

Date:	June 23, 2023
To:	Casey Knecht, PE, ODOT Region 2 Dago Garcia, City of Woodburn
From:	Joe Bessman, PE
Project Reference No.:	1584
Project Name:	Woodburn US Market Transportation Impact Analysis



This memorandum provides a formal Transportation Impact Analysis (TIA) for the proposed fuel center and convenience market in Woodburn, Oregon, along with limited office space. A TIA was previously prepared for this project on August 13, 2021. This updated report and analysis is based on a new site plan with modified access in response to the feedback during the project hearings process and subsequent discussions with ODOT staff related to safety concerns along the Newberg Highway.

The site is located along the Newberg Highway (OR 214) on the southwest quadrant of the Oregon Way intersection as shown in Figure 1. The site of the proposed project previously had two drive-in banks. These were recently demolished, and will be replaced with a 4,110 square-foot convenience market with 1,863 square-feet of attached office space, a 12-position fueling station, and a 5,000 square-foot office building. Figure 2 illustrates the previous site layout with the banks that have since been demolished and Figure 3 shows the proposed site layout.



Figure 1. Site Vicinity Map. Source: Marion County Land Use Planning & Zoning GIS

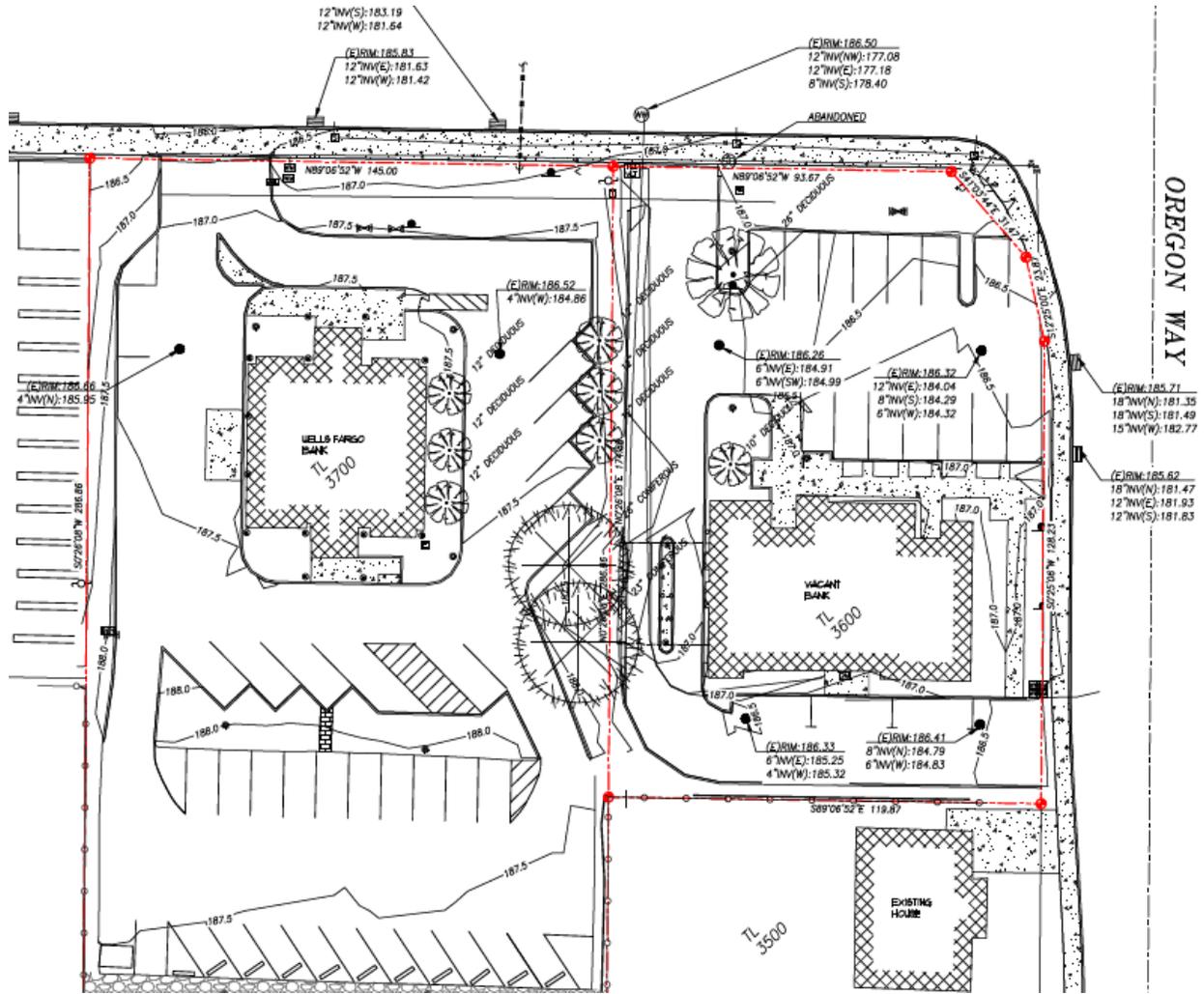


Figure 2. Existing site layout (banks shown have been demolished).

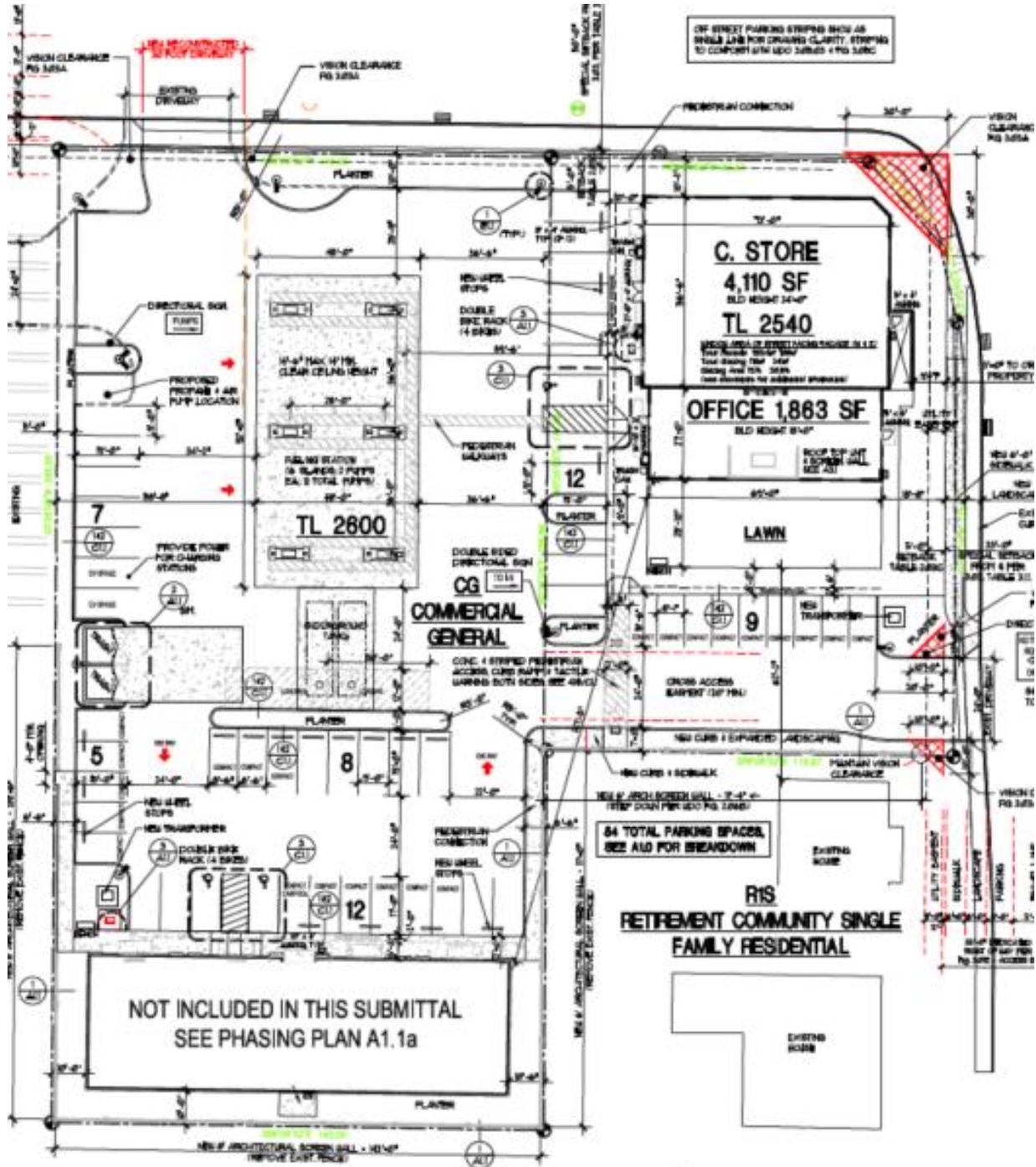


Figure 3. Proposed Site Plan.

### WOODBURN INTERCHANGE AREA MANAGEMENT PLAN AND COORDINATION

The location of the site is just beyond the Woodburn Interchange Area Management Plan (IAMP) Overlay area that was adopted in November 2005, as shown in Figure 4. This plan identified various improvements that would function acceptably through the year 2020 if surrounding development was limited to an allocated trip rate. This plan allocated 33 weekday p.m. peak hour trips per commercial acre, allowing parcels within the boundary to exceed this allocation in accordance with Section 2.116.06(B) and subjecting future site plan applications to joint City and ODOT review. Since this plan was premised on build-out of properties that were undeveloped at the time, the developed status of the site with the banks excluded it from further review, and the parcel was not located within the IAMP boundary. As such, the trip budget requirements do not apply to the subject application, but other provisions of the ordinance are applicable as the site is within the Interchange Management Area Overlay District (see Figure 5).

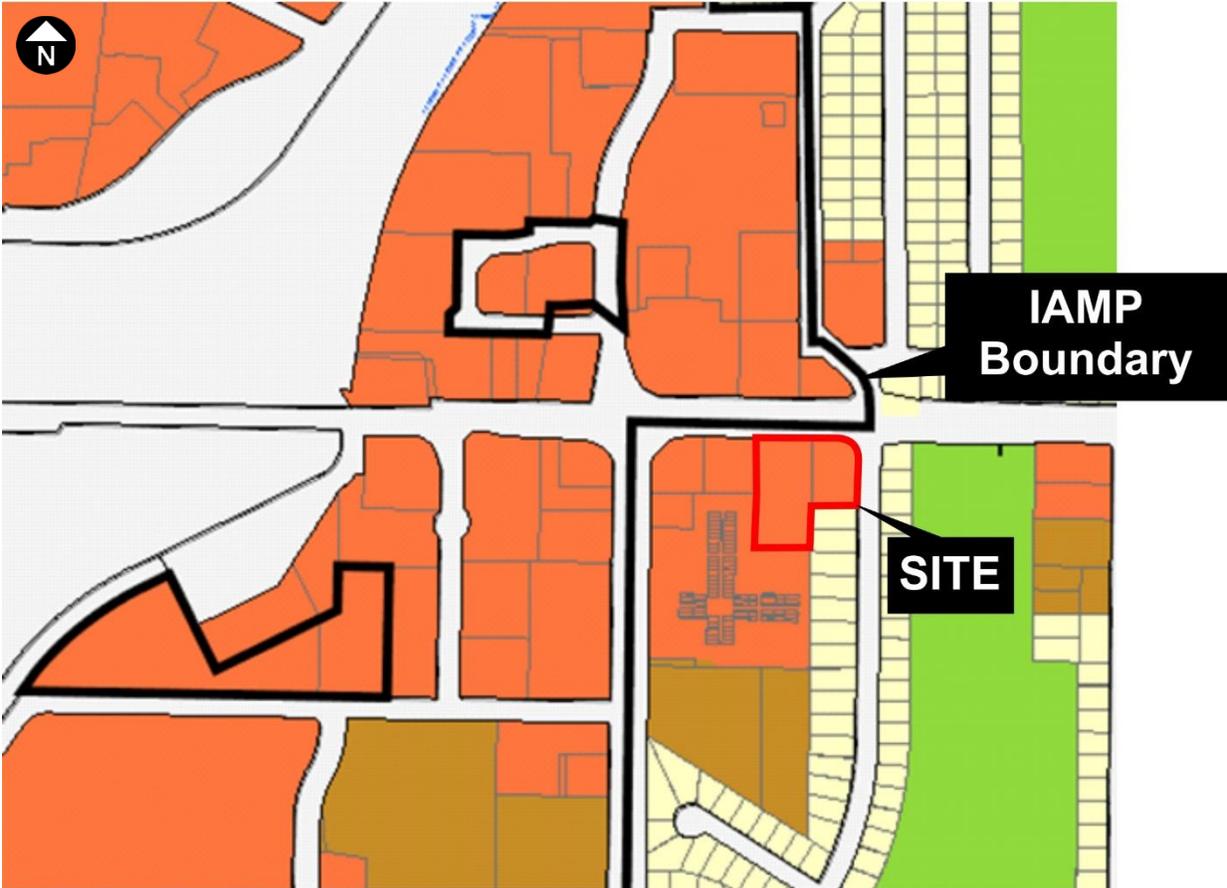


Figure 4. Woodburn Interchange Area Management Plan Overlay (shown as a Bold Black line).

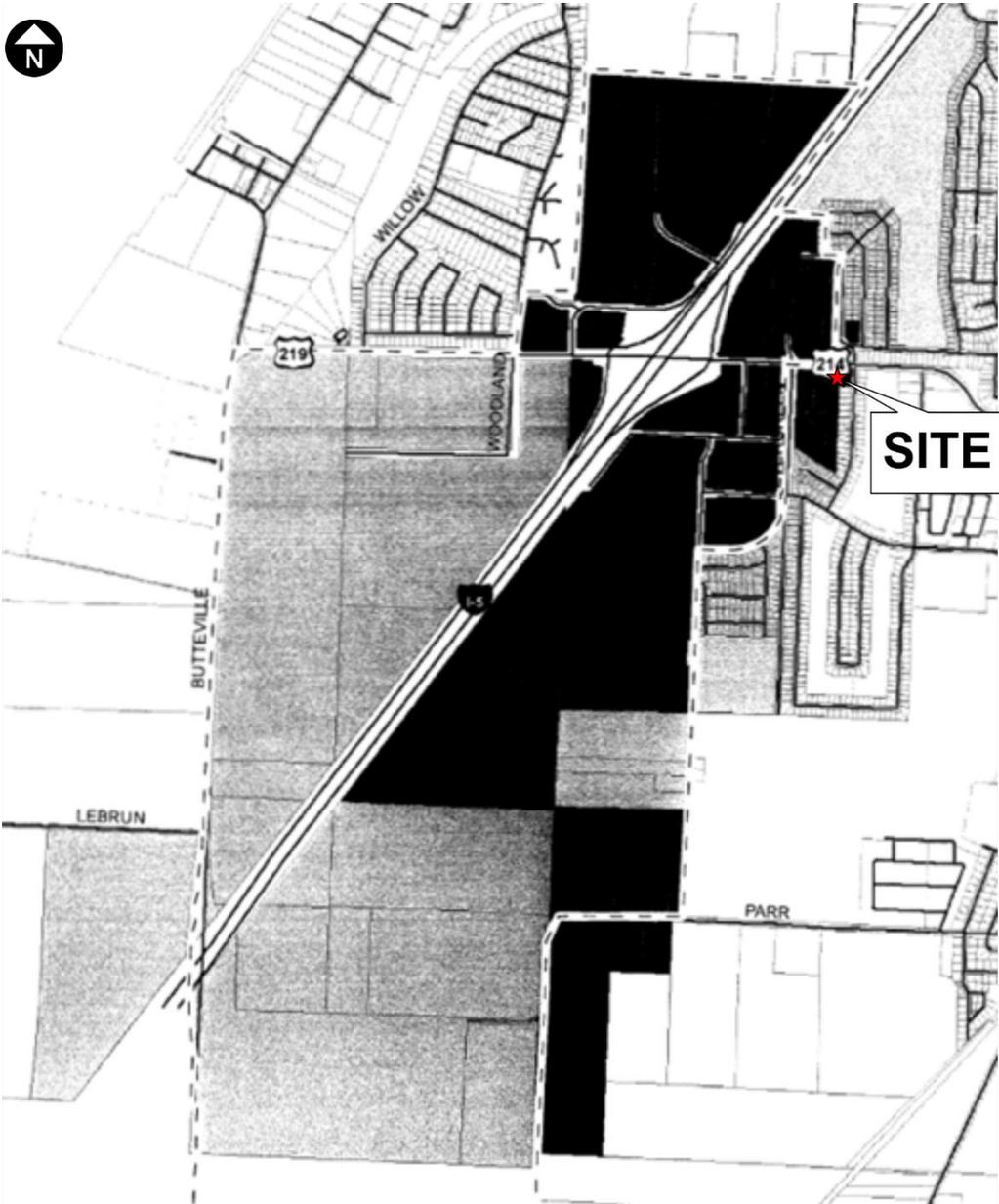


Figure 5. Interchange Management Area Overlay District.

### AREA CONTEXT

The subject property is zoned for Commercial General (CG) uses, similar to other surrounding properties in the area that surround the interchange. The zoning transitions into *Retirement Community Single Family Residential* (R1S) immediately south, with *Medium Density Residential* (RM) farther south within the block.

The proposed site is located along a city street, Oregon Way, with primary access shown along the southernmost portion of the parcel and along the lowest-classified adjacent street (“Access Street”) at an existing curb cut. Oregon Way contains a 25 mile per hour posted speed, and the location of the access maximizes the available spacing from the traffic signal. Access is also currently available onto the Newberg Highway at a right-in, right-out connection that is enforced with a raised concrete median between the

eastbound and westbound travel lanes. The existing right-in, right-out curb cut is located nearly midway between the Evergreen Road and Oregon Way intersection.

Land uses immediately south of the project site transition into residential, with the “Panor 360 Condo” units and single-family homes. A Dutch Brothers coffee shop and Dairy Queen drive-through fast-food restaurant are located on the same block face to the west of the proposed project.

The City’s recently adopted Transportation System Plan (TSP) identifies a planned project at the OR 214/Oregon Way intersection to improve the signal timing and coordination in collaboration with ODOT (TSP Project R11). As further discussed in this report, recent signal timing changes have been implemented in response to the crash rates. The site also borders the Woodburn City Transit Loop, with a bus stop located along the Oregon Way frontage.

## EXISTING TRAFFIC CONDITIONS

### Existing Transportation Facilities

The proposed redevelopment will retain the full access on Oregon Way and modify the existing right-in, right-out access onto the Newberg Highway to a right-in only access. Table 1 summarizes the existing area roadways included in this study and the pertinent characteristics and the major adjacent roadway facilities are described below.

**Table 1. Existing Transportation Facilities**

Roadway	Jurisdiction	Functional Classification	Cross Section	Speed	Shoulder /Bicycle Lanes	Sidewalk	On-Street Parking
I-5 Ramps	ODOT	Freeway Ramps	1-3 lanes	20-45 mph	Paved shoulder	No	No
Newberg Highway (OR 214)	ODOT	District Highway/ Major Arterial	4 lanes	30 mph	Yes	Yes	No
Evergreen Road	City of Woodburn	Minor Arterial	2-3 lanes	25 mph	Partial	Partial	No
Oregon Way	City of Woodburn	Access Street	2 lanes	25 mph	No	Partial	Yes

Interstate 5 connects the City of Woodburn south to Salem and north to Portland and the surrounding suburbs. It carries approximately 97,800 vehicles per day within the vicinity of the interchange. At the interchange with the Newberg Highway the ramps form a partial cloverleaf with both ramp terminals controlled by traffic signals. The ramps are a single lane in width that widen to three lanes on the off ramps to accommodate additional turn lanes. Advisory speeds range from 20 mph in the cloverleaf to 45 mph on the northbound off-ramp.

The Newberg Highway (OR 214) provides a major east-west route through the City connecting I-5 and Highway 99E and is also identified as a Truck Route in the City's TSP. ODOT classifies the highway as a *District Highway* while the City's TSP classifies it as a *Major Arterial*. Within the study area it is a four-lane divided highway. It widens to six lanes over I-5 to accommodate right-turn lanes for the on-ramps and narrows to a three-lane section east of the study area. Bicycle lanes and sidewalks are provided throughout with a posted speed of 30 miles per hour.

Evergreen Road, a *Minor Arterial*, is oriented north-south and connects to multiple residential areas to the south providing a connection between these areas and the commercial areas near the Newberg Highway. The City's TSP shows a future plan to extend Evergreen Road to the south to Parr Road, which will eventually connect to a future *Major Arterial* on the south side of the City. Evergreen Road generally has a three-lane cross-section with a small segment of two-lane between Stacy Allison Way and W Hayes Street. Sidewalks are nearly complete on both sides of the road with the exception of the east side between Stacy Allison Way and W Hayes Street. Bicycle lanes are provided south of W Hayes Street. The posted speed is 25 miles per hour.

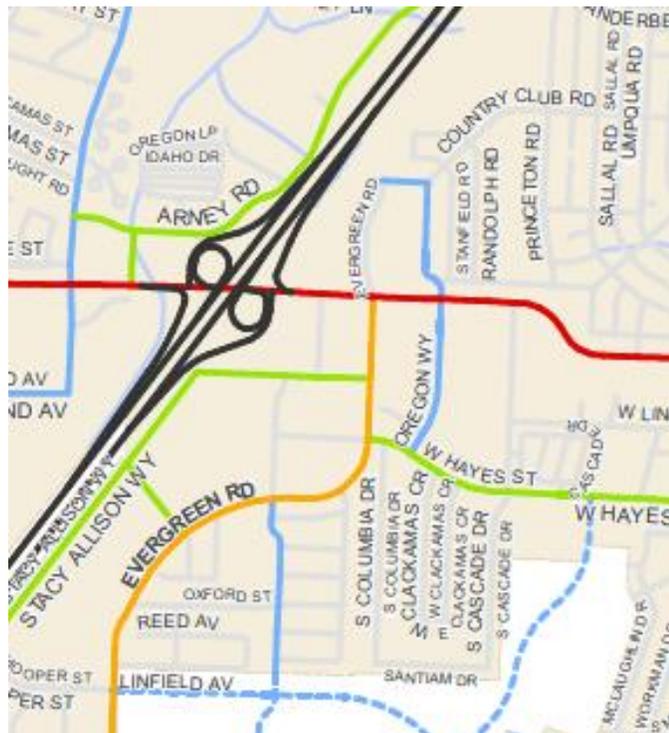


Figure 6. Functional Classification Map.  
Black: Freeway. Red: Major Arterial. Orange: Minor Arterial.  
Green: Service Collector. Blue: Access Street.

Oregon Way is an approximately 1,400-foot long roadway connecting to the Newberg Highway to the north and W Hayes Street to the south. It is classified as an *Access Street* and has a posted speed of 25 miles per hour. Oregon Way has a two-lane cross-section with sidewalks for the first 275 feet from the Newberg Highway. The remaining length does not have any separate pedestrian or bicyclist facilities. On-street parking is permitted throughout most of Oregon Way with the exception of near the signalized intersection with the Newberg Highway.

### Transit Service

The City of Woodburn is in the process of developing their Transit Development Plan that was scheduled to be completed by the end of May 2023. They currently have both a fixed route bus and express loop services. Both services operate with hourly headways Monday through Friday from 8:00 a.m. to 6:00 p.m.

On Saturdays they operate from 9:00 a.m. to 5:00 p.m. and on Sundays they operate from 9:00 a.m. to 3:00 p.m. There is no fee to ride the buses.

The express bus route starts at the Downtown Transit Center and heads clockwise through the City to Walmart, the Wo Memorial Transit Center, then east on the Newberg Highway to BiMart, then south on Highway 99E to circle back around to the Downtown Transit Center. At this point it changes direction to a counterclockwise loop and heads back to Highway 99E, making a stop at the Goodwill and Safeway, and then heading west on the Newberg Highway to the Mid Valley Plaza, and then it circles to the Wo Memorial Transit Center, Walmart, and back down to the Downtown Transit Center.

The fixed route starts at the Downtown Transit Center and heads south to Settlemier Avenue and Parr Road. It has stops on Garfield Street and Settlemier Avenue at Lincoln Street before heading north to Country Club and Astor Way. It then circulates to the Wo Memorial Transit Center before heading over I-5 to the Outlet Stores. After serving the residential area to the west of the outlets, the bus returns over I-5 and stops at the Walmart, then continues on to Nueva Amanecer on the Newberg Highway and BiMart. It then returns to the Downtown Transit Center via Highway 99E and Lincoln Street. At this point the bus heads out on Young Street to Hwy 99E and goes north to serve the Goodwill and Mid Valley Plaza. It turns west on the Newberg Highway and continues to Meridian Drive and 5<sup>th</sup> Street, before turning south to serve the post office and return to the Downtown Transit Center.

Dial-A-Ride is also an option for people with disabilities and the elderly within the City of Woodburn who are not able to use the fixed route bus.

The closest stop to the site is served by the fixed bus route and is located on the east side of Oregon Way across from the site. At the stop there is a posted sign adjacent to the sidewalk and nearby street lighting. There are no extra amenities.

Figure 7 depicts the Express Loop route. A map for the fixed bus route is not available online.



Figure 7. Woodburn Transit System – Express Loop.

### STUDY INTERSECTIONS

Study intersections within the analysis were identified based on discussions with ODOT and City staff. This coordination and review of the site impacts resulted in the inclusion of the following study intersections:

- I-5 Southbound Ramps / Newberg Highway (OR 214)
- I-5 Northbound Ramps / Newberg Highway (OR 214)
- Evergreen Road / Newberg Highway (OR 214)
- Right-In Only Access / Newberg Highway (OR 214)
- Oregon Way / Newberg Highway (OR 214)
- Oregon Way / Full Access

## TRAFFIC OPERATIONS

The traffic operations analysis was prepared using Synchro 10 software and Highway Capacity Manual 6<sup>th</sup> Edition and 2000 operations methods. All traffic operations within this report reflect peak fifteen-minute conditions during the peak hour. The study intersections are under the jurisdiction of ODOT and the City of Woodburn.

All of the study intersections along the Newberg Highway are under the jurisdiction of ODOT. Intersections under ODOT jurisdiction require compliance with the Oregon Highway Plan mobility targets based on Action 1F. Table 6 of the OHP summarizes the relevant ODOT mobility targets outside the Portland Metropolitan area; ODOT performance standards vary by location of the facility (urban vs. rural), State Functional Classification, and posted speed. Based on this table, intersections on the Newberg Highway have a target v/c ratio less than or equal to 0.95 in the City of Woodburn. Where there are interchange ramps, the maximum v/c ratio is 0.85. This can be increased to 0.90 in urban areas if it can be determined that 95<sup>th</sup> percentile queues would not extend onto the mainline and an adopted Interchange Area Management Plan is in place.

The City of Woodburn has the following operational requirements:

- For a signalized and all-way stop-control intersection, the minimum LOS shall be either "E" or if pre-development already operating at lower LOS, then at no lower LOS.
- For a signalized intersection, the minimum V/C ratio shall be either less than 1.00 regardless of LOS or if pre-development already operating at 1.00 or higher V/C, then at no higher V/C.
- For an unsignalized intersection, the minimum V/C shall be 0.95 or lower for minimum the major movement through the intersection, or, if pre-development already operating at higher V/C, then at no higher V/C.

## EXISTING TRAFFIC OPERATIONS

The existing year 2023 traffic conditions reflect the current operations throughout the study area during the weekday a.m. and p.m. peak hour. This analysis is used to calibrate operational models to field conditions, and in conjunction with historical safety information, is intended to help understand and prioritize transportation system improvement needs.

All of the study intersections were assessed during the weekday a.m. and p.m. peak periods which is when traffic volumes are highest on the arterial roadways. Traffic counts were previously collected for this project on June 30<sup>th</sup> of 2021 during the weekday morning (7:00 – 9:00 a.m.) and evening (4:00 – 6:00 p.m.) peak periods. These time periods reflect typical midweek commute period conditions during near-peak season conditions. Within the commute periods the weekday morning peak hour (the single hour with the highest total entering volume) was found to occur between 7:10 and 8:10 a.m. and the weekday p.m. peak hour was found to occur between 4:00 and 5:00 p.m.

More recent counts were collected on April 4, 2023 at the Evergreen Road/Newberg Highway and Oregon Way/Newberg Highway intersections during the weekday a.m. and p.m. peak periods. The weekday a.m. peak hour counts showed significant growth on the Newberg Highway of over 25-percent between the two-year period between 2021 and 2023. Conversely, the weekday p.m. counts showed minimal growth of 1- to 3-percent between 2021 and 2023. Based on review of the travel patterns and times it appears that this is primarily associated with the schools to the east (that were closed for the summer in the June

2021 traffic counts) and construction of the Amazon facility to the west. School and construction impacts typically have a lesser impact during the evening commute period, as reflected within the counts.

To account for seasonal variations at the study intersections on the Newberg Highway, ODOT's Automatic Traffic Recorders at Station 03-011 (located on I-5, 1.38 miles south of Wilsonville-Hubbard Highway) and Station 24-001 (located on Highway 99E, 0.11 miles south of NE Belle Passi Road) were reviewed for the five-year period between 2015 and 2019 (data from 2020 and 2021 were not used due the impact of COVID-19). It showed that June traffic counts should be increased by 1% to reflect peak August conditions on I-5 and peak July conditions on Highway 99E. April traffic counts should be increased by 9% to reflect peak conditions.

In addition, the data collected on I-5 between 2019 and 2021 was reviewed to identify the impact of COVID-19 on the 2021 traffic patterns. The published report, *Observed Statewide Traffic Volume Patterns: Related to COVID-19 Monitoring* dated July 9, 2021 reports the average weekday traffic volume on I-5 for the week of June 28<sup>th</sup> to July 4<sup>th</sup> to have increased 13% over 2020 volumes and is greater than 2019 traffic volumes. Traffic volumes on I-5 did not appear to have been impacted by COVID-19 during the collection of the 2021 traffic counts. Therefore, no adjustment was made to the traffic counts for COVID-19 impacts.

The year 2021 traffic counts at the I-5 interchange ramps require a growth adjustment to reflect current year 2023 traffic volumes. As will be discussed under the *Growth Forecasts* section under *Year 2025 Background Traffic Conditions*, ODOT forecasts future year volumes on their facilities throughout the state. Based on a travel demand model for the City, ODOT's Future Volumes Table shows that traffic volumes on Newberg Highway around I-5 are expected to grow on average 0.3- to 0.4-percent per year. For simplicity, a 1-percent growth adjustment was applied to the 2021 traffic counts to estimate 2023 volumes. This is consistent with the growth observed during the p.m. counts, but underestimates the growth during the a.m. period. The impact of this short-term growth is captured by increasing the volumes at the I-5 ramp intersections to balance with the higher counts at Evergreen Road and Oregon Way.

Table 2 summarizes the adjustments applied to each traffic count. Once these adjustments were made, volumes were balanced at adjacent intersections as appropriate. Note that there are several private driveways along the corridor that are not included within the analysis. The resulting turning movement counts from the weekday a.m. and p.m. peak hours are summarized and shown in Figure 8 and applied throughout all analysis scenarios.

**Table 2. Intersection Turning Movement Count Adjustments**

Intersection	Turning Movement Count Date	Seasonal Adjustment Factor	Growth Adjustment
1: I-5 SB Ramps/ Newberg Hwy	6/30/2021	1.01	1.01
2: I-5 NB Ramps/ Newberg Hwy	6/30/2021	1.01	1.01
3: Evergreen Rd/ Newberg Hwy	4/4/2023	1.09	1.00
4: RI Access/ Newberg Hwy			
5: Oregon Way/ Newberg Hwy	4/4/2023	1.09	1.00
6: Oregon Way/ Access			

A summary of the existing conditions analysis is presented in Table 3. As shown in the table, all study intersections currently meet the applicable operational standards.

**Table 3. Summary of Existing Traffic Conditions**

Intersection	Jurisdiction	Performance Standard	Critical Movement	Weekday AM Peak Hour			Weekday PM Peak Hour		
				LOS	Delay (sec)	v/c Ratio	LOS	Delay (sec)	v/c Ratio
1: I-5 SB Ramps/ Newberg Hwy	ODOT	$v/c \leq 0.85$		B	14.2	0.46	B	18.4	0.52
2: I-5 NB Ramps/ Newberg Hwy	ODOT	$v/c \leq 0.85$		B	11.8	0.50	B	13.1	0.49
3: Evergreen Rd/ Newberg Hwy	ODOT	$v/c \leq 0.95$		C	29.2	0.61	C	30.5	0.75
4: RI Access/ Newberg Hwy	ODOT	$v/c \leq 0.95$							
5: Oregon Way/ Newberg Hwy	ODOT	$v/c \leq 0.95$		A	8.0	0.43	B	15.6	0.53
6: Oregon Way/ Access	City of Woodburn	$v/c \leq 0.95$	EB LR						

## SAFETY REVIEW

The safety review included field review of the area, review of historical crash data, and field verification of intersection sight distance at the accesses to the Newberg Highway and Oregon Way.

### Historical Crash Records

As part of the 2021 TIA for this property, crash records were previously obtained for all of Marion County from the ODOT crash database between January 2015 and December 2019, which reflected the most recent five-years of data available. Crashes required for reporting during this period included those involving any level of personal injury or property damage exceeding \$1,500 before 2018 or \$2,500 after 2018. As ODOT comments requested the continued use of these years of data, Table 4 summarizes the number and severity of reported crashes at each of the study area intersections for this time period. The table also provides a crash rate per million entering vehicles, which is often used to assess whether a geometric or traffic control deficiency is present when the crash rate is greater than 1.0 per million entering vehicles. ODOT also provides crash rates separated by control type and the number of approaches, which better distinguish between varying intersection forms and are provided for reference.

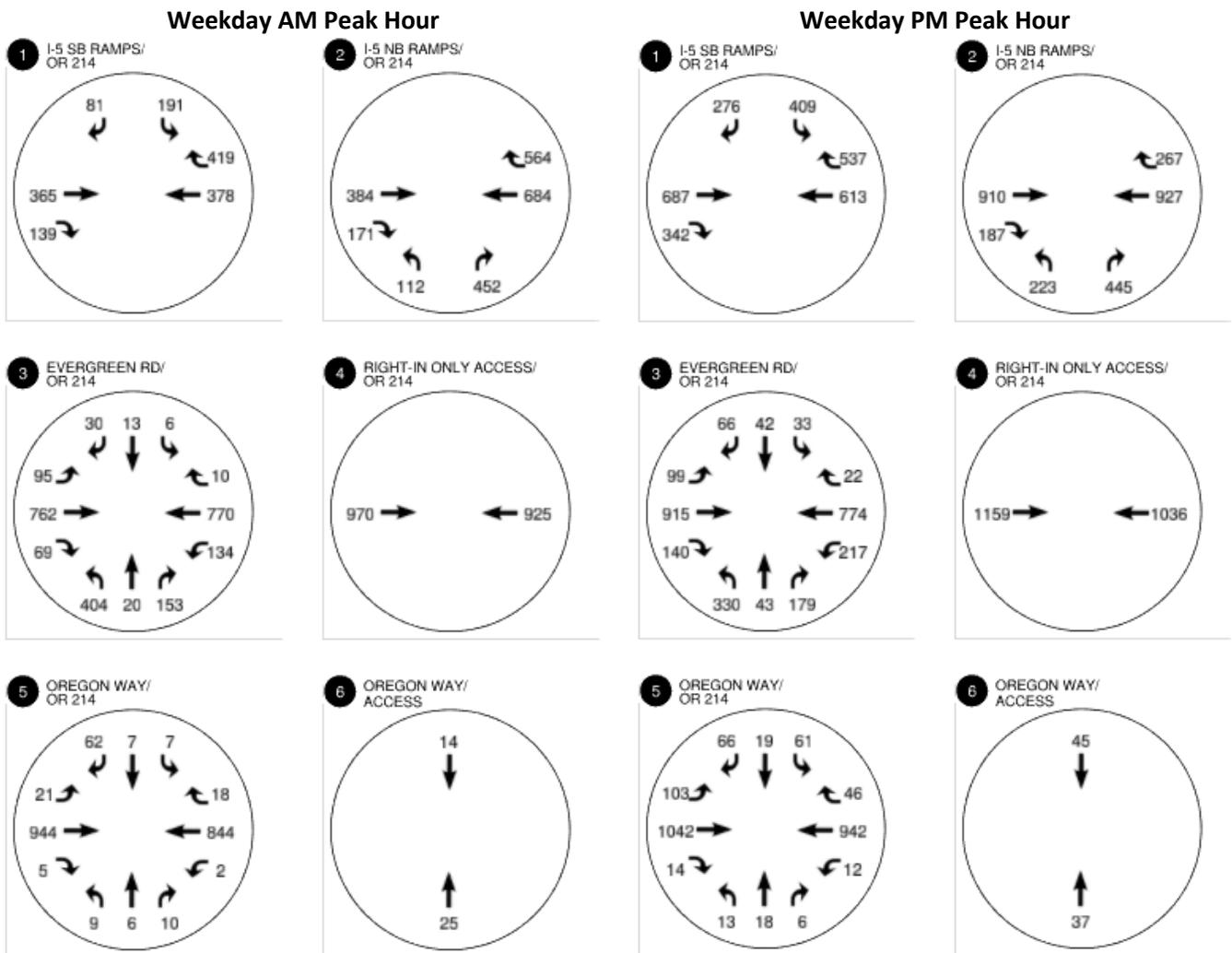


Figure 8. 2023 Existing (Seasonally Adjusted) Traffic Volumes, Weekday AM and PM Peak Hour.

**Table 4. Intersection Crash Summary (January 2015 to December 2019)***(Note that 2020 crash data is available but is impacted by COVID trends)*

Intersection	# of Crashes	Severity			Crash Rate per MEV	ODOT 90 <sup>th</sup> % Rate
		Fatal	Injury	Non-Injury		
1: I-5 SB Ramps/ Newberg Hwy	48	0	35	13	0.93	3SG: 0.509 Urban
2: I-5 NB Ramps/ Newberg Hwy	48	0	27	21	0.90	3SG: 0.509 Urban
3: Evergreen Rd/ Newberg Hwy	67	0	39	28	1.36	4SG: 0.860 Urban
4: RI Access/ Newberg Hwy	1	0	0	1	0.05	Right-In/ Right-Out
5: Oregon Way/ Newberg Hwy	43	0	30	13	1.08	4SG: 0.860 Urban
6: Oregon Way/ Access	0	0	0	0	0.00	3ST: 0.293 Urban

3SG: Three-legged signalized, 4SG: Four-legged signalized, 3ST: Three-legged stop-controlled

As shown in Table 4, all of the signalized intersections on the Newberg Highway within the study area experienced a crash rate greater than ODOT's 90<sup>th</sup> percentile crash rates for similar intersections. Table 5 summarizes the types of collisions that occurred at the study intersections during this time period.

**Table 5. Reported Collision Types (January 2015 through December 2019)**

Intersection	Turning/ Angle	Rear-End	Fixed Object	Head-On	Pedestrian	Side- swipe	Non- Collision	Backing
1: I-5 SB Ramps/ Newberg Hwy	6	36	1	1	0	3	1	0
2: I-5 NB Ramps/ Newberg Hwy	26	17	4	0	0	0	0	1
3: Evergreen Rd/ Newberg Hwy	49	15	1	0	0	1	1	0
4: RI Access/ Newberg Hwy	0	1	0	0	0	0	0	0
5: Oregon Way/ Newberg Hwy	39	4	0	0	0	0	0	0
6: Oregon Way/ Access	0	0	0	0	0	0	0	0

Although not requested by ODOT, additional review of the most recent five years of data available to include 2020 and 2021 was also conducted at the signalized intersections. Although years 2020 and 2021 were impacted by the effects of the COVID-19 pandemic and the resulting changes in traffic volumes, it still can provide useful information. Table 6 shows how the number of crashes for the five most recent years of data (2017 – 2021) compared to years 2015 to 2019. This more recent data shows that the crash trends have continued, and in some locations crashes have increased in frequency.

