

Transportation Impact Analysis

The Cove Mixed-use Development

Oregon City, Oregon

July 2015

Transportation Impact Analysis

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Oregon City, Oregon

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Section 1

Executive Summary

Executive Summary

This report presents Kittelson & Associates, Inc.'s (KAI) traffic impact analysis (TIA) for the Cove Mixed-Use Development project. The scope of this analysis and the underlying assumptions have been reviewed and approved by City staff and representatives from the Oregon Department of Transportation (ODOT). The development is planned to be constructed in five major phases, with all phases expected to be constructed by 2020. As such, the traffic analysis in this report considers full buildout of all phases.

The report includes an inventory and assessment of existing conditions; a forecast and assessment of future background traffic conditions, without the proposed development; and, an assessment of the future total traffic conditions that includes the proposed development.

KEY FINDINGS

Year 2015 Existing Conditions

- All of the study intersections operate within the established mobility standards of the governing agency during the weekday a.m. and p.m. peak hours.
- A review of historical crash data does not reveal any patterns or trends in the site vicinity that require mitigation associated with this project.
- The southbound left-turn movement at the ORE 99E /I-205 SB Ramp Terminal intersection was observed to exceed the available striped lane queue storage during the weekday a.m. peak hour.

Year 2020 Background Traffic Conditions

- Existing traffic volumes are increased by agreed upon annual growth rates to estimate the year 2020 weekday peak period traffic volumes.
- All study intersections are forecast to continue to operate within the established mobility standards of the governing agency during the weekday a.m. and p.m. peak periods.
- The southbound left-turn movement at the ORE 99E /I-205 SB Ramp Terminal intersection is forecast to continue to exceed the available striped lane queue storage during the weekday a.m. peak hour.

Development Plan

- The proposed development plan consists of the following development:
 - 439 housing units (244 apartments and 195 condo/townhome units);
 - 14,950 square feet of restaurants (5,950 square feet of high-turnover, 8,000 square feet of quality restaurant, and 1,000 square feet coffee shop);
 - 84,212 square feet of general office space

- 50,400 square feet of medical-dental office space;
- A public marina with 150 boat slips (half to be used by on-site development); and
- A City park.
- The proposed development plan is estimated to generate approximately 6,489 net new daily vehicle trips. Of the net new daily vehicle trips, approximately 406 will occur during the a.m. peak hour, and approximately 609 will occur during the p.m. peak hour.

Year 2020 Total Traffic Conditions

- All study intersections are forecast to continue to operate acceptably during the weekday a.m. and p.m. peak periods upon site buildout.
- The southbound left-turn movement at the ORE 99E /I-205 SB Ramp Terminal intersection is forecast to continue to exceed the available striped lane queue storage during the weekday a.m. peak hour. *No site-generated traffic is expected to increase the queue at this location.*

RECOMMENDATIONS

The following list provides a summary of the mitigation measures recommended as part of this proposed development.

- Signage, above-ground utilities, and landscaping near the internal intersections and site access points should be maintained to ensure adequate sight distance.

Additional details of the study methodology, findings, and recommendations are provided within this report.

Section 2

Introduction

Introduction

PROJECT DESCRIPTION

The applicant proposes to develop a largely vacant land parcel located on the southern banks of Clackamette Cove in the City of Oregon City. Figure 1 shows the site vicinity map.

The proposed plan, illustrated in Figure 2, consists of approximately 439 housing units (244 apartments and 195 condo/townhome units); 14,950 square feet of restaurants (5,950 square feet of high-turnover, 8,000 square feet of quality restaurant, and 1,000 square feet coffee shop); 84,212 square feet of general office space, 50,400 square feet of medical-dental office space; a public marina with 150 boat slips (half to be used by on-site development); and a City park.

The development is planned to be constructed in five major phases, with all phases expected to be constructed by 2020. As such, the traffic analysis in this report considers full buildout of all phases.

SCOPE OF THE REPORT

This analysis determines the transportation-related impacts associated with the development and was prepared in accordance with the City of Oregon City requirements for traffic impact studies. The study intersections and scope of this project were selected through conversations with City and ODOT staff.

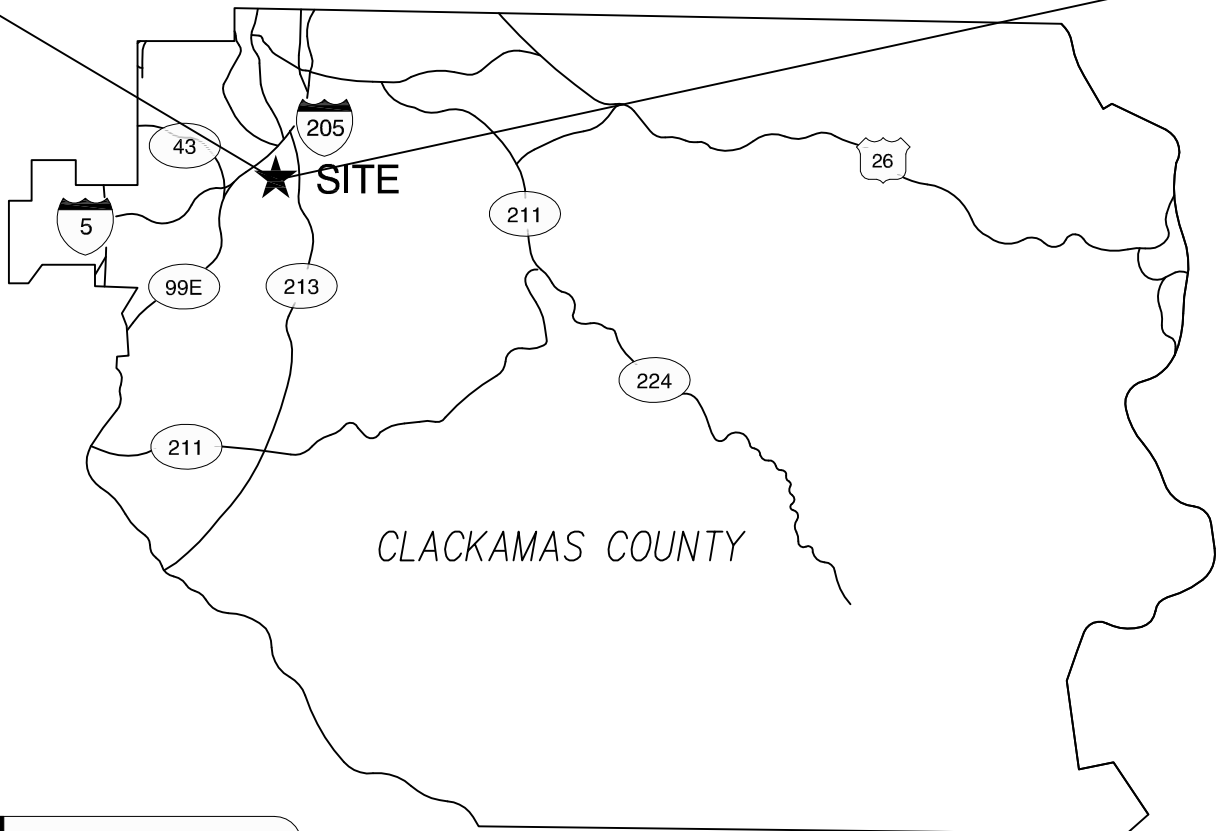
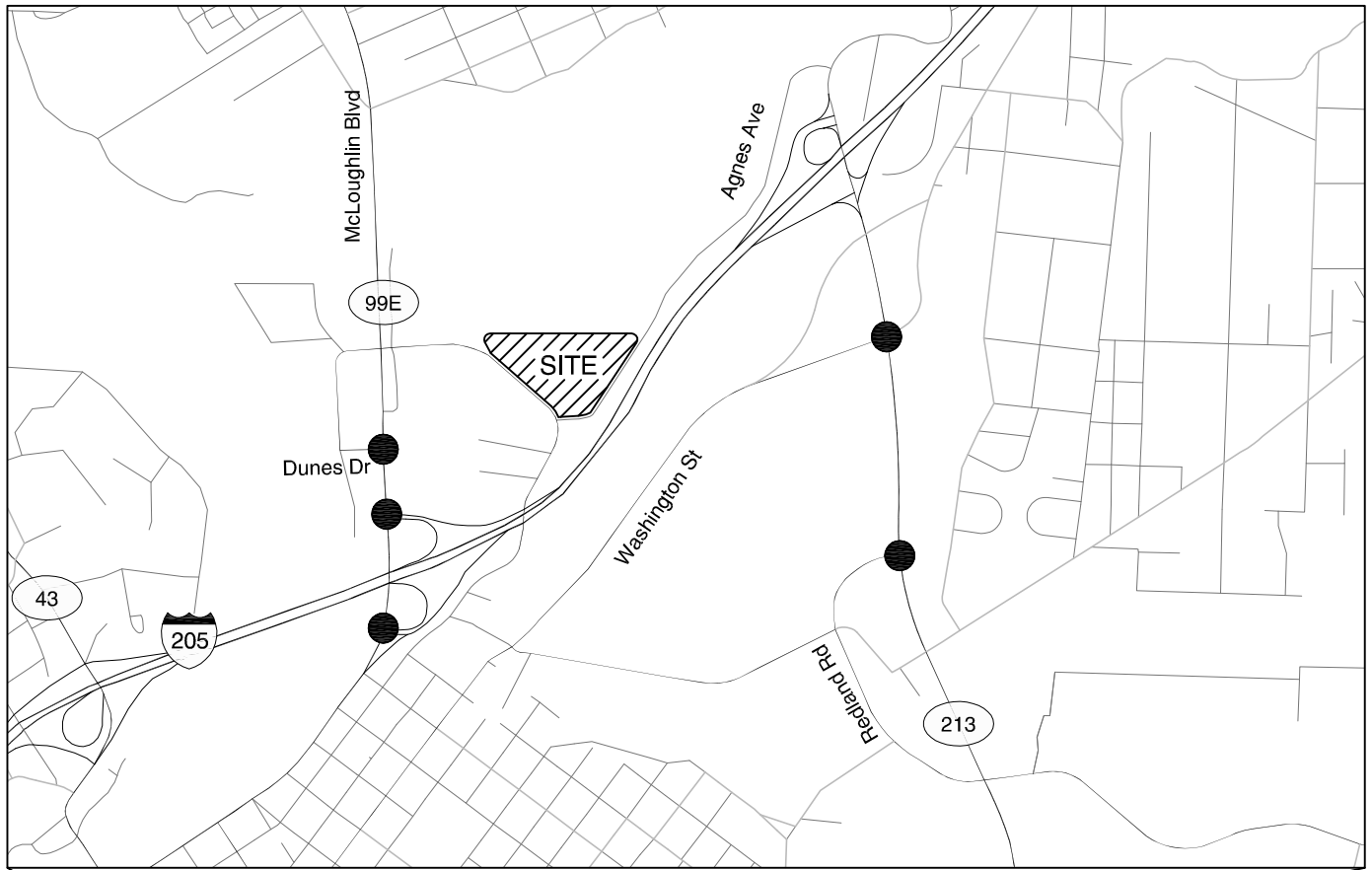
Study Intersections

Operations of the following intersections (as identified by the City and ODOT) are studied and summarized in this report:

- ORE 99E /Dunes Drive-Oregon City Shopping Center
- ORE 99E /I-205 SB Ramp Terminal
- ORE 99E /I-205 NB Ramp Terminal
- ORE 213/Washington Street
- ORE 213/Redland Road

Analysis Period

The study analyzes traffic operations during the weekday a.m. and p.m. peak hours. These are the time periods when the combination of site and background traffic volumes on the surrounding transportation system is likely to be greatest.



LEGEND

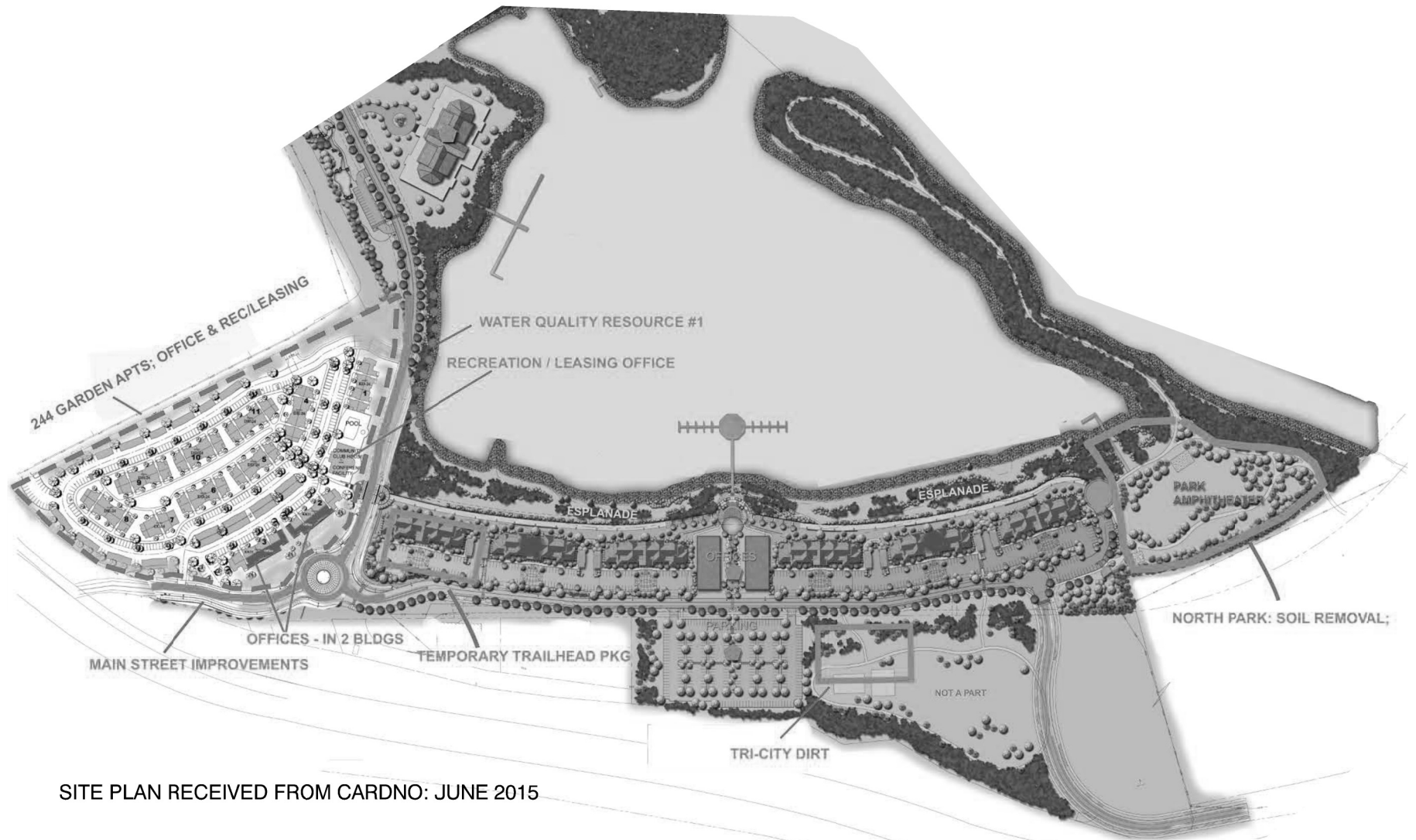
● - STUDY INTERSECTION

SITE VICINITY
OREGON CITY, OREGON

FIGURE

1

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SITE PLAN RECEIVED FROM CARDNO: JUNE 2015

PROPOSED DEVELOPMENT PLAN
OREGON CITY, OREGON

FIGURE
2

Analysis Scenarios

The proposed development (all phases) is expected to be built out in year 2020. This report evaluates these transportation issues:

- Year 2015 existing land-use and transportation-system conditions within the site vicinity during the weekday a.m. and p.m. peak hours;
- Developments and transportation improvements planned in the study area;
- Forecast year 2020 background traffic conditions during the weekday a.m. and p.m. peak hours;
- Trip generation and distribution estimates for the proposed development (all phases);
- Forecast year 2020 total traffic conditions during the weekday a.m. and p.m. peak hours (with build-out of the site); and,
- Queue storage deficiencies.

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

Section 3

Existing Conditions

Existing Conditions

The existing conditions analysis identifies the site conditions and current operational and geometric characteristics of the roadways within the study area. These conditions are compared with future conditions later in this report.

SITE CONDITIONS AND ADJACENT LAND USES

Kittelson & Associates, Inc. (KAI) staff visited and inventoried the proposed development site and surrounding study area in July 2015. At that time, KAI collected information regarding site conditions, adjacent land uses, existing traffic operations and queuing conditions, and transportation facilities in the study area.

The proposed site is generally undeveloped and inside the City limits of Oregon City. The site fronts the Clackamette Cove to the north, the Tri-Cities Water Treatment facility to the northeast, the I-205 freeway to the southeast, and the Oregon City Shopping Center to the west. A small portion of the proposed site, to the southeast, is currently occupied by a concrete plant.

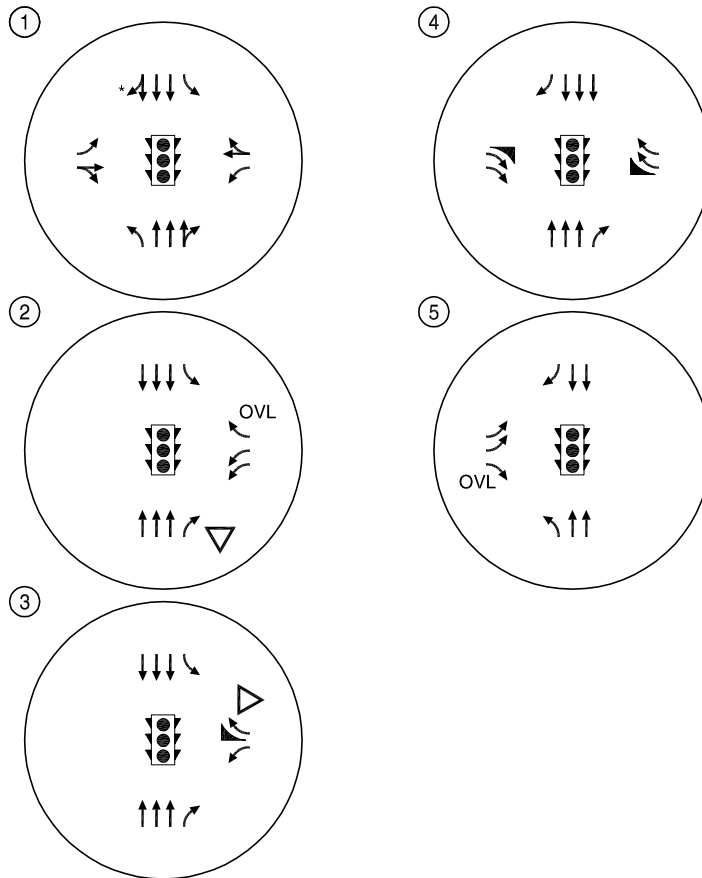
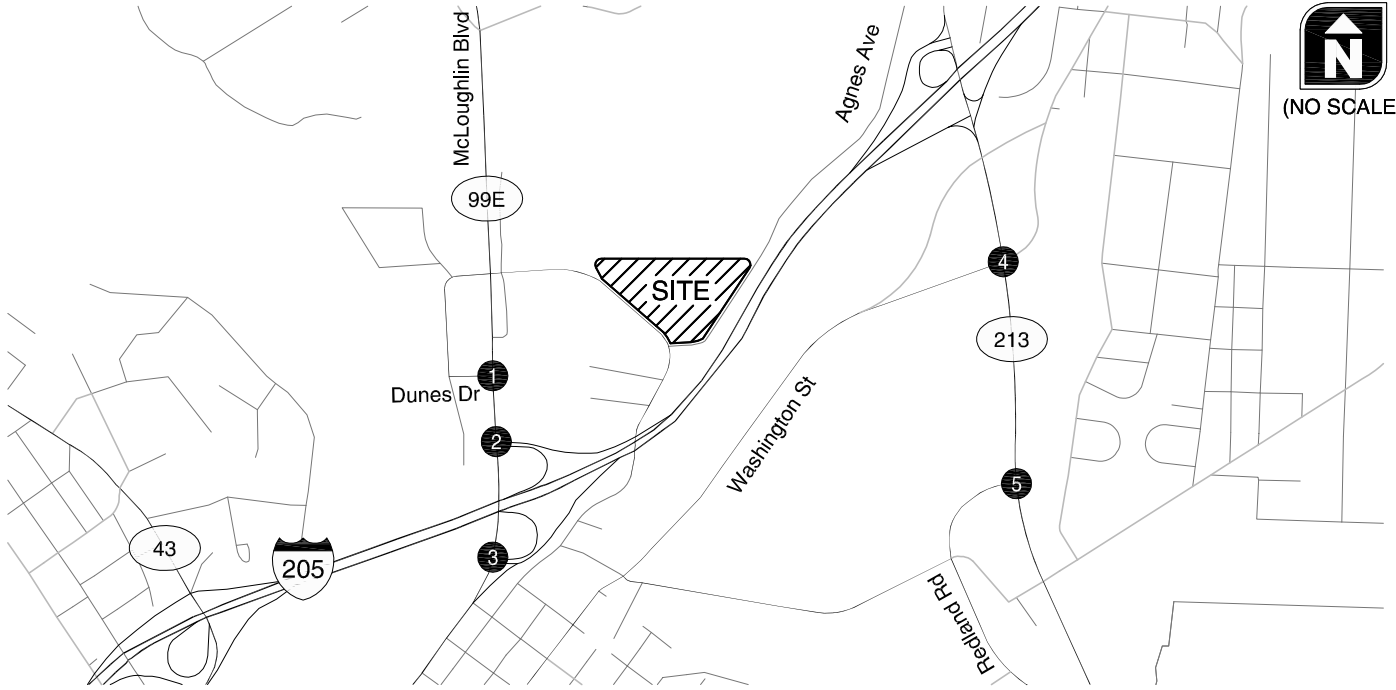
TRANSPORTATION FACILITIES

Table 1 summarizes the existing transportation facilities that make up the study area intersections or roadway immediately adjacent or within the site development area. Figure 3 illustrates the existing lane configurations and traffic control devices at all 5 study intersections.

Table 1 Existing Transportation Facilities

Roadway	Functional Classification	Cross Section	Speed Limit (mph)	Sidewalks	Bicycle Lanes	On-Street Parking
I-205	Interstate Highway	4-6 lanes	55	No	No	No
ORE 213	District Highway	5-6 lanes	45-55	No	Shoulder	No
ORE 99E (N. of I-205)	District Highway	4-8 lanes	30-40	Yes	Yes	No
ORE 99E (S. of I-205)	Regional Highway	5-6 lanes	30-40	Yes-South Path-North	Yes-South Path-North	No
Dunes Drive	Collector	3 lanes	NP ¹	Yes	Yes	No
Main Street	Collector	2 lanes	25	No	Yes	No
Agnes Avenue	Collector	2 lanes	25	West Side	No	No
Washington Street	Minor Arterial	5 lanes	NP ¹	Yes	Partial	No
Clackamas River Drive	Minor Arterial	3-4 lanes	NP ¹	Partial	Yes	No
Redland Road	Minor Arterial	4-5 lanes	35	No	Yes	No

¹ NP = Speed sign not posted in vicinity of study intersection.



LEGEND

- RAISED ISLAND
- YIELD
- OVERLAP
- STOP SIGN
- TRAFFIC SIGNAL

*This movement operates as a flared right-turn lane.

**EXISTING LANE CONFIGURATIONS AND
TRAFFIC CONTROL DEVICES
OREGON CITY, OREGON**

**FIGURE
3**

Pedestrian and Bicycle Facilities

Field observations taken in the site vicinity revealed low levels of pedestrian and bicycle activity along the study area roadways during the a.m. and p.m. peak hours of the day. Sidewalks are generally not provided in the site vicinity along Main Street, but there are bicycle lanes and new continuous sidewalk facilities and a multi-use path nearby along Dunes Drive and OR 99E. The Clackamas River Trail path is also provided along the south side of Clackamette Cove leading to the northeast where it crosses over a pedestrian bridge over the Clackamas River to 82nd Drive.

Transit Facilities

The study area is serviced by Tri-Met bus routes 32, 33, 34, and 79, which lead to and from Portland and the Oregon City Transit Center to the south. Bus stops for these routes are located on ORE 99E near Oregon City Shopping Center. No service exists on Main Street within the site vicinity.

INTERSECTION TRAFFIC COUNTS

Manual turning movement counts were obtained at the five existing study intersections on mid-week days in the month of June 2015. The weekday morning peak hour was found to occur between 7:30 and 8:30 a.m. for the intersections in the ORE 99E corridor and between 7:05 and 8:05 a.m. for the remaining study intersections in the ORE 213 corridor. Therefore, in order to produce a conservative estimate of current morning peak hour operating conditions, the separate a.m. peak hours for these two highway corridors were analyzed. Counts showed that the weekday p.m. peak hour patterns were consistent from 5:00 to 6:00 p.m. in both corridors.

Appendix "A" contains the traffic count summary sheets.

LEVEL OF SERVICE STANDARDS

All level of service (LOS) analyses described in this report were performed in accordance with the procedures stated in the 2010 Highway Capacity Manual (HCM, Reference 1). *A description of level of service and the criteria by which they are determined is presented in Appendix "B".* Appendix "B" also indicates how level of service is measured and what is generally considered the acceptable range of level of service.

All intersection operational analyses in this report utilized the peak 15-minute flow rate during the weekday a.m. and p.m. peak hours. Using the peak 15-minute flow rate ensures that this analysis is based on a reasonable worst-case scenario. For this reason, the analysis reflects conditions that are only likely to occur for 15 minutes out of each average peak hour. The transportation system will likely operate under conditions better than those described in this report during all other time periods.

All study intersections intersect ORE 99E or ORE 213, whereby the mobility standards of ODOT apply. ODOT uses a volume-to-capacity (v/c) ratio metric to evaluate mobility conditions. Per the Oregon Highway Plan (OHP, Reference 2), the mobility target for the study intersections along ORE

213 and ORE 99E (from the I-205 NB ramps to the north) is a v/c ratio of 1.10 or less during the peak hour. This is due to their location within a designated *Regional Center* of the Portland Metro area. This metric applies to mainline highway operations as well as intersecting street approaches and private driveways.

There is one exemption to the ODOT mobility standards stated above for ORE 99E. The updated Oregon City Transportation System Plan (TSP, Reference 3), which was adopted in June 2013, has a mobility standard exemption clause for ORE 99E at the I-205 freeway interchange. This section of the TSP states:

“State owned streets should comply with the mobility targets included in the Oregon Highway Plan. However, for proposed development that is permitted, either conditionally, outright, or through detailed development master plan approval, the OR 99E/I-205 SB Ramps, OR 99E/I-205 NB Ramps, OR 213/ Beaver Creek Road, and I-205/OR 213 Interchange intersections shall be exempt from meeting the state mobility targets until further solutions (beyond those included in the TSP) or alternative mobility targets are explored for the intersections.”

The proposed Cove Development is a land use that is consistent with the underlying zoning and a prior detailed development master plan. As such, as stated in the TSP excerpt above, the Cove Development application is exempted from meeting the ODOT mobility standard of 1.10 v/c ratio at the two ramp terminals of the I-205/OR 99E interchange. Based on conversations with the City’s traffic engineering sub-consultant, the purpose of this exemption is so that the City and ODOT can develop alternative mobility standards in the future for the interchange that promote alternative travel choices. As described later in this report, the bicycle and pedestrian connections that will be realized or enhanced (i.e. river trail) with this project meet this goal to promote alternative travel choices.

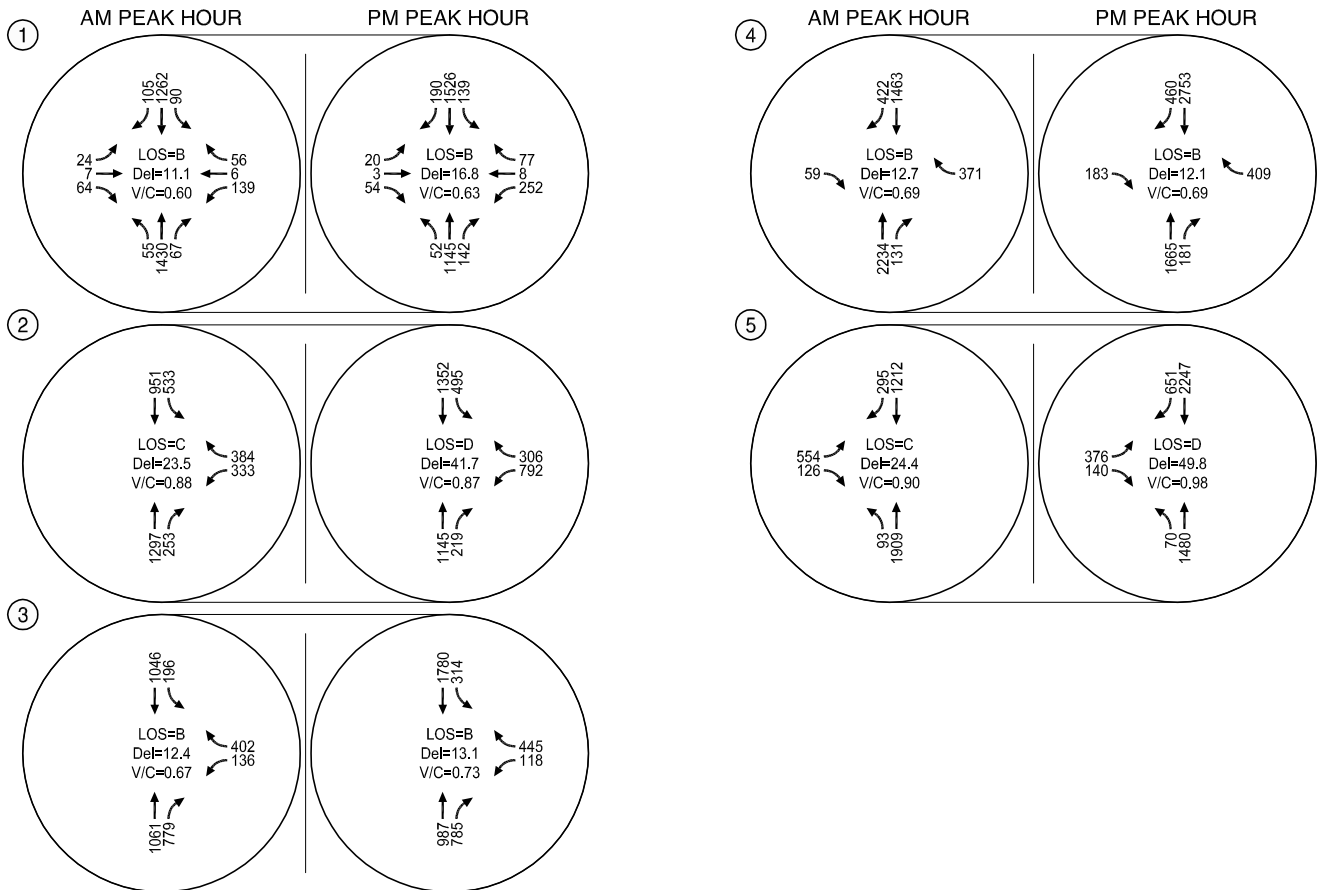
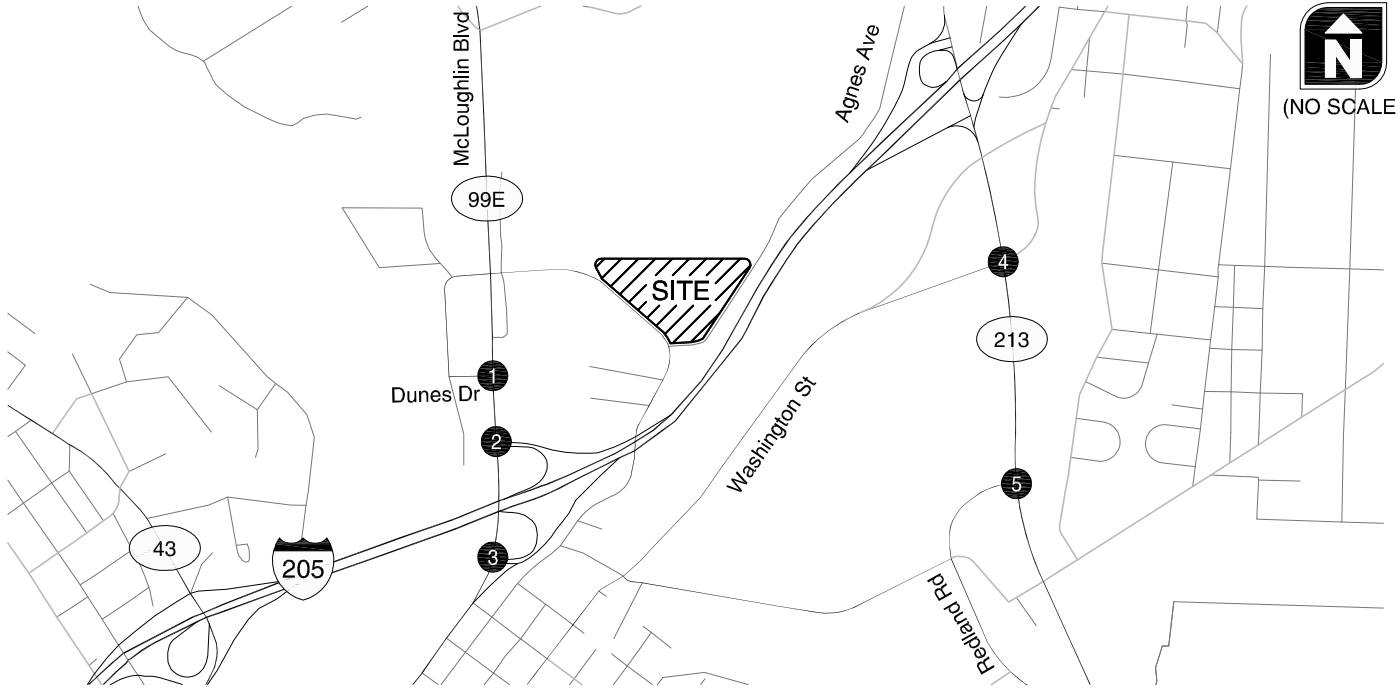
EXISTING INTERSECTION OPERATIONS

Figure 4 summarizes the existing traffic volumes and operations for all study intersections during the weekday a.m. and p.m. peak hours. As shown, all of the study intersections currently operate at v/c ratios below the ODOT mobility standard of 1.10 or less during the weekday a.m. and p.m. peak hours.

Appendix “C” includes the level-of-service worksheets under existing traffic conditions.

Queuing

The available queue storage at each of the study intersections was reviewed and field-observed during the weekday a.m. and p.m. peak hours. No queue storage deficiencies were observed except the southbound left-turn movement at the ORE 99E /I-205 SB Ramp Terminal intersection. Vehicles queues were observed to extend to Dunes Drive during the peak fifteen minutes of the weekday a.m. peak hour. No blockage through the intersection was observed. *The 95th percentile queuing analysis output sheets are provided in Appendix “I.”*

**LEGEND**

LOS = INTERSECTION LEVEL OF SERVICE

Del = INTERSECTION AVERAGE CONTROL DELAY

V/C = CRITICAL VOLUME-TO-CAPACITY RATIO

**EXISTING TRAFFIC OPERATIONS
WEEKDAY AM AND PM PEAK HOURS
OREGON CITY, OREGON**

FIGURE

4

TRAFFIC SAFETY

The crash history at the study intersections was reviewed to identify potential safety issues. ODOT provided crash data from the study intersections for the five-year period: January 1, 2009 to December 31, 2013. No crashes were reported at the OR99E/Dunes Drive intersection during this period. Table 2 summarizes the crash data at the four other study intersections over the five-year period.

Table 2 Study Intersection Crash Histories

Intersection	Number of Crashes	Collision Type				Severity	
		Turning	Rear-End	Angle	Other	PDO	Injury
ORE 99E/I-205 SB Ramp Terminal	36	15	18	0	3	20	16
ORE 99E/I-205 NB Ramp Terminal	40	14	25	0	1	23	17
ORE 213/Washington Street	40	5	27	4	4	22	18
ORE 213/Redland Road	22	5	16	0	1	6	16

ORE 99E/I-205 SB Ramp Terminal

There were a total of seven left-turn crashes that occurred between northbound-through and southbound-left vehicles. Thirty of the reported crashes occurred either during dark (15 crashes) or wet (15 crashes) conditions.

ORE 99E/I-205 NB Ramp Terminal

There were a total of nine rear-end crashes (southeast-northwest) and a total of eight left-turn crashes between northbound through and southbound left movements.

ORE 213/Washington Street

Although the intersection has 27 reported rear-end collisions, the intersection geometry was reconfigured in 2012 and was under construction from 2011-2012.

ORE 213/Redland Road

No significant patterns or trends could be identified for crashes at this intersection

No pattern or trends were identified with the provided crash data that would require mitigation as a result of the impacts of the proposed development application.

Appendix D contains the ODOT crash data.

Section 4
Transportation Impact
Analysis

Transportation Impact Analysis

The transportation impact analysis identifies how the study area's transportation system will operate in the year the proposed development is expected to be fully built, year 2020. The impact of traffic generated by the proposed Cove Mixed-Use Development during the typical weekday a.m. and p.m. peak hours is examined herein.

YEAR 2020 BACKGROUND TRAFFIC CONDITIONS

The year 2020 background traffic analysis identifies how the study area's transportation system will operate without the proposed development. This analysis includes general growth in the region, but does not include traffic from the proposed development.

Traffic Volumes

The year 2020 traffic volumes are developed by applying a per-year linear growth rate to the existing traffic volumes and adding traffic from the in-process developments in the area. Based on availability of local traffic count data, the growth rate along the analysis roadways was estimated based on observed growth from 2008 traffic volumes to 2015 collected traffic volumes used for this study. As such, the following observations and growth assumptions were applied:

- During the weekday a.m. peak hour, most intersections showed negative growth, while the Dunes/99E and I-205 SB Ramps/99E showed approximately two percent annual growth.

As a result, for the weekday a.m. peak hour, a two-percent growth was applied to the northbound- and southbound-through movements along ORE 99E and turning movements for the north and south I-205 ramp terminals. A half-percent annual growth rate was applied for all other movements along ORE 213.

- During the weekday p.m. peak hour, all study intersections showed a negative growth.

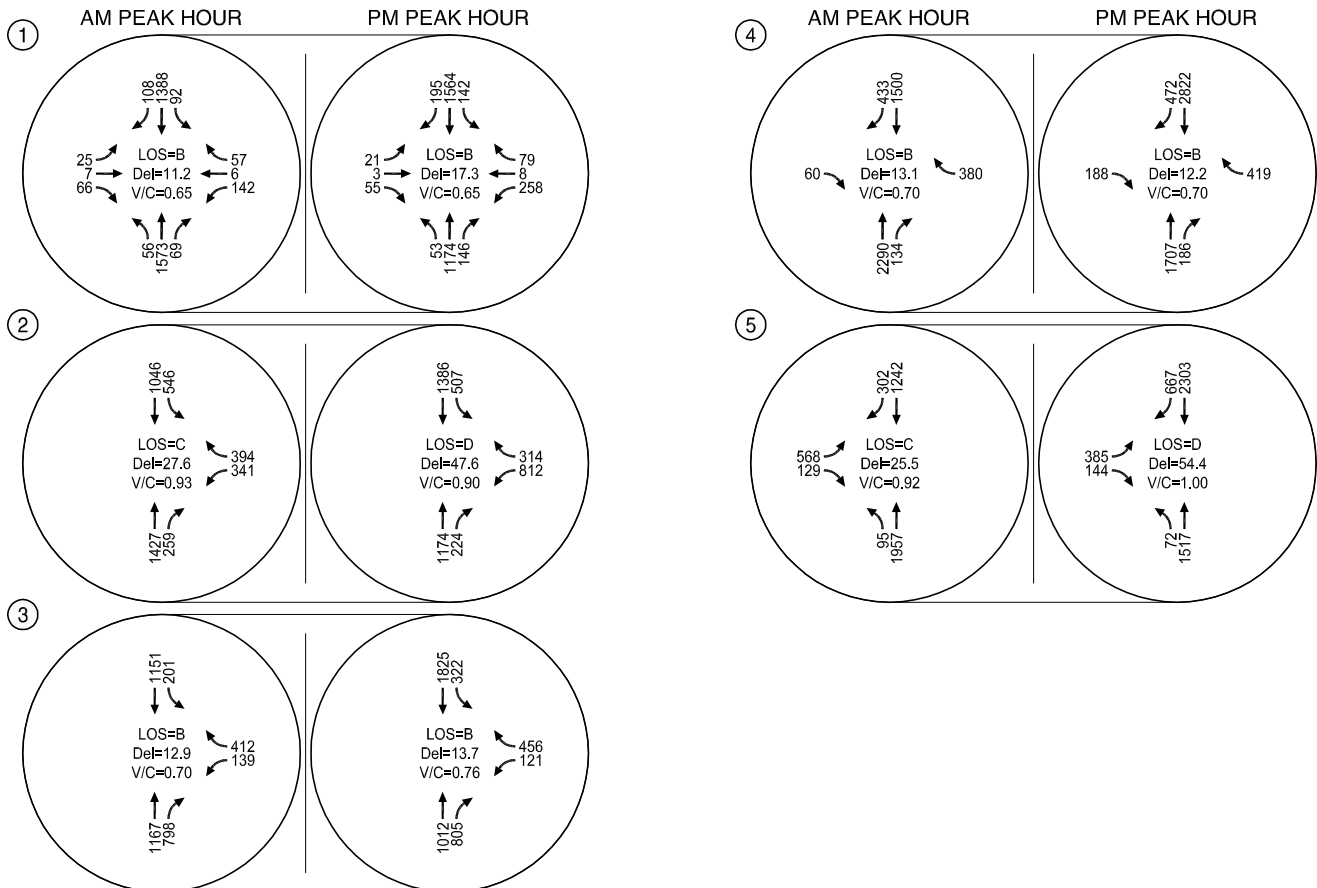
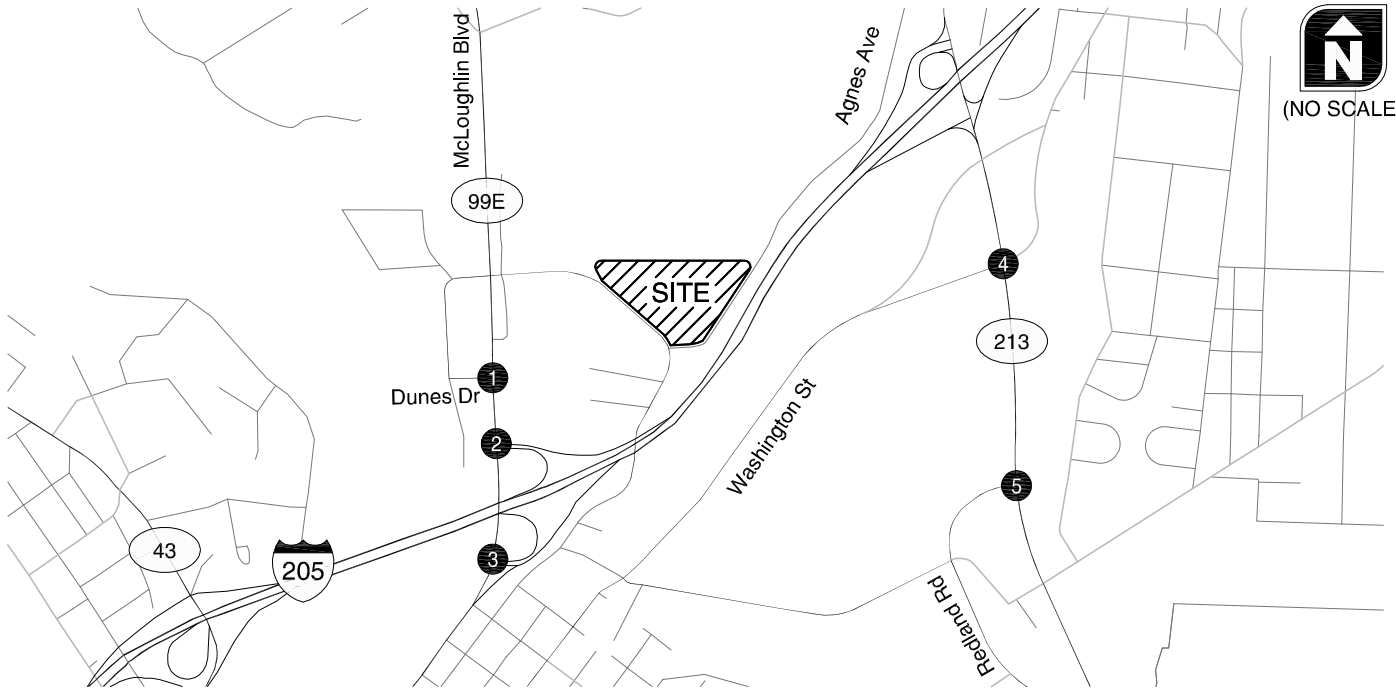
To provide a conservatively high traffic volume analysis, a half-percent annual growth rate was applied to all movements at all study intersections for the weekday p.m. peak hour.

Year 2020 background traffic volumes at the study intersections for the weekday a.m. and p.m. peak hours are shown in Figure 5.

Year 2020 Background Levels of Service

The background volumes shown in Figure 5 were used to generate an operational analysis at each study intersection for the weekday a.m. and p.m. to determine the year 2020 background traffic levels of service. As shown in Figure 5, all of the study intersections are forecast to continue to operate at acceptable levels of service during the weekday a.m. and p.m.

