Served	LT
Maximum Queue (ft)	24
Average Queue (ft)	1
95th Queue (ft)	10
Link Distance (ft)	71
Upstream Blk Time (%)	0
Queuing Penalty (veh)	0
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Network Summary

Network wide Queuing Penalty: 149
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