**Table 6. Intersection Crash Summary (January 2017 to December 2021)**

Intersection	# of Crashes (2015 thru 2019)	# of Crashes (2017 thru 2021)	Severity			Crash Rate per MEV	ODOT 90 <sup>th</sup> % Rate
			Fatal	Injury	Non- Injury		
I-5 SB Ramps/ OR 214	48	60	0	43	17	1.18	3SG: 0.509 <i>Urban</i>
I-5 NB Ramps/ OR 214	48	43	0	20	23	0.81	3SG: 0.509 <i>Urban</i>
Evergreen Rd/ OR 214	67	71	0	47	24	1.44	4SG: 0.860 <i>Urban</i>
Oregon Way/ OR 214	43	55	0	37	18	1.38	4SG: 0.860 <i>Urban</i>

3SG: Three-legged signalized, 4SG: Four-legged signalized, 3ST: Three-legged stop-controlled

Further discussion of each of the high crash intersections is included below.

#### I-5 Southbound Ramps / Newberg Highway (OR 214)

The I-5 southbound ramps at the Newberg Highway experienced 48 crashes between 2015 and 2019. This increased to 60 crashes over the most recent five-year study period. The number of crashes in both study periods result in a crash rate greater than ODOT's 90<sup>th</sup> percentile rate for similar, signalized intersections. The majority of the crashes were rear-end collisions that occurred consistently across each year with the exception of 2016. Most of these occurred on the southbound off-ramp.

#### I-5 Northbound Ramps / Newberg Highway (OR 214)

Forty-eight crashes were reported at the I-5 northbound ramp/Newberg Highway intersection between 2015 and 2019. This number reduced slightly to 43 crashes that were reported during the 2017 to 2021 timeframe. The total number of crashes from both time periods resulted in crash rates above ODOT's 90<sup>th</sup> percentile rate for similar intersections. This intersection experienced a mix of turning, rear-end, fixed object, and backing collisions with turning collisions being the predominant crash type.

#### Evergreen Road / Newberg Highway (OR 214)

Between years 2015 and 2019, 67 crashes were reported at this intersection resulting in a crash rate of 1.36. Similarly, between the years 2017 and 2021, 71 crashes were recorded at this intersection resulting in a crash rate of 1.44. Both crash rates exceed ODOT's 90<sup>th</sup> percentile crash rate.

It should be noted that intersection control at the OR 214/Evergreen Avenue intersection was recently changed from protected and permissive signal phasing (flashing yellow arrow) in the east-west direction to protected left-turns only. This is a common mitigation for addressing high levels of turning crashes, particularly in congested areas where drivers may make overly aggressive maneuvers. The crash data presented in this report lags the current modification, and reflects conditions with the prior protected-permissive signal timing on the Newberg Highway (OR 214). U-turns are permitted in both the eastbound and westbound directions on the highway at this intersection. The cross-section of the Newberg Highway (OR 214) is four lanes with a paved median, providing adequate space for these maneuvers.

The updated crash data (2017 to 2021) was initially reviewed to assess patterns within the overall crash characteristics. This crash review identified the following:

- Turning movement crashes comprised the majority of the reported collisions at the intersection (41 of 71). Rear-end crashes, which are typically most common at signalized intersections were 17 of the 71 crashes, followed by angle collisions (6 of 71), sideswipe (5 of 71), and fixed-object (2 of 71).
- The crash records show that the 71 crashes resulted in 3 serious injuries, 13 minor injuries, 78 possible injuries, and 92 additional persons with no reported injuries.
- Review of weather conditions show that 69 of the crashes occurred in clear (48), rainy (11), or cloudy (10) conditions. Weather conditions in two collisions were not reported. Snow, ice, and fog was not a factor in any crashes.
- Overall crashes have experienced a decreasing trend since peaking in 2018 and 2019. It is unclear if the reduction in 2020 and 2021 has been related to reduced motorists travel behavior due to COVID measures, but crashes during these years remained elevated.
- No specific crash trends were identified based on month, day of week, or hourly data.
- Drug and alcohol impairments were not cited within any of the reported crashes; several crashes report that no test was administered (15), others were self-reported and have no information (23).
- Most involved drivers (85 of 101 reporting) lived within 25 miles of the intersection and presumably have some familiarity with the area.
- The top crash cause was failure to yield Right of Way at the signalized intersection, with most of these collisions further reporting that the driver turned in front of an oncoming vehicle.

Based on these crash characteristics, further review was conducted to identify whether specific turning movements or crash types were over-represented within the dataset. Crash diagrams were prepared for each of the collisions to assess the approaching directions and maneuvers of each involved vehicle. This review identified the following:

- Nearly all the turning crashes occurred in the east-west directions, where permissive and protected (flashing yellow arrow) left-turn signal phasing was provided.
- Crashes along the north-south approaches, which provide protected-only (green arrow) signal phasing, were much less common.

Based on these trends, additional analysis was conducted of the turning movement crashes in isolation. This review showed that of the 41 reported crashes there were 3 crashes involving U-turns and 32 turning crashes involving east-west turning vehicles. About three-quarters of the turning collisions on the highway occurred with an eastbound left-turning motorist failing to yield to a westbound through motorist. These crashes were generally occurring in daylight hours and occurred in general proportion with the traffic volume profiles throughout the day. With the revised signal phasing to protected-only left-turns on the highway, the number of turning collisions is expected to be reduced.

#### Oregon Way / Newberg Highway (OR 214)

Forty-three crashes were reported at this intersection between the years of 2015 and 2019, which resulted in 30 injury crashes and 13 non-injury crashes. This resulted in a crash rate of 1.08, which is greater than ODOT's 90<sup>th</sup> percentile crash rate. The majority of crashes, 34, were reported as turning collisions. Seventeen of these crashes involved westbound left-turning vehicles and eastbound through while 13 involved eastbound left-turning vehicles and westbound through.

Similar to the OR 214/Evergreen Road intersection, the signal phasing at this intersection was recently changed from protected-permissive to protected only left-turn phasing on the highway. The crash data is

reflective of the former protected-permissive left-turn phasing. North-south traffic has protected only (green arrow) signal phasing and U-turns are permitted on the highway.

A review of the more recent crash reports shows that fifty-five crashes were reported at this intersection between the years of 2017 and 2021, which resulted in a crash rate of 1.38, also exceeding ODOT's 90<sup>th</sup> percentile crash rate.

Review of the overall intersection crash trends showed similar patterns with Evergreen Avenue; there were no specific trends based on monthly, day of week, or even hourly crash data. The predominant crash type was similarly turning collisions, and about 2/3 of the crashes resulted in some level of personal injury. Specific crash characteristics of the crashes occurring between 2017 and 2021 are outlined below:

- The intersection experienced a decreasing crash trend in the past five years, peaking in 2018 (15 crashes) and declining in 2019 into the present (9 crashes in 2020 and 2021). It is unclear what impact reduced exposure due to reduced travel during COVID restrictions has had on these crash patterns.
- Only three crashes were reported outside of 6:00 a.m. and 7:00 p.m.
- Turning movement crashes comprise the majority of the reported collisions at the intersection (35 of 55). Rear-end crashes, which are typically most common at signalized intersections were 12 of the 55 crashes, followed by angle collisions (5 of 55), and sideswipe (3 of 55).
- The crashes resulted in two serious injuries, 13 minor injuries, 41 possible injuries, and 71 uninjured persons.
- Review of weather and road surface conditions did not identify any snow and ice-related collisions, with nearly all crashes occurring under clear/cloudy conditions (51 of 55) and three occurring during rain.
- Alcohol use was cited as a contributing factor in two of the collisions. Drugs were not cited as a contributing factor, but tests were not administered in most collisions.
- Drivers over the age of 65 years old were the highest population involved in the crashes and were also the highest percentage of drivers at fault in the collisions.
- Only seven of the collisions were not investigated by the City or State police.

Turning movement diagrams showed similar trends to the crashes at the Evergreen Avenue traffic signal, with most of the turning crashes occurring in the east-west direction along OR 214. The turning crashes at this intersection exhibited a more pronounced daytime trend, with these collisions occurring primarily around 11:00 a.m., and with 32 of the 35 turning crashes occurring between 9:00 a.m. and 7:00 p.m.

Similar to the OR 214/Evergreen Avenue intersection, it is expected that there will be fewer turning crashes with the changes in the left-turn signal phasing. Continued monitoring is recommended.

#### SPIS Sites

The Safety Priority Index System (SPIS) is updated annually by ODOT and is a scoring method used to identify potential safety problems on state highways through a review of crash frequency, crash rate, and crash severity. The top 15% SPIS Groups list for years 2019, 2020, and 2021 were reviewed for the Newberg Highway (OR 219 and OR 214). The Newberg Highway at the I-5 northbound and southbound ramps was included on the 2019 SPIS list at 85-percent. The intersections of Evergreen Road and Oregon Way with the Newberg Highway were included on the 2019, 2020, and 2021 SPIS lists at 95-percent. The site frontage and existing access on the highway are within the 95% SPIS segment.

### Intersection Sight Distance

Intersection sight distance was reviewed to ensure an adequate view of conflicting traffic is provided to drivers at the full access on Oregon Way. As the access to Newberg Highway will be a right-in only driveway with no outbound maneuvers, a typical stop-controlled sight distance review is not required at this location. Vehicles along OR 214 have a clear and unobstructed view of turning motorists along this straight and flat roadway segment, easily exceeding Stopping Sight Distance requirements.

For the Oregon Way access, standard engineering practice is to apply the minimum recommended sight distance criteria based on the standard reference *A Policy on Geometric Design of Highways and Streets, 7<sup>th</sup> Edition* published by the American Association of State Highway and Transportation Officials (AASHTO) in 2018 (commonly referred to as the *Green Book*).

### Intersection Sight Triangles

For minor-street stop-control intersections, intersection sight triangles are based on guidance cited within Conditions B1 (left-turn from minor road) and B2 (right-turn from minor road) of the *Green Book*. All distances are measured from a vertex point located 14.5 feet from the major-road travel way along the center of the approaching travel lane, accounting for comfortable positioning distance from the travel way (6.5 feet) and the distance from the front of the vehicle to the driver eye (8.0 feet). The assumed eye height is 3.5 feet above the departing road for passenger vehicles. The object height is also 3.5 feet above the major road, providing enough space on the approaching vehicle to recognize it.

Figure 9 illustrates the recommended minimum dimensions for the existing full access on Oregon Way.

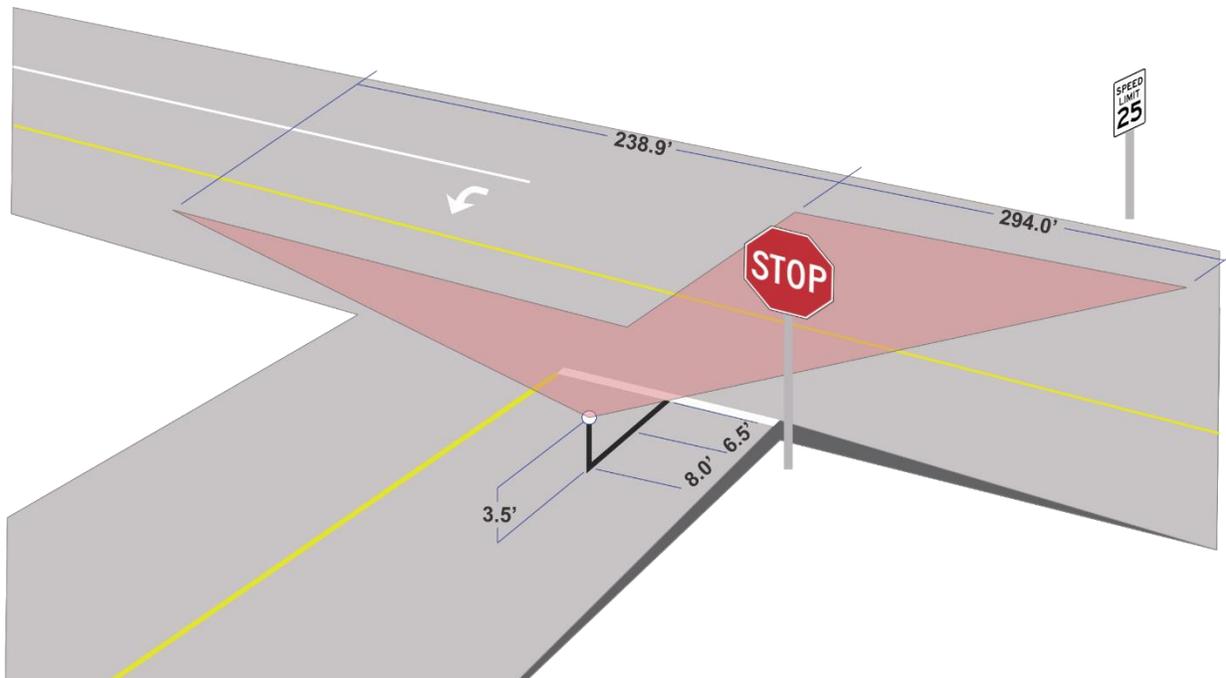


Figure 9. Recommended Intersection Sight Distance Measurements for Oregon Way Access.

The existing Oregon Way access was visited to ensure that no sight distance obstructions were present that would prevent these sight distances from being achieved. Figures 10 and 11 illustrate the available sight distance at the full access. These photos show that the area surrounding the site is flat with adequate available sight distance. Vegetation along Oregon Way should be removed as already shown in the site plans.



Figure 10. Oregon Way access facing south.



Figure 11. Oregon Way access facing north toward the Newberg Highway.

### Analysis Periods

It is anticipated that full build out will occur by 2025. Therefore, all study intersections are analyzed for the future 2025 conditions.

## YEAR 2025 BACKGROUND TRAFFIC OPERATIONS

Background traffic conditions identify conditions in the future year that the proposed development will be fully built-out but without the trips associated with the site. This scenario is presented to provide the basis for comparison to “with-site” conditions. This provides an understanding of area transportation needs that are attributable to the proposed development. These conditions consider the regional traffic growth and specific approved developments.

### Growth Forecasts

ODOT forecasts future year volumes on their facilities throughout the state. This data is developed from the ODOT Transportation Volume Tables and travel demand models, where available. Based on the volumes 0.10 miles east and west of I-5 on the Newberg Highway, ODOT’s Future Volumes Table shows that traffic volumes on the highway are expected to grow on average 0.3- to 0.4-percent per year. This is based on a travel demand model for the City.

Higher growth is expected on City streets. A review of the adopted Woodburn TSP shows existing 2017 and forecast 2040 traffic volumes at major intersections around the City. These volume forecasts are based on the information in the Woodburn travel demand model and anticipated land uses and planned transportation improvements in the area. A review of traffic forecasts at the Evergreen Road and Oregon Way intersections with the Newberg Highway show that traffic volumes are expected to grow an average of 1.7-percent per year on Evergreen Road and Oregon Way.

**Table 7. Forecast Growth (2017 to 2040)**

<b>Location</b>	<b>Year 2017 Base Two-Way Volume Weekday PM Peak Hour</b>	<b>Year 2040 Future Two-Way Volume Weekday PM Peak Hour</b>	<b>Annual Growth</b>
Evergreen Rd North of Newberg Hwy	245	244	-0.02%
Evergreen Rd South of Newberg Hwy	895	1,435	2.6%
Oregon Way Rd North of Newberg Hwy	360	499	1.7%
Oregon Way Rd South of Newberg Hwy	94	148	2.5%
		<b>Average</b>	<b>1.7%</b>

The year 2025 traffic forecasts were developed by applying a 0.4-percent annual growth rate to the Newberg Highway and 1.7-percent annual growth rate to Evergreen Road and Oregon Way, along with inclusion of approved development trips.

Approved Development Trips

Based on discussions with the City, multiple developments were identified for inclusion in the background volumes based on information from the City’s online current project list. These are summarized in Table 7 along with the estimated level of development assumed in the analysis.

**Table 7. Approved Development Trip Assumptions**

Development	Size	Trip Generation		Estimated Level of Development	
		Weekday AM Peak Hour	Weekday PM Peak Hour	2023	2025
Project Basie (Amazon)*	3,849,000 sf	457	176	0%	100%
Specht Industrial Development	513,193 sf	235	222	0%	100%
Woodland Crossing Apartments & RV Storage	300 apt units 127 storage units	154	186	0%	100%
Schultz Farm	154 units	114	152	0%	100%
Allison Way Apartments	586 units	211	258	0%	30%
Smith Creek Development	808 units	543	712	10%	40%

\*Trip generation rates for Project Basie reflects peak hour of the system rather than peak hour of the generator as assessed within the approved TIA; the trip generation methodology used was based on projected employee shifts rather than ITE trip rates.

The regional growth was applied to the existing traffic volumes and approved developments were added to forecast year 2025 “No-Build” conditions within the site vicinity. The resulting volumes are shown in Figure 15. The analysis results are summarized in Table 8.



**Weekday AM Peak Hour**

**Weekday PM Peak Hour**

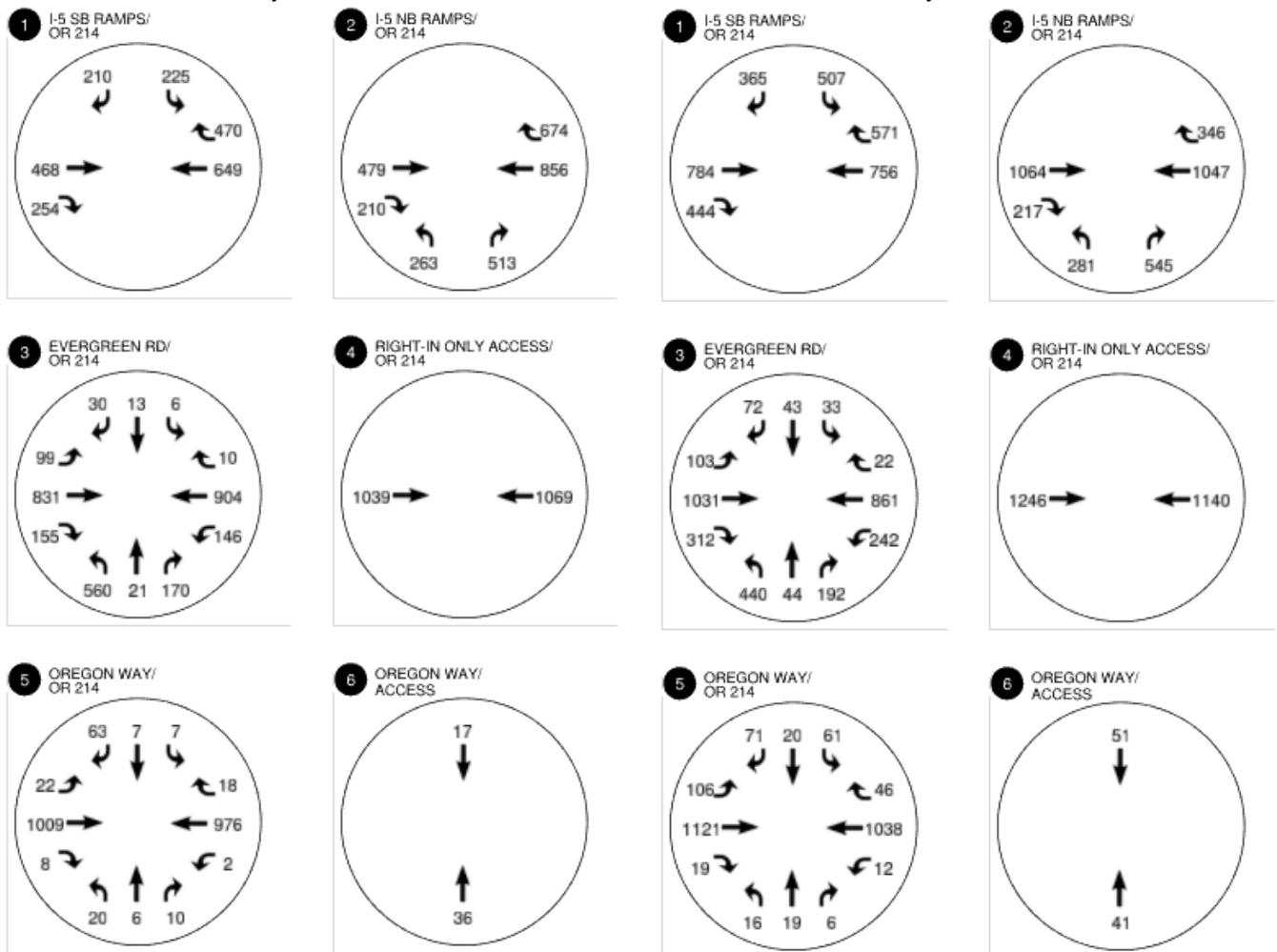


Figure 12. 2025 Background Traffic Volumes, Weekday AM and PM Peak Hour.  
 Note: Minor volume imbalance within interchange reflects discrepancies within approved development applications (primarily the Smith application).

**Table 8. Summary of 2025 Background (No Build) Traffic Conditions**

Intersection	Jurisdiction	Performance Standard	Critical Movement	Weekday AM Peak Hour			Weekday PM Peak Hour		
				LOS	Delay (sec)	v/c Ratio	LOS	Delay (sec)	v/c Ratio
1: I-5 SB Ramps/ Newberg Hwy	ODOT	$v/c \leq 0.85$		B	15.4	0.50	C	21.3	0.58
2: I-5 NB Ramps/ Newberg Hwy	ODOT	$v/c \leq 0.85$		B	13.0	0.62	B	14.7	0.61
3: Evergreen Rd/ Newberg Hwy	ODOT	$v/c \leq 0.95$		C	31.6	0.74	D	46.7	0.87
4: RI Access/ Newberg Hwy	ODOT	$v/c \leq 0.95$	NB R						
5: Oregon Way/ Newberg Hwy	ODOT	$v/c \leq 0.95$		A	9.2	0.47	B	16.5	0.55
6: Oregon Way/ Access	City of Woodburn	$v/c \leq 0.90$	EB LR						

As shown in Table 8, all study intersections are expected to meet standards in 2025 without the site during the weekday a.m. and p.m. peak hours.

## PROPOSED DEVELOPMENT PLAN

The proposed site plan from Figure 3 shows that the project includes the construction of a fueling center and 4,110 square-foot convenience market with 1,863 square-foot of attached office space, and a separate 5,000 square-foot office building.

The site will modify the existing access on the Newberg Highway to a right-in only access and will utilize the existing access on the south edge of the site to Oregon Way. Sidewalks are already provided on the frontage of the site on the Newberg Highway and Oregon Way. Sidewalks and pedestrian crossings are planned adjacent to the new office building and convenience store, which will connect to the public sidewalks along the adjacent rights of way.

## TRIP GENERATION

Trip generation estimates were prepared for the site based on the standard reference *Trip Generation, 11<sup>th</sup> Edition*, published by the Institute of Transportation Engineers. The previous TIA utilized the 10<sup>th</sup> Edition, as that was the most updated version of the Trip Generation Manual in August of 2021. There are a couple of types of fuel centers within this updated reference manual, but with the size of the convenience market the most applicable classification is ITE Land Use 945: Convenience Store/Gas Station.

Within this new version of the manual users are encouraged to review trip generation estimates based on both the number of vehicle fueling positions and the gross square-footage of the convenience center. The Land Use Description and Land Use Subcategory information is presented below for context.

### ***Land Use Description***

*A convenience store/gas station is a facility with a co-located convenience store and gas station. The convenience store sells grocery and other everyday items that a person may need or want as a matter of convenience. The gas station sells automotive fuels such as gasoline and diesel.*

*A convenience store/gas station is typically located along a major thoroughfare to optimize motorist convenience. Extended hours of operation (with many open 24 hours, 7 days a week) are common at these facilities.*

*The convenience store product mix typically includes pre-packaged grocery items, beverages, dairy products, snack foods, confectionary, tobacco products, over-the-counter drugs, and toiletries. A convenience store may sell alcohol, often limited to beer and wine. Coffee and premade sandwiches are also commonly sold at a convenience store. Made-to-order food orders are sometimes offered. Some stores offer limited seating.*

*The sites in this land use include both self-pump and attendant-pumped fueling positions and both pre-pay and post-pay operations.*

### **Land Use Subcategory**

*Multiple subcategories were added to this land use to allow for multi-variable evaluation of sites with single-variable data plots. All study sites are assigned to one of three subcategories, based on the number of vehicle fueling positions (VFP) at the site: between 2 and 8 VFP, between 9 and 15 VFP, and between 16 and 24 VFP. For each VFP range subcategory, data plots are presented with GFA as the independent variable for all time periods and trip types for which data are available. The use of both GFA and VFP (as the independent variable and land use subcategory, respectively) provides a significant improvement in the reliability of a trip generation estimate when compared to the single-variable data plots in prior editions of Trip Generation Manual.*

*Further, the study sites were also assigned to one of three other subcategories, based on the gross floor area (GFA) of the convenience store at the site: between 2,000 and 4,000 square feet, between 4,000 and 5,500 square feet, and between 5,500 and 10,000 square feet. For each GFA subcategory range, data plots are presented with VFP as the independent variable for all time periods and trip types for which data are available. The use of both VFP and GFA (as the independent variable and land use subcategory, respectively) provides a significant improvement in the reliability of a trip generation estimate when compared to the single-variable data plots in prior editions of Trip Generation Manual.*

*When analyzing the convenience store/gas station land use with each combination of GFA and VFP values as described above, the two sets of data plots will produce two estimates of site generated trips. Both values can be considered when determining a site trip generation estimate.*

*Data plots are also provided for three additional independent variables: AM peak hour traffic on adjacent street, PM peak hour traffic on adjacent street, and employees. These independent variables are intended to be analyzed as single independent variables and do not have subcategories associated with them. Within the data plots and within the ITETripGen web app, these plots are found under the land use subcategory "none."*

In addition to the consolidation of land use types and the dual-trip generation estimate for these sites, within the 11<sup>th</sup> Edition of the ITE Trip Generation Manual a pass-by rate of 76% is provided for the weekday a.m. peak hour and 75% for the weekday p.m. peak hour.

The attached office portion of the building and separate 5,000 square-foot office building were classified using ITE's *Land Use 712: Small Office Building*, which is a new classification within the 11<sup>th</sup> Edition of the Trip Generation manual. This land use is described as follows:

A small office building is the same as a general office building (Land Use 710) but with less than or equal to 10,000 square feet of gross floor area. The building typically houses a single tenant. It is a location where affairs of a business, commercial or industrial organization, or professional person or firm are conducted.

Since the convenience market with fuel center and office will be replacing two banks with drive-in windows the trips for these uses were estimated with ITE’s Land Use 912: Drive-in Bank, as defined below:

A bank is a financial institution that can offer a wide variety of financial services. A drive-in bank provides banking services for a motorist through a teller station. A drive-in bank may also serve patrons who walk into the building. The drive-in lanes may or may not provide an automatic teller machine (ATM).

Table 9 summarizes the trip generation estimates for the existing and proposed site uses.

**Table 9. Trip Generation Estimates (ITE 11<sup>th</sup> Edition)**

Land Use	ITE Code	Metric	Daily Trips	Weekday AM Peak Hour			Weekday PM Peak Hour		
				Total	In	Out	Total	In	Out
<b>Existing Uses</b>									
Drive-in Bank	912	5,714 SF	573	57	33	24	120	60	60
Pass-by Trips			-201	-17	-10	-7	-42	-21	-21
<b>Net New Trips</b>			<b>372</b>	<b>40</b>	<b>23</b>	<b>17</b>	<b>78</b>	<b>39</b>	<b>39</b>
<b>Proposed Uses</b>									
Small Office Building	712	6,863 SF	99	11	9	2	15	5	10
Convenience Store/ Gas Station	945	4,110 SF 12 pos.	3,086	324	162	162	273	137	136
Pass-by Trips			-2,315	-246	-123	-123	-205	-103	-102
<b>Net New Trips</b>			<b>870</b>	<b>89</b>	<b>48</b>	<b>41</b>	<b>83</b>	<b>39</b>	<b>44</b>
Total Proposed Uses			3,185	335	171	164	288	142	146
Total Pass-by Trips			-2,315	-246	-123	-123	-205	-103	-102
<b>Total New Trips (Proposed Trips – Approved Bank Trips)</b>									
Total Trip Difference			+2,612	+278	+138	+140	+168	+82	+86
Pass-by Trip Difference			-2,114	-229	-113	-116	-163	-82	-81
<b>Net New Trip Difference</b>			<b>+498</b>	<b>+49</b>	<b>+25</b>	<b>+24</b>	<b>+5</b>	<b>+0</b>	<b>+5</b>

As shown in Table 9, the proposed convenience market with office and fueling positions is expected to generate more trips than the previous drive-in bank uses, with very limited new trips on the system during the critical weekday p.m. peak period for these convenience-oriented uses.

The Woodburn Development Ordinance 3.04.05 cites City criteria for transportation analyses, and cites projects generating more than 50 weekday peak hour trips or 500 average daily trips will require a formal TIA. The proposed development narrowly remains below these thresholds with the net new trips. However, if the development “would raise the volume-to-capacity (V/C) ratio of an intersection to 0.96 or more during the PM peak hour,” has “operational or safety concerns documented by the City or an agency with jurisdiction, such as ODOT,” or has potential impact to “intersections documented by ODOT as having a high crash rate” a transportation impact analysis is required. Given the location of the study intersections within the SPIS sites and operation and safety concerns previously documented at the study intersections, a transportation impact analysis is provided for this development.

ODOT's Development Review Guidelines contain suggested future year analysis timelines in Section 3.3.4, Table 3.3 based on the daily trip generation of a proposed development. Based on the projected difference in net new trips between the proposed development and previous bank uses of less than 500 daily trips, the guidelines suggest that the only analysis required is the year of opening. Therefore, this Transportation Impact Analysis studies year 2025, the anticipated year of full site buildout.

## TRIP DISTRIBUTION AND ASSIGNMENT

The convenience store and fuel center comprise the majority of the site-generated trips. A convenience store with fueling positions is likely to have its traffic oriented toward major nearby travel corridors. With this type of use primary trips (home to business) are less common, particularly with this site near the City's only interchange with I-5 and its location along the Newberg Highway corridor. Figure 6 illustrates the functional classification of the surrounding streets as identified in the City's Transportation System Plan, highlighting the primary travel routes in the site vicinity.

With an Average Annual Daily Traffic flow of about 25,700 vehicles on the Newberg Highway and 93,500 daily vehicles on I-5 south of the interchange these corridors will serve the majority of site trips and will be the primary routes for pass-by trips to the site. With the convenience store included, surrounding residential areas will also access the site for essential goods. Figure 15 illustrates the trip distribution pattern for the site.

Site-generated trips shown in Table 9 were assigned to the transportation network in accordance with the trip distribution pattern. This trip assignment is provided in Figures 14 and 15; these figures show the general impact area of the site without the trip credits from the prior bank uses. For comparison purposes, a trip assignment is shown in Figure 16 accounting for the available trip credits from the prior banks<sup>1</sup>. As the access onto OR 214 is modified, this comparative assessment shows fewer outbound right-turns using the OR 214 access, and reduced U-turns at the Oregon Way and Evergreen Avenue traffic signals. These same trip reductions are not carried into the operational assessment, as the banks had already been closed at the time the traffic counts were collected.

The trip assignment figures show that the impact area of the site occurs within the area between the I-5 interchange and the Oregon Way access, with trip impacts beyond this area limited. It is also noted that the right-in only driveway from the Newberg Highway will experience more than 50 weekday p.m. peak hour trips, triggering ODOT's Change of Use criteria.

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<sup>1</sup> The original traffic studies for the banks were not located, but trip rates for banks were significantly reduced within the newer versions of the ITE manual due to the proliferation of online banking. The vested trips from these older banks likely would have been filed using the older editions of the ITE Trip Generation manual that precede these banking trends, providing a more substantial trip reduction.



Figure 13. Estimated Trip Distribution pattern.

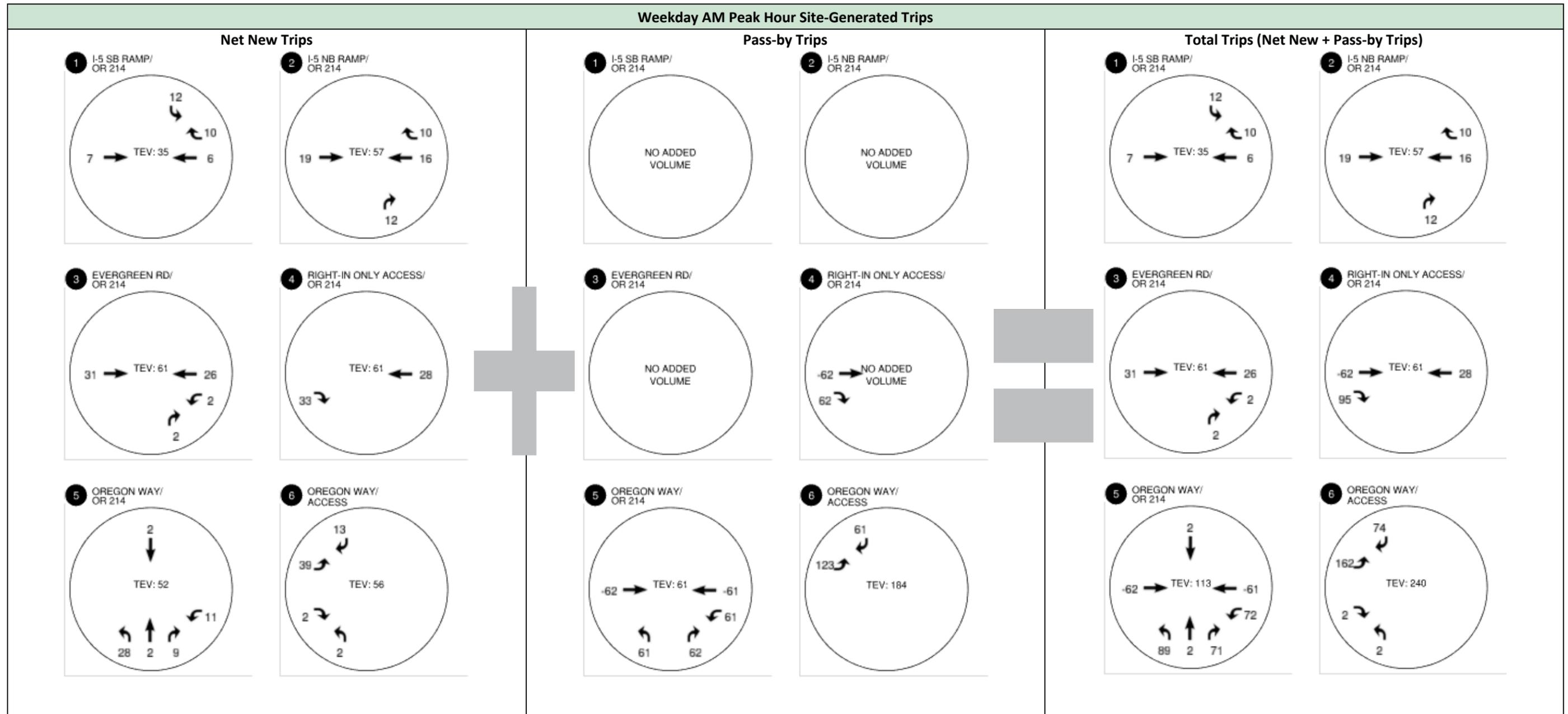


Figure 14. Site-Generated Trip Assignment, Weekday AM Peak Hour (Prior bank trip credits are not shown or included within the operations analysis).

Weekday PM Peak Hour Site-Generated Trips

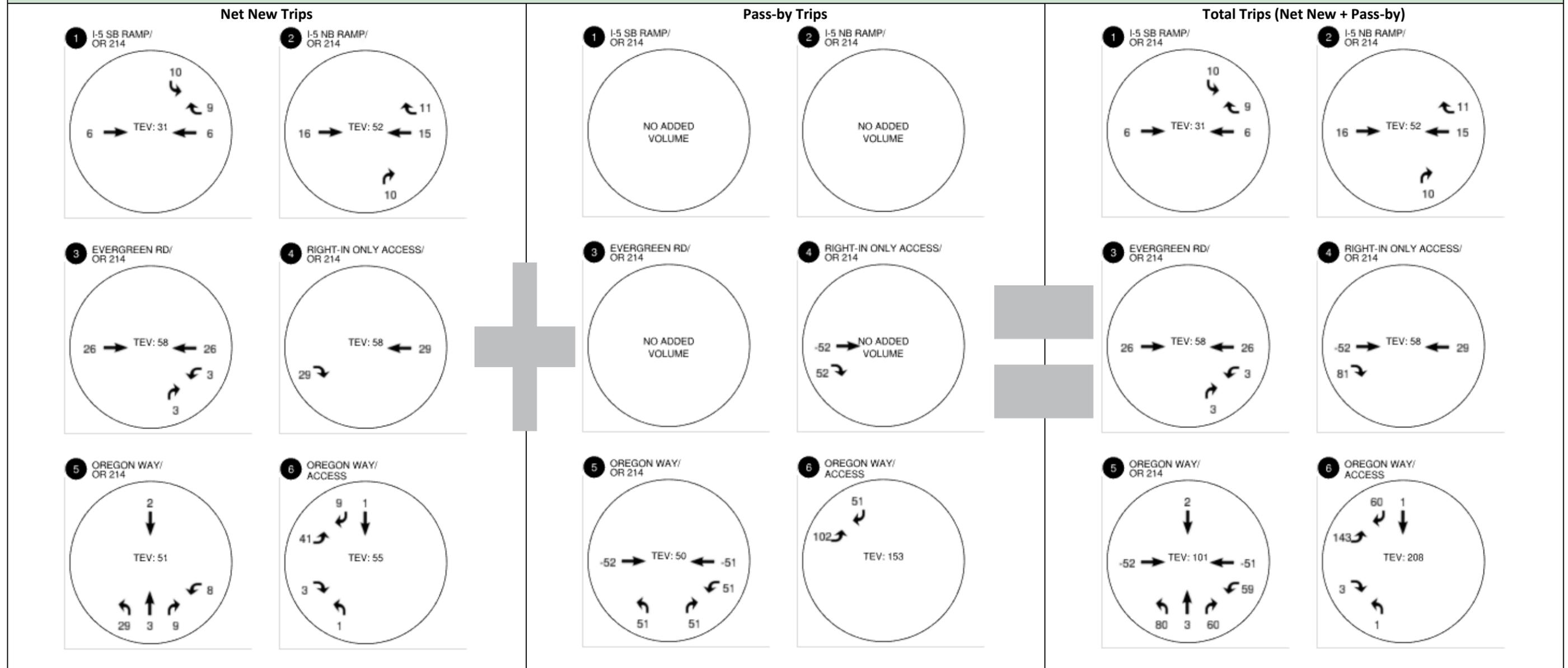


Figure 15. Site-Generated Trip Assignment, Weekday PM Peak Hour (Prior bank trip credits are not shown or included within the operations analysis).