Appendix "E" includes the year 2020 background traffic conditions level-of-service worksheets

**LEGEND**

LOS = INTERSECTION LEVEL OF SERVICE

Del = INTERSECTION AVERAGE CONTROL DELAY

V/C = CRITICAL VOLUME-TO-CAPACITY RATIO

**2020 BACKGROUND TRAFFIC OPERATIONS
WEEKDAY AM AND PM PEAK HOURS
OREGON CITY, OREGON**

FIGURE

5

PROPOSED DEVELOPMENT PLAN

The proposed plan, as illustrated previously in Figure 2, consists of approximately 439 housing units (244 apartments and 195 condo/townhome units); 14,950 square feet of restaurants (5,950 square feet of high-turnover, 8,000 square feet of quality restaurant, and 1,000 square feet coffee shop); 84,212 square feet of general office space, 50,400 square feet of medical-dental office space; a public marina with 150 boat slips (half to be used by on-site development); and a City park.

The development is planned to be constructed in five major phases, with all phases expected to be constructed by 2020. As such, the traffic analysis in this report considers full buildout of all phases.

Access to the site is provided by the existing roadway network, consisting of Main Street to the south and Agnes Avenue to the north (the new segments of Agnes Street will be constructed as a part of this development and have been assumed to access the site for one-way inbound traffic only). Main Street provides robust connectivity to ORE 99E via Clackamette Drive/Dunes Drive and the Oregon City Shopping mall access road. Main Street also provides connectivity to ORE 99E from the 15th Street/99E intersection.

Trip Generation

Estimates of daily, weekday a.m. peak hour, and weekday p.m. peak hour vehicle trip ends for the proposed Cove development are based on empirical observations at similar sites. These observations are summarized in the standard reference *Trip Generation, 9th Edition*, published by the Institute of Transportation Engineers (ITE, Reference 4).

Internal trips have been determined for mixed-use land development, based on the methodology presented in the *Trip Generation Handbook* (Reference 5). As determined by the ITE methodology, the individual land uses within the mixed-use development account for a proportion of internal trips that will not be generated from outside of the development. For the weekday a.m. peak hour, a 25-percent internalization rate was calculated. For the weekday p.m. peak hour: 11-percent internalization. These internalization rates exclude the Marina, as this was considered separately due to its unique land use. The Marina, with 150 berths, will have 75 allotted for public use while 75 will be privately owned by residents of the Cove development. Thus, a fifty percent internalization reduction was taken for the Marina trips.

Table 3 summarizes the estimated trip generation (shown on the following page).

Table 3 Estimated Trip Generation

Land Use	ITE Land Use Code	Size	Daily Trips	Weekday AM Peak Hour Trips			Weekday PM Peak Hour Trips		
				Total	In	Out	Total	In	Out
Apartment	220	244 units	1,623	124	25	99	151	98	53
<i>Internal Trips (11% Daily, 25% AM, 11% PM)</i>			-162	-29	-6	-23	-15	-10	-5
Residential Condominium/Townhouse	230	195 units	1,133	86	15	71	101	68	33
<i>Internal Trips (11% Daily, 25% AM, 11% PM)</i>			-113	-20	-3	-17	-10	-7	-3
High Turnover Sit-Down Restaurant	932	5,950 SF	757	64	35	29	59	36	23
<i>Internal Trips (11% Daily, 25% AM, 11% PM)</i>			-76	-15	-8	-7	-6	-4	-2
<i>Pass-by Trips (43% Daily, 43% AM, 43% PM)</i>			-293	-21	-11	-10	-23	-14	-9
Quality Restaurant	931	8,000 SF	720	6	5	1	60	40	20
<i>Internal Trips (11% Daily, 25% AM, 11% PM)</i>			-72	-1	-1	0	-6	-4	-2
Coffee/Donut Shop w/ Drive-Through	937	1,000 SF	819	101	52	49	43	22	21
<i>Internal Trips (11% Daily, 25% AM, 11% PM)</i>			-82	-23	-12	-11	-4	-2	-2
<i>Pass-by Trips (83% Daily, 83% AM, 83% PM)</i>			-611	-64	-33	-31	-32	-16	-16
General Office Building	710	84,212 SF	929	131	115	16	126	22	104
<i>Internal Trips (11% Daily, 25% AM, 11% PM)</i>			-93	-30	-27	-3	-13	-2	-11
Medical-Dental Office Building (average)	720	50,400 SF	1,821	120	95	25	180	50	130
<i>Internal Trips (11% Daily, 25% AM, 11% PM)</i>			-182	-31	-25	-6	-18	-5	-13
Marina (Fitted Daily, AVG AM & PM)	420	150 berths	694	12	4	8	29	17	12
<i>Internal Trips (50% Daily, 50% AM, 50% PM)</i>			-347	-6	-2	-4	-15	-9	-6
Regional Park	417	5.28 acres	24	2	1	1	2	1	1
Total Net New Trip Generation			6,489	406	219	187	609	281	328

As shown in Table 3, the proposed Cove mixed-use development is estimated to generate approximately 6,489 net new daily trips. Of the net new daily trips, approximately 406 are estimated to occur during the weekday a.m. peak hour, and approximately 609 are estimated to occur during the weekday p.m. peak hour.

The ITE internalization worksheets are included in Appendix "F."

It should be noted that due to the immediate adjacency of the Oregon City Shopping Center there could be additional internalization of trips with retail uses that have not been considered in this analysis for simplicity. However, it is reasonable to expect that there will be some trip sharing, resulting in a net new trip generation even lower than that shown in Table 3.

Site Trip Distribution

The distribution of site-generated trips is based on a review of the surrounding land uses and transportation systems, observation of existing turning movement travel patterns, and the result of a Select Zone Analysis prepared by Metro staff. Each of these technical resources, combined with field observation of optimal travel routes during the peak hours, contributed to the trip distribution pattern used in this analysis. The resulting estimated trip distribution pattern and site-generated trips are illustrated in Figure 6.

The 2010 Metro model select zone analysis output is included in Appendix "G."

YEAR 2020 TOTAL TRAFFIC CONDITIONS

The total traffic conditions analysis forecasts how the study area's transportation system will operate with the traffic generated by the proposed Cove mixed-use development. The estimated site generated trips shown in Figure 6 were added to the 2020 background traffic volumes shown in Figure 5 to arrive at the year 2020 total traffic volumes shown in Figure 7. As shown in Figure 7, all study intersections are forecast to continue to operate acceptably within ODOT operations thresholds.

Appendix "H" includes the year 2020 total traffic conditions level-of-service worksheets

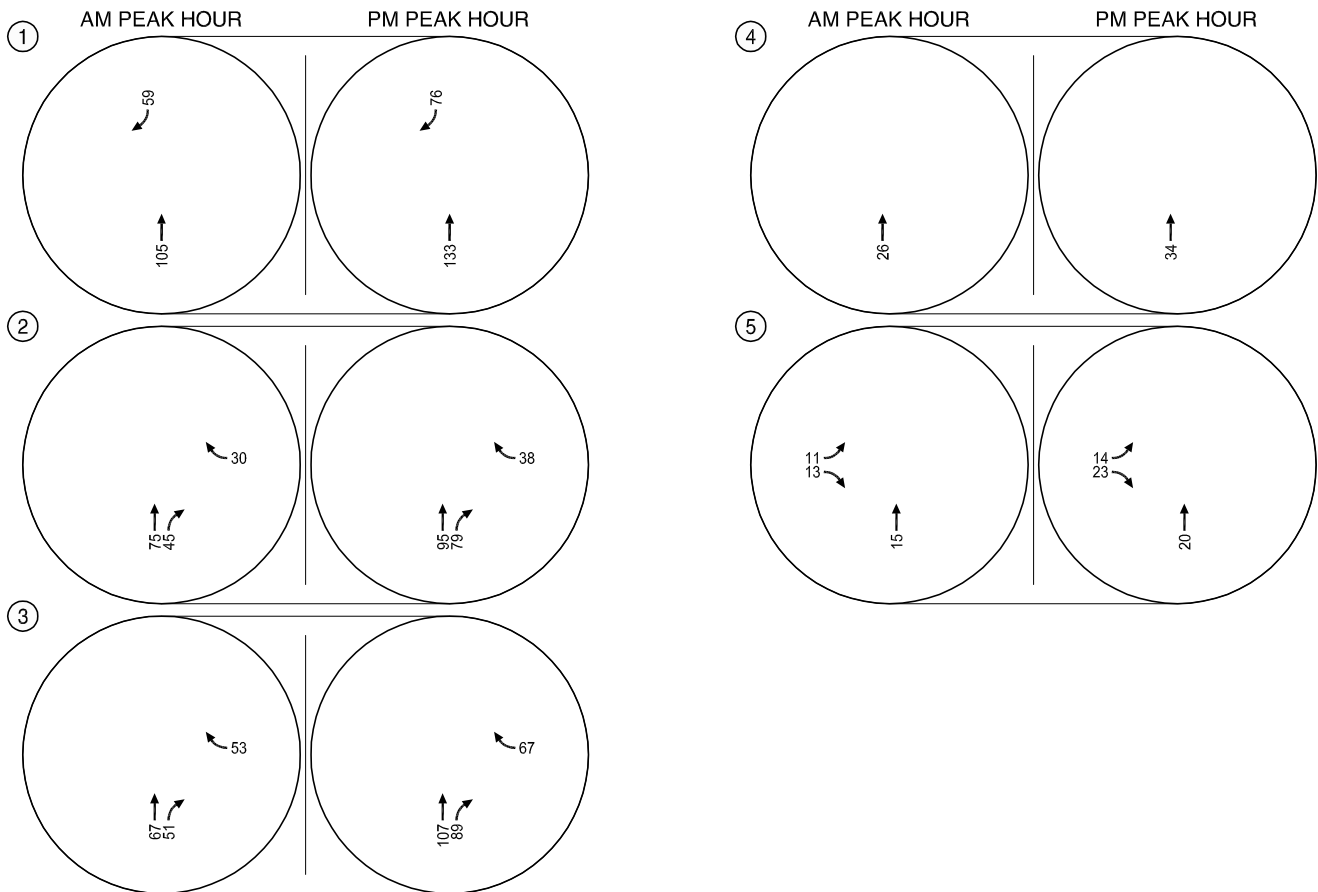
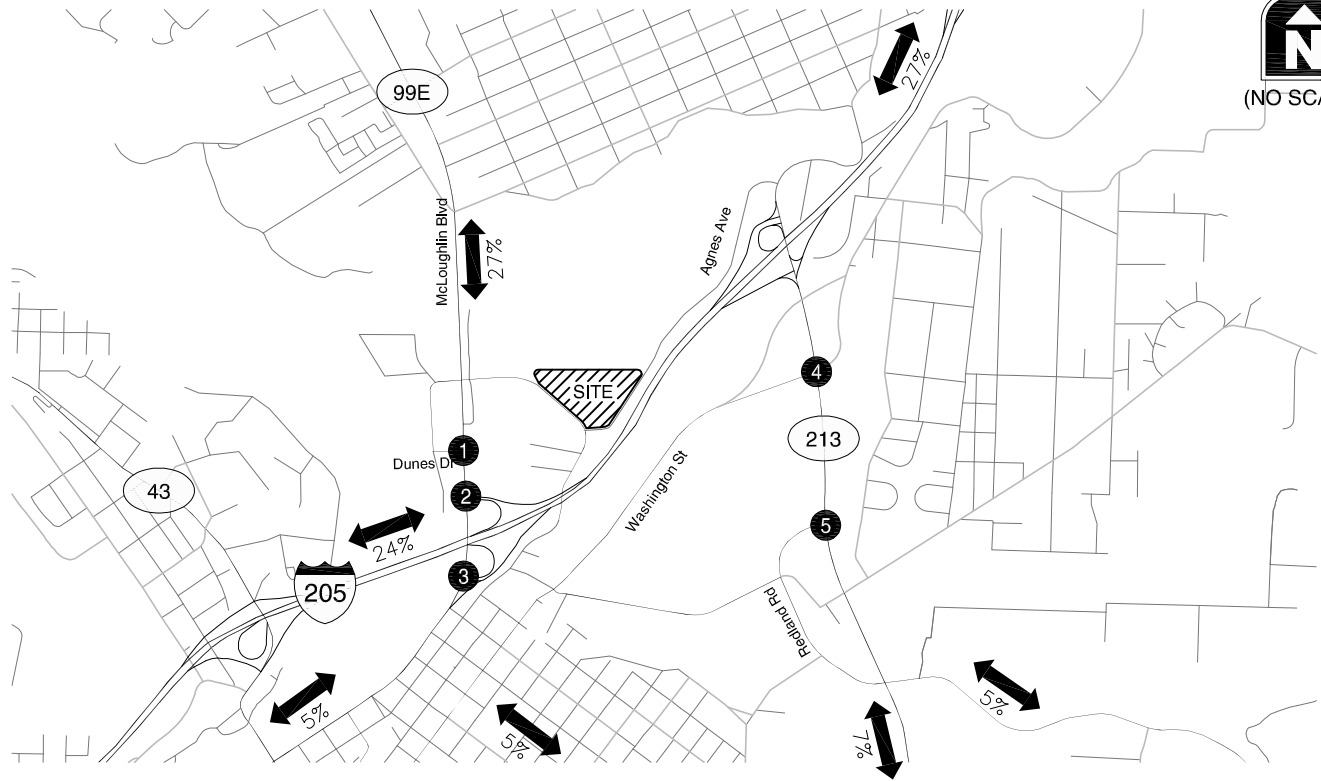
Queuing Assessment

As described in the Existing Conditions section of this report, no queue storage deficiencies were observed except the southbound left-turn movement at the ORE 99E/I-205 SB Ramp Terminal intersection. Vehicles queues were observed to extend to Dunes Drive during the peak fifteen minutes of the weekday a.m. peak hour. No blockage through the intersection was observed.

This queue storage deficiency is forecast to continue to occur during the 2020 background traffic operations and upon full site buildout. As shown in Figure 6, no site-generated traffic is forecast to impact this movement during the weekday a.m. peak hour as a result of the robust street system. A more direct route (less distance and travel times during the peak hours) to access the southbound off-ramp from the site is to use Main Street to 15th Street. As such, no site-generated traffic is expected to increase the queue at this location during the weekday a.m. peak hour.

No other queue storage deficiencies are forecast at the remaining study intersections.

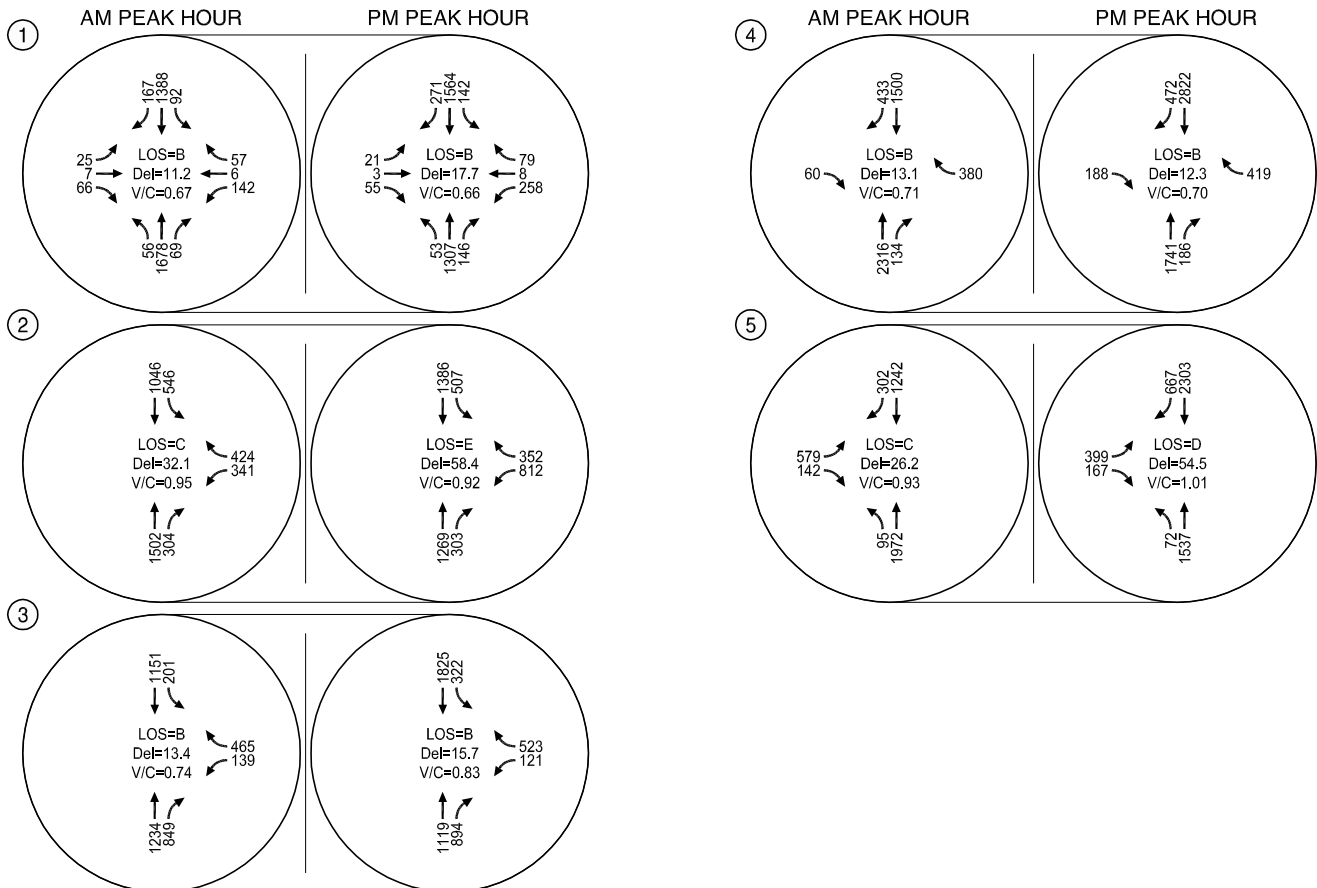
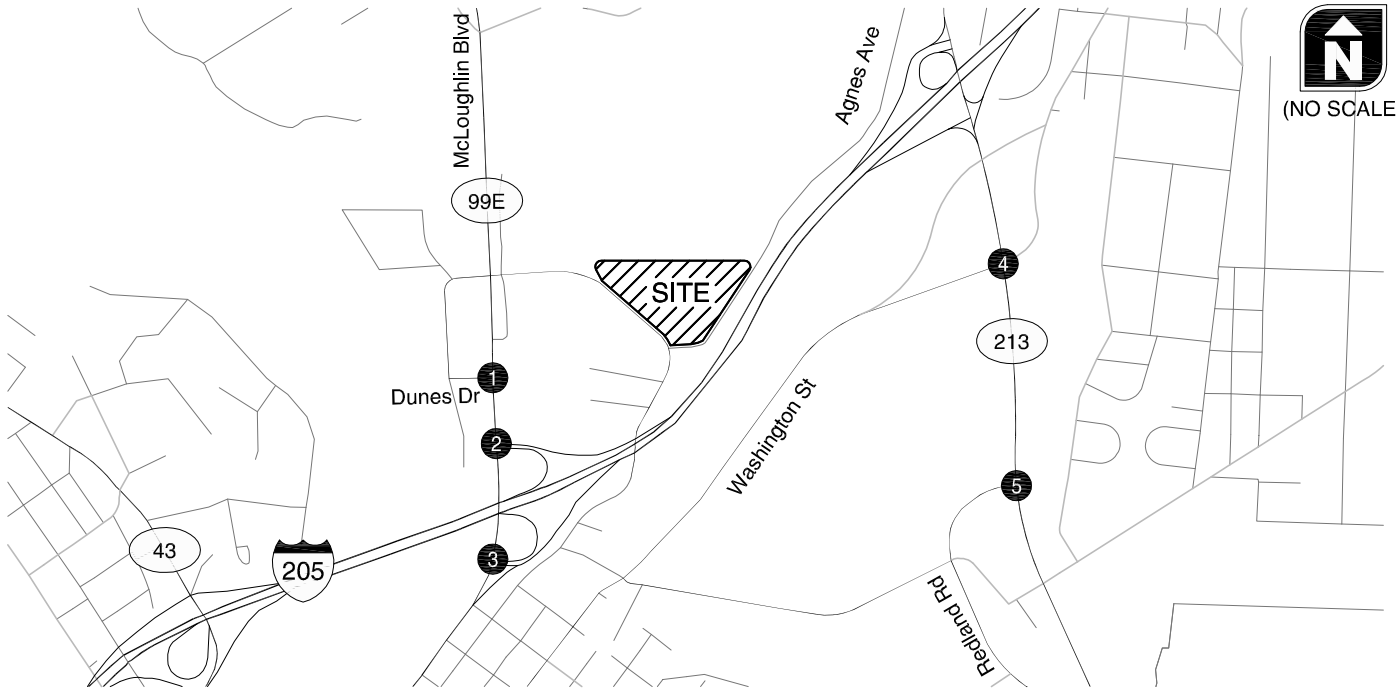
The 95th percentile queuing analysis output sheets are provided in Appendix "I."



Note: Some trips have been assigned to routes involving non-study intersections (i.e. Agnes Ave, Main St, Abernethy Rd).

**ESTIMATED TRIP DISTRIBUTION PATTERN
AND SITE GENERATED TRIPS
OREGON CITY, OREGON**

FIGURE
6

**LEGEND**

LOS = INTERSECTION LEVEL OF SERVICE

Del = INTERSECTION AVERAGE CONTROL DELAY

V/C = CRITICAL VOLUME-TO-CAPACITY RATIO

**2020 TOTAL TRAFFIC OPERATIONS
WEEKDAY AM AND PM PEAK HOURS
OREGON CITY, OREGON**

FIGURE

7

Section 5

Conclusions and Recommendations

Conclusions and Recommendations

The results of the traffic impact analysis indicate that the proposed Cove Mixed-Use Development can be constructed while maintaining acceptable levels of service and safety on the surrounding transportation system. The findings of this analysis and our recommendations are discussed below.

KEY FINDINGS

Year 2015 Existing Conditions

- All of the study intersections operate within the established mobility standards of the governing agency during the weekday a.m. and p.m. peak hours.
- A review of historical crash data does not reveal any patterns or trends in the site vicinity that require mitigation associated with this project.
- The southbound left-turn movement at the ORE 99E /I-205 SB Ramp Terminal intersection was observed to exceed the available striped lane queue storage during the weekday a.m. peak hour.

Year 2020 Background Traffic Conditions

- Existing traffic volumes are increased by agreed upon annual growth rates to estimate the year 2020 weekday peak period traffic volumes.
- All study intersections are forecast to continue to operate within the established mobility standards of the governing agency during the weekday a.m. and p.m. peak periods.
- The southbound left-turn movement at the ORE 99E /I-205 SB Ramp Terminal intersection is forecast to continue to exceed the available striped lane queue storage during the weekday a.m. peak hour.

Development Plan

- The proposed development plan consists of the following development:
 - 439 housing units (244 apartments and 195 condo/townhome units);
 - 14,950 square feet of restaurants (5,950 square feet of high-turnover, 8,000 square feet of quality restaurant, and 1,000 square feet coffee shop);
 - 84,212 square feet of general office space
 - 50,400 square feet of medical-dental office space;
 - A public marina with 150 boat slips (half to be used by on-site development); and
 - A City park.

- The proposed development plan is estimated to generate approximately 6,489 net new daily vehicle trips. Of the net new daily vehicle trips, approximately 406 will occur during the a.m. peak hour, and approximately 609 will occur during the p.m. peak hour.

Year 2020 Total Traffic Conditions

- All study intersections are forecast to continue to operate acceptably during the weekday a.m. and p.m. peak periods upon site buildout.
- The southbound left-turn movement at the ORE 99E /I-205 SB Ramp Terminal intersection is forecast to continue to exceed the available striped lane queue storage during the weekday a.m. peak hour. *No site-generated traffic is expected to increase the queue at this location.*

RECOMMENDATIONS

The following list provides a summary of the mitigation measures recommended as part of this proposed development.

- Signage, above-ground utilities, and landscaping near the internal intersections and site access points should be maintained to ensure adequate sight distance.

Section 6

References

References

1. Transportation Research Board. *Highway Capacity Manual*. 2010.
2. Oregon Department of Transportation. *1999 Oregon Highway Plan*. 1999, republished with amendments in year 2015.
3. Kittelson & Associates. *Oregon City Transportation System Plan*. 2013.
4. Institute of Transportation Engineers. *Trip Generation*, 9th Edition.
5. Institute of Transportation Engineers. *Trip Generation Handbook*.

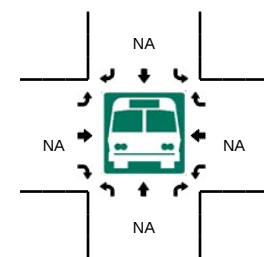
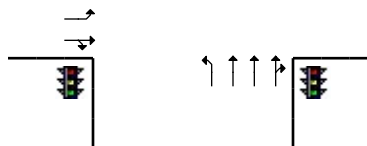
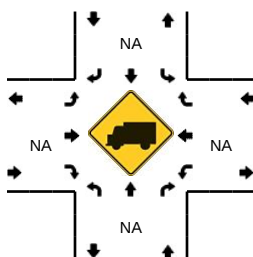
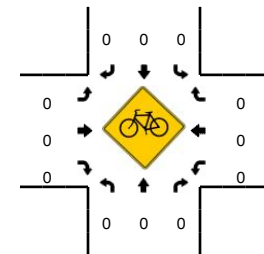
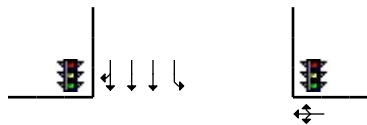
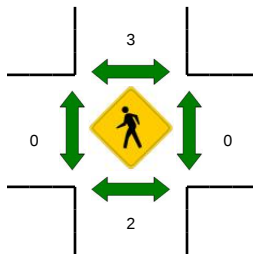
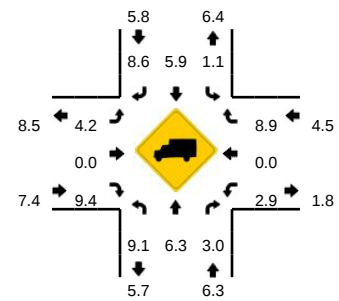
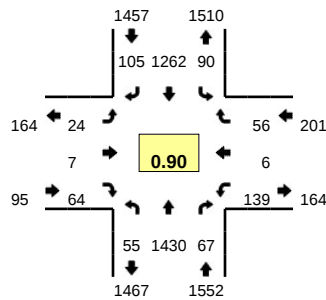
Appendix A

Traffic Count Data

LOCATION: McLoughlin Blvd -- Dunes Dr
CITY/STATE: Oregon City, OR

QC JOB #: 13413103
DATE: Tue, Jun 02 2015

Peak-Hour: 7:30 AM -- 8:30 AM
Peak 15-Min: 7:40 AM -- 7:55 AM



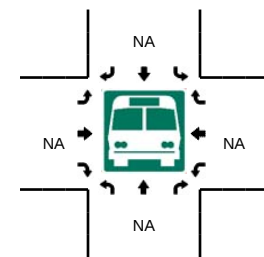
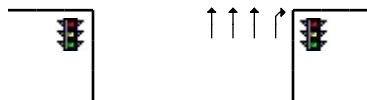
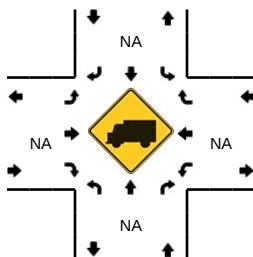
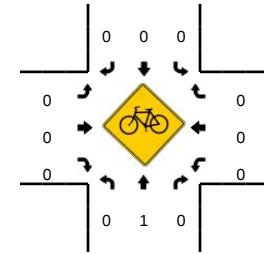
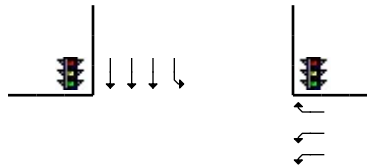
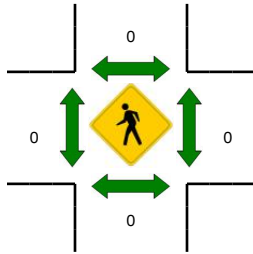
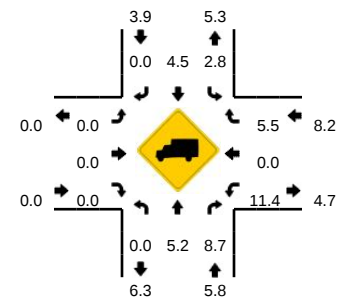
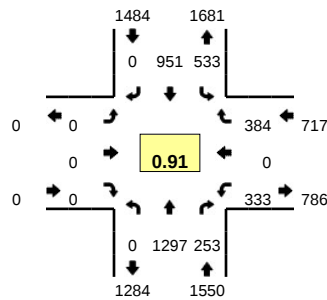
5-Min Count Period Beginning At	McLoughlin Blvd (Northbound)				McLoughlin Blvd (Southbound)				Dunes Dr (Eastbound)				Dunes Dr (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	1	85	3	0	4	80	2	0	0	0	3	0	9	0	3	0	190	
7:05 AM	5	82	5	0	5	101	5	0	0	0	3	0	9	1	1	0	217	
7:10 AM	1	88	5	0	7	75	5	0	2	1	5	0	10	1	2	0	202	
7:15 AM	4	71	9	0	1	85	3	0	0	0	1	0	7	1	5	0	187	
7:20 AM	2	96	4	0	11	132	4	0	1	1	4	0	10	0	5	0	270	
7:25 AM	3	103	4	0	5	97	5	0	0	1	0	0	16	0	3	0	237	
7:30 AM	5	114	4	0	4	97	7	0	4	1	7	0	9	0	8	0	260	
7:35 AM	1	101	4	1	6	112	6	0	0	0	5	0	7	0	2	0	245	
7:40 AM	1	151	5	0	4	123	11	0	2	0	7	0	5	0	4	0	313	
7:45 AM	12	117	4	0	8	111	8	0	1	1	5	0	11	1	1	0	280	
7:50 AM	3	136	7	0	15	126	10	0	3	1	4	0	15	0	6	0	326	
7:55 AM	4	159	8	0	4	101	9	0	1	1	5	0	10	0	5	0	307	3034
8:00 AM	5	102	7	0	9	91	8	0	5	0	7	0	12	0	6	0	252	3096
8:05 AM	3	105	3	0	9	108	10	0	0	0	5	0	17	0	5	0	265	3144
8:10 AM	7	91	4	1	9	85	14	0	3	1	4	0	16	2	2	0	239	3181
8:15 AM	7	127	4	0	6	115	5	0	2	0	7	0	12	2	4	0	291	3285
8:20 AM	3	100	9	0	10	106	4	0	1	0	3	0	14	1	7	0	258	3273
8:25 AM	2	127	8	0	6	87	13	0	2	2	5	0	11	0	6	0	269	3305
8:30 AM	8	111	8	0	4	76	10	0	2	0	4	0	21	0	4	0	248	3293
8:35 AM	5	90	8	0	7	90	11	0	2	0	4	0	15	0	2	0	234	3282
8:40 AM	5	98	7	1	11	93	6	0	0	1	8	0	13	1	4	0	248	3217
8:45 AM	5	105	3	0	4	101	11	0	1	0	6	0	14	1	8	0	259	3196
8:50 AM	6	108	8	0	12	93	8	0	3	0	4	0	9	0	3	0	254	3124
8:55 AM	2	110	8	0	3	83	10	0	1	0	3	0	11	0	4	0	235	3052
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
All Vehicles	64	1616	64	0	108	1440	116	0	24	8	64	0	124	4	44	0	3676	
Heavy Trucks	4	72	4		0	52	8		4	0	4		0	0	0		148	
Pedestrians		0				0				0				0			0	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Railroad																		
Stopped Buses																		

Comments:

LOCATION: McLoughlin Blvd -- I-205 SB Ramps
CITY/STATE: Oregon City, OR

QC JOB #: 13413101
DATE: Tue, Jun 02 2015

Peak-Hour: 7:30 AM -- 8:30 AM
Peak 15-Min: 7:40 AM -- 7:55 AM



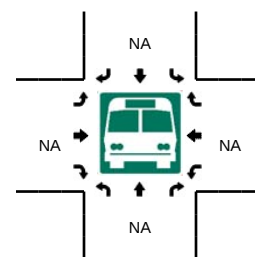
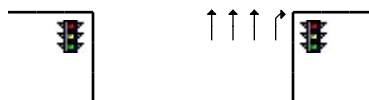
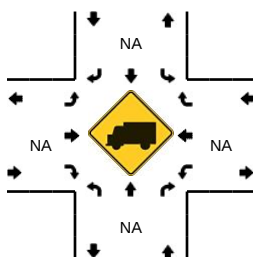
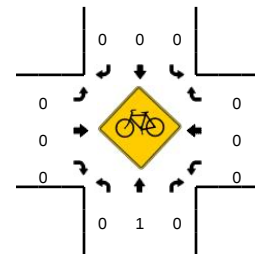
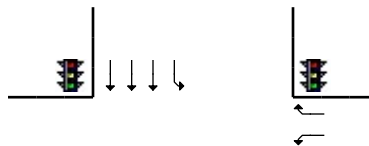
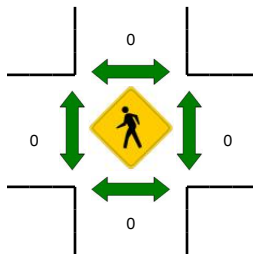
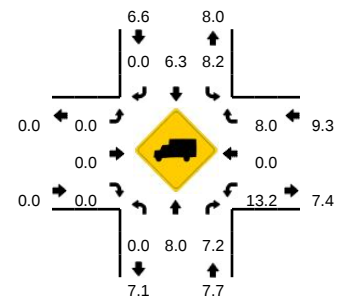
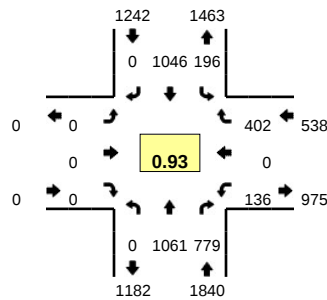
5-Min Count Period Beginning At	McLoughlin Blvd (Northbound)				McLoughlin Blvd (Southbound)				I-205 SB Ramps (Eastbound)				I-205 SB Ramps (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	85	22	0	41	45	0	0	0	0	0	0	28	0	16	0	237	
7:05 AM	0	96	26	0	51	56	0	0	0	0	0	0	16	0	17	0	262	
7:10 AM	0	80	21	0	44	46	0	0	0	0	0	0	27	0	16	0	234	
7:15 AM	0	79	26	0	48	58	0	0	0	0	0	0	30	0	17	0	258	
7:20 AM	0	115	25	0	36	87	0	0	0	0	0	0	24	0	18	0	305	
7:25 AM	0	76	12	0	54	71	0	0	0	0	0	0	22	0	25	0	260	
7:30 AM	0	100	24	0	48	66	0	0	0	0	0	0	19	0	24	0	281	
7:35 AM	0	110	27	0	45	83	0	0	0	0	0	0	23	0	25	0	313	
7:40 AM	0	114	23	0	45	91	0	0	0	0	0	0	22	0	45	0	340	
7:45 AM	0	105	20	0	42	88	0	0	0	0	0	0	40	0	34	0	329	
7:50 AM	0	140	24	0	44	102	0	0	0	0	0	0	18	0	39	0	367	
7:55 AM	0	129	22	0	47	69	0	0	0	0	0	0	22	0	36	0	325	3511
8:00 AM	0	104	26	0	43	68	0	0	0	0	0	0	33	0	32	0	306	3580
8:05 AM	0	113	15	0	48	78	0	0	0	0	0	0	28	0	23	0	305	3623
8:10 AM	0	90	25	0	46	64	0	0	0	0	0	0	27	0	21	0	273	3662
8:15 AM	0	93	16	0	53	92	0	0	0	0	0	0	37	0	30	0	321	3725
8:20 AM	0	102	16	0	36	91	0	0	0	0	0	0	33	0	40	0	318	3738
8:25 AM	0	97	15	0	36	59	0	0	0	0	0	0	31	0	35	0	273	3751
8:30 AM	0	95	14	0	50	55	0	0	0	0	0	0	30	0	40	0	284	3754
8:35 AM	0	89	18	0	35	73	0	1	0	0	0	0	34	0	31	0	281	3722
8:40 AM	0	77	11	0	39	81	0	0	0	0	0	0	27	0	38	0	273	3655
8:45 AM	0	93	19	0	52	68	0	0	0	0	0	0	33	0	29	0	294	3620
8:50 AM	0	105	28	0	40	66	0	0	0	0	0	0	32	0	40	1	312	3565
8:55 AM	0	77	17	0	39	68	0	0	0	0	0	0	25	0	32	0	258	3498
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
All Vehicles	0	1436	268	0	524	1124	0	0	0	0	0	0	320	0	472	0	4144	
Heavy Trucks	0	52	28	0	20	24	0	0	0	0	0	0	16	0	12	0	152	
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Railroad	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Stopped Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

Comments:

LOCATION: McLoughlin Blvd/OR 99E -- I-205 NB Ramps
CITY/STATE: Oregon City, OR

QC JOB #: 13421001
DATE: Thu, Jun 11 2015

Peak-Hour: 7:30 AM -- 8:30 AM
Peak 15-Min: 7:40 AM -- 7:55 AM



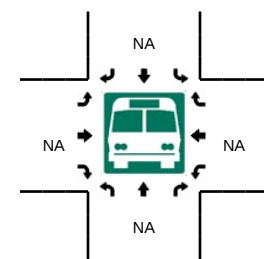
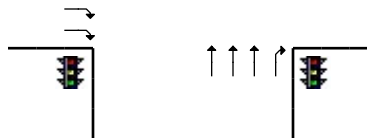
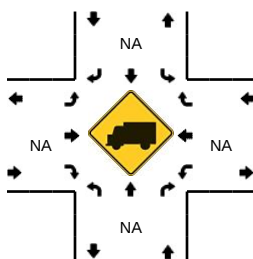
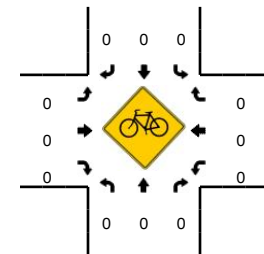
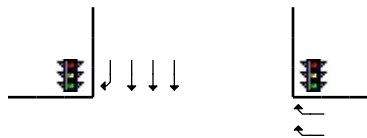
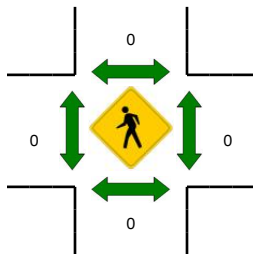
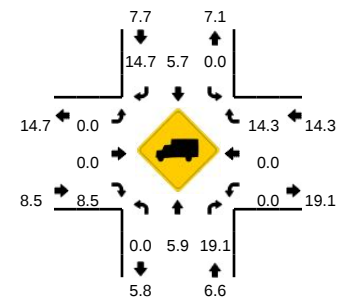
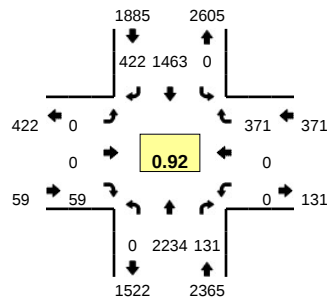
5-Min Count Period Beginning At	McLoughlin Blvd/OR 99E (Northbound)				McLoughlin Blvd/OR 99E (Southbound)				I-205 NB Ramps (Eastbound)				I-205 NB Ramps (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	77	79	0	13	56	0	0	0	0	0	0	6	0	19	0	250	
7:05 AM	0	66	64	0	21	52	0	0	0	0	0	0	5	0	31	0	239	
7:10 AM	0	70	80	0	12	46	0	0	0	0	0	0	15	0	30	0	253	
7:15 AM	0	94	76	0	17	66	0	0	0	0	0	0	5	0	33	0	291	
7:20 AM	0	93	60	0	19	85	0	0	0	0	0	0	12	0	27	0	296	
7:25 AM	0	75	69	0	14	72	0	0	0	0	0	0	13	0	21	0	264	
7:30 AM	0	84	89	0	18	61	0	0	0	0	0	0	10	0	36	0	298	
7:35 AM	0	90	80	0	20	75	0	0	0	0	0	0	7	0	31	0	303	
7:40 AM	0	109	64	0	17	92	0	0	0	0	0	0	15	0	41	0	338	
7:45 AM	0	111	69	0	11	99	0	0	0	0	0	0	0	0	31	0	321	
7:50 AM	0	94	51	0	20	95	0	0	0	0	0	0	14	0	41	0	315	
7:55 AM	0	95	68	0	14	86	0	0	0	0	0	0	10	0	33	0	306	3474
8:00 AM	0	80	60	0	14	88	0	0	0	0	0	0	13	0	32	0	287	3511
8:05 AM	0	79	49	0	15	92	0	0	0	0	0	0	15	0	31	0	281	3553
8:10 AM	0	98	62	0	19	96	0	0	0	0	0	0	7	0	35	0	317	3617
8:15 AM	0	70	64	0	15	81	0	0	0	0	0	0	15	0	33	0	278	3604
8:20 AM	0	79	61	0	16	104	0	0	0	0	0	0	13	0	35	0	308	3616
8:25 AM	0	72	62	0	17	77	0	0	0	0	0	0	17	0	23	0	268	3620
8:30 AM	0	75	40	0	18	94	0	0	0	0	0	0	14	0	28	0	269	3591
8:35 AM	0	72	59	0	11	90	0	0	0	0	0	0	9	0	31	0	272	3560
8:40 AM	0	56	58	0	16	84	0	0	0	0	0	0	15	0	31	0	260	3482
8:45 AM	0	71	63	0	14	67	0	0	0	0	0	0	14	0	38	0	267	3428
8:50 AM	0	77	42	0	16	72	0	0	0	0	0	0	10	0	35	0	252	3365
8:55 AM	0	62	58	0	23	66	0	0	0	0	0	0	19	0	22	0	250	3309
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	0	1256	736	0	192	1144	0	0	0	0	0	0	116	0	452	0	3896	
Heavy Trucks	0	76	28		20	44	0		0	0	0		24	0	36		228	
Pedestrians	0				0				0				0				0	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Railroad																		
Stopped Buses																		

Comments:

LOCATION: OR 213 -- Washington St/Clackamas River Dr
CITY/STATE: Oregon City, OR

QC JOB #: 13421003
DATE: Thu, Jun 11 2015

Peak-Hour: 7:05 AM -- 8:05 AM
Peak 15-Min: 7:15 AM -- 7:30 AM



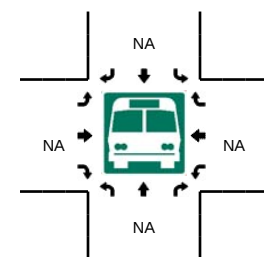
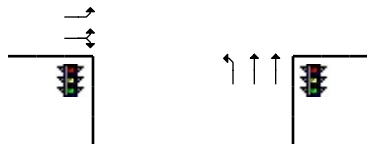
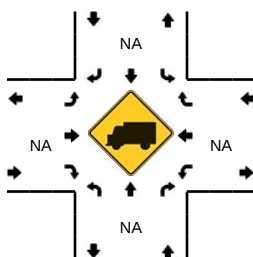
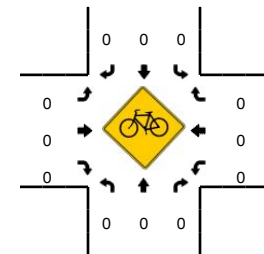
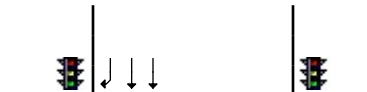
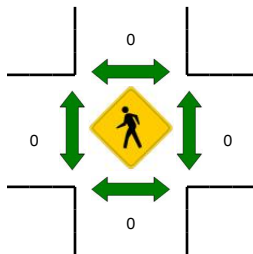
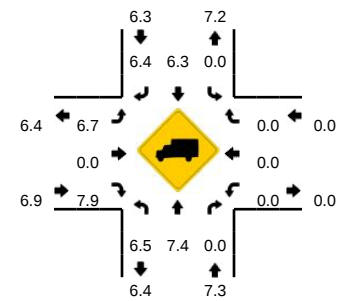
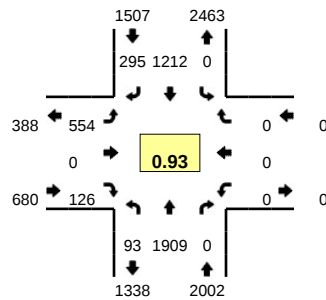
5-Min Count Period Beginning At	OR 213 (Northbound)				OR 213 (Southbound)				Washington St/Clackamas River Dr (Eastbound)				Washington St/Clackamas River Dr (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	200	10	0	0	91	29	0	0	0	9	0	0	0	28	0	367	
7:05 AM	0	193	3	0	0	118	28	0	0	0	4	0	0	0	40	0	386	
7:10 AM	0	197	9	0	0	121	33	0	0	0	4	0	0	0	33	0	397	
7:15 AM	0	216	14	0	0	133	36	0	0	0	3	0	0	0	28	0	430	
7:20 AM	0	221	11	0	0	125	44	0	0	0	6	0	0	0	36	0	443	
7:25 AM	0	197	2	0	0	110	37	0	0	0	3	0	0	0	52	0	401	
7:30 AM	0	211	17	0	0	123	31	0	0	0	5	0	0	0	25	0	412	
7:35 AM	0	187	14	0	0	118	26	0	0	0	5	0	0	0	14	0	364	
7:40 AM	0	138	8	0	0	113	38	0	0	0	10	0	0	0	41	0	348	
7:45 AM	0	173	11	0	0	134	34	0	0	0	6	0	0	0	23	0	381	
7:50 AM	0	154	14	0	0	132	36	0	0	0	8	0	0	0	30	0	374	
7:55 AM	0	167	14	0	0	122	40	0	0	0	1	0	0	0	32	0	376	4679
8:00 AM	0	180	14	0	0	114	39	0	0	0	4	0	0	0	17	0	368	4680
8:05 AM	0	160	11	0	0	113	32	0	0	0	7	0	0	0	25	0	348	4642
8:10 AM	0	153	6	0	0	142	31	0	0	0	8	0	0	0	31	0	371	4616
8:15 AM	0	137	14	0	0	124	42	0	0	0	8	0	0	0	34	0	359	4545
8:20 AM	0	165	21	0	0	113	32	0	0	0	8	0	0	0	33	0	372	4474
8:25 AM	0	195	18	0	0	138	48	0	0	0	8	0	0	0	36	0	443	4516
8:30 AM	0	177	17	0	0	120	31	0	0	0	4	0	0	0	46	0	395	4499
8:35 AM	0	173	8	0	0	101	29	0	0	0	7	0	0	0	39	0	357	4492
8:40 AM	0	159	12	0	0	124	37	0	0	0	7	0	0	0	35	0	374	4518
8:45 AM	0	143	13	0	0	107	36	0	0	0	5	0	0	0	31	0	335	4472
8:50 AM	0	143	13	0	0	119	25	0	0	0	12	0	0	0	27	0	339	4437
8:55 AM	0	141	10	0	0	116	50	0	0	0	13	0	0	0	23	0	353	4414
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	0	2536	108	0	0	1472	468	0	0	0	48	0	0	0	464	0	5096	
Heavy Trucks	0	108	24	0	0	88	68	0	0	0	4	0	0	0	56	0	348	
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Railroad	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Stopped Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