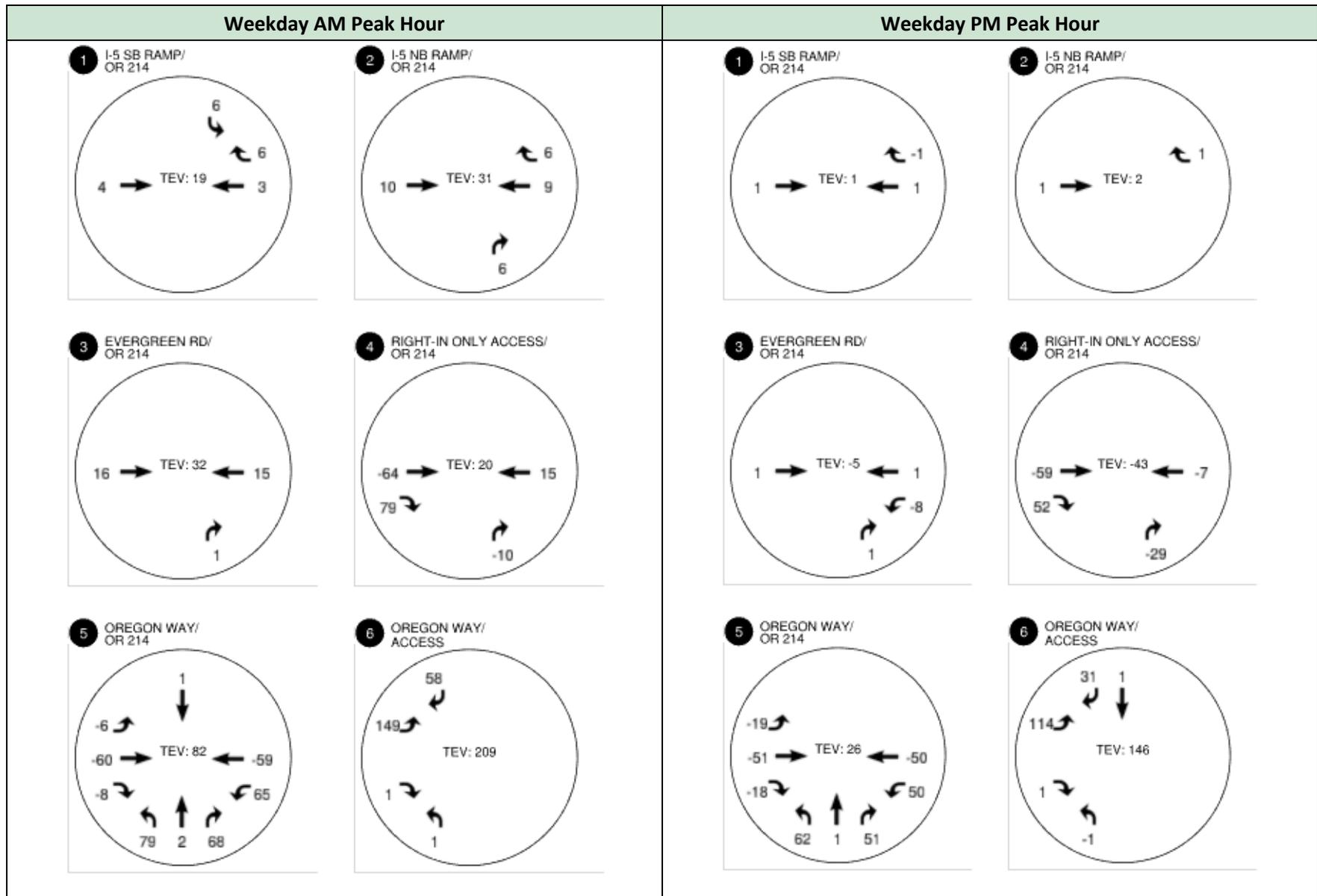


Figure 16. Trip Difference (Includes prior bank trip credit).

## YEAR 2025 TOTAL TRAFFIC CONDITIONS (BUILDOUT)

The total traffic analysis identifies how the study area's transportation system will operate with the inclusion of the proposed development. It includes the traffic volumes from the background and adds in the site-generated trips without any account of the available credits from the previously approved and vested trips from the now-demolished banks.

The original analysis for the Woodburn US Market showed acceptable traffic operations throughout the study area (which extended from the I-5 ramps east to Oregon Way) with various access configurations. The proposed US Market development does not generate additional weekday p.m. peak hour trips compared to the prior banks, but will modify turning movements surrounding the access points, particularly with the proposed access from the Newberg Highway as a right-in only driveway. The resulting traffic volumes are shown in Figure 16. Table 10 summarizes the resulting traffic operations.

**Table 10. Summary of Total Traffic Conditions**

Intersection	Jurisdiction	Performance Standard	Critical Movement	Weekday AM Peak Hour			Weekday PM Peak Hour		
				LOS	Delay (sec)	v/c Ratio	LOS	Delay (sec)	v/c Ratio
1: I-5 SB Ramps/ Newberg Hwy	ODOT	$v/c \leq 0.85$		B	15.5	0.51	C	22.0	0.59
2: I-5 NB Ramps/ Newberg Hwy	ODOT	$v/c \leq 0.85$		B	13.2	0.63	B	14.9	0.62
3: Evergreen Rd/ Newberg Hwy	ODOT	$v/c \leq 0.95$		C	31.2	0.75	D	47.8	0.88
4: RI Access/ Newberg Hwy	ODOT	$v/c \leq 0.95$							
5: Oregon Way/ Newberg Hwy	ODOT	$v/c \leq 0.95$		B	18.7	0.56	C	22.5	0.58
6: Oregon Way/ Access	City of Woodburn	$v/c \leq 0.90$	EB LR	B	10.1	0.22	B	10.3	0.20

**BOLD:** Performance standard not met

As shown in Table 10, the study intersections are expected to continue to meet City and State standards with buildout in 2025.



**Weekday AM Peak Hour**

**Weekday PM Peak Hour**

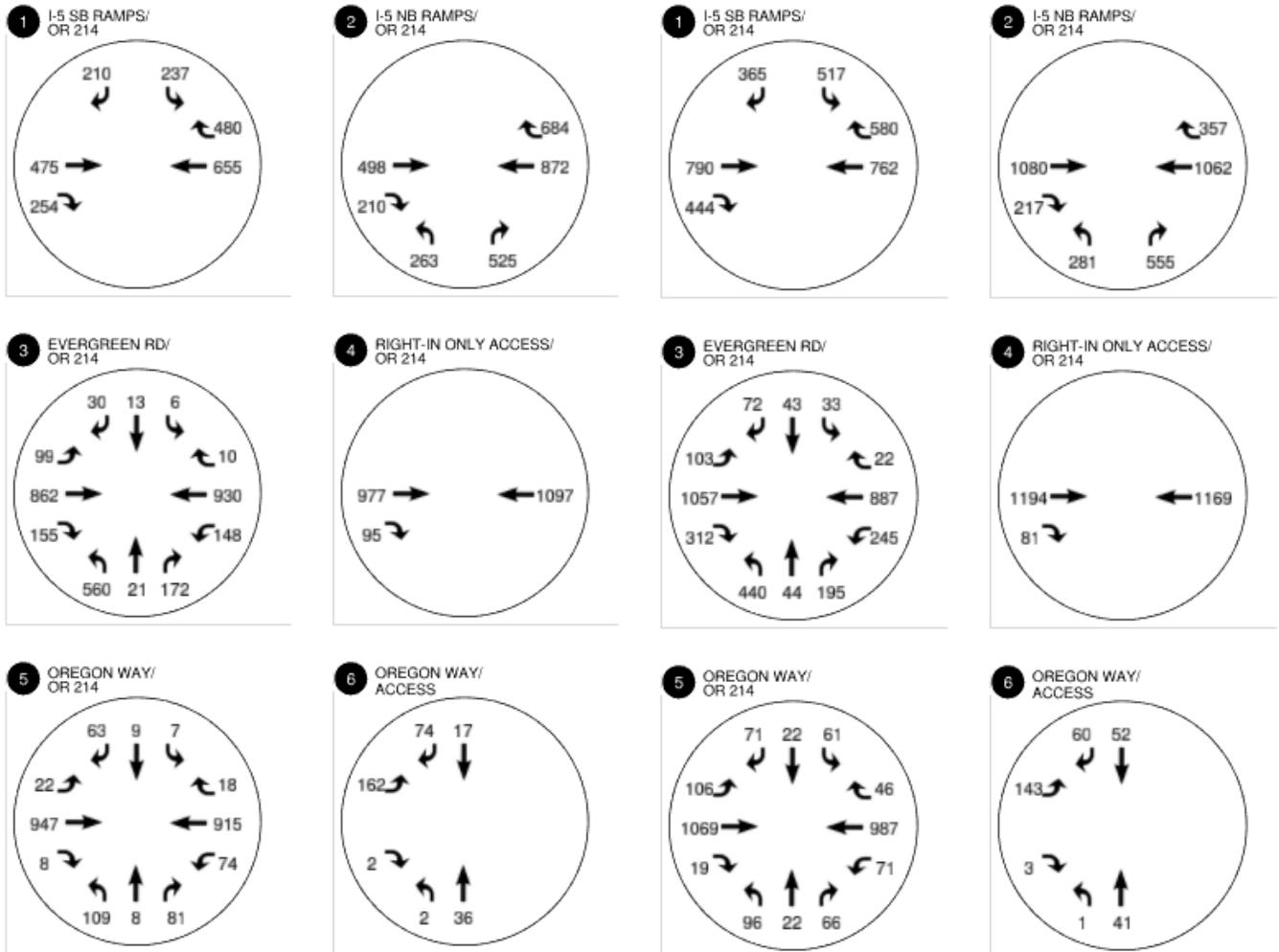


Figure 17. 2025 Total Traffic Volumes, Weekday AM and PM Peak Hour.

## INTERSECTION QUEUING

The 95<sup>th</sup> percentile queues were reviewed with respect to the site and the proposed right in only access on the Newberg Highway to identify whether any conflicts would occur with modifications to trip routing. Table 11 summarizes the 95<sup>th</sup> percentile queues for each study intersection for the 2025 total traffic conditions during the weekday a.m. and p.m. peak hours and Figure 18 illustrates the 95<sup>th</sup> percentile queue lengths at the traffic signals nearest the site.

**Table 11. Year 2025 Intersection Queue Summary**

Intersection	2025 Total Traffic Conditions 95 <sup>th</sup> Percentile Queues	
	Weekday AM Peak Hour	Weekday PM Peak Hour
1: I-5 SB Ramps/ Newberg Hwy	EB T: 80 ft EB R: 0 ft WB T: 140 ft WB R: 0 ft SB L: 110 ft SB R: 135 ft	EB T: 205 ft EB R: 0 ft WB T: 165 ft WB R: 5 ft SB L: 205 ft SB R: 220 ft
2: I-5 NB Ramps/ Newberg Hwy	EB T: 120 ft EB R: 0 ft WB T: 235 ft WB R: 15 ft NB L: 225 ft NB LTR: 140 ft NB R: 125 ft	EB T: 335 ft EB R: 0 ft WB T: 195 ft WB R: 0 ft NB L: 215 ft NB LTR: 245 ft NB R: 225 ft
3: Evergreen Rd/ Newberg Hwy	EB L: 155 ft EB T: 400 ft EB R: 25 ft WB L: 200 ft WB TR: 435 ft NB L: 290 ft NB LT: 285 ft NB R: 50 ft SB L: 20 ft SB TR: 45 ft	EB L: 185 ft EB T: 550 ft EB R: 85 ft WB L: 375 ft WB TR: 140 ft NB L: 240 ft NB LT: 240 ft NB R: 55 ft SB L: 55 ft SB TR: 130 ft
4: RI Access/ Newberg Hwy		
5: Oregon Way/ Newberg Hwy	EB L: 30 ft EB TR: 205 ft WB L: 95 ft WB TR: 275 ft NB L: 180 ft NB TR: 55 ft SB L: 20 ft SB TR: 50 ft	EB L: 80 ft EB TR: 190 ft WB L: 90 ft WB TR: 345 ft NB L: 160 ft NB TR: 60 ft SB L: 100 ft SB TR: 65 ft
6: Oregon Way/ Access	NB LT: 0 ft EB LR: 25 ft	NB LT: 0 ft EB LR: 25 ft

The queuing analysis shows that there are locations on this highway corridor that experience queue blockage at the end of the red signal cycle, as illustrated in Figure 18. As the intersections are operating below capacity these queues clear during the green cycle.



Figure 18. Year 2025 95<sup>th</sup> Percentile Queues with Right-In Only access from the Newberg Highway.

The proposed development will include a right-in only access from the Newberg Highway. The queuing analysis shows that this driveway will not be blocked by the 95<sup>th</sup> percentile queues during the peak fifteen minutes of the peak summer design hour in 2025 even with build-out of planned/approved projects. At the end of the red cycle the queue on Oregon Way may extend to the driveway location, and motorists entering the queue during this peak period at the end of the red signal cycle could have to wait for the green signal indication to clear the queue. These movements operate with low delay, and the queue is primarily a function of the longer green time allocated to east-west travel along the highway. No changes to signal timing are recommended.

## FINDINGS AND RECOMMENDATIONS

The Transportation Impact Analysis prepared for the proposed fuel center and convenience market provides the following findings:

- The site is located outside of the Woodburn Interchange Area Management Plan boundary, but due to its proximity is still subject to agency review as the property appears to be located within the Interchange Management Area Overlay District.
- The proposed 12-position fueling station, 4,110 square-foot convenience market with attached office space, and separate 5,000 square-foot office building are consistent with the *Commercial General* zoning.
- The safety analysis identified high crash rates at the I-5 ramp intersections, Evergreen Road, and Oregon Way on OR 214.
- The Evergreen Road/OR 214 and Oregon Way/OR 214 intersections were included on the ODOT SPIS lists in 2019, 2020, and 2021 at a 95<sup>th</sup> percentile. The signal phasing was recently changed at these signals from protected-permissive to protected only left-turn phasing, which is not reflected in the crash data. As most crashes at these intersections were turning collisions on the highway, this is expected to reduce the number of crashes reported at these intersections and further monitoring is recommended.
- Accounting for the demolition of the two on-site banks, the development is expected to generate 2,612 total daily trips, of which 278 are expected during the weekday a.m. peak hour and 168 during the weekday p.m. peak hour. Most of these new trips are pass-by trips that are already on the system, resulting in +49 new trips during the morning peak hour and +5 trips during the evening commute period.
- The site will modify the existing right-in/right-out access on the Newberg Highway to a right-in only access, which will require a Change of Use with ODOT due to the increased vehicular use of this driveway. Preliminary discussions with ODOT staff have indicated support for this configuration as it removes the potential weaving issues associated with left-turns and U-turns between the access and Oregon Way.
- The site will also use the existing full access on Oregon Way, which is located adjacent to the south property line.
- All study intersections meet State and City standards with buildout in 2025 during the weekday a.m. and p.m. peak hours.

Please let me know if you have any questions or comments on this Transportation impact Analysis at (503) 997-4473 or via email at [joe@transightconsulting.com](mailto:joe@transightconsulting.com).

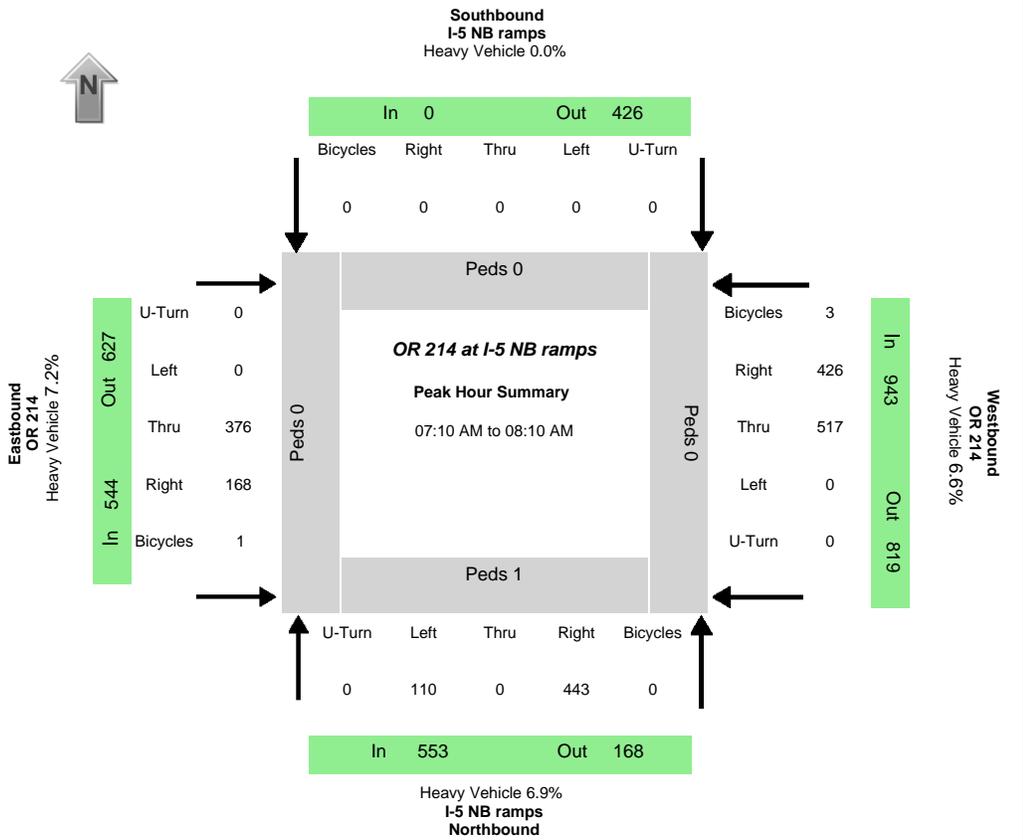
Attachments:

- Traffic Count Worksheets

- Crash Summary Sheets
- Year 2023 Existing Conditions LOS Worksheets
- Year 2025 No-Build Conditions LOS Worksheets
- Year 2025 “With Project” Conditions LOS Worksheets

Data Provided by K-D-N.com 503-594-4224

N/S street	I-5 NB ramps
E/W street	OR 214
City, State	Woodburn OR
Site Notes	
Location	45.151084 - -122.87928
Start Date	Wednesday, June 30, 2021
Start Time	07:00:00 AM
Weather	
Study ID #	
Peak Hour Start	07:10:00 AM
Peak 15 Min Start	07:30:00 AM
PHF (15-Min Int)	0.89



Peak-Hour Volumes (PHV)																							
Northbound				Southbound				Eastbound				Westbound				Entering				Leaving			
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	NB	SB	EB	WB	NB	SB	EB	WB
110	0	443	0	0	0	0	0	0	376	168	0	0	517	426	0	553	0	544	943	168	426	627	819
Percent Heavy Vehicles																							
8.2%	0.0%	6.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	5.9%	10.1%	0.0%	0.0%	8.5%	4.2%	0.0%	6.9%	0.0%	7.2%	6.6%	10.1%	4.2%	8.5%	6.2%

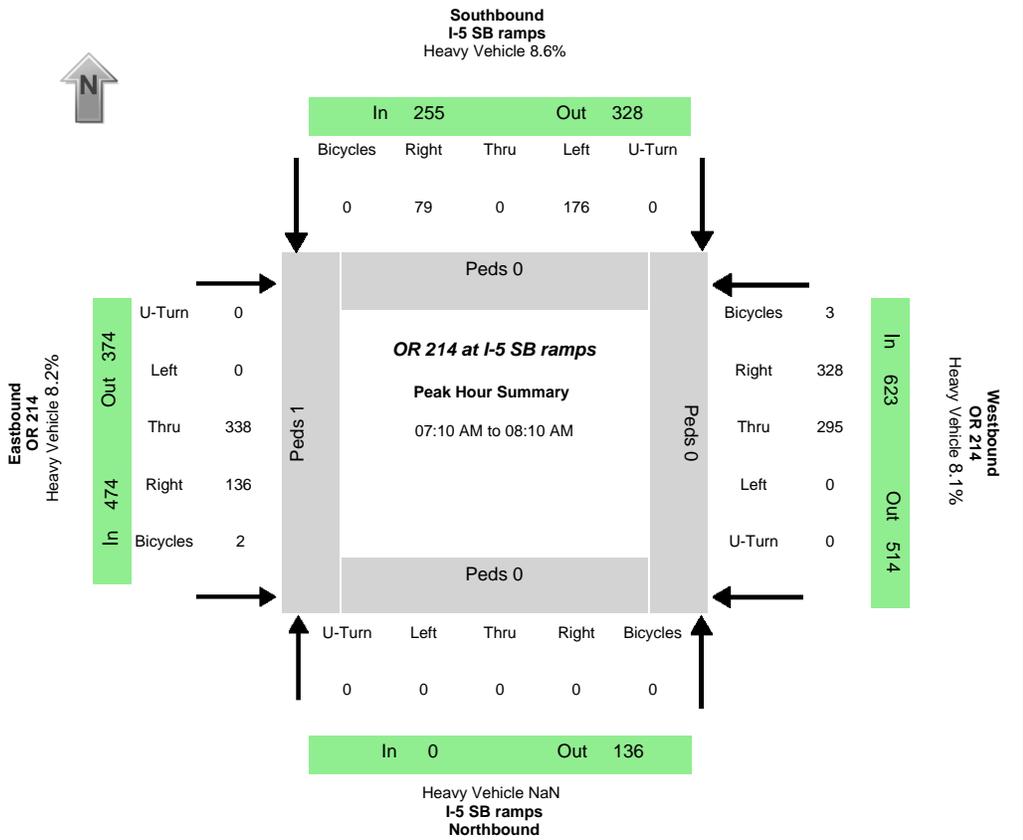
PHV - Bicycles														PHV - Pedestrians							
Northbound				Southbound				Eastbound				Westbound				in Crosswalk				Sum	
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Sum	NB	SB	EB	WB	Sum
0	0	0	0	0	0	0	0	0	1	0	0	0	3	0	0	4	1	0	0	0	1

All Vehicle Volumes																		
Time	Northbound I-5 NB ramps				Southbound I-5 NB ramps				Eastbound OR 214				Westbound OR 214				15 Min Sum	1 HR Sum
	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn		
07:00:00 AM	3	0	31	0	0	0	0	0	0	32	5	0	0	36	31	0		
07:05:00 AM	9	0	32	0	0	0	0	0	0	24	9	0	0	30	39	0		
07:10:00 AM	6	0	26	0	0	0	0	0	0	36	15	0	0	28	51	0	443	
07:15:00 AM	7	0	27	0	0	0	0	0	0	32	10	0	0	46	42	0	469	
07:20:00 AM	9	0	31	0	0	0	0	0	0	23	6	0	0	36	43	0	474	
07:25:00 AM	8	0	43	0	0	0	0	0	0	27	7	0	0	36	35	0	468	
07:30:00 AM	9	0	35	0	0	0	0	0	0	21	17	0	0	55	35	0	476	
07:35:00 AM	5	0	39	0	0	0	0	0	0	31	23	0	0	52	56	0	534	
07:40:00 AM	11	0	45	0	0	0	0	0	0	34	27	0	0	42	37	0	574	
07:45:00 AM	16	0	27	0	0	0	0	0	0	32	18	0	0	47	22	0	564	
07:50:00 AM	15	0	55	0	0	0	0	0	0	42	9	0	0	37	23	0	539	
07:55:00 AM	9	0	42	0	0	0	0	0	0	40	14	0	0	41	20	0	509	1994
08:00:00 AM	10	0	28	0	0	0	0	0	0	28	8	0	0	56	28	0	505	2014
08:05:00 AM	5	0	45	0	0	0	0	0	0	30	14	0	0	41	34	0	493	2040
08:10:00 AM	7	0	29	0	0	0	0	0	0	23	6	0	0	30	29	0	451	2002
08:15:00 AM	4	0	19	0	0	0	0	0	0	25	12	0	0	38	31	0	422	1967
08:20:00 AM	8	0	31	0	0	0	0	0	0	29	9	0	0	33	26	0	389	1955
08:25:00 AM	7	0	31	0	0	0	0	0	0	24	8	0	0	30	32	0	397	1931
08:30:00 AM	5	0	27	0	0	0	0	0	0	30	9	0	0	35	28	0	402	1893
08:35:00 AM	8	0	16	0	0	0	0	0	0	44	10	0	0	46	34	0	424	1845
08:40:00 AM	8	0	26	0	0	0	0	0	0	36	11	0	0	42	16	0	431	1788
08:45:00 AM	9	0	18	0	0	0	0	0	0	29	6	0	0	43	29	0	431	1760
08:50:00 AM	8	0	36	0	0	0	0	0	0	35	8	0	0	37	19	0	416	1722
08:55:00 AM	9	0	26	0	0	0	0	0	0	29	5	0	0	48	23	0	417	1696



KEY DATA NETWORK

Data Provided by K-D-N.com 503-594-4224	
N/S street	I-5 SB ramps
E/W street	OR 214
City, State	Woodburn OR
Site Notes	
Location	45.151084 - -122.882542
Start Date	Wednesday, June 30, 2021
Start Time	07:00:00 AM
Weather	
Study ID #	
Peak Hour Start	07:10:00 AM
Peak 15 Min Start	07:30:00 AM
PHF (15-Min Int)	0.85



Peak-Hour Volumes (PHV)																							
Northbound				Southbound				Eastbound				Westbound				Entering				Leaving			
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	NB	SB	EB	WB	NB	SB	EB	WB
0	0	0	0	176	0	79	0	0	338	136	0	0	295	328	0	0	255	474	623	136	328	374	514
Percent Heavy Vehicles																							
0.0%	0.0%	0.0%	0.0%	7.4%	0.0%	11.4%	0.0%	0.0%	7.1%	11.0%	0.0%	0.0%	3.7%	12.2%	0.0%	NaN	8.6%	8.2%	8.2%	11.0%	12.2%	5.3%	7.2%

PHV- Bicycles												PHV- Pedestrians									
Northbound				Southbound				Eastbound				Westbound				in Crosswalk					
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Sum	NB	SB	EB	WB	Sum
0	0	0	0	0	0	0	0	0	2	0	0	0	3	0	0	5	0	0	1	0	1

Time	Northbound I-5 SB ramps				Southbound I-5 SB ramps				Eastbound OR 214				Westbound OR 214				15 Min Sum	1 HR Sum
	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn		
07:00:00 AM	0	0	0	0	16	0	5	0	0	25	10	0	0	17	17	0		
07:05:00 AM	0	0	0	0	12	0	11	0	0	25	7	0	0	17	29	0		
07:10:00 AM	0	0	0	0	13	0	6	0	0	36	8	0	0	14	21	0	289	
07:15:00 AM	0	0	0	0	18	0	4	0	0	24	12	0	0	25	26	0	308	
07:20:00 AM	0	0	0	0	11	0	3	0	0	20	3	0	0	24	24	0	292	
07:25:00 AM	0	0	0	0	18	0	9	0	0	17	10	0	0	25	24	0	297	
07:30:00 AM	0	0	0	0	10	0	7	0	0	28	16	0	0	26	41	0	316	
07:35:00 AM	0	0	0	0	10	0	13	0	0	42	17	0	0	18	31	0	362	
07:40:00 AM	0	0	0	0	22	0	2	0	0	38	22	0	0	25	32	0	400	
07:45:00 AM	0	0	0	0	12	0	7	0	0	23	5	0	0	41	24	0	384	
07:50:00 AM	0	0	0	0	22	0	12	0	0	33	8	0	0	31	20	0	379	
07:55:00 AM	0	0	0	0	14	0	7	0	0	25	8	0	0	24	20	0	336	1322
08:00:00 AM	0	0	0	0	14	0	3	0	0	25	14	0	0	28	34	0	342	1350
08:05:00 AM	0	0	0	0	12	0	6	0	0	27	13	0	0	14	31	0	319	1352
08:10:00 AM	0	0	0	0	10	0	9	0	0	22	4	0	0	16	22	0	304	1337
08:15:00 AM	0	0	0	0	16	0	10	0	0	19	5	0	0	15	27	0	278	1320
08:20:00 AM	0	0	0	0	18	0	5	0	0	23	9	0	0	27	15	0	272	1332
08:25:00 AM	0	0	0	0	13	0	15	0	0	26	16	0	0	19	16	0	294	1334
08:30:00 AM	0	0	0	0	17	0	6	0	0	25	6	0	0	20	27	0	303	1307
08:35:00 AM	0	0	0	0	29	0	8	0	0	27	7	0	0	22	26	0	325	1295
08:40:00 AM	0	0	0	0	18	0	13	0	0	24	11	0	0	25	23	0	334	1268
08:45:00 AM	0	0	0	0	9	0	10	0	0	29	9	0	0	30	18	0	338	1261
08:50:00 AM	0	0	0	0	16	0	10	0	0	26	12	0	0	29	16	0	328	1244
08:55:00 AM	0	0	0	0	14	0	10	0	0	20	3	0	0	27	31	0	319	1251



### Traffic Counts - Heavy Vehicles, Bicycles on Road, and Pedestrians/Bicycles on Crosswalk

Interval Start Time	Heavy Vehicles					Interval Start Time	Bicycles on Roadway					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
7:00 AM	6	3	2	0	11	7:00 AM	0	0	0	0	0	7:00 AM	0	0	0	0	0
7:05 AM	3	4	5	0	12	7:05 AM	0	0	0	0	0	7:05 AM	0	1	0	0	1
7:10 AM	8	1	2	1	12	7:10 AM	0	0	0	0	0	7:10 AM	0	0	0	0	0
7:15 AM	1	4	4	0	9	7:15 AM	0	0	0	0	0	7:15 AM	0	0	0	0	0
7:20 AM	1	1	5	2	9	7:20 AM	0	0	0	0	0	7:20 AM	0	0	0	0	0
7:25 AM	4	3	0	0	7	7:25 AM	0	0	0	0	0	7:25 AM	0	0	0	0	0
7:30 AM	2	1	6	0	9	7:30 AM	0	0	0	0	0	7:30 AM	1	0	0	0	1
7:35 AM	3	2	3	1	9	7:35 AM	0	0	0	0	0	7:35 AM	0	0	1	0	1
7:40 AM	8	2	5	0	15	7:40 AM	0	0	0	0	0	7:40 AM	0	0	0	0	0
7:45 AM	7	5	3	1	16	7:45 AM	0	0	0	0	0	7:45 AM	0	0	1	1	2
7:50 AM	4	2	4	0	10	7:50 AM	0	0	0	0	0	7:50 AM	0	0	0	0	0
7:55 AM	9	3	3	0	15	7:55 AM	0	0	0	0	0	7:55 AM	2	1	0	0	3
8:00 AM	5	1	3	0	9	8:00 AM	0	0	0	0	0	8:00 AM	0	0	0	0	0
8:05 AM	5	1	4	0	10	8:05 AM	0	0	0	0	0	8:05 AM	0	0	0	0	0
8:10 AM	6	2	6	1	15	8:10 AM	0	0	0	0	0	8:10 AM	1	1	0	0	2
8:15 AM	6	1	4	2	13	8:15 AM	0	0	0	0	0	8:15 AM	0	0	0	0	0
8:20 AM	3	0	5	0	8	8:20 AM	0	0	0	0	0	8:20 AM	0	1	0	0	1
8:25 AM	4	0	1	0	5	8:25 AM	0	0	0	0	0	8:25 AM	0	0	0	0	0
8:30 AM	8	0	3	0	11	8:30 AM	0	0	0	0	0	8:30 AM	0	0	1	0	1
8:35 AM	5	0	3	0	8	8:35 AM	0	0	0	0	0	8:35 AM	0	0	0	0	0
8:40 AM	6	1	8	0	15	8:40 AM	0	0	0	0	0	8:40 AM	0	0	0	0	0
8:45 AM	10	0	8	1	19	8:45 AM	0	0	0	0	0	8:45 AM	0	0	0	0	0
8:50 AM	1	2	5	0	8	8:50 AM	0	0	0	0	0	8:50 AM	0	0	0	0	0
Count Total	115	39	92	9	255	Count Total	0	0	0	0	0	Count Total	4	4	3	1	12
Peak Hour	55	29	43	5	132	Peak Hour	0	0	0	0	0	Peak Hour	3	2	2	1	8

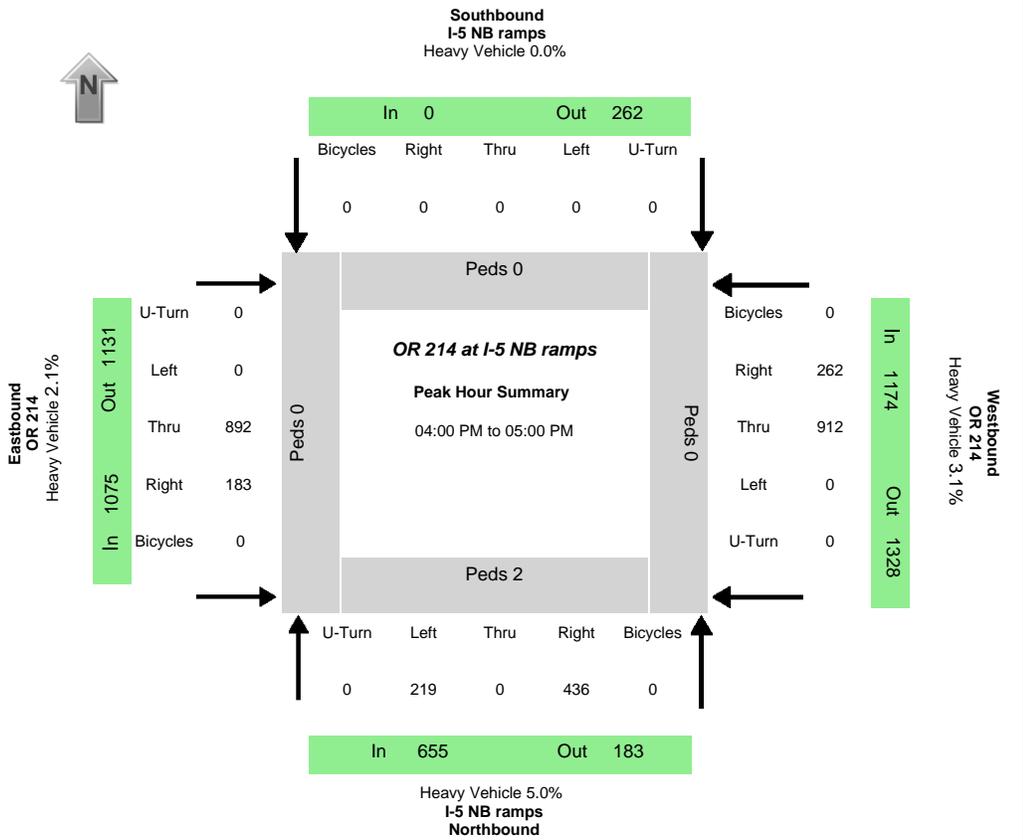


### Traffic Counts - Heavy Vehicles, Bicycles on Road, and Pedestrians/Bicycles on Crosswalk

Interval Start Time	Heavy Vehicles					Interval Start Time	Bicycles on Roadway					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
7:00 AM	5	0	3	0	8	7:00 AM	0	0	0	0	0	7:00 AM	0	0	0	0	0
7:05 AM	5	0	5	0	10	7:05 AM	0	0	0	0	0	7:05 AM	0	0	0	0	0
7:10 AM	8	0	3	0	11	7:10 AM	0	0	0	0	0	7:10 AM	0	0	0	0	0
7:15 AM	4	0	5	0	9	7:15 AM	0	0	0	0	0	7:15 AM	0	0	0	0	0
7:20 AM	2	0	3	0	5	7:20 AM	0	0	0	0	0	7:20 AM	0	0	1	1	2
7:25 AM	4	0	1	0	5	7:25 AM	0	0	0	0	0	7:25 AM	0	0	0	0	0
7:30 AM	1	0	5	0	6	7:30 AM	0	0	0	0	0	7:30 AM	0	0	1	1	2
7:35 AM	3	0	2	0	5	7:35 AM	0	0	0	0	0	7:35 AM	0	0	0	0	0
7:40 AM	8	0	3	0	11	7:40 AM	0	0	0	0	0	7:40 AM	0	0	0	0	0
7:45 AM	7	0	5	0	12	7:45 AM	0	0	0	0	0	7:45 AM	0	0	0	0	0
7:50 AM	9	0	2	0	11	7:50 AM	0	0	0	0	0	7:50 AM	0	1	0	0	1
7:55 AM	3	0	3	0	6	7:55 AM	0	0	0	0	0	7:55 AM	0	0	0	0	0
8:00 AM	8	0	4	0	12	8:00 AM	0	0	0	0	0	8:00 AM	0	0	1	0	1
8:05 AM	6	0	3	0	9	8:05 AM	0	0	0	0	0	8:05 AM	0	0	0	0	0
8:10 AM	7	0	6	0	13	8:10 AM	0	0	1	0	1	8:10 AM	0	0	1	0	1
8:15 AM	6	0	3	0	9	8:15 AM	0	0	0	0	0	8:15 AM	0	1	0	0	1
8:20 AM	4	1	3	0	8	8:20 AM	0	0	0	0	0	8:20 AM	0	1	0	0	1
8:25 AM	3	0	3	1	7	8:25 AM	0	0	0	0	0	8:25 AM	0	0	0	0	0
8:30 AM	5	1	1	1	8	8:30 AM	0	0	0	0	0	8:30 AM	0	0	0	0	0
8:35 AM	7	0	4	0	11	8:35 AM	0	0	0	0	0	8:35 AM	0	0	0	0	0
8:40 AM	6	0	7	0	13	8:40 AM	0	0	0	0	0	8:40 AM	0	0	0	0	0
8:45 AM	9	0	6	0	15	8:45 AM	0	0	0	0	0	8:45 AM	0	1	0	0	1
8:50 AM	4	0	7	0	11	8:50 AM	0	0	0	0	0	8:50 AM	0	0	0	0	0
Count Total	124	2	87	2	215	Count Total	0	0	1	0	1	Count Total	0	4	4	2	10
Peak Hour	64	0	39	0	103	Peak Hour	0	0	0	0	0	Peak Hour	0	3	3	2	8

Data Provided by K-D-N.com 503-594-4224

N/S street	I-5 NB ramps
E/W street	OR 214
City, State	Woodburn OR
Site Notes	
Location	45.151084 - -122.87928
Start Date	Wednesday, June 30, 2021
Start Time	04:00:00 PM
Weather	
Study ID #	
Peak Hour Start	04:00:00 PM
Peak 15 Min Start	04:05:00 PM
PHF (15-Min Int)	0.94



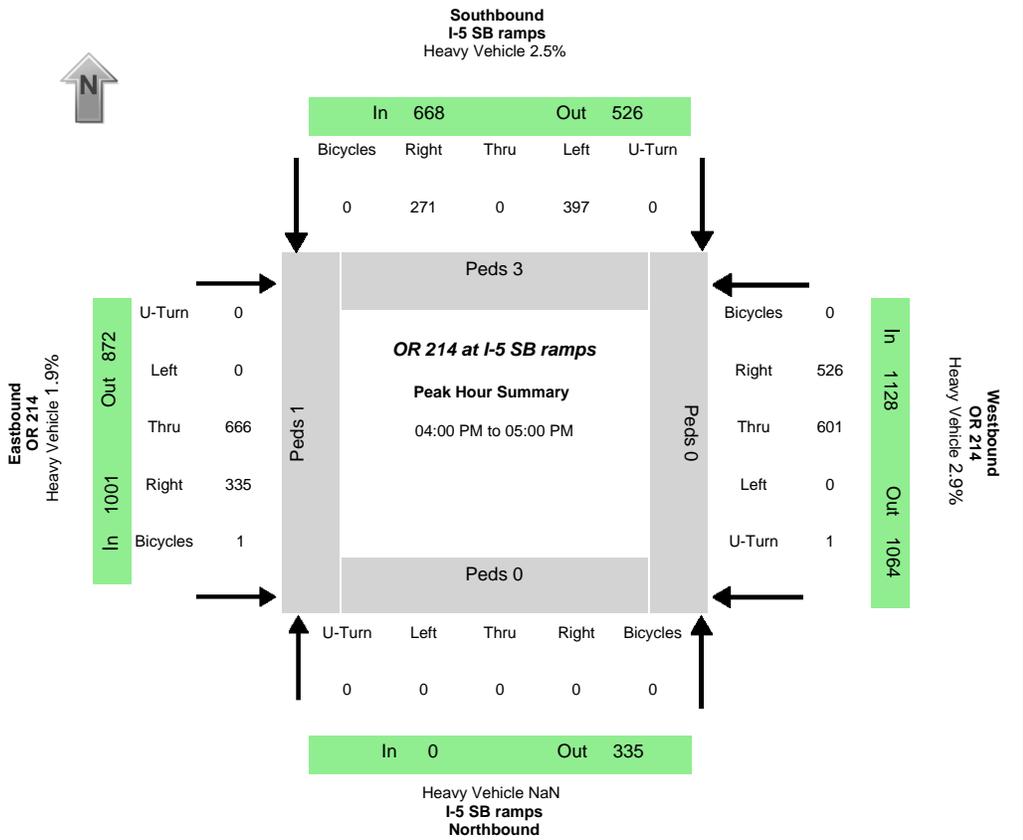
Peak-Hour Volumes (PHV)																							
Northbound				Southbound				Eastbound				Westbound				Entering				Leaving			
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	NB	SB	EB	WB	NB	SB	EB	WB
219	0	436	0	0	0	0	0	0	892	183	0	0	912	262	0	655	0	1075	1174	183	262	1131	1328
Percent Heavy Vehicles																							
4.6%	0.0%	5.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	1.3%	6.0%	0.0%	0.0%	2.4%	5.3%	0.0%	5.0%	0.0%	2.1%	3.1%	6.0%	5.3%	2.8%	2.6%