Comments:

LOCATION: OR 213 -- Redland Rd
CITY/STATE: Oregon City, OR

QC JOB #: 13421005
DATE: Thu, Jun 11 2015

Peak-Hour: 7:05 AM -- 8:05 AM
Peak 15-Min: 7:10 AM -- 7:25 AM



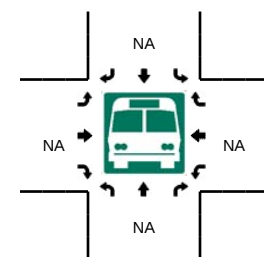
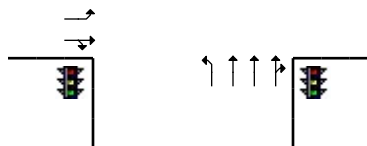
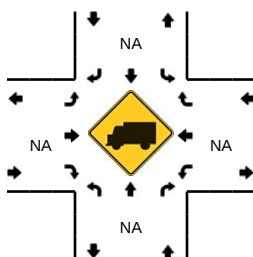
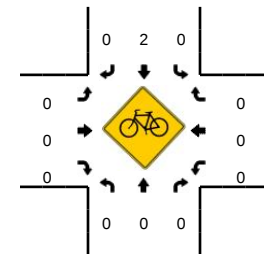
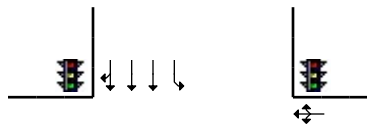
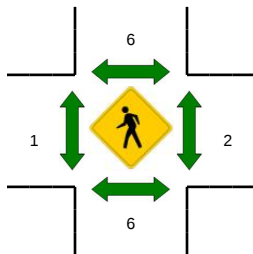
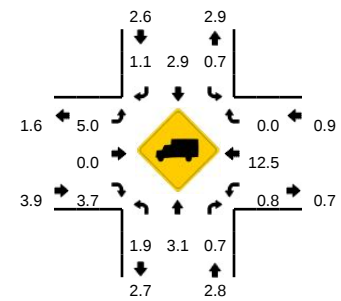
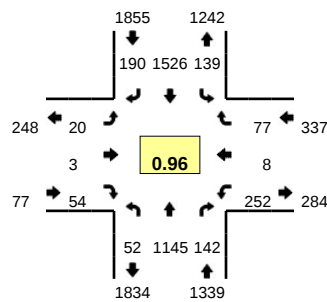
5-Min Count Period Beginning At	OR 213 (Northbound)				OR 213 (Southbound)				Redland Rd (Eastbound)				Redland Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	5	173	0	0	0	83	17	0	29	0	14	0	0	0	0	0	321	
7:05 AM	6	149	0	0	0	91	14	0	66	0	9	0	0	0	0	0	335	
7:10 AM	5	179	0	0	0	105	22	0	39	0	16	0	0	0	0	0	366	
7:15 AM	3	195	0	0	0	110	34	0	31	0	8	0	0	0	0	0	381	
7:20 AM	2	164	0	0	0	101	19	0	69	0	20	0	0	0	0	0	375	
7:25 AM	3	178	0	0	0	102	17	0	30	0	10	0	0	0	0	0	340	
7:30 AM	7	177	0	0	0	103	29	0	42	0	14	0	0	0	0	0	372	
7:35 AM	5	160	0	0	0	87	24	0	62	0	8	0	0	0	0	0	346	
7:40 AM	14	147	0	0	0	95	26	0	49	0	8	0	0	0	0	0	339	
7:45 AM	8	146	0	0	0	117	31	0	41	0	8	0	0	0	0	0	351	
7:50 AM	11	143	0	0	0	110	28	0	36	0	6	0	0	0	0	0	334	
7:55 AM	15	109	0	0	0	86	25	0	49	0	8	0	0	0	0	0	292	4152
8:00 AM	14	162	0	0	0	105	26	0	40	0	11	0	0	0	0	0	358	4189
8:05 AM	8	151	0	0	0	101	25	0	28	0	9	0	0	0	0	0	322	4176
8:10 AM	12	126	0	0	0	99	34	0	36	0	5	0	0	0	0	0	312	4122
8:15 AM	12	132	0	0	0	125	22	0	28	0	7	0	0	0	0	0	326	4067
8:20 AM	5	128	0	0	0	116	17	0	35	0	5	0	0	0	0	0	306	3998
8:25 AM	9	129	0	0	0	102	30	0	49	0	12	0	0	0	0	0	331	3989
8:30 AM	2	149	0	0	0	104	28	0	33	0	3	0	0	0	0	0	319	3936
8:35 AM	4	146	0	0	0	98	20	0	28	0	6	0	0	0	0	0	302	3892
8:40 AM	5	135	0	0	0	88	24	0	38	0	7	0	0	0	0	0	297	3850
8:45 AM	6	118	0	0	0	95	20	0	51	0	7	0	0	0	0	0	297	3796
8:50 AM	7	118	0	0	0	117	20	0	32	0	3	0	0	0	0	0	297	3759
8:55 AM	2	105	0	0	0	100	19	0	33	0	6	0	0	0	0	0	265	3732
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
	40	2152	0	0	0	1264	300	0	556	0	176	0	0	0	0	0	4488	
	12	140	0	0	0	84	8	0	16	0	8	0	0	0	0	0	268	
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Stopped Buses																		

Comments:

LOCATION: McLoughlin Blvd -- Dunes Dr
CITY/STATE: Oregon City, OR

QC JOB #: 13413104
DATE: Tue, Jun 02 2015

Peak-Hour: 5:00 PM -- 6:00 PM
Peak 15-Min: 5:20 PM -- 5:35 PM



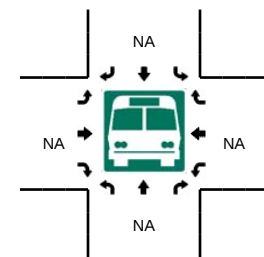
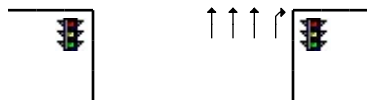
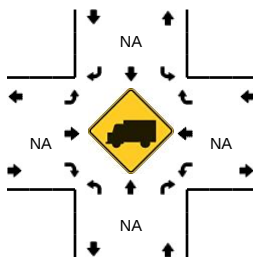
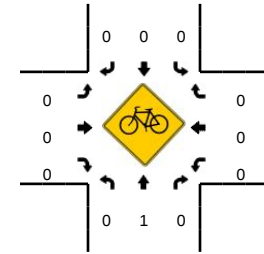
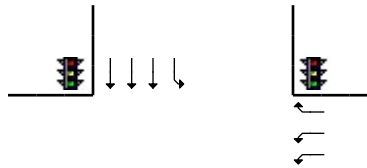
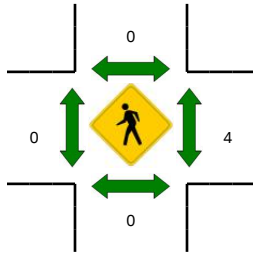
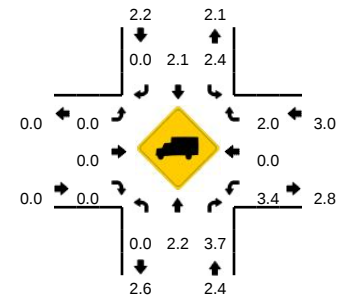
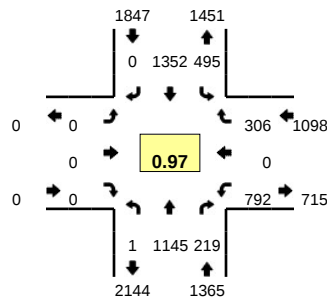
5-Min Count Period Beginning At	McLoughlin Blvd (Northbound)				McLoughlin Blvd (Southbound)				Dunes Dr (Eastbound)				Dunes Dr (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	4	70	15	0	10	105	16	0	3	3	6	0	24	1	5	0	262	
4:05 PM	5	118	13	0	13	129	16	0	7	0	4	0	26	1	5	0	337	
4:10 PM	5	83	21	0	16	148	16	0	2	1	4	0	19	0	7	0	322	
4:15 PM	2	88	6	0	14	118	10	0	4	1	4	0	27	1	2	0	277	
4:20 PM	5	80	8	0	8	81	13	0	5	0	1	0	21	3	6	0	231	
4:25 PM	4	109	12	0	8	125	22	0	2	1	3	0	20	1	6	0	313	
4:30 PM	1	102	12	0	10	107	11	0	2	0	8	0	27	1	7	0	288	
4:35 PM	4	68	11	1	6	104	10	0	1	1	2	0	21	1	11	0	241	
4:40 PM	3	101	15	0	4	98	11	0	0	0	9	0	28	1	8	0	278	
4:45 PM	6	99	10	0	15	132	16	0	0	1	3	0	15	2	12	0	311	
4:50 PM	1	88	9	0	3	129	10	0	0	0	4	0	20	1	6	0	271	
4:55 PM	4	84	10	0	15	103	10	0	0	0	3	0	24	1	9	0	263	3394
5:00 PM	3	83	13	0	10	119	16	0	1	0	5	0	17	0	7	0	274	3406
5:05 PM	2	101	7	0	17	126	15	0	4	1	4	0	12	0	6	0	295	3364
5:10 PM	5	93	11	0	17	111	17	0	0	0	5	0	29	2	7	0	297	3339
5:15 PM	5	99	9	0	11	93	13	0	2	0	6	0	25	0	7	0	270	3332
5:20 PM	5	103	16	0	15	169	16	0	0	1	7	0	16	1	6	0	355	3456
5:25 PM	3	98	13	0	12	118	20	0	3	0	3	0	22	2	5	0	299	3442
5:30 PM	6	66	5	1	12	146	13	0	0	0	5	0	24	0	6	0	284	3438
5:35 PM	3	103	8	0	7	109	19	0	2	0	5	0	17	1	9	0	283	3480
5:40 PM	4	117	18	0	11	153	14	0	3	0	3	0	18	0	4	0	345	3547
5:45 PM	6	77	10	0	12	129	16	0	2	0	1	0	21	1	6	0	281	3517
5:50 PM	5	86	20	1	11	128	13	0	2	0	3	0	26	1	7	0	303	3549
5:55 PM	3	119	12	0	4	125	18	0	1	1	7	0	25	0	7	0	322	3608
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	56	1068	136	4	156	1732	196	0	12	4	60	0	248	12	68	0	3752	
Heavy Trucks	0	16	0		0	40	4		0	0	4		0	0	0		64	
Pedestrians		8				4				0				0			12	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Railroad																		
Stopped Buses																		

Comments:

LOCATION: McLoughlin Blvd -- I-205 SB Ramps
CITY/STATE: Oregon City, OR

QC JOB #: 13413102
DATE: Tue, Jun 02 2015

Peak-Hour: 5:00 PM -- 6:00 PM
Peak 15-Min: 5:35 PM -- 5:50 PM

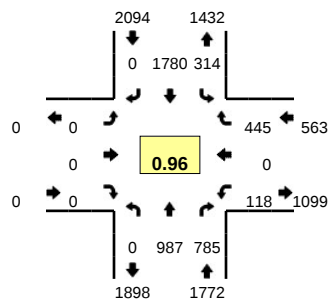


5-Min Count Period Beginning At	McLoughlin Blvd (Northbound)				McLoughlin Blvd (Southbound)				I-205 SB Ramps (Eastbound)				I-205 SB Ramps (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	62	9	0	33	106	0	0	0	0	0	0	77	0	24	0	311	
4:05 PM	0	135	16	0	45	122	0	0	0	0	0	0	32	0	25	0	375	
4:10 PM	0	102	19	0	39	119	0	0	0	0	0	0	75	0	25	0	379	
4:15 PM	0	84	14	0	38	108	0	0	0	0	0	0	63	0	28	0	335	
4:20 PM	0	60	6	0	31	91	0	0	0	0	0	0	73	0	26	0	287	
4:25 PM	0	108	20	0	40	107	0	0	0	0	0	0	47	0	29	0	351	
4:30 PM	0	110	21	0	25	102	0	0	0	0	0	0	49	0	21	0	328	
4:35 PM	0	66	21	0	30	83	0	0	0	0	0	0	63	0	21	0	284	
4:40 PM	0	106	10	0	48	104	0	0	0	0	0	0	49	0	31	0	348	
4:45 PM	0	103	10	0	43	114	0	0	0	0	0	0	59	0	21	0	350	
4:50 PM	0	106	12	0	31	104	0	0	0	0	0	0	80	0	23	0	356	
4:55 PM	0	54	13	0	39	94	0	0	0	0	0	0	88	0	26	0	314	4018
5:00 PM	0	91	14	0	43	117	0	0	0	0	0	0	58	0	17	0	340	4047
5:05 PM	0	103	25	0	30	109	0	0	0	0	0	0	68	0	16	0	351	4023
5:10 PM	0	114	29	0	45	84	0	0	0	0	0	0	61	0	21	0	354	3998
5:15 PM	0	74	20	0	38	97	0	0	0	0	0	0	67	0	28	0	324	3987
5:20 PM	0	97	16	0	47	149	0	0	0	0	0	0	58	0	35	0	402	4102
5:25 PM	0	94	22	0	31	102	0	0	0	0	0	0	83	0	29	0	361	4112
5:30 PM	0	57	9	0	39	113	0	0	0	0	0	0	87	0	23	0	328	4112
5:35 PM	0	97	22	0	37	124	0	0	0	0	0	0	60	0	33	0	373	4201
5:40 PM	0	117	8	1	48	130	0	0	0	0	0	0	57	0	26	1	388	4241
5:45 PM	0	102	29	0	28	93	0	0	0	0	0	0	74	0	25	0	351	4242
5:50 PM	0	74	13	0	56	96	0	0	0	0	0	0	78	0	30	0	347	4233
5:55 PM	0	125	12	0	53	138	0	0	0	0	0	0	40	0	23	0	391	4310
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	0	1264	236	4	452	1388	0	0	0	0	0	0	764	0	336	4	4448	
Heavy Trucks	0	36	4		8	44	0		0	0	0		16	0	12		120	
Pedestrians	0				0				0				4				4	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Railroad																		
Stopped Buses																		

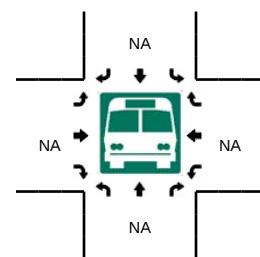
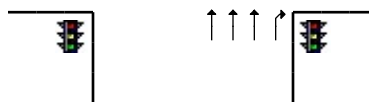
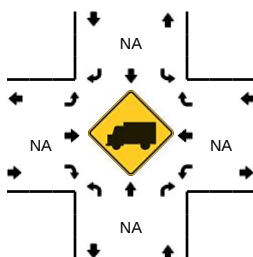
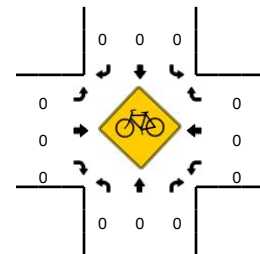
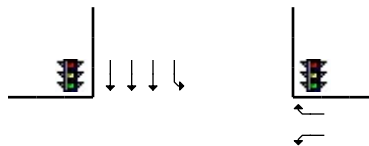
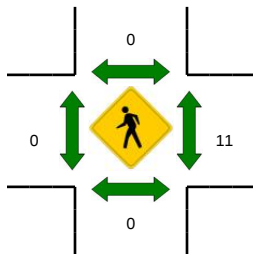
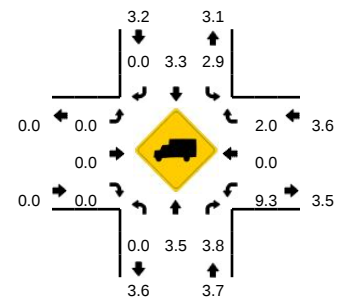
Comments:

LOCATION: McLoughlin Blvd/OR 99E -- I-205 NB Ramps
CITY/STATE: Oregon City, OR

QC JOB #: 13421002
DATE: Thu, Jun 11 2015



Peak-Hour: 5:00 PM -- 6:00 PM
Peak 15-Min: 5:05 PM -- 5:20 PM



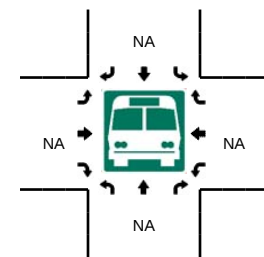
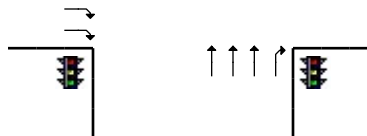
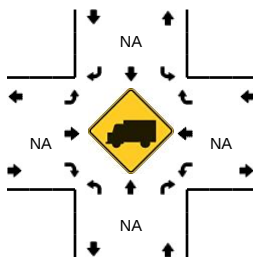
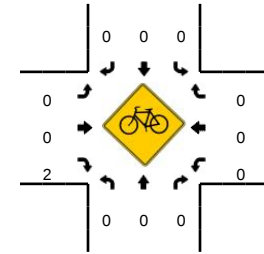
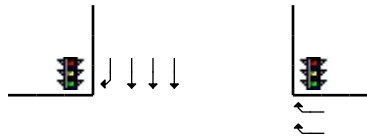
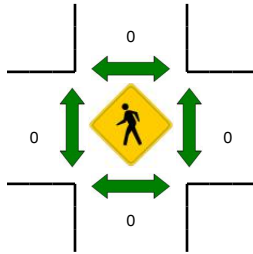
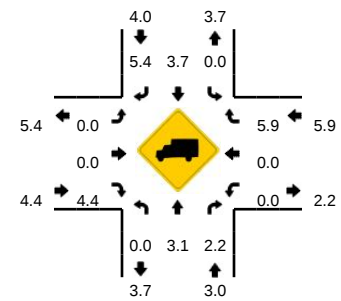
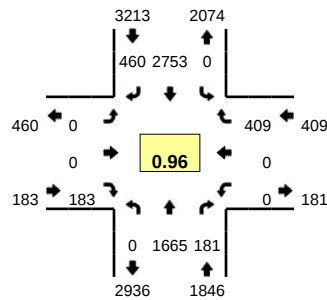
5-Min Count Period Beginning At	McLoughlin Blvd/OR 99E (Northbound)				McLoughlin Blvd/OR 99E (Southbound)				I-205 NB Ramps (Eastbound)				I-205 NB Ramps (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	79	70	0	23	126	0	0	0	0	0	0	0	0	52	0	350	
4:05 PM	0	73	63	0	38	126	0	0	0	0	0	0	5	0	50	0	355	
4:10 PM	0	72	56	0	31	147	0	0	0	0	0	0	10	0	32	0	348	
4:15 PM	0	87	63	0	25	160	0	0	0	0	0	0	8	0	36	0	379	
4:20 PM	0	81	66	0	18	141	0	0	0	0	0	0	6	0	29	0	341	
4:25 PM	0	57	41	0	30	157	0	0	0	0	0	0	13	0	50	0	348	
4:30 PM	0	61	53	0	24	153	0	0	0	0	0	0	12	0	30	0	333	
4:35 PM	0	73	55	0	33	155	0	0	0	0	0	0	2	0	41	0	359	
4:40 PM	0	82	55	0	33	166	0	0	0	0	0	0	15	0	38	0	389	
4:45 PM	0	80	61	0	32	158	0	0	0	0	0	0	9	0	39	0	379	
4:50 PM	0	73	63	0	26	157	0	0	0	0	0	0	5	0	28	0	352	
4:55 PM	0	85	75	0	13	151	0	0	0	0	0	0	9	0	34	0	367	4300
5:00 PM	0	92	66	0	30	127	0	0	0	0	0	0	10	0	49	0	374	4324
5:05 PM	0	92	62	0	15	157	0	0	0	0	0	0	16	0	44	0	386	4355
5:10 PM	0	88	72	0	39	136	0	0	0	0	0	0	7	0	34	0	376	4383
5:15 PM	0	109	81	0	17	144	0	0	0	0	0	0	10	0	28	0	389	4393
5:20 PM	0	92	62	0	31	144	0	0	0	0	0	0	5	0	41	0	375	4427
5:25 PM	0	61	72	0	29	143	0	0	0	0	0	0	7	0	35	0	347	4426
5:30 PM	0	58	60	0	21	167	0	0	0	0	0	0	5	0	28	0	339	4432
5:35 PM	0	103	61	0	33	141	0	0	0	0	0	0	10	0	50	0	398	4471
5:40 PM	0	70	58	0	27	160	0	0	0	0	0	0	12	0	30	0	357	4439
5:45 PM	0	67	66	0	30	154	0	0	0	0	0	0	13	0	36	0	366	4426
5:50 PM	0	81	70	0	19	148	0	0	0	0	0	0	13	0	35	0	366	4440
5:55 PM	0	74	55	0	23	159	0	0	0	0	0	0	10	0	35	0	356	4429
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	0	1156	860	0	284	1748	0	0	0	0	0	0	132	0	424	0	4604	
Heavy Trucks	0	48	24	0	0	72	0	0	0	0	0	0	4	0	0	0	148	
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	16	0	0	0	16	
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Railroad	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Stopped Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

Comments:

LOCATION: OR 213 -- Washington St/Clackamas River Dr
CITY/STATE: Oregon City, OR

QC JOB #: 13421004
DATE: Thu, Jun 11 2015

Peak-Hour: 5:00 PM -- 6:00 PM
Peak 15-Min: 5:05 PM -- 5:20 PM



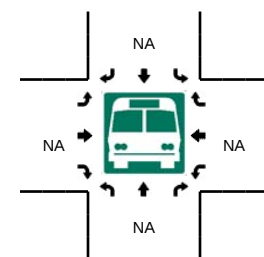
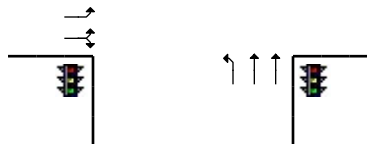
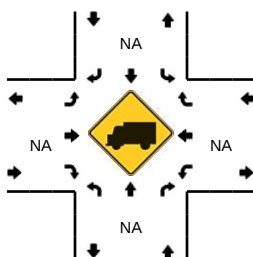
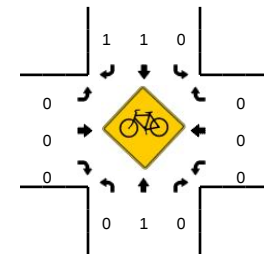
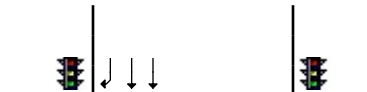
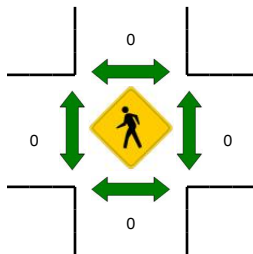
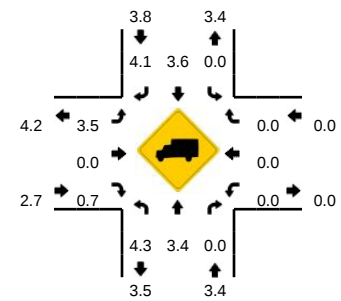
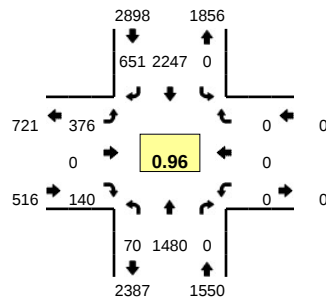
5-Min Count Period Beginning At	OR 213 (Northbound)				OR 213 (Southbound)				Washington St/Clackamas River Dr (Eastbound)				Washington St/Clackamas River Dr (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	122	13	0	0	187	40	0	0	0	14	0	0	0	47	0	423	
4:05 PM	0	149	14	0	0	185	48	0	0	0	11	0	0	0	37	0	444	
4:10 PM	0	171	17	0	0	200	30	0	0	0	18	0	0	0	27	0	463	
4:15 PM	0	141	11	0	0	215	41	0	0	0	8	0	0	0	29	0	445	
4:20 PM	0	151	12	0	0	210	40	0	0	0	15	0	0	0	38	0	466	
4:25 PM	0	158	12	0	0	212	42	0	0	0	20	0	0	0	32	0	476	
4:30 PM	0	124	10	0	0	226	32	0	0	0	17	0	0	0	36	0	445	
4:35 PM	0	142	10	0	0	204	40	0	0	0	12	0	0	0	56	0	464	
4:40 PM	0	176	12	0	0	199	49	0	0	0	15	0	0	0	25	0	476	
4:45 PM	0	147	9	0	0	215	32	0	0	0	23	0	0	0	33	0	459	
4:50 PM	0	130	16	0	0	216	39	0	0	0	8	0	0	0	44	0	453	
4:55 PM	0	147	15	0	0	209	48	0	0	0	17	0	0	0	27	0	463	5477
5:00 PM	0	142	18	0	0	196	45	0	0	0	23	0	0	0	24	0	448	5502
5:05 PM	0	145	15	0	0	226	40	0	0	0	15	0	0	0	52	0	493	5551
5:10 PM	0	162	17	0	0	227	39	0	0	0	13	0	0	0	41	0	499	5587
5:15 PM	0	164	22	0	0	213	31	0	0	0	23	0	0	0	24	0	477	5619
5:20 PM	0	136	24	0	0	234	39	0	0	0	11	0	0	0	40	0	484	5637
5:25 PM	0	150	15	0	0	236	39	0	0	0	12	0	0	0	38	0	490	5651
5:30 PM	0	130	12	0	0	218	40	0	0	0	11	0	0	0	28	0	439	5645
5:35 PM	0	124	13	0	0	226	36	0	0	0	13	0	0	0	24	0	436	5617
5:40 PM	0	132	18	0	0	251	37	0	0	0	17	0	0	0	52	0	507	5648
5:45 PM	0	150	13	0	0	246	43	0	0	0	5	0	0	0	22	0	479	5668
5:50 PM	0	117	4	0	0	225	34	0	0	0	30	0	0	0	32	0	442	5657
5:55 PM	0	113	10	0	0	255	37	0	0	0	10	0	0	0	32	0	457	5651
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	0	1884	216	0	0	2664	440	0	0	0	204	0	0	0	468	0	5876	
Heavy Trucks	0	48	8	0	0	140	36	0	0	0	12	0	0	0	32	0	276	
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Railroad	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Stopped Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

Comments:

LOCATION: OR 213 -- Redland Rd
CITY/STATE: Oregon City, OR

QC JOB #: 13421006
DATE: Thu, Jun 11 2015

Peak-Hour: 5:00 PM -- 6:00 PM
Peak 15-Min: 5:40 PM -- 5:55 PM



5-Min Count Period Beginning At	OR 213 (Northbound)				OR 213 (Southbound)				Redland Rd (Eastbound)				Redland Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	13	113	0	0	0	138	34	0	28	0	16	0	0	0	0	0	342	
4:05 PM	6	139	0	0	0	147	47	0	24	0	18	0	0	0	0	0	381	
4:10 PM	8	162	0	0	0	196	61	0	22	0	5	0	0	0	0	0	454	
4:15 PM	7	116	0	0	0	161	36	0	48	0	19	0	0	0	0	0	387	
4:20 PM	10	133	0	0	0	164	54	0	40	0	9	0	0	0	0	0	410	
4:25 PM	6	129	0	0	0	194	48	0	31	0	12	0	0	0	0	0	420	
4:30 PM	8	119	0	0	0	189	66	0	18	0	13	0	0	0	0	0	413	
4:35 PM	13	124	0	0	0	143	37	0	38	0	14	0	0	0	0	0	369	
4:40 PM	5	148	0	0	0	200	40	0	33	0	12	0	0	0	0	0	438	
4:45 PM	5	128	0	0	0	198	54	0	31	0	9	0	0	0	0	0	425	
4:50 PM	10	112	0	1	0	167	38	0	40	0	18	0	0	0	0	0	386	
4:55 PM	3	142	0	0	0	198	49	0	22	0	7	0	0	0	0	0	421	4846
5:00 PM	2	120	0	0	0	176	47	0	32	0	9	0	0	0	0	0	386	4890
5:05 PM	5	124	0	0	0	172	39	0	48	0	20	0	0	0	0	0	408	4917
5:10 PM	6	147	0	0	0	195	66	0	35	0	9	0	0	0	0	0	458	4921
5:15 PM	3	146	0	0	0	188	56	0	29	0	6	0	0	0	0	0	428	4962
5:20 PM	4	132	0	0	0	177	42	0	37	0	15	0	0	0	0	0	407	4959
5:25 PM	9	131	0	0	0	186	54	0	26	0	6	0	0	0	0	0	412	4951
5:30 PM	7	113	0	0	0	213	51	0	26	0	13	0	0	0	0	0	423	4961
5:35 PM	4	115	0	0	0	165	51	0	27	0	10	0	0	0	0	0	372	4964
5:40 PM	6	127	0	0	0	183	59	0	26	0	13	0	0	0	0	0	414	4940
5:45 PM	5	133	0	0	0	217	63	0	25	0	14	0	0	0	0	0	457	4972
5:50 PM	9	99	0	0	0	204	67	0	29	0	16	0	0	0	0	0	424	5010
5:55 PM	10	93	0	0	0	171	56	0	36	0	9	0	0	0	0	0	375	4964
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	80	1436	0	0	0	2416	756	0	320	0	172	0	0	0	0	0	5180	
Heavy Trucks	0	36	0	0	0	60	20	0	12	0	0	0	0	0	0	0	128	
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Railroad	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Stopped Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

Comments:

Appendix B
Description of Level-of-
Service Methods and
Criteria

Appendix B Level-of-Service Concept

Level of service (LOS) is a concept developed to quantify the degree of comfort (including such elements as travel time, number of stops, total amount of stopped delay, and impediments caused by other vehicles) afforded to drivers as they travel through an intersection or roadway segment. Six grades are used to denote the various level of service from “A” to “F”.¹

SIGNALIZED INTERSECTIONS

The six level-of-service grades are described qualitatively for signalized intersections in Table B1. Additionally, Table B2 identifies the relationship between level of service and average control delay per vehicle. Control delay is defined to include initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay. Using this definition, Level of Service “D” is generally considered to represent the minimum acceptable design standard.

Table B-1 Level-of-Service Definitions (Signalized Intersections)

Level of Service	Average Delay per Vehicle
A	Very low average control delay, less than 10 seconds per vehicle. This occurs when progression is extremely favorable, and most vehicles arrive during the green phase. Most vehicles do not stop at all. Short cycle lengths may also contribute to low delay.
B	Average control delay is greater than 10 seconds per vehicle and less than or equal to 20 seconds per vehicle. This generally occurs with good progression and/or short cycle lengths. MOR vehicles stop than for a level of service A, causing higher levels of average delay.
C	Average control delay is greater than 20 seconds per vehicle and less than or equal to 35 seconds per vehicle. These higher delays may result from fair progression and/or longer cycle lengths. Individual cycle failures may begin to appear at this level. The number of vehicles stopping is significant at this level, although many still pass through the intersection without stopping.
D	Average control delay is greater than 35 seconds per vehicle and less than or equal to 55 seconds per vehicle. The influence of congestion becomes MOR noticeable. Longer delays may result from some combination of unfavorable progression, long cycle length, or high volume/capacity ratios. Many vehicles stop, and the proportion of vehicles not stopping declines. Individual cycle failures are noticeable.
E	Average control delay is greater than 55 seconds per vehicle and less than or equal to 80 seconds per vehicle. This is usually considered to be the limit of acceptable delay. These high delay values generally (but not always) indicate poor progression, long cycle lengths, and high volume/capacity ratios. Individual cycle failures are frequent occurrences.
F	Average control delay is in excess of 80 seconds per vehicle. This is considered to be unacceptable to most drivers. This condition often occurs with oversaturation. It may also occur at high volume/capacity ratios below 1.0 with many individual cycle failures. Poor progression and long cycle lengths may also contribute to such high delay values.

¹ Most of the material in this appendix is adapted from the Transportation Research Board, Highway Capacity Manual, (2000).

Table B2 Level-of-Service Criteria for Signalized Intersections

Level of Service	Average Control Delay per Vehicle (Seconds)
A	<10.0
B	>10 and ≤20
C	>20 and ≤35
D	>35 and ≤55
E	>55 and ≤80
F	>80

UNSIGNALIZED INTERSECTIONS

Unsignalized intersections include two-way stop-controlled (TWSC) and all-way stop-controlled (AWSC) intersections. The 2000 Highway Capacity Manual (HCM) provides models for estimating control delay at both TWSC and AWSC intersections. A qualitative description of the various service levels associated with an unsignalized intersection is presented in Table B3. A quantitative definition of level of service for unsignalized intersections is presented in Table B4. Using this definition, Level of Service “E” is generally considered to represent the minimum acceptable design standard.

Table B3 Level-of-Service Criteria for Unsignalized Intersections

Level of Service	Average Delay per Vehicle to Minor Street
A	- Nearly all drivers find freedom of operation. - Very seldom is there mOR than one vehicle in queue.
B	- Some drivers begin to consider the delay an inconvenience. - Occasionally there is mOR than one vehicle in queue.
C	- Many times there is mOR than one vehicle in queue. - Most drivers feel restricted, but not objectionably so.
D	- Often there is mOR than one vehicle in queue. - Drivers feel quite restricted.
E	- Represents a condition in which the demand is near or equal to the probable maximum number of vehicles that can be accommodated by the movement. - There is almost always mOR than one vehicle in queue. - Drivers find the delays approaching intolerable levels.
F	- Forced flow. - Represents an intersection failure condition that is caused by geometric and/or operational constraints external to the intersection.

Table B4 Level-of-Service Criteria for Unsignalized Intersections

Level of Service	Average Control Delay per Vehicle (Seconds)
A	<10.0
B	>10.0 and ≤ 15.0
C	>15.0 and ≤ 25.0
D	>25.0 and ≤ 35.0
E	>35.0 and ≤ 50.0
F	>50.0

It should be noted that the level-of-service criteria for unsignalized intersections are somewhat different than the criteria used for signalized intersections. The primary reason for this difference is that drivers expect different levels of performance from different kinds of transportation facilities. The expectation is that a signalized intersection is designed to carry higher traffic volumes than an unsignalized intersection. Additionally, there are a number of driver behavior considerations that combine to make delays at signalized intersections less galling than at unsignalized intersections. For example, drivers at signalized intersections are able to relax during the red interval, while drivers on the minor street approaches to TWSC intersections must remain attentive to the task of identifying acceptable gaps and vehicle conflicts. Also, there is often much mOR variability in the amount of delay experienced by individual drivers at unsignalized intersections than signalized intersections. For these reasons, it is considered that the control delay threshold for any given level of service is less for an unsignalized intersection than for a signalized intersection. While overall intersection level of service is calculated for AWSC intersections, level of service is only calculated for the minor approaches and the major street left turn movements at TWSC intersections. No delay is assumed to the major street through movements. For TWSC intersections, the overall intersection level of service remains undefined: level of service is only calculated for each minor street lane.

In the performance evaluation of TWSC intersections, it is important to consider other measures of effectiveness (MOEs) in addition to delay, such as v/c ratios for individual movements, average queue lengths, and 95th-percentile queue lengths. By focusing on a single MOE for the worst movement only, such as delay for the minor-street left turn, users may make inappropriate traffic control decisions. The potential for making such inappropriate decisions is likely to be particularly pronounced when the HCM level-of-service thresholds are adopted as legal standards, as is the case in many public agencies.

Appendix C
Year 2015 Existing
Conditions Level-of-
Service Worksheets

The Cove
1: McLoughlin Blvd & Dunes Dr

Existing AM Peak Hour
7/13/2015

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	24	7	64	139	6	56	55	1430	67	90	1262	105
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.8		4.0	4.8	4.8
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.91		1.00	0.91	1.00
Frpb, ped/bikes	1.00	0.99		1.00	0.99		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	0.87		1.00	0.87		1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1733	1503		1751	1502		1656	4867		1787	4893	1482
Flt Permitted	0.71	1.00		0.71	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1299	1503		1300	1502		1656	4867		1787	4893	1482
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	27	8	71	154	7	62	61	1589	74	100	1402	117
RTOR Reduction (vph)	0	60	0	0	52	0	0	4	0	0	0	27
Lane Group Flow (vph)	27	19	0	154	17	0	61	1659	0	100	1402	90
Confl. Peds. (#/hr)	3		2	2		3						
Heavy Vehicles (%)	4%	0%	9%	3%	0%	9%	9%	6%	3%	1%	6%	9%
Turn Type	Perm	NA		Perm	NA		Prot	NA		Prot	NA	Perm
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8			4								2
Actuated Green, G (s)	14.5	14.5		14.5	14.5		7.1	54.1		8.6	55.6	55.6
Effective Green, g (s)	14.5	14.5		14.5	14.5		7.1	54.1		8.6	55.6	55.6
Actuated g/C Ratio	0.16	0.16		0.16	0.16		0.08	0.60		0.10	0.62	0.62
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.8		4.0	4.8	4.8
Vehicle Extension (s)	2.5	2.5		2.5	2.5		2.3	4.8		2.3	4.8	4.8
Lane Grp Cap (vph)	209	242		209	241		130	2925		170	3022	915
v/s Ratio Prot		0.01			0.01		0.04	c0.34		c0.06	0.29	
v/s Ratio Perm	0.02			c0.12								0.06
v/c Ratio	0.13	0.08		0.74	0.07		0.47	0.57		0.59	0.46	0.10
Uniform Delay, d1	32.3	32.1		35.9	32.0		39.6	10.9		39.0	9.2	7.0
Progression Factor	1.00	1.00		1.00	1.00		0.69	0.36		1.00	1.00	1.00
Incremental Delay, d2	0.2	0.1		12.0	0.1		0.9	0.5		3.9	0.5	0.2
Delay (s)	32.5	32.2		47.9	32.1		28.1	4.4		42.9	9.7	7.2
Level of Service	C	C		D	C		C	A		D	A	A
Approach Delay (s)		32.3			43.0			5.2			11.6	
Approach LOS		C			D			A			B	
Intersection Summary												
HCM 2000 Control Delay			11.1			HCM 2000 Level of Service			B			
HCM 2000 Volume to Capacity ratio			0.60									
Actuated Cycle Length (s)			90.0			Sum of lost time (s)			12.8			
Intersection Capacity Utilization			61.3%			ICU Level of Service			B			
Analysis Period (min)			15									
c Critical Lane Group												

The Cove
2: McLoughlin Blvd & I-205 SB Ramps

Existing AM Peak Hour
7/13/2015

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	333	384	1297	253	533	951
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	4.0	4.8	4.0	4.0	4.8
Lane Util. Factor	0.97	1.00	0.91	1.00	1.00	0.91
Frpb, ped/bikes	1.00	1.00	1.00	0.98	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	3155	1538	4940	1451	1752	4940
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3155	1538	4940	1451	1752	4940
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	366	422	1425	278	586	1045
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	366	422	1425	278	586	1045
Confl. Bikes (#/hr)				1		
Heavy Vehicles (%)	11%	5%	5%	9%	3%	5%
Turn Type	Prot	pm+ov	NA	Free	Prot	NA
Protected Phases	4	5	6		5	2
Permitted Phases		4		Free		
Actuated Green, G (s)	14.4	46.4	29.3	90.0	32.0	65.3
Effective Green, g (s)	14.4	46.4	29.3	90.0	32.0	65.3
Actuated g/C Ratio	0.16	0.52	0.33	1.00	0.36	0.73
Clearance Time (s)	5.5	4.0	4.8		4.0	4.8
Vehicle Extension (s)	2.3	2.3	4.8		2.3	4.8
Lane Grp Cap (vph)	504	861	1608	1451	622	3584
v/s Ratio Prot	c0.12	0.17	c0.29		c0.33	0.21
v/s Ratio Perm		0.10		0.19		
v/c Ratio	0.73	0.49	0.89	0.19	0.94	0.29
Uniform Delay, d1	35.9	14.1	28.8	0.0	28.1	4.3
Progression Factor	1.00	1.00	0.71	1.00	1.25	0.75
Incremental Delay, d2	4.7	0.3	7.2	0.3	21.1	0.2
Delay (s)	40.6	14.4	27.6	0.3	56.3	3.4
Level of Service	D	B	C	A	E	A
Approach Delay (s)	26.6		23.1			22.4
Approach LOS	C		C			C
Intersection Summary						
HCM 2000 Control Delay			23.5		HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio			0.88			
Actuated Cycle Length (s)			90.0		Sum of lost time (s)	14.3
Intersection Capacity Utilization			76.0%		ICU Level of Service	D
Analysis Period (min)			15			
c Critical Lane Group						

The Cove
3: McLoughlin Blvd/OR 99E & I-205 NB Ramps

Existing AM Peak Hour

7/13/2015

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	136	402	1061	779	196	1046
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	4.0	4.8	4.8	4.0	4.8
Lane Util. Factor	1.00	1.00	0.91	1.00	1.00	0.91
Frpb, ped/bikes	1.00	1.00	1.00	0.98	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1597	1495	4803	1478	1671	4893
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1597	1495	4803	1478	1671	4893
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	146	432	1141	838	211	1125
RTOR Reduction (vph)	0	0	0	321	0	0
Lane Group Flow (vph)	146	432	1141	517	211	1125
Confl. Bikes (#/hr)				1		
Heavy Vehicles (%)	13%	8%	8%	7%	8%	6%
Turn Type	Prot	Free	NA	Perm	Prot	NA
Protected Phases	4		6		5	2
Permitted Phases		Free		6		
Actuated Green, G (s)	12.8	90.0	49.5	49.5	13.4	66.9
Effective Green, g (s)	12.8	90.0	49.5	49.5	13.4	66.9
Actuated g/C Ratio	0.14	1.00	0.55	0.55	0.15	0.74
Clearance Time (s)	5.5		4.8	4.8	4.0	4.8
Vehicle Extension (s)	2.3		4.8	4.8	2.3	4.8
Lane Grp Cap (vph)	227	1495	2641	812	248	3637
v/s Ratio Prot	c0.09		0.24		c0.13	0.23
v/s Ratio Perm		0.29		c0.35		
v/c Ratio	0.64	0.29	0.43	0.64	0.85	0.31
Uniform Delay, d1	36.4	0.0	12.0	14.0	37.3	3.8
Progression Factor	1.00	1.00	1.00	1.00	0.68	0.64
Incremental Delay, d2	5.1	0.5	0.5	3.8	21.8	0.2
Delay (s)	41.5	0.5	12.5	17.8	47.4	2.7
Level of Service	D	A	B	B	D	A
Approach Delay (s)	10.9		14.7			9.7
Approach LOS	B		B			A
Intersection Summary						
HCM 2000 Control Delay			12.4		HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.67			
Actuated Cycle Length (s)			90.0		Sum of lost time (s)	14.3
Intersection Capacity Utilization			66.4%		ICU Level of Service	C
Analysis Period (min)			15			
c Critical Lane Group						

The Cove
4: OR 213 & Washington St/Clackamas River Dr

Existing AM Peak Hour

7/13/2015

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations			 			 		  			  	
Volume (vph)	0	0	59	0	0	371	0	2234	131	0	1463	422
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)			4.0			4.0		6.0	6.0		6.0	6.0
Lane Util. Factor			0.88			0.88		0.91	1.00		0.91	1.00
Flt			0.85			0.85		1.00	0.85		1.00	0.85
Flt Protected			1.00			1.00		1.00	1.00		1.00	1.00
Satd. Flow (prot)			2632			2493		4893	1357		4893	1404
Flt Permitted			1.00			1.00		1.00	1.00		1.00	1.00
Satd. Flow (perm)			2632			2493		4893	1357		4893	1404
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	0	64	0	0	403	0	2428	142	0	1590	459
RTOR Reduction (vph)	0	0	55	0	0	63	0	0	34	0	0	98
Lane Group Flow (vph)	0	0	9	0	0	340	0	2428	108	0	1590	361
Heavy Vehicles (%)	0%	0%	8%	0%	0%	14%	0%	6%	19%	0%	6%	15%
Turn Type			Perm			Perm		NA	Perm		NA	Perm
Protected Phases								6			2	
Permitted Phases			1			5			6			2
Actuated Green, G (s)			17.7			21.5		98.5	98.5		102.3	102.3
Effective Green, g (s)			17.7			21.5		98.5	98.5		102.3	102.3
Actuated g/C Ratio			0.14			0.17		0.76	0.76		0.79	0.79
Clearance Time (s)			4.0			4.0		6.0	6.0		6.0	6.0
Vehicle Extension (s)			2.3			2.3		4.8	4.8		4.8	4.8
Lane Grp Cap (vph)			358			412		3707	1028		3850	1104
v/s Ratio Prot								c0.50			0.32	
v/s Ratio Perm			0.00			c0.14			0.08			0.26
v/c Ratio			0.02			0.82		0.65	0.10		0.41	0.33
Uniform Delay, d1			48.7			52.4		7.6	4.1		4.4	4.0
Progression Factor			1.00			1.00		1.27	1.84		1.00	1.00
Incremental Delay, d2			0.0			12.2		0.4	0.1		0.3	0.8
Delay (s)			48.7			64.6		10.1	7.7		4.7	4.8
Level of Service			D			E		B	A		A	A
Approach Delay (s)		48.7			64.6			10.0			4.7	
Approach LOS		D			E			A			A	
Intersection Summary												
HCM 2000 Control Delay			12.7			HCM 2000 Level of Service			B			
HCM 2000 Volume to Capacity ratio			0.69									
Actuated Cycle Length (s)			130.0			Sum of lost time (s)			10.0			
Intersection Capacity Utilization			64.5%			ICU Level of Service			C			
Analysis Period (min)			15									
c Critical Lane Group												