PHV - Bicycles														PHV - Pedestrians							
Northbound				Southbound				Eastbound				Westbound				in Crosswalk					
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Sum	NB	SB	EB	WB	Sum
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2

Time	Northbound I-5 NB ramps				Southbound I-5 NB ramps				Eastbound OR 214				Westbound OR 214				15 Min Sum	1 HR Sum
	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn		
04:00:00 PM	23	0	35	0	0	0	0	0	0	87	19	0	0	54	22	0	716	2884
04:05:00 PM	21	0	33	0	0	0	0	0	0	84	21	0	0	95	18	0	679	2836
04:10:00 PM	18	0	38	0	0	0	0	0	0	73	19	0	0	78	31	0	670	2805
04:15:00 PM	8	0	48	0	0	0	0	0	0	73	19	0	0	72	21	0	692	2806
04:20:00 PM	25	0	30	0	0	0	0	0	0	77	15	0	0	83	26	0	699	2781
04:25:00 PM	15	0	36	0	0	0	0	0	0	66	13	0	0	63	20	0	709	2804
04:30:00 PM	18	0	33	0	0	0	0	0	0	76	15	0	0	88	22	0	699	2784
04:35:00 PM	15	0	26	0	0	0	0	0	0	63	15	0	0	77	14	0	713	2904
04:40:00 PM	14	0	38	0	0	0	0	0	0	74	15	0	0	84	25	0	716	2884
04:45:00 PM	22	0	35	0	0	0	0	0	0	64	12	0	0	67	17	0	679	2836
04:50:00 PM	19	0	46	0	0	0	0	0	0	77	9	0	0	84	26	0	670	2805
04:55:00 PM	21	0	38	0	0	0	0	0	0	78	11	0	0	67	20	0	692	2806
05:00:00 PM	20	0	39	0	0	0	0	0	0	61	15	0	0	64	21	0	699	2781
05:05:00 PM	16	0	28	0	0	0	0	0	0	70	8	0	0	81	21	0	709	2804
05:10:00 PM	22	0	21	0	0	0	0	0	0	78	12	0	0	73	20	0	699	2784
05:15:00 PM	13	0	27	0	0	0	0	0	0	88	14	0	0	84	16	0	713	2904
05:20:00 PM	22	0	22	0	0	0	0	0	0	65	13	0	0	87	22	0	699	2781
05:25:00 PM	13	0	36	0	0	0	0	0	0	69	18	0	0	80	20	0	709	2804
05:30:00 PM	18	0	45	0	0	0	0	0	0	75	15	0	0	64	15	0	699	2784
05:35:00 PM	26	0	31	0	0	0	0	0	0	64	11	0	0	90	23	0	713	2904
05:40:00 PM	15	0	25	0	0	0	0	0	0	66	10	0	0	79	14	0	686	2778
05:45:00 PM	11	0	29	0	0	0	0	0	0	71	15	0	0	58	22	0	660	2767
05:50:00 PM	11	0	34	0	0	0	0	0	0	74	7	0	0	48	15	0	604	2695
05:55:00 PM	13	0	36	0	0	0	0	0	0	60	10	0	0	58	22	0	594	2659

Data Provided by K-D-N.com 503-594-4224

N/S street	I-5 SB ramps
E/W street	OR 214
City, State	Woodburn OR
Site Notes	
Location	45.151084 - -122.882542
Start Date	Wednesday, June 30, 2021
Start Time	04:00:00 PM
Weather	
Study ID #	
Peak Hour Start	04:00:00 PM
Peak 15 Min Start	04:00:00 PM
PHF (15-Min Int)	0.92



Peak-Hour Volumes (PHV)																							
Northbound				Southbound				Eastbound				Westbound				Entering				Leaving			
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	NB	SB	EB	WB	NB	SB	EB	WB
0	0	0	0	397	0	271	0	0	666	335	0	0	601	526	1	0	668	1001	1128	335	526	872	1064
Percent Heavy Vehicles																							
0.0%	0.0%	0.0%	0.0%	2.5%	0.0%	2.6%	0.0%	0.0%	2.0%	1.8%	0.0%	0.0%	2.3%	3.6%	0.0%	NaN	2.5%	1.9%	2.9%	1.8%	3.6%	2.4%	2.2%

PHV - Bicycles														PHV - Pedestrians							
Northbound				Southbound				Eastbound				Westbound				in Crosswalk					
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Sum	NB	SB	EB	WB	Sum
0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	0	3	1	0	4

Time	Northbound I-5 SB ramps				Southbound I-5 SB ramps				Eastbound OR 214				Westbound OR 214				15 Min Sum	1 HR Sum
	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn		
04:00:00 PM	0	0	0	0	41	0	30	0	0	67	26	0	0	50	39	1		
04:05:00 PM	0	0	0	0	45	0	23	0	0	58	35	0	0	60	43	0		
04:10:00 PM	0	0	0	0	30	0	21	0	0	58	29	0	0	43	59	0	758	
04:15:00 PM	0	0	0	0	29	0	20	0	0	62	22	0	0	50	38	0	725	
04:20:00 PM	0	0	0	0	30	0	22	0	0	52	28	0	0	58	32	0	683	
04:25:00 PM	0	0	0	0	34	0	19	0	0	57	30	0	0	50	42	0	675	
04:30:00 PM	0	0	0	0	25	0	23	0	0	54	34	0	0	44	51	0	685	
04:35:00 PM	0	0	0	0	29	0	18	0	0	52	22	0	0	56	43	0	683	
04:40:00 PM	0	0	0	0	37	0	19	0	0	44	31	0	0	56	48	0	686	
04:45:00 PM	0	0	0	0	29	0	31	0	0	65	28	0	0	38	46	0	692	
04:50:00 PM	0	0	0	0	29	0	20	0	0	51	22	0	0	52	43	0	689	
04:55:00 PM	0	0	0	0	39	0	25	0	0	46	28	0	0	44	42	0	678	2797
05:00:00 PM	0	0	0	0	32	0	20	0	0	47	22	0	0	47	41	0	650	2752
05:05:00 PM	0	0	0	0	32	0	18	0	0	49	37	0	0	50	43	0	662	2717
05:10:00 PM	0	0	0	0	46	0	20	0	0	61	33	0	0	57	42	0	697	2736
05:15:00 PM	0	0	0	0	27	0	23	0	0	53	28	0	0	41	49	0	709	2736
05:20:00 PM	0	0	0	0	46	0	18	0	0	55	24	0	0	53	52	0	728	2762
05:25:00 PM	0	0	0	0	32	0	18	0	0	46	29	0	0	44	43	0	681	2742
05:30:00 PM	0	0	0	0	32	0	19	0	0	50	30	0	0	41	43	0	675	2726
05:35:00 PM	0	0	0	0	38	0	26	0	0	35	21	0	0	61	42	0	650	2729
05:40:00 PM	0	0	0	0	23	0	17	0	0	57	29	0	0	61	33	0	658	2714
05:45:00 PM	0	0	0	0	36	0	16	0	0	41	30	0	0	38	27	0	631	2665
05:50:00 PM	0	0	0	0	32	0	32	0	0	42	34	0	0	33	19	0	600	2640
05:55:00 PM	0	0	0	0	28	0	15	0	0	45	17	0	0	55	20	0	560	2596



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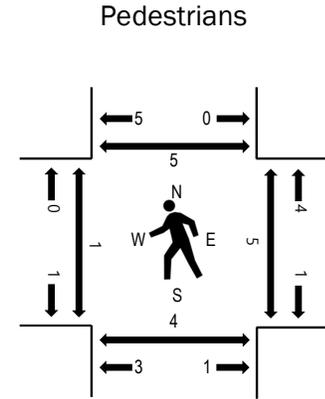
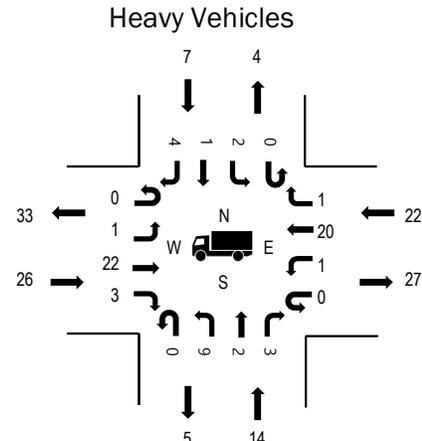
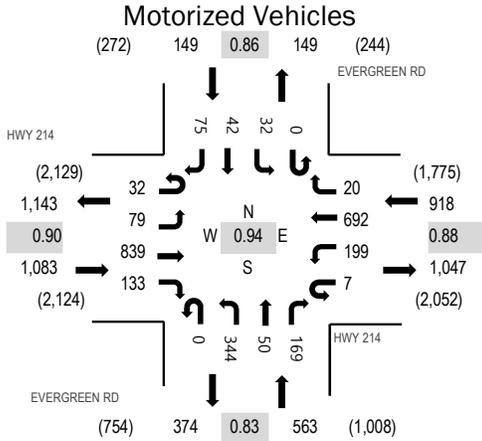
Location: 1 EVERGREEN RD & HWY 214 PM

Date: Tuesday, April 4, 2023

Peak Hour: 04:25 PM - 05:25 PM

Peak 15-Minutes: 04:30 PM - 04:45 PM

Peak Hour



Note: Total study counts contained in parentheses.

	HV%	PHF
EB	2.4%	0.90
WB	2.4%	0.88
NB	2.5%	0.83
SB	4.7%	0.86
All	2.5%	0.94

Traffic Counts - Motorized Vehicles

Interval Start Time	HWY 214 Eastbound				HWY 214 Westbound				EVERGREEN RD Northbound				EVERGREEN RD Southbound				Total	Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right		
4:00 PM	2	4	68	12	0	17	65	0	0	19	3	22	0	2	3	5	222	2,704
4:05 PM	2	10	68	12	1	18	61	1	0	24	1	16	0	0	4	6	224	2,683
4:10 PM	2	3	63	11	1	11	63	3	0	26	5	11	0	6	5	5	215	2,671
4:15 PM	3	8	67	10	0	20	60	1	0	25	1	13	0	5	5	3	221	2,672
4:20 PM	3	3	74	16	0	25	47	4	0	20	2	10	0	2	0	7	213	2,702
4:25 PM	0	5	79	17	1	18	51	0	0	28	5	15	0	3	4	8	234	2,713
4:30 PM	2	8	85	13	0	12	67	2	0	21	6	15	0	2	2	4	239	2,657
4:35 PM	1	12	59	11	1	28	63	3	0	30	1	11	0	2	3	8	233	2,603
4:40 PM	2	9	75	7	0	20	65	4	0	36	5	12	0	6	3	9	253	2,583
4:45 PM	5	4	76	7	0	18	52	1	0	30	5	19	0	3	4	3	227	2,509
4:50 PM	1	5	68	15	0	14	54	2	0	29	6	18	0	2	5	5	224	2,470
4:55 PM	1	4	57	9	1	11	46	1	0	42	3	17	0	0	4	3	199	2,456
5:00 PM	2	5	68	7	2	18	55	1	0	19	4	9	0	2	3	6	201	2,475
5:05 PM	5	5	65	5	0	16	65	2	0	25	2	11	0	4	2	5	212	
5:10 PM	4	6	65	11	0	18	54	2	0	30	2	12	0	3	3	6	216	
5:15 PM	7	8	78	20	2	10	56	1	0	28	8	17	0	1	5	10	251	
5:20 PM	2	8	64	11	0	16	64	1	0	26	3	13	0	4	4	8	224	
5:25 PM	1	4	59	14	1	18	42	1	0	14	1	14	0	3	2	4	178	
5:30 PM	3	7	65	10	1	9	38	1	0	21	0	14	0	3	7	6	185	
5:35 PM	2	2	79	11	1	14	61	1	0	21	0	13	0	1	2	5	213	
5:40 PM	5	0	61	4	2	15	46	3	0	22	4	10	0	0	4	3	179	
5:45 PM	2	5	64	14	0	13	53	0	0	23	3	6	0	0	3	2	188	
5:50 PM	5	4	73	14	0	14	52	0	0	20	3	17	0	3	4	1	210	
5:55 PM	1	3	75	13	0	21	51	1	0	28	3	10	0	1	5	6	218	
Count Total	63	132	1,655	274	14	394	1,331	36	0	607	76	325	0	58	86	128	5,179	
Peak Hour	32	79	839	133	7	199	692	20	0	344	50	169	0	32	42	75	2,713	

### Traffic Counts - Heavy Vehicles, Bicycles on Road, and Pedestrians/Bicycles on Crosswalk

Interval Start Time	Heavy Vehicles					Interval Start Time	Bicycles on Roadway					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
4:00 PM	0	1	2	0	3	4:00 PM	0	0	0	0	0	4:00 PM	0	0	0	0	0
4:05 PM	2	0	1	1	4	4:05 PM	0	0	0	0	0	4:05 PM	0	0	1	0	1
4:10 PM	2	2	1	2	7	4:10 PM	0	0	0	0	0	4:10 PM	0	0	0	0	0
4:15 PM	1	1	1	0	3	4:15 PM	0	0	0	0	0	4:15 PM	0	0	0	0	0
4:20 PM	5	1	2	0	8	4:20 PM	0	0	0	0	0	4:20 PM	0	0	0	1	1
4:25 PM	2	2	1	1	6	4:25 PM	0	0	0	0	0	4:25 PM	0	0	1	0	1
4:30 PM	4	1	7	0	12	4:30 PM	0	0	0	0	0	4:30 PM	0	0	0	0	0
4:35 PM	4	2	0	0	6	4:35 PM	0	0	0	0	0	4:35 PM	0	0	0	1	1
4:40 PM	2	0	2	1	5	4:40 PM	0	0	0	0	0	4:40 PM	0	0	2	0	2
4:45 PM	1	1	2	0	4	4:45 PM	0	0	0	0	0	4:45 PM	1	1	1	2	5
4:50 PM	3	1	1	0	5	4:50 PM	0	0	0	0	0	4:50 PM	0	0	0	0	0
4:55 PM	2	3	1	0	6	4:55 PM	0	0	0	0	0	4:55 PM	0	0	0	0	0
5:00 PM	2	0	2	0	4	5:00 PM	0	0	0	0	0	5:00 PM	0	0	0	0	0
5:05 PM	0	1	0	1	2	5:05 PM	0	0	0	0	0	5:05 PM	0	3	0	0	3
5:10 PM	2	1	1	1	5	5:10 PM	0	0	0	0	0	5:10 PM	0	0	1	0	1
5:15 PM	2	1	3	1	7	5:15 PM	0	0	0	0	0	5:15 PM	0	0	0	0	0
5:20 PM	2	1	2	2	7	5:20 PM	0	0	0	0	0	5:20 PM	0	0	0	2	2
5:25 PM	0	0	1	0	1	5:25 PM	0	0	0	0	0	5:25 PM	0	0	0	0	0
5:30 PM	2	4	0	0	6	5:30 PM	0	0	0	0	0	5:30 PM	0	0	0	0	0
5:35 PM	1	1	2	0	4	5:35 PM	0	0	0	0	0	5:35 PM	0	1	1	0	2
5:40 PM	0	1	3	1	5	5:40 PM	0	0	0	0	0	5:40 PM	0	0	0	0	0
5:45 PM	1	0	1	0	2	5:45 PM	0	0	0	0	0	5:45 PM	0	0	0	0	0
5:50 PM	4	1	0	0	5	5:50 PM	0	0	0	0	0	5:50 PM	0	0	0	0	0
5:55 PM	0	1	2	0	3	5:55 PM	0	0	0	0	0	5:55 PM	0	0	0	0	0
Count Total	44	27	38	11	120	Count Total	0	0	0	0	0	Count Total	1	5	7	6	19
Peak Hour	26	14	22	7	69	Peak Hour	0	0	0	0	0	Peak Hour	1	4	5	5	15



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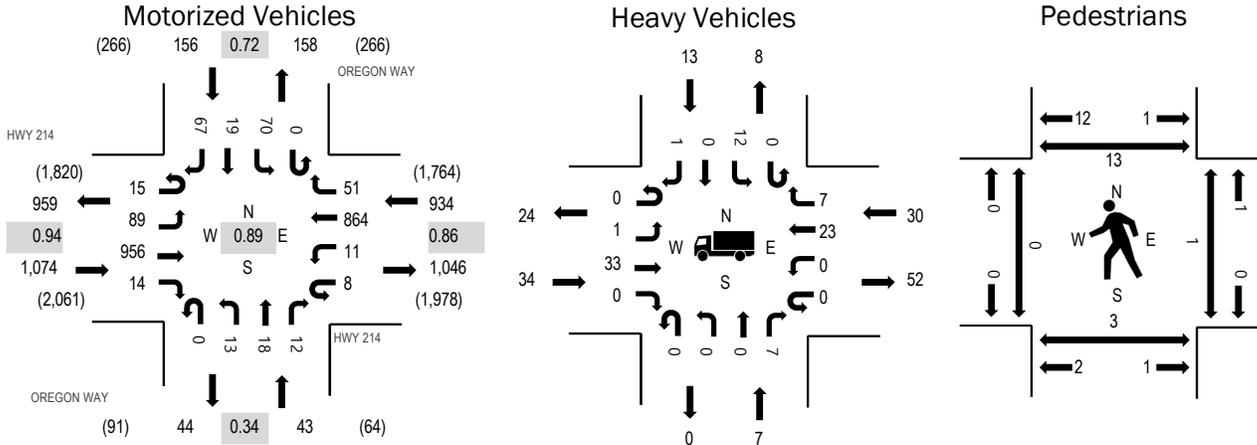
Location: 2 OREGON WAY & HWY 214 PM

Date: Tuesday, April 4, 2023

Peak Hour: 04:00 PM - 05:00 PM

Peak 15-Minutes: 04:20 PM - 04:35 PM

Peak Hour



Note: Total study counts contained in parentheses.

	HV%	PHF
EB	3.2%	0.94
WB	3.2%	0.86
NB	16.3%	0.34
SB	8.3%	0.72
All	3.8%	0.89

Traffic Counts - Motorized Vehicles

Interval Start Time	HWY 214 Eastbound				HWY 214 Westbound				OREGON WAY Northbound				OREGON WAY Southbound				Total	Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right		
4:00 PM	2	10	94	1	0	1	62	3	0	1	2	2	0	4	1	6	189	2,207
4:05 PM	2	9	80	1	0	3	75	3	0	3	3	0	0	3	4	4	190	2,169
4:10 PM	0	6	74	0	0	3	67	0	0	1	0	1	0	3	1	9	165	2,164
4:15 PM	1	4	62	1	0	0	88	5	0	1	0	0	0	4	2	3	171	2,196
4:20 PM	2	11	88	2	0	1	76	5	0	0	1	1	0	7	1	5	200	2,199
4:25 PM	1	4	84	3	1	1	59	8	0	1	2	1	0	2	1	9	177	2,153
4:30 PM	1	8	81	1	0	0	76	2	0	2	2	1	0	5	1	4	184	2,138
4:35 PM	2	6	72	1	0	0	84	4	0	2	2	0	0	5	4	7	189	2,107
4:40 PM	0	6	78	1	0	1	87	7	0	0	3	0	0	6	0	5	194	2,051
4:45 PM	2	5	81	1	0	1	63	2	0	0	3	0	0	9	1	5	173	2,038
4:50 PM	1	7	85	1	0	0	68	5	0	1	0	0	0	8	2	2	180	2,022
4:55 PM	1	12	77	1	0	0	59	2	0	1	0	0	0	5	1	7	166	2,017
5:00 PM	0	6	68	1	0	0	56	3	0	1	1	0	0	5	0	3	144	2,021
5:05 PM	1	3	69	1	0	1	87	3	0	0	0	0	0	7	3	3	178	
5:10 PM	0	12	82	0	0	0	81	4	0	0	1	0	0	2	2	4	188	
5:15 PM	1	5	76	5	0	0	60	1	0	1	3	1	0	5	0	6	164	
5:20 PM	1	4	81	1	0	0	74	5	0	2	2	1	0	3	2	9	185	
5:25 PM	1	5	78	1	0	0	66	2	0	0	1	1	0	3	2	7	167	
5:30 PM	2	3	76	1	0	1	48	4	0	0	1	1	0	5	3	0	145	
5:35 PM	1	3	69	1	0	0	61	3	0	0	3	0	0	1	3	4	149	
5:40 PM	2	7	82	1	0	1	71	1	0	0	2	0	0	5	2	2	176	
5:45 PM	0	2	68	2	0	2	66	1	0	0	1	0	0	6	2	2	152	
5:50 PM	1	10	73	3	0	3	65	3	0	1	1	0	0	4	0	3	167	
5:55 PM	0	3	75	1	0	1	65	3	0	0	2	0	0	7	1	4	162	
Count Total	25	151	1,853	32	1	20	1,664	79	0	18	36	10	0	114	39	113	4,155	
Peak Hour	15	89	956	14	8	11	864	51	0	13	18	12	0	70	19	67	2,207	

### Traffic Counts - Heavy Vehicles, Bicycles on Road, and Pedestrians/Bicycles on Crosswalk

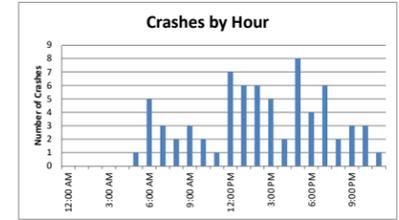
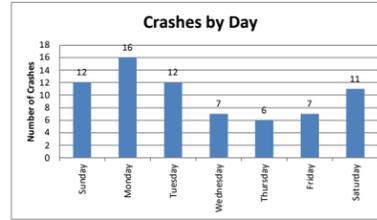
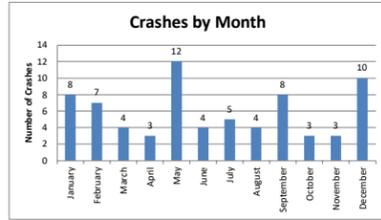
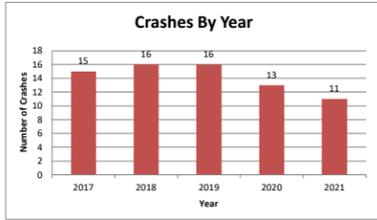
Interval Start Time	Heavy Vehicles					Interval Start Time	Bicycles on Roadway					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
4:00 PM	5	0	1	0	6	4:00 PM	0	0	0	0	0	4:00 PM	0	0	0	0	0
4:05 PM	0	0	2	0	2	4:05 PM	0	0	0	0	0	4:05 PM	0	0	0	0	0
4:10 PM	2	0	1	0	3	4:10 PM	0	0	0	0	0	4:10 PM	0	0	0	0	0
4:15 PM	3	0	2	0	5	4:15 PM	0	0	0	0	0	4:15 PM	0	0	0	0	0
4:20 PM	3	0	1	0	4	4:20 PM	0	0	0	0	0	4:20 PM	0	0	0	0	0
4:25 PM	1	0	2	1	4	4:25 PM	0	0	0	0	0	4:25 PM	0	0	0	0	0
4:30 PM	2	1	7	0	10	4:30 PM	0	0	0	0	0	4:30 PM	0	0	0	0	0
4:35 PM	5	0	1	0	6	4:35 PM	0	0	0	0	0	4:35 PM	0	1	0	0	1
4:40 PM	4	0	3	0	7	4:40 PM	0	0	0	0	0	4:40 PM	0	0	0	0	0
4:45 PM	1	0	1	0	2	4:45 PM	0	0	0	0	0	4:45 PM	0	0	0	3	3
4:50 PM	1	0	2	2	5	4:50 PM	0	0	0	0	0	4:50 PM	0	0	0	1	1
4:55 PM	6	0	2	0	8	4:55 PM	0	0	0	0	0	4:55 PM	1	0	0	1	2
5:00 PM	2	0	1	0	3	5:00 PM	0	0	0	0	0	5:00 PM	0	0	0	0	0
5:05 PM	1	0	1	0	2	5:05 PM	0	0	0	0	0	5:05 PM	0	3	0	0	3
5:10 PM	2	0	1	0	3	5:10 PM	0	0	0	0	0	5:10 PM	0	0	0	0	0
5:15 PM	0	1	2	0	3	5:15 PM	0	0	0	0	0	5:15 PM	0	0	0	0	0
5:20 PM	2	0	2	0	4	5:20 PM	0	0	0	0	0	5:20 PM	0	0	0	2	2
5:25 PM	3	0	2	0	5	5:25 PM	0	0	0	0	0	5:25 PM	0	0	0	0	0
5:30 PM	1	1	0	0	2	5:30 PM	0	0	0	0	0	5:30 PM	0	0	0	0	0
5:35 PM	2	0	2	0	4	5:35 PM	0	0	0	0	0	5:35 PM	0	1	0	0	1
5:40 PM	2	0	3	0	5	5:40 PM	0	0	0	0	0	5:40 PM	0	0	0	0	0
5:45 PM	0	0	1	0	1	5:45 PM	0	0	0	0	0	5:45 PM	0	0	0	0	0
5:50 PM	2	0	1	0	3	5:50 PM	0	0	0	0	0	5:50 PM	0	0	0	0	0
5:55 PM	1	0	1	0	2	5:55 PM	0	0	0	0	0	5:55 PM	0	0	0	0	0
Count Total	51	3	42	3	99	Count Total	0	0	0	0	0	Count Total	1	5	0	7	13
Peak Hour	34	7	30	13	84	Peak Hour	0	0	1	0	1	Peak Hour	1	3	1	13	18

Project Name:  
 Project Number:  
 Query Information: OR214\_Evergreen  
 Date Queried:  
 Data Provider: ODOT Crash Analysis Reporting Unit  
 Analyst:  
 Summary Date: 1/11/2023  
 Text File Name:  
 Filters Applied: :: County: Marion

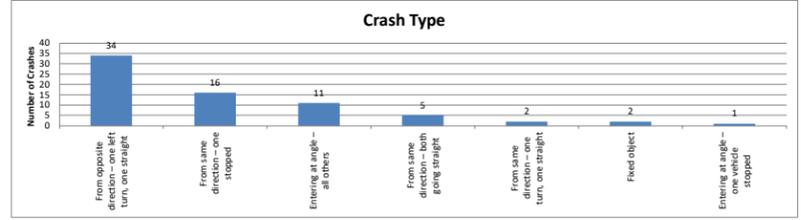
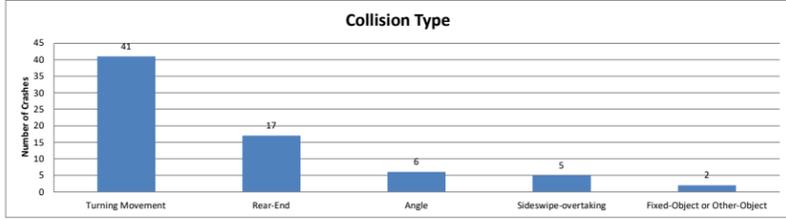
# OR 214/ Evergreen Avenue

(January 2017 through December 2021)

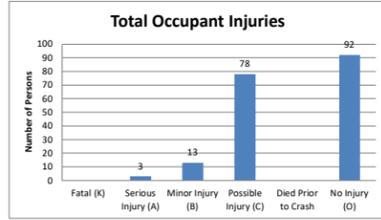
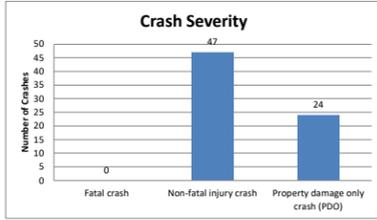
### Crash Summary by Date and Time



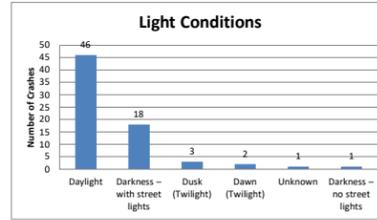
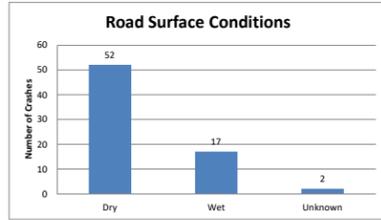
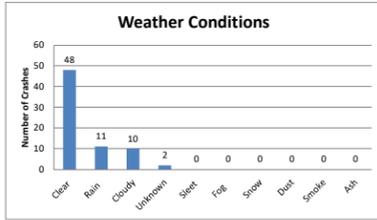
### Crash Summary by Type



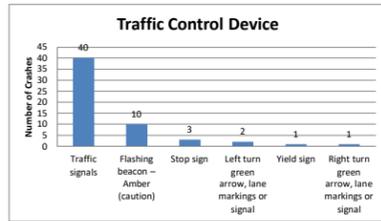
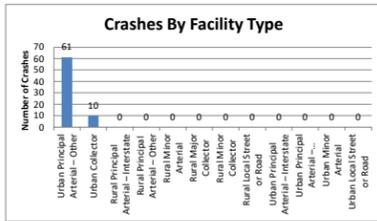
### Crash Severity



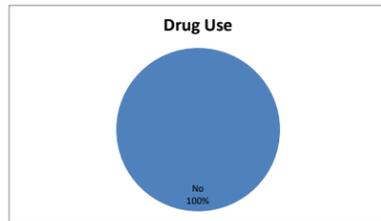
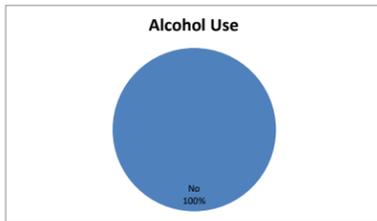
### Crash Environment Characteristics



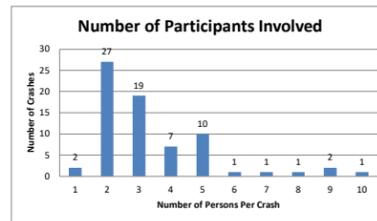
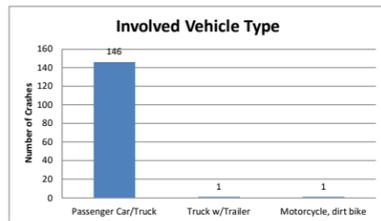
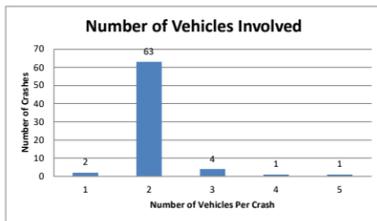
### Crash Area Characteristics



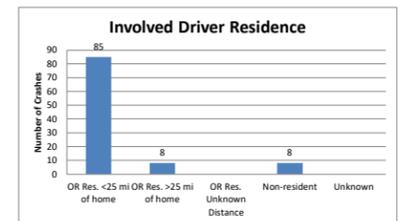
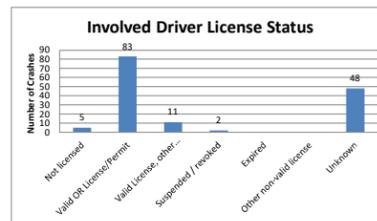
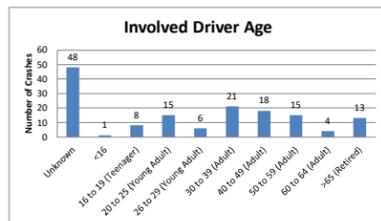
### Driving Impairments



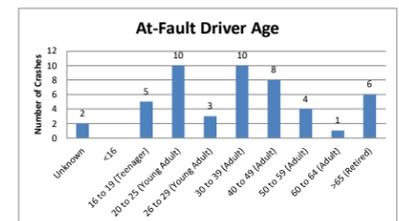
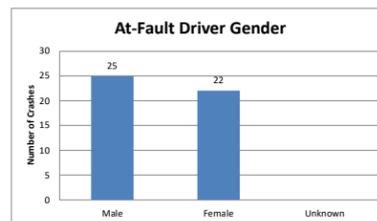
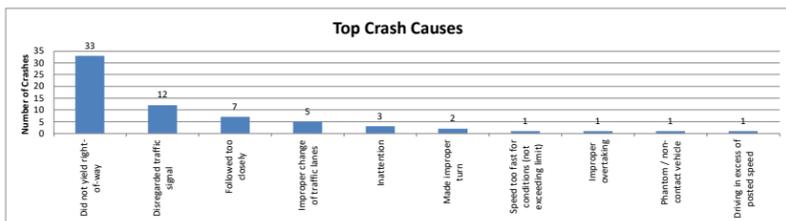
### Vehicles and Occupants



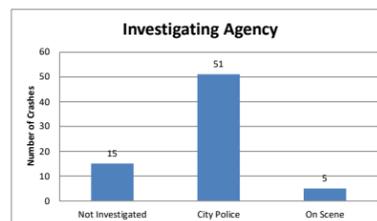
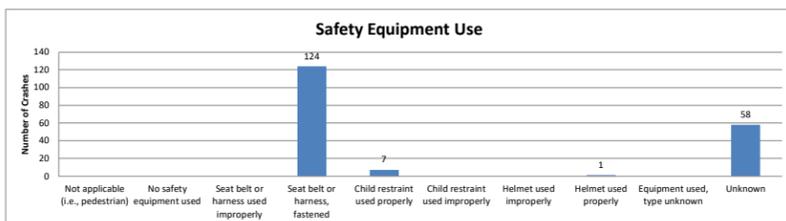
### Involved Driver Characteristics



### At-Fault Driver Characteristics



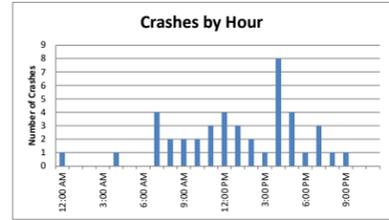
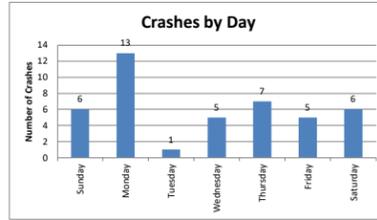
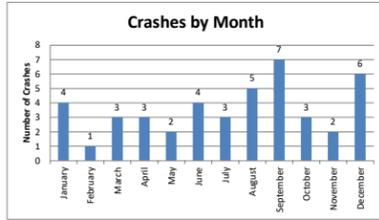
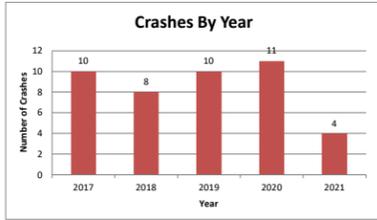
### Other Crash Characteristics



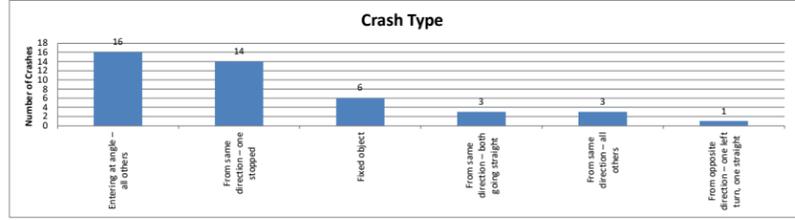
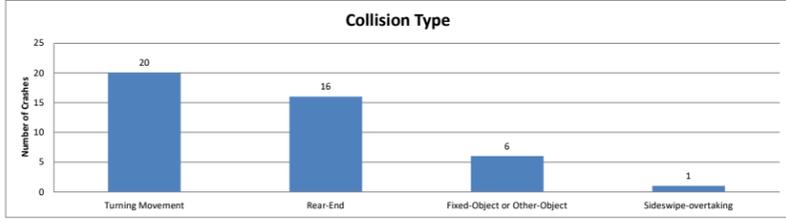
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 Date Queried:  
 Data Provider: ODOT Crash Analysis Reporting Unit  
 Analyst:  
 Summary Date: 1/11/2023  
 Text File Name:  
 Filters Applied: :: County: Marion

# I-5 Northbound Ramps/ Newberg Highway (January 2017 through December 2021)

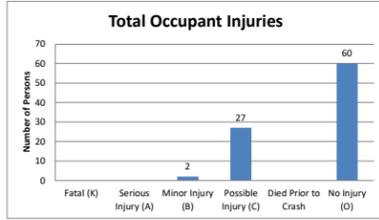
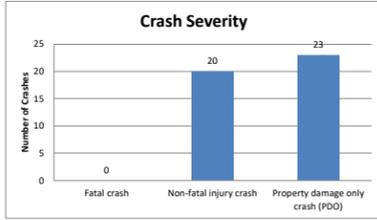
## Crash Summary by Date and Time



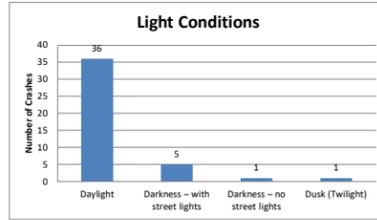
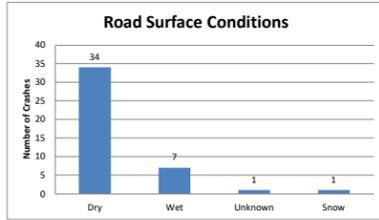
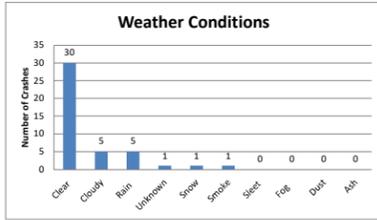
## Crash Summary by Type



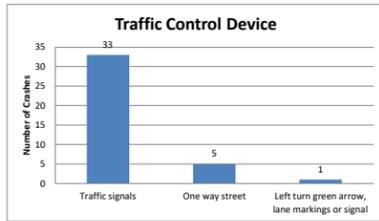
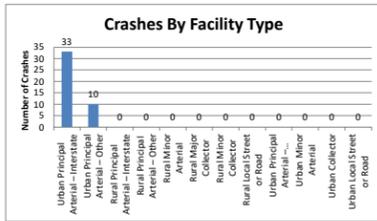
## Crash Severity



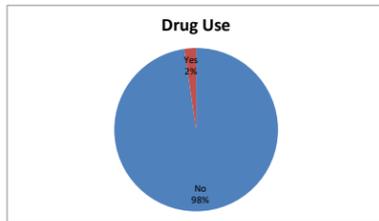
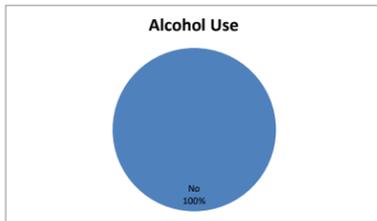
## Crash Environment Characteristics



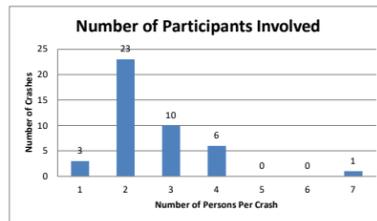
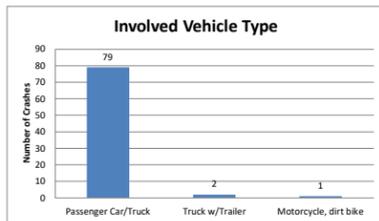
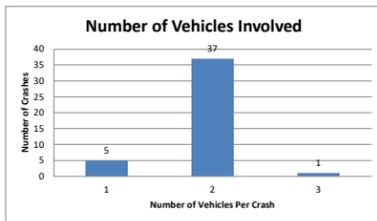
## Crash Area Characteristics



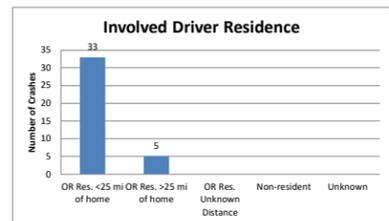
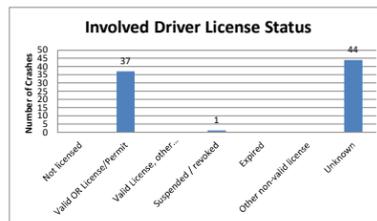
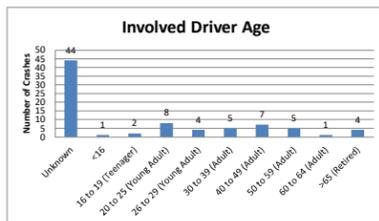
## Driving Impairments



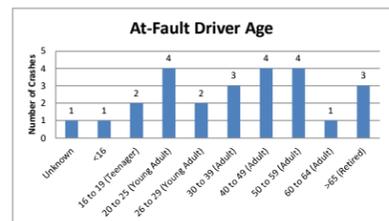
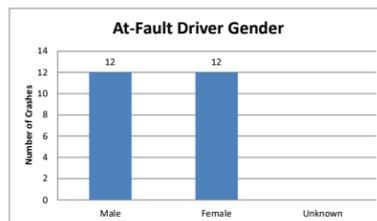
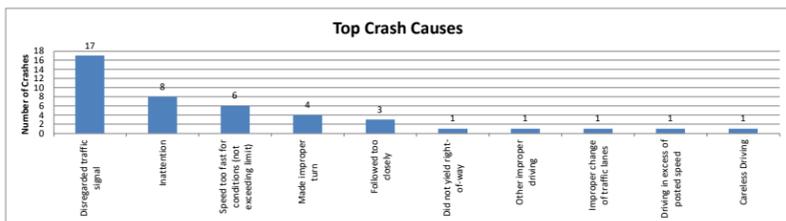
## Vehicles and Occupants



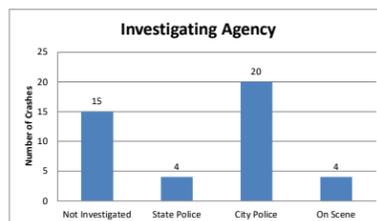
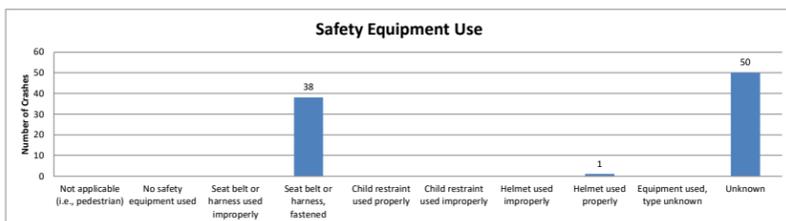
## Involved Driver Characteristics



## At-Fault Driver Characteristics



## Other Crash Characteristics

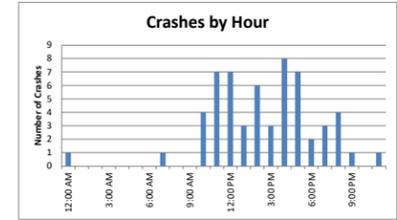
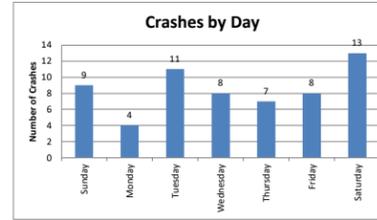
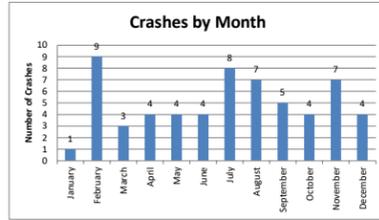
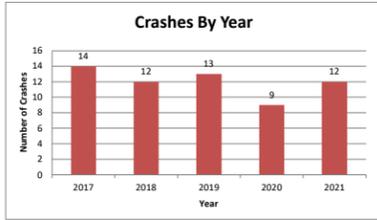


Project Name:  
 Project Number:  
 Query Information: OR214\_I5\_Southbound  
 Date Queried:  
 Data Provider: ODOT Crash Analysis Reporting Unit  
 Analyst:  
 Summary Date: 1/11/2023  
 Text File Name:  
 Filters Applied: :: County: Marion

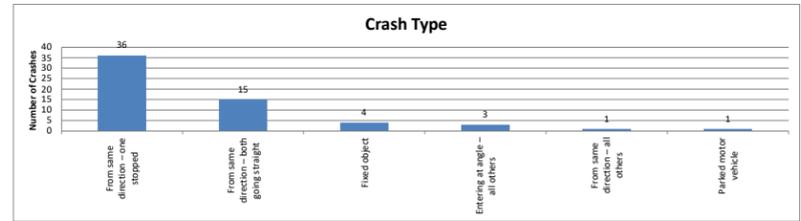
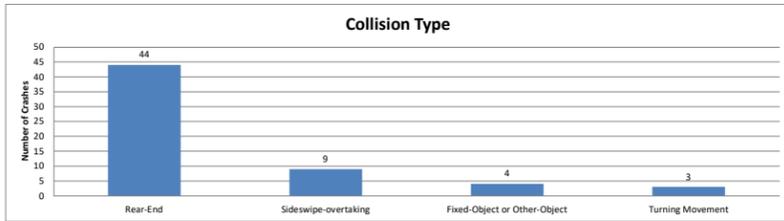
# I-5 Southbound Ramps/ Newberg Highway

(January 2017 through December 2021)

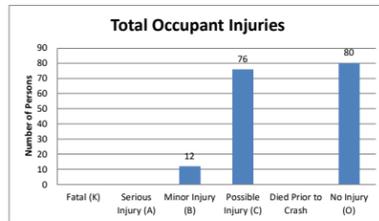
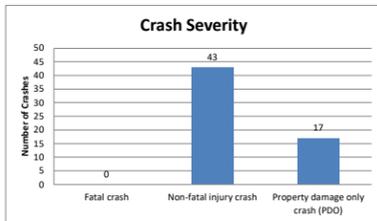
## Crash Summary by Date and Time



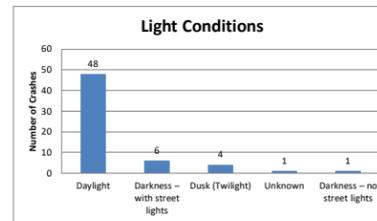
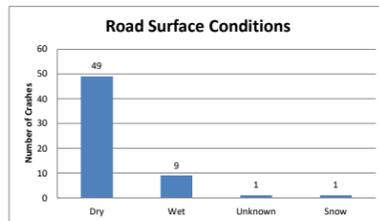
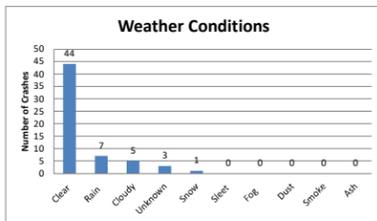
## Crash Summary by Type



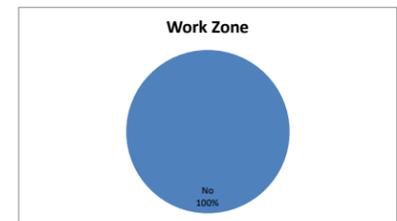
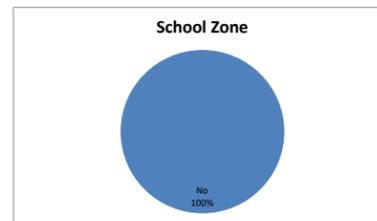
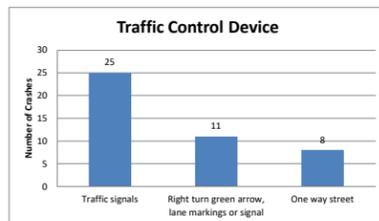
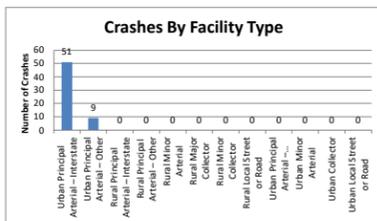
## Crash Severity



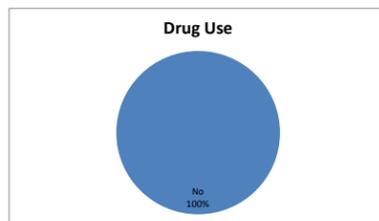
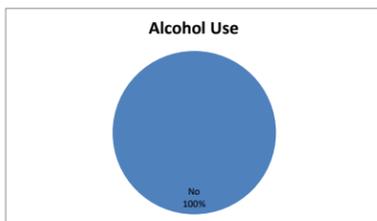
## Crash Environment Characteristics



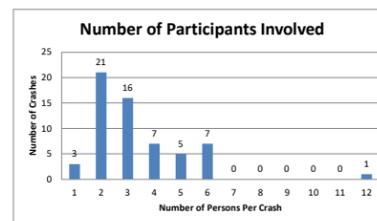
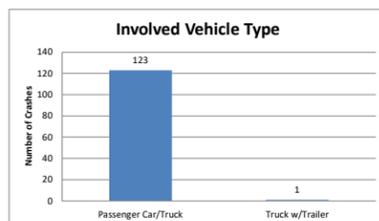
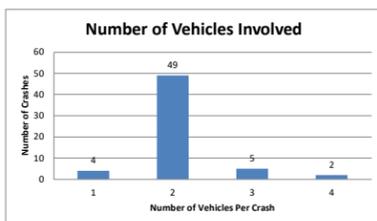
## Crash Area Characteristics



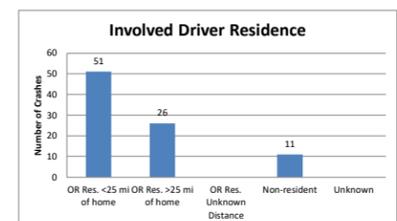
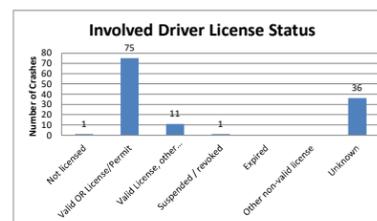
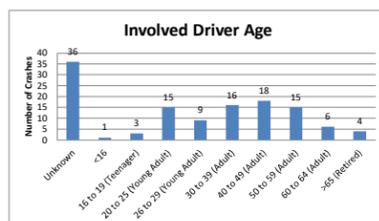
## Driving Impairments



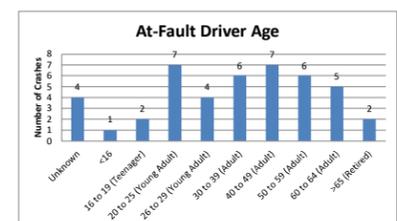
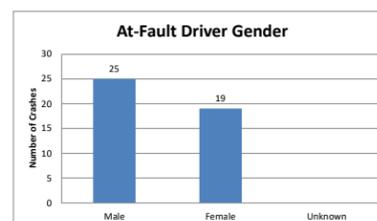
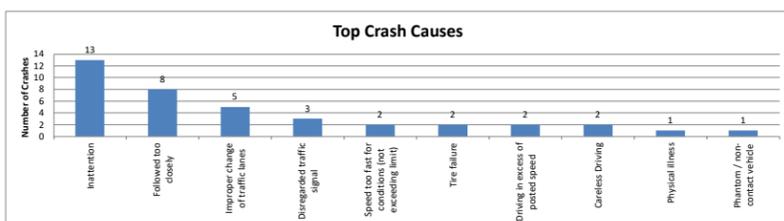
## Vehicles and Occupants



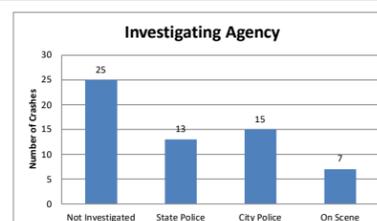
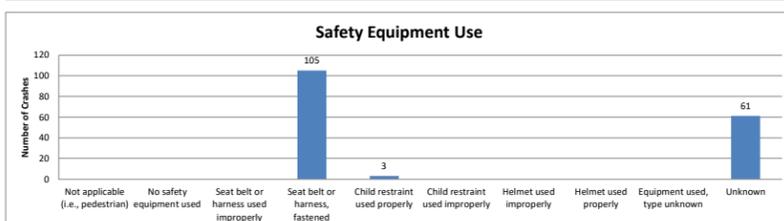
## Involved Driver Characteristics



## At-Fault Driver Characteristics



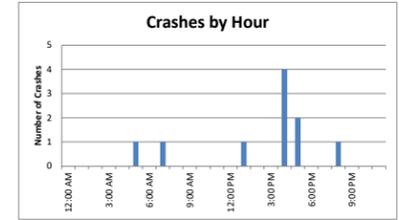
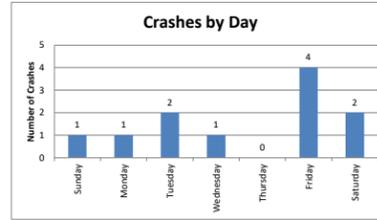
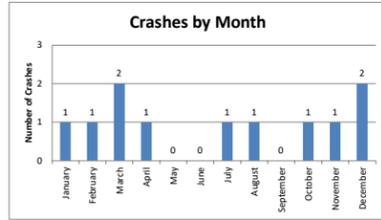
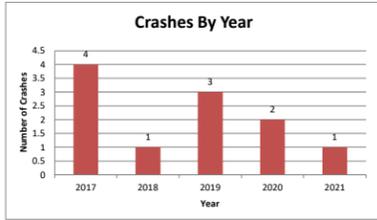
## Other Crash Characteristics



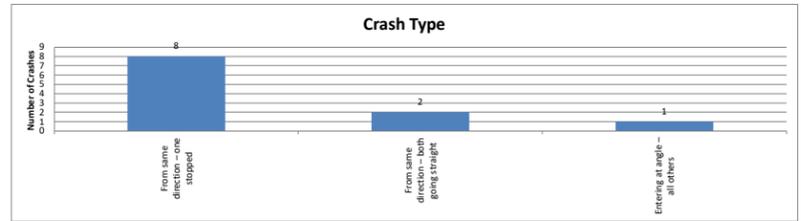
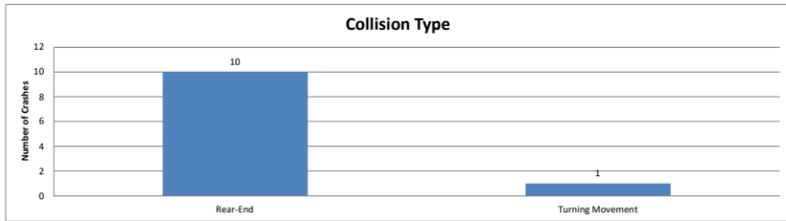
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 Query Information: OR214\_Lawson  
 Date Queried:  
 Data Provider: ODOT Crash Analysis Reporting Unit  
 Analyst:  
 Summary Date: 1/11/2023  
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# OR 214/ Lawson Avenue (January 2017 through December 2021)

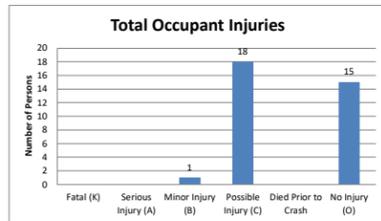
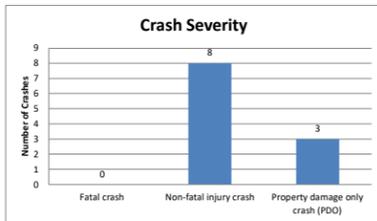
### Crash Summary by Date and Time



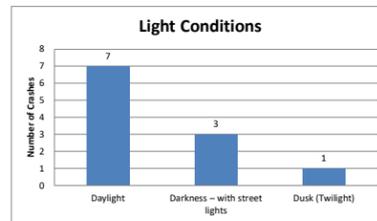
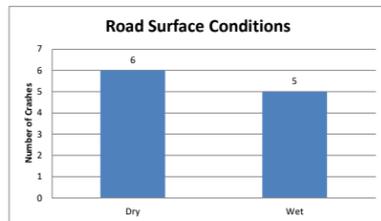
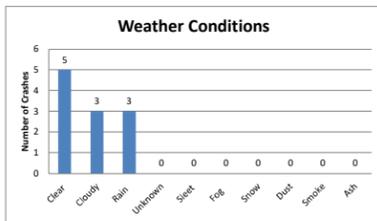
### Crash Summary by Type



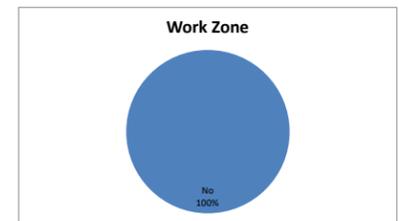
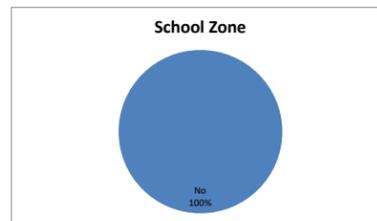
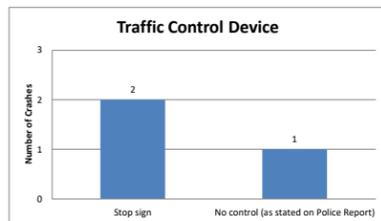
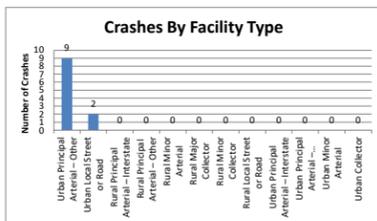
### Crash Severity



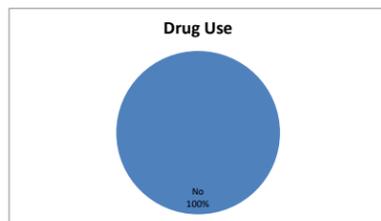
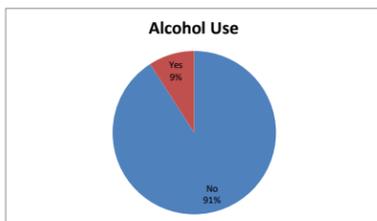
### Crash Environment Characteristics



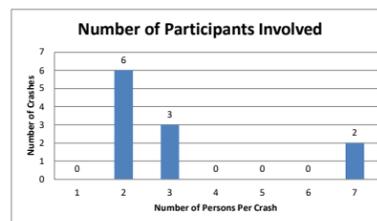
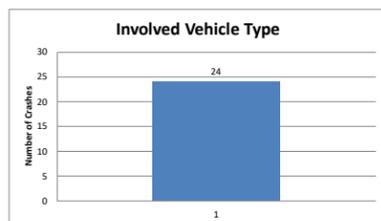
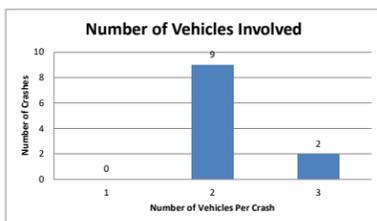
### Crash Area Characteristics



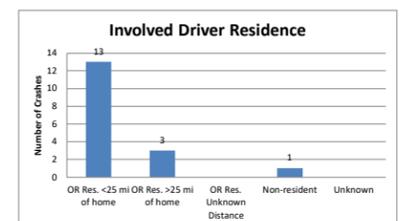
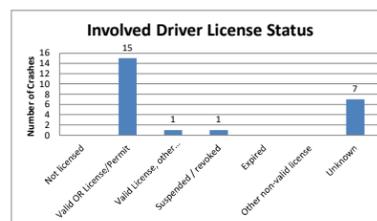
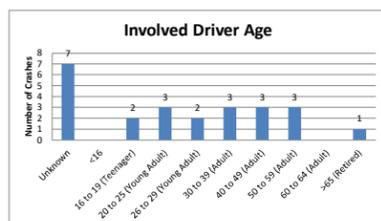
### Driving Impairments



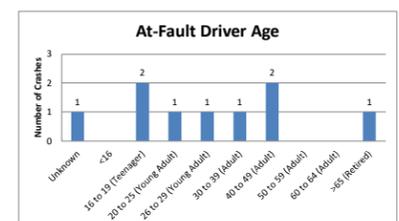
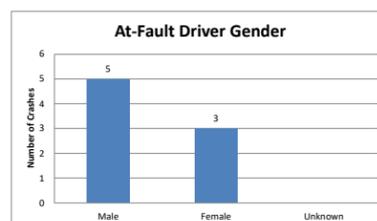
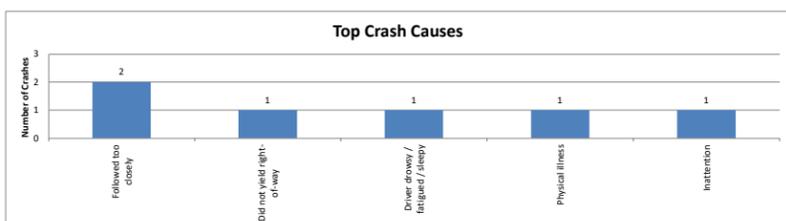
### Vehicles and Occupants



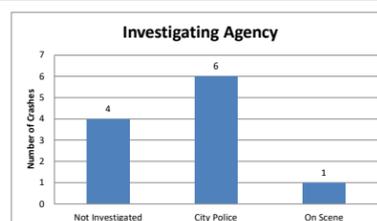
### Involved Driver Characteristics



### At-Fault Driver Characteristics



### Other Crash Characteristics

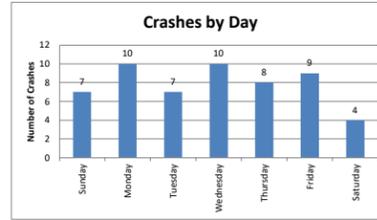
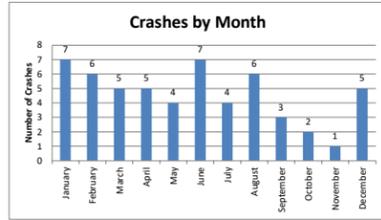
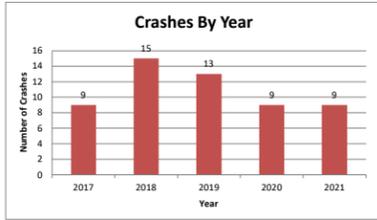


Project Name:  
 Project Number:  
 Query Information: OR214\_OregonWay  
 Date Queried:  
 Data Provider: ODOT Crash Analysis Reporting Unit  
 Analyst:  
 Summary Date: 1/11/2023  
 Text File Name:  
 Filters Applied: :: County: Marion

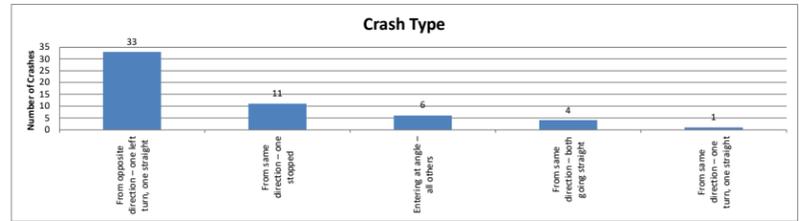
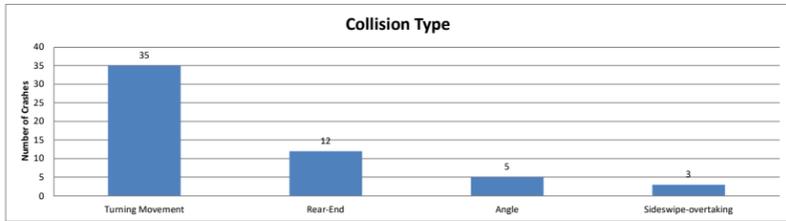
# OR 214/ Oregon Way

(January 2017 through December 2021)

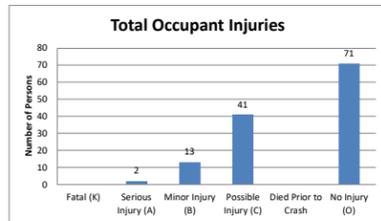
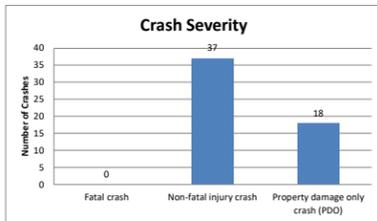
### Crash Summary by Date and Time



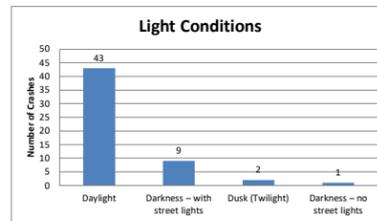
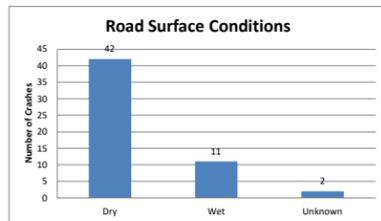
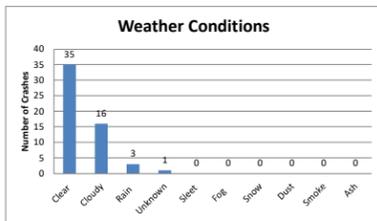
### Crash Summary by Type



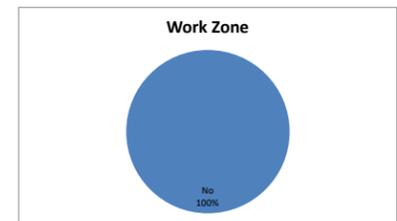
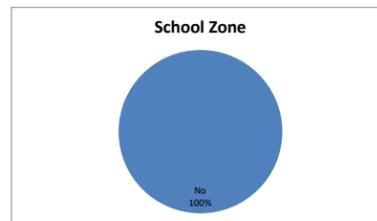
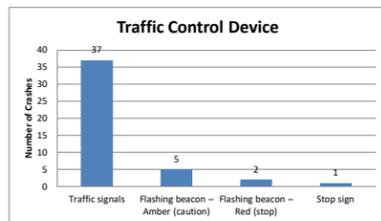
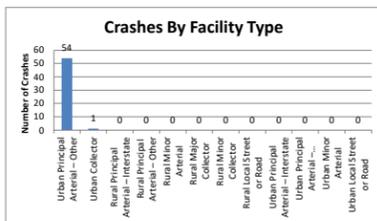
### Crash Severity



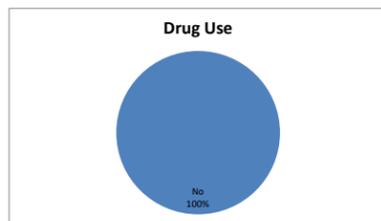
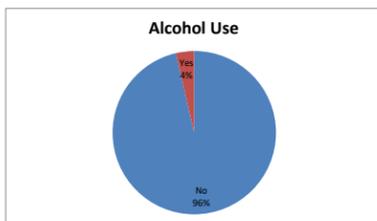
### Crash Environment Characteristics



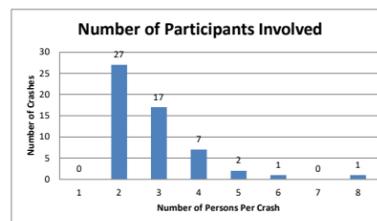
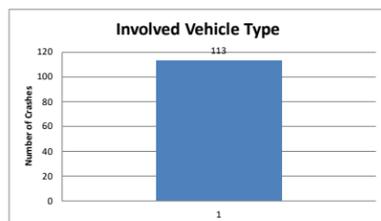
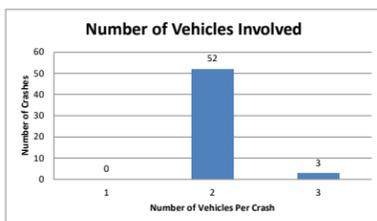
### Crash Area Characteristics



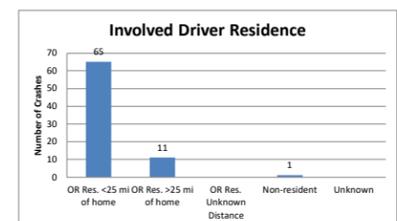
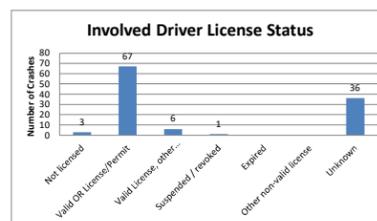
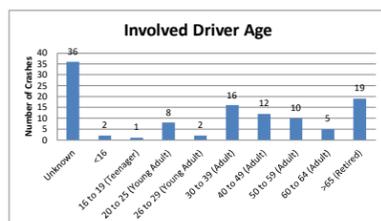
### Driving Impairments



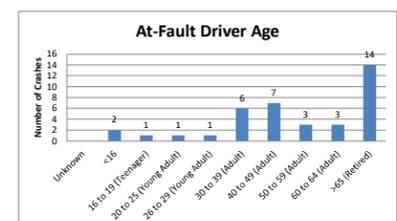
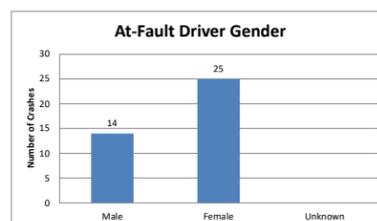
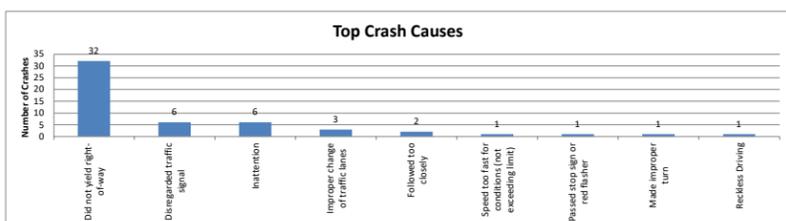
### Vehicles and Occupants



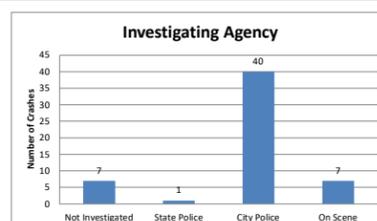
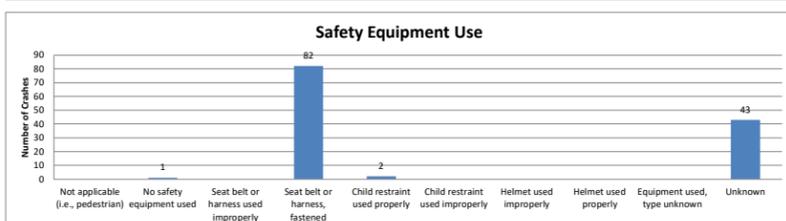
### Involved Driver Characteristics



### At-Fault Driver Characteristics



### Other Crash Characteristics



OR 214 / Evergreen Avenue (2017 → 2021)

- |   |                   |    |                   |    |                  |
|---|-------------------|----|-------------------|----|------------------|
| ① | ↖<br>↘            | ①9 | ←↖                | ④1 | →↗               |
| ② | ↗<br>↘            | ②0 | ↖←                | ④2 | ↓←               |
| ③ | ↘<br>↗            | ②1 | ←↖                | ④3 | ↘<br>↗           |
| ④ | ↘<br>↗            | ②2 | ←↖                | ④4 | straight (unk) ↗ |
| ⑤ | ↘<br>↗            | ②3 | ←↖                | ④5 | ←↖               |
| ⑥ | ↘<br>↗            | ②4 | →↘                | ④6 | ↗↗               |
| ⑦ | ↘<br>↗            | ②5 | →unk<br>↖         | ④7 | ↘<br>↗           |
| ⑧ | ↘<br>↗<br>unk     | ②6 | straight (unk) →↗ | ④8 | ↘<br>↗           |
| ⑨ | ↗↗                | ②7 | ←↖                | ④9 | ↘<br>↗           |
| ⑩ | ↘↘                | ②8 | ↘                 | ⑤0 | ↘<br>↗           |
| ⑪ | ↘<br>↗            | ②9 | ↖←                | ⑤1 | ↘<br>↗           |
| ⑫ | ↘<br>↗            | ③0 | →↘                | ⑤2 | ↘<br>↗           |
| ⑬ | ↘<br>↗            | ③1 | →↘                | ⑤3 | ↘<br>↗           |
| ⑭ | ↘<br>↗            | ③2 | ↘<br>↗            | ⑤4 | ↖←               |
| ⑮ | ↖←                | ③3 | ↖<br>↗            | ⑤5 | ↘<br>↗           |
| ⑯ | straight (unk) ↖  | ③4 | ↘<br>↗            | ⑤6 | ↘<br>↗           |
| ⑰ | straight (unk) →↗ | ③5 | ↖<br>↗            | ⑤7 | ↘<br>↗           |
| ⑱ | ←↖                | ③6 | ↖<br>↗            | ⑤8 | ↘<br>↗           |
|   |                   | ③7 | ↘                 | ⑤9 | ↘<br>↗           |
|   |                   | ③8 | ↖←                | ⑥0 | ↘<br>↗           |
|   |                   | ③9 | →↘                |    |                  |
|   |                   | ④0 | ↖←                |    |                  |

OR 214/Evergreen (continued)

(61) ←←

(62) ↖↖

(63) ←←

(64) ↖↖

(65) ↖↖

(66) ↖↖

(67) ↖↖

(68) →→

(69) ↘↘

(70) ↘↘

(71) →→

- |      |      |       |       |
|------|------|-------|-------|
| ① ↘  | ⑱ ↘  | ③⑦ →↘ | ⑤⑤ ←← |
| ② ↗← | ⑲ ↓↗ | ③⑧ ↓↘ |       |
| ③ ↗← | ⑲ ←← | ③⑨ ↘  |       |
| ④ →↘ | ⑲ →↓ | ④⑩ ←← |       |
| ⑤ ↗← | ⑲ ↓← | ④⑪ ↘  |       |
| ⑥ →↘ | ⑲ →↘ | ④⑫ ↗← |       |
| ⑦ ↘↗ | ⑲ ↘  | ④⑬ ↘  |       |
| ⑧ ↗← | ⑲ →↘ | ④⑭ ↘  |       |
| ⑨ →↘ | ⑲ ←← | ④⑮ ↗← |       |
| ⑩ ↘↗ | ⑲ →↓ | ④⑯ ←← |       |
| ⑪ ↗← | ⑲ ←← | ④⑰ ↗  |       |
| ⑫ ↘  | ⑲ ↘  | ④⑱ →↓ |       |
| ⑬ →↘ | ⑳ ↘  | ④⑲ ←← |       |
| ⑭ ↘  | ⑳ →↘ | ⑤① →↘ |       |
| ⑮ →↘ | ⑳ →↘ | ⑤② ←← |       |
| ⑯ ←← | ⑳ →↘ | ⑤③ →↘ |       |
| ⑰ →↘ | ⑳ ↘  | ⑤④ ←← |       |
| ⑱ ↗← | ⑳ →↘ | ⑤⑤ →↘ |       |

Queues  
1: I-5 SB ramps & OR 214

2023 Existing Traffic Conditions  
Weekday AM Peak Hour



Lane Group	EBT	EBR	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	435	165	450	499	227	96
v/c Ratio	0.18	0.13	0.21	0.38	0.60	0.22
Control Delay	3.1	0.2	7.2	1.6	48.0	6.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	3.1	0.2	7.2	1.6	48.0	6.9
Queue Length 50th (ft)	28	0	78	11	71	0
Queue Length 95th (ft)	46	0	58	25	97	30
Internal Link Dist (ft)	562		680			
Turn Bay Length (ft)		270		550	650	430
Base Capacity (vph)	2439	1312	2139	1300	1069	537
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.18	0.13	0.21	0.38	0.21	0.18
<b>Intersection Summary</b>						

HCM Signalized Intersection Capacity Analysis  
1: I-5 SB ramps & OR 214

2023 Existing Traffic Conditions  
Weekday AM Peak Hour

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		↑↑	↗		↑↑	↗				↖↗		↗	
Traffic Volume (vph)	0	365	139	0	378	419	0	0	0	191	0	81	
Future Volume (vph)	0	365	139	0	378	419	0	0	0	191	0	81	
Ideal Flow (vphp)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	
Total Lost time (s)		4.5	4.0		4.5	4.0				4.5		4.5	
Lane Util. Factor		0.95	1.00		0.95	1.00				0.97		1.00	
Frbp, ped/bikes		1.00	0.98		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)		3107	1312		3197	1300				3014		1340	
Flt Permitted		1.00	1.00		1.00	1.00				0.95		1.00	
Satd. Flow (perm)		3107	1312		3197	1300				3014		1340	
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)	0	435	165	0	450	499	0	0	0	227	0	96	
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	72	
Lane Group Flow (vph)	0	435	165	0	450	499	0	0	0	227	0	24	
Confl. Peds. (#/hr)										1	1		
Confl. Bikes (#/hr)			2			3							
Heavy Vehicles (%)	0%	7%	11%	0%	4%	12%	0%	0%	0%	7%	0%	11%	
Turn Type		NA	Free		NA	Free				Prot		Perm	
Protected Phases		2			6					4			
Permitted Phases			Free			Free						4 5	
Actuated Green, G (s)		78.5	100.0		66.0	100.0				12.5		25.0	
Effective Green, g (s)		78.5	100.0		66.0	100.0				12.5		25.0	
Actuated g/C Ratio		0.78	1.00		0.66	1.00				0.12		0.25	
Clearance Time (s)		4.5			4.5					4.5			
Vehicle Extension (s)		6.0			4.0					2.5			
Lane Grp Cap (vph)		2438	1312		2110	1300				376		335	
v/s Ratio Prot		0.14			0.14					c0.08			
v/s Ratio Perm			0.13			c0.38						0.02	
v/c Ratio		0.18	0.13		0.21	0.38				0.60		0.07	
Uniform Delay, d1		2.7	0.0		6.7	0.0				41.4		28.6	
Progression Factor		1.00	1.00		0.94	1.00				1.00		1.00	
Incremental Delay, d2		0.2	0.2		0.1	0.8				2.3		0.1	
Delay (s)		2.8	0.2		6.4	0.8				43.7		28.7	
Level of Service		A	A		A	A				D		C	
Approach Delay (s)		2.1			3.5			0.0			39.3		
Approach LOS		A			A			A			D		
<b>Intersection Summary</b>													
HCM 2000 Control Delay			9.2									HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio			0.46										
Actuated Cycle Length (s)			100.0									Sum of lost time (s)	13.5
Intersection Capacity Utilization			24.8%									ICU Level of Service	A
Analysis Period (min)			15										
c	Critical Lane Group												

HCM 6th Signalized Intersection Summary  
 1: I-5 SB ramps & OR 214

2023 Existing Traffic Conditions  
 Weekday AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↗		↑↑	↗				↖↖		↗
Traffic Volume (veh/h)	0	365	139	0	378	419	0	0	0	191	0	81
Future Volume (veh/h)	0	365	139	0	378	419	0	0	0	191	0	81
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	1654	1600	0	1695	1586				1654	0	1600
Adj Flow Rate, veh/h	0	435	0	0	450	0				227	0	96
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84				0.84	0.84	0.84
Percent Heavy Veh, %	0	7	11	0	4	12				7	0	11
Cap, veh/h	0	2545		0	2608					307	0	136
Arrive On Green	0.00	0.81	0.00	0.00	0.81	0.00				0.10	0.00	0.10
Sat Flow, veh/h	0	3226	1356	0	3306	1344				3057	0	1356
Grp Volume(v), veh/h	0	435	0	0	450	0				227	0	96
Grp Sat Flow(s),veh/h/ln	0	1572	1356	0	1611	1344				1528	0	1356
Q Serve(g_s), s	0.0	3.1	0.0	0.0	3.1	0.0				7.2	0.0	6.9
Cycle Q Clear(g_c), s	0.0	3.1	0.0	0.0	3.1	0.0				7.2	0.0	6.9
Prop In Lane	0.00		1.00	0.00		1.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	2545		0	2608					307	0	136
V/C Ratio(X)	0.00	0.17		0.00	0.17					0.74	0.00	0.70
Avail Cap(c_a), veh/h	0	2545		0	2608					1085	0	481
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(l)	0.00	1.00	0.00	0.00	0.94	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	2.1	0.0	0.0	2.1	0.0				43.7	0.0	43.5
Incr Delay (d2), s/veh	0.0	0.1	0.0	0.0	0.0	0.0				2.6	0.0	4.9
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	0.7	0.0	0.0	0.6	0.0				2.8	0.0	5.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	2.3	0.0	0.0	2.2	0.0				46.3	0.0	48.4
LnGrp LOS	A	A		A	A					D	A	D
Approach Vol, veh/h		435	A		450	A					323	
Approach Delay, s/veh		2.3			2.2						46.9	
Approach LOS		A			A						D	
Timer - Assigned Phs		2		4		6						
Phs Duration (G+Y+Rc), s		85.5		14.5		85.5						
Change Period (Y+Rc), s		4.5		4.5		4.5						
Max Green Setting (Gmax), s		55.5		35.5		40.5						
Max Q Clear Time (g_c+I1), s		5.1		9.2		5.1						
Green Ext Time (p_c), s		8.4		0.8		4.7						

Intersection Summary

HCM 6th Ctrl Delay	14.2
HCM 6th LOS	B

Notes

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

Queues  
2: I-5 NB ramps & OR 214

2023 Existing Traffic Conditions  
Weekday AM Peak Hour



Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	NBR
Lane Group Flow (vph)	431	192	769	634	113	262	259
v/c Ratio	0.18	0.14	0.33	0.45	0.59	0.68	0.65
Control Delay	2.8	0.2	6.9	1.3	51.7	15.5	12.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	2.8	0.2	6.9	1.3	51.7	15.5	12.8
Queue Length 50th (ft)	18	0	91	5	72	7	0
Queue Length 95th (ft)	56	0	156	4	120	84	68
Internal Link Dist (ft)	680		865			472	
Turn Bay Length (ft)							
Base Capacity (vph)	2410	1325	2343	1399	666	715	743
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.18	0.14	0.33	0.45	0.17	0.37	0.35
<b>Intersection Summary</b>							

HCM Signalized Intersection Capacity Analysis  
2: I-5 NB ramps & OR 214

2023 Existing Traffic Conditions  
Weekday AM Peak Hour

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		↑↑	↗		↑↑	↗	↗	↕	↗				
Traffic Volume (vph)	0	384	171	0	684	564	112	0	452	0	0	0	
Future Volume (vph)	0	384	171	0	684	564	112	0	452	0	0	0	
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	
Total Lost time (s)		4.5	4.0		4.5	4.0	5.4	5.4	5.4				
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)		3137	1325		3050	1399	1462	1272	1321				
Flt Permitted		1.00	1.00		1.00	1.00	0.95	1.00	1.00				
Satd. Flow (perm)		3137	1325		3050	1399	1462	1272	1321				
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	
Adj. Flow (vph)	0	431	192	0	769	634	126	0	508	0	0	0	
RTOR Reduction (vph)	0	0	0	0	0	0	0	216	225	0	0	0	
Lane Group Flow (vph)	0	431	192	0	769	634	113	46	34	0	0	0	
Confl. Peds. (#/hr)	1						1						
Confl. Bikes (#/hr)			1			3							
Heavy Vehicles (%)	0%	6%	10%	0%	9%	4%	8%	0%	7%	0%	0%	0%	
Turn Type		NA	Free		NA	Free	Perm	NA	Perm				
Protected Phases		2			6			8					
Permitted Phases			Free			Free	8		8				
Actuated Green, G (s)		76.8	100.0		76.8	100.0	13.3	13.3	13.3				
Effective Green, g (s)		76.8	100.0		76.8	100.0	13.3	13.3	13.3				
Actuated g/C Ratio		0.77	1.00		0.77	1.00	0.13	0.13	0.13				
Clearance Time (s)		4.5			4.5		5.4	5.4	5.4				
Vehicle Extension (s)		4.0			6.0		2.5	2.5	2.5				
Lane Grp Cap (vph)		2409	1325		2342	1399	194	169	175				
v/s Ratio Prot		0.14			0.25								
v/s Ratio Perm			0.14			c0.45	0.08	0.04	0.03				
v/c Ratio		0.18	0.14		0.33	0.45	0.58	0.27	0.20				
Uniform Delay, d1		3.1	0.0		3.6	0.0	40.7	39.0	38.6				
Progression Factor		0.71	1.00		1.57	1.00	1.00	1.00	1.00				
Incremental Delay, d2		0.2	0.2		0.2	0.9	3.7	0.6	0.4				
Delay (s)		2.4	0.2		5.9	0.9	44.4	39.6	39.0				
Level of Service		A	A		A	A	D	D	D				
Approach Delay (s)		1.7			3.6			40.2			0.0		
Approach LOS		A			A			D			A		
<b>Intersection Summary</b>													
HCM 2000 Control Delay			11.9		HCM 2000 Level of Service					B			
HCM 2000 Volume to Capacity ratio			0.50										
Actuated Cycle Length (s)			100.0		Sum of lost time (s)					9.9			
Intersection Capacity Utilization			40.0%		ICU Level of Service					A			
Analysis Period (min)			15										
c Critical Lane Group													

HCM 6th Edition methodology does not support turning movements with shared & exclusive lanes.