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	554	126	93	1909	1212	295
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.4	4.0	4.0	6.0	6.0	5.4
Lane Util. Factor	0.97	1.00	1.00	0.95	0.95	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	3273	1495	1703	3374	3406	1524
Flt Permitted	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (perm)	3273	1495	1703	3374	3406	1524
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	596	135	100	2053	1303	317
RTOR Reduction (vph)	0	31	0	0	0	77
Lane Group Flow (vph)	596	104	100	2053	1303	240
Heavy Vehicles (%)	7%	8%	6%	7%	6%	6%
Turn Type	Prot	pm+ov	Prot	NA	NA	pm+ov
Protected Phases	8	1	1	6	2	8
Permitted Phases		8				2
Actuated Green, G (s)	25.8	41.8	16.0	92.8	72.8	98.6
Effective Green, g (s)	25.8	41.8	16.0	92.8	72.8	98.6
Actuated g/C Ratio	0.20	0.32	0.12	0.71	0.56	0.76
Clearance Time (s)	5.4	4.0	4.0	6.0	6.0	5.4
Vehicle Extension (s)	2.3	2.3	2.3	4.8	4.8	2.3
Lane Grp Cap (vph)	649	526	209	2408	1907	1219
v/s Ratio Prot	c0.18	0.02	0.06	c0.61	0.38	0.04
v/s Ratio Perm		0.05				0.12
v/c Ratio	0.92	0.20	0.48	0.85	0.68	0.20
Uniform Delay, d1	51.1	31.9	53.1	13.6	20.4	4.5
Progression Factor	1.00	1.00	1.00	1.00	0.75	0.14
Incremental Delay, d2	17.8	0.1	1.0	4.1	1.9	0.0
Delay (s)	68.9	32.1	54.1	17.7	17.2	0.7
Level of Service	E	C	D	B	B	A
Approach Delay (s)	62.1			19.4	14.0	
Approach LOS	E			B	B	
Intersection Summary						
HCM 2000 Control Delay			24.4		HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio			0.90			
Actuated Cycle Length (s)			130.0		Sum of lost time (s)	15.4
Intersection Capacity Utilization			78.1%		ICU Level of Service	D
Analysis Period (min)			15			
c Critical Lane Group						

The Cove
1: McLoughlin Blvd & Dunes Dr

Existing PM Peak Hour

7/15/2015

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	20	3	54	252	8	77	52	1145	142	139	1526	190
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.8		4.0	4.8	4.8
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.91		1.00	0.91	1.00
Frpb, ped/bikes	1.00	0.98		1.00	0.99		1.00	1.00		1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.86		1.00	0.86		1.00	0.98		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1712	1546		1780	1599		1770	4950		1787	5036	1562
Flt Permitted	0.69	1.00		0.72	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1246	1546		1346	1599		1770	4950		1787	5036	1562
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)	21	3	56	262	8	80	54	1193	148	145	1590	198
RTOR Reduction (vph)	0	43	0	0	61	0	0	11	0	0	0	26
Lane Group Flow (vph)	21	16	0	262	27	0	54	1330	0	145	1590	172
Confl. Peds. (#/hr)	6		6	6		6	1		2	2		1
Confl. Bikes (#/hr)												2
Heavy Vehicles (%)	5%	0%	4%	1%	12%	0%	2%	3%	1%	1%	3%	1%
Turn Type	Perm	NA		Perm	NA		Prot	NA		Prot	NA	Perm
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8			4								2
Actuated Green, G (s)	26.0	26.0		26.0	26.0		7.1	57.9		13.3	64.1	64.1
Effective Green, g (s)	26.0	26.0		26.0	26.0		7.1	57.9		13.3	64.1	64.1
Actuated g/C Ratio	0.24	0.24		0.24	0.24		0.06	0.53		0.12	0.58	0.58
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.8		4.0	4.8	4.8
Vehicle Extension (s)	2.5	2.5		2.5	2.5		2.3	4.8		2.3	4.8	4.8
Lane Grp Cap (vph)	294	365		318	377		114	2605		216	2934	910
v/s Ratio Prot		0.01			0.02		0.03	c0.27		c0.08	c0.32	
v/s Ratio Perm	0.02			c0.19								0.11
v/c Ratio	0.07	0.04		0.82	0.07		0.47	0.51		0.67	0.54	0.19
Uniform Delay, d1	32.6	32.4		39.8	32.6		49.6	16.9		46.3	14.0	10.8
Progression Factor	1.00	1.00		1.00	1.00		0.47	0.37		1.00	1.00	1.00
Incremental Delay, d2	0.1	0.0		15.4	0.1		0.7	0.3		6.9	0.7	0.5
Delay (s)	32.7	32.5		55.3	32.7		24.1	6.5		53.1	14.7	11.2
Level of Service	C	C		E	C		C	A		D	B	B
Approach Delay (s)		32.5			49.6			7.2			17.2	
Approach LOS		C			D			A			B	
Intersection Summary												
HCM 2000 Control Delay			16.8				HCM 2000 Level of Service			B		
HCM 2000 Volume to Capacity ratio			0.63									
Actuated Cycle Length (s)			110.0				Sum of lost time (s)			12.8		
Intersection Capacity Utilization			67.2%				ICU Level of Service			C		
Analysis Period (min)			15									

c Critical Lane Group

The Cove
2: McLoughlin Blvd & I-205 SB Ramps

Existing PM Peak Hour

7/15/2015

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	 		  		 	  
Volume (vph)	792	306	1145	219	495	1352
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	4.0	4.8	4.0	4.0	4.8
Lane Util. Factor	0.97	1.00	0.91	1.00	1.00	0.91
Frpb, ped/bikes	1.00	1.00	1.00	0.98	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	3400	1583	5085	1518	1770	5085
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3400	1583	5085	1518	1770	5085
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	816	315	1180	226	510	1394
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	816	315	1180	226	510	1394
Confl. Peds. (#/hr)				4	4	
Confl. Bikes (#/hr)				1		
Heavy Vehicles (%)	3%	2%	2%	4%	2%	2%
Turn Type	Prot	pm+ov	NA	Free	Prot	NA
Protected Phases	4	5	6		5	2
Permitted Phases		4		Free		
Actuated Green, G (s)	30.4	72.4	23.3	110.0	42.0	69.3
Effective Green, g (s)	30.4	72.4	23.3	110.0	42.0	69.3
Actuated g/C Ratio	0.28	0.66	0.21	1.00	0.38	0.63
Clearance Time (s)	5.5	4.0	4.8		4.0	4.8
Vehicle Extension (s)	2.3	2.3	4.8		2.3	4.8
Lane Grp Cap (vph)	939	1099	1077	1518	675	3203
v/s Ratio Prot	c0.24	0.11	c0.23		c0.29	0.27
v/s Ratio Perm		0.09		0.15		
v/c Ratio	0.87	0.29	1.10	0.15	0.76	0.44
Uniform Delay, d1	37.9	7.9	43.4	0.0	29.5	10.4
Progression Factor	1.00	1.00	0.73	1.00	1.26	1.30
Incremental Delay, d2	8.5	0.1	56.8	0.2	3.8	0.4
Delay (s)	46.4	8.0	88.5	0.2	41.2	13.8
Level of Service	D	A	F	A	D	B
Approach Delay (s)	35.7		74.3			21.1
Approach LOS	D		E			C
Intersection Summary						
HCM 2000 Control Delay			41.7		HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio			0.87			
Actuated Cycle Length (s)			110.0		Sum of lost time (s)	14.3
Intersection Capacity Utilization			92.8%		ICU Level of Service	F
Analysis Period (min)			15			

c Critical Lane Group

The Cove
3: McLoughlin Blvd/OR 99E & I-205 NB Ramps

Existing PM Peak Hour

7/15/2015

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations			  			  
Volume (vph)	118	445	987	785	314	1780
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	4.0	4.8	4.8	4.0	4.8
Lane Util. Factor	1.00	1.00	0.91	1.00	1.00	0.91
Frpb, ped/bikes	1.00	1.00	1.00	0.95	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	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1656	1583	4988	1482	1752	5036
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1656	1583	4988	1482	1752	5036
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	123	464	1028	818	327	1854
RTOR Reduction (vph)	0	0	0	263	0	0
Lane Group Flow (vph)	123	464	1028	555	327	1854
Confl. Peds. (#/hr)				11	11	
Heavy Vehicles (%)	9%	2%	4%	4%	3%	3%
Turn Type	Prot	Free	NA	Perm	Prot	NA
Protected Phases	4		6		5	2
Permitted Phases		Free		6		
Actuated Green, G (s)	12.8	110.0	57.2	57.2	25.7	86.9
Effective Green, g (s)	12.8	110.0	57.2	57.2	25.7	86.9
Actuated g/C Ratio	0.12	1.00	0.52	0.52	0.23	0.79
Clearance Time (s)	5.5		4.8	4.8	4.0	4.8
Vehicle Extension (s)	2.3		4.8	4.8	2.3	4.8
Lane Grp Cap (vph)	192	1583	2593	770	409	3978
v/s Ratio Prot	c0.07		0.21		c0.19	0.37
v/s Ratio Perm		0.29		c0.37		
v/c Ratio	0.64	0.29	0.40	0.72	0.80	0.47
Uniform Delay, d1	46.4	0.0	16.0	20.3	39.7	3.8
Progression Factor	1.00	1.00	1.00	1.00	0.60	0.60
Incremental Delay, d2	5.9	0.5	0.5	5.8	8.5	0.3
Delay (s)	52.3	0.5	16.4	26.1	32.4	2.6
Level of Service	D	A	B	C	C	A
Approach Delay (s)	11.3		20.7			7.1
Approach LOS	B		C			A
Intersection Summary						
HCM 2000 Control Delay			13.1		HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.73			
Actuated Cycle Length (s)			110.0		Sum of lost time (s)	14.3
Intersection Capacity Utilization			74.5%		ICU Level of Service	D
Analysis Period (min)			15			
c Critical Lane Group						

The Cove
4: OR 213 & Washington St/Clackamas River Dr

Existing PM Peak Hour

7/15/2015

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	183	0	0	409	0	1665	181	0	2753	460
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)			4.0			4.0		6.0	6.0		6.0	6.0
Lane Util. Factor			0.88			0.88		0.91	1.00		0.91	1.00
Frpb, ped/bikes			1.00			1.00		1.00	1.00		1.00	0.98
Flpb, ped/bikes			1.00			1.00		1.00	1.00		1.00	1.00
Frt			0.85			0.85		1.00	0.85		1.00	0.85
Flt Protected			1.00			1.00		1.00	1.00		1.00	1.00
Satd. Flow (prot)			2733			2682		5036	1583		4988	1507
Flt Permitted			1.00			1.00		1.00	1.00		1.00	1.00
Satd. Flow (perm)			2733			2682		5036	1583		4988	1507
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	0	0	191	0	0	426	0	1734	189	0	2868	479
RTOR Reduction (vph)	0	0	54	0	0	63	0	0	47	0	0	77
Lane Group Flow (vph)	0	0	137	0	0	363	0	1734	142	0	2868	402
Confl. Bikes (#/hr)												1
Heavy Vehicles (%)	0%	0%	4%	0%	0%	6%	0%	3%	2%	0%	4%	5%
Turn Type			Perm			Perm		NA	Perm		NA	Perm
Protected Phases								6			2	
Permitted Phases			1			5			6			2
Actuated Green, G (s)			11.0			22.2		97.8	97.8		109.0	109.0
Effective Green, g (s)			11.0			22.2		97.8	97.8		109.0	109.0
Actuated g/C Ratio			0.08			0.17		0.75	0.75		0.84	0.84
Clearance Time (s)			4.0			4.0		6.0	6.0		6.0	6.0
Vehicle Extension (s)			2.3			2.3		4.8	4.8		4.8	4.8
Lane Grp Cap (vph)			231			458		3788	1190		4182	1263
v/s Ratio Prot								0.34			c0.58	
v/s Ratio Perm			c0.05			c0.14			0.09			0.27
v/c Ratio			0.59			0.79		0.46	0.12		0.69	0.32
Uniform Delay, d1			57.3			51.7		6.1	4.4		4.0	2.3
Progression Factor			1.00			1.00		1.44	3.34		1.00	1.00
Incremental Delay, d2			3.1			8.7		0.3	0.2		0.9	0.7
Delay (s)			60.5			60.4		9.1	14.8		4.9	3.0
Level of Service			E			E		A	B		A	A
Approach Delay (s)		60.5			60.4			9.7			4.6	
Approach LOS		E			E			A			A	
Intersection Summary												
HCM 2000 Control Delay			12.1			HCM 2000 Level of Service			B			
HCM 2000 Volume to Capacity ratio			0.69									
Actuated Cycle Length (s)			130.0			Sum of lost time (s)			10.0			
Intersection Capacity Utilization			67.9%			ICU Level of Service			C			
Analysis Period (min)			15									
c Critical Lane Group												

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	 	 	 	 	 	 
Volume (vph)	376	140	70	1480	2247	651
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.4	4.0	4.0	6.0	6.0	5.4
Lane Util. Factor	0.97	1.00	1.00	0.95	0.95	1.00
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	3400	1599	1736	3505	3471	1527
Flt Permitted	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (perm)	3400	1599	1736	3505	3471	1527
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	392	146	73	1542	2341	678
RTOR Reduction (vph)	0	4	0	0	0	123
Lane Group Flow (vph)	392	142	73	1542	2341	555
Confl. Bikes (#/hr)						1
Heavy Vehicles (%)	3%	1%	4%	3%	4%	4%
Turn Type	Prot	pm+ov	Prot	NA	NA	pm+ov
Protected Phases	8	1	1	6	2	8
Permitted Phases		8				2
Actuated Green, G (s)	17.9	33.9	16.0	100.7	80.7	98.6
Effective Green, g (s)	17.9	33.9	16.0	100.7	80.7	98.6
Actuated g/C Ratio	0.14	0.26	0.12	0.77	0.62	0.76
Clearance Time (s)	5.4	4.0	4.0	6.0	6.0	5.4
Vehicle Extension (s)	2.3	2.3	2.3	4.8	4.8	2.3
Lane Grp Cap (vph)	468	466	213	2715	2154	1221
v/s Ratio Prot	c0.12	0.04	0.04	c0.44	c0.67	0.06
v/s Ratio Perm		0.05				0.30
v/c Ratio	0.84	0.30	0.34	0.57	1.09	0.45
Uniform Delay, d1	54.6	38.6	52.2	5.9	24.6	5.8
Progression Factor	1.00	1.00	1.00	1.00	1.48	4.85
Incremental Delay, d2	12.0	0.2	0.6	0.9	45.7	0.1
Delay (s)	66.7	38.8	52.7	6.8	82.3	28.2
Level of Service	E	D	D	A	F	C
Approach Delay (s)	59.1			8.8	70.1	
Approach LOS	E			A	E	
Intersection Summary						
HCM 2000 Control Delay			49.8		HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio			0.98			
Actuated Cycle Length (s)			130.0		Sum of lost time (s)	15.4
Intersection Capacity Utilization			82.3%		ICU Level of Service	E
Analysis Period (min)			15			
c Critical Lane Group						

Appendix D
ODOT Crash Data

OREGON DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT
CRASH SUMMARIES BY YEAR BY COLLISION TYPE
McLoughlin Boulevard OR 99E(Hwy 081) & Dunes Drive
January 1, 2009 through December 31, 2013

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

Disclaimer: A higher number of crashes may be reported as of 2011 compared to prior years. This does not reflect an increase in annual crashes. The higher numbers result from a change to an internal departmental process that allows the Crash Analysis and Reporting Unit to add previously unavailable, non-fatal crash reports to the annual data file. Please be aware of this change when comparing pre-2011 crash statistics.

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

McLoughlin Blvd OR 99E (Hwy 081) & I-205 (Hwy 064) NB ramps
January 1, 2009 through December 31, 2013

COLLISION TYPE	FATAL CRASHES	NON- FATAL CRASHES	PROPERTY DAMAGE ONLY	TOTAL CRASHES	PEOPLE KILLED	PEOPLE INJURED	TRUCKS	DRY SURF	WET SURF	DAY	DARK	INTER- SECTION	INTER- SECTION RELATED	OFF- ROAD
YEAR: 2013														
REAR-END	0	4	4	8	0	4	0	5	1	5	3	8	0	0
TURNING MOVEMENTS	0	1	1	2	0	3	0	2	0	0	2	2	0	0
2013 TOTAL	0	5	5	10	0	7	0	7	1	5	5	10	0	0
YEAR: 2012														
REAR-END	0	0	7	7	0	0	0	6	1	7	0	7	0	0
TURNING MOVEMENTS	0	3	3	6	0	3	0	4	2	3	3	6	0	0
2012 TOTAL	0	3	10	13	0	3	0	10	3	10	3	13	0	0
YEAR: 2011														
REAR-END	0	3	2	5	0	4	0	3	2	4	1	5	0	0
TURNING MOVEMENTS	0	0	3	3	0	0	0	2	1	1	2	3	0	0
2011 TOTAL	0	3	5	8	0	4	0	5	3	5	3	8	0	0
YEAR: 2010														
REAR-END	0	4	1	5	0	4	0	5	0	4	1	5	0	0
SIDESWIPE - OVERTAKING	0	0	1	1	0	0	0	1	0	0	1	1	0	0
TURNING MOVEMENTS	0	2	0	2	0	4	0	1	1	1	1	2	0	0
2010 TOTAL	0	6	2	8	0	8	0	7	1	5	3	8	0	0
YEAR: 2009														
TURNING MOVEMENTS	0	0	1	1	0	0	0	0	1	1	0	1	0	0
2009 TOTAL	0	0	1	1	0	0	0	0	1	1	0	1	0	0
FINAL TOTAL	0	17	23	40	0	22	0	29	9	26	14	40	0	0

Disclaimer: A higher number of crashes may be reported as of 2011 compared to prior years. This does not reflect an increase in annual crashes. The higher numbers result from a change to an internal departmental process that allows the Crash Analysis and Reporting Unit to add previously unavailable, non-fatal crash reports to the annual data file. Please be aware of this change when comparing pre-2011 crash statistics.

McLoughlin Blvd OR 99E (Hwy 081) & I-205 (Hwy 064) NB ramps
January 1, 2009 through December 31, 2013

SER#	P E R S W E A U C O D C S L K	DATE DAY TIME	COUNTY CITY URBAN AREA	RD# COMPNT MLG TYP	FC MILEPNT	CONN # FIRST STREET SECOND STREET	RD CHAR DIRECT LOCTN	INT-TYP (MEDIAN) LEGS TRAF-CNTL	INT-REL	OFFRD RND BT DRVWY	WTHR SURF LIGHT	CRASH TYP COLL TYP SVRTY	SPCL USE TLRL QTY OWNER VEH TYPE	MOVE FROM TO	P#	PRTC TYPE	INJ SVRTY	A G E X	S E RES	LICNS	PED LOC	ERROR	ACTN	EVENT	CAUSE
04362 NONE	N N N	11/17/2011 Thu 8A	CLACKAMAS OREGON CITY PORTLAND UA	1 6 9.43	19 0 TYP	1 PACIFIC HY 99E EB EX PAC HY 99E	INTER NE 09	3-LEG 1	N YIELD	N RAIN N WET N DAWN	S-1STOP REAR INJ	01 PRVTE PSNGR CAR	NONE 0 SE NW	STRGHT	01	DRVR	NONE	19 M	UNK OR<25		026		000 000	07 00 07	
												02 PRVTE PSNGR CAR	NONE 0 SE NW	STOP	01	DRVR	INJA	31 F	OR-Y OR<25		000		011 000	00 00	
01924 NONE	N N N	05/24/2012 Thu 9A	CLACKAMAS OREGON CITY PORTLAND UA	1 6 9.43	11 0 TYP	1 PACIFIC HY 99E EB EX PAC HY 99E	INTER NE 09	3-LEG 1	N YIELD	N CLR N DRY N DAY	S-1STOP REAR PDO	01 PRVTE PSNGR CAR	NONE 0 SE NW	STRGHT	01	DRVR	NONE	00 F	OR-Y OR<25		026		000 000	07 00 07	
												02 PRVTE PSNGR CAR	NONE 0 SE NW	STOP	01	DRVR	NONE	64 M	OR-Y OR<25		000		011 000	00 00	
02321 NONE	N N N	06/28/2012 Thu 12P	CLACKAMAS OREGON CITY PORTLAND UA	1 6 9.43	11 0 TYP	1 PACIFIC HY 99E EB EX PAC HY 99E	INTER NE 09	3-LEG 1	N YIELD	N CLR N DRY N DAY	S-1STOP REAR PDO	01 PRVTE PSNGR CAR	NONE 0 SE NW	STRGHT	01	DRVR	NONE	24 M	OR-Y OR<25		026		000 000	07 00 07	
												02 PRVTE PSNGR CAR	NONE 0 SE NW	STOP	01	DRVR	NONE	71 M	OR-Y OR<25		000		011 000	00 00	
03957 NONE	N N N	10/22/2012 Mon 2P	CLACKAMAS OREGON CITY PORTLAND UA	1 6 9.43	11 0 TYP	1 PACIFIC HY 99E EB EX PAC HY 99E	INTER NE 09	3-LEG 1	N YIELD	N UNK N WET N DAY	S-1STOP REAR PDO	01 PRVTE PSNGR CAR	NONE 0 SE NW	STRGHT	01	DRVR	NONE	00 F	OTH-Y N-RES		026		000 000	07 00 07	
												02 PRVTE PSNGR CAR	NONE 0 SE NW	STOP	01	DRVR	NONE	39 F	OR-Y OR<25		000		011 000	00 00	
01366 NONE	N N N	04/22/2013 Mon 7P	CLACKAMAS OREGON CITY PORTLAND UA	1 6 9.43	11 0 TYP	1 EB EX PAC HY 99E PACIFIC HY 99E	INTER NE 09	3-LEG 1	N YIELD	N CLR N DRY N DUSK	S-1STOP REAR PDO	01 PRVTE PSNGR CAR	NONE 0 SE NW	STRGHT	01	DRVR	NONE	42 M	OR-Y OR<25		026		000 000	07 00 07	
												02 PRVTE PSNGR CAR	NONE 0 SE NW	STOP	01	DRVR	NONE	20 M	OR-Y OR<25		000		011 000	00 00	
82215 NONE	N N N	11/12/2013 Tue 8A	CLACKAMAS OREGON CITY PORTLAND UA	1 6 9.43	11 0 TYP	1 PACIFIC HY 99E EB EX PAC HY 99E	INTER NE 09	3-LEG 1	N YIELD	N RAIN N WET N DAWN	S-1STOP REAR INJ	01 PRVTE PSNGR CAR	NONE 0 SE NW	STRGHT	01	DRVR	NONE	00 M	UNK UNK		026		000 000	07 00 07	

McLoughlin Blvd OR 99E (Hwy 081) & I-205 (Hwy 064) NB ramps
January 1, 2009 through December 31, 2013

S D										SPCL USE										A S									
P R S W										TRLR QTY										G E LICNS									
E A U C O DATE										OWNER										X RES									
SER#	E L G H R	DAY	COUNTY	RD#	FC	CONN #	RD CHAR	(MEDIAN	INT-REL	OFFRD	WTHR	CRASH TYP	TRLR	QTY	MOVE	P	PRTC	INJ	A	S	LICNS	PED	LOC	ERROR	ACTN	EVENT	CAUSE		
INVEST	D C S L K	TIME	URBAN AREA	MILEPNT	COMPNT	FIRST STREET	DIRECT	(#LANES)	TRAF- CNTL	RNDBT	SURF	COLL TYP	V#	VEH TYPE	FROM TO	#	TYPE	SVRTY	G	E	RES	LOC	ERROR	ACTN	EVENT	CAUSE			
													02	NONE	0	STOP													
													PRVTE	CAR	SE NW														
													PSNGR	CAR		01	DRVR	INJC	65	F	OR-Y		000		011	000	00		
																					OR<25					00			
01145	N N N	04/06/2010	CLACKAMAS	1 19	1		INTER	3-LEG	N		CLR	S-1STOP	01	NONE	0	STRGHT										013	27,07		
NONE		Tue	OREGON CITY	6 0		PACIFIC HY 99E	E		TRF SIGNAL	N	DRY	REAR		PRVTE	E W										000	000	00		
		3P	PORTLAND UA	9.43	EB EX	PAC HY 99E	06	1			DAY	INJ		PSNGR	CAR		01	DRVR	NONE	39	M	OR-Y	016,026	000	000	27,07			
																					OR<25								
													02	NONE	0	STOP									011	013	00		
													PRVTE	CAR	E W									000	000	00			
													PSNGR	CAR		01	DRVR	INJC	36	M	OR-Y	000				00			
																					OR<25								
													03	NONE	0	STOP									022		00		
													PRVTE	CAR	E W									000	000	00			
													PSNGR	CAR		01	DRVR	NONE	23	M	OR-Y	000				00			
																					OR<25								
01260	Y N N	04/15/2011	CLACKAMAS	1 19	1		INTER	3-LEG	N		RAIN	S-1STOP	01	NONE	0	STRGHT										013	01		
NONE		Fri	OREGON CITY	6 0		PACIFIC HY 99E	E		YIELD	N	WET	REAR		UNKN	E W										000	000	00		
		12P	PORTLAND UA	9.43	EB EX	PAC HY 99E	06	1			DAY	INJ		UNKNOWN											000	000	01		
													02	NONE	0	STOP									011	013	00		
													PRVTE	CAR	E W									000	000	00			
													PSNGR	CAR		01	DRVR	NONE	24	F	OR-Y	000				00			
																					OR<25								
													03	NONE	0	STOP									022		00		
													PRVTE	CAR	E W									000	000	00			
													PSNGR	CAR		01	DRVR	INJC	41	M	OR-Y	000				00			
																					OR<25								
													02	PSNG	INJC	15	F							000	000	00			
03326	N N N	09/08/2011	CLACKAMAS	1 19	1		INTER	3-LEG	N		CLR	S-1STOP	01	NONE	0	STRGHT											07		
NO RPT		Thu	OREGON CITY	6 0		PACIFIC HY 99E	E		TRF SIGNAL	N	DRY	REAR		PRVTE	E W										000	000	00		
		11A	PORTLAND UA	9.43	EB EX	PAC HY 99E	06	1			DAY	PDO		PSNGR	CAR		01	DRVR	NONE	75	M	OR-Y	026	000	000	07			
																					OR<25								
													02	NONE	0	STOP									011		00		
													PRVTE	CAR	E W									000	000	00			
													PSNGR	CAR		01	DRVR	NONE	00	F	OR-Y	000				00			
																					OR<25								
04032	N N N	10/29/2011	CLACKAMAS	1 19	1		INTER	3-LEG	N		CLR	S-1STOP	01	NONE	0	STRGHT											07		
NONE		Sat	OREGON CITY	6 0		PACIFIC HY 99E	E		TRF SIGNAL	N	DRY	REAR		UNKN	E W										000	000	00		
		10A	PORTLAND UA	9.43	EB EX	PAC HY 99E	06	1			DAY	INJ		PSNGR	CAR		01	DRVR	NONE	00	F	OR-Y	026	000	000	07			
																					UNK								

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

064 EAST PORTLAND FREEWAY

McLoughlin Blvd OR 99E (Hwy 081) & I-205 (Hwy 064) NB ramps
January 1, 2009 through December 31, 2013

SER#	S D P R S W E A U C O E L G H R DAY INVEST D C S L K TIME	DATE	COUNTY CITY URBAN AREA	RD# FC COMPNT MLG TYP MILEPNT	CONN # FIRST STREET SECOND STREET	RD CHAR DIRECT LOCTN	INT-TYP (MEDIAN) LEGS (#LANES)	INT-REL TRAF- CNTL	OFFRD WTHR RDNBT SURF DRVMY LIGHT	CRASH TYP COLL TYP SVRTY	SPCL USE TRLR QTY OWNER VEH TYPE	MOVE FROM TO	P#	TYPE	INJ SVRTY	A S G E E X RES	LICNS LOC	PED ERROR	ACTN EVENT	CAUSE
											02 NONE 0 STOP PRVTE E W PSNGR CAR								012 000	00 00
02304	N N N	06/28/2013	CLACKAMAS	1 11 1		INTER	3-LEG	N	N UNK	S-1STOP	01 NONE 0 STRGHT PRVTE E W PSNGR CAR								000 000	27,07 00
NONE		Fri 3P	OREGON CITY PORTLAND UA	6 0 9.43	PACIFIC HY 99E WB EX PAC HY 99E	E 06	1	TRF SIGNAL	N UNK N DAY	REAR PDO			01	DRVR	NONE	43 M	OR-Y OR>25	016,026	000 000	27,07
											02 NONE 0 STOP PRVTE E W PSNGR CAR								012 000	00 00
04751	N N N	12/08/2013	CLACKAMAS	1 11 1		INTER	3-LEG	N	N CLR	S-1STOP	01 NONE 0 STRGHT PRVTE E W PSNGR CAR								000 000	07 00
NONE		Sun 5P	OREGON CITY PORTLAND UA	6 0 9.43	PACIFIC HY 99E EB EX PAC HY 99E	E 06	2	TRF SIGNAL	N UNK N DUSK	REAR INJ			01	DRVR	NONE	00 M	OR-Y UNK	026	000 000	07
											02 NONE 0 STOP PRVTE E W PSNGR CAR								012 000	00 00
03515	N N N	09/29/2010	CLACKAMAS	1 19 1		INTER	3-LEG	N	N CLR	S-1STOP	01 NONE 0 STRGHT PRVTE S N PSNGR CAR								000 000	07 00
NONE		Wed 11A	OREGON CITY PORTLAND UA	6 0 9.43	PACIFIC HY 99E EB EX PAC HY 99E	E 09	1	YIELD	N DRY N DAY	REAR INJ			01	DRVR	NONE	17 F	OR-Y OR<25	026	000 000	07
											02 NONE 0 STOP PRVTE S N PSNGR CAR								011 000	00 00
01168	N N N	04/09/2010	CLACKAMAS	1 14 1		INTER	3-LEG	N	N CLR	S-1STOP	01 NONE 0 STRGHT PRVTE SE NW PSNGR CAR								000 000	07 00
NONE		Fri 9A	OREGON CITY PORTLAND UA	6 0 9.43	PACIFIC HY 99E EB EX PAC HY 99E	SE 06	1	YIELD	N DRY N DAY	REAR INJ			01	DRVR	NONE	20 M	OR-Y OR<25	026	000 000	07
											02 NONE 0 STOP PRVTE SE NW PSNGR CAR								011 000	00 00
02659	N N N	07/30/2010	CLACKAMAS	1 19 1		INTER	3-LEG	N	N CLR	S-STRGHT	01 NONE 0 TURN-L PRVTE E S PSNGR CAR								000 000	08 00
NO RPT		Fri 9P	OREGON CITY PORTLAND UA	6 0 9.43	PACIFIC HY 99E EB EX PAC HY 99E	S 05	1	TRF SIGNAL	N DRY N DLIT	SS-O PDO			01	DRVR	NONE	55 M	OTH-Y OR<25	007	000 000	08
											02 NONE 0 TURN-L PRVTE E S PSNGR CAR								000 000	00 00

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

064 EAST PORTLAND FREEWAY

McLoughlin Blvd OR 99E (Hwy 081) & I-205 (Hwy 064) NB ranps
January 1, 2009 through December 31, 2013

SER#	INVEST	S D P R S W E A U C O D A T E C S L K T I M E	DATE	COUNTY	CITY	URBAN AREA	RD# FC COMPNT MLG TYP MILEPNT	CONN # FIRST STREET SECOND STREET	RD CHAR DIRECT LOCTN	INT-TYP (MEDIAN) LEGS (#LANES)	INT-REL TRAF- CNTL	OFFRD WTHR RDNBT SURF DRVMY LIGHT	CRASH TYP COLL TYP SVRTY	SPCL USE TRLR QTY MOVE OWNER FROM TO	P#	TYPE	INJ SVRTY	A S G E X RES	LICNS LOC	PED ERROR	ACTN EVENT	CAUSE
01631	STATE	NNNNN	05/03/2009	CLACKAMAS	OREGON CITY	PORTLAND UA	1 14 6 0 9.43	1 PACIFIC HY 99E EB EX PAC HY 99E	INTER CN 02	3-LEG N 0	N TRF SIGNAL	N CLD N WET N DAY	ANGL-OTH TURN PDO	01 NONE 0 STRGHT PRVTE S N PSNGR CAR				18 M	OR-Y OR<25	020	000 000	04 00 04
														02 NONE 0 TURN-L PRVTE E S PSNGR CAR				27 M	OR-Y OR<25	000 000	00 00	
02254	NONE	NNN	06/25/2011	CLACKAMAS	OREGON CITY	PORTLAND UA	1 19 6 0 11.81	2 PACIFIC HY 99E NB EXT0 I-205 EB	INTER NE 05	3-LEG N 1	N TRF SIGNAL	N CLR N DRY N DAY	S-OTHER TURN PDO	01 NONE 0 TURN-R PRVTE S NE MTRCYCLE				00 U	UNK UNK	006	000 000	08 00 08
														02 NONE 0 TURN-R PRVTE S NE PSNGR CAR				49 F	OTH-Y N-RES	000 000	00 00	

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

081 PACIFIC HIGHWAY EAST

McLoughlin Blvd OR 99E (Hwy 081) & I-205 (Hwy 064) NB ranps
January 1, 2009 through December 31, 2013

SER#	INVEST	S D P R S W E A U C O E L G H R D C S L K	DATE	COUNTY CITY URBAN AREA	RD# FC COMPNT MLG TYP MILEPNT	CONN # FIRST STREET SECOND STREET	RD CHAR DIRECT LOCTN	INT-TYP (MEDIAN) LEGS (#LANES)	INT-REL TRAF- CNTL	OFFRD WTHR RNBDBT SURF DRVMY LIGHT	CRASH TYP COLL TYP SVRTY	SPCL USE TRLR QTY OWNER VEH TYPE	MOVE FROM TO	PRTC P#	INJ TYPE	A S G E X RES	LICNS LOC	PED ERROR	ACTN	EVENT	CAUSE
00828	CITY	NNNNN	01/09/2012	CLACKAMAS OREGON CITY PORTLAND UA	1 14 0 0 11.80	PACIFIC HY 99E NB EXT0 I-205 EB	INTER N 06	3-LEG 1	N TRF SIGNAL	N CLR N DRY N DAY	S-1STOP REAR PDO	01 NONE PRVTE PSNGR CAR	0 STRGHT N S						000 000 000		07 00 07
			Mon 1P											01	DRVR	NONE	40 M	SUSP OR<25	026	000	00
														02	PSNG	NONE	39 F		000	000	00
														03	PSNG	NO<5	01 F		000	000	00
												02 NONE PRVTE PSNGR CAR	0 STOP N S						012 000		00 00
														01	DRVR	NONE	32 F	OR-Y OR<25	000	000	00
01099	NONE	NNN	04/01/2013	CLACKAMAS OREGON CITY PORTLAND UA	1 14 0 0 11.81	PACIFIC HY 99E NB EXT0 I-205 EB	INTER N 06	3-LEG 0	N L-GRN-SIG	N CLR N DRY N DAY	S-1STOP REAR INJ	01 NONE PRVTE PSNGR CAR	0 STRGHT N S						000 000 000		07 00 07
			Mon 1P											01	DRVR	NONE	66 M	OR-Y OR<25	026	000	07
												02 NONE PRVTE PSNGR CAR	0 STOP N S						012 000		00 00
														01	DRVR	INJC	47 F	OR-Y OR<25	000	000	00
01689	NONE	NNN	05/08/2012	CLACKAMAS OREGON CITY PORTLAND UA	1 14 0 0 11.81	PACIFIC HY 99E EB EX PAC HY 99E	INTER NE 09	CROSS 1	N YIELD	N CLR N DRY N DAY	S-1STOP REAR PDO	01 NONE PRVTE PSNGR CAR	0 STRGHT SE NW						000 000 000		07 00 07
			Tue 12P											01	DRVR	NONE	77 M	OR-Y OR<25	026	000	07
												02 NONE PRVTE PSNGR CAR	0 STOP SE NW						011 000		00 00
														01	DRVR	NONE	62 M	OR-Y OR<25	000	000	00
01854	STATE	NNNNN	05/19/2012	CLACKAMAS OREGON CITY PORTLAND UA	1 14 0 0 11.81	PACIFIC HY 99E EB EX PAC HY 99E	INTER NE 09	3-LEG 1	N YIELD	N CLR N DRY N DAY	S-1STOP REAR PDO	01 NONE PRVTE PSNGR CAR	0 STRGHT SE NW						000 000 000		27,07 00 27,07
			Sat 7P											01	DRVR	NONE	57 F	OR-Y OR<25	016,026	000	27,07
												02 NONE PRVTE PSNGR CAR	0 STOP SE NW						011 000		00 00
														01	DRVR	NONE	24 F	OR-Y OR>25	000	000	00
01838	NO RPT	NNN	05/18/2012	CLACKAMAS OREGON CITY PORTLAND UA	1 14 0 0 11.81	PACIFIC HY 99E NB EXT0 I-205 EB	INTER S 04	3-LEG 1	N L-GRN-SIG	N CLR N DRY N DAY	O-1TURN TURN PDO	01 NONE PRVTE PSNGR CAR	0 STRGHT S N						000 000 000		04 00 00
			Fri 4P											01	DRVR	NONE	43 M	OR-Y OR<25	097	000	00
												02 NONE PRVTE PSNGR CAR	0 TURN-L N E						000 000		00 00
														01	DRVR	NONE	81 M	OTH-Y N-RES	097	000	00

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

081 PACIFIC HIGHWAY EAST

McLoughlin Blvd OR 99E (Hwy 081) & I-205 (Hwy 064) NB ranps
January 1, 2009 through December 31, 2013

SER#	INVEST	S E D A U C O L K	D R S W H R D A Y T I M E	COUNTY CITY URBAN AREA	RD# COMPNT MLG TYP MILEPNT	FC CONN # FIRST STREET SECOND STREET	RD CHAR DIRECT LOCTN	INT-TYP (#LANES) LEGS TRAF- CNTL	INT-REL TRAF- CNTL	OFFRD RNDBT DRVWY	WTHR SURF LIGHT	CRASH TYP COLL TYP SVRTY	SPCL USE TRLR QTY OWNER VEH TYPE	MOVE FROM TO	P#	PRTC TYPE	INJ SVRTY	A G E X	S E RES	LICNS LOC	PED ERROR	ACTN EVENT	CAUSE
02378 NONE	N N N		07/06/2011 Wed 2P	CLACKAMAS OREGON CITY PORTLAND UA	1 14 0 0 11.81	PACIFIC HY 99E NB EXT0 I-205 EB	INTER S 06	3-LEG 1	N TRF SIGNAL	N CLR DAY	S-1STOP REAR PDO	01 NONE PRVTE PSNGR CAR	0 STRGHT S N		01	DRVR	NONE	00 F UNK	026	000 000		07 00 07	
												02 NONE PRVTE PSNGR CAR	0 STOP S N		01	DRVR	NONE	43 F OR-Y OR<25	000	011 000		00 00	
03490 NONE	N N N N N		09/18/2013 Wed 4P	CLACKAMAS OREGON CITY PORTLAND UA	1 14 0 0 11.81	PACIFIC HY 99E NB EXT0 I-205 EB	INTER S 06	3-LEG 1	N TRF SIGNAL	N CLR DAY	S-1STOP REAR PDO	01 NONE PRVTE PSNGR CAR	0 STRGHT S N		01	DRVR	NONE	25 F NONE OR<25	026	000 000		07 00 07	
												02 NONE PRVTE PSNGR CAR	0 STOP S N		01	DRVR	NONE	24 F OR-Y OR<25	000	011 000		00 00	
04363 STATE	N N N N N		11/11/2013 Mon 1P	CLACKAMAS OREGON CITY PORTLAND UA	1 14 0 0 11.81	PACIFIC HY 99E NB EXT0 I-205 EB	INTER S 06	3-LEG 1	N TRF SIGNAL	N CLD DAY	S-1STOP REAR INJ	01 NONE PRVTE PSNGR CAR	0 STRGHT S N		01	DRVR	NONE	93 M OR-Y OR<25	043,026	000 000		07 00 07	
												02 NONE PRVTE PSNGR CAR	0 STOP S N		01	DRVR	INJC	57 F OR-Y OR>25	000	011 000		00 00	
04886 NONE	N N N		12/17/2013 Tue 3P	CLACKAMAS OREGON CITY PORTLAND UA	1 14 0 0 11.81	PACIFIC HY 99E NB EXT0 I-205 EB	INTER S 06	3-LEG 1	N TRF SIGNAL	N CLR DAY	S-1STOP REAR PDO	01 NONE PRVTE PSNGR CAR	0 STRGHT S N		01	DRVR	NONE	35 M OR-Y OR<25	026	000 000		07 00 07	
												02 NONE UNKN UNKNOWN	STOP S N		01	DRVR	NONE	00 U UNK UNK	000	011 000		00 00	
00444 STATE	N N N N N		02/09/2010 Tue 3P	CLACKAMAS OREGON CITY PORTLAND UA	1 14 0 0 11.81	PACIFIC HY 99E NB EXT0 I-205 EB	INTER SW 06	3-LEG 0	N TRF SIGNAL	N CLR DAY	S-1STOP REAR PDO	01 NONE PRVTE PSNGR CAR	0 STRGHT SW NE		01	DRVR	NONE	40 F OR-Y OR<25	017	000 000		22 22 00	
												02 NONE PRVTE PSNGR CAR	0 STOP SW NE		01	DRVR	NONE	34 M OR-Y OR<25	000	011 000		00 00	
00563 CITY	N N N N N		02/12/2012 Sun 10P	CLACKAMAS OREGON CITY PORTLAND UA	1 14 0 0 11.81	PACIFIC HY 99E NB EXT0 I-205 EB	INTER CN 02	3-LEG 1	N TRF SIGNAL	N RAIN DLIT	ANGL-OTH TURN PDO	01 NONE PRVTE PSNGR CAR	0 STRGHT S N		01	DRVR	NONE	24 F OR-Y OR<25	021	000 000		04 00 04	

McLoughlin Blvd OR 99E (Hwy 081) & I-205 (Hwy 064) NB ramps
January 1, 2009 through December 31, 2013

SER#	P E D A U C O E L G H R D C S L K	DATE DAY TIME	COUNTY CITY URBAN AREA	RD# COMPNT MLG TYP MILEPNT	PC CONN # FIRST STREET SECOND STREET	RD CHAR DIRECT LOCTN	INT-TYP (MEDIAN) LEGS (#LANES)	INT-REL TRAF- CNTL	OFFRD RND BT DRVWY	WTHR SURF LIGHT	CRASH TYP COLL TYP SVRTY	SPCL USE TRLR QTY OWNER VEH TYPE	MOVE FROM TO	P#	PRTC TYPE	INJ SVRTY	A G E X	S E RES	LICNS PED LOC	ERROR	ACTN	EVENT	CAUSE
03521	N N N N N	09/22/2012	CLACKAMAS OREGON CITY PORTLAND UA	1 14 0 0 11.81	PACIFIC HY 99E EB EX PAC HY 99E	INTER CN 02	3-LEG 1	N TRF SIGNAL	N N N	CLR DRY DAY	ANGL-OTH TURN INJ	01 NONE PRVTE PSNGR CAR	0 E S TURN-L	01	DRVR	NONE	56 M	OR-Y OR<25		000 000		000 000	00 00
02919	N N N	08/19/2010	CLACKAMAS OREGON CITY PORTLAND UA	1 14 0 0 11.81	PACIFIC HY 99E EB EX PAC HY 99E	INTER CN 03	3-LEG 1	N TRF SIGNAL	N N N	CLR DRY DAY	ANGL-OTH TURN INJ	01 NONE PRVTE PSNGR CAR	0 E S TURN-L	01	DRVR	NONE	49 F	OR-Y OR>25		000 016,020		000 038	27,04 00 27,04
04167	N N N	11/05/2011	CLACKAMAS OREGON CITY PORTLAND UA	1 14 0 0 11.81	PACIFIC HY 99E EB EX PAC HY 99E	INTER CN 03	3-LEG 1	N TRF SIGNAL	N N N	RAIN WET DAWN	ANGL-OTH TURN PDO	01 NONE PRVTE PSNGR CAR	0 E S TURN-L	01	DRVR	NONE	61 F	OR-Y OR<25		000 097		000 000	04 00 00
03249	N N N	09/03/2011	CLACKAMAS OREGON CITY PORTLAND UA	1 14 0 0 11.81	PACIFIC HY 99E NB EXTO I-205 EB	INTER CN 04	3-LEG 1	N L-GRN-SIG	N N N	FOG DRY DLIT	O-1TURN REAR PDO	01 NONE PRVTE PSNGR CAR	0 N E TURN-L	01	DRVR	NONE	62 M	OTH-Y N-RES		000 000		000 000	04 00 00
02698	N N N N N	07/24/2012	CLACKAMAS OREGON CITY PORTLAND UA	1 14 0 0 11.81	PACIFIC HY 99E NB EXTO I-205 EB	INTER CN 04	3-LEG 0	N TRF SIGNAL	N N N	CLR DRY DAY	S-1STOP REAR PDO	01 NONE PRVTE PSNGR CAR	0 S E TURN-R	01	DRVR	NONE	50 F	SUSP OR<25		006,052		000 000	08,32 00 08,32

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

081 PACIFIC HIGHWAY EAST

McLoughlin Blvd OR 99E (Hwy 081) & I-205 (Hwy 064) NB ramps
January 1, 2009 through December 31, 2013

SER#	INVEST	S P E L D C S L K	D R S W A U C O DATE	COUNTY CITY URBAN AREA	RD# COMPNT MLG TYP MILEPNT	FC CONN # FIRST STREET SECOND STREET	RD CHAR DIRECT LOCTN	INT-TYP (MEDIAN) LEGS (#LANES)	INT-REL TRAF- CNTL	OFFRD RDNBT DRVMY	WTHR SURF LIGHT	CRASH TYP COLL TYP SVRTY	SPCL USE TRLR QTY OWNER VEH TYPE	MOVE FROM TO	P#	TYPE	INJ SVRTY	A G E X	S E RES	LICNS LOC	PED ERROR	ACTN	EVENT	CAUSE
03080	N N N		08/19/2012	CLACKAMAS	1 14		INTER	3-LEG	N	N CLR	O-1TURN	01 NONE	0 STRGHT											04
NONE			Sun	OREGON CITY	0 0	PACIFIC HY 99E	CN		TRF SIGNAL	N DRY	TURN	PRVTE	S N									000	00	
			3P	PORTLAND UA	11.81	NB EXTO I-205 EB	04	1		N DAY	PDO	PSNGR CAR			01	DRVR	NONE	00	F	OR-Y UNK	020	000	04	
												02 NONE	0 TURN-L									000	00	
												PRVTE	N E									000	00	
												PSNGR CAR			01	DRVR	NONE	29	M	OR-Y OR<25	000	000	00	
04535	N N N N N		11/22/2012	CLACKAMAS	1 14		INTER	3-LEG	N	N CLR	O-1TURN	01 NONE	0 STRGHT											04
STATE			Thu	OREGON CITY	0 0	PACIFIC HY 99E	CN		TRF SIGNAL	N DRY	TURN	PRVTE	S N									000	00	
			8P	PORTLAND UA	11.81	NB EXTO I-205 EB	04	1		N DLIT	INJ	PSNGR CAR			01	DRVR	INJC	18	F	OR-Y OR<25	020	000	04	
															02	PSNG	NO<5	01	M		000	000	00	
												02 NONE	0 TURN-L									000	00	
												PRVTE	N E									000	00	
												PSNGR CAR			01	DRVR	NONE	42	F	OR-Y OR<25	000	000	00	
04882	N N N N N		12/17/2012	CLACKAMAS	1 14		INTER	3-LEG	N	N RAIN	O-1TURN	01 NONE	0 STRGHT											04
STATE			Mon	OREGON CITY	0 0	PACIFIC HY 99E	CN		L-GRN-SIG	N WET	TURN	PRVTE	S N									000	00	
			9P	PORTLAND UA	11.81	EB EX PAC HY 99E	04	1		N DLIT	INJ	PSNGR CAR			01	DRVR	INJB	53	F	OR-Y OR<25	000	000	00	
												02 NONE	0 TURN-L											04
												PRVTE	N E									000	00	
												PSNGR CAR			01	DRVR	NONE	57	M	OR-Y OR<25	003	000	04	
00576	N N N		02/19/2013	CLACKAMAS	1 14		INTER	3-LEG	N	N CLR	O-1TURN	01 NONE	0 TURN-L											02
NONE			Tue	OREGON CITY	0 0	PACIFIC HY 99E	CN		TRF SIGNAL	N DRY	TURN	PRVTE	N E									000	00	
			9P	PORTLAND UA	11.81	EB EX PAC HY 99E	04	1		N DLIT	PDO	PSNGR CAR			01	DRVR	NONE	00	F	OR-Y OR<25	028	000	02	
												02 NONE	0 STRGHT											00
												PRVTE	S N									000	00	
												PSNGR CAR			01	DRVR	NONE	57	M	OR-Y OR<25	000	000	00	
01632	N N N N N		05/11/2013	CLACKAMAS	1 14		INTER	3-LEG	N	N CLR	O-1TURN	01 NONE	0 TURN-L											04
CITY			Sat	OREGON CITY	0 0	PACIFIC HY 99E	CN		TRF SIGNAL	N DRY	TURN	PRVTE	N E									000	00	
			10P	PORTLAND UA	11.81	NB EXTO I-205 EB	04	1		N DLIT	INJ	PSNGR CAR			01	DRVR	INJC	63	M	OR-Y OR<25	000	000	00	
															02	PSNG	INJC	58	F		000	000	00	
												02 NONE	0 STRGHT									000	00	
												PRVTE	S N									000	00	
												PSNGR CAR			01	DRVR	INJC	17	F	OR-Y OR<25	020	000	04	

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

081 PACIFIC HIGHWAY EAST

McLoughlin Blvd OR 99E (Hwy 081) & I-205 (Hwy 064) NB ranps
 January 1, 2009 through December 31, 2013

SER#	S D			COUNTY	RD# FC		INT-TYP					SPCL USE			A S					ACTN	EVENT	CAUSE			
	INVEST	P R S W			MLG TYP	CONN #	RD CHAR	(MEDIAN)	INT-REL	OFFRD	WTHR	CRASH TYP	TRLR QTY	MOVE	PRTC	INJ	G E	LICNS	PED						
		E L G H R	DATE																				CITY	COMPNT	STREET
	D C S L K	TIME	URBAN AREA	MILEPNT	FIRST	SECOND	DIRECT	(#LANES)	CNTL	DRVMY	LIGHT	SVRTY	V#	VEH TYPE	TO	P#	TYPE	SVRTY	E X	RES	LOC	ERROR			
03651	N N N	10/09/2010	CLACKAMAS	1 14			INTER	3-LEG	N	N CLR	S-1STOP	01 NONE	0	STRGHT										07	
NONE		Sat	OREGON CITY	0 0	PACIFIC HY 99E		SW		TRF SIGNAL	N DRY	REAR	PRVTE		SW NE									000	00	
		11P	PORTLAND UA	11.82	LEG, EXTO I-205 EB		06	0		N DLIT	INJ	PSNGR CAR				01	DRVR	NONE	42 U	OR-Y	OR>25	026	000	07	
												02 NONE	0	STOP											
												PRVTE		SW NE									011	00	
												PSNGR CAR				01	DRVR	INJC	32 M	OR-Y	OR<25	000	000	00	
04006	N N N N N	11/01/2010	CLACKAMAS	1 14			INTER	3-LEG	N	N RAIN	O-1TURN	01 NONE	0	TURN-L										04	
STATE		Mon	OREGON CITY	0 0	PACIFIC HY 99E		CN		L-GRN-SIG	N WET	TURN	PRVTE		N E									000	00	
		7P	PORTLAND UA	11.82	NB EXTO I-205 EB		04	1		N DLIT	INJ	PSNGR CAR				01	DRVR	INJC	61 F	OR-Y	OR<25	020	000	04	
												02 NONE	0	STRGHT											
												PRVTE		S N									000	00	
												PSNGR CAR				01	DRVR	INJC	22 M	OR-Y	OR<25	000	000	00	
																02	PSNG	INJC	23 F			000	000	00	

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

McLoughlin Blvd OR 99E (Hwy 081) & I-205 (Hwy 064) SB ramps
January 1, 2009 through December 31, 2013

COLLISION TYPE	FATAL CRASHES	NON- FATAL CRASHES	PROPERTY DAMAGE ONLY	TOTAL CRASHES	PEOPLE KILLED	PEOPLE INJURED	TRUCKS	DRY SURF	WET SURF	DAY	DARK	INTER- SECTION	INTER- SECTION RELATED	OFF- ROAD
YEAR: 2013														
FIXED / OTHER OBJECT	0	0	1	1	0	0	0	1	0	0	1	1	0	0
REAR-END	0	0	2	2	0	0	0	0	1	1	1	2	0	0
TURNING MOVEMENTS	0	1	0	1	0	1	0	1	0	0	1	1	0	0
2013 TOTAL	0	1	3	4	0	1	0	2	1	1	3	4	0	0
YEAR: 2012														
PEDESTRIAN	0	1	0	1	0	1	0	0	1	1	0	1	0	0
REAR-END	0	2	3	5	0	2	0	2	3	3	2	5	0	0
TURNING MOVEMENTS	0	4	2	6	0	6	0	4	2	2	4	6	0	0
2012 TOTAL	0	7	5	12	0	9	0	6	6	6	6	12	0	0
YEAR: 2011														
REAR-END	0	4	3	7	0	6	0	4	3	6	1	7	0	0
TURNING MOVEMENTS	0	1	2	3	0	1	0	1	2	2	1	3	0	0
2011 TOTAL	0	5	5	10	0	7	0	5	5	8	2	10	0	0
YEAR: 2010														
MISCELLANEOUS	0	1	0	1	0	1	1	1	0	0	1	1	0	0
REAR-END	0	0	3	3	0	0	0	3	0	2	1	3	0	0
TURNING MOVEMENTS	0	1	2	3	0	1	0	2	1	3	0	3	0	0
2010 TOTAL	0	2	5	7	0	2	1	6	1	5	2	7	0	0
YEAR: 2009														
REAR-END	0	0	1	1	0	0	0	1	0	1	0	1	0	0
TURNING MOVEMENTS	0	1	1	2	0	2	0	0	2	0	2	2	0	0
2009 TOTAL	0	1	2	3	0	2	0	1	2	1	2	3	0	0
FINAL TOTAL	0	16	20	36	0	21	1	20	15	21	15	36	0	0

Disclaimer: A higher number of crashes may be reported as of 2011 compared to prior years. This does not reflect an increase in annual crashes. The higher numbers result from a change to an internal departmental process that allows the Crash Analysis and Reporting Unit to add previously unavailable, non-fatal crash reports to the annual data file. Please be aware of this change when comparing pre-2011 crash statistics.

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

064 EAST PORTLAND FREEWAY

McLoughlin Blvd OR 99E (Hwy 081) & I-205 (Hwy 064) SB ranps
January 1, 2009 through December 31, 2013

SER#	INVEST	S P E L D C S L K	D R S W U C O D A T E H R D A Y T I M E	COUNTY CITY URBAN AREA	RD# FC COMPNT MLG TYP MILEPNT	CONN # FIRST STREET SECOND STREET	RD CHAR DIRECT LOCTN	INT-TYP (MEDIAN) LEGS (#LANES)	INT-REL TRAF- CNTL	OFFRD RND BT DRVWY	WTHR SURF LIGHT	CRASH TYP COLL TYP SVRTY	SPCL USE TRLR QTY OWNER VEH TYPE	MOVE FROM TO	P#	PRTC TYPE	INJ SVRTY	A S G E X RES	LICNS RES	PED LOC	ERROR	ACTN	EVENT	CAUSE
02304	NONE	N N N	06/28/2013 Fri 3P	CLACKAMAS OREGON CITY PORTLAND UA	1 11 6 0 9.43	1 PACIFIC HY 99E WB EX PAC HY 99E	INTER E 06	3-LEG 1	N TRF SIGNAL	N UNK N UNK N DAY	S-1STOP REAR PDO	01 NONE PRVTE PSNGR CAR	0 STRGHT E W		01	DRVR	NONE	43 M OR-Y OR>25		016,026	000 000			27,07 00 27,07
												02 NONE PRVTE PSNGR CAR	0 STOP E W		01	DRVR	NONE	00 M UNK OR<25		000	000		012 000	00 00
00494	STATE	Y N N N	02/12/2010 Fri 6P	CLACKAMAS OREGON CITY PORTLAND UA	1 19 6 0 9.81	2 PACIFIC HY 99E WB EX PAC HY 99E	INTER N 05	3-LEG 1	N TRF SIGNAL	N CLD N DRY N DLIT	OVERTURN OTH INJ	01 NONE PRVTE SEMI TOW	1 TURN-R E N		01	DRVR	INJC	58 M OR-Y OR<25		047	000 000		010 010	01,24 24 01
01357	NONE	N N N	04/15/2009 Wed 12P	CLACKAMAS OREGON CITY PORTLAND UA	1 14 6 0 9.81	2 PACIFIC HY 99E WB EX PAC HY 99E	INTER E 06	3-LEG 0	N TRF SIGNAL	N CLR N DRY N DAY	S-1STOP REAR PDO	01 NONE PRVTE PSNGR CAR	0 STRGHT E W		01	DRVR	NONE	60 F OR-Y OR<25		026	000 000			07 00 07
												02 NONE PRVTE PSNGR CAR	0 STOP E W		01	DRVR	NONE	60 F OR-Y OR<25		000	000		011 000	00 00
04289	NONE	N N N	11/13/2011 Sun 11A	CLACKAMAS OREGON CITY PORTLAND UA	1 14 6 0 9.81	2 PACIFIC HY 99E WB EX PAC HY 99E	INTER E 06	3-LEG 0	N TRF SIGNAL	N RAIN N WET N DAY	S-1STOP REAR INJ	01 NONE PRVTE PSNGR CAR	0 STRGHT E W		01	DRVR	NONE	00 F OR-Y OR<25		026	000 000			07 00 07
												02 NONE PRVTE PSNGR CAR	0 STOP E W		01	DRVR	INJC	17 F OR-Y OR<25		000	000		011 000	00 00
01880	CITY	N N N	05/22/2012 Tue 11A	CLACKAMAS OREGON CITY PORTLAND UA	1 11 6 0 9.81	2 PACIFIC HY 99E WB EX PAC HY 99E	INTER E 06	3-LEG 1	N TRF SIGNAL	N RAIN N WET N DAY	PED PED INJ	01 NONE PRVTE PSNGR CAR	0 TURN-R E N		01	DRVR	NONE	47 M OR-Y OR<25		029	000 000		083 083	02,19 00 02
													STRGHT N S		01	CONV	INJB	51 M		01	000		035	00,19
03460	NONE	N N N	09/17/2012 Mon 5P	CLACKAMAS OREGON CITY PORTLAND UA	1 11 6 0 9.81	2 PACIFIC HY 99E WB EX PAC HY 99E	INTER E 06	3-LEG 1	N TRF SIGNAL	N CLR N DRY N DAY	S-1STOP REAR PDO	01 NONE PRVTE PSNGR CAR	0 STRGHT E W		01	DRVR	NONE	00 M UNK OR<25		026	000 000			07 00 07
												02 NONE PRVTE PSNGR CAR	0 STOP E W		01	DRVR	NONE	38 F OR-Y OR<25		000	000		011 000	00 00

McLoughlin Blvd OR 99E (Hwy 081) & I-205 (Hwy 064) SB ramps
January 1, 2009 through December 31, 2013

	S	D	P	R	S	W	E	A	U	C	O	DATE	COUNTY	RD#	FC	COMPNT	CONN #	RD CHAR	(MEDIAN)	INT-REL	OFFRD	WTHR	CRASH TYP	SPCL USE	TRLR QTY	MOVE	A	S	LICNS	PED	ERROR	ACTN	EVENT	CAUSE
SER#	E	G	H	R	DAY	CITY	MLG TYP	FIRST STREET	DIRECT	LEGS	TRAF-	RNDBT	SURF	COLL TYP	V#	VEH TYPE	OWNER	FROM	P#	PRTC	INJ	G	E	X	RES	LOC	ERROR	ACTN	EVENT	CAUSE				
INVEST	D	C	S	L	K TIME	URBAN AREA	MILEPNT	SECOND STREET	LOCTN	(#LANES)	CNTL	DRVWY	LIGHT	SVRTY																				
04205	N	N	N		11/07/2012	CLACKAMAS	1 11	2	INTER	3-LEG	N	N	RAIN	S-1STOP	01	NONE	0	STRGHT															07	
NONE					Wed	OREGON CITY	6 0	PACIFIC HY 99E	E		TRF SIGNAL	N	WET	REAR		PRVTE	E W															000	00	
					7A	PORTLAND UA	9.81	WB EX PAC HY 99E	06	0		N	DAWN	PDO		PSNGR CAR			01	DRVR	NONE	20	M	OR-Y		026		000				07		
																02	NONE	0	STOP														011	00
																	PRVTE	E W														000	00	
																	PSNGR CAR			01	DRVR	NONE	52	M	OR-Y		000		000				00	
01678	N	N	N		05/07/2012	CLACKAMAS	1 11	2	INTER	3-LEG	N	N	CLR	BIKE	01	NONE	0	TURN-R															18,19,04	
NONE					Mon	OREGON CITY	6 0	PACIFIC HY 99E	SW		TRF SIGNAL	N	DRY	TURN		PRVTE	E N															000	00	
					8P	PORTLAND UA	9.81	WB EX PAC HY 99E	06	1		N	DLIT	INJ		PSNGR CAR			01	DRVR	NONE	41	M	OR-Y		000		000				00		
																															</			

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

081 PACIFIC HIGHWAY EAST

McLoughlin Blvd OR 99E (Hwy 081) & I-205 (Hwy 064) SB ranps
January 1, 2009 through December 31, 2013

SER#	INVEST	S D P R S W E A U C O E L G H R D C S L K	DATE	COUNTY CITY URBAN AREA	RD# FC COMPNT MLG TYP MILEPNT	CONN # FIRST STREET SECOND STREET	RD CHAR DIRECT LOCTN	INT-TYP (MEDIAN) LEGS (#LANES)	INT-REL TRAF- CNTL	OFFRD WTHR RDNBT SURF DRVMY LIGHT	CRASH TYP COLL TYP SVRTY	SPCL USE TRLR QTY OWNER VEH TYPE	MOVE FROM TO	P#	PRTC INJ TYPE SVRTY	A S G E X RES	LICNS LOC	PED ERROR	ACTN EVENT	CAUSE
01120	STATE	NNNNN	03/24/2012	CLACKAMAS OREGON CITY PORTLAND UA	1 14 0 0 11.62	PACIFIC HY 99E WB EX PAC HY 99E	INTER CN 04	3-LEG 1	N L-GRN-SIG	N CLD N DRY N DLIT	O-1TURN TURN INJ	01 NONE PRVTE PSNGR CAR	0 STRGHT S N		01 DRVR INJC	59 M OR-Y OR<25		000 000		04 00 00
												02 NONE PRVTE PSNGR CAR	0 TURN-L N E		01 DRVR INJC	44 F OR-Y OR<25		020 000		00 00 04
00404	NO RPT	NNN	02/03/2013	CLACKAMAS OREGON CITY PORTLAND UA	1 14 0 0 11.63	PACIFIC HY 99E NB EXTO I-205 WB	INTER CN 05	3-LEG 1	N TRF SIGNAL	N CLR N DRY N DLIT	OTH OBJ FIX PDO	01 NONE PRVTE PSNGR CAR	0 TURN-R E N		01 DRVR NONE	56 F OR-Y OR<25		001 000	044 044	08 00 08
01210	STATE	YYNNN	03/31/2012	CLACKAMAS OREGON CITY PORTLAND UA	1 14 0 0 11.63	PACIFIC HY 99E WB EX PAC HY 99E	INTER N 06	3-LEG 1	N L-TURN REF	N UNK N WET N DLIT	S-1STOP REAR INJ	01 NONE PRVTE PSNGR CAR	0 STRGHT N S		01 DRVR NONE	64 F OR-Y OR<25		000 000		01,07 00 01,07
												02 NONE PRVTE PSNGR CAR	0 STOP N S		01 DRVR INJC	48 F OR-Y OR<25		000 000		00 00 00
01007	NONE	NNN	03/17/2012	CLACKAMAS OREGON CITY PORTLAND UA	1 14 0 0 11.63	PACIFIC HY 99E WB EX PAC HY 99E	INTER CN 01	3-LEG 1	N TRF SIGNAL	N RAIN N WET N DAY	ANGL-OTH TURN INJ	01 NONE PRVTE PSNGR CAR	0 TURN-L E S		01 DRVR NONE	55 F OR-Y OR<25		097 000		04 00 00
															02 PSNG INJC	43 F		000 000		00 00 00
												02 NONE PRVTE PSNGR CAR	0 STRGHT N S		01 DRVR NONE	52 M OR-Y OR<25		000 000		00 00 00
01096	NONE	NNN	03/23/2012	CLACKAMAS OREGON CITY PORTLAND UA	1 14 0 0 11.63	PACIFIC HY 99E WB EX PAC HY 99E	INTER CN 02	3-LEG 1	N TRF SIGNAL	N CLR N DRY N DAY	ANGL-OTH TURN PDO	01 NONE PRVTE PSNGR CAR	0 STRGHT S N		01 DRVR NONE	45 M OR-Y OR<25		000 000		02 00 00
												02 NONE PRVTE PSNGR CAR	0 TURN-R E N		01 DRVR NONE	91 M OR-Y OR<25		015 000		00 02 02
04671	NONE	NNN	12/04/2012	CLACKAMAS OREGON CITY PORTLAND UA	1 14 0 0 11.63	PACIFIC HY 99E WB EX PAC HY 99E	INTER CN 02	3-LEG 1	N TRF SIGNAL	N RAIN N WET N DLIT	ANGL-OTH TURN PDO	01 NONE PRVTE PSNGR CAR	0 TURN-R E N		01 DRVR NONE	67 M OR-Y OR<25		028 000		02 00 02

McLoughlin Blvd OR 99E (Hwy 081) & I-205 (Hwy 064) SB ramps
January 1, 2009 through December 31, 2013

S D										RD# FC		INT-TYP				SPCL USE														
P R S W					COMPNT		CONN #		(MEDIAN)		INT-REL		OFFRD WTHR		CRASH TYP		TRLR QTY		A S		LICNS		PED		ERROR		ACTN EVENT		CAUSE	
SER#	E L G H R	DATE	COUNTY	MLG TYP	FIRST STREET	DIRECT	LEGS	TRAF-	RNDBT	SURF	COLL TYP	VEH TYPE	OWNER	MOVE FROM TO	P#	PRTC TYPE	INJ SVRTY	G E X	RES	LOC	ERROR	ACTN	EVENT	CAUSE						
INVEST	D C S L K	TIME	URBAN AREA	MILEPNT	SECOND STREET	LOCTN	(#LANES)	CNTL	DRVWY	LIGHT	SVRTY																			
													02 NONE	0	STRGHT															
													PRVTE		S N															
													PSNGR	CAR		01	DRVR	NONE	42	F	OR-Y		000		000		00		00	
01867	N N N	06/05/2010	CLACKAMAS	1 14		INTER	3-LEG	N		CLR	S-1STOP		01 NONE	0	STRGHT														07	
NONE		Sat	OREGON CITY	0 0	PACIFIC HY 99E	N		TRF	SIGNAL	N DRY	REAR		PRVTE		N S												000		00	
		2P	PORTLAND UA	11.64	NB EXT0 I-205 WB	06	0			N DAY	PDO		PSNGR	CAR		01	DRVR	NONE	00	M	OR-Y		026		000		000		07	
													02 NONE	0	STOP													011		
													PRVTE		N S												000		00	
													PSNGR	CAR		01	DRVR	NONE	58	F	OR-Y		000				000		00	
00210	N N N	01/18/2011	CLACKAMAS	1 14		INTER	3-LEG	N		RAIN	S-1STOP		01 NONE	0	STRGHT														07	
NONE		Tue	OREGON CITY	0 0	PACIFIC HY 99E	N		TRF	SIGNAL	N WET	REAR		UNKN		N S												000		00	
		10A	PORTLAND UA	11.64	WB EX PAC HY 99E	06	1			N DAY	PDO		PSNGR	CAR		01	DRVR	NONE	00	M	UNK		026		000		000		07	
													02 NONE	0	STOP													012		
													PRVTE		N S													000		
													PSNGR	CAR		01	DRVR	NONE	45	M	OR-Y		000				000		00	
02676	N N N	07/27/2011	CLACKAMAS	1 14		INTER	3-LEG	N		CLR	S-1STOP		01 NONE	0	STRGHT														07	
NO RPT		Wed	OREGON CITY	0 0	PACIFIC HY 99E	N		TRF	SIGNAL	N DRY	REAR		PRVTE		N S												000		00	
		12P	PORTLAND UA	11.64	WB EX PAC HY 99E	06	1			N DAY	INJ		PSNGR	CAR		01	DRVR	NONE	28	M	OR-Y		026		000		000		07	
													02 NONE	0	STOP													011		
													PRVTE		N S													000		
													PSNGR	CAR		01	DRVR	NONE	20	M	OR-Y		000				000		00	
													02 PSNG	INJC		55	M						000				000		00	
03094	N N N	08/24/2011	CLACKAMAS	1 14		INTER	3-LEG	N		CLR	S-1STOP		01 NONE	0	STRGHT														07	
NONE		Wed	OREGON CITY	0 0	PACIFIC HY 99E	N		TRF	SIGNAL	N DRY	REAR		PRVTE		N S												000		00	
		9A	PORTLAND UA	11.64	WB EX PAC HY 99E	06	1			N DAY	INJ		PSNGR	CAR		01	DRVR	NONE	52	F	OR-Y		026		000		000		07	
													02 NONE	0	STOP													012		
													PRVTE		N S													000		
													PSNGR	CAR		01	DRVR	INJC	38	F	OR-Y		000				000		00	
02247	N N N	06/22/2012	CLACKAMAS	1 14		INTER	3-LEG	N		CLD	S-1STOP		01 NONE	0	STRGHT														07	
NONE		Fri	OREGON CITY	0 0	PACIFIC HY 99E	N		TRF	SIGNAL	N WET	REAR		PRVTE		N S												000		00	
		3P	PORTLAND UA	11.64	NB EXT0 I-205 WB	06	1			N DAY	PDO		PSNGR	CAR		01	DRVR	NONE	55	M	OR-Y		026		000		000		07	

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

081 PACIFIC HIGHWAY EAST

McLoughlin Blvd OR 99E (Hwy 081) & I-205 (Hwy 064) SB ramps
January 1, 2009 through December 31, 2013

SER#	S D P R S W E A U C O E L G H R DAY	DATE	COUNTY CITY	RD# FC COMPNT MLG TYP	CONN # FIRST STREET SECOND STREET	RD CHAR DIRECT LOCTN	INT-TYP (#LANES) LEGS (#LANES)	INT-REL TRAF- CNTL	OFFRD WTHR RND BT SURF DRVWY LIGHT	CRASH TYP COLL TYP SVRTY	SPCL USE TRLR QTY OWNER	MOVE FROM	P#	TYPE	INJ SVRTY	A S G E E X RES	LICNS LOC	PED ERROR	ACTN	EVENT	CAUSE
INVEST	D C S L K	TIME	URBAN AREA	MILEPNT							V# VEH TYPE	TO									
											02 NONE 0 STOP PRVTE N S PSNGR CAR								012 000		00 00
02482	N N N	07/16/2010	CLACKAMAS	1 14		INTER	3-LEG	N	N CLR	S-1STOP	01 NONE 0 STRGHT									004	07
NO RPT		Fri	OREGON CITY	0 0	PACIFIC HY 99E	SE		TRF SIGNAL	N DRY REAR		PRVTE SW NE								000		00
		1P	PORTLAND UA	11.64	NB EXT0 I-205 WB	09	1		N DAY PDO		PSNGR CAR			01	DRVR	NONE	18 M OR-Y OR<25	026	000		07
											02 NONE 0 STOP PRVTE SW NE PSNGR CAR								011 000	004	00 00
00964	N N N	03/23/2010	CLACKAMAS	1 14		INTER	3-LEG	N	N CLR	S-1STOP	01 NONE 0 STRGHT										07
NONE		Tue	OREGON CITY	0 0	PACIFIC HY 99E	S		TRF SIGNAL	N DRY REAR		PRVTE S N								000		00
		5A	PORTLAND UA	11.64	WB EX PAC HY 99E	06	0		N DAWN PDO		PSNGR CAR			01	DRVR	NONE	00 U UNK UNK	026	000		07
											02 NONE 0 STOP PRVTE S N PSNGR CAR								011 000		00 00
04141	N N N	11/04/2011	CLACKAMAS	1 14		INTER	3-LEG	N	N CLD	S-1STOP	01 NONE 0 STRGHT										07
NO RPT		Fri	OREGON CITY	0 0	PACIFIC HY 99E	S		TRF SIGNAL	N WET REAR		PRVTE S N								000		00
		9P	PORTLAND UA	11.64	NB EXT0 I-205 WB	06	1		N DLIT PDO		PSNGR CAR			01	DRVR	NONE	90 F OR-Y OR<25	026	000		07
											02 NONE 0 STOP PRVTE S N PSNGR CAR								011 000		00 00
02606	N N N	07/18/2012	CLACKAMAS	1 14		INTER	3-LEG	N	N CLR	S-1STOP	01 NONE 0 STRGHT										07
NONE		Wed	OREGON CITY	0 0	PACIFIC HY 99E	S		TRF SIGNAL	N DRY REAR		PRVTE S N								000		00
		2P	PORTLAND UA	11.64	WB EX PAC HY 99E	06	0		N DAY INJ		PSNGR CAR			01	DRVR	NONE	17 M OR-Y OR<25	026	000		07
											02 NONE 0 STOP PRVTE S N PSNGR CAR								011 000		00 00
05083	Y N N N N	12/30/2013	CLACKAMAS	1 14		INTER	3-LEG	N	N CLD	S-1STOP	01 NONE 0 STRGHT										07,01
STATE		Mon	OREGON CITY	0 0	PACIFIC HY 99E	S		TRF SIGNAL	N WET REAR		PRVTE S N								000		00
		7P	PORTLAND UA	11.64	NB EXT0 I-205 WB	06	0		N DARK PDO		PSNGR CAR			01	DRVR	NONE	51 F OR-Y OR<25	043,026,047	000		07,01
											02 NONE 0 STOP PRVTE S N PSNGR CAR								011 000		00 00

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

081 PACIFIC HIGHWAY EAST

McLoughlin Blvd OR 99E (Hwy 081) & I-205 (Hwy 064) SB ranps
January 1, 2009 through December 31, 2013

SER#	INVEST	S D P R S W E A U C O DATE	CLACKAMAS OREGON CITY PORTLAND UA	RD# COMPNT MLG TYP MILEPNT	FC CONN # FIRST STREET SECOND STREET	RD CHAR DIRECT LOCTN	INT-TYP (#LANES)	INT-REL TRAFF- CNTL	OFFRD RND BT DRVWY	WTHR SURF LIGHT	CRASH TYP COLL TYP SVRTY	SPCL USE TRLR QTY OWNER VEH TYPE	MOVE FROM TO	PRTC P#	INJ TYPE	SVRTY	A S G E X RES	LICNS LOC	PED ERROR	ACTN EVENT	CAUSE
01484	N N N	05/05/2010	CLACKAMAS	1 14		INTER	3-LEG	N	N CLD	ANGL-OTH	01	NONE	0	STRGHT							02
NONE		Wed	OREGON CITY	0 0	PACIFIC HY 99E	CN		TRF SIGNAL	N WET	TURN		PRVTE	S N							00	
		8A	PORTLAND UA	11.64	WB EX PAC HY 99E	02	1		N DAY	PDO		PSNGR CAR		01	DRVR	NONE	45 M	OR-Y OR<25	000	000	00
												02	NONE	0	TURN-R						
												PRVTE	E N	01	DRVR	NONE	68 M	OR-Y OR<25	000	016 000	00 00
00130	N N N	01/07/2009	CLACKAMAS	1 14		INTER	3-LEG	N	N RAIN	S-OTHER	01	NONE	0	TURN-L							07
STATE		Wed	OREGON CITY	0 0	PACIFIC HY 99E	CN		TRF SIGNAL	N WET	TURN		PRVTE	E S							00	
		8P	PORTLAND UA	11.64	WB EX PAC HY 99E	03	1		N DLIT	PDO		PSNGR CAR		01	DRVR	NONE	47 M	OR-Y OR<25	042	000	07
												02	NONE	0	TURN-L						
												PRVTE	E S	01	DRVR	NONE	54 M	OR-Y OR<25	000	006 000	00 00
00550	N N N	02/16/2010	CLACKAMAS	1 14		INTER	3-LEG	N	N CLD	ANGL-OTH	01	NONE	0	TURN-L							32,04
STATE		Tue	OREGON CITY	0 0	PACIFIC HY 99E	CN		TRF SIGNAL	N DRY	TURN		PRVTE	E S							00	
		11A	PORTLAND UA	11.64	WB EX PAC HY 99E	03	1		N DAY	PDO		PSNGR CAR		01	DRVR	NONE	62 M	OR-Y OR<25	000	000	00
												02	NONE	0	STRGHT						
												PRVTE	N S	01	DRVR	NONE	68 F	OR-Y OR<25	052,020	000	00 32,04
00891	N N N	03/15/2011	CLACKAMAS	1 14		INTER	3-LEG	N	N RAIN	ANGL-OTH	01	NONE	0	STRGHT							04
NONE		Tue	OREGON CITY	0 0	PACIFIC HY 99E	CN		TRF SIGNAL	N WET	TURN		PRVTE	N S	01	DRVR	NONE	28 M	OR-Y OR<25	020	000	00 04
		1P	PORTLAND UA	11.64	WB EX PAC HY 99E	03	1		N DAY	PDO		PSNGR CAR									
												02	NONE	0	TURN-L						
												PRVTE	E S	01	DRVR	NONE	21 F	OR-Y OR<25	000	000	00 00
												PSNGR CAR		02	PSNG	NO<5	01 M		000	000	00
01544	N N N N N	04/27/2009	CLACKAMAS	3 14		INTER	3-LEG	N	N RAIN	O-1TURN	01	NONE	0	STRGHT							02
STATE		Mon	OREGON CITY	0 0	PACIFIC HY 99E	CN		TRF SIGNAL	N WET	TURN		PRVTE	S N							00	
		10P	PORTLAND UA	11.64	NB EXT I-205 WB	04	1		N DARK	INJ		PSNGR CAR		01	DRVR	INJC	42 F	OR-Y OR<25	028	000	02
												02	NONE	0	TURN-L						
												PRVTE	N E	01	DRVR	INJB	19 F	OR-Y OR<25	000	000	00 00

McLoughlin Blvd OR 99E (Hwy 081) & I-205 (Hwy 064) SB ramps
January 1, 2009 through December 31, 2013

SER#	S D P R S W E A U C O DATE				COUNTY CITY URBAN AREA	RD# FC COMPNT MLG TYP MILEPNT	CONN # FIRST STREET SECOND STREET	RD CHAR DIRECT LOCTN	INT-TYP (MEDIAN) INT-REL OFFRD WTHR CRASH TYP				SPCL USE			P#	PRTC TYPE	INJ SVRTY	A S G E LICNS PED			ERROR	ACTN	EVENT	CAUSE			
	INVEST	D C S L K	TIME	TIME					TRF	LEGS (#LANES)	CNTL	RNDT DRVWY	SURF LIGHT	COLL SVRTY	V#				VEH TYPE	MOVE FROM TO	OWNER					E X	RES	LOC
00087	N N N N Y	01/09/2010	CLACKAMAS	1 14			INTER	3-LEG	N		N CLD	O-1TURN	01 NONE	0	STRGHT										32,04			
STATE		Sat	OREGON CITY	0 0	PACIFIC HY 99E		CN		TRF	SIGNAL	N DRY	TURN			PRVTE	S N							000	00				
		12P	PORTLAND UA	11.64	NB EXTO I-205 WB		04	1			N DAY	INJ			PSNGR CAR		01	DRVR	NONE	73 M	OR-Y OR<25		052,020	000	32,04			
													02 NONE	0	TURN-L										00			
													PRVTE	N E			01	DRVR	INJC	32 M	OR-Y OR<25		000	000	00			
													PSNGR CAR												00			
00848	N N N	03/10/2011	CLACKAMAS	1 14			INTER	3-LEG	N		N RAIN	O-1TURN	01 NONE	0	STRGHT										02			
NONE		Thu	OREGON CITY	0 0	PACIFIC HY 99E		CN		TRF	SIGNAL	N WET	TURN			PRVTE	S N							000	00				
		8P	PORTLAND UA	11.64	NB EXTO I-205 WB		04	1			N DUSK	PDO			PSNGR CAR		01	DRVR	NONE	00 M	UNK OR<25		000	000	00			
													02 NONE	0	TURN-L										00			
													PRVTE	N E			01	DRVR	NONE	57 F	OR-Y OR<25		028,004	000	02			
													PSNGR CAR												00			
00905	N N N N N	03/14/2011	CLACKAMAS	1 14			INTER	3-LEG	N		N CLD	S-1STOP	01 NONE	0	STRGHT										07			
STATE		Mon	OREGON CITY	0 0	PACIFIC HY 99E		CN		TRF	SIGNAL	N DRY	REAR			PRVTE	S N							000	00				
		4P	PORTLAND UA	11.64	WB EX PAC HY 99E		04	1			N DAY	INJ			PSNGR CAR		01	DRVR	INJC	54 F	SUSP OR<25		026	000	07			
													02 NONE	0	STOP										00			
													PRVTE	S N			01	DRVR	INJC	58 F	OR-Y OR<25		000	000	00			
													PSNGR CAR				02	PSNG	INJC	33 M			000	000	00			
03084	N N N N N	08/23/2011	CLACKAMAS	1 14			INTER	3-LEG	N		N CLD	O-1TURN	01 NONE	0	TURN-L										04			
STATE		Tue	OREGON CITY	0 0	PACIFIC HY 99E		CN		TRF	SIGNAL	N DRY	TURN			PRVTE	N E							000	00				
		8A	PORTLAND UA	11.64	NB EXTO I-205 WB		04	1			N DAY	INJ			PSNGR CAR		01	DRVR	NONE	54 F	OR-Y OR<25		000	000	00			
													02 NONE	0	STRGHT										00			
													PRVTE	S N			01	DRVR	INJA	52 F	OR-Y OR<25		020	000	04			
													PSNGR CAR												00			
03764	N N N	10/10/2012	CLACKAMAS	1 14			INTER	3-LEG	N		N CLR	O-1TURN	01 NONE	0	STRGHT										04			
CITY		Wed	OREGON CITY	0 0	PACIFIC HY 99E		CN		TRF	SIGNAL	N DRY	TURN			PRVTE	S N							000	00				
		4A	PORTLAND UA	11.64	WB EX PAC HY 99E		04	1			N DLIT	INJ			PSNGR CAR		01	DRVR	NONE	52 M	OR-Y OR<25		097	000	00			
													02 PSNG	INJC	35 M							000	000	00				
													02 NONE	0	TURN-L										00			
													PRVTE	N E			01	DRVR	INJC	49 M	OR-Y OR<25		097	000	00			
													PSNGR CAR												00			

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

081 PACIFIC HIGHWAY EAST

McLoughlin Blvd OR 99E (Hwy 081) & I-205 (Hwy 064) SB ranps
 January 1, 2009 through December 31, 2013

SER#	INVEST	S D P R S W E A U C O E L G H R D C S L K	DATE	COUNTY	CITY	URBAN AREA	RD# FC COMPNT MLG TYP MILEPNT	CONN # FIRST STREET SECOND STREET	RD CHAR DIRECT LOCTN	INT-TYP (MEDIAN) LEGS (#LANES)	INT-REL TRAF- CNTL	OFFRD WTHR RDNBT SURF DRVMY LIGHT	CRASH TYP COLL TYP SVRTY	SPCL USE TRLR QTY OWNER V#	MOVE FROM VEH TYPE	P#	PRTC INJ TYPE SVRTY	A S G E LICNS E X RES	PED LOC	ERROR	ACTN EVENT	CAUSE
03065	STATE	N N N N N	08/19/2013	CLACKAMAS	OREGON CITY	PORTLAND UA	1 14 0 0 11.64	PACIFIC HY 99E NB EXT0 I-205 WB	INTER CN 04	3-LEG 1	N TRF SIGNAL	N CLR N DRY N DLIT	O-1TURN TURN INJ	01 NONE PRVTE PSNGR CAR	0 STRGHT S N	01 DRVR	INJB	19 F OR-Y OR<25		016,020	038	27,04 00 27,04
														02 NONE PRVTE PSNGR CAR	0 TURN-L N E	01 DRVR	NONE	26 M OR-Y OR<25	000	000	00 00	
01852	NONE	N N N	05/27/2011	CLACKAMAS	OREGON CITY	PORTLAND UA	1 19 6 0 11.64	PACIFIC HY 99E NB EXT0 I-205 WB	INTER SE 09	3-LEG 1	N YIELD	N CLR N DRY N DAY	S-1STOP REAR PDO	01 NONE PRVTE PSNGR CAR	0 TURN-R S E	01 DRVR	NONE	48 F OR-Y OR<25		026	000	07 00 07
														02 NONE PRVTE PSNGR CAR	0 STOP S E	01 DRVR	NONE	31 M OR-Y OR<25	000	000	00 00	

OREGON DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT
CRASH SUMMARIES BY YEAR BY COLLISION TYPE
OR 213 Cascade Highway (Hwy 160) & Redland Road
January 1, 2009 through December 31, 2013

COLLISION TYPE	FATAL CRASHES	NON- FATAL CRASHES	PROPERTY DAMAGE ONLY	TOTAL CRASHES	PEOPLE KILLED	PEOPLE INJURED	TRUCKS	DRY SURF	WET SURF	DAY	DARK	INTER- SECTION	INTER- SECTION RELATED	OFF- ROAD
YEAR: 2013														
REAR-END	0	7	2	9	0	8	0	6	2	8	1	9	0	0
SIDESWIPE - OVERTAKING	0	0	1	1	0	0	2	0	1	0	1	1	0	0
TURNING MOVEMENTS	0	1	0	1	0	1	0	0	1	1	0	1	0	0
2013 TOTAL	0	8	3	11	0	9	2	6	4	9	2	11	0	0
YEAR: 2012														
REAR-END	0	2	1	3	0	5	0	2	0	3	0	3	0	0
TURNING MOVEMENTS	0	0	1	1	0	0	0	1	0	0	1	1	0	0
2012 TOTAL	0	2	2	4	0	5	0	3	0	3	1	4	0	0
YEAR: 2011														
REAR-END	0	3	0	3	0	4	0	2	1	3	0	3	0	0
TURNING MOVEMENTS	0	2	0	2	0	3	0	1	1	2	0	2	0	0
2011 TOTAL	0	5	0	5	0	7	0	3	2	5	0	5	0	0
YEAR: 2010														
REAR-END	0	0	1	1	0	0	0	1	0	0	1	1	0	0
TURNING MOVEMENTS	0	1	0	1	0	2	1	1	0	1	0	1	0	0
2010 TOTAL	0	1	1	2	0	2	1	2	0	1	1	2	0	0
FINAL TOTAL	0	16	6	22	0	23	3	14	6	18	4	22	0	0

Disclaimer: A higher number of crashes may be reported as of 2011 compared to prior years. This does not reflect an increase in annual crashes. The higher numbers result from a change to an internal departmental process that allows the Crash Analysis and Reporting Unit to add previously unavailable, non-fatal crash reports to the annual data file. Please be aware of this change when comparing pre-2011 crash statistics.