Queues  
3: Evergreen Rd & OR 214

2023 Existing Traffic Conditions  
Weekday AM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	101	811	73	143	830	224	227	163	6	46
v/c Ratio	0.60	0.55	0.11	0.68	0.51	0.75	0.75	0.40	0.05	0.37
Control Delay	56.3	23.7	3.8	59.8	19.9	52.7	52.6	7.9	44.5	30.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	56.3	23.7	3.8	59.8	19.9	52.7	52.6	7.9	44.5	30.0
Queue Length 50th (ft)	57	227	1	87	204	143	145	0	4	9
Queue Length 95th (ft)	108	335	11	#156	315	208	210	48	17	45
Internal Link Dist (ft)		865			282		429			498
Turn Bay Length (ft)	175		250	375		325		290	70	
Base Capacity (vph)	188	1472	689	228	1628	436	441	517	116	125
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.54	0.55	0.11	0.63	0.51	0.51	0.51	0.32	0.05	0.37

Intersection Summary

# 95th percentile volume exceeds capacity, queue may be longer.  
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis  
3: Evergreen Rd & OR 214

2023 Existing Traffic Conditions  
Weekday AM Peak Hour

												
Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (vph)	44	51	762	69	16	118	770	10	404	20	153	6
Future Volume (vph)	44	51	762	69	16	118	770	10	404	20	153	6
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
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	0.98		1.00	1.00		1.00	1.00	0.99	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)		1613	3107	1335		1630	3132		1504	1521	1384	1662
Flt Permitted		0.95	1.00	1.00		0.95	1.00		0.95	0.96	1.00	0.95
Satd. Flow (perm)		1613	3107	1335		1630	3132		1504	1521	1384	1662
Peak-hour factor, PHF	0.93	0.94	0.94	0.94	0.93	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	47	54	811	73	17	126	819	11	430	21	163	6
RTOR Reduction (vph)	0	0	0	40	0	0	1	0	0	0	131	0
Lane Group Flow (vph)	0	101	811	33	0	143	829	0	224	227	32	6
Confl. Peds. (#/hr)		1		1		1		1	3		2	2
Confl. Bikes (#/hr)				1								
Heavy Vehicles (%)	2%	4%	7%	9%	2%	2%	6%	0%	5%	0%	6%	0%
Turn Type	Prot	Prot	NA	Perm	Prot	Prot	NA		Split	NA	Perm	Split
Protected Phases	5	5	2		1	1	6		8	8		4
Permitted Phases				2							8	
Actuated Green, G (s)		9.1	45.6	45.6		12.8	49.3		19.9	19.9	19.9	4.2
Effective Green, g (s)		9.1	45.6	45.6		12.8	49.3		19.9	19.9	19.9	4.2
Actuated g/C Ratio		0.09	0.46	0.46		0.13	0.49		0.20	0.20	0.20	0.04
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)		146	1416	608		208	1544		299	302	275	69
v/s Ratio Prot		0.06	c0.26			c0.09	c0.26		0.15	c0.15		0.00
v/s Ratio Perm				0.02							0.02	
v/c Ratio		0.69	0.57	0.05		0.69	0.54		0.75	0.75	0.12	0.09
Uniform Delay, d1		44.1	20.0	15.2		41.7	17.5		37.7	37.7	32.9	46.1
Progression Factor		0.97	1.00	1.87		1.04	0.94		1.00	1.00	1.00	1.00
Incremental Delay, d2		12.0	1.7	0.2		8.3	1.3		9.4	9.6	0.1	0.4
Delay (s)		54.8	21.7	28.5		51.5	17.8		47.1	47.4	33.0	46.5
Level of Service		D	C	C		D	B		D	D	C	D
Approach Delay (s)			25.6			22.8			43.4			
Approach LOS			C			C			D			
<b>Intersection Summary</b>												
HCM 2000 Control Delay			29.2			HCM 2000 Level of Service			C			
HCM 2000 Volume to Capacity ratio			0.61									
Actuated Cycle Length (s)			100.0			Sum of lost time (s)			17.5			
Intersection Capacity Utilization			62.7%			ICU Level of Service			B			
Analysis Period (min)			15									
c	Critical Lane Group											

HCM Signalized Intersection Capacity Analysis  
3: Evergreen Rd & OR 214

2023 Existing Traffic Conditions  
Weekday AM Peak Hour



Movement	SBT	SBR
Lane Configurations	↔	↔
Traffic Volume (vph)	13	30
Future Volume (vph)	13	30
Ideal Flow (vphpl)	1750	1750
Total Lost time (s)	4.5	
Lane Util. Factor	1.00	
Frbp, ped/bikes	0.98	
Flpb, ped/bikes	1.00	
Frt	0.90	
Flt Protected	1.00	
Satd. Flow (prot)	1356	
Flt Permitted	1.00	
Satd. Flow (perm)	1356	
Peak-hour factor, PHF	0.94	0.94
Adj. Flow (vph)	14	32
RTOR Reduction (vph)	31	0
Lane Group Flow (vph)	15	0
Confl. Peds. (#/hr)		3
Confl. Bikes (#/hr)		
Heavy Vehicles (%)	15%	12%
Turn Type	NA	
Protected Phases	4	
Permitted Phases		
Actuated Green, G (s)	4.2	
Effective Green, g (s)	4.2	
Actuated g/C Ratio	0.04	
Clearance Time (s)	4.5	
Vehicle Extension (s)	2.5	
Lane Grp Cap (vph)	56	
v/s Ratio Prot	c0.01	
v/s Ratio Perm		
v/c Ratio	0.27	
Uniform Delay, d1	46.4	
Progression Factor	1.00	
Incremental Delay, d2	1.9	
Delay (s)	48.4	
Level of Service	D	
Approach Delay (s)	48.1	
Approach LOS	D	
<b>Intersection Summary</b>		

HCM 6th Edition cannot analyze u-turn movements.

Queues  
5: Oregon Way & OR 214

2023 Existing Traffic Conditions  
Weekday AM Peak Hour



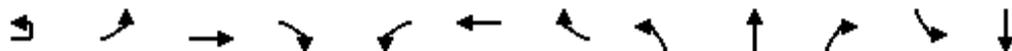
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	23	1031	2	937	10	18	8	75
v/c Ratio	0.23	0.40	0.02	0.37	0.11	0.16	0.09	0.46
Control Delay	47.5	4.2	45.5	5.5	47.6	30.0	47.0	22.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	47.5	4.2	45.5	5.5	47.6	30.0	47.0	22.8
Queue Length 50th (ft)	14	43	1	38	6	4	5	5
Queue Length 95th (ft)	m37	202	9	220	23	26	20	47
Internal Link Dist (ft)		190		686		135		364
Turn Bay Length (ft)	305		155		150		50	
Base Capacity (vph)	105	2600	93	2551	95	536	94	553
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.22	0.40	0.02	0.37	0.11	0.03	0.09	0.14

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis  
5: Oregon Way & OR 214

2023 Existing Traffic Conditions  
Weekday AM Peak Hour



Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations		↔	↕		↔	↕		↔	↕		↔	↕
Traffic Volume (vph)	10	11	944	5	2	844	18	9	6	10	7	7
Future Volume (vph)	10	11	944	5	2	844	18	9	6	10	7	7
Ideal Flow (vphp)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		4.0	4.5		4.0	4.5		4.0	4.0		4.0	4.0
Lane Util. Factor		1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00
Frbp, ped/bikes		1.00	1.00		1.00	1.00		1.00	0.99		1.00	1.00
Flpb, ped/bikes		1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00
Frt		1.00	1.00		1.00	1.00		1.00	0.91		1.00	0.87
Flt Protected		0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00
Satd. Flow (prot)		1536	3106		1662	3154		1662	1575		1662	1516
Flt Permitted		0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00
Satd. Flow (perm)		1536	3106		1662	3154		1662	1575		1662	1516
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	11	12	1026	5	2	917	20	10	7	11	8	8
RTOR Reduction (vph)	0	0	0	0	0	1	0	0	10	0	0	63
Lane Group Flow (vph)	0	23	1031	0	2	936	0	10	8	0	8	12
Confl. Peds. (#/hr)		2		3	3		2			3	3	
Heavy Vehicles (%)	2%	14%	7%	0%	0%	5%	6%	0%	0%	0%	0%	0%
Turn Type	Prot	Prot	NA		Prot	NA		Prot	NA		Prot	NA
Protected Phases	5	5	2		1	6		3	8		7	4
Permitted Phases												
Actuated Green, G (s)		3.2	75.7		1.1	73.6		1.1	5.6		1.1	5.6
Effective Green, g (s)		3.2	75.7		1.1	73.6		1.1	5.6		1.1	5.6
Actuated g/C Ratio		0.03	0.76		0.01	0.74		0.01	0.06		0.01	0.06
Clearance Time (s)		4.0	4.5		4.0	4.5		4.0	4.0		4.0	4.0
Vehicle Extension (s)		2.5	6.2		2.5	6.2		2.5	2.5		2.5	2.5
Lane Grp Cap (vph)		49	2351		18	2321		18	88		18	84
v/s Ratio Prot		c0.01	c0.33		0.00	0.30		c0.01	0.00		0.00	c0.01
v/s Ratio Perm												
v/c Ratio		0.47	0.44		0.11	0.40		0.56	0.09		0.44	0.14
Uniform Delay, d1		47.6	4.4		49.0	5.0		49.2	44.8		49.1	44.9
Progression Factor		0.97	0.94		1.00	1.00		1.00	1.00		1.00	1.00
Incremental Delay, d2		5.1	0.6		2.0	0.5		26.5	0.3		12.2	0.6
Delay (s)		51.1	4.7		51.0	5.5		75.7	45.1		61.4	45.5
Level of Service		D	A		D	A		E	D		E	D
Approach Delay (s)			5.8			5.6			56.0			47.0
Approach LOS			A			A			E			D
<b>Intersection Summary</b>												
HCM 2000 Control Delay			8.0									A
HCM 2000 Volume to Capacity ratio			0.43									
Actuated Cycle Length (s)			100.0						16.5			
Intersection Capacity Utilization			44.6%									A
Analysis Period (min)			15									
c Critical Lane Group												

Movement	SBR
Lane Configurations	
Traffic Volume (vph)	62
Future Volume (vph)	62
Ideal Flow (vphpl)	1750
Total Lost time (s)	
Lane Util. Factor	
Frbp, ped/bikes	
Flpb, ped/bikes	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.92
Adj. Flow (vph)	67
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Confl. Peds. (#/hr)	
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 Edition cannot analyze u-turn movements.

Queues  
1: I-5 SB ramps & OR 214

2023 Existing Traffic Conditions  
Weekday PM Peak Hour



Lane Group	EBT	EBR	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	747	372	666	584	445	300
v/c Ratio	0.32	0.26	0.36	0.41	0.74	0.52
Control Delay	6.0	0.4	14.3	1.0	45.5	16.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	6.0	0.4	14.3	1.0	45.5	16.6
Queue Length 50th (ft)	78	0	135	0	138	78
Queue Length 95th (ft)	127	0	147	12	180	147
Internal Link Dist (ft)	562		680			
Turn Bay Length (ft)		270		550	650	430
Base Capacity (vph)	2340	1426	1867	1430	1048	600
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.32	0.26	0.36	0.41	0.42	0.50
<b>Intersection Summary</b>						

HCM Signalized Intersection Capacity Analysis  
1: I-5 SB ramps & OR 214

2023 Existing Traffic Conditions  
Weekday PM Peak Hour

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		↑↑	↗		↑↑	↗				↖↗		↗	
Traffic Volume (vph)	0	687	342	0	613	537	0	0	0	409	0	276	
Future Volume (vph)	0	687	342	0	613	537	0	0	0	409	0	276	
Ideal Flow (vphp)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	
Total Lost time (s)		4.5	4.0		4.5	4.0				4.5		4.5	
Lane Util. Factor		0.95	1.00		0.95	1.00				0.97		1.00	
Frbp, ped/bikes		1.00	0.98		1.00	1.00				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)		3260	1426		3260	1430				3131		1444	
Flt Permitted		1.00	1.00		1.00	1.00				0.95		1.00	
Satd. Flow (perm)		3260	1426		3260	1430				3131		1444	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	
Adj. Flow (vph)	0	747	372	0	666	584	0	0	0	445	0	300	
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	91	
Lane Group Flow (vph)	0	747	372	0	666	584	0	0	0	445	0	209	
Confl. Peds. (#/hr)			3	3						1	1		
Confl. Bikes (#/hr)			1										
Heavy Vehicles (%)	0%	2%	2%	0%	2%	4%	0%	0%	0%	3%	0%	3%	
Turn Type		NA	Free		NA	Free				Prot		Perm	
Protected Phases		2			6					4			
Permitted Phases			Free			Free						4 5	
Actuated Green, G (s)		71.8	100.0		57.3	100.0				19.2		33.7	
Effective Green, g (s)		71.8	100.0		57.3	100.0				19.2		33.7	
Actuated g/C Ratio		0.72	1.00		0.57	1.00				0.19		0.34	
Clearance Time (s)		4.5			4.5					4.5			
Vehicle Extension (s)		6.0			4.0					2.5			
Lane Grp Cap (vph)		2340	1426		1867	1430				601		486	
v/s Ratio Prot		0.23			0.20					c0.14			
v/s Ratio Perm			0.26			c0.41						0.14	
v/c Ratio		0.32	0.26		0.36	0.41				0.74		0.43	
Uniform Delay, d1		5.2	0.0		11.5	0.0				38.1		25.7	
Progression Factor		1.00	1.00		1.13	1.00				1.00		1.00	
Incremental Delay, d2		0.4	0.4		0.1	0.8				4.6		0.4	
Delay (s)		5.5	0.4		13.1	0.8				42.7		26.1	
Level of Service		A	A		B	A				D		C	
Approach Delay (s)		3.8			7.4			0.0			36.0		
Approach LOS		A			A			A			D		
<b>Intersection Summary</b>													
HCM 2000 Control Delay			13.0									HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.52										
Actuated Cycle Length (s)			100.0									Sum of lost time (s)	13.5
Intersection Capacity Utilization			44.5%									ICU Level of Service	A
Analysis Period (min)			15										
c	Critical Lane Group												

HCM 6th Signalized Intersection Summary  
 1: I-5 SB ramps & OR 214

2023 Existing Traffic Conditions  
 Weekday PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↗		↑↑	↗				↖↖		↗
Traffic Volume (veh/h)	0	687	342	0	613	537	0	0	0	409	0	276
Future Volume (veh/h)	0	687	342	0	613	537	0	0	0	409	0	276
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	1723	1723	0	1723	1695				1709	0	1709
Adj Flow Rate, veh/h	0	747	0	0	666	0				445	0	300
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92				0.92	0.92	0.92
Percent Heavy Veh, %	0	2	2	0	2	4				3	0	3
Cap, veh/h	0	2204		0	2204					748	0	343
Arrive On Green	0.00	0.67	0.00	0.00	0.67	0.00				0.24	0.00	0.24
Sat Flow, veh/h	0	3359	1460	0	3359	1437				3158	0	1448
Grp Volume(v), veh/h	0	747	0	0	666	0				445	0	300
Grp Sat Flow(s),veh/h/ln	0	1637	1460	0	1637	1437				1579	0	1448
Q Serve(g_s), s	0.0	9.7	0.0	0.0	8.3	0.0				12.5	0.0	19.9
Cycle Q Clear(g_c), s	0.0	9.7	0.0	0.0	8.3	0.0				12.5	0.0	19.9
Prop In Lane	0.00		1.00	0.00		1.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	2204		0	2204					748	0	343
V/C Ratio(X)	0.00	0.34		0.00	0.30					0.60	0.00	0.87
Avail Cap(c_a), veh/h	0	2204		0	2204					1058	0	485
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	0.00	0.00	0.87	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	6.9	0.0	0.0	6.7	0.0				33.9	0.0	36.7
Incr Delay (d2), s/veh	0.0	0.4	0.0	0.0	0.1	0.0				0.6	0.0	11.0
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	3.1	0.0	0.0	2.6	0.0				4.8	0.0	15.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	7.3	0.0	0.0	6.8	0.0				34.5	0.0	47.7
LnGrp LOS	A	A		A	A					C	A	D
Approach Vol, veh/h		747	A		666	A					745	
Approach Delay, s/veh		7.3			6.8						39.8	
Approach LOS		A			A						D	
Timer - Assigned Phs		2		4		6						
Phs Duration (G+Y+Rc), s		71.8		28.2		71.8						
Change Period (Y+Rc), s		4.5		4.5		4.5						
Max Green Setting (Gmax), s		57.5		33.5		42.5						
Max Q Clear Time (g_c+I1), s		11.7		21.9		10.3						
Green Ext Time (p_c), s		15.9		1.7		7.3						

Intersection Summary

HCM 6th Ctrl Delay	18.4
HCM 6th LOS	B

Notes

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

Queues  
2: I-5 NB ramps & OR 214

2023 Existing Traffic Conditions  
Weekday PM Peak Hour



Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	NBR
Lane Group Flow (vph)	968	199	986	284	213	251	246
v/c Ratio	0.42	0.14	0.43	0.20	0.70	0.74	0.71
Control Delay	7.0	0.2	6.2	0.3	48.7	35.8	33.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	7.0	0.2	6.2	0.3	48.7	35.8	33.2
Queue Length 50th (ft)	74	0	58	0	133	104	95
Queue Length 95th (ft)	271	0	192	m0	191	179	165
Internal Link Dist (ft)	680		865			472	
Turn Bay Length (ft)							
Base Capacity (vph)	2302	1403	2280	1387	565	548	564
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.42	0.14	0.43	0.20	0.38	0.46	0.44

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis  
2: I-5 NB ramps & OR 214

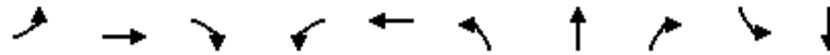
2023 Existing Traffic Conditions  
Weekday PM Peak Hour

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		↑↑	↗		↑↑	↗	↗	↕	↗				
Traffic Volume (vph)	0	910	187	0	927	267	223	0	445	0	0	0	
Future Volume (vph)	0	910	187	0	927	267	223	0	445	0	0	0	
Ideal Flow (vphp)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	
Total Lost time (s)		4.5	4.0		4.5	4.0	5.4	5.4	5.4				
Lane Util. Factor		0.95	1.00		0.95	1.00	0.95	0.91	0.95				
Frbp, ped/bikes		1.00	1.00		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)		3292	1403		3260	1387	1504	1305	1346				
Flt Permitted		1.00	1.00		1.00	1.00	0.95	1.00	1.00				
Satd. Flow (perm)		3292	1403		3260	1387	1504	1305	1346				
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	
Adj. Flow (vph)	0	968	199	0	986	284	237	0	473	0	0	0	
RTOR Reduction (vph)	0	0	0	0	0	0	0	75	75	0	0	0	
Lane Group Flow (vph)	0	968	199	0	986	284	213	176	171	0	0	0	
Confl. Peds. (#/hr)	2					2							
Heavy Vehicles (%)	0%	1%	6%	0%	2%	5%	5%	0%	5%	0%	0%	0%	
Turn Type		NA	Free		NA	Free	Perm	NA	Perm				
Protected Phases		2			6			8					
Permitted Phases			Free			Free	8		8				
Actuated Green, G (s)		69.9	100.0		69.9	100.0	20.2	20.2	20.2				
Effective Green, g (s)		69.9	100.0		69.9	100.0	20.2	20.2	20.2				
Actuated g/C Ratio		0.70	1.00		0.70	1.00	0.20	0.20	0.20				
Clearance Time (s)		4.5			4.5		5.4	5.4	5.4				
Vehicle Extension (s)		4.0			6.0		2.5	2.5	2.5				
Lane Grp Cap (vph)		2301	1403		2278	1387	303	263	271				
v/s Ratio Prot		0.29			c0.30								
v/s Ratio Perm			0.14			0.20	c0.14	0.13	0.13				
v/c Ratio		0.42	0.14		0.43	0.20	0.70	0.67	0.63				
Uniform Delay, d1		6.4	0.0		6.5	0.0	37.1	36.8	36.5				
Progression Factor		0.87	1.00		0.76	1.00	1.00	1.00	1.00				
Incremental Delay, d2		0.5	0.2		0.3	0.3	6.7	5.7	4.1				
Delay (s)		6.1	0.2		5.2	0.3	43.8	42.5	40.6				
Level of Service		A	A		A	A	D	D	D				
Approach Delay (s)		5.1			4.1			42.3			0.0		
Approach LOS		A			A			D			A		
<b>Intersection Summary</b>													
HCM 2000 Control Delay			13.1		HCM 2000 Level of Service					B			
HCM 2000 Volume to Capacity ratio			0.49										
Actuated Cycle Length (s)			100.0		Sum of lost time (s)					9.9			
Intersection Capacity Utilization			55.5%		ICU Level of Service					B			
Analysis Period (min)			15										
c Critical Lane Group													

HCM 6th Edition methodology does not support turning movements with shared & exclusive lanes.

Queues  
3: Evergreen Rd & OR 214

2023 Existing Traffic Conditions  
Weekday PM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	107	984	151	233	856	199	202	192	35	116
v/c Ratio	0.59	0.81	0.24	0.72	0.57	0.72	0.72	0.46	0.32	0.72
Control Delay	60.9	31.8	3.6	61.7	14.1	52.7	52.8	8.5	52.5	48.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	60.9	31.8	3.6	61.7	14.1	52.7	52.8	8.5	52.5	48.5
Queue Length 50th (ft)	68	332	16	118	212	127	129	0	22	35
Queue Length 95th (ft)	118	#447	16	#269	102	189	192	53	54	#120
Internal Link Dist (ft)		865			282		429			498
Turn Bay Length (ft)	175		250	375		325		290	70	
Base Capacity (vph)	187	1221	632	323	1491	444	448	551	109	162
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.57	0.81	0.24	0.72	0.57	0.45	0.45	0.35	0.32	0.72

Intersection Summary

# 95th percentile volume exceeds capacity, queue may be longer.  
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis  
3: Evergreen Rd & OR 214

2023 Existing Traffic Conditions  
Weekday PM Peak Hour

												
Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (vph)	24	75	915	140	5	212	774	22	330	43	179	33
Future Volume (vph)	24	75	915	140	5	212	774	22	330	43	179	33
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
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)		1642	3228	1422		1646	3210		1533	1547	1432	1568
Flt Permitted		0.95	1.00	1.00		0.95	1.00		0.95	0.96	1.00	0.95
Satd. Flow (perm)		1642	3228	1422		1646	3210		1533	1547	1432	1568
Peak-hour factor, PHF	0.92	0.93	0.93	0.93	0.92	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	26	81	984	151	5	228	832	24	355	46	192	35
RTOR Reduction (vph)	0	0	0	94	0	0	2	0	0	0	157	0
Lane Group Flow (vph)	0	107	984	57	0	233	854	0	199	202	35	35
Confl. Peds. (#/hr)		5		4		4		5	1		5	5
Confl. Bikes (#/hr)												1
Heavy Vehicles (%)	2%	1%	3%	2%	2%	1%	3%	5%	3%	5%	2%	6%
Turn Type	Prot	Prot	NA	Perm	Prot	Prot	NA		Split	NA	Perm	Split
Protected Phases	5	5	2		1	1	6		8	8		4
Permitted Phases				2								8
Actuated Green, G (s)		11.1	37.9	37.9		19.6	46.4		18.0	18.0	18.0	7.0
Effective Green, g (s)		11.1	37.9	37.9		19.6	46.4		18.0	18.0	18.0	7.0
Actuated g/C Ratio		0.11	0.38	0.38		0.20	0.46		0.18	0.18	0.18	0.07
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)		182	1223	538		322	1489		275	278	257	109
v/s Ratio Prot		0.07	c0.30			c0.14	0.27		0.13	c0.13		0.02
v/s Ratio Perm				0.04								0.02
v/c Ratio		0.59	0.80	0.11		0.72	0.57		0.72	0.73	0.13	0.32
Uniform Delay, d1		42.3	27.7	20.1		37.7	19.6		38.7	38.7	34.5	44.2
Progression Factor		1.16	0.86	0.65		1.31	0.59		1.00	1.00	1.00	1.00
Incremental Delay, d2		3.7	5.3	0.4		6.8	1.5		8.5	8.6	0.2	1.2
Delay (s)		52.5	29.2	13.5		56.1	13.0		47.2	47.2	34.6	45.5
Level of Service		D	C	B		E	B		D	D	C	D
Approach Delay (s)			29.3			22.2			43.1			
Approach LOS			C			C			D			
<b>Intersection Summary</b>												
HCM 2000 Control Delay			30.5			HCM 2000 Level of Service				C		
HCM 2000 Volume to Capacity ratio			0.75									
Actuated Cycle Length (s)			100.0			Sum of lost time (s)				17.5		
Intersection Capacity Utilization			76.3%			ICU Level of Service				D		
Analysis Period (min)			15									
c	Critical Lane Group											

HCM Signalized Intersection Capacity Analysis  
3: Evergreen Rd & OR 214

2023 Existing Traffic Conditions  
Weekday PM Peak Hour

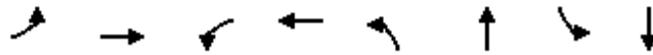


Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	42	66
Future Volume (vph)	42	66
Ideal Flow (vphpl)	1750	1750
Total Lost time (s)	4.5	
Lane Util. Factor	1.00	
Frbp, ped/bikes	0.99	
Flpb, ped/bikes	1.00	
Frt	0.91	
Flt Protected	1.00	
Satd. Flow (prot)	1507	
Flt Permitted	1.00	
Satd. Flow (perm)	1507	
Peak-hour factor, PHF	0.93	0.93
Adj. Flow (vph)	45	71
RTOR Reduction (vph)	57	0
Lane Group Flow (vph)	59	0
Confl. Peds. (#/hr)		1
Confl. Bikes (#/hr)		
Heavy Vehicles (%)	2%	6%
Turn Type	NA	
Protected Phases	4	
Permitted Phases		
Actuated Green, G (s)	7.0	
Effective Green, g (s)	7.0	
Actuated g/C Ratio	0.07	
Clearance Time (s)	4.5	
Vehicle Extension (s)	2.5	
Lane Grp Cap (vph)	105	
v/s Ratio Prot	c0.04	
v/s Ratio Perm		
v/c Ratio	0.56	
Uniform Delay, d1	45.0	
Progression Factor	1.00	
Incremental Delay, d2	5.5	
Delay (s)	50.6	
Level of Service	D	
Approach Delay (s)	49.4	
Approach LOS	D	
<b>Intersection Summary</b>		

HCM 6th Edition cannot analyze u-turn movements.

Queues  
5: Oregon Way & OR 214

2023 Existing Traffic Conditions  
Weekday PM Peak Hour



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	108	1100	13	1029	14	25	64	89
v/c Ratio	0.55	0.43	0.13	0.49	0.16	0.24	0.62	0.41
Control Delay	43.0	7.5	47.0	12.2	49.4	41.5	71.0	20.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	43.0	7.5	47.0	12.2	49.4	41.5	71.0	20.2
Queue Length 50th (ft)	72	65	8	145	9	12	40	12
Queue Length 95th (ft)	m98	203	27	307	29	38	#99	58
Internal Link Dist (ft)		190		686		135		364
Turn Bay Length (ft)	305		155		150		50	
Base Capacity (vph)	200	2574	101	2082	91	481	110	564
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.54	0.43	0.13	0.49	0.15	0.05	0.58	0.16

Intersection Summary

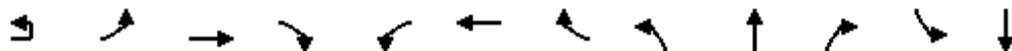
# 95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis  
5: Oregon Way & OR 214

2023 Existing Traffic Conditions  
Weekday PM Peak Hour



Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	
Lane Configurations		↔	↕		↔	↕		↔	↕		↔	↕	
Traffic Volume (vph)	15	88	1042	14	12	942	46	13	18	6	61	19	
Future Volume (vph)	15	88	1042	14	12	942	46	13	18	6	61	19	
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	
Total Lost time (s)		4.0	4.5		4.0	4.5		4.0	4.0		4.0	4.0	
Lane Util. Factor		1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frbp, ped/bikes		1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt		1.00	1.00		1.00	0.99		1.00	0.96		1.00	0.88	
Flt Protected		0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1644	3222		1662	3183		1662	1511		1421	1535	
Flt Permitted		0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1644	3222		1662	3183		1662	1511		1421	1535	
Peak-hour factor, PHF	0.92	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)	16	92	1085	15	12	981	48	14	19	6	64	20	
RTOR Reduction (vph)	0	0	1	0	0	2	0	0	6	0	0	63	
Lane Group Flow (vph)	0	108	1099	0	13	1027	0	14	19	0	64	26	
Confl. Peds. (#/hr)		13		3	3		13			1	1		
Confl. Bikes (#/hr)				1									
Heavy Vehicles (%)	2%	1%	3%	0%	0%	3%	14%	0%	0%	47%	17%	0%	
Turn Type	Prot	Prot	NA		Prot	NA		Prot	NA		Prot	NA	
Protected Phases	5	5	2		1	6		3	8		7	4	
Permitted Phases													
Actuated Green, G (s)		11.9	71.8		1.5	61.4		1.1	4.0		6.2	9.1	
Effective Green, g (s)		11.9	71.8		1.5	61.4		1.1	4.0		6.2	9.1	
Actuated g/C Ratio		0.12	0.72		0.02	0.61		0.01	0.04		0.06	0.09	
Clearance Time (s)		4.0	4.5		4.0	4.5		4.0	4.0		4.0	4.0	
Vehicle Extension (s)		2.5	6.2		2.5	6.2		2.5	2.5		2.5	2.5	
Lane Grp Cap (vph)		195	2313		24	1954		18	60		88	139	
v/s Ratio Prot		c0.07	0.34		0.01	c0.32		0.01	c0.01		c0.05	0.02	
v/s Ratio Perm													
v/c Ratio		0.55	0.48		0.54	0.53		0.78	0.32		0.73	0.19	
Uniform Delay, d1		41.5	6.0		48.9	11.0		49.3	46.7		46.1	42.0	
Progression Factor		0.86	1.28		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		2.0	0.5		18.2	1.0		104.7	2.2		24.2	0.5	
Delay (s)		37.6	8.2		67.1	12.0		154.0	48.9		70.3	42.5	
Level of Service		D	A		E	B		F	D		E	D	
Approach Delay (s)			10.9			12.7			86.6			54.1	
Approach LOS			B			B			F			D	
<b>Intersection Summary</b>													
HCM 2000 Control Delay			15.6									HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.53										
Actuated Cycle Length (s)			100.0						16.5				
Intersection Capacity Utilization			56.9%									ICU Level of Service	B
Analysis Period (min)			15										
c Critical Lane Group													

Movement	SBR
Lane Configurations	
Traffic Volume (vph)	66
Future Volume (vph)	66
Ideal Flow (vphpl)	1750
Total Lost time (s)	
Lane Util. Factor	
Frbp, ped/bikes	
Flpb, ped/bikes	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.96
Adj. Flow (vph)	69
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Confl. Peds. (#/hr)	
Confl. Bikes (#/hr)	
Heavy Vehicles (%)	1%
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 Edition cannot analyze u-turn movements.