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

160 CASCADE HWY SOUTH

OR 213 Cascade Highway (Hwy 160) & Redland Road
January 1, 2009 through December 31, 2013

SER#	S D P R S W E A U C O D A T E E L G H R D A Y I N V E S T D C S L K T I M E	DATE	COUNTY CITY URBAN AREA	RD# FC COMPNT MLG TYP MILEPNT	CONN # FIRST STREET SECOND STREET	RD CHAR DIRECT LOCTN	INT-TYP (MEDIAN) LEGS (#LANES)	INT-REL TRAF- CNTL	OFFRD RND BT DRVWY	WTHR SURF LIGHT	CRASH TYP COLL TYP SVRTY	SPCL USE TRLR QTY OWNER VEH TYPE	MOVE FROM TO	P#	PRTC TYPE	INJ SVRTY	A S G E X RES	LICNS LOC	PED ERROR	ACTN EVENT	CAUSE
00563 NONE	N N N	02/17/2010 Wed 6P	CLACKAMAS OREGON CITY PORTLAND UA	1 14 0 0 0.48	CASCADE HY SOUTH REDLAND RD	INTER N 06	3-LEG N 0	N TRF SIGNAL	N N N	CLR DRY DARK	S-1STOP REAR PDO	01 NONE PRVTE PSNGR CAR	0 N S	STRGHT	01	DRVR	NONE	27 M OR-Y OR-?	026	000 000	07 00 07
												02 NONE PRVTE PSNGR CAR	0 N S	STOP	01	DRVR	NONE	31 F OR-Y OR<25	000	011 000	00 00
02101 CITY	Y Y N	06/12/2011 Sun 11A	CLACKAMAS OREGON CITY PORTLAND UA	1 14 0 0 0.48	CASCADE HY SOUTH REDLAND RD	INTER N 06	3-LEG N 0	N TRF SIGNAL	N N N	CLR DRY DAY	S-1STOP REAR INJ	01 NONE PRVTE PSNGR CAR	0 N S	STRGHT	01	DRVR	NONE	38 M OR-Y OR<25	047,043,026	000	01,07 00 01,07
												02 NONE PRVTE PSNGR CAR	0 N S	STOP	01	DRVR	INJC	41 F OR-Y OR<25	000	011 000	00 00
														02	PSNG	INJC	56 F	000	000	00	
01593 NO RPT	N N N	05/08/2013 Wed 12P	CLACKAMAS OREGON CITY PORTLAND UA	1 14 0 0 0.48	CASCADE HY SOUTH REDLAND RD	INTER N 06	3-LEG N 0	N TRF SIGNAL	N N N	CLR DRY DAY	S-1STOP REAR INJ	01 NONE PRVTE PSNGR CAR	0 N S	STRGHT	01	DRVR	NONE	27 F OR-Y OR<25	016,026	000	27,07 00 27,07
												02 NONE PRVTE PSNGR CAR	0 N S	STOP	01	DRVR	INJC	63 F OR-Y OR<25	000	011 000	00 00
04034 CITY	Y N N	10/22/2013 Tue 8P	CLACKAMAS OREGON CITY PORTLAND UA	1 14 0 0 0.48	CASCADE HY SOUTH REDLAND RD	INTER N 06	3-LEG N 0	N TRF SIGNAL	N N N	CLR DRY DLIT	S-1STOP REAR INJ	01 NONE PRVTE PSNGR CAR	0 N S	STRGHT	01	DRVR	INJC	57 F OR-Y OR<25	047,043,026	000	01,07 00 01,07
												02 NONE PRVTE PSNGR CAR	0 N S	STOP	01	DRVR	NONE	16 M OR-Y OR<25	000	011 000	00 00
00947 NO RPT	N N N	03/17/2011 Thu 2P	CLACKAMAS OREGON CITY PORTLAND UA	1 14 0 0 0.48	CASCADE HY SOUTH REDLAND RD	INTER S 06	3-LEG N 0	N TRF SIGNAL	N N N	RAIN WET DAY	S-1STOP REAR INJ	01 NONE PRVTE PSNGR CAR	0 S N	STRGHT	01	DRVR	NONE	74 F OR-Y OR<25	026	000 000	07 00 07
												02 NONE PRVTE PSNGR CAR	0 S N	STOP	01	DRVR	INJC	46 M OR-Y OR<25	000	011 000	00 00

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

160 CASCADE HWY SOUTH

OR 213 Cascade Highway (Hwy 160) & Redland Road
January 1, 2009 through December 31, 2013

SER#	S D			DATE	COUNTY	RD# FC	CONN #	INT-TYP				SPCL USE			MOVE	PRTC	INJ	A S			PED	CAUSE								
	P	R	S					W	RD CHAR	(MEDIAN)	INT-REL	OFFRD	WTHR	CRASH TYP				TLRL	QTY	OWNER			G	E	LICNS					
	E A U C O	E L G H R	DAY					CITY	COMPNT	MLG TYP	FIRST STREET	DIRECT	LEGS	TRAF-				RND BT	SURF	COLL TYP			SVRTY	V#	VEH TYPE	TO	P#	TYPE	SVRTY	E
INVEST	D	C	S	L	K	TIME	URBAN AREA	MILEPNT	SECOND STREET	LOCTN	(#LANES)	CNTL	DRVWY	LIGHT	SVRTY	V#	VEH TYPE	TO	P#	TYPE	SVRTY	E	X	RES	LOC	ERROR	ACTN	EVENT	CAUSE	
02552 STATE	N	N	N	N	Y	07/18/2011	CLACKAMAS	1 14		INTER	3-LEG	N	N CLR	S-1STOP	01 NONE	0	STRGHT											013	07	
					Mon		OREGON CITY	0 0	CASCADE HY SOUTH	S		TRF SIGNAL	N DRY	REAR	PRVTE	S N										000	00			
					6A		PORTLAND UA	0.48	REDLAND RD	06	0		N DAY	INJ	PSNGR CAR				01	DRVR	NONE		16	M	OR-Y OR<25	043,026	000	07		
															02 NONE	0	STOP										011	013	00	
															PRVTE	S N			01	DRVR	INJC		48	M	OR-Y OR<25	000	000	00		
															03 NONE	0	STOP											022	00	
															PRVTE	S N			01	DRVR	NONE		52	F	OR-Y OR<25	000	000	00		
															PSNGR CAR															
04021 NONE	N	N	N			10/26/2012	CLACKAMAS	1 14		INTER	3-LEG	N	N CLR	S-1STOP	01 NONE	0	STRGHT											000	07	
					Fri		OREGON CITY	0 0	CASCADE HY SOUTH	S		TRF SIGNAL	N DRY	REAR	PRVTE	S N											000	00		
					5P		PORTLAND UA	0.48	REDLAND RD	06	0		N DAY	PDO	PSNGR CAR				01	DRVR	NONE		41	M	OR-Y OR<25	026	000	07		
															02 NONE	0	STOP											011	00	
															UNKN	S N			01	DRVR	NONE		00	U	UNK UNK	000	000	00		
															UNKNOWN															
00947 NONE	N	N	N			03/19/2013	CLACKAMAS	1 14		INTER	3-LEG	N	N RAIN	S-1STOP	01 NONE	0	STRGHT											000	07	
					Tue		OREGON CITY	0 0	CASCADE HY SOUTH	S		TRF SIGNAL	N WET	REAR	UNKN	S N											000	00		
					1P		PORTLAND UA	0.48	REDLAND RD	06	0		N DAY	PDO	PSNGR CAR				01	DRVR	NONE		00	M	OR-Y UNK	026	000	07		
															02 NONE	0	STOP											011	00	
															PRVTE	S N			01	DRVR	NONE		18	F	OR-Y OR<25	000	000	00		
															PSNGR CAR															
02451 CITY	N	N	N	N	N	07/09/2013	CLACKAMAS	1 14		INTER	3-LEG	N	N CLR	S-1STOP	01 NONE	0	STRGHT											013	27,07	
					Tue		OREGON CITY	0 0	CASCADE HY SOUTH	S		TRF SIGNAL	N DRY	REAR	PRVTE	S N											000	00		
					3P		PORTLAND UA	0.48	REDLAND RD	06	0		N DAY	INJ	PSNGR CAR				01	DRVR	NONE		21	F	OR-Y OR<25	016,026	038	27,07		
															02 NONE	0	STOP											011	013	00
															PRVTE	S N			01	DRVR	NONE		46	F	OR-Y OR<25	000	000	00		
															03 NONE	0	STOP											022	00	
															PRVTE	S N			01	DRVR	INJC		35	M	OR-Y OR<25	000	000	00		
															PSNGR CAR															
																			02	PSNG	NO<5		04	M		000	000	00		

OR 213 Cascade Highway (Hwy 160) & Redland Road
January 1, 2009 through December 31, 2013

SER#	P E R S W INVEST D C S L K	DATE DAY TIME	COUNTY CITY URBAN AREA	RD# COMPNT MLG TYP MILEPNT	PC CONN # FIRST STREET SECOND STREET	RD CHAR DIRECT LOCTN	INT-TYP (MEDIAN) LEGS (#LANES)	INT-REL TRAF- CNTL	OFFRD RND BT SURF DRVWY	WTHR LIGHT SVRTY	CRASH TYPE COLL TYP	SPCL USE TLRL QTY OWNER VEH TYPE	MOVE FROM TO	P#	PRTC TYPE	INJ SVRTY	A G E X	S E LICNS RES	PED LOC ERROR	ACTN	EVENT	CAUSE
00811	N N N	03/07/2011 Mon 12P	CLACKAMAS OREGON CITY PORTLAND UA	1 14 0 0 0.48	CASCADE HY SOUTH REDLAND RD	INTER CN 01	3-LEG 0	N TRF SIGNAL	N RAIN WET N DAY	O-1TURN TURN INJ	01 NONE PRVTE PSNGR CAR	0 STRGHT N S	01 DRVR INJA	76 F OR-Y OR<25	020	000 000	013,010 013,010	04 00 04				
											02 NONE PRVTE PSNGR CAR	0 TURN-L S W	01 DRVR INJC	35 M OR-Y OR<25	000	000		00 00				
											03 NONE PRVTE PSNGR CAR	0 UNK UN UN	01 DRVR NONE	17 F OR-Y OR<25	000	022 000		00 00				
04246	N N N	11/10/2012 Sat 5A	CLACKAMAS OREGON CITY PORTLAND UA	1 14 0 0 0.48	CASCADE HY SOUTH REDLAND RD	INTER CN 01	3-LEG 0	N TRF SIGNAL	N CLD DRY N DLIT	ANGL-OTH TURN PDO	01 NONE PRVTE PSNGR CAR	0 STRGHT N S	01 DRVR NONE	21 F OR-Y OR<25	000	000 000		04 00 00				
											02 NONE PRVTE PSNGR CAR	0 TURN-L W N	01 DRVR NONE	52 M NONE OR<25	020	000 000		00 04				
01921	N N N N N	06/03/2010 Thu 1P	CLACKAMAS OREGON CITY PORTLAND UA	1 14 0 0 0.48	CASCADE HY SOUTH REDLAND RD	INTER CN 03	3-LEG 0	N L-GRN-SIG	N CLR DRY N DAY	ANGL-OTH TURN INJ	01 NONE PRVTE TRUCK	1 STRGHT N S	01 DRVR NONE	47 M OR-Y OR<25	000	007 000		14 00 00				
											02 NONE PRVTE PSNGR CAR	0 TURN-L W N	01 DRVR INJC	24 M OR-Y OR<25	003	000 000		00 14				
											03 NONE PRVTE PSNGR CAR	0 STOP S N	01 DRVR INJB	71 F OR-Y OR<25	000	012 000		00 00				
04321	Y N N	11/07/2013 Thu 2P	CLACKAMAS OREGON CITY PORTLAND UA	1 14 0 0 0.48	CASCADE HY SOUTH REDLAND RD	INTER CN 03	3-LEG 0	N TRF SIGNAL	N RAIN WET N DAY	ANGL-OTH TURN INJ	01 NONE PRVTE PSNGR CAR	0 STRGHT N S	01 DRVR NONE	44 M OR-Y OR<25	000	000 000	124	04,01 00 00				
											02 NONE PRVTE PSNGR CAR	0 TURN-L W N	01 DRVR INJC	59 F OR-Y OR<25	047,020	001 000		00 04,01				
04081	Y N N N Y	10/25/2013 Fri 7A	CLACKAMAS OREGON CITY PORTLAND UA	1 14 0 0 0.48	CASCADE HY SOUTH REDLAND RD	INTER CN 04	3-LEG 0	N TRF SIGNAL	N CLD WET N DAWN	S-STRGHT SS-O PDO	01 NONE PRVTE TRUCK	0 STRGHT S N	01 DRVR NONE	54 M OR-Y OR<25	045,047,026	007 000		13,01,07 00 13,01,07				

OR 213 Cascade Highway (Hwy 160) & Redland Road
January 1, 2009 through December 31, 2013

[illegible]

OR 213 Cascade Highway (Hwy 160) & Redland Road
January 1, 2009 through December 31, 2013

SER# INVEST	S D P R S W E A U C O E L G H R			DATE	CLASS	CITY STREET	RD CHAR	INT-TYP (MEDIAN)	INT-REL	OFF-RD	WTHR	CRASH TYP	SPCL USE	MVEE FROM	A S	E LICNS	PED	ACTN	EVENT	CAUSE	
	D C S L K	DAY	TIME	DIST FROM	FIRST STREET	SECOND STREET	DIRECT LOCTN	LEGS (#LANES)	TRAF-CONTL	RNDBT DRVWY	SURF LIGHT	COLL TYP SVRTY	VEH TYPE	FROM TO	G E X RES	LOC	ERROR				
00282 NONE	N N N		01/22/2012 Sun 1P	14 0	CASCADE HY SOUTH REDLAND RD		INTER W 06	3-LEG 0	N TRF SIGNAL	N UNK N DAY	S-1STOP REAR INJ	01 PSNGR CAR	NONE PRVTE PSNGR CAR	0 STOP W E	STRGHT W E		01 DRVR NONE	32 M OR-Y OR<25	026	000 000	07 00 07
												02 PSNGR CAR	NONE PRVTE PSNGR CAR	0 STOP W E		01 DRVR INJC	65 M OR-Y OR<25	000	011 000	00 00	
03192 NO RPT	N N N		08/29/2012 Wed 9A	16 0	CASCADE HY SOUTH REDLAND RD		INTER W 06	3-LEG 0	N TRF SIGNAL	N CLR N DAY	S-1STOP REAR INJ	01 PSNGR CAR	NONE PRVTE PSNGR CAR	0 STOP W E	STRGHT W E		01 DRVR INJB	34 F OR-Y OR<25	026	000 000	07 00 07
												02 PSNGR CAR	NONE PRVTE PSNGR CAR	0 STOP W E		01 DRVR INJC	34 M OR-Y OR<25	000	012 000	00 00	
																02 PSNG	22 M	000	000	00	
																03 PSNG	22 M	000	000	00	
00301 NONE	N N N		01/25/2013 Fri 11A	16 0	CASCADE HY SOUTH REDLAND RD		INTER W 06	3-LEG 0	N R-GRN-SIG	N UNK N DAY	S-1STOP REAR PDO	01 PSNGR CAR	NONE PRVTE PSNGR CAR	0 TURN-R W S	TURN-R W S		01 DRVR NONE	59 M OR-Y OR<25	006	000 000	08 00 08
												02 PSNGR CAR	NONE PRVTE PSNGR CAR	0 TURN-R W S		01 DRVR NONE	40 F OR-Y OR<25	000	000 000	00 00	
00847 NONE	N N N		03/12/2013 Tue 10A	16 0	CASCADE HY SOUTH REDLAND RD		INTER W 06	3-LEG 0	N L-GRN-SIG	N CLR N DAY	S-1STOP REAR INJ	01 PSNGR CAR	NONE PRVTE PSNGR CAR	0 STOP W E	STRGHT W E		01 DRVR NONE	00 F UNK OR<25	026	000 000	07 00 07
												02 PSNGR CAR	NONE PRVTE PSNGR CAR	0 STOP W E		01 DRVR INJC	74 F OR-Y OR<25	000	012 000	00 00	
																02 PSNG	56 F	000	000	00	
02290 NONE	N N N		06/28/2013 Fri 8A	16 0	CASCADE HY SOUTH REDLAND RD		INTER W 06	0	N TRF SIGNAL	N CLR N DAY	S-1STOP REAR INJ	01 PSNGR CAR	NONE PRVTE PSNGR CAR	0 STOP W E	STRGHT W E		01 DRVR NONE	74 M OR-Y OR<25	026	000 000	07 00 07
												02 PSNGR CAR	NONE PRVTE PSNGR CAR	0 STOP W E		01 DRVR INJC	43 M OR-Y OR<25	000	011 000	013 00 00	

OR 213 Cascade Highway (Hwy 160) & Redland Road
January 1, 2009 through December 31, 2013

[illegible]

OREGON DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
 TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT
 CRASH SUMMARIES BY YEAR BY COLLISION TYPE
 OR 213 Cascade Highway (Hwy 160) & Washington Street
 January 1, 2009 through December 31, 2013

COLLISION TYPE	FATAL CRASHES	NON- FATAL CRASHES	PROPERTY DAMAGE ONLY	TOTAL CRASHES	PEOPLE KILLED	PEOPLE INJURED	TRUCKS	DRY SURF	WET SURF	DAY	DARK	INTER- SECTION	INTER- SECTION RELATED	OFF- ROAD
YEAR: 2013														
MISCELLANEOUS	0	1	0	1	0	2	0	1	0	0	1	1	0	0
REAR-END	0	1	1	2	0	1	0	1	1	2	0	2	0	0
SIDESWIPE - OVERTAKING	0	1	0	1	0	1	0	1	0	1	0	1	0	0
2013 TOTAL	0	3	1	4	0	4	0	3	1	3	1	4	0	0
YEAR: 2012														
ANGLE	0	0	1	1	0	0	0	1	0	1	0	1	0	0
REAR-END	0	4	4	8	0	5	0	6	1	7	1	8	0	0
SIDESWIPE - OVERTAKING	0	1	0	1	0	1	0	0	1	1	0	1	0	0
2012 TOTAL	0	5	5	10	0	6	0	7	2	9	1	10	0	0
YEAR: 2011														
ANGLE	0	0	1	1	0	0	0	0	1	1	0	1	0	0
REAR-END	0	3	3	6	0	6	0	4	1	4	2	6	0	0
TURNING MOVEMENTS	0	0	1	1	0	0	0	1	0	1	0	1	0	0
2011 TOTAL	0	3	5	8	0	6	0	5	2	6	2	8	0	0
YEAR: 2010														
ANGLE	0	0	2	2	0	0	0	2	0	1	1	2	0	0
PEDESTRIAN	0	1	0	1	0	1	0	0	1	0	1	1	0	0
REAR-END	0	2	4	6	0	3	1	4	2	4	2	6	0	0
TURNING MOVEMENTS	0	0	2	2	0	0	0	1	1	1	1	2	0	0
2010 TOTAL	0	3	8	11	0	4	1	7	4	6	5	11	0	0
YEAR: 2009														
REAR-END	0	2	3	5	0	2	0	4	1	5	0	5	0	0
TURNING MOVEMENTS	0	2	0	2	0	5	0	2	0	1	1	2	0	0
2009 TOTAL	0	4	3	7	0	7	0	6	1	6	1	7	0	0
FINAL TOTAL	0	18	22	40	0	27	1	28	10	30	10	40	0	0

Disclaimer: A higher number of crashes may be reported as of 2011 compared to prior years. This does not reflect an increase in annual crashes. The higher numbers result from a change to an internal departmental process that allows the Crash Analysis and Reporting Unit to add previously unavailable, non-fatal crash reports to the annual data file. Please be aware of this change when comparing pre-2011 crash statistics.

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

160 CASCADE HWY SOUTH

OR 213 Cascade Highway (Hwy 160) & Washington Street
January 1, 2009 through December 31, 2013

SER#	S D P R S W E A U C O E L G H R DAY INVEST D C S L K TIME	DATE	COUNTY CITY URBAN AREA	RD# FC COMPNT MLG TYP MILEPNT	CONN # FIRST STREET SECOND STREET	RD CHAR DIRECT LOCTN	INT-TYP (MEDIAN) LEGS (#LANES)	INT-REL TRAF- CNTL	OFFRD RND BT DRVWY	WTHR SURF LIGHT	CRASH TYP COLL TYP SVRTY	SPCL USE TRLR QTY OWNER VEH TYPE	MOVE FROM TO	P#	PRTC TYPE	INJ SVRTY	A S G E X RES	LICNS LOC	PED ERROR	ACTN	EVENT	CAUSE
04848 NONE	N N N	12/16/2011 Fri 5P	CLACKAMAS OREGON CITY PORTLAND UA	1 14 0 0 0.14	CASCADE HY SOUTH WASHINGTON ST	INTER UN 06	CROSS 1	N TRF	N UNK N UNK N DUSK	S-1STOP REAR PDO	01 PRVTE PSNGR	NONE CAR	0 UN	STRGHT UN	01	DRVR NONE	00 M OR-Y OR<25		026	000 000		07 00 07
											02 PRVTE PSNGR	NONE CAR	0 UN	STOP UN	01	DRVR NONE	64 M OR-Y OR<25		000	011 000		00 00
81700 NONE	N N N	02/16/2012 Thu 10A	CLACKAMAS OREGON CITY PORTLAND UA	1 14 0 0 0.14	CASCADE HY SOUTH WASHINGTON ST	INTER N 06	CROSS 1	N TRF	N RAIN N WET N DAY	S-1STOP REAR PDO	01 UNKN UNKNOWN	NONE N S UNKNOWN	0 S	STRGHT N	01	DRVR NONE	00 U UNK UNK		026	000 000	013	07 00 07
											02 PRVTE PSNGR	NONE CAR	0 N	STOP N S	01	DRVR NONE	74 M OR-Y OR<25		000	011 000	013	00 00
											03 UNKN UNKNOWN	NONE N S UNKNOWN	0 S	STOP N	01	DRVR NONE	00 F UNK UNK		000	022 000		00 00
00824 CITY	Y N N N N	03/10/2013 Sun 3A	CLACKAMAS OREGON CITY PORTLAND UA	1 14 0 0 0.14	CLACKAMAS RIVER DR CASCADE HY SOUTH	INTER NE 05	CROSS 1	N TRF	N CLD N DRY N DLIT	OVERTURN OTH INJ	01 PRVTE PSNGR	NONE CAR	0 SE	TURN-R NE	01	DRVR INJC	21 F OR-Y OR<25		047,051	000 000		33,01 00 33,01
															02	PSNG INJC	24 F		000	000		00
02759 NONE	N N N	07/27/2009 Mon 4P	CLACKAMAS OREGON CITY PORTLAND UA	1 14 0 0 0.14	CLACKAMAS RIVER DR CASCADE HY SOUTH	INTER SE 06	CROSS 0	N TRF	N CLR N DRY N DAY	S-1STOP REAR PDO	01 PRVTE PSNGR	NONE CAR	0 SE	STRGHT NW	01	DRVR NONE	38 M OR-Y OR<25		026	000 000		07 00 07
											02 PRVTE PSNGR	NONE CAR	0 SE	STOP NW	01	DRVR NONE	48 M OR-Y OR<25		000	011 000		00 00
03966 NONE	N N N	10/21/2009 Wed 5P	CLACKAMAS OREGON CITY PORTLAND UA	1 14 0 0 0.14	CLACKAMAS RIVER DR CASCADE HY SOUTH	INTER SE 06	CROSS 0	N TRF	N CLR N DRY N DAY	S-1STOP REAR INJ	01 PRVTE PSNGR	NONE CAR	0 SE	STRGHT NW	01	DRVR NONE	00 F OTH-Y N-RES		026	000 000		07 00 07
											02 PRVTE PSNGR	NONE CAR	0 SE	STOP NW	01	DRVR INJC	47 F OR-Y OR<25		000	011 000		00 00

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

160 CASCADE HWY SOUTH

OR 213 Cascade Highway (Hwy 160) & Washington Street
January 1, 2009 through December 31, 2013

SER#	INVEST	S D P R S W E A U C O E L G H R D C S L K	DATE	COUNTY CITY URBAN AREA	RD# FC COMPNT MLG TYP MILEPNT	CONN # FIRST STREET SECOND STREET	RD CHAR DIRECT LOCTN	INT-TYP (MEDIAN) LEGS (#LANES)	INT-REL TRAF- CNTL	OFFRD WTHR RND BT SURF DRVWY LIGHT	CRASH TYP COLL TYP SVRTY	SPCL USE TRLR QTY OWNER VEH TYPE	MOVE FROM TO	P#	PRTC TYPE	INJ SVRTY	A S G E X RES	LICNS LOC	PED ERROR	ACTN	EVENT	CAUSE
04817	N N N		12/14/2009	CLACKAMAS	1 14		INTER	CROSS	N	N RAIN	S-1STOP	01 NONE	0 STRGHT									07
NONE			Mon	OREGON CITY	0 0	CASCADE HY SOUTH	SE		UNKNOWN	N WET	REAR	PRVTE	SE NW							000		00
			4P	PORTLAND UA	0.14	WASHINGTON ST	06	0		N DAY	INJ	PSNGR CAR		01	DRVR	NONE	17 F	OR-Y OR<25	026	000		07
												02 NONE	0 STOP									
												PRVTE	SE NW							011		00
												PSNGR CAR		01	DRVR	INJC	26 F	OR-Y OR<25	000	000		00
00103	N N N		01/06/2010	CLACKAMAS	1 14		INTER	CROSS	N	N CLR	S-1STOP	01 NONE	0 STRGHT									07
NO RPT			Wed	OREGON CITY	0 0	CASCADE HY SOUTH	SE		TRF SIGNAL	N DRY	REAR	PRVTE	SE NW							000		00
			5P	PORTLAND UA	0.14	WASHINGTON ST	06	0		N DLIT	PDO	PSNGR CAR		01	DRVR	NONE	20 M	OR-Y OR<25	026	000		07
												02 NONE	0 STOP									
												PRVTE	SE NW							011		00
												PSNGR CAR		01	DRVR	NONE	20 F	OR-Y OR<25	000	000		00
01142	Y N N N N		04/06/2010	CLACKAMAS	1 14		INTER	CROSS	N	N CLD	S-1STOP	01 NONE	0 STRGHT								013	01,07
STATE			Tue	OREGON CITY	0 0	CLACKAMAS RIVER DR	SE		TRF SIGNAL	N DRY	REAR	PRVTE	SE NW							000		00
			8P	PORTLAND UA	0.14	CASCADE HY SOUTH	06	1		N DLIT	INJ	PSNGR CAR		01	DRVR	INJC	79 M	OR-Y OR<25	047,043,026	000		01,07
												02 NONE	0 STOP									
												PRVTE	SE NW							011	013	00
												PSNGR CAR		01	DRVR	NONE	37 F	OR-Y OR<25	000	000		00
												03 NONE	0 STOP									
												PRVTE	SE NW							022		00
												PSNGR CAR		01	DRVR	NONE	53 F	OTH-Y N-RES	000	000		00
01339	N N N		04/20/2011	CLACKAMAS	1 14		INTER	CROSS	N	N CLR	S-1STOP	01 NONE	0 STRGHT									07
NONE			Wed	OREGON CITY	0 0	CASCADE HY SOUTH	SE		TRF SIGNAL	N DRY	REAR	PRVTE	SE NW							000		00
			11A	PORTLAND UA	0.14	WASHINGTON ST	06	1		N DAY	INJ	PSNGR CAR		01	DRVR	NONE	21 F	OR-Y OR<25	026	000		07
												02 NONE	0 STOP									
												PRVTE	SE NW							011		00
												PSNGR CAR		01	DRVR	INJC	24 F	OR-Y OR<25	000	000		00
														02	PSNG	INJC	25 F		000	000		00
01822	N N N		05/13/2011	CLACKAMAS	1 14		INTER	CROSS	N	N CLR	S-1STOP	01 NONE	0 STRGHT									07
NONE			Fri	OREGON CITY	0 0	CASCADE HY SOUTH	SE		TRF SIGNAL	N DRY	REAR	PRVTE	SE NW							000		00
			3P	PORTLAND UA	0.14	WASHINGTON ST	06	0		N DAY	PDO	PSNGR CAR		01	DRVR	NONE	00 F	OTH-Y N-RES	026	000		07

OR 213 Cascade Highway (Hwy 160) & Washington Street
January 1, 2009 through December 31, 2013

S D		P R S W		RD# PC		INT-TYP		SPCL USE															
SER#	E A U C O	DATE	COUNTY	COMPNT	CONN #	RD CHAR	(MEDIAN)	INT-REL	OFFRD	WTHR	CRASH TYP	TLRL QTY	MOVE	A S		LICNS		PED					
INVEST	D C S L K	TIME	CITY	MLG TYP	FIRST STREET	DIRECT	(#LANES)	TRAF-	RNDBT	SURF	COLL TYP	OWNER	FROM TO	P#	TYPE	SVRTY	G E	X RES	LOC	ERROR	ACTN	EVENT	CAUSE
												02 NONE	0 STOP										
												PRVTE	SE NW										
												PSNGR	CAR		01	DRVR	NONE	26 F	OR-Y	000	011	00	00
																		OR>25			000		00
																02	PSNG	NO<5	01 M		000	000	00
																03	PSNG	NO<5	04 F		000	000	00
																04	PSNG	NO<5	02 F		000	000	00
																05	PSNG	NO<5	03 F		000	000	00
00300	N N N	01/25/2013	CLACKAMAS	1 14		INTER	CROSS	N	N	CLR	S-1STOP	01	NONE	0 STRGHT									07
NONE		Fri	OREGON CITY	0 0	CLACKAMAS RIVER DR	SE		TRF SIGNAL	N DRY	REAR			PRVTE	SE NW								000	00
		3P	PORTLAND UA	0.14	CASCADE HY SOUTH	06	1		N DAY	INJ			PSNGR	CAR		01	DRVR	NONE	23 M	OR-Y	026	000	07
																		OR<25					
												02 NONE	0 STOP										
												PRVTE	SE NW										
												MOTRHOME			01	DRVR	INJC	55 F	OR-Y	000	011	00	00
																		OR<25			000		
01484	N N N	04/22/2012	CLACKAMAS	1 14		INTER	CROSS	N	N	CLR	S-1STOP	01	NONE	0 STRGHT									07
NONE		Sun	OREGON CITY	0 0	CLACKAMAS RIVER DR	S		TRF SIGNAL	N DRY	REAR			PRVTE	S N								000	00
		4P	PORTLAND UA	0.14	CASCADE HY SOUTH	06	1		N DAY	INJ			PSNGR	CAR		01	DRVR	NONE	00 M	OR-Y	026	000	07
																		OR<25					
												02 NONE	0 STOP										
												PRVTE	S N										
												PSNGR	CAR		01	DRVR	NONE	63 F	OR-Y	000	011	00	00
																		OR<25			000		
																02	PSNG	INJC	72 F		000	000	00
01563	N N N	05/06/2011	CLACKAMAS	1 14		INTER	CROSS	N	N	RAIN	S-1STOP	01	NONE	0 STRGHT									07
NONE		Fri	OREGON CITY	0 0	CASCADE HY SOUTH	SW		TRF SIGNAL	N WET	REAR			PRVTE	SW NE								000	00
		6P	PORTLAND UA	0.14	WASHINGTON ST	06	1		N DAY	PDO			PSNGR	CAR		01	DRVR	NONE	43 M	OR-Y	026	000	07
																		OR<25					
												02 NONE	0 STOP										
												PRVTE	SW NE										
												PSNGR	CAR		01	DRVR	NONE	63 M	OR-Y	000	011	00	00
																		OR<25			000		
00651	N N N	02/19/2012	CLACKAMAS	1 14		INTER	CROSS	N	N	CLR	S-1STOP	01	NONE	0 STRGHT									07
NO RPT		Sun	OREGON CITY	0 0	CASCADE HY SOUTH	SW		TRF SIGNAL	N UNK	REAR			PRVTE	SW NE								000	00
		4P	PORTLAND UA	0.14	WASHINGTON ST	06	1		N DUSK	PDO			PSNGR	CAR		01	DRVR	NONE	49 F	OR-Y	026	000	07
																		OR<25					
												02 NONE	0 STOP										
												UNKN	SW NE										
												PSNGR	CAR		01	DRVR	NONE	00 F	UNK	000	011	00	00
																		UNK			000		
00617	N N N	02/15/2009	CLACKAMAS	1 14		INTER	CROSS	N	N	CLR	S-1STOP	01	NONE	0 STRGHT									07
NONE		Sun	OREGON CITY	0 0	CASCADE HY SOUTH	NW		UNKNOWN	N DRY	REAR			PRVTE	NW SE								000	00
		2P	PORTLAND UA	0.14	WASHINGTON ST	06	1		N DAY	PDO			PSNGR	CAR		01	DRVR	NONE	57 M	OR-Y	026	000	07
																		OR<25					

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

160 CASCADE HWY SOUTH

OR 213 Cascade Highway (Hwy 160) & Washington Street
 January 1, 2009 through December 31, 2013

SER#	S D P R S W E A U C O DATE E L G H R DAY INVEST D C S L K TIME	COUNTY CITY URBAN AREA	RD# FC COMPNT MLG TYP MILEPNT	CONN # FIRST STREET SECOND STREET	RD CHAR DIRECT LOCTN	INT-TYP (#LANES) LEGS (#LANES)	INT-REL TRAF- CNTL	OFFRD WTHR RNDT SURF DRVMY LIGHT	CRASH TYP COLL TYP SVRTY	SPCL USE TRLR QTY OWNER VEH TYPE	MOVE FROM TO	P#	PRTC INJ TYPE SVRTY	A S G E LICNS E X RES	PED LOC	ERROR	ACTN EVENT	CAUSE
										02 NONE 0 STOP PRVTE NW SE PSNGR CAR		01	DRVR NONE	19 F OR-Y OR<25		000	011 000	00 00
03698 STATE	N N N N N 09/30/2009 Wed 6P	CLACKAMAS OREGON CITY PORTLAND UA	1 14 0 0 0.14	CASCADE HY SOUTH WASHINGTON ST	INTER NW 06	CROSS 0	N TRF SIGNAL	N CLR N DRY N DAY	S-1STOP REAR PDO	01 NONE 0 STRGHT PRVTE NW SE PSNGR CAR		01	DRVR NONE	25 F OTH-Y N-RES		026	000 000	07 00 07
										02 NONE 0 STOP PRVTE NW SE PSNGR CAR		01	DRVR NONE	58 F OTH-Y UNK		000	011 000	00 00
00262 STATE	N N N 01/25/2010 Mon 11A	CLACKAMAS OREGON CITY PORTLAND UA	1 14 0 0 0.14	CASCADE HY SOUTH WASHINGTON ST	INTER NW 06	CROSS 1	N TRF SIGNAL	N CLR N DRY N DAY	S-1STOP REAR PDO	01 NONE 2 STRGHT PRVTE NW SE SEMI TOW		01	DRVR NONE	50 M OR-Y N-RES		043,026	000 000	07 00 07
										02 NONE 0 STOP PRVTE NW SE PSNGR CAR		01	DRVR NONE	22 M OR-Y OR<25		000	011 000	00 00
00506 NO RPT	N N N 02/12/2010 Fri 1P	CLACKAMAS OREGON CITY PORTLAND UA	1 14 0 0 0.14	CASCADE HY SOUTH WASHINGTON ST	INTER NW 06	CROSS 1	N TRF SIGNAL	N RAIN N WET N DAY	S-1STOP REAR PDO	01 NONE 0 STRGHT PRVTE NW SE PSNGR CAR		01	DRVR NONE	18 F OR-Y OR<25		026	000 000	07 00 07
										02 NONE 0 STOP PRVTE NW SE PSNGR CAR		01	DRVR NONE	36 F OR-Y OR<25		000	011 000	00 00
01821 NONE	N N N 05/27/2010 Thu 5P	CLACKAMAS OREGON CITY PORTLAND UA	1 14 0 0 0.14	CASCADE HY SOUTH WASHINGTON ST	INTER NW 06	CROSS 1	N TRF SIGNAL	N RAIN N WET N DAY	S-1STOP REAR INJ	01 NONE 0 STRGHT PRVTE SW NE PSNGR CAR		01	DRVR INJB	54 F OR-Y OR<25		026	000 000	07 00 07
										02 NONE 0 STOP PRVTE SW NE PSNGR CAR		01	DRVR INJC	57 F OR-Y OR<25		000	011 000	00 00
03502 NONE	N N N 09/27/2010 Mon 11A	CLACKAMAS OREGON CITY PORTLAND UA	1 14 0 0 0.14	CASCADE HY SOUTH WASHINGTON ST	INTER NW 06	CROSS 1	N TRF SIGNAL	N CLR N DRY N DAY	S-1STOP REAR PDO	01 NONE 0 STRGHT PRVTE NW SE PSNGR CAR		01	DRVR NONE	00 F UNK OR<25		026	000 000	07 00 07
										02 NONE 0 STOP PRVTE NW SE PSNGR CAR		01	DRVR NONE	70 M OR-Y OR<25		000	011 000	00 00

OR 213 Cascade Highway (Hwy 160) & Washington Street
January 1, 2009 through December 31, 2013

SER#	P E D A U C O E L G H R I N V E S T D C S L K	D A T E D A Y T I M E	C O U N T Y C I T Y U R B A N A R E A	R D # M L G M I L E P N T	F C T Y P S T R E E T	C O N N # F I R S T S E C O N D	R D C H A R D I R E C T L O C T N	I N T - T Y P (M E D I A N) L E G S (# L A N E S)	I N T - R E L T R A F - C N T L	O F F R D R N D B T	W T H R S U R F L I G H T	C R A S H T Y P C O L L T Y P	S P C L U S E T R L R Q T Y O W N E R	M O V E F R O M T O	P #	P R T C T Y P E	I N J S V R T Y	A G E X	S E R E S	L I C N S P E D L O C	E R R O R	A C T N	E V E N T	C A U S E
03589 NONE	N N N	09/29/2011 Thu 12P	CLACKAMAS OREGON CITY PORTLAND UA	1 14 0 0 0.14	CASCADE HY SOUTH WASHINGTON ST		INTER NW 06	CROSS 0	N TRF SIGNAL	N N	CLR DRY DAY	S-1STOP REAR INJ	01 NONE PRVTE PSNGR CAR	0 NW SE	STRGHT	01 DRVR	NONE	19 M	OR-Y OR>25	026	000 000		07 00 07	
													02 NONE PRVTE PSNGR CAR	0 NW SE	STOP	01 DRVR	INJC	44 F	OR-Y OR<25	000	011 000		00 00	
04398 CITY	N Y N	Y 11/19/2011 Sat 10P	CLACKAMAS OREGON CITY PORTLAND UA	1 14 0 0 0.14	CASCADE HY SOUTH WASHINGTON ST		INTER NW 06	CROSS 1	N TRF SIGNAL	N N	CLD DRY DLIT	S-1STOP REAR INJ	01 NONE PRVTE PSNGR CAR	0 NW SE	STRGHT	01 DRVR	NONE	45 F	SUSP OR<25	026	000 000	013	07 00 07	
													02 NONE PRVTE PSNGR CAR	0 NW SE	STOP	01 DRVR	INJC	30 M	OR-Y OR<25	000	011 000	013	00 00	
													03 NONE PRVTE PSNGR CAR	0 NW SE	STOP	01 DRVR	INJC	64 F	OR-Y OR<25	000	022 000		00 00	
																02 PSNG	INJC	33 M		000	000		00	
00612 NONE	N N N	Y 02/17/2012 Fri 12P	CLACKAMAS OREGON CITY PORTLAND UA	1 14 0 0 0.14	CASCADE HY SOUTH WASHINGTON ST		INTER NW 06	CROSS 1	N TRF SIGNAL	N N	RAIN WET DAY	S-STRGHT SS-O INJ	01 NONE PRVTE PSNGR CAR	0 NW SE	STRGHT	01 DRVR	INJC	59 F	OR-Y OR<25	045	000 000		13 00 13	
													02 NONE PRVTE PSNGR CAR	0 NW SE	STRGHT	01 DRVR	NONE	00 M	UNK OR<25	000	000 000		00 00	
01212 NONE	N N N	03/31/2012 Sat 2P	CLACKAMAS OREGON CITY PORTLAND UA	1 14 0 0 0.14	CASCADE HY SOUTH WASHINGTON ST		INTER NW 06	CROSS 1	N TRF SIGNAL	N N	CLR DRY DAY	S-1STOP REAR PDO	01 NONE PRVTE PSNGR CAR	0 NW SE	STRGHT	01 DRVR	NONE	00 M	UNK OR>25	026	000 000		07 00 07	
													02 NONE PRVTE PSNGR CAR	0 NW SE	STOP	01 DRVR	NONE	73 F	OR-Y OR<25	000	011 000		00 00	
01295 NONE	N N N	04/07/2012 Sat 4P	CLACKAMAS OREGON CITY PORTLAND UA	1 14 0 0 0.14	CASCADE HY SOUTH WASHINGTON ST		INTER NW 06	CROSS 1	N TRF SIGNAL	N N	CLR DRY DAY	S-1STOP REAR PDO	01 NONE UNKN PSNGR CAR	0 NW SE	STRGHT	01 DRVR	NONE	00 M	OR-Y UNK	026	000 000		07 00 07	

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

160 CASCADE HWY SOUTH

OR 213 Cascade Highway (Hwy 160) & Washington Street
January 1, 2009 through December 31, 2013

SER#	INVEST	S P E L D C S L K	D R S W A U C O H R D A Y T I M E	COUNTY CITY URBAN AREA	RD# COMPNT MLG TYP MILEPNT	FC CONN # FIRST STREET SECOND STREET	RD CHAR DIRECT LOCTN	INT-TYP (#LANES) CNTL	INT-REL TRAF- DRVWY	OFFRD RND BT LIGHT	WTHR SURF SVRTY	CRASH TYP COLL TYP SVRTY	SPCL USE TRLR QTY OWNER VEH TYPE	MOVE FROM TO	P#	PRTC TYPE	INJ SVRTY	A G E X	S E L I C N S R E S	PED LOC	ERROR	ACTN EVENT	CAUSE
02387	NONE	NNN	07/03/2012 Tue 11A	CLACKAMAS OREGON CITY PORTLAND UA	1 0 0.14	14 0 0.14	CASCADE HY SOUTH WASHINGTON ST	INTER NW 06	CROSS 1	N TRF	CLD DRY DAY	S-1STOP REAR INJ	02 NONE PRVTE PSNGR CAR	0 NW SE	01	DRVR	NONE	50	M	OR-Y OR<25	000	011 000	00 00
02387	NONE	NNN	07/03/2012 Tue 11A	CLACKAMAS OREGON CITY PORTLAND UA	1 0 0.14	14 0 0.14	CASCADE HY SOUTH WASHINGTON ST	INTER NW 06	CROSS 1	N TRF	CLD DRY DAY	S-1STOP REAR INJ	01 NONE PRVTE PSNGR CAR	0 NW SE	01	DRVR	NONE	75	F	OR-Y OR<25	026	000 000	07 00 07
02387	NONE	NNN	07/03/2012 Tue 11A	CLACKAMAS OREGON CITY PORTLAND UA	1 0 0.14	14 0 0.14	CASCADE HY SOUTH WASHINGTON ST	INTER NW 06	CROSS 1	N TRF	CLD DRY DAY	S-1STOP REAR INJ	02 NONE PRVTE PSNGR CAR	0 NW SE	01	DRVR	INJC	23	F	OR-Y OR<25	000	012 000	00 00
03599	NO RPT	NNN	09/28/2012 Fri 1P	CLACKAMAS OREGON CITY PORTLAND UA	1 0 0.14	14 0 0.14	CASCADE HY SOUTH WASHINGTON ST	INTER NW 06	CROSS 0	N TRF	CLR DRY DAY	S-1STOP REAR INJ	01 NONE PRVTE PSNGR CAR	0 NW SE	01	DRVR	NONE	57	M	OR-Y OR<25	026	000 000	07 00 07
03599	NO RPT	NNN	09/28/2012 Fri 1P	CLACKAMAS OREGON CITY PORTLAND UA	1 0 0.14	14 0 0.14	CASCADE HY SOUTH WASHINGTON ST	INTER NW 06	CROSS 0	N TRF	CLR DRY DAY	S-1STOP REAR INJ	02 NONE PRVTE PSNGR CAR	0 NW SE	01	DRVR	INJC	21	M	OR-Y OR<25	000	011 000	00 00
03599	NO RPT	NNN	09/28/2012 Fri 1P	CLACKAMAS OREGON CITY PORTLAND UA	1 0 0.14	14 0 0.14	CASCADE HY SOUTH WASHINGTON ST	INTER NW 06	CROSS 0	N TRF	CLR DRY DAY	S-1STOP REAR INJ	02 PSNG	INJC	60	F					000	000	00
01672	CITY	NNNNN	05/15/2013 Wed 3P	CLACKAMAS OREGON CITY PORTLAND UA	1 0 0.14	14 0 0.14	CLACKAMAS RIVER DR CASCADE HY SOUTH	INTER NW 06	CROSS 0	N TRF	CLD WET DAY	S-1STOP REAR PDO	01 NONE PRVTE PSNGR CAR	0 NW SE	01	DRVR	NONE	18	F	OR-Y OR<25	026	000 000	013 00 07
01672	CITY	NNNNN	05/15/2013 Wed 3P	CLACKAMAS OREGON CITY PORTLAND UA	1 0 0.14	14 0 0.14	CLACKAMAS RIVER DR CASCADE HY SOUTH	INTER NW 06	CROSS 0	N TRF	CLD WET DAY	S-1STOP REAR PDO	02 NONE PRVTE PSNGR CAR	0 NW SE	01	DRVR	NONE	24	F	OR-Y OR<25	000	011 000	013 00 00
01672	CITY	NNNNN	05/15/2013 Wed 3P	CLACKAMAS OREGON CITY PORTLAND UA	1 0 0.14	14 0 0.14	CLACKAMAS RIVER DR CASCADE HY SOUTH	INTER NW 06	CROSS 0	N TRF	CLD WET DAY	S-1STOP REAR PDO	03 NONE PRVTE PSNGR CAR	0 NW SE	01	DRVR	NONE	30	M	OR-Y OR<25	000	022 000	00 00
02081	COUNTY	NNNNN	06/12/2013 Wed 10A	CLACKAMAS OREGON CITY PORTLAND UA	1 0 0.14	14 0 0.14	CLACKAMAS RIVER DR CASCADE HY SOUTH	INTER NW 06	CROSS 1	N TRF	CLD DRY DAY	S-1STOP SS-O INJ	01 NONE PRVTE PSNGR CAR	0 NW SE	01	DRVR	NONE	50	M	OR-Y OR<25	045	000 000	13 00 13
02081	COUNTY	NNNNN	06/12/2013 Wed 10A	CLACKAMAS OREGON CITY PORTLAND UA	1 0 0.14	14 0 0.14	CLACKAMAS RIVER DR CASCADE HY SOUTH	INTER NW 06	CROSS 1	N TRF	CLD DRY DAY	S-1STOP SS-O INJ	02 NONE PRVTE PSNGR CAR	0 NW SE	01	DRVR	INJC	42	F	OR-Y OR<25	000	011 000	00 00

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

160 CASCADE HWY SOUTH

OR 213 Cascade Highway (Hwy 160) & Washington Street
January 1, 2009 through December 31, 2013

SER#	INVEST	S D P R S W E A U C O D A T E L G H R D A Y C I T Y U R B A N A R E A	DATE	COUNTY	RD# COMPNT MLG TYP MILEPNT	FC CONN # FIRST STREET SECOND STREET	RD CHAR DIRECT LOCTN	INT-TYP (#LANES)	INT-REL TRAF- CNTL	OFFRD RNDBT DRVWY	WTHR SURF LIGHT	CRASH TYP COLL TYP SVRTY	SPCL USE TRLR QTY OWNER VEH TYPE	MOVE FROM TO	PRTC P#	INJ TYPE	SVRTY	A S G E L I C N S P E D E R R O R	LOC E R R O R	ACTN E V E N T	CAUSE
03531 CITY	N N N N N	09/19/2009 Sat 8P	CLACKAMAS OREGON CITY PORTLAND UA	1 14 0 0 0.14	CLACKAMAS RIVER DR CASCADE HY SOUTH	INTER CN 01	CROSS 0	N TRF	SIGNAL	N N N	CLR DRY DARK	ANGL-OTH TURN INJ	01 NONE PRVTE PSNGR CAR	0 NE NW	01	DRVR	NONE	25 F OR-Y OR<25	028	016 000	02 00 02
													02 NONE PRVTE PSNGR CAR	0 SE NW	01	DRVR	INJC	41 F OR-Y OR<25	000	000 000	00 00
04362 STATE	N N N N N	11/15/2009 Sun 12P	CLACKAMAS OREGON CITY PORTLAND UA	1 14 0 0 0.14	CASCADE HY SOUTH WASHINGTON ST	INTER CN 01	CROSS 1	N TRF	SIGNAL	N N N	CLR DRY DAY	ANGL-OTH TURN INJ	01 NONE PRVTE PSNGR CAR	0 N S	01	DRVR	INJC	67 F OR-Y OR<25	020	000 000	04 00 04
													02 NONE PRVTE PSNGR CAR	0 S W	01	DRVR	INJC	48 F OR-Y OR<25	000	000 000	00 00 00
																02 PSNG 03 PSNG	INJC INJC	16 M 13 F	000 000	000 000	00 00
04350 NONE	N N N	11/18/2010 Thu 5P	CLACKAMAS OREGON CITY PORTLAND UA	1 14 0 0 0.14	CASCADE HY SOUTH WASHINGTON ST	INTER CN 01	CROSS 0	N TRF	SIGNAL	N N N	RAIN WET DLIT	ANGL-OTH TURN PDO	01 NONE PRVTE PSNGR CAR	0 NW SW	01	DRVR	NONE	40 F OR-Y OR<25	028	000 000	02 00 02
													02 NONE PRVTE PSNGR CAR	0 NE SW	01	DRVR	NONE	18 M OR-Y OR<25	000	000 000	00 00
03019 CITY	N N N N Y	08/19/2011 Fri 12P	CLACKAMAS OREGON CITY PORTLAND UA	1 14 0 0 0.14	CASCADE HY SOUTH WASHINGTON ST	INTER CN 01	CROSS 0	N TRF	SIGNAL	N N N	CLR DRY DAY	S-OTHER TURN PDO	01 NONE PRVTE PSNGR CAR	0 NW SW	01	DRVR	NONE	61 M OTH-Y N-RES	034	031 000	06 00 06
													02 NONE PRVTE PSNGR CAR	0 NW SW	01	DRVR	NONE	44 M OR-Y OR>25	001	000 000	00 00
01599 NO RPT	N N N	05/06/2010 Thu 6P	CLACKAMAS OREGON CITY PORTLAND UA	1 14 0 0 0.14	CLACKAMAS RIVER DR CASCADE HY SOUTH	INTER CN 02	CROSS 1	N TRF	SIGNAL	N N N	CLR DRY DAY	S-OTHER TURN PDO	01 NONE PRVTE PSNGR CAR	0 SE NE	01	DRVR	NONE	23 M OR-Y OR<25	026	000 000	07 00 07
													02 NONE UNKN PSNGR CAR	0 SE NE	01	DRVR	NONE	46 F NONE OR<25	000	013 000	00 00

OR 213 Cascade Highway (Hwy 160) & Washington Street
January 1, 2009 through December 31, 2013

SER#	P E L C S D A U G H R O K DATE TIME	COUNTY CITY URBAN AREA	RD# COMPNT MLG MILEPNT	FC TYP STREET SECOND STREET	CONN # FIRST STREET	RD CHAR DIRECT LOCTN	INT-TYP (MEDIAN) LEGS (#LANES)	INT-REL TRAF-CNTL	OFFRD RNDBT DRVWY	WTHR SURF LIGHT	CRASH COLL TYP SVRTY	SPCL USE TLRL QTY OWNER V#	MOVE FROM TO	PRTC P# TYPE	INJ SVRTRY	A S G E LICNS X RES	PED LOC ERROR	ACTN EVENT	CAUSE
03865 NONE	N N N Tue 10/16/2012 4P	CLACKAMAS OREGON CITY PORTLAND UA	1 14 0 0 0.14	CASCADE HY SOUTH WASHINGTON ST	HY SOUTH	INTER CN 03	CROSS 1	N TRF SIGNAL	N DRY DAY	CLR ANGL PDO	ANGLED-OTH ANGLE	01 NONE UNKN UNKNOWN	0 STRGHT WE	01 DRVR	NONE	00 U UNK	028	000 000	02 00 02
												02 NONE PRVTE PSNGR CAR	0 STRGHT NS	01 DRVR	NONE	73 F OR-Y OR<25	000	000 000	00 00 00
00902 NONE	N N N Fri 03/19/2010 8A	CLACKAMAS OREGON CITY PORTLAND UA	1 14 0 0 0.14	CASCADE HY SOUTH WASHINGTON ST	HY SOUTH	INTER CN 04	CROSS 0	N TRF SIGNAL	N DRY DAWN	CLR ANGL PDO	ANGLED-OTH ANGLE	01 NONE PRVTE PSNGR CAR	0 STRGHT NW SE	01 DRVR	NONE	00 M UNK	020	000 000	04 00 04
												02 NONE PRVTE PSNGR CAR	0 STRGHT SW NE	01 DRVR	NONE	46 F OR-Y OR>25	000	000 000	00 00 00
00965 NONE	N N N Tue 03/23/2010 10A	CLACKAMAS OREGON CITY PORTLAND UA	1 14 0 0 0.14	CASCADE HY SOUTH WASHINGTON ST	HY SOUTH	INTER CN 04	CROSS 0	N TRF SIGNAL	N DRY DAY	CLR ANGL PDO	ANGLED-OTH ANGLE	01 NONE PRVTE PSNGR CAR	0 STRGHT NW SE	01 DRVR	NONE	58 M OR-Y OR<25	000	000 000	04 00 00
												02 NONE PRVTE PSNGR CAR	0 STRGHT SW NE	01 DRVR	NONE	50 M OR-Y OR<25	020	000 000	00 04 04
04292 COUNTY	N N N N N Fri 11/12/2010 6A	CLACKAMAS OREGON CITY PORTLAND UA	1 14 0 0 0.14	CLACKAMAS RIVER DR CASCADE HY SOUTH	RIVER DR	INTER CN 04	CROSS 0	N TRF SIGNAL	N WET DAWN	FOG PED INJ	PED	01 NONE PRVTE PSNGR CAR	0 TURN-L NE SE	01 DRVR	NONE	69 M OR-Y OR<25	028	000 000	02,19 00 02
													STRGHT NE SW	01 PED	INJB	65 M	01 000	035	19
01864 NONE	N N N Sat 05/28/2011 6P	CLACKAMAS OREGON CITY PORTLAND UA	1 14 0 0 0.14	CASCADE HY SOUTH WASHINGTON ST	HY SOUTH	INTER CN 04	CROSS 0	N TRF SIGNAL	N WET DAY	RAIN ANGL PDO	ANGLED-OTH ANGLE	01 NONE PRVTE PSNGR CAR	0 STRGHT NW SE	01 DRVR	NONE	35 M OR-Y OR>25	020	000 000	04 00 04
												02 NONE PRVTE PSNGR CAR	0 STRGHT SW NE	01 DRVR	NONE	34 F OTH-Y N-RES	000	000 000	00 00 00
04280 NONE	N N N Tue 11/13/2012 7A	CLACKAMAS OREGON CITY PORTLAND UA	1 14 0 0 0.14	CLACKAMAS RIVER DR CASCADE HY SOUTH	RIVER DR	INTER CN 04	CROSS 1	N TRF SIGNAL	N DRY DAY	CLR REAR INJ	S-1STOP	01 NONE PRVTE PSNGR CAR	0 STRGHT SN	01 DRVR	NONE	19 M OR-Y OR<25	026	000 000	26,07 00 07

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

160 CASCADE HWY SOUTH

OR 213 Cascade Highway (Hwy 160) & Washington Street
January 1, 2009 through December 31, 2013

S D		P R S W		RD# FC		INT-TYP					SPCL USE		A S		G E		LICNS		PED		ACTN		EVENT		CAUSE	
SER#	E L G H R DAY	COUNTY	COMPNT	CONN #	RD CHAR	(MEDIAN)	INT-REL	OFFRD	WTHR	CRASH TYP	TRLR QTY	MOVE	OWNER	FROM	P#	TYPE	SVRTY	E X	RES	LOC	ERROR					
INVEST	D C S L K TIME	URBAN AREA	MILEPNT	FIRST STREET	DIRECT	LEGS	TRAF-	RNDBT	SURF	COLL TYP			V#	VEH TYPE	TO											
													02	NONE	0	STOP										
													PRVTE	S	N									011		00
													PSNGR	CAR		01	DRVR	INJC	21	M	OR-Y		000	000		26
																			OR<25							

ACTION CODE TRANSLATION LIST

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

ACTION CODE TRANSLATION LIST

ACTION CODE	SHORT DESCRIPTION	LONG DESCRIPTION
099	UNK	UNKNOWN ACTION

CAUSE CODE TRANSLATION LIST

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

COLLISION TYPE CODE TRANSLATION LIST

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

CRASH TYPE CODE TRANSLATION LIST

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

DRIVER LICENSE CODE TRANSLATION LIST

LIC CODE	SHORT DESC	LONG DESCRIPTION
0	NONE	NOT LICENSED (HAD NEVER BEEN LICENSED)
1	OR-Y	VALID OREGON LICENSE
2	OTH-Y	VALID LICENSE, OTHER STATE OR COUNTRY
3	SUSP	SUSPENDED/REVOKED

DRIVER RESIDENCE CODE TRANSLATION LIST

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

ERROR CODE TRANSLATION LIST

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

ERROR CODE TRANSLATION LIST

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

EVENT CODE TRANSLATION LIST

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

EVENT CODE TRANSLATION LIST

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

EVENT CODE TRANSLATION LIST

EVENT CODE	SHORT DESCRIPTION	LONG DESCRIPTION
118	EXPNSN JNT	EXPANSION JOINT
119	JERSEY BAR	JERSEY BARRIER
120	WIRE BAR	WIRE OR CABLE MEDIAN BARRIER
121	FENCE	FENCE
123	OBJ IN VEH	LOOSE OBJECT IN VEHICLE STRUCK OCCUPANT
124	SLIPPERY	SLIDING OR SWERVING DUE TO WET, ICY, SLIPPERY OR LOOSE SURFACE (NOT GRAVEL)
125	SHLDR	SHOULDER GAVE WAY
126	BOULDER	ROCK(S), BOULDER (NOT GRAVEL; NOT ROCK SLIDE)
127	LAND SLIDE	ROCK SLIDE OR LAND SLIDE
128	CURVE INV	CURVE PRESENT AT CRASH LOCATION
129	HILL INV	VERTICAL GRADE / HILL PRESENT AT CRASH LOCATION
130	CURVE HID	VIEW OBSCURED BY CURVE
131	HILL HID	VIEW OBSCURED BY VERTICAL GRADE / HILL
132	WINDOW HID	VIEW OBSCURED BY VEHICLE WINDOW CONDITIONS
133	SPRAY HID	VIEW OBSCURED BY WATER SPRAY

FUNCTIONAL CLASSIFICATION TRANSLATION LIST

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

HIGHWAY COMPONENT TRANSLATION LIST

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

INJURY SEVERITY CODE TRANSLATION LIST

CODE	SHORT DESC	LONG DESCRIPTION
1	KILL	FATAL INJURY
2	INJA	INCAPACITATING INJURY - BLEEDING, BROKEN BONES
3	INJB	NON-INCAPACITATING INJURY
4	INJC	POSSIBLE INJURY - COMPLAINT OF PAIN
5	PRI	DIED PRIOR TO CRASH
7	NO<5	NO INJURY - 0 TO 4 YEARS OF AGE

LIGHT CONDITION CODE TRANSLATION LIST

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

MEDIAN TYPE CODE TRANSLATION LIST

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

MILEAGE TYPE CODE TRANSLATION LIST

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

MOVEMENT TYPE CODE TRANSLATION LIST

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

PARTICIPANT TYPE CODE TRANSLATION LIST

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

PEDESTRIAN LOCATION CODE TRANSLATION LIST

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

TRAFFIC CONTROL DEVICE CODE TRANSLATION LIST

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

ROAD CHARACTER CODE TRANSLATION LIST

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

095	BUS STPSGN	BUS STOP SIGN AND RED LIGHTS
099	UNKNOWN	UNKNOWN OR NOT DEFINITE

VEHICLE TYPE CODE TRANSLATION LIST

CODE	SHORT DESC	LONG DESCRIPTION
01	PSNGR CAR	PASSENGER CAR, PICKUP, LIGHT DELIVERY, ETC.
02	BOBTAIL	TRUCK TRACTOR WITH NO TRAILERS (BOBTAIL)
03	FARM TRCTR	FARM TRACTOR OR SELF-PROPELLED FARM EQUIPMENT
04	SEMI TOW	TRUCK TRACTOR WITH TRAILER/MOBILE HOME IN TOW
05	TRUCK	TRUCK WITH NON-DETACHABLE BED, PANEL, ETC.
06	MOPED	MOPED, MINIBIKE, SEATED MOTOR SCOOTER, MOTOR BIKE
07	SCHL BUS	SCHOOL BUS (INCLUDES VAN)
08	OTH BUS	OTHER BUS
09	MTRCYCLE	MOTORCYCLE, DIRT BIKE
10	OTHER	OTHER: FORKLIFT, BACKHOE, ETC.
11	MOTRHOME	MOTORHOME
12	TROLLEY	MOTORIZED STREET CAR/TROLLEY (NO RAILS/WIRES)
13	ATV	ATV
14	MTRSCTR	MOTORIZED SCOOTER (STANDING)
15	SNOWMOBILE	SNOWMOBILE
99	UNKNOWN	UNKNOWN VEHICLE TYPE

WEATHER CONDITION CODE TRANSLATION LIST

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

Appendix E
Year 2017 Background
Traffic Level-of-Service
Worksheets

The Cove
1: McLoughlin Blvd & Dunes Dr

Background AM Peak Hour

7/27/2015

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	25	7	66	142	6	57	56	1573	69	92	1388	108
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.8		4.0	4.8	4.8
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.91		1.00	0.91	1.00
Frpb, ped/bikes	1.00	0.99		1.00	0.99		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	0.86		1.00	0.86		1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1733	1502		1751	1501		1656	4868		1787	4893	1482
Flt Permitted	0.71	1.00		0.70	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1298	1502		1298	1501		1656	4868		1787	4893	1482
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	28	8	73	158	7	63	62	1748	77	102	1542	120
RTOR Reduction (vph)	0	61	0	0	53	0	0	4	0	0	0	27
Lane Group Flow (vph)	28	20	0	158	17	0	62	1821	0	102	1542	93
Confl. Peds. (#/hr)	3		2	2		3						
Heavy Vehicles (%)	4%	0%	9%	3%	0%	9%	9%	6%	3%	1%	6%	9%
Turn Type	Perm	NA		Perm	NA		Prot	NA		Prot	NA	Perm
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8			4								2
Actuated Green, G (s)	14.7	14.7		14.7	14.7		7.2	53.9		8.6	55.3	55.3
Effective Green, g (s)	14.7	14.7		14.7	14.7		7.2	53.9		8.6	55.3	55.3
Actuated g/C Ratio	0.16	0.16		0.16	0.16		0.08	0.60		0.10	0.61	0.61
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.8		4.0	4.8	4.8
Vehicle Extension (s)	2.5	2.5		2.5	2.5		2.3	4.8		2.3	4.8	4.8
Lane Grp Cap (vph)	212	245		212	245		132	2915		170	3006	910
v/s Ratio Prot		0.01			0.01		0.04	c0.37		0.06	c0.32	
v/s Ratio Perm	0.02			c0.12								0.06
v/c Ratio	0.13	0.08		0.75	0.07		0.47	0.62		0.60	0.51	0.10
Uniform Delay, d1	32.2	31.9		35.9	31.9		39.6	11.6		39.0	9.8	7.1
Progression Factor	1.00	1.00		1.00	1.00		0.67	0.35		1.00	1.00	1.00
Incremental Delay, d2	0.2	0.1		12.6	0.1		0.7	0.5		4.3	0.6	0.2
Delay (s)	32.4	32.0		48.5	32.0		27.3	4.6		43.4	10.4	7.4
Level of Service	C	C		D	C		C	A		D	B	A
Approach Delay (s)		32.1			43.4			5.3			12.1	
Approach LOS		C			D			A			B	
Intersection Summary												
HCM 2000 Control Delay			11.2				HCM 2000 Level of Service			B		
HCM 2000 Volume to Capacity ratio			0.65									
Actuated Cycle Length (s)			90.0				Sum of lost time (s)			12.8		
Intersection Capacity Utilization			64.3%				ICU Level of Service			C		
Analysis Period (min)			15									
c Critical Lane Group												

The Cove
2: McLoughlin Blvd & I-205 SB Ramps

Background AM Peak Hour

7/27/2015

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	341	394	1427	259	546	1046
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	4.0	4.8	4.0	4.0	4.8
Lane Util. Factor	0.97	1.00	0.91	1.00	1.00	0.91
Frpb, ped/bikes	1.00	1.00	1.00	0.98	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	3155	1538	4940	1451	1752	4940
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3155	1538	4940	1451	1752	4940
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	375	433	1568	285	600	1149
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	375	433	1568	285	600	1149
Confl. Bikes (#/hr)				1		
Heavy Vehicles (%)	11%	5%	5%	9%	3%	5%
Turn Type	Prot	pm+ov	NA	Free	Prot	NA
Protected Phases	4	5	6		5	2
Permitted Phases		4		Free		
Actuated Green, G (s)	14.5	46.5	29.2	90.0	32.0	65.2
Effective Green, g (s)	14.5	46.5	29.2	90.0	32.0	65.2
Actuated g/C Ratio	0.16	0.52	0.32	1.00	0.36	0.72
Clearance Time (s)	5.5	4.0	4.8		4.0	4.8
Vehicle Extension (s)	2.3	2.3	4.8		2.3	4.8
Lane Grp Cap (vph)	508	862	1602	1451	622	3578
v/s Ratio Prot	c0.12	0.18	c0.32		c0.34	0.23
v/s Ratio Perm		0.10		0.20		
v/c Ratio	0.74	0.50	0.98	0.20	0.96	0.32
Uniform Delay, d1	35.9	14.2	30.1	0.0	28.4	4.5
Progression Factor	1.00	1.00	0.70	1.00	1.23	0.69
Incremental Delay, d2	5.1	0.3	17.3	0.3	25.0	0.2
Delay (s)	41.0	14.5	38.3	0.3	60.0	3.3
Level of Service	D	B	D	A	E	A
Approach Delay (s)	26.8		32.5			22.7
Approach LOS	C		C			C
Intersection Summary						
HCM 2000 Control Delay			27.6		HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio			0.93			
Actuated Cycle Length (s)			90.0		Sum of lost time (s)	14.3
Intersection Capacity Utilization			79.5%		ICU Level of Service	D
Analysis Period (min)			15			
c Critical Lane Group						

The Cove
3: McLoughlin Blvd/OR 99E & I-205 NB Ramps

Background AM Peak Hour

7/27/2015

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations			  			  
Volume (vph)	139	412	1167	798	201	1151
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	4.0	4.8	4.8	4.0	4.8
Lane Util. Factor	1.00	1.00	0.91	1.00	1.00	0.91
Frpb, ped/bikes	1.00	1.00	1.00	0.98	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1597	1495	4803	1478	1671	4893
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1597	1495	4803	1478	1671	4893
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	149	443	1255	858	216	1238
RTOR Reduction (vph)	0	0	0	322	0	0
Lane Group Flow (vph)	149	443	1255	536	216	1238
Confl. Bikes (#/hr)				1		
Heavy Vehicles (%)	13%	8%	8%	7%	8%	6%
Turn Type	Prot	Free	NA	Perm	Prot	NA
Protected Phases	4		6		5	2
Permitted Phases		Free		6		
Actuated Green, G (s)	13.0	90.0	49.2	49.2	13.5	66.7
Effective Green, g (s)	13.0	90.0	49.2	49.2	13.5	66.7
Actuated g/C Ratio	0.14	1.00	0.55	0.55	0.15	0.74
Clearance Time (s)	5.5		4.8	4.8	4.0	4.8
Vehicle Extension (s)	2.3		4.8	4.8	2.3	4.8
Lane Grp Cap (vph)	230	1495	2625	807	250	3626
v/s Ratio Prot	c0.09		0.26		c0.13	0.25
v/s Ratio Perm		0.30		c0.36		
v/c Ratio	0.65	0.30	0.48	0.66	0.86	0.34
Uniform Delay, d1	36.3	0.0	12.5	14.5	37.4	4.0
Progression Factor	1.00	1.00	1.00	1.00	0.70	0.73
Incremental Delay, d2	5.1	0.5	0.6	4.3	23.4	0.2
Delay (s)	41.5	0.5	13.1	18.8	49.5	3.2
Level of Service	D	A	B	B	D	A
Approach Delay (s)	10.8		15.4			10.1
Approach LOS	B		B			B
Intersection Summary						
HCM 2000 Control Delay			12.9		HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.70			
Actuated Cycle Length (s)			90.0		Sum of lost time (s)	14.3
Intersection Capacity Utilization			67.9%		ICU Level of Service	C
Analysis Period (min)			15			
c Critical Lane Group						

The Cove
4: OR 213 & Washington St/Clackamas River Dr

Background AM Peak Hour

7/27/2015

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations			 			 		  			  	
Volume (vph)	0	0	60	0	0	380	0	2290	134	0	1500	433
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)			4.0			4.0		6.0	6.0		6.0	6.0
Lane Util. Factor			0.88			0.88		0.91	1.00		0.91	1.00
Flt			0.85			0.85		1.00	0.85		1.00	0.85
Flt Protected			1.00			1.00		1.00	1.00		1.00	1.00
Satd. Flow (prot)			2632			2493		4893	1357		4893	1404
Flt Permitted			1.00			1.00		1.00	1.00		1.00	1.00
Satd. Flow (perm)			2632			2493		4893	1357		4893	1404
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	0	65	0	0	413	0	2489	146	0	1630	471
RTOR Reduction (vph)	0	0	56	0	0	63	0	0	36	0	0	105
Lane Group Flow (vph)	0	0	10	0	0	350	0	2489	110	0	1630	366
Heavy Vehicles (%)	0%	0%	8%	0%	0%	14%	0%	6%	19%	0%	6%	15%
Turn Type			Perm			Perm		NA	Perm		NA	Perm
Protected Phases								6			2	
Permitted Phases			1			5			6			2
Actuated Green, G (s)			19.0			21.9		98.1	98.1		101.0	101.0
Effective Green, g (s)			19.0			21.9		98.1	98.1		101.0	101.0
Actuated g/C Ratio			0.15			0.17		0.75	0.75		0.78	0.78
Clearance Time (s)			4.0			4.0		6.0	6.0		6.0	6.0
Vehicle Extension (s)			2.3			2.3		4.8	4.8		4.8	4.8
Lane Grp Cap (vph)			384			419		3692	1024		3801	1090
v/s Ratio Prot								c0.51			0.33	
v/s Ratio Perm			0.00			c0.14			0.08			0.26
v/c Ratio			0.02			0.83		0.67	0.11		0.43	0.34
Uniform Delay, d1			47.6			52.3		8.0	4.3		4.9	4.4
Progression Factor			1.00			1.00		1.25	1.75		1.00	1.00
Incremental Delay, d2			0.0			13.0		0.4	0.1		0.4	0.8
Delay (s)			47.6			65.3		10.4	7.6		5.2	5.2
Level of Service			D			E		B	A		A	A
Approach Delay (s)		47.6			65.3			10.3			5.2	
Approach LOS		D			E			B			A	
Intersection Summary												
HCM 2000 Control Delay			13.1			HCM 2000 Level of Service			B			
HCM 2000 Volume to Capacity ratio			0.70									
Actuated Cycle Length (s)			130.0			Sum of lost time (s)			10.0			
Intersection Capacity Utilization			65.9%			ICU Level of Service			C			
Analysis Period (min)			15									
c Critical Lane Group												

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	568	129	95	1957	1242	302
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.4	4.0	4.0	6.0	6.0	5.4
Lane Util. Factor	0.97	1.00	1.00	0.95	0.95	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	3273	1495	1703	3374	3406	1524
Flt Permitted	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (perm)	3273	1495	1703	3374	3406	1524
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	611	139	102	2104	1335	325
RTOR Reduction (vph)	0	29	0	0	0	79
Lane Group Flow (vph)	611	110	102	2104	1335	247
Heavy Vehicles (%)	7%	8%	6%	7%	6%	6%
Turn Type	Prot	pm+ov	Prot	NA	NA	pm+ov
Protected Phases	8	1	1	6	2	8
Permitted Phases		8				2
Actuated Green, G (s)	26.0	42.0	16.0	92.6	72.6	98.6
Effective Green, g (s)	26.0	42.0	16.0	92.6	72.6	98.6
Actuated g/C Ratio	0.20	0.32	0.12	0.71	0.56	0.76
Clearance Time (s)	5.4	4.0	4.0	6.0	6.0	5.4
Vehicle Extension (s)	2.3	2.3	2.3	4.8	4.8	2.3
Lane Grp Cap (vph)	654	529	209	2403	1902	1219
v/s Ratio Prot	c0.19	0.03	0.06	c0.62	0.39	0.04
v/s Ratio Perm		0.05				0.12
v/c Ratio	0.93	0.21	0.49	0.88	0.70	0.20
Uniform Delay, d1	51.2	31.9	53.2	14.3	20.8	4.5
Progression Factor	1.00	1.00	1.00	1.00	0.74	0.14
Incremental Delay, d2	20.4	0.1	1.0	4.9	2.0	0.0
Delay (s)	71.6	32.0	54.2	19.1	17.5	0.7
Level of Service	E	C	D	B	B	A
Approach Delay (s)	64.3			20.8	14.2	
Approach LOS	E			C	B	
Intersection Summary						
HCM 2000 Control Delay			25.5		HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio			0.92			
Actuated Cycle Length (s)			130.0		Sum of lost time (s)	15.4
Intersection Capacity Utilization			79.8%		ICU Level of Service	D
Analysis Period (min)			15			
c Critical Lane Group						

The Cove
1: McLoughlin Blvd & Dunes Dr

Background PM Peak Hour

7/27/2015

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	21	3	55	258	8	79	53	1174	146	142	1564	195
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.8		4.0	4.8	4.8
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.91		1.00	0.91	1.00
Frpb, ped/bikes	1.00	0.98		1.00	0.99		1.00	1.00		1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.86		1.00	0.86		1.00	0.98		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1712	1545		1780	1599		1770	4950		1787	5036	1562
Flt Permitted	0.69	1.00		0.72	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1240	1545		1345	1599		1770	4950		1787	5036	1562
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)	22	3	57	269	8	82	55	1223	152	148	1629	203
RTOR Reduction (vph)	0	43	0	0	62	0	0	12	0	0	0	26
Lane Group Flow (vph)	22	17	0	269	28	0	55	1363	0	148	1629	177
Confl. Peds. (#/hr)	6		6	6		6	1		2	2		1
Confl. Bikes (#/hr)												2
Heavy Vehicles (%)	5%	0%	4%	1%	12%	0%	2%	3%	1%	1%	3%	1%
Turn Type	Perm	NA		Perm	NA		Prot	NA		Prot	NA	Perm
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8			4								2
Actuated Green, G (s)	26.5	26.5		26.5	26.5		7.1	57.2		13.5	63.6	63.6
Effective Green, g (s)	26.5	26.5		26.5	26.5		7.1	57.2		13.5	63.6	63.6
Actuated g/C Ratio	0.24	0.24		0.24	0.24		0.06	0.52		0.12	0.58	0.58
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.8		4.0	4.8	4.8
Vehicle Extension (s)	2.5	2.5		2.5	2.5		2.3	4.8		2.3	4.8	4.8
Lane Grp Cap (vph)	298	372		324	385		114	2574		219	2911	903
v/s Ratio Prot		0.01			0.02		0.03	c0.28		c0.08	c0.32	
v/s Ratio Perm	0.02			c0.20								0.11
v/c Ratio	0.07	0.04		0.83	0.07		0.48	0.53		0.68	0.56	0.20
Uniform Delay, d1	32.3	32.0		39.6	32.3		49.7	17.5		46.2	14.5	11.0
Progression Factor	1.00	1.00		1.00	1.00		0.47	0.39		1.00	1.00	1.00
Incremental Delay, d2	0.1	0.0		16.0	0.1		0.6	0.2		6.9	0.8	0.5
Delay (s)	32.3	32.1		55.7	32.3		23.8	7.0		53.1	15.2	11.5
Level of Service	C	C		E	C		C	A		D	B	B
Approach Delay (s)		32.1			49.8			7.7			17.7	
Approach LOS		C			D			A			B	
Intersection Summary												
HCM 2000 Control Delay			17.3				HCM 2000 Level of Service			B		
HCM 2000 Volume to Capacity ratio			0.65									
Actuated Cycle Length (s)			110.0				Sum of lost time (s)			12.8		
Intersection Capacity Utilization			68.3%				ICU Level of Service			C		
Analysis Period (min)			15									

c Critical Lane Group

The Cove
2: McLoughlin Blvd & I-205 SB Ramps

Background PM Peak Hour
7/27/2015

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	 		  			  
Volume (vph)	812	314	1174	224	507	1386
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	4.0	4.8	4.0	4.0	4.8
Lane Util. Factor	0.97	1.00	0.91	1.00	1.00	0.91
Frpb, ped/bikes	1.00	1.00	1.00	0.98	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	3400	1583	5085	1518	1770	5085
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3400	1583	5085	1518	1770	5085
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	837	324	1210	231	523	1429
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	837	324	1210	231	523	1429
Confl. Peds. (#/hr)				4	4	
Confl. Bikes (#/hr)				1		
Heavy Vehicles (%)	3%	2%	2%	4%	2%	2%
Turn Type	Prot	pm+ov	NA	Free	Prot	NA
Protected Phases	4	5	6		5	2
Permitted Phases		4		Free		
Actuated Green, G (s)	30.9	72.9	22.8	110.0	42.0	68.8
Effective Green, g (s)	30.9	72.9	22.8	110.0	42.0	68.8
Actuated g/C Ratio	0.28	0.66	0.21	1.00	0.38	0.63
Clearance Time (s)	5.5	4.0	4.8		4.0	4.8
Vehicle Extension (s)	2.3	2.3	4.8		2.3	4.8
Lane Grp Cap (vph)	955	1106	1053	1518	675	3180
v/s Ratio Prot	c0.25	0.11	c0.24		c0.30	0.28
v/s Ratio Perm		0.09		0.15		
v/c Ratio	0.88	0.29	1.15	0.15	0.77	0.45
Uniform Delay, d1	37.7	7.8	43.6	0.0	29.8	10.7
Progression Factor	1.00	1.00	0.73	1.00	1.26	1.29
Incremental Delay, d2	9.0	0.1	77.8	0.2	4.4	0.4
Delay (s)	46.7	7.8	109.6	0.2	42.1	14.3
Level of Service	D	A	F	A	D	B
Approach Delay (s)	35.8		92.1			21.7
Approach LOS	D		F			C
Intersection Summary						
HCM 2000 Control Delay			47.6		HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio			0.90			
Actuated Cycle Length (s)			110.0		Sum of lost time (s)	14.3
Intersection Capacity Utilization			94.0%		ICU Level of Service	F
Analysis Period (min)			15			

c Critical Lane Group

The Cove
3: McLoughlin Blvd/OR 99E & I-205 NB Ramps

Background PM Peak Hour

7/27/2015

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	121	456	1012	805	322	1825
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	4.0	4.8	4.8	4.0	4.8
Lane Util. Factor	1.00	1.00	0.91	1.00	1.00	0.91
Frpb, ped/bikes	1.00	1.00	1.00	0.95	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	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1656	1583	4988	1482	1752	5036
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1656	1583	4988	1482	1752	5036
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	126	475	1054	839	335	1901
RTOR Reduction (vph)	0	0	0	262	0	0
Lane Group Flow (vph)	126	475	1054	577	335	1901
Confl. Peds. (#/hr)				11	11	
Heavy Vehicles (%)	9%	2%	4%	4%	3%	3%
Turn Type	Prot	Free	NA	Perm	Prot	NA
Protected Phases	4		6		5	2
Permitted Phases		Free		6		
Actuated Green, G (s)	13.0	110.0	56.6	56.6	26.1	86.7
Effective Green, g (s)	13.0	110.0	56.6	56.6	26.1	86.7
Actuated g/C Ratio	0.12	1.00	0.51	0.51	0.24	0.79
Clearance Time (s)	5.5		4.8	4.8	4.0	4.8
Vehicle Extension (s)	2.3		4.8	4.8	2.3	4.8
Lane Grp Cap (vph)	195	1583	2566	762	415	3969
v/s Ratio Prot	c0.08		0.21		c0.19	0.38
v/s Ratio Perm		0.30		c0.39		
v/c Ratio	0.65	0.30	0.41	0.76	0.81	0.48
Uniform Delay, d1	46.3	0.0	16.4	21.2	39.6	4.0
Progression Factor	1.00	1.00	1.00	1.00	0.61	0.63
Incremental Delay, d2	6.0	0.5	0.5	6.9	8.9	0.3
Delay (s)	52.3	0.5	16.9	28.2	33.1	2.9
Level of Service	D	A	B	C	C	A
Approach Delay (s)	11.3		21.9			7.4
Approach LOS	B		C			A
Intersection Summary						
HCM 2000 Control Delay			13.7		HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.76			
Actuated Cycle Length (s)			110.0		Sum of lost time (s)	14.3
Intersection Capacity Utilization			76.1%		ICU Level of Service	D
Analysis Period (min)			15			
c Critical Lane Group						

The Cove
4: OR 213 & Redland Rd

Background PM Peak Hour

7/27/2015

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	188	0	0	419	0	1707	186	0	2822	472
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)			4.0			4.0		6.0	6.0		6.0	6.0
Lane Util. Factor			0.88			0.88		0.91	1.00		0.91	1.00
Frpb, ped/bikes			1.00			1.00		1.00	0.98		1.00	0.98
Flpb, ped/bikes			1.00			1.00		1.00	1.00		1.00	1.00
Frt			0.85			0.85		1.00	0.85		1.00	0.85
Flt Protected			1.00			1.00		1.00	1.00		1.00	1.00
Satd. Flow (prot)			2814			2842		5036	1582		4988	1521
Flt Permitted			1.00			1.00		1.00	1.00		1.00	1.00
Satd. Flow (perm)			2814			2842		5036	1582		4988	1521
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	0	0	196	0	0	436	0	1778	194	0	2940	492
RTOR Reduction (vph)	0	0	54	0	0	63	0	0	47	0	0	81
Lane Group Flow (vph)	0	0	142	0	0	373	0	1778	147	0	2940	411
Confl. Bikes (#/hr)									1			1
Heavy Vehicles (%)	3%	0%	1%	0%	0%	0%	4%	3%	0%	0%	4%	4%
Turn Type			Perm			Perm		NA	Perm		NA	Perm
Protected Phases								6			2	
Permitted Phases			1			5			6			2
Actuated Green, G (s)			11.4			21.7		98.3	98.3		108.6	108.6
Effective Green, g (s)			11.4			21.7		98.3	98.3		108.6	108.6
Actuated g/C Ratio			0.09			0.17		0.76	0.76		0.84	0.84
Clearance Time (s)			4.0			4.0		6.0	6.0		6.0	6.0
Vehicle Extension (s)			2.3			2.3		4.8	4.8		4.8	4.8
Lane Grp Cap (vph)			246			474		3807	1196		4166	1270
v/s Ratio Prot								0.35			c0.59	
v/s Ratio Perm			c0.05			c0.13			0.09			0.27
v/c Ratio			0.58			0.79		0.47	0.12		0.71	0.32
Uniform Delay, d1			57.0			51.9		6.0	4.3		4.3	2.4
Progression Factor			1.00			1.00		1.45	3.37		1.00	1.00
Incremental Delay, d2			2.4			8.0		0.3	0.2		1.0	0.7
Delay (s)			59.4			59.9		9.0	14.5		5.3	3.1
Level of Service			E			E		A	B		A	A
Approach Delay (s)		59.4			59.9			9.5			5.0	
Approach LOS		E			E			A			A	
Intersection Summary												
HCM 2000 Control Delay			12.2			HCM 2000 Level of Service			B			
HCM 2000 Volume to Capacity ratio			0.70									
Actuated Cycle Length (s)			130.0			Sum of lost time (s)			10.0			
Intersection Capacity Utilization			69.4%			ICU Level of Service			C			
Analysis Period (min)			15									
c Critical Lane Group												

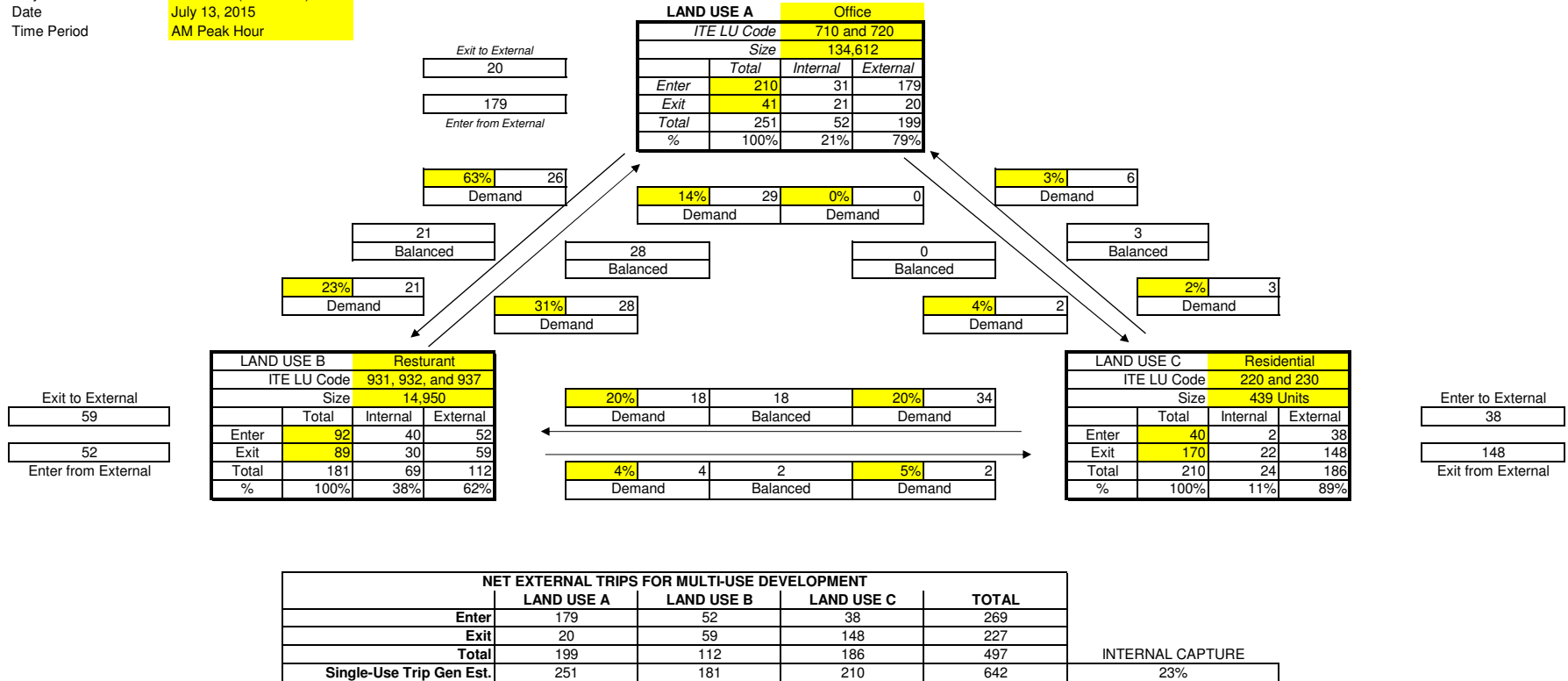
						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	385	144	72	1517	2303	667
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.4	4.0	4.0	6.0	6.0	5.4
Lane Util. Factor	0.97	1.00	1.00	0.95	0.95	1.00
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	3400	1599	1736	3505	3471	1527
Flt Permitted	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (perm)	3400	1599	1736	3505	3471	1527
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	401	150	75	1580	2399	695
RTOR Reduction (vph)	0	4	0	0	0	120
Lane Group Flow (vph)	401	146	75	1580	2399	575
Confl. Bikes (#/hr)						1
Heavy Vehicles (%)	3%	1%	4%	3%	4%	4%
Turn Type	Prot	pm+ov	Prot	NA	NA	pm+ov
Protected Phases	8	1	1	6	2	8
Permitted Phases		8				2
Actuated Green, G (s)	17.9	33.9	16.0	100.7	80.7	98.6
Effective Green, g (s)	17.9	33.9	16.0	100.7	80.7	98.6
Actuated g/C Ratio	0.14	0.26	0.12	0.77	0.62	0.76
Clearance Time (s)	5.4	4.0	4.0	6.0	6.0	5.4
Vehicle Extension (s)	2.3	2.3	2.3	4.8	4.8	2.3
Lane Grp Cap (vph)	468	466	213	2715	2154	1221
v/s Ratio Prot	c0.12	0.04	0.04	c0.45	c0.69	0.06
v/s Ratio Perm		0.05				0.31
v/c Ratio	0.86	0.31	0.35	0.58	1.11	0.47
Uniform Delay, d1	54.8	38.7	52.2	6.0	24.6	5.9
Progression Factor	1.00	1.00	1.00	1.00	1.47	4.31
Incremental Delay, d2	14.0	0.2	0.6	0.9	56.5	0.1
Delay (s)	68.8	38.9	52.8	6.9	92.7	25.5
Level of Service	E	D	D	A	F	C
Approach Delay (s)	60.7			9.0	77.6	
Approach LOS	E			A	E	
Intersection Summary						
HCM 2000 Control Delay			54.4		HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio			1.00			
Actuated Cycle Length (s)			130.0		Sum of lost time (s)	15.4
Intersection Capacity Utilization			84.1%		ICU Level of Service	E
Analysis Period (min)			15			
c Critical Lane Group						