Queues  
1: I-5 SB ramps & OR 214

No Build Traffic Conditions  
Weekday AM Peak Hour



Lane Group	EBT	EBR	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	557	302	773	560	268	250
v/c Ratio	0.24	0.23	0.40	0.43	0.58	0.54
Control Delay	4.4	0.4	10.2	1.1	43.6	22.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	4.4	0.4	10.2	1.1	43.6	22.6
Queue Length 50th (ft)	43	0	107	2	83	86
Queue Length 95th (ft)	78	0	137	0	105	131
Internal Link Dist (ft)	562		680			
Turn Bay Length (ft)		270		550	650	430
Base Capacity (vph)	2349	1312	1953	1300	1069	536
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.24	0.23	0.40	0.43	0.25	0.47
<b>Intersection Summary</b>						

HCM Signalized Intersection Capacity Analysis  
 1: I-5 SB ramps & OR 214

No Build Traffic Conditions  
 Weekday AM Peak Hour

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		↑↑	↗		↑↑	↗				↖↗		↗	
Traffic Volume (vph)	0	468	254	0	649	470	0	0	0	225	0	210	
Future Volume (vph)	0	468	254	0	649	470	0	0	0	225	0	210	
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	
Total Lost time (s)		4.5	4.0		4.5	4.0				4.5		4.5	
Lane Util. Factor		0.95	1.00		0.95	1.00				0.97		1.00	
Frbp, ped/bikes		1.00	0.98		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)		3107	1312		3197	1300				3014		1340	
Flt Permitted		1.00	1.00		1.00	1.00				0.95		1.00	
Satd. Flow (perm)		3107	1312		3197	1300				3014		1340	
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)	0	557	302	0	773	560	0	0	0	268	0	250	
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	60	
Lane Group Flow (vph)	0	557	302	0	773	560	0	0	0	268	0	190	
Confl. Peds. (#/hr)									1	1			
Confl. Bikes (#/hr)			2			3							
Heavy Vehicles (%)	0%	7%	11%	0%	4%	12%	0%	0%	0%	7%	0%	11%	
Turn Type		NA	Free		NA	Free				Prot		Perm	
Protected Phases		2			6					4			
Permitted Phases			Free			Free						4 5	
Actuated Green, G (s)		75.6	100.0		61.1	100.0				15.4		29.9	
Effective Green, g (s)		75.6	100.0		61.1	100.0				15.4		29.9	
Actuated g/C Ratio		0.76	1.00		0.61	1.00				0.15		0.30	
Clearance Time (s)		4.5			4.5					4.5			
Vehicle Extension (s)		6.0			4.0					2.5			
Lane Grp Cap (vph)		2348	1312		1953	1300				464		400	
v/s Ratio Prot		0.18			0.24					c0.09			
v/s Ratio Perm			0.23			c0.43						0.14	
v/c Ratio		0.24	0.23		0.40	0.43				0.58		0.47	
Uniform Delay, d1		3.6	0.0		10.0	0.0				39.3		28.6	
Progression Factor		1.00	1.00		0.89	1.00				1.00		1.00	
Incremental Delay, d2		0.2	0.4		0.2	1.0				1.4		0.6	
Delay (s)		3.9	0.4		9.1	1.0				40.7		29.3	
Level of Service		A	A		A	A				D		C	
Approach Delay (s)		2.7			5.7			0.0			35.2		
Approach LOS		A			A			A			D		
<b>Intersection Summary</b>													
HCM 2000 Control Delay			10.4									HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.50										
Actuated Cycle Length (s)			100.0									Sum of lost time (s)	13.5
Intersection Capacity Utilization			41.1%									ICU Level of Service	A
Analysis Period (min)			15										
c Critical Lane Group													

HCM 6th Signalized Intersection Summary  
 1: I-5 SB ramps & OR 214

No Build Traffic Conditions  
 Weekday AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↗		↑↑	↗				↖↖		↗
Traffic Volume (veh/h)	0	468	254	0	649	470	0	0	0	225	0	210
Future Volume (veh/h)	0	468	254	0	649	470	0	0	0	225	0	210
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	1654	1600	0	1695	1586				1654	0	1600
Adj Flow Rate, veh/h	0	557	0	0	773	0				268	0	250
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84				0.84	0.84	0.84
Percent Heavy Veh, %	0	7	11	0	4	12				7	0	11
Cap, veh/h	0	2197		0	2251					645	0	286
Arrive On Green	0.00	0.70	0.00	0.00	0.70	0.00				0.21	0.00	0.21
Sat Flow, veh/h	0	3226	1356	0	3306	1344				3057	0	1356
Grp Volume(v), veh/h	0	557	0	0	773	0				268	0	250
Grp Sat Flow(s),veh/h/ln	0	1572	1356	0	1611	1344				1528	0	1356
Q Serve(g_s), s	0.0	6.5	0.0	0.0	9.5	0.0				7.6	0.0	17.8
Cycle Q Clear(g_c), s	0.0	6.5	0.0	0.0	9.5	0.0				7.6	0.0	17.8
Prop In Lane	0.00		1.00	0.00		1.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	2197		0	2251					645	0	286
V/C Ratio(X)	0.00	0.25		0.00	0.34					0.42	0.00	0.87
Avail Cap(c_a), veh/h	0	2197		0	2251					1085	0	481
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	0.00	0.00	0.83	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	5.5	0.0	0.0	6.0	0.0				34.1	0.0	38.2
Incr Delay (d2), s/veh	0.0	0.3	0.0	0.0	0.1	0.0				0.3	0.0	7.4
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	1.9	0.0	0.0	2.8	0.0				2.8	0.0	13.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	5.8	0.0	0.0	6.1	0.0				34.4	0.0	45.6
LnGrp LOS	A	A		A	A					C	A	D
Approach Vol, veh/h		557	A		773	A					518	
Approach Delay, s/veh		5.8			6.1						39.8	
Approach LOS		A			A						D	
Timer - Assigned Phs		2		4		6						
Phs Duration (G+Y+Rc), s		74.4		25.6		74.4						
Change Period (Y+Rc), s		4.5		4.5		4.5						
Max Green Setting (Gmax), s		55.5		35.5		40.5						
Max Q Clear Time (g_c+I1), s		8.5		19.8		11.5						
Green Ext Time (p_c), s		11.2		1.3		8.5						

Intersection Summary

HCM 6th Ctrl Delay	15.4
HCM 6th LOS	B

Notes

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

Queues  
2: I-5 NB ramps & OR 214

No Build Traffic Conditions  
Weekday AM Peak Hour



Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	NBR
Lane Group Flow (vph)	538	236	962	757	266	306	300
v/c Ratio	0.26	0.18	0.48	0.54	0.73	0.63	0.60
Control Delay	8.0	0.3	10.5	1.4	45.8	14.6	13.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	8.0	0.3	10.5	1.4	45.8	14.6	13.4
Queue Length 50th (ft)	91	0	133	0	165	46	40
Queue Length 95th (ft)	110	0	226	5	222	120	108
Internal Link Dist (ft)	680		865			472	
Turn Bay Length (ft)							
Base Capacity (vph)	2047	1325	1990	1399	666	706	724
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.26	0.18	0.48	0.54	0.40	0.43	0.41
<b>Intersection Summary</b>							

HCM Signalized Intersection Capacity Analysis  
2: I-5 NB ramps & OR 214

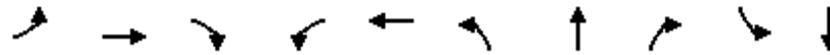
No Build Traffic Conditions  
Weekday AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↗		↑↑	↗	↗	↕	↗			
Traffic Volume (vph)	0	479	210	0	856	674	263	0	513	0	0	0
Future Volume (vph)	0	479	210	0	856	674	263	0	513	0	0	0
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		4.5	4.0		4.5	4.0	5.4	5.4	5.4			
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)		3137	1325		3050	1399	1462	1280	1321			
Flt Permitted		1.00	1.00		1.00	1.00	0.95	1.00	1.00			
Satd. Flow (perm)		3137	1325		3050	1399	1462	1280	1321			
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	0	538	236	0	962	757	296	0	576	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	169	169	0	0	0
Lane Group Flow (vph)	0	538	236	0	962	757	266	137	131	0	0	0
Confl. Peds. (#/hr)	1						1					
Confl. Bikes (#/hr)			1				3					
Heavy Vehicles (%)	0%	6%	10%	0%	9%	4%	8%	0%	7%	0%	0%	0%
Turn Type		NA	Free		NA	Free	Perm	NA	Perm			
Protected Phases		2			6			8				
Permitted Phases			Free			Free	8		8			
Actuated Green, G (s)		65.3	100.0		65.3	100.0	24.8	24.8	24.8			
Effective Green, g (s)		65.3	100.0		65.3	100.0	24.8	24.8	24.8			
Actuated g/C Ratio		0.65	1.00		0.65	1.00	0.25	0.25	0.25			
Clearance Time (s)		4.5			4.5		5.4	5.4	5.4			
Vehicle Extension (s)		4.0			6.0		2.5	2.5	2.5			
Lane Grp Cap (vph)		2048	1325		1991	1399	362	317	327			
v/s Ratio Prot		0.17			0.32							
v/s Ratio Perm			0.18			c0.54	c0.18	0.11	0.10			
v/c Ratio		0.26	0.18		0.48	0.54	0.73	0.43	0.40			
Uniform Delay, d1		7.3	0.0		8.8	0.0	34.6	31.7	31.4			
Progression Factor		0.91	1.00		0.97	1.00	1.00	1.00	1.00			
Incremental Delay, d2		0.3	0.3		0.4	1.1	7.1	0.7	0.6			
Delay (s)		6.9	0.3		8.9	1.1	41.7	32.4	32.0			
Level of Service		A	A		A	A	D	C	C			
Approach Delay (s)		4.9			5.5			35.1			0.0	
Approach LOS		A			A			D			A	
<b>Intersection Summary</b>												
HCM 2000 Control Delay			13.0				HCM 2000 Level of Service					B
HCM 2000 Volume to Capacity ratio			0.62									
Actuated Cycle Length (s)			100.0				Sum of lost time (s)					9.9
Intersection Capacity Utilization			47.5%				ICU Level of Service					A
Analysis Period (min)			15									
c Critical Lane Group												

HCM 6th Edition methodology does not support turning movements with shared & exclusive lanes.

Queues  
3: Evergreen Rd & OR 214

No Build Traffic Conditions  
Weekday AM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	106	884	165	155	973	310	308	181	6	46
v/c Ratio	0.69	0.65	0.24	0.76	0.69	0.83	0.82	0.37	0.05	0.33
Control Delay	71.0	24.0	3.0	68.7	25.4	54.4	53.0	6.4	44.5	28.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	71.0	24.0	3.0	68.7	25.4	54.4	53.0	6.4	44.5	28.2
Queue Length 50th (ft)	57	285	8	94	291	193	192	0	4	9
Queue Length 95th (ft)	#156	#346	21	#193	#390	288	284	50	17	44
Internal Link Dist (ft)		865			282		429			498
Turn Bay Length (ft)	175		250	375		325		290	70	
Base Capacity (vph)	160	1361	701	218	1418	448	452	555	116	138
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.66	0.65	0.24	0.71	0.69	0.69	0.68	0.33	0.05	0.33

Intersection Summary

# 95th percentile volume exceeds capacity, queue may be longer.  
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis  
3: Evergreen Rd & OR 214

No Build Traffic Conditions  
Weekday AM Peak Hour

												
Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (vph)	44	55	831	155	16	130	904	10	560	21	170	6
Future Volume (vph)	44	55	831	155	16	130	904	10	560	21	170	6
Ideal Flow (vphp)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
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	0.98		1.00	1.00		1.00	1.00	1.00	1.00
Flpb, ped/bikes		1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00
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)		1639	3137	1400		1630	3047		1548	1560	1473	1662
Flt Permitted		0.95	1.00	1.00		0.95	1.00		0.95	0.96	1.00	0.95
Satd. Flow (perm)		1639	3137	1400		1630	3047		1548	1560	1473	1662
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	47	59	884	165	17	138	962	11	596	22	181	6
RTOR Reduction (vph)	0	0	0	96	0	0	1	0	0	0	137	0
Lane Group Flow (vph)	0	106	884	69	0	155	972	0	310	308	44	6
Confl. Peds. (#/hr)		1						1	1			
Confl. Bikes (#/hr)				1								
Heavy Vehicles (%)	2%	1%	6%	4%	2%	2%	9%	0%	2%	0%	1%	0%
Turn Type	Prot	Prot	NA	Perm	Prot	Prot	NA		Split	NA	Perm	Split
Protected Phases	5	5	2		1	1	6		8	8		4
Permitted Phases				2							8	
Actuated Green, G (s)		9.4	41.6	41.6		12.5	44.7		24.2	24.2	24.2	4.2
Effective Green, g (s)		9.4	41.6	41.6		12.5	44.7		24.2	24.2	24.2	4.2
Actuated g/C Ratio		0.09	0.42	0.42		0.12	0.45		0.24	0.24	0.24	0.04
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)		154	1304	582		203	1362		374	377	356	69
v/s Ratio Prot		0.06	0.28			c0.10	c0.32		c0.20	0.20		0.00
v/s Ratio Perm				0.05							0.03	
v/c Ratio		0.69	0.68	0.12		0.76	0.71		0.83	0.82	0.12	0.09
Uniform Delay, d1		43.9	23.8	17.9		42.3	22.5		35.9	35.8	29.6	46.1
Progression Factor		1.10	0.84	0.55		1.06	0.93		1.00	1.00	1.00	1.00
Incremental Delay, d2		10.7	2.7	0.4		14.9	3.2		13.8	12.5	0.1	0.4
Delay (s)		59.1	22.7	10.3		59.8	24.2		49.7	48.3	29.7	46.5
Level of Service		E	C	B		E	C		D	D	C	D
Approach Delay (s)			24.3			29.1			44.7			
Approach LOS			C			C			D			
<b>Intersection Summary</b>												
HCM 2000 Control Delay			31.6			HCM 2000 Level of Service			C			
HCM 2000 Volume to Capacity ratio			0.74									
Actuated Cycle Length (s)			100.0			Sum of lost time (s)			17.5			
Intersection Capacity Utilization			68.7%			ICU Level of Service			C			
Analysis Period (min)			15									
c	Critical Lane Group											

HCM Signalized Intersection Capacity Analysis  
 3: Evergreen Rd & OR 214

No Build Traffic Conditions  
 Weekday AM Peak Hour



Movement	SBT	SBR
Lane Configurations	↓	↘
Traffic Volume (vph)	13	30
Future Volume (vph)	13	30
Ideal Flow (vphpl)	1750	1750
Total Lost time (s)	4.5	
Lane Util. Factor	1.00	
Frbp, ped/bikes	0.99	
Flpb, ped/bikes	1.00	
Frt	0.90	
Flt Protected	1.00	
Satd. Flow (prot)	1547	
Flt Permitted	1.00	
Satd. Flow (perm)	1547	
Peak-hour factor, PHF	0.94	0.94
Adj. Flow (vph)	14	32
RTOR Reduction (vph)	31	0
Lane Group Flow (vph)	15	0
Confl. Peds. (#/hr)		1
Confl. Bikes (#/hr)		
Heavy Vehicles (%)	0%	0%
Turn Type	NA	
Protected Phases	4	
Permitted Phases		
Actuated Green, G (s)	4.2	
Effective Green, g (s)	4.2	
Actuated g/C Ratio	0.04	
Clearance Time (s)	4.5	
Vehicle Extension (s)	2.5	
Lane Grp Cap (vph)	64	
v/s Ratio Prot	c0.01	
v/s Ratio Perm		
v/c Ratio	0.24	
Uniform Delay, d1	46.4	
Progression Factor	1.00	
Incremental Delay, d2	1.4	
Delay (s)	47.8	
Level of Service	D	
Approach Delay (s)	47.6	
Approach LOS	D	
<b>Intersection Summary</b>		

HCM 6th Edition cannot analyze u-turn movements.

Queues  
5: Oregon Way & OR 214

No Build Traffic Conditions  
Weekday AM Peak Hour



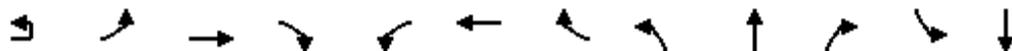
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	24	1106	2	1081	22	18	8	76
v/c Ratio	0.22	0.44	0.02	0.45	0.24	0.12	0.09	0.47
Control Delay	46.7	5.2	45.5	7.2	51.6	27.2	47.1	22.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	46.7	5.2	45.5	7.2	51.6	27.2	47.1	22.9
Queue Length 50th (ft)	15	56	1	48	14	4	5	5
Queue Length 95th (ft)	m37	221	9	273	39	26	20	48
Internal Link Dist (ft)		190		686		135		364
Turn Bay Length (ft)	305		155		150		50	
Base Capacity (vph)	110	2540	93	2426	95	536	93	548
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.22	0.44	0.02	0.45	0.23	0.03	0.09	0.14

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis  
5: Oregon Way & OR 214

No Build Traffic Conditions  
Weekday AM Peak Hour



Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations		↔	↕		↕	↕		↕	↕		↕	↕
Traffic Volume (vph)	10	12	1009	8	2	976	18	20	6	10	7	7
Future Volume (vph)	10	12	1009	8	2	976	18	20	6	10	7	7
Ideal Flow (vphp)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		4.0	4.5		4.0	4.5		4.0	4.0		4.0	4.0
Lane Util. Factor		1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00
Frbp, ped/bikes		1.00	1.00		1.00	1.00		1.00	0.99		1.00	0.99
Flpb, ped/bikes		1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00
Frt		1.00	1.00		1.00	1.00		1.00	0.91		1.00	0.87
Flt Protected		0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00
Satd. Flow (prot)		1647	3105		1662	3073		1662	1576		1662	1498
Flt Permitted		0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00
Satd. Flow (perm)		1647	3105		1662	3073		1662	1576		1662	1498
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	11	13	1097	9	2	1061	20	22	7	11	8	8
RTOR Reduction (vph)	0	0	0	0	0	1	0	0	10	0	0	64
Lane Group Flow (vph)	0	24	1106	0	2	1080	0	22	8	0	8	12
Confl. Peds. (#/hr)		3		2	2		3	1		2	2	
Heavy Vehicles (%)	2%	0%	7%	0%	0%	8%	0%	0%	0%	0%	0%	0%
Turn Type	Prot	Prot	NA		Prot	NA		Prot	NA		Prot	NA
Protected Phases	5	5	2		1	6		3	8		7	4
Permitted Phases												
Actuated Green, G (s)		3.2	73.8		1.1	71.7		2.2	7.5		1.1	6.4
Effective Green, g (s)		3.2	73.8		1.1	71.7		2.2	7.5		1.1	6.4
Actuated g/C Ratio		0.03	0.74		0.01	0.72		0.02	0.08		0.01	0.06
Clearance Time (s)		4.0	4.5		4.0	4.5		4.0	4.0		4.0	4.0
Vehicle Extension (s)		2.5	6.2		2.5	6.2		2.5	2.5		2.5	2.5
Lane Grp Cap (vph)		52	2291		18	2203		36	118		18	95
v/s Ratio Prot		c0.01	c0.36		0.00	0.35		c0.01	0.00		0.00	c0.01
v/s Ratio Perm												
v/c Ratio		0.46	0.48		0.11	0.49		0.61	0.07		0.44	0.13
Uniform Delay, d1		47.6	5.3		49.0	6.2		48.5	43.0		49.1	44.2
Progression Factor		0.96	0.96		1.00	1.00		1.00	1.00		1.00	1.00
Incremental Delay, d2		4.6	0.7		2.0	0.8		23.4	0.2		12.2	0.5
Delay (s)		50.2	5.9		51.0	7.0		71.9	43.2		61.4	44.6
Level of Service		D	A		D	A		E	D		E	D
Approach Delay (s)			6.8			7.0			59.0			46.2
Approach LOS			A			A			E			D
<b>Intersection Summary</b>												
HCM 2000 Control Delay			9.2									A
HCM 2000 Volume to Capacity ratio			0.47									
Actuated Cycle Length (s)			100.0						16.5			
Intersection Capacity Utilization			46.7%									A
Analysis Period (min)			15									

c Critical Lane Group

Movement	SBR
Lane Configurations	
Traffic Volume (vph)	63
Future Volume (vph)	63
Ideal Flow (vphpl)	1750
Total Lost time (s)	
Lane Util. Factor	
Frbp, ped/bikes	
Flpb, ped/bikes	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.92
Adj. Flow (vph)	68
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Confl. Peds. (#/hr)	1
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 Edition cannot analyze u-turn movements.

Queues  
1: I-5 SB ramps & OR 214

2025 No Build Traffic Conditions  
Weekday PM Peak Hour



Lane Group	EBT	EBR	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	852	483	822	621	551	397
v/c Ratio	0.39	0.34	0.48	0.43	0.73	0.66
Control Delay	8.9	0.6	17.0	0.9	40.6	24.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	8.9	0.6	17.0	0.9	40.6	24.4
Queue Length 50th (ft)	107	0	164	0	171	167
Queue Length 95th (ft)	201	0	171	2	196	223
Internal Link Dist (ft)	562		680			
Turn Bay Length (ft)		270		550	650	430
Base Capacity (vph)	2187	1426	1713	1430	1050	617
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.39	0.34	0.48	0.43	0.52	0.64
<b>Intersection Summary</b>						

HCM Signalized Intersection Capacity Analysis  
1: I-5 SB ramps & OR 214

2025 No Build Traffic Conditions  
Weekday PM Peak Hour

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		↑↑	↗		↑↑	↗				↖↗		↗	
Traffic Volume (vph)	0	784	444	0	756	571	0	0	0	507	0	365	
Future Volume (vph)	0	784	444	0	756	571	0	0	0	507	0	365	
Ideal Flow (vphp)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	
Total Lost time (s)		4.5	4.0		4.5	4.0				4.5		4.5	
Lane Util. Factor		0.95	1.00		0.95	1.00				0.97		1.00	
Frbp, ped/bikes		1.00	0.98		1.00	1.00				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)		3260	1426		3260	1430				3131		1444	
Flt Permitted		1.00	1.00		1.00	1.00				0.95		1.00	
Satd. Flow (perm)		3260	1426		3260	1430				3131		1444	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	
Adj. Flow (vph)	0	852	483	0	822	621	0	0	0	551	0	397	
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	51	
Lane Group Flow (vph)	0	852	483	0	822	621	0	0	0	551	0	346	
Confl. Peds. (#/hr)			3	3					1	1			
Confl. Bikes (#/hr)			1										
Heavy Vehicles (%)	0%	2%	2%	0%	2%	4%	0%	0%	0%	3%	0%	3%	
Turn Type		NA	Free		NA	Free				Prot		Perm	
Protected Phases		2			6					4			
Permitted Phases			Free			Free						4 5	
Actuated Green, G (s)		67.0	100.0		52.5	100.0				24.0		38.5	
Effective Green, g (s)		67.0	100.0		52.5	100.0				24.0		38.5	
Actuated g/C Ratio		0.67	1.00		0.52	1.00				0.24		0.38	
Clearance Time (s)		4.5			4.5					4.5			
Vehicle Extension (s)		6.0			4.0					2.5			
Lane Grp Cap (vph)		2184	1426		1711	1430				751		555	
v/s Ratio Prot		0.26			c0.25					c0.18			
v/s Ratio Perm			0.34			0.43						c0.24	
v/c Ratio		0.39	0.34		0.48	0.43				0.73		0.62	
Uniform Delay, d1		7.4	0.0		15.1	0.0				35.1		24.9	
Progression Factor		1.00	1.00		0.98	1.00				1.00		1.00	
Incremental Delay, d2		0.5	0.6		0.3	0.8				3.5		1.9	
Delay (s)		7.9	0.6		15.1	0.8				38.6		26.8	
Level of Service		A	A		B	A				D		C	
Approach Delay (s)		5.3			9.0			0.0			33.6		
Approach LOS		A			A			A			C		
<b>Intersection Summary</b>													
HCM 2000 Control Delay			13.9									HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.58										
Actuated Cycle Length (s)			100.0									Sum of lost time (s)	13.5
Intersection Capacity Utilization			54.7%									ICU Level of Service	A
Analysis Period (min)			15										
c Critical Lane Group													

HCM 6th Signalized Intersection Summary  
 1: I-5 SB ramps & OR 214

2025 No Build Traffic Conditions  
 Weekday PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↗		↑↑	↗				↖↖		↗
Traffic Volume (veh/h)	0	784	444	0	756	571	0	0	0	507	0	365
Future Volume (veh/h)	0	784	444	0	756	571	0	0	0	507	0	365
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	1723	1723	0	1723	1695				1709	0	1709
Adj Flow Rate, veh/h	0	852	0	0	822	0				551	0	397
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92				0.92	0.92	0.92
Percent Heavy Veh, %	0	2	2	0	2	4				3	0	3
Cap, veh/h	0	1999		0	1999					945	0	434
Arrive On Green	0.00	0.61	0.00	0.00	0.61	0.00				0.30	0.00	0.30
Sat Flow, veh/h	0	3359	1460	0	3359	1437				3158	0	1448
Grp Volume(v), veh/h	0	852	0	0	822	0				551	0	397
Grp Sat Flow(s),veh/h/ln	0	1637	1460	0	1637	1437				1579	0	1448
Q Serve(g_s), s	0.0	13.7	0.0	0.0	13.1	0.0				14.8	0.0	26.5
Cycle Q Clear(g_c), s	0.0	13.7	0.0	0.0	13.1	0.0				14.8	0.0	26.5
Prop In Lane	0.00		1.00	0.00		1.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1999		0	1999					945	0	434
V/C Ratio(X)	0.00	0.43		0.00	0.41					0.58	0.00	0.92
Avail Cap(c_a), veh/h	0	1999		0	1999					1058	0	485
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(l)	0.00	1.00	0.00	0.00	0.80	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	10.2	0.0	0.0	10.1	0.0				29.7	0.0	33.8
Incr Delay (d2), s/veh	0.0	0.7	0.0	0.0	0.2	0.0				0.5	0.0	20.4
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	4.8	0.0	0.0	4.4	0.0				5.6	0.0	21.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	10.9	0.0	0.0	10.3	0.0				30.3	0.0	54.2
LnGrp LOS	A	B		A	B					C	A	D
Approach Vol, veh/h		852	A		822	A					948	
Approach Delay, s/veh		10.9			10.3						40.3	
Approach LOS		B			B						D	
Timer - Assigned Phs		2		4		6						
Phs Duration (G+Y+Rc), s		65.6		34.4		65.6						
Change Period (Y+Rc), s		4.5		4.5		4.5						
Max Green Setting (Gmax), s		57.5		33.5		42.5						
Max Q Clear Time (g_c+I1), s		15.7		28.5		15.1						
Green Ext Time (p_c), s		18.1		1.5		8.9						
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay			21.3									
HCM 6th LOS			C									
<b>Notes</b>												
Unsignalized Delay for [EBR, WBR] is excluded from calculations of the approach delay and intersection delay.												

Queues  
2: I-5 NB ramps & OR 214

2025 No Build Traffic Conditions  
Weekday PM Peak Hour



Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	NBR
Lane Group Flow (vph)	1132	231	1114	368	269	308	302
v/c Ratio	0.54	0.16	0.53	0.27	0.69	0.80	0.77
Control Delay	10.9	0.2	8.2	0.4	41.5	42.4	39.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	10.9	0.2	8.2	0.4	41.5	42.4	39.0
Queue Length 50th (ft)	216	0	92	0	163	164	151
Queue Length 95th (ft)	306	0	186	0	217	237	218
Internal Link Dist (ft)	680		865			472	
Turn Bay Length (ft)							
Base Capacity (vph)	2111	1403	2090	1387	565	528	544
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.54	0.16	0.53	0.27	0.48	0.58	0.56
<b>Intersection Summary</b>							

HCM Signalized Intersection Capacity Analysis  
2: I-5 NB ramps & OR 214

2025 No Build Traffic Conditions  
Weekday PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↗		↑↑	↗	↗	↕	↗			
Traffic Volume (vph)	0	1064	217	0	1047	346	281	0	545	0	0	0
Future Volume (vph)	0	1064	217	0	1047	346	281	0	545	0	0	0
Ideal Flow (vphp)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		4.5	4.0		4.5	4.0	5.4	5.4	5.4			
Lane Util. Factor		0.95	1.00		0.95	1.00	0.95	0.91	0.95			
Frbp, ped/bikes		1.00	1.00		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)		3292	1403		3260	1387	1504	1305	1346			
Flt Permitted		1.00	1.00		1.00	1.00	0.95	1.00	1.00			
Satd. Flow (perm)		3292	1403		3260	1387	1504	1305	1346			
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	0	1132	231	0	1114	368	299	0	580	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	45	45	0	0	0
Lane Group Flow (vph)	0	1132	231	0	1114	368	269	263	257	0	0	0
Confl. Peds. (#/hr)	2					2						
Heavy Vehicles (%)	0%	1%	6%	0%	2%	5%	5%	0%	5%	0%	0%	0%
Turn Type		NA	Free		NA	Free	Perm	NA	Perm			
Protected Phases		2			6			8				
Permitted Phases			Free			Free	8		8			
Actuated Green, G (s)		64.1	100.0		64.1	100.0	26.0	26.0	26.0			
Effective Green, g (s)		64.1	100.0		64.1	100.0	26.0	26.0	26.0			
Actuated g/C Ratio		0.64	1.00		0.64	1.00	0.26	0.26	0.26			
Clearance Time (s)		4.5			4.5		5.4	5.4	5.4			
Vehicle Extension (s)		4.0			6.0		2.5	2.5	2.5			
Lane Grp Cap (vph)		2110	1403		2089	1387	391	339	349			
v/s Ratio Prot		c0.34			0.34							
v/s Ratio Perm			0.16			0.27	0.18	0.20	0.19			
v/c Ratio		0.54	0.16		0.53	0.27	0.69	0.78	0.74			
Uniform Delay, d1		9.8	0.0		9.8	0.0	33.3	34.3	33.9			
Progression Factor		0.87	1.00		0.65	1.00	1.00	1.00	1.00			
Incremental Delay, d2		0.9	0.2		0.5	0.4	4.6	10.2	7.4			
Delay (s)		9.4	0.2		6.8	0.4	37.9	44.5	41.3			
Level of Service		A	A		A	A	D	D	D			
Approach Delay (s)		7.9			5.2			41.4			0.0	
Approach LOS		A			A			D			A	
<b>Intersection Summary</b>												
HCM 2000 Control Delay			14.7				HCM 2000 Level of Service				B	
HCM 2000 Volume to Capacity ratio			0.61									
Actuated Cycle Length (s)			100.0				Sum of lost time (s)				9.9	
Intersection Capacity Utilization			64.6%				ICU Level of Service				C	
Analysis Period (min)			15									

c Critical Lane Group

HCM 6th Edition methodology does not support turning movements with shared & exclusive lanes.

Queues  
3: Evergreen Rd & OR 214

2025 No Build Traffic Conditions  
Weekday PM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	111	1109	335	260	950	260	260	206	35	123
v/c Ratio	0.65	1.05	0.48	0.75	0.69	0.78	0.77	0.43	0.30	0.74
Control Delay	61.8	72.6	7.1	64.8	17.9	52.4	51.1	7.0	51.4	49.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	61.8	72.6	7.1	64.8	17.9	52.4	51.1	7.0	51.4	49.5
Queue Length 50th (ft)	71	~424	14	165	85	165	165	0	22	36
Queue Length 95th (ft)	m#148	#536	83	#363	174	237	236	52	53	#126
Internal Link Dist (ft)		865			282		429			498
Turn Bay Length (ft)	175		250	375		325		290	70	
Base Capacity (vph)	182	1053	704	345	1381	444	452	567	116	167
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.61	1.05	0.48	0.75	0.69	0.59	0.58	0.36	0.30	0.74

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.  
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.  
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis  
3: Evergreen Rd & OR 214

2025 No Build Traffic Conditions  
Weekday PM Peak Hour

												
Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (vph)	24	79	1031	312	5	237	861	22	440	44	192	33
Future Volume (vph)	24	79	1031	312	5	237	861	22	440	44	192	33
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
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	1.00		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)		1655	3197	1458		1662	3188		1533	1559	1451	1662
Flt Permitted		0.95	1.00	1.00		0.95	1.00		0.95	0.96	1.00	0.95
Satd. Flow (perm)		1655	3197	1458		1662	3188		1533	1559	1451	1662
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	26	85	1109	335	5	255	926	24	473	47	206	35
RTOR Reduction (vph)	0	0	0	225	0	0	2	0	0	0	161	0
Lane Group Flow (vph)	0	111	1109	110	0	260	948	0	260	260	45	35
Confl. Peds. (#/hr)									1		2	2
Confl. Bikes (#/hr)											1	
Heavy Vehicles (%)	2%	0%	4%	2%	2%	0%	4%	0%	3%	0%	1%	0%
Turn Type	Prot	Prot	NA	Perm	Prot	Prot	NA		Split	NA	Perm	Split
Protected Phases	5	5	2		1	1	6		8	8		4
Permitted Phases				2							8	
Actuated Green, G (s)		10.4	32.9	32.9		20.8	43.3		21.8	21.8	21.8	7.0
Effective Green, g (s)		10.4	32.9	32.9		20.8	43.3		21.8	21.8	21.8	7.0
Actuated g/C Ratio		0.10	0.33	0.33		0.21	0.43		0.22	0.22	0.22	0.07
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)		172	1051	479		345	1380		334	339	316	116
v/s Ratio Prot		0.07	c0.35			c0.16	0.30		c0.17	0.17		0.02
v/s Ratio Perm				0.08							0.03	
v/c Ratio		0.65	1.06	0.23		0.75	0.69		0.78	0.77	0.14	0.30
Uniform Delay, d1		43.0	33.5	24.4		37.2	22.9		36.8	36.7	31.6	44.2
Progression Factor		1.08	0.93	1.72		1.36	0.62		1.00	1.00	1.00	1.00
Incremental Delay, d2		6.1	41.4	0.9		7.6	2.5		10.5	9.5	0.2	1.1
Delay (s)		52.8	72.6	42.8		58.2	16.6		47.3	46.3	31.7	45.2
Level of Service		D	E	D		E	B		D	D	C	D
Approach Delay (s)			64.8			25.5			42.5			
Approach LOS			E			C			D			
<b>Intersection Summary</b>												
HCM 2000 Control Delay			46.7			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			81.2%			ICU Level of Service			D			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis  
 3: Evergreen Rd & OR 214

2025 No Build Traffic Conditions  
 Weekday PM Peak Hour

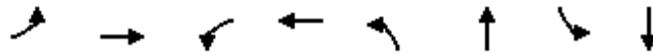


Movement	SBT	SBR
Lane Configurations	⤴	
Traffic Volume (vph)	43	72
Future Volume (vph)	43	72
Ideal Flow (vphpl)	1750	1750
Total Lost time (s)	4.5	
Lane Util. Factor	1.00	
Frbp, ped/bikes	0.99	
Flpb, ped/bikes	1.00	
Frt	0.91	
Flt Protected	1.00	
Satd. Flow (prot)	1531	
Flt Permitted	1.00	
Satd. Flow (perm)	1531	
Peak-hour factor, PHF	0.93	0.93
Adj. Flow (vph)	46	77
RTOR Reduction (vph)	60	0
Lane Group Flow (vph)	63	0
Confl. Peds. (#/hr)		1
Confl. Bikes (#/hr)		
Heavy Vehicles (%)	0%	4%
Turn Type	NA	
Protected Phases	4	
Permitted Phases		
Actuated Green, G (s)	7.0	
Effective Green, g (s)	7.0	
Actuated g/C Ratio	0.07	
Clearance Time (s)	4.5	
Vehicle Extension (s)	2.5	
Lane Grp Cap (vph)	107	
v/s Ratio Prot	c0.04	
v/s Ratio Perm		
v/c Ratio	0.58	
Uniform Delay, d1	45.1	
Progression Factor	1.00	
Incremental Delay, d2	6.6	
Delay (s)	51.7	
Level of Service	D	
Approach Delay (s)	50.3	
Approach LOS	D	
<b>Intersection Summary</b>		

HCM 6th Edition cannot analyze u-turn movements.

Queues  
5: Oregon Way & OR 214

2025 No Build Traffic Conditions  
Weekday PM Peak Hour



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	111	1188	13	1129	17	26	64	95
v/c Ratio	0.54	0.48	0.13	0.56	0.19	0.22	0.58	0.44
Control Delay	38.2	10.5	47.0	14.2	50.4	40.2	66.6	21.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	38.2	10.5	47.0	14.2	50.4	40.2	66.6	21.1
Queue Length 50th (ft)	75	148	8	231	11	12	40	11
Queue Length 95th (ft)	m81	m167	27	354	33	38	#95	60
Internal Link Dist (ft)		190		686		135		364
Turn Bay Length (ft)	305		155		150		50	
Base Capacity (vph)	206	2496	101	2031	91	544	116	564
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.54	0.48	0.13	0.56	0.19	0.05	0.55	0.17

Intersection Summary

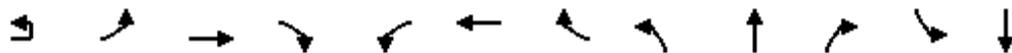
# 95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis  
5: Oregon Way & OR 214

2025 No Build Traffic Conditions  
Weekday PM Peak Hour



Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	
Lane Configurations													
Traffic Volume (vph)	15	91	1121	19	12	1038	46	16	19	6	61	20	
Future Volume (vph)	15	91	1121	19	12	1038	46	16	19	6	61	20	
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	
Total Lost time (s)		4.0	4.5		4.0	4.5		4.0	4.0		4.0	4.0	
Lane Util. Factor		1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frbp, ped/bikes		1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt		1.00	1.00		1.00	0.99		1.00	0.97		1.00	0.88	
Flt Protected		0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1658	3189		1662	3208		1662	1684		1662	1534	
Flt Permitted		0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1658	3189		1662	3208		1662	1684		1662	1534	
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)	16	95	1168	20	12	1081	48	17	20	6	64	21	
RTOR Reduction (vph)	0	0	1	0	0	2	0	0	6	0	0	67	
Lane Group Flow (vph)	0	111	1187	0	13	1127	0	17	20	0	64	28	
Confl. Peds. (#/hr)		3		3	3		3			2	2		
Confl. Bikes (#/hr)				1									
Heavy Vehicles (%)	2%	0%	4%	1%	0%	3%	0%	0%	0%	0%	0%	0%	
Turn Type	Prot	Prot	NA		Prot	NA		Prot	NA		Prot	NA	
Protected Phases	5	5	2		1	6		3	8		7	4	
Permitted Phases													
Actuated Green, G (s)		12.4	71.0		1.5	60.1		2.2	5.4		5.6	8.8	
Effective Green, g (s)		12.4	71.0		1.5	60.1		2.2	5.4		5.6	8.8	
Actuated g/C Ratio		0.12	0.71		0.02	0.60		0.02	0.05		0.06	0.09	
Clearance Time (s)		4.0	4.5		4.0	4.5		4.0	4.0		4.0	4.0	
Vehicle Extension (s)		2.5	6.2		2.5	6.2		2.5	2.5		2.5	2.5	
Lane Grp Cap (vph)		205	2264		24	1928		36	90		93	134	
v/s Ratio Prot		c0.07	0.37		0.01	c0.35		0.01	0.01		c0.04	c0.02	
v/s Ratio Perm													
v/c Ratio		0.54	0.52		0.54	0.58		0.47	0.23		0.69	0.21	
Uniform Delay, d1		41.1	6.7		48.9	12.3		48.3	45.3		46.3	42.4	
Progression Factor		0.85	1.59		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.9	0.3		18.2	1.3		7.0	0.9		17.6	0.6	
Delay (s)		35.8	11.0		67.1	13.6		55.3	46.2		64.0	42.9	
Level of Service		D	B		E	B		E	D		E	D	
Approach Delay (s)			13.1			14.2			49.8			51.4	
Approach LOS			B			B			D			D	
<b>Intersection Summary</b>													
HCM 2000 Control Delay			16.5									HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.55										
Actuated Cycle Length (s)			100.0						16.5				
Intersection Capacity Utilization			59.9%									ICU Level of Service	B
Analysis Period (min)			15										
c Critical Lane Group													

Movement	SBR
Lane Configurations	
Traffic Volume (vph)	71
Future Volume (vph)	71
Ideal Flow (vphpl)	1750
Total Lost time (s)	
Lane Util. Factor	
Frbp, ped/bikes	
Flpb, ped/bikes	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.96
Adj. Flow (vph)	74
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Confl. Peds. (#/hr)	
Confl. Bikes (#/hr)	
Heavy Vehicles (%)	1%
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 Edition cannot analyze u-turn movements.

Queues  
1: I-5 SB ramps & OR 214

2025 With Site Traffic Conditions  
Weekday AM Peak Hour



Lane Group	EBT	EBR	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	565	302	780	571	282	250
v/c Ratio	0.24	0.23	0.40	0.44	0.60	0.54
Control Delay	4.5	0.4	10.6	1.2	44.0	22.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	4.5	0.4	10.6	1.2	44.0	22.7
Queue Length 50th (ft)	44	0	112	2	88	87
Queue Length 95th (ft)	80	0	138	0	110	132
Internal Link Dist (ft)	562		680			
Turn Bay Length (ft)	270		550			
Base Capacity (vph)	2342	1312	1947	1300	1069	534
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.24	0.23	0.40	0.44	0.26	0.47
<b>Intersection Summary</b>						

HCM Signalized Intersection Capacity Analysis  
1: I-5 SB ramps & OR 214

2025 With Site Traffic Conditions  
Weekday AM Peak Hour

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		↑↑	↗		↑↑	↗				↖↗		↗	
Traffic Volume (vph)	0	475	254	0	655	480	0	0	0	237	0	210	
Future Volume (vph)	0	475	254	0	655	480	0	0	0	237	0	210	
Ideal Flow (vphp)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	
Total Lost time (s)		4.5	4.0		4.5	4.0				4.5		4.5	
Lane Util. Factor		0.95	1.00		0.95	1.00				0.97		1.00	
Frbp, ped/bikes		1.00	0.98		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)		3107	1312		3197	1300				3014		1340	
Flt Permitted		1.00	1.00		1.00	1.00				0.95		1.00	
Satd. Flow (perm)		3107	1312		3197	1300				3014		1340	
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)	0	565	302	0	780	571	0	0	0	282	0	250	
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	59	
Lane Group Flow (vph)	0	565	302	0	780	571	0	0	0	282	0	191	
Confl. Peds. (#/hr)									1	1			
Confl. Bikes (#/hr)			2			3							
Heavy Vehicles (%)	0%	7%	11%	0%	4%	12%	0%	0%	0%	7%	0%	11%	
Turn Type		NA	Free		NA	Free				Prot		Perm	
Protected Phases		2			6					4			
Permitted Phases			Free			Free						4 5	
Actuated Green, G (s)		75.4	100.0		60.9	100.0				15.6		30.1	
Effective Green, g (s)		75.4	100.0		60.9	100.0				15.6		30.1	
Actuated g/C Ratio		0.75	1.00		0.61	1.00				0.16		0.30	
Clearance Time (s)		4.5			4.5					4.5			
Vehicle Extension (s)		6.0			4.0					2.5			
Lane Grp Cap (vph)		2342	1312		1946	1300				470		403	
v/s Ratio Prot		0.18			0.24					c0.09			
v/s Ratio Perm			0.23			c0.44						0.14	
v/c Ratio		0.24	0.23		0.40	0.44				0.60		0.47	
Uniform Delay, d1		3.7	0.0		10.1	0.0				39.3		28.5	
Progression Factor		1.00	1.00		0.91	1.00				1.00		1.00	
Incremental Delay, d2		0.2	0.4		0.2	1.0				1.7		0.6	
Delay (s)		3.9	0.4		9.4	1.0				41.0		29.1	
Level of Service		A	A		A	A				D		C	
Approach Delay (s)		2.7			5.8			0.0			35.4		
Approach LOS		A			A			A			D		
<b>Intersection Summary</b>													
HCM 2000 Control Delay			10.6									HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.51										
Actuated Cycle Length (s)			100.0									Sum of lost time (s)	13.5
Intersection Capacity Utilization			41.3%									ICU Level of Service	A
Analysis Period (min)			15										
c	Critical Lane Group												

HCM 6th Signalized Intersection Summary  
 1: I-5 SB ramps & OR 214

2025 With Site Traffic Conditions  
 Weekday AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↗		↑↑	↗				↖↗		↖
Traffic Volume (veh/h)	0	475	254	0	655	480	0	0	0	237	0	210
Future Volume (veh/h)	0	475	254	0	655	480	0	0	0	237	0	210
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	1654	1600	0	1695	1586				1654	0	1600
Adj Flow Rate, veh/h	0	565	0	0	780	0				282	0	250
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84				0.84	0.84	0.84
Percent Heavy Veh, %	0	7	11	0	4	12				7	0	11
Cap, veh/h	0	2196		0	2250					646	0	287
Arrive On Green	0.00	0.70	0.00	0.00	0.70	0.00				0.21	0.00	0.21
Sat Flow, veh/h	0	3226	1356	0	3306	1344				3057	0	1356
Grp Volume(v), veh/h	0	565	0	0	780	0				282	0	250
Grp Sat Flow(s),veh/h/ln	0	1572	1356	0	1611	1344				1528	0	1356
Q Serve(g_s), s	0.0	6.6	0.0	0.0	9.6	0.0				8.0	0.0	17.8
Cycle Q Clear(g_c), s	0.0	6.6	0.0	0.0	9.6	0.0				8.0	0.0	17.8
Prop In Lane	0.00		1.00	0.00		1.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	2196		0	2250					646	0	287
V/C Ratio(X)	0.00	0.26		0.00	0.35					0.44	0.00	0.87
Avail Cap(c_a), veh/h	0	2196		0	2250					1085	0	481
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	0.00	0.00	0.82	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	5.5	0.0	0.0	6.0	0.0				34.3	0.0	38.1
Incr Delay (d2), s/veh	0.0	0.3	0.0	0.0	0.1	0.0				0.3	0.0	7.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	2.0	0.0	0.0	2.9	0.0				3.0	0.0	13.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	5.8	0.0	0.0	6.1	0.0				34.6	0.0	45.5
LnGrp LOS	A	A		A	A					C	A	D
Approach Vol, veh/h		565	A		780	A					532	
Approach Delay, s/veh		5.8			6.1						39.7	
Approach LOS		A			A						D	
Timer - Assigned Phs		2		4		6						
Phs Duration (G+Y+Rc), s		74.4		25.6		74.4						
Change Period (Y+Rc), s		4.5		4.5		4.5						
Max Green Setting (Gmax), s		55.5		35.5		40.5						
Max Q Clear Time (g_c+I1), s		8.6		19.8		11.6						
Green Ext Time (p_c), s		11.3		1.3		8.6						

Intersection Summary

HCM 6th Ctrl Delay	15.5
HCM 6th LOS	B

Notes

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

Queues  
2: I-5 NB ramps & OR 214

2025 With Site Traffic Conditions  
Weekday AM Peak Hour



Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	NBR
Lane Group Flow (vph)	560	236	980	769	266	313	307
v/c Ratio	0.27	0.18	0.49	0.55	0.73	0.66	0.63
Control Delay	8.2	0.3	10.7	1.5	45.8	17.3	15.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	8.2	0.3	10.7	1.5	45.8	17.3	15.9
Queue Length 50th (ft)	95	0	137	0	165	59	53
Queue Length 95th (ft)	116	0	234	13	222	138	125
Internal Link Dist (ft)	680		865			472	
Turn Bay Length (ft)							
Base Capacity (vph)	2047	1325	1990	1399	666	697	716
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.27	0.18	0.49	0.55	0.40	0.45	0.43
Intersection Summary							

HCM Signalized Intersection Capacity Analysis  
2: I-5 NB ramps & OR 214

2025 With Site Traffic Conditions  
Weekday AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↗		↑↑	↗	↗	↕	↗			
Traffic Volume (vph)	0	498	210	0	872	684	263	0	525	0	0	0
Future Volume (vph)	0	498	210	0	872	684	263	0	525	0	0	0
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		4.5	4.0		4.5	4.0	5.4	5.4	5.4			
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)		3137	1325		3050	1399	1462	1279	1321			
Flt Permitted		1.00	1.00		1.00	1.00	0.95	1.00	1.00			
Satd. Flow (perm)		3137	1325		3050	1399	1462	1279	1321			
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	0	560	236	0	980	769	296	0	590	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	158	158	0	0	0
Lane Group Flow (vph)	0	560	236	0	980	769	266	155	149	0	0	0
Confl. Peds. (#/hr)	1						1					
Confl. Bikes (#/hr)			1				3					
Heavy Vehicles (%)	0%	6%	10%	0%	9%	4%	8%	0%	7%	0%	0%	0%
Turn Type		NA	Free		NA	Free	Perm	NA	Perm			
Protected Phases		2			6			8				
Permitted Phases			Free			Free	8		8			
Actuated Green, G (s)		65.3	100.0		65.3	100.0	24.8	24.8	24.8			
Effective Green, g (s)		65.3	100.0		65.3	100.0	24.8	24.8	24.8			
Actuated g/C Ratio		0.65	1.00		0.65	1.00	0.25	0.25	0.25			
Clearance Time (s)		4.5			4.5		5.4	5.4	5.4			
Vehicle Extension (s)		4.0			6.0		2.5	2.5	2.5			
Lane Grp Cap (vph)		2048	1325		1991	1399	362	317	327			
v/s Ratio Prot		0.18			0.32							
v/s Ratio Perm			0.18			c0.55	c0.18	0.12	0.11			
v/c Ratio		0.27	0.18		0.49	0.55	0.73	0.49	0.46			
Uniform Delay, d1		7.3	0.0		8.9	0.0	34.6	32.2	31.9			
Progression Factor		0.92	1.00		0.98	1.00	1.00	1.00	1.00			
Incremental Delay, d2		0.3	0.3		0.4	1.2	7.1	0.9	0.7			
Delay (s)		7.1	0.3		9.1	1.2	41.7	33.0	32.6			
Level of Service		A	A		A	A	D	C	C			
Approach Delay (s)		5.1			5.6			35.5			0.0	
Approach LOS		A			A			D			A	
<b>Intersection Summary</b>												
HCM 2000 Control Delay			13.2				HCM 2000 Level of Service					B
HCM 2000 Volume to Capacity ratio			0.63									
Actuated Cycle Length (s)			100.0				Sum of lost time (s)					9.9
Intersection Capacity Utilization			48.1%				ICU Level of Service					A
Analysis Period (min)			15									
c Critical Lane Group												

HCM 6th Edition methodology does not support turning movements with shared & exclusive lanes.

Queues  
3: Evergreen Rd & OR 214

2025 With Site Traffic Conditions  
Weekday AM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	106	917	165	157	1000	310	308	183	6	46
v/c Ratio	0.69	0.67	0.24	0.77	0.71	0.83	0.82	0.37	0.05	0.33
Control Delay	70.9	24.8	3.2	73.9	22.4	54.4	53.0	6.5	44.5	28.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	70.9	24.8	3.2	73.9	22.4	54.4	53.0	6.5	44.5	28.2
Queue Length 50th (ft)	58	303	8	80	312	193	192	0	4	9
Queue Length 95th (ft)	#155	#396	24	m#197	#431	288	284	50	17	44
Internal Link Dist (ft)		865			282		429			498
Turn Bay Length (ft)	175		250	375		325		290	70	
Base Capacity (vph)	160	1361	701	211	1418	448	452	557	116	138
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.66	0.67	0.24	0.74	0.71	0.69	0.68	0.33	0.05	0.33

Intersection Summary

# 95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis  
3: Evergreen Rd & OR 214

2025 With Site Traffic Conditions  
Weekday AM Peak Hour

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (vph)	44	55	862	155	16	132	930	10	560	21	172	6
Future Volume (vph)	44	55	862	155	16	132	930	10	560	21	172	6
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
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	0.98		1.00	1.00		1.00	1.00	1.00	1.00
Flpb, ped/bikes		1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00
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)		1639	3137	1400		1630	3047		1548	1560	1473	1662
Flt Permitted		0.95	1.00	1.00		0.95	1.00		0.95	0.96	1.00	0.95
Satd. Flow (perm)		1639	3137	1400		1630	3047		1548	1560	1473	1662
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	47	59	917	165	17	140	989	11	596	22	183	6
RTOR Reduction (vph)	0	0	0	96	0	0	1	0	0	0	139	0
Lane Group Flow (vph)	0	106	917	69	0	157	999	0	310	308	44	6
Confl. Peds. (#/hr)		1						1	1			
Confl. Bikes (#/hr)				1								
Heavy Vehicles (%)	2%	1%	6%	4%	2%	2%	9%	0%	2%	0%	1%	0%
Turn Type	Prot	Prot	NA	Perm	Prot	Prot	NA		Split	NA	Perm	Split
Protected Phases	5	5	2		1	1	6		8	8		4
Permitted Phases				2							8	
Actuated Green, G (s)		9.4	41.6	41.6		12.5	44.7		24.2	24.2	24.2	4.2
Effective Green, g (s)		9.4	41.6	41.6		12.5	44.7		24.2	24.2	24.2	4.2
Actuated g/C Ratio		0.09	0.42	0.42		0.12	0.45		0.24	0.24	0.24	0.04
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)		154	1304	582		203	1362		374	377	356	69
v/s Ratio Prot		0.06	0.29			c0.10	c0.33		c0.20	0.20		0.00
v/s Ratio Perm				0.05							0.03	
v/c Ratio		0.69	0.70	0.12		0.77	0.73		0.83	0.82	0.12	0.09
Uniform Delay, d1		43.9	24.1	17.9		42.4	22.8		35.9	35.8	29.6	46.1
Progression Factor		1.10	0.86	0.64		1.22	0.80		1.00	1.00	1.00	1.00
Incremental Delay, d2		10.6	3.1	0.4		14.4	3.1		13.8	12.5	0.1	0.4
Delay (s)		59.0	23.7	11.8		66.1	21.3		49.7	48.3	29.7	46.5
Level of Service		E	C	B		E	C		D	D	C	D
Approach Delay (s)			25.2			27.4			44.6			
Approach LOS			C			C			D			
<b>Intersection Summary</b>												
HCM 2000 Control Delay			31.2			HCM 2000 Level of Service			C			
HCM 2000 Volume to Capacity ratio			0.75									
Actuated Cycle Length (s)			100.0			Sum of lost time (s)			17.5			
Intersection Capacity Utilization			69.7%			ICU Level of Service			C			
Analysis Period (min)			15									
c	Critical Lane Group											

HCM Signalized Intersection Capacity Analysis  
 3: Evergreen Rd & OR 214

2025 With Site Traffic Conditions  
 Weekday AM Peak Hour



Movement	SBT	SBR
Lane Configurations	⤴	
Traffic Volume (vph)	13	30
Future Volume (vph)	13	30
Ideal Flow (vphpl)	1750	1750
Total Lost time (s)	4.5	
Lane Util. Factor	1.00	
Frbp, ped/bikes	0.99	
Flpb, ped/bikes	1.00	
Frt	0.90	
Flt Protected	1.00	
Satd. Flow (prot)	1547	
Flt Permitted	1.00	
Satd. Flow (perm)	1547	
Peak-hour factor, PHF	0.94	0.94
Adj. Flow (vph)	14	32
RTOR Reduction (vph)	31	0
Lane Group Flow (vph)	15	0
Confl. Peds. (#/hr)		1
Confl. Bikes (#/hr)		
Heavy Vehicles (%)	0%	0%
Turn Type	NA	
Protected Phases	4	
Permitted Phases		
Actuated Green, G (s)	4.2	
Effective Green, g (s)	4.2	
Actuated g/C Ratio	0.04	
Clearance Time (s)	4.5	
Vehicle Extension (s)	2.5	
Lane Grp Cap (vph)	64	
v/s Ratio Prot	c0.01	
v/s Ratio Perm		
v/c Ratio	0.24	
Uniform Delay, d1	46.4	
Progression Factor	1.00	
Incremental Delay, d2	1.4	
Delay (s)	47.8	
Level of Service	D	
Approach Delay (s)	47.6	
Approach LOS	D	
<b>Intersection Summary</b>		

HCM 6th Edition cannot analyze u-turn movements.

Queues  
5: Oregon Way & OR 214

2025 With Site Traffic Conditions  
Weekday AM Peak Hour



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	24	1038	80	1015	118	97	8	78
v/c Ratio	0.22	0.56	0.46	0.48	0.84	0.32	0.09	0.48
Control Delay	41.7	12.8	50.2	9.8	88.1	13.0	47.3	23.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	41.7	12.8	50.2	9.8	88.1	13.0	47.3	23.6
Queue Length 50th (ft)	17	118	49	114	75	5	5	6
Queue Length 95th (ft)	m27	201	93	271	#176	52	20	50
Internal Link Dist (ft)		190		686		135		364
Turn Bay Length (ft)	305		155		150		50	
Base Capacity (vph)	110	1851	173	2128	142	602	91	549
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.22	0.56	0.46	0.48	0.83	0.16	0.09	0.14

Intersection Summary

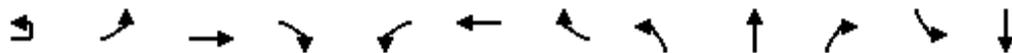
# 95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis  
5: Oregon Way & OR 214

2025 With Site Traffic Conditions  
Weekday AM Peak Hour



Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations		↔	↕		↕	↕		↕	↕		↕	↕
Traffic Volume (vph)	10	12	947	8	74	915	18	109	8	81	7	9
Future Volume (vph)	10	12	947	8	74	915	18	109	8	81	7	9
Ideal Flow (vphp)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		4.0	4.5		4.0	4.5		4.0	4.0		4.0	4.0
Lane Util. Factor		1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00
Frbp, ped/bikes		1.00	1.00		1.00	1.00		1.00	0.99		1.00	0.99
Flpb, ped/bikes		1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00
Frt		1.00	1.00		1.00	1.00		1.00	0.86		1.00	0.87
Flt Protected		0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00
Satd. Flow (prot)		1647	3105		1662	3073		1662	1493		1662	1504
Flt Permitted		0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00
Satd. Flow (perm)		1647	3105		1662	3073		1662	1493		1662	1504
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	11	13	1029	9	80	995	20	118	9	88	8	10
RTOR Reduction (vph)	0	0	0	0	0	1	0	0	74	0	0	62
Lane Group Flow (vph)	0	24	1038	0	80	1014	0	118	23	0	8	16
Confl. Peds. (#/hr)		3		2	2		3	1		2	2	
Heavy Vehicles (%)	2%	0%	7%	0%	0%	8%	0%	0%	0%	0%	0%	0%
Turn Type	Prot	Prot	NA		Prot	NA		Prot	NA		Prot	NA
Protected Phases	5	5	2		1	6		3	8		7	4
Permitted Phases												
Actuated Green, G (s)		3.2	56.4		10.4	63.6		8.6	15.6		1.1	8.1
Effective Green, g (s)		3.2	56.4		10.4	63.6		8.6	15.6		1.1	8.1
Actuated g/C Ratio		0.03	0.56		0.10	0.64		0.09	0.16		0.01	0.08
Clearance Time (s)		4.0	4.5		4.0	4.5		4.0	4.0		4.0	4.0
Vehicle Extension (s)		2.5	6.2		2.5	6.2		2.5	2.5		2.5	2.5
Lane Grp Cap (vph)		52	1751		172	1954		142	232		18	121
v/s Ratio Prot		0.01	c0.33		c0.05	0.33		c0.07	c0.02		0.00	0.01
v/s Ratio Perm												
v/c Ratio		0.46	0.59		0.47	0.52		0.83	0.10		0.44	0.13
Uniform Delay, d1		47.6	14.3		42.2	9.9		45.0	36.2		49.1	42.7
Progression Factor		0.86	0.85		1.00	1.00		1.00	1.00		1.00	1.00
Incremental Delay, d2		3.8	1.2		1.4	1.0		31.5	0.1		12.2	0.3
Delay (s)		44.8	13.4		43.6	10.9		76.5	36.3		61.4	43.0
Level of Service		D	B		D	B		E	D		E	D
Approach Delay (s)			14.1			13.3			58.3			44.7
Approach LOS			B			B			E			D
<b>Intersection Summary</b>												
HCM 2000 Control Delay			18.7									B
HCM 2000 Volume to Capacity ratio			0.56									
Actuated Cycle Length (s)			100.0						16.5			
Intersection Capacity Utilization			57.6%									B
ICU Level of Service												
Analysis Period (min)			15									

c Critical Lane Group

Movement	SBR
Lane Configurations	
Traffic Volume (vph)	63
Future Volume (vph)	63
Ideal Flow (vphpl)	1750
Total Lost time (s)	
Lane Util. Factor	
Frbp, ped/bikes	
Flpb, ped/bikes	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.92
Adj. Flow (vph)	68
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Confl. Peds. (#/hr)	1
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 Edition cannot analyze u-turn movements.

Intersection						
Int Delay, s/veh	5.7					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	162	2	2	36	17	74
Future Vol, veh/h	162	2	2	36	17	74
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	191	2	2	42	20	87

Major/Minor	Minor2	Major1		Major2	
Conflicting Flow All	110	64	107	0	0
Stage 1	64	-	-	-	-
Stage 2	46	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-
Pot Cap-1 Maneuver	892	1006	1497	-	-
Stage 1	964	-	-	-	-
Stage 2	982	-	-	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	891	1006	1497	-	-
Mov Cap-2 Maneuver	891	-	-	-	-
Stage 1	963	-	-	-	-
Stage 2	982	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10.1	0.4	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1497	-	892	-	-
HCM Lane V/C Ratio	0.002	-	0.216	-	-
HCM Control Delay (s)	7.4	0	10.1	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0.8	-	-

Queues  
1: I-5 SB ramps & OR 214

2025 With Site Traffic Conditions  
Weekday PM Peak Hour



Lane Group	EBT	EBR	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	859	483	828	630	562	397
v/c Ratio	0.39	0.34	0.48	0.44	0.75	0.65
Control Delay	8.8	0.6	17.1	0.9	41.4	23.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	8.8	0.6	17.1	0.9	41.4	23.6
Queue Length 50th (ft)	110	0	160	0	174	160
Queue Length 95th (ft)	201	0	161	3	201	219
Internal Link Dist (ft)	562		680			
Turn Bay Length (ft)		270		550	650	430
Base Capacity (vph)	2200	1426	1723	1430	998	617
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.39	0.34	0.48	0.44	0.56	0.64
<b>Intersection Summary</b>						

HCM Signalized Intersection Capacity Analysis  
1: I-5 SB ramps & OR 214

2025 With Site Traffic Conditions  
Weekday PM Peak Hour

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		↑↑	↗		↑↑	↗				↖↗		↗	
Traffic Volume (vph)	0	790	444	0	762	580	0	0	0	517	0	365	
Future Volume (vph)	0	790	444	0	762	580	0	0	0	517	0	365	
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	
Total Lost time (s)		4.5	4.0		4.5	4.0				4.5		4.5	
Lane Util. Factor		0.95	1.00		0.95	1.00				0.97		1.00	
Frbp, ped/bikes		1.00	0.98		1.00	1.00				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)		3260	1426		3260	1430				3131		1444	
Flt Permitted		1.00	1.00		1.00	1.00				0.95		1.00	
Satd. Flow (perm)		3260	1426		3260	1430				3131		1444	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	
Adj. Flow (vph)	0	859	483	0	828	630	0	0	0	562	0	397	
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	57	
Lane Group Flow (vph)	0	859	483	0	828	630	0	0	0	562	0	340	
Confl. Peds. (#/hr)			3	3					1	1			
Confl. Bikes (#/hr)			1										
Heavy Vehicles (%)	0%	2%	2%	0%	2%	4%	0%	0%	0%	3%	0%	3%	
Turn Type		NA	Free		NA	Free				Prot		Perm	
Protected Phases		2			6					4			
Permitted Phases			Free			Free						4 5	
Actuated Green, G (s)		67.1	100.0		52.6	100.0				23.9		38.4	
Effective Green, g (s)		67.1	100.0		52.6	100.0				23.9		38.4	
Actuated g/C Ratio		0.67	1.00		0.53	1.00				0.24		0.38	
Clearance Time (s)		4.5			4.5					4.5			
Vehicle Extension (s)		6.0			4.0					2.5			
Lane Grp Cap (vph)		2187	1426		1714	1430				748		554	
v/s Ratio Prot		0.26			c0.25					c0.18			
v/s Ratio Perm			0.34			0.44						c0.24	
v/c Ratio		0.39	0.34		0.48	0.44				0.75		0.61	
Uniform Delay, d1		7.3	0.0		15.1	0.0				35.3		24.8	
Progression Factor		1.00	1.00		0.99	1.00				1.00		1.00	
Incremental Delay, d2		0.5	0.6		0.3	0.9				4.1		1.7	
Delay (s)		7.9	0.6		15.2	0.9				39.4		26.6	
Level of Service		A	A		B	A				D		C	
Approach Delay (s)		5.3			9.0			0.0			34.1		
Approach LOS		A			A			A			C		
<b>Intersection Summary</b>													
HCM 2000 Control Delay			14.1									HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.59										
Actuated Cycle Length (s)			100.0									Sum of lost time (s)	13.5
Intersection Capacity Utilization			54.9%									ICU Level of Service	A
Analysis Period (min)			15										
c Critical Lane Group													

HCM 6th Signalized Intersection Summary  
 1: I-5 SB ramps & OR 214

2025 With Site Traffic Conditions  
 Weekday PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↗		↑↑	↗				↖↖		↗
Traffic Volume (veh/h)	0	790	444	0	762	580	0	0	0	517	0	365
Future Volume (veh/h)	0	790	444	0	762	580	0	0	0	517	0	365
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	1723	1723	0	1723	1695				1709	0	1709
Adj Flow Rate, veh/h	0	859	0	0	828	0				562	0	397
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92				0.92	0.92	0.92
Percent Heavy Veh, %	0	2	2	0	2	4				3	0	3
Cap, veh/h	0	2010		0	2010					934	0	429
Arrive On Green	0.00	0.61	0.00	0.00	0.61	0.00				0.30	0.00	0.30
Sat Flow, veh/h	0	3359	1460	0	3359	1437				3158	0	1448
Grp Volume(v), veh/h	0	859	0	0	828	0				562	0	397
Grp Sat Flow(s),veh/h/ln	0	1637	1460	0	1637	1437				1579	0	1448
Q Serve(g_s), s	0.0	13.7	0.0	0.0	13.1	0.0				15.2	0.0	26.6
Cycle Q Clear(g_c), s	0.0	13.7	0.0	0.0	13.1	0.0				15.2	0.0	26.6
Prop In Lane	0.00		1.00	0.00		1.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	2010		0	2010					934	0	429
V/C Ratio(X)	0.00	0.43		0.00	0.41					0.60	0.00	0.93
Avail Cap(c_a), veh/h	0	2010		0	2010					995	0	456
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	0.00	0.00	0.80	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	10.1	0.0	0.0	10.0	0.0				30.2	0.0	34.1
Incr Delay (d2), s/veh	0.0	0.7	0.0	0.0	0.2	0.0				0.8	0.0	24.0
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	4.7	0.0	0.0	4.4	0.0				5.8	0.0	21.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	10.8	0.0	0.0	10.1	0.0				30.9	0.0	58.1
LnGrp LOS	A	B		A	B					C	A	E
Approach Vol, veh/h		859	A		828	A					959	
Approach Delay, s/veh		10.8			10.1						42.2	
Approach LOS		B			B						D	
Timer - Assigned Phs		2		4		6						
Phs Duration (G+Y+Rc), s		65.9		34.1		65.9						
Change Period (Y+Rc), s		4.5		4.5		4.5						
Max Green Setting (Gmax), s		59.5		31.5		44.5						
Max Q Clear Time (g_c+I1), s		15.7		28.6		15.1						
Green Ext Time (p_c), s		18.6		1.0		9.3						
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay			22.0									
HCM 6th LOS			C									
<b>Notes</b>												
Unsignalized Delay for [EBR, WBR] is excluded from calculations of the approach delay and intersection delay.												

Queues  
2: I-5 NB ramps & OR 214

2025 With Site Traffic Conditions  
Weekday PM Peak Hour



Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	NBR
Lane Group Flow (vph)	1149	231	1130	380	269	313	307
v/c Ratio	0.55	0.16	0.54	0.27	0.68	0.81	0.77
Control Delay	11.4	0.2	8.5	0.4	40.4	43.0	39.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	11.4	0.2	8.5	0.4	40.4	43.0	39.4
Queue Length 50th (ft)	221	0	165	0	162	169	155
Queue Length 95th (ft)	333	0	191	0	215	242	223
Internal Link Dist (ft)	680		865			472	
Turn Bay Length (ft)							
Base Capacity (vph)	2095	1403	2075	1387	565	526	542
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.55	0.16	0.54	0.27	0.48	0.60	0.57
Intersection Summary							

HCM Signalized Intersection Capacity Analysis  
 2: I-5 NB ramps & OR 214

2025 With Site Traffic Conditions  
 Weekday PM Peak Hour

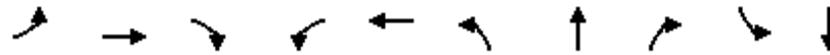
												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↗		↑↑	↗	↗	↕	↗			
Traffic Volume (vph)	0	1080	217	0	1062	357	281	0	555	0	0	0
Future Volume (vph)	0	1080	217	0	1062	357	281	0	555	0	0	0
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		4.5	4.0		4.5	4.0	5.4	5.4	5.4			
Lane Util. Factor		0.95	1.00		0.95	1.00	0.95	0.91	0.95			
Frbp, ped/bikes		1.00	1.00		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)		3292	1403		3260	1387	1504	1305	1346			
Flt Permitted		1.00	1.00		1.00	1.00	0.95	1.00	1.00			
Satd. Flow (perm)		3292	1403		3260	1387	1504	1305	1346			
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	0	1149	231	0	1130	380	299	0	590	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	43	43	0	0	0
Lane Group Flow (vph)	0	1149	231	0	1130	380	269	270	264	0	0	0
Confl. Peds. (#/hr)	2					2						
Heavy Vehicles (%)	0%	1%	6%	0%	2%	5%	5%	0%	5%	0%	0%	0%
Turn Type		NA	Free		NA	Free	Perm	NA	Perm			
Protected Phases		2			6			8				
Permitted Phases			Free			Free	8		8			
Actuated Green, G (s)		63.7	100.0		63.7	100.0	26.4	26.4	26.4			
Effective Green, g (s)		63.7	100.0		63.7	100.0	26.4	26.4	26.4			
Actuated g/C Ratio		0.64	1.00		0.64	1.00	0.26	0.26	0.26			
Clearance Time (s)		4.5			4.5		5.4	5.4	5.4			
Vehicle Extension (s)		4.0			6.0		2.5	2.5	2.5			
Lane Grp Cap (vph)		2097	1403		2076	1387	397	344	355			
v/s Ratio Prot		c0.35			0.35							
v/s Ratio Perm			0.16			0.27	0.18	0.21	0.20			
v/c Ratio		0.55	0.16		0.54	0.27	0.68	0.79	0.74			
Uniform Delay, d1		10.1	0.0		10.1	0.0	33.0	34.2	33.7			
Progression Factor		0.88	1.00		0.66	1.00	1.00	1.00	1.00			
Incremental Delay, d2		0.9	0.2		0.5	0.4	4.1	10.8	7.8			
Delay (s)		9.8	0.2		7.1	0.4	37.1	45.0	41.5			
Level of Service		A	A		A	A	D	D	D			
Approach Delay (s)		8.2			5.4			41.4			0.0	
Approach LOS		A			A			D			A	
<b>Intersection Summary</b>												
HCM 2000 Control Delay			14.9				HCM 2000 Level of Service				B	
HCM 2000 Volume to Capacity ratio			0.62									
Actuated Cycle Length (s)			100.0				Sum of lost time (s)				9.9	
Intersection Capacity Utilization			65.5%				ICU Level of Service				C	
Analysis Period (min)			15									

c Critical Lane Group

HCM 6th Edition methodology does not support turning movements with shared & exclusive lanes.

Queues  
3: Evergreen Rd & OR 214

2025 With Site Traffic Conditions  
Weekday PM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	111	1137	335	263	978	260	260	210	35	123
v/c Ratio	0.62	1.06	0.47	0.78	0.71	0.78	0.77	0.44	0.30	0.74
Control Delay	61.4	75.3	7.0	67.6	18.6	52.4	51.1	7.1	51.4	49.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	61.4	75.3	7.0	67.6	18.6	52.4	51.1	7.1	51.4	49.5
Queue Length 50th (ft)	70	~432	14	164	246	165	165	0	22	36
Queue Length 95th (ft)	m#181	#546	83	m#374	140	237	236	53	53	#126
Internal Link Dist (ft)		865			282		429			498
Turn Bay Length (ft)	175		250	375		325		290	70	
Base Capacity (vph)	178	1070	710	336	1369	444	452	569	116	167
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.62	1.06	0.47	0.78	0.71	0.59	0.58	0.37	0.30	0.74

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.  
Queue shown is maximum after two cycles.

# 95th percentile volume exceeds capacity, queue may be longer.  
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis  
3: Evergreen Rd & OR 214

2025 With Site Traffic Conditions  
Weekday PM Peak Hour

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (vph)	24	79	1057	312	5	240	887	22	440	44	195	33
Future Volume (vph)	24	79	1057	312	5	240	887	22	440	44	195	33
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
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	1.00		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)		1655	3197	1458		1662	3188		1533	1559	1451	1662
Flt Permitted		0.95	1.00	1.00		0.95	1.00		0.95	0.96	1.00	0.95
Satd. Flow (perm)		1655	3197	1458		1662	3188		1533	1559	1451	1662
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	26	85	1137	335	5	258	954	24	473	47	210	35
RTOR Reduction (vph)	0	0	0	222	0	0	2	0	0	0	164	0
Lane Group Flow (vph)	0	111	1137	113	0	263	976	0	260	260	46	35
Confl. Peds. (#/hr)									1		2	2
Confl. Bikes (#/hr)											1	
Heavy Vehicles (%)	2%	0%	4%	2%	2%	0%	4%	0%	3%	0%	1%	0%
Turn Type	Prot	Prot	NA	Perm	Prot	Prot	NA		Split	NA	Perm	Split
Protected Phases	5	5	2		1	1	6		8	8		4
Permitted Phases				2							8	
Actuated Green, G (s)		10.8	33.5	33.5		20.2	42.9		21.8	21.8	21.8	7.0
Effective Green, g (s)		10.8	33.5	33.5		20.2	42.9		21.8	21.8	21.8	7.0
Actuated g/C Ratio		0.11	0.34	0.34		0.20	0.43		0.22	0.22	0.22	0.07
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)		178	1070	488		335	1367		334	339	316	116
v/s Ratio Prot		0.07	c0.36			c0.16	0.31		c0.17	0.17		0.02
v/s Ratio Perm				0.08							0.03	
v/c Ratio		0.62	1.06	0.23		0.79	0.71		0.78	0.77	0.14	0.30
Uniform Delay, d1		42.7	33.2	24.0		37.8	23.5		36.8	36.7	31.6	44.2
Progression Factor		1.09	0.94	1.72		1.37	0.64		1.00	1.00	1.00	1.00
Incremental Delay, d2		4.9	43.6	0.9		9.4	2.7		10.5	9.5	0.2	1.1
Delay (s)		51.2	74.9	42.1		61.5	17.8		47.3	46.3	31.7	45.2
Level of Service		D	E	D		E	B		D	D	C	D
Approach Delay (s)			66.3			27.1			42.5			
Approach LOS			E			C			D			
<b>Intersection Summary</b>												
HCM 2000 Control Delay			47.8			HCM 2000 Level of Service				D		
HCM 2000 Volume to Capacity ratio			0.88									
Actuated Cycle Length (s)			100.0			Sum of lost time (s)				17.5		
Intersection Capacity Utilization			82.4%			ICU Level of Service				E		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis  
 3: Evergreen Rd & OR 214

2025 With Site Traffic Conditions  
 Weekday PM Peak Hour



Movement	SBT	SBR
Lane Configurations	⤴	
Traffic Volume (vph)	43	72
Future Volume (vph)	43	72
Ideal Flow (vphpl)	1750	1750
Total Lost time (s)	4.5	
Lane Util. Factor	1.00	
Frbp, ped/bikes	0.99	
Flpb, ped/bikes	1.00	
Frt	0.91	
Flt Protected	1.00	
Satd. Flow (prot)	1531	
Flt Permitted	1.00	
Satd. Flow (perm)	1531	
Peak-hour factor, PHF	0.93	0.93
Adj. Flow (vph)	46	77
RTOR Reduction (vph)	60	0
Lane Group Flow (vph)	63	0
Confl. Peds. (#/hr)		1
Confl. Bikes (#/hr)		
Heavy Vehicles (%)	0%	4%
Turn Type	NA	
Protected Phases	4	
Permitted Phases		
Actuated Green, G (s)	7.0	
Effective Green, g (s)	7.0	
Actuated g/C Ratio	0.07	
Clearance Time (s)	4.5	
Vehicle Extension (s)	2.5	
Lane Grp Cap (vph)	107	
v/s Ratio Prot	c0.04	
v/s Ratio Perm		
v/c Ratio	0.58	
Uniform Delay, d1	45.1	
Progression Factor	1.00	
Incremental Delay, d2	6.6	
Delay (s)	51.7	
Level of Service	D	
Approach Delay (s)	50.3	
Approach LOS	D	
<b>Intersection Summary</b>		

HCM 6th Edition cannot analyze u-turn movements.

Queues  
5: Oregon Way & OR 214

2025 With Site Traffic Conditions  
Weekday PM Peak Hour



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	111	1134	74	1076	100	92	64	97
v/c Ratio	0.54	0.57	0.45	0.58	0.82	0.48	0.59	0.54
Control Delay	38.9	17.0	50.5	16.3	91.0	24.4	68.0	26.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	38.9	17.0	50.5	16.3	91.0	24.4	68.0	26.3
Queue Length 50th (ft)	76	175	45	219	64	14	40	14
Queue Length 95th (ft)	m80	m186	88	344	#158	60	#97	62
Internal Link Dist (ft)		190		686		135		364
Turn Bay Length (ft)	305		155		150		50	
Base Capacity (vph)	207	1999	164	1862	122	567	113	564
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.54	0.57	0.45	0.58	0.82	0.16	0.57	0.17

Intersection Summary

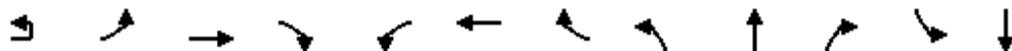
# 95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis  
5: Oregon Way & OR 214

2025 With Site Traffic Conditions  
Weekday PM Peak Hour



Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	
Lane Configurations													
Traffic Volume (vph)	15	91	1069	19	71	987	46	96	22	66	61	22	
Future Volume (vph)	15	91	1069	19	71	987	46	96	22	66	61	22	
Ideal Flow (vphp)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	
Total Lost time (s)		4.0	4.5		4.0	4.5		4.0	4.0		4.0	4.0	
Lane Util. Factor		1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frbp, ped/bikes		1.00	1.00		1.00	1.00		1.00	0.99		1.00	1.00	
Flpb, ped/bikes		1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt		1.00	1.00		1.00	0.99		1.00	0.89		1.00	0.89	
Flt Protected		0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1658	3189		1662	3207		1662	1537		1662	1538	
Flt Permitted		0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1658	3189		1662	3207		1662	1537		1662	1538	
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)	16	95	1114	20	74	1028	48	100	23	69	64	23	
RTOR Reduction (vph)	0	0	1	0	0	2	0	0	63	0	0	69	
Lane Group Flow (vph)	0	111	1133	0	74	1074	0	100	29	0	64	28	
Confl. Peds. (#/hr)		3		3	3		3			2	2		
Confl. Bikes (#/hr)				1									
Heavy Vehicles (%)	2%	0%	4%	1%	0%	3%	0%	0%	0%	0%	0%	0%	
Turn Type	Prot	Prot	NA		Prot	NA		Prot	NA		Prot	NA	
Protected Phases	5	5	2		1	6		3	8		7	4	
Permitted Phases													
Actuated Green, G (s)		12.5	61.0		8.7	57.2		7.4	8.4		5.4	6.4	
Effective Green, g (s)		12.5	61.0		8.7	57.2		7.4	8.4		5.4	6.4	
Actuated g/C Ratio		0.12	0.61		0.09	0.57		0.07	0.08		0.05	0.06	
Clearance Time (s)		4.0	4.5		4.0	4.5		4.0	4.0		4.0	4.0	
Vehicle Extension (s)		2.5	6.2		2.5	6.2		2.5	2.5		2.5	2.5	
Lane Grp Cap (vph)		207	1945		144	1834		122	129		89	98	
v/s Ratio Prot		c0.07	c0.36		0.04	0.33		c0.06	c0.02		0.04	0.02	
v/s Ratio Perm													
v/c Ratio		0.54	0.58		0.51	0.59		0.82	0.22		0.72	0.28	
Uniform Delay, d1		41.0	11.8		43.6	13.8		45.6	42.8		46.6	44.6	
Progression Factor		0.87	1.26		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.7	0.5		2.3	1.4		32.5	0.6		22.7	1.2	
Delay (s)		36.6	15.3		45.9	15.1		78.1	43.4		69.2	45.8	
Level of Service		D	B		D	B		E	D		E	D	
Approach Delay (s)			17.2			17.1			61.5			55.1	
Approach LOS			B			B			E			E	
<b>Intersection Summary</b>													
HCM 2000 Control Delay			22.5									HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio			0.58										
Actuated Cycle Length (s)			100.0									Sum of lost time (s)	16.5
Intersection Capacity Utilization			61.3%									ICU Level of Service	B
Analysis Period (min)			15										
c	Critical Lane Group												



Movement	SBR
Lane Configurations	
Traffic Volume (vph)	71
Future Volume (vph)	71
Ideal Flow (vphpl)	1750
Total Lost time (s)	
Lane Util. Factor	
Frbp, ped/bikes	
Flpb, ped/bikes	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.96
Adj. Flow (vph)	74
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Confl. Peds. (#/hr)	
Confl. Bikes (#/hr)	
Heavy Vehicles (%)	1%
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 Edition cannot analyze u-turn movements.

Intersection						
Int Delay, s/veh	5					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	143	3	1	41	52	60
Future Vol, veh/h	143	3	1	41	52	60
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	168	4	1	48	61	71

Major/Minor	Minor2	Major1		Major2	
Conflicting Flow All	147	97	132	0	0
Stage 1	97	-	-	-	-
Stage 2	50	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-
Pot Cap-1 Maneuver	850	965	1466	-	-
Stage 1	932	-	-	-	-
Stage 2	978	-	-	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	849	965	1466	-	-
Mov Cap-2 Maneuver	849	-	-	-	-
Stage 1	931	-	-	-	-
Stage 2	978	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10.3	0.2	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1466	-	851	-	-
HCM Lane V/C Ratio	0.001	-	0.202	-	-
HCM Control Delay (s)	7.5	0	10.3	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0.8	-	-