Appendix F
ITE Internalization
Worksheets

Analyst
Project
Date
Time Period

PSM
The Cove (PN 18574)
July 13, 2015
AM Peak Hour

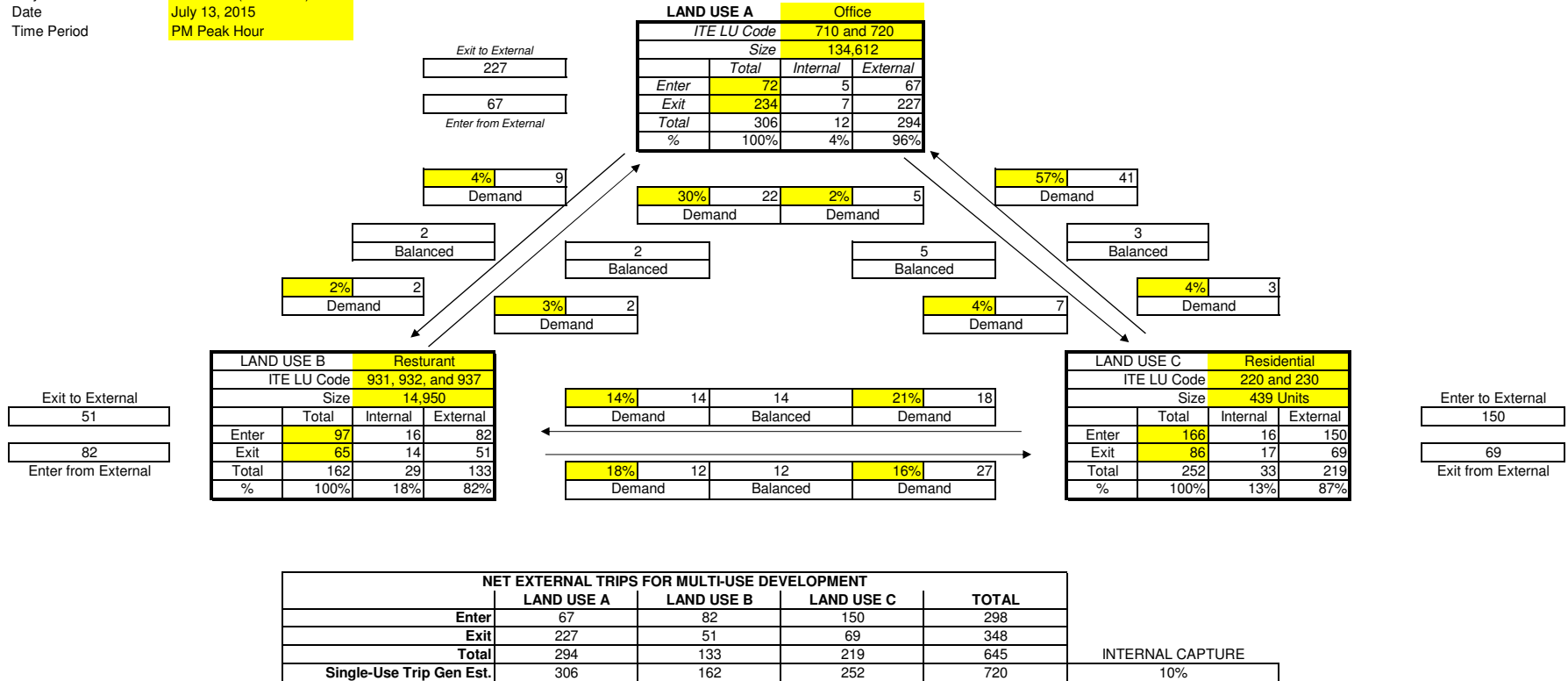
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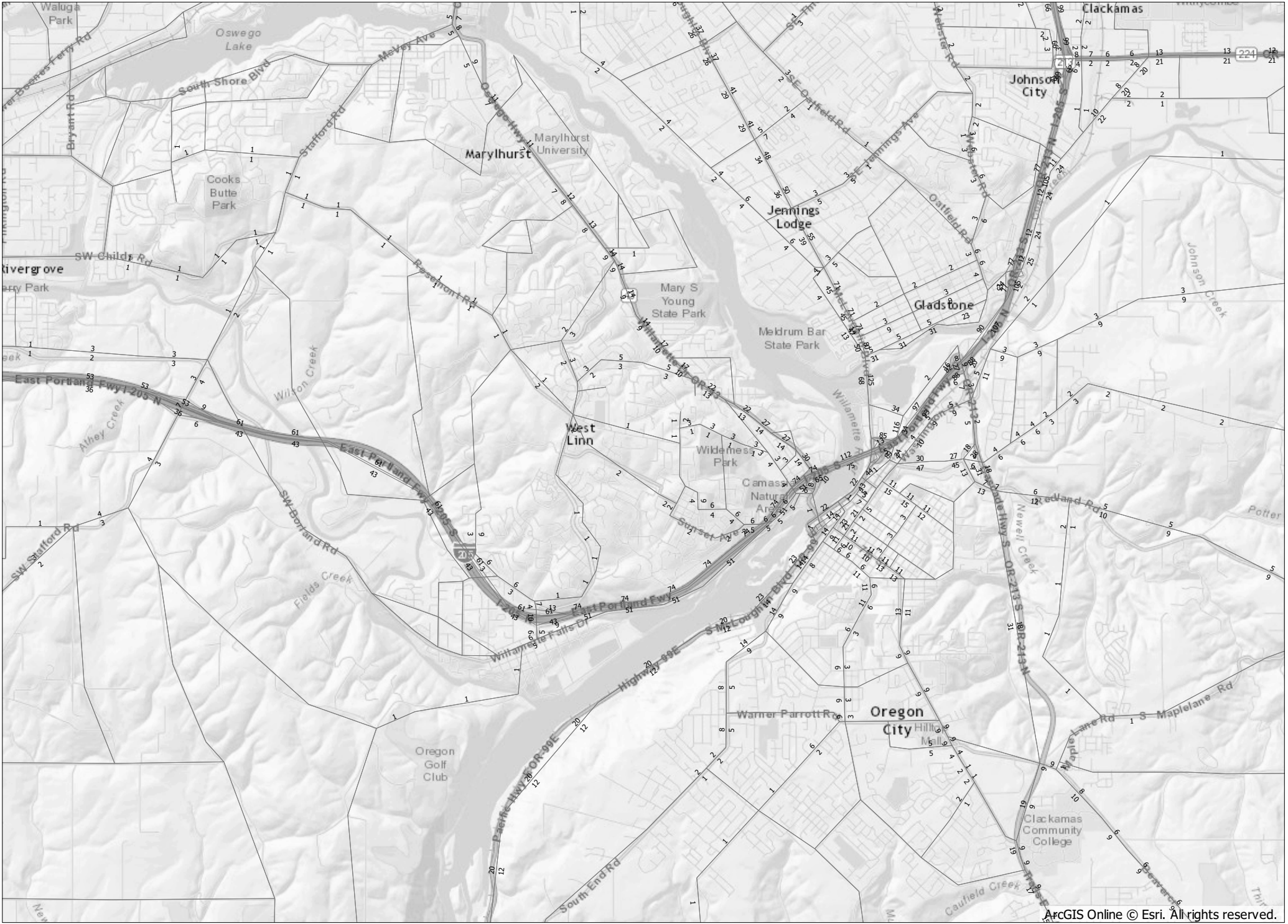
Analyst
Project
Date
Time Period

PSM
The Cove (PN 18574)
July 13, 2015
PM Peak Hour

NOT VALIDATED, USE WITH CAUTION



Appendix G
Metro Model Select Zone
Analysis Output (2010)



Appendix H
Year 2017 Total Traffic
Level-of-Service
Worksheets

The Cove
1: McLoughlin Blvd & Dunes Dr

Total Traffic AM Peak Hour
7/27/2015

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	25	7	66	142	6	57	56	1678	69	92	1388	167
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.8		4.0	4.8	4.8
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.91		1.00	0.91	1.00
Frpb, ped/bikes	1.00	0.99		1.00	0.99		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	0.86		1.00	0.86		1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1733	1502		1751	1501		1656	4870		1787	4893	1482
Flt Permitted	0.71	1.00		0.70	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1298	1502		1298	1501		1656	4870		1787	4893	1482
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	28	8	73	158	7	63	62	1864	77	102	1542	186
RTOR Reduction (vph)	0	61	0	0	53	0	0	4	0	0	0	34
Lane Group Flow (vph)	28	20	0	158	17	0	62	1937	0	102	1542	152
Confl. Peds. (#/hr)	3		2	2		3						
Heavy Vehicles (%)	4%	0%	9%	3%	0%	9%	9%	6%	3%	1%	6%	9%
Turn Type	Perm	NA		Perm	NA		Prot	NA		Prot	NA	Perm
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8			4								2
Actuated Green, G (s)	14.4	14.4		14.4	14.4		7.5	54.2		8.6	55.3	55.3
Effective Green, g (s)	14.4	14.4		14.4	14.4		7.5	54.2		8.6	55.3	55.3
Actuated g/C Ratio	0.16	0.16		0.16	0.16		0.08	0.60		0.10	0.61	0.61
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.8		4.0	4.8	4.8
Vehicle Extension (s)	2.5	2.5		2.5	2.5		2.3	4.8		2.3	4.8	4.8
Lane Grp Cap (vph)	207	240		207	240		138	2932		170	3006	910
v/s Ratio Prot		0.01			0.01		0.04	c0.40		0.06	c0.32	
v/s Ratio Perm	0.02			c0.12								0.10
v/c Ratio	0.14	0.08		0.76	0.07		0.45	0.66		0.60	0.51	0.17
Uniform Delay, d1	32.5	32.2		36.2	32.1		39.3	11.8		39.0	9.8	7.5
Progression Factor	1.00	1.00		1.00	1.00		0.68	0.37		1.00	1.00	1.00
Incremental Delay, d2	0.2	0.1		14.7	0.1		0.5	0.5		4.3	0.6	0.4
Delay (s)	32.7	32.3		50.9	32.2		27.0	4.8		43.4	10.4	7.9
Level of Service	C	C		D	C		C	A		D	B	A
Approach Delay (s)		32.4			45.1			5.5			12.0	
Approach LOS		C			D			A			B	
Intersection Summary												
HCM 2000 Control Delay			11.2			HCM 2000 Level of Service			B			
HCM 2000 Volume to Capacity ratio			0.67									
Actuated Cycle Length (s)			90.0			Sum of lost time (s)			12.8			
Intersection Capacity Utilization			66.4%			ICU Level of Service			C			
Analysis Period (min)			15									
c Critical Lane Group												

The Cove
2: McLoughlin Blvd & I-205 SB Ramps

Total Traffic AM Peak Hour
7/27/2015

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	341	424	1502	304	546	1046
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	4.0	4.8	4.0	4.0	4.8
Lane Util. Factor	0.97	1.00	0.91	1.00	1.00	0.91
Frpb, ped/bikes	1.00	1.00	1.00	0.98	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	3155	1538	4940	1451	1752	4940
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3155	1538	4940	1451	1752	4940
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	375	466	1651	334	600	1149
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	375	466	1651	334	600	1149
Confl. Bikes (#/hr)				1		
Heavy Vehicles (%)	11%	5%	5%	9%	3%	5%
Turn Type	Prot	pm+ov	NA	Free	Prot	NA
Protected Phases	4	5	6		5	2
Permitted Phases		4		Free		
Actuated Green, G (s)	14.5	46.5	29.2	90.0	32.0	65.2
Effective Green, g (s)	14.5	46.5	29.2	90.0	32.0	65.2
Actuated g/C Ratio	0.16	0.52	0.32	1.00	0.36	0.72
Clearance Time (s)	5.5	4.0	4.8		4.0	4.8
Vehicle Extension (s)	2.3	2.3	4.8		2.3	4.8
Lane Grp Cap (vph)	508	862	1602	1451	622	3578
v/s Ratio Prot	c0.12	0.19	c0.33		c0.34	0.23
v/s Ratio Perm		0.11		0.23		
v/c Ratio	0.74	0.54	1.03	0.23	0.96	0.32
Uniform Delay, d1	35.9	14.6	30.4	0.0	28.4	4.5
Progression Factor	1.00	1.00	0.70	1.00	1.23	0.69
Incremental Delay, d2	5.1	0.5	29.9	0.3	25.0	0.2
Delay (s)	41.0	15.1	51.2	0.3	60.0	3.3
Level of Service	D	B	D	A	E	A
Approach Delay (s)	26.6		42.6			22.7
Approach LOS	C		D			C
Intersection Summary						
HCM 2000 Control Delay			32.1		HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio			0.95			
Actuated Cycle Length (s)			90.0		Sum of lost time (s)	14.3
Intersection Capacity Utilization			80.9%		ICU Level of Service	D
Analysis Period (min)			15			
c Critical Lane Group						

The Cove
3: McLoughlin Blvd/OR 99E & I-205 NB Ramps

Total Traffic AM Peak Hour
7/27/2015

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations			  			  
Volume (vph)	139	465	1234	849	201	1151
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	4.0	4.8	4.8	4.0	4.8
Lane Util. Factor	1.00	1.00	0.91	1.00	1.00	0.91
Frpb, ped/bikes	1.00	1.00	1.00	0.98	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1597	1495	4803	1478	1671	4893
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1597	1495	4803	1478	1671	4893
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	149	500	1327	913	216	1238
RTOR Reduction (vph)	0	0	0	322	0	0
Lane Group Flow (vph)	149	500	1327	591	216	1238
Confl. Bikes (#/hr)				1		
Heavy Vehicles (%)	13%	8%	8%	7%	8%	6%
Turn Type	Prot	Free	NA	Perm	Prot	NA
Protected Phases	4		6		5	2
Permitted Phases		Free		6		
Actuated Green, G (s)	13.0	90.0	49.2	49.2	13.5	66.7
Effective Green, g (s)	13.0	90.0	49.2	49.2	13.5	66.7
Actuated g/C Ratio	0.14	1.00	0.55	0.55	0.15	0.74
Clearance Time (s)	5.5		4.8	4.8	4.0	4.8
Vehicle Extension (s)	2.3		4.8	4.8	2.3	4.8
Lane Grp Cap (vph)	230	1495	2625	807	250	3626
v/s Ratio Prot	c0.09		0.28		c0.13	0.25
v/s Ratio Perm		0.33		c0.40		
v/c Ratio	0.65	0.33	0.51	0.73	0.86	0.34
Uniform Delay, d1	36.3	0.0	12.8	15.4	37.4	4.0
Progression Factor	1.00	1.00	1.00	1.00	0.70	0.73
Incremental Delay, d2	5.1	0.6	0.7	5.8	23.4	0.2
Delay (s)	41.5	0.6	13.5	21.3	49.5	3.2
Level of Service	D	A	B	C	D	A
Approach Delay (s)	10.0		16.6			10.1
Approach LOS	A		B			B
Intersection Summary						
HCM 2000 Control Delay			13.4		HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.74			
Actuated Cycle Length (s)			90.0		Sum of lost time (s)	14.3
Intersection Capacity Utilization			71.0%		ICU Level of Service	C
Analysis Period (min)			15			
c Critical Lane Group						

The Cove
4: OR 213 & Washington St/Clackamas River Dr

Total Traffic AM Peak Hour

7/27/2015

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	60	0	0	380	0	2316	134	0	1500	433
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)			4.0			4.0		6.0	6.0		6.0	6.0
Lane Util. Factor			0.88			0.88		0.91	1.00		0.91	1.00
Frt			0.85			0.85		1.00	0.85		1.00	0.85
Flt Protected			1.00			1.00		1.00	1.00		1.00	1.00
Satd. Flow (prot)			2632			2493		4893	1357		4893	1404
Flt Permitted			1.00			1.00		1.00	1.00		1.00	1.00
Satd. Flow (perm)			2632			2493		4893	1357		4893	1404
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	0	65	0	0	413	0	2517	146	0	1630	471
RTOR Reduction (vph)	0	0	55	0	0	63	0	0	36	0	0	107
Lane Group Flow (vph)	0	0	10	0	0	350	0	2517	110	0	1630	364
Heavy Vehicles (%)	0%	0%	8%	0%	0%	14%	0%	6%	19%	0%	6%	15%
Turn Type			Perm			Perm		NA	Perm		NA	Perm
Protected Phases								6			2	
Permitted Phases			1			5			6			2
Actuated Green, G (s)			19.4			21.9		98.1	98.1		100.6	100.6
Effective Green, g (s)			19.4			21.9		98.1	98.1		100.6	100.6
Actuated g/C Ratio			0.15			0.17		0.75	0.75		0.77	0.77
Clearance Time (s)			4.0			4.0		6.0	6.0		6.0	6.0
Vehicle Extension (s)			2.3			2.3		4.8	4.8		4.8	4.8
Lane Grp Cap (vph)			392			419		3692	1024		3786	1086
v/s Ratio Prot								c0.51			0.33	
v/s Ratio Perm			0.00			c0.14			0.08			0.26
v/c Ratio			0.02			0.83		0.68	0.11		0.43	0.34
Uniform Delay, d1			47.2			52.3		8.1	4.3		5.0	4.5
Progression Factor			1.00			1.00		1.24	1.71		1.00	1.00
Incremental Delay, d2			0.0			13.0		0.4	0.1		0.4	0.8
Delay (s)			47.2			65.3		10.5	7.4		5.3	5.3
Level of Service			D			E		B	A		A	A
Approach Delay (s)		47.2			65.3			10.3			5.3	
Approach LOS		D			E			B			A	
Intersection Summary												
HCM 2000 Control Delay			13.1			HCM 2000 Level of Service			B			
HCM 2000 Volume to Capacity ratio			0.71									
Actuated Cycle Length (s)			130.0			Sum of lost time (s)			10.0			
Intersection Capacity Utilization			66.4%			ICU Level of Service			C			
Analysis Period (min)			15									
c Critical Lane Group												

The Cove
5: OR 213 & Redland Rd

Total Traffic AM Peak Hour
7/27/2015

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	 	 	 	 	 	 
Volume (vph)	579	142	95	1972	1242	302
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.4	4.0	4.0	6.0	6.0	5.4
Lane Util. Factor	0.97	1.00	1.00	0.95	0.95	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	3273	1495	1703	3374	3406	1524
Flt Permitted	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (perm)	3273	1495	1703	3374	3406	1524
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	623	153	102	2120	1335	325
RTOR Reduction (vph)	0	29	0	0	0	79
Lane Group Flow (vph)	623	124	102	2120	1335	247
Heavy Vehicles (%)	7%	8%	6%	7%	6%	6%
Turn Type	Prot	pm+ov	Prot	NA	NA	pm+ov
Protected Phases	8	1	1	6	2	8
Permitted Phases		8				2
Actuated Green, G (s)	26.2	42.2	16.0	92.4	72.4	98.6
Effective Green, g (s)	26.2	42.2	16.0	92.4	72.4	98.6
Actuated g/C Ratio	0.20	0.32	0.12	0.71	0.56	0.76
Clearance Time (s)	5.4	4.0	4.0	6.0	6.0	5.4
Vehicle Extension (s)	2.3	2.3	2.3	4.8	4.8	2.3
Lane Grp Cap (vph)	659	531	209	2398	1896	1219
v/s Ratio Prot	c0.19	0.03	0.06	c0.63	0.39	0.04
v/s Ratio Perm		0.05				0.12
v/c Ratio	0.95	0.23	0.49	0.88	0.70	0.20
Uniform Delay, d1	51.2	32.1	53.2	14.6	21.0	4.5
Progression Factor	1.00	1.00	1.00	1.00	0.74	0.14
Incremental Delay, d2	22.3	0.1	1.0	5.2	2.1	0.0
Delay (s)	73.5	32.2	54.2	19.8	17.5	0.7
Level of Service	E	C	D	B	B	A
Approach Delay (s)	65.3			21.4	14.2	
Approach LOS	E			C	B	
Intersection Summary						
HCM 2000 Control Delay			26.2		HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio			0.93			
Actuated Cycle Length (s)			130.0		Sum of lost time (s)	15.4
Intersection Capacity Utilization			80.5%		ICU Level of Service	D
Analysis Period (min)			15			
c Critical Lane Group						

The Cove
1: McLoughlin Blvd & Dunes Dr

Total Traffic PM Peak Hour
7/27/2015

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations								  			  	
Volume (vph)	21	3	55	258	8	79	53	1307	146	142	1564	271
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.8		4.0	4.8	4.8
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.91		1.00	0.91	1.00
Frpb, ped/bikes	1.00	0.98		1.00	0.99		1.00	1.00		1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.86		1.00	0.86		1.00	0.98		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1712	1545		1780	1599		1770	4958		1787	5036	1562
Flt Permitted	0.69	1.00		0.72	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1240	1545		1345	1599		1770	4958		1787	5036	1562
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)	22	3	57	269	8	82	55	1361	152	148	1629	282
RTOR Reduction (vph)	0	43	0	0	62	0	0	10	0	0	0	37
Lane Group Flow (vph)	22	17	0	269	28	0	55	1503	0	148	1629	245
Confl. Peds. (#/hr)	6		6	6		6	1		2	2		1
Confl. Bikes (#/hr)												2
Heavy Vehicles (%)	5%	0%	4%	1%	12%	0%	2%	3%	1%	1%	3%	1%
Turn Type	Perm	NA		Perm	NA		Prot	NA		Prot	NA	Perm
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8			4								2
Actuated Green, G (s)	26.3	26.3		26.3	26.3		7.3	57.4		13.5	63.6	63.6
Effective Green, g (s)	26.3	26.3		26.3	26.3		7.3	57.4		13.5	63.6	63.6
Actuated g/C Ratio	0.24	0.24		0.24	0.24		0.07	0.52		0.12	0.58	0.58
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.8		4.0	4.8	4.8
Vehicle Extension (s)	2.5	2.5		2.5	2.5		2.3	4.8		2.3	4.8	4.8
Lane Grp Cap (vph)	296	369		321	382		117	2587		219	2911	903
v/s Ratio Prot		0.01			0.02		0.03	c0.30		c0.08	0.32	
v/s Ratio Perm	0.02			c0.20								0.16
v/c Ratio	0.07	0.05		0.84	0.07		0.47	0.58		0.68	0.56	0.27
Uniform Delay, d1	32.4	32.2		39.8	32.4		49.5	18.0		46.2	14.5	11.6
Progression Factor	1.00	1.00		1.00	1.00		0.48	0.49		1.00	1.00	1.00
Incremental Delay, d2	0.1	0.0		16.8	0.1		0.2	0.1		6.9	0.8	0.7
Delay (s)	32.5	32.2		56.7	32.5		24.0	8.9		53.1	15.2	12.4
Level of Service	C	C		E	C		C	A		D	B	B
Approach Delay (s)		32.3			50.6			9.5			17.6	
Approach LOS		C			D			A			B	
Intersection Summary												
HCM 2000 Control Delay			17.7			HCM 2000 Level of Service				B		
HCM 2000 Volume to Capacity ratio			0.66									
Actuated Cycle Length (s)			110.0			Sum of lost time (s)			12.8			
Intersection Capacity Utilization			70.9%			ICU Level of Service			C			
Analysis Period (min)			15									
c Critical Lane Group												

The Cove
2: McLoughlin Blvd & I-205 SB Ramps

Total Traffic PM Peak Hour
7/27/2015

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	812	352	1269	303	507	1386
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	4.0	4.8	4.0	4.0	4.8
Lane Util. Factor	0.97	1.00	0.91	1.00	1.00	0.91
Frpb, ped/bikes	1.00	1.00	1.00	0.98	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	3400	1583	5085	1518	1770	5085
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3400	1583	5085	1518	1770	5085
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	837	363	1308	312	523	1429
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	837	363	1308	312	523	1429
Confl. Peds. (#/hr)				4	4	
Confl. Bikes (#/hr)				1		
Heavy Vehicles (%)	3%	2%	2%	4%	2%	2%
Turn Type	Prot	pm+ov	NA	Free	Prot	NA
Protected Phases	4	5	6		5	2
Permitted Phases		4		Free		
Actuated Green, G (s)	30.9	72.9	22.8	110.0	42.0	68.8
Effective Green, g (s)	30.9	72.9	22.8	110.0	42.0	68.8
Actuated g/C Ratio	0.28	0.66	0.21	1.00	0.38	0.63
Clearance Time (s)	5.5	4.0	4.8		4.0	4.8
Vehicle Extension (s)	2.3	2.3	4.8		2.3	4.8
Lane Grp Cap (vph)	955	1106	1053	1518	675	3180
v/s Ratio Prot	c0.25	0.13	c0.26		c0.30	0.28
v/s Ratio Perm		0.10		0.21		
v/c Ratio	0.88	0.33	1.24	0.21	0.77	0.45
Uniform Delay, d1	37.7	8.0	43.6	0.0	29.8	10.7
Progression Factor	1.00	1.00	0.73	1.00	1.27	1.30
Incremental Delay, d2	9.0	0.1	116.6	0.3	4.4	0.4
Delay (s)	46.7	8.1	148.2	0.3	42.2	14.3
Level of Service	D	A	F	A	D	B
Approach Delay (s)	35.0		119.8			21.8
Approach LOS	D		F			C
Intersection Summary						
HCM 2000 Control Delay			58.4		HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio			0.92			
Actuated Cycle Length (s)			110.0		Sum of lost time (s)	14.3
Intersection Capacity Utilization			94.0%		ICU Level of Service	F
Analysis Period (min)			15			

c Critical Lane Group

The Cove
3: McLoughlin Blvd/OR 99E & I-205 NB Ramps

Total Traffic PM Peak Hour

7/27/2015

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations			  			  
Volume (vph)	121	523	1119	894	322	1825
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	4.0	4.8	4.8	4.0	4.8
Lane Util. Factor	1.00	1.00	0.91	1.00	1.00	0.91
Frpb, ped/bikes	1.00	1.00	1.00	0.95	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	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1656	1583	4988	1482	1752	5036
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1656	1583	4988	1482	1752	5036
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	126	545	1166	931	335	1901
RTOR Reduction (vph)	0	0	0	262	0	0
Lane Group Flow (vph)	126	545	1166	669	335	1901
Confl. Peds. (#/hr)				11	11	
Heavy Vehicles (%)	9%	2%	4%	4%	3%	3%
Turn Type	Prot	Free	NA	Perm	Prot	NA
Protected Phases	4		6		5	2
Permitted Phases		Free		6		
Actuated Green, G (s)	13.0	110.0	56.6	56.6	26.1	86.7
Effective Green, g (s)	13.0	110.0	56.6	56.6	26.1	86.7
Actuated g/C Ratio	0.12	1.00	0.51	0.51	0.24	0.79
Clearance Time (s)	5.5		4.8	4.8	4.0	4.8
Vehicle Extension (s)	2.3		4.8	4.8	2.3	4.8
Lane Grp Cap (vph)	195	1583	2566	762	415	3969
v/s Ratio Prot	c0.08		0.23		c0.19	0.38
v/s Ratio Perm		0.34		c0.45		
v/c Ratio	0.65	0.34	0.45	0.88	0.81	0.48
Uniform Delay, d1	46.3	0.0	16.9	23.7	39.6	4.0
Progression Factor	1.00	1.00	1.00	1.00	0.61	0.64
Incremental Delay, d2	6.0	0.6	0.6	13.7	8.9	0.3
Delay (s)	52.3	0.6	17.5	37.3	33.1	2.9
Level of Service	D	A	B	D	C	A
Approach Delay (s)	10.3		26.3			7.4
Approach LOS	B		C			A
Intersection Summary						
HCM 2000 Control Delay			15.7		HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.83			
Actuated Cycle Length (s)			110.0		Sum of lost time (s)	14.3
Intersection Capacity Utilization			81.7%		ICU Level of Service	D
Analysis Period (min)			15			
c Critical Lane Group						

The Cove
4: OR 213 & Redland Rd

Total Traffic PM Peak Hour

7/27/2015

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	188	0	0	419	0	1741	186	0	2822	472
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)			4.0			4.0		6.0	6.0		6.0	6.0
Lane Util. Factor			0.88			0.88		0.91	1.00		0.91	1.00
Frpb, ped/bikes			1.00			1.00		1.00	0.98		1.00	0.98
Flpb, ped/bikes			1.00			1.00		1.00	1.00		1.00	1.00
Frt			0.85			0.85		1.00	0.85		1.00	0.85
Flt Protected			1.00			1.00		1.00	1.00		1.00	1.00
Satd. Flow (prot)			2814			2842		5036	1582		4988	1521
Flt Permitted			1.00			1.00		1.00	1.00		1.00	1.00
Satd. Flow (perm)			2814			2842		5036	1582		4988	1521
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	0	0	196	0	0	436	0	1814	194	0	2940	492
RTOR Reduction (vph)	0	0	53	0	0	63	0	0	47	0	0	84
Lane Group Flow (vph)	0	0	143	0	0	373	0	1814	147	0	2940	408
Confl. Bikes (#/hr)									1			1
Heavy Vehicles (%)	3%	0%	1%	0%	0%	0%	4%	3%	0%	0%	4%	4%
Turn Type			Perm			Perm		NA	Perm		NA	Perm
Protected Phases								6			2	
Permitted Phases			1			5			6			2
Actuated Green, G (s)			12.2			21.7		98.3	98.3		107.8	107.8
Effective Green, g (s)			12.2			21.7		98.3	98.3		107.8	107.8
Actuated g/C Ratio			0.09			0.17		0.76	0.76		0.83	0.83
Clearance Time (s)			4.0			4.0		6.0	6.0		6.0	6.0
Vehicle Extension (s)			2.3			2.3		4.8	4.8		4.8	4.8
Lane Grp Cap (vph)			264			474		3807	1196		4136	1261
v/s Ratio Prot								0.36			c0.59	
v/s Ratio Perm			c0.05			c0.13			0.09			0.27
v/c Ratio			0.54			0.79		0.48	0.12		0.71	0.32
Uniform Delay, d1			56.2			51.9		6.0	4.3		4.6	2.6
Progression Factor			1.00			1.00		1.42	3.14		1.00	1.00
Incremental Delay, d2			1.4			8.0		0.3	0.2		1.1	0.7
Delay (s)			57.6			59.9		8.9	13.5		5.7	3.3
Level of Service			E			E		A	B		A	A
Approach Delay (s)		57.6			59.9			9.3			5.3	
Approach LOS		E			E			A			A	
Intersection Summary												
HCM 2000 Control Delay			12.3			HCM 2000 Level of Service			B			
HCM 2000 Volume to Capacity ratio			0.70									
Actuated Cycle Length (s)			130.0			Sum of lost time (s)			10.0			
Intersection Capacity Utilization			69.4%			ICU Level of Service			C			
Analysis Period (min)			15									
c Critical Lane Group												

The Cove
5: OR 213 & Redland Rd

Total Traffic PM Peak Hour
7/27/2015

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	399	167	72	1537	2303	667
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.4	4.0	4.0	6.0	6.0	5.4
Lane Util. Factor	0.97	1.00	1.00	0.95	0.95	1.00
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	3400	1599	1736	3505	3471	1527
Flt Permitted	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (perm)	3400	1599	1736	3505	3471	1527
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	416	174	75	1601	2399	695
RTOR Reduction (vph)	0	4	0	0	0	120
Lane Group Flow (vph)	416	170	75	1601	2399	575
Confl. Bikes (#/hr)						1
Heavy Vehicles (%)	3%	1%	4%	3%	4%	4%
Turn Type	Prot	pm+ov	Prot	NA	NA	pm+ov
Protected Phases	8	1	1	6	2	8
Permitted Phases		8				2
Actuated Green, G (s)	18.1	34.1	16.0	100.5	80.5	98.6
Effective Green, g (s)	18.1	34.1	16.0	100.5	80.5	98.6
Actuated g/C Ratio	0.14	0.26	0.12	0.77	0.62	0.76
Clearance Time (s)	5.4	4.0	4.0	6.0	6.0	5.4
Vehicle Extension (s)	2.3	2.3	2.3	4.8	4.8	2.3
Lane Grp Cap (vph)	473	468	213	2709	2149	1221
v/s Ratio Prot	c0.12	0.04	0.04	c0.46	c0.69	0.07
v/s Ratio Perm		0.06				0.31
v/c Ratio	0.88	0.36	0.35	0.59	1.12	0.47
Uniform Delay, d1	54.9	39.1	52.2	6.2	24.8	5.9
Progression Factor	1.00	1.00	1.00	1.00	1.45	3.99
Incremental Delay, d2	16.6	0.3	0.6	1.0	57.6	0.1
Delay (s)	71.4	39.4	52.8	7.1	93.4	23.7
Level of Service	E	D	D	A	F	C
Approach Delay (s)	62.0			9.2	77.7	
Approach LOS	E			A	E	
Intersection Summary						
HCM 2000 Control Delay			54.5		HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio			1.01			
Actuated Cycle Length (s)			130.0		Sum of lost time (s)	15.4
Intersection Capacity Utilization			84.5%		ICU Level of Service	E
Analysis Period (min)			15			
c Critical Lane Group						

Appendix I
95th Percentile Queuing
Output Worksheets

The Cove
1: McLoughlin Blvd & Dunes Dr

Existing AM Peak Hour
7/28/2015

									
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	27	79	154	69	61	1663	100	1402	117
v/c Ratio	0.13	0.26	0.74	0.23	0.41	0.56	0.52	0.46	0.12
Control Delay	32.2	11.9	56.3	12.2	31.1	4.8	46.9	10.7	4.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	32.2	11.9	56.3	12.2	31.1	4.8	46.9	10.7	4.7
Queue Length 50th (ft)	13	4	83	3	36	61	55	152	10
Queue Length 95th (ft)	36	41	#160	38	m48	72	100	213	37
Internal Link Dist (ft)		225		221		468		538	
Turn Bay Length (ft)							425		50
Base Capacity (vph)	239	335	240	328	220	2971	317	3066	954
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.11	0.24	0.64	0.21	0.28	0.56	0.32	0.46	0.12

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.

The Cove
2: McLoughlin Blvd & I-205 SB Ramps

Existing AM Peak Hour
7/28/2015

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	366	422	1425	278	586	1045
v/c Ratio	0.73	0.48	0.89	0.19	0.94	0.29
Control Delay	44.7	12.9	29.1	0.3	59.0	3.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	44.7	12.9	29.1	0.3	59.0	3.6
Queue Length 50th (ft)	102	127	282	0	365	26
Queue Length 95th (ft)	146	189	#390	0	#554	35
Internal Link Dist (ft)	531		831			468
Turn Bay Length (ft)					425	
Base Capacity (vph)	578	886	1610	1451	622	3586
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	0.63	0.48	0.89	0.19	0.94	0.29

Intersection Summary

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

The Cove
3: McLoughlin Blvd/OR 99E & I-205 NB Ramps

Existing AM Peak Hour
7/28/2015

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	146	432	1141	838	211	1125
v/c Ratio	0.64	0.29	0.43	0.74	0.85	0.31
Control Delay	48.8	0.5	13.3	7.5	55.6	2.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	48.8	0.5	13.3	7.5	55.6	2.9
Queue Length 50th (ft)	79	0	134	33	123	38
Queue Length 95th (ft)	132	0	192	191	#229	69
Internal Link Dist (ft)	398		467			831
Turn Bay Length (ft)		200		225	600	
Base Capacity (vph)	328	1495	2642	1133	259	3637
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	0.45	0.29	0.43	0.74	0.81	0.31

Intersection Summary

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

						
Lane Group	EBR	WBR	NBT	NBR	SBT	SBR
Lane Group Flow (vph)	64	403	2428	142	1590	459
v/c Ratio	0.14	0.85	0.65	0.13	0.40	0.38
Control Delay	2.8	59.3	10.8	1.6	5.7	1.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	2.8	59.3	10.8	1.6	5.7	1.4
Queue Length 50th (ft)	0	154	334	6	179	0
Queue Length 95th (ft)	7	214	421	m9	206	28
Internal Link Dist (ft)			1644		882	
Turn Bay Length (ft)				500		475
Base Capacity (vph)	607	559	3708	1062	3926	1217
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	0.11	0.72	0.65	0.13	0.40	0.38

Intersection Summary

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

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	596	135	100	2053	1303	317
v/c Ratio	0.92	0.24	0.48	0.85	0.68	0.25
Control Delay	71.1	19.6	61.5	18.5	17.6	0.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	71.1	19.6	61.5	18.5	17.6	0.5
Queue Length 50th (ft)	254	50	80	614	401	0
Queue Length 95th (ft)	#353	100	140	742	484	2
Internal Link Dist (ft)	764			753	1644	
Turn Bay Length (ft)	400		415			
Base Capacity (vph)	669	572	209	2407	1906	1275
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	0.89	0.24	0.48	0.85	0.68	0.25

Intersection Summary

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

The Cove
1: McLoughlin Blvd & Dunes Dr

Existing PM Peak Hour
7/28/2015

									
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	21	59	262	88	54	1341	145	1590	198
v/c Ratio	0.07	0.14	0.82	0.20	0.42	0.51	0.67	0.54	0.21
Control Delay	29.7	9.0	59.7	8.8	26.3	7.1	60.9	16.4	10.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	29.7	9.0	59.7	8.8	26.3	7.1	60.9	16.4	10.0
Queue Length 50th (ft)	12	2	176	4	35	50	99	243	42
Queue Length 95th (ft)	29	31	248	39	m39	m50	159	366	103
Internal Link Dist (ft)		225		221		468		538	
Turn Bay Length (ft)							425		50
Base Capacity (vph)	386	518	418	551	193	2618	292	2970	946
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	4	2	0	0	0	0	54	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.05	0.11	0.63	0.16	0.28	0.51	0.50	0.55	0.21

Intersection Summary

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

The Cove
2: McLoughlin Blvd & I-205 SB Ramps

Existing PM Peak Hour
7/28/2015

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	816	315	1180	226	510	1394
v/c Ratio	0.87	0.28	1.09	0.15	0.76	0.43
Control Delay	48.5	6.2	89.2	0.2	45.0	14.4
Queue Delay	0.0	0.0	0.0	0.0	1.8	0.0
Total Delay	48.5	6.2	89.2	0.2	46.8	14.4
Queue Length 50th (ft)	280	70	~355	0	361	282
Queue Length 95th (ft)	341	92	#495	0	475	361
Internal Link Dist (ft)	531		831			468
Turn Bay Length (ft)					425	
Base Capacity (vph)	1066	1120	1078	1518	675	3205
Starvation Cap Reductn	0	0	0	0	64	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.77	0.28	1.09	0.15	0.83	0.43

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.

The Cove
3: McLoughlin Blvd/OR 99E & I-205 NB Ramps

Existing PM Peak Hour
7/28/2015

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	123	464	1028	818	327	1854
v/c Ratio	0.64	0.29	0.40	0.79	0.80	0.47
Control Delay	61.1	0.5	18.1	14.9	36.3	2.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	61.1	0.5	18.1	14.9	36.3	2.9
Queue Length 50th (ft)	84	0	154	146	148	69
Queue Length 95th (ft)	139	0	241	#514	m195	79
Internal Link Dist (ft)	398		467			831
Turn Bay Length (ft)		200		225	600	
Base Capacity (vph)	230	1583	2597	1033	653	4016
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	0.53	0.29	0.40	0.79	0.50	0.46

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.

						
Lane Group	EBR	WBR	NBT	NBR	SBT	SBR
Lane Group Flow (vph)	191	426	1734	189	2868	479
v/c Ratio	0.67	0.82	0.46	0.15	0.69	0.36
Control Delay	51.0	55.1	9.8	2.9	5.3	1.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	51.0	55.1	9.8	2.9	5.3	1.0
Queue Length 50th (ft)	61	164	223	11	259	0
Queue Length 95th (ft)	103	218	283	m34	366	18
Internal Link Dist (ft)			1644		882	
Turn Bay Length (ft)				500		475
Base Capacity (vph)	593	797	3787	1237	4182	1340
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	0.53	0.46	0.15	0.69	0.36

Intersection Summary

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

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	392	146	73	1542	2341	678
v/c Ratio	0.84	0.30	0.34	0.57	1.09	0.53
Control Delay	71.2	35.1	57.2	7.0	80.3	5.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	71.2	35.1	57.2	7.0	80.3	5.4
Queue Length 50th (ft)	167	90	57	241	~1198	149
Queue Length 95th (ft)	#238	149	107	288	#1344	250
Internal Link Dist (ft)	764			753	1644	
Turn Bay Length (ft)	400		415			
Base Capacity (vph)	486	487	213	2716	2156	1291
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	0.81	0.30	0.34	0.57	1.09	0.53

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.

The Cove
1: McLoughlin Blvd & Dunes Dr

Background AM Peak Hour
7/28/2015

									
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	28	81	158	70	62	1825	102	1542	120
v/c Ratio	0.13	0.27	0.75	0.24	0.41	0.62	0.53	0.51	0.13
Control Delay	32.5	11.9	57.8	12.2	29.2	5.0	47.0	11.4	4.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0
Total Delay	32.5	11.9	57.8	12.2	29.2	5.2	47.0	11.4	4.9
Queue Length 50th (ft)	14	4	85	3	35	65	56	177	11
Queue Length 95th (ft)	38	43	#173	39	m45	m68	101	242	38
Internal Link Dist (ft)		225		221		468		538	
Turn Bay Length (ft)							425		50
Base Capacity (vph)	238	335	238	327	220	2963	317	3050	950
Starvation Cap Reductn	0	0	0	0	0	381	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.12	0.24	0.66	0.21	0.28	0.71	0.32	0.51	0.13

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.

The Cove
2: McLoughlin Blvd & I-205 SB Ramps

Background AM Peak Hour
7/28/2015

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	375	433	1568	285	600	1149
v/c Ratio	0.74	0.49	0.98	0.20	0.96	0.32
Control Delay	45.1	13.1	40.7	0.3	62.2	3.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	45.1	13.1	40.7	0.3	62.2	3.4
Queue Length 50th (ft)	104	131	~326	0	374	27
Queue Length 95th (ft)	149	196	#456	0	#574	35
Internal Link Dist (ft)	531		831			468
Turn Bay Length (ft)					425	
Base Capacity (vph)	578	888	1603	1451	622	3579
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	0.65	0.49	0.98	0.20	0.96	0.32

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.

The Cove
3: McLoughlin Blvd/OR 99E & I-205 NB Ramps

Background AM Peak Hour
7/28/2015

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	149	443	1255	858	216	1238
v/c Ratio	0.65	0.30	0.48	0.76	0.87	0.34
Control Delay	48.8	0.5	14.0	8.4	58.1	3.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	48.8	0.5	14.0	8.4	58.1	3.5
Queue Length 50th (ft)	81	0	152	40	122	45
Queue Length 95th (ft)	134	0	217	226	#237	91
Internal Link Dist (ft)	398		467			831
Turn Bay Length (ft)		200		225	600	
Base Capacity (vph)	328	1495	2628	1130	259	3627
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	0.45	0.30	0.48	0.76	0.83	0.34

Intersection Summary

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

						
Lane Group	EBR	WBR	NBT	NBR	SBT	SBR
Lane Group Flow (vph)	65	413	2489	146	1630	471
v/c Ratio	0.13	0.86	0.67	0.14	0.42	0.39
Control Delay	3.8	59.9	11.2	1.6	6.2	1.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	3.8	59.9	11.2	1.6	6.2	1.4
Queue Length 50th (ft)	0	159	363	6	186	0
Queue Length 95th (ft)	10	220	433	m8	213	28
Internal Link Dist (ft)			1644		882	
Turn Bay Length (ft)				500		475
Base Capacity (vph)	601	559	3693	1060	3875	1209
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	0.11	0.74	0.67	0.14	0.42	0.39

Intersection Summary

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

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	611	139	102	2104	1335	325
v/c Ratio	0.93	0.24	0.49	0.88	0.70	0.25
Control Delay	73.3	20.6	61.8	20.0	17.8	0.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	73.3	20.6	61.8	20.0	17.8	0.5
Queue Length 50th (ft)	261	54	81	654	417	0
Queue Length 95th (ft)	#368	105	142	792	504	2
Internal Link Dist (ft)	764			753	1644	
Turn Bay Length (ft)	400		415			
Base Capacity (vph)	669	572	209	2402	1901	1284
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	0.91	0.24	0.49	0.88	0.70	0.25

Intersection Summary

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

The Cove
1: McLoughlin Blvd & Dunes Dr

Background PM Peak Hour
7/28/2015

									
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	22	60	269	90	55	1375	148	1629	203
v/c Ratio	0.07	0.14	0.83	0.20	0.42	0.53	0.68	0.55	0.22
Control Delay	29.6	8.9	60.3	8.6	25.4	7.6	61.2	16.9	10.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	29.6	8.9	60.4	8.6	25.4	7.6	61.2	16.9	10.2
Queue Length 50th (ft)	12	2	180	4	35	52	101	256	45
Queue Length 95th (ft)	30	32	256	40	m38	m50	162	379	107
Internal Link Dist (ft)		225		221		468		538	
Turn Bay Length (ft)							425		50
Base Capacity (vph)	384	518	417	552	193	2592	292	2948	939
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	4	2	0	0	0	0	67	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.06	0.12	0.65	0.16	0.28	0.53	0.51	0.57	0.22

Intersection Summary

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

The Cove
2: McLoughlin Blvd & I-205 SB Ramps

Background PM Peak Hour
7/28/2015

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	837	324	1210	231	523	1429
v/c Ratio	0.88	0.29	1.15	0.15	0.77	0.45
Control Delay	48.8	6.1	108.8	0.2	45.9	14.9
Queue Delay	0.0	0.0	0.0	0.0	2.2	0.5
Total Delay	48.8	6.1	108.8	0.2	48.1	15.4
Queue Length 50th (ft)	288	71	~379	0	372	295
Queue Length 95th (ft)	351	95	#512	0	485	367
Internal Link Dist (ft)	531		831			468
Turn Bay Length (ft)					425	
Base Capacity (vph)	1066	1127	1055	1518	675	3182
Starvation Cap Reductn	0	0	0	0	64	1161
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.79	0.29	1.15	0.15	0.86	0.71

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.

The Cove
3: McLoughlin Blvd/OR 99E & I-205 NB Ramps

Background PM Peak Hour
7/28/2015

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	126	475	1054	839	335	1901
v/c Ratio	0.65	0.30	0.41	0.82	0.81	0.48
Control Delay	61.0	0.5	18.7	17.0	36.6	3.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	61.0	0.5	18.7	17.0	36.6	3.1
Queue Length 50th (ft)	86	0	161	176	154	78
Queue Length 95th (ft)	142	0	252	#558	m200	82
Internal Link Dist (ft)	398		467			831
Turn Bay Length (ft)		200		225	600	
Base Capacity (vph)	231	1583	2567	1024	653	4011
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	0.55	0.30	0.41	0.82	0.51	0.47

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.

						
Lane Group	EBR	WBR	NBT	NBR	SBT	SBR
Lane Group Flow (vph)	196	436	1778	194	2940	492
v/c Ratio	0.65	0.81	0.47	0.16	0.71	0.36
Control Delay	49.6	54.9	9.7	2.8	5.9	1.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	49.6	54.9	9.7	2.8	5.9	1.0
Queue Length 50th (ft)	64	169	231	12	276	0
Queue Length 95th (ft)	104	222	281	m33	426	20
Internal Link Dist (ft)			1644		882	
Turn Bay Length (ft)				500		475
Base Capacity (vph)	610	841	3808	1243	4166	1351
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	0.52	0.47	0.16	0.71	0.36

Intersection Summary

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

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	401	150	75	1580	2399	695
v/c Ratio	0.86	0.31	0.35	0.58	1.11	0.54
Control Delay	72.7	35.5	57.4	7.1	90.9	5.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	72.7	35.5	57.4	7.1	90.9	5.5
Queue Length 50th (ft)	171	93	59	253	~1253	163
Queue Length 95th (ft)	#246	153	110	301	#1397	217
Internal Link Dist (ft)	764			753	1644	
Turn Bay Length (ft)	400		415			
Base Capacity (vph)	486	487	213	2714	2154	1287
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	0.83	0.31	0.35	0.58	1.11	0.54

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.

The Cove
1: McLoughlin Blvd & Dunes Dr

Total Traffic AM Peak Hour
7/28/2015

									
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	28	81	158	70	62	1941	102	1542	186
v/c Ratio	0.14	0.27	0.76	0.24	0.40	0.65	0.53	0.51	0.19
Control Delay	32.8	12.1	59.6	12.4	28.2	5.3	47.0	11.4	5.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0
Total Delay	32.8	12.1	59.6	12.4	28.2	5.6	47.0	11.4	5.7
Queue Length 50th (ft)	14	4	85	3	36	72	56	177	23
Queue Length 95th (ft)	38	43	#173	39	m42	m72	101	242	59
Internal Link Dist (ft)		225		221		468		538	
Turn Bay Length (ft)							425		50
Base Capacity (vph)	234	331	234	323	220	2977	317	3050	956
Starvation Cap Reductn	0	0	0	0	0	377	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.12	0.24	0.68	0.22	0.28	0.75	0.32	0.51	0.19

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.

The Cove
2: McLoughlin Blvd & I-205 SB Ramps

Total Traffic AM Peak Hour
7/28/2015

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	375	466	1651	334	600	1149
v/c Ratio	0.74	0.52	1.03	0.23	0.96	0.32
Control Delay	45.1	13.8	53.7	0.3	62.2	3.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	45.1	13.8	53.7	0.3	62.2	3.4
Queue Length 50th (ft)	104	145	~381	0	374	27
Queue Length 95th (ft)	149	218	#493	0	#574	35
Internal Link Dist (ft)	531		831			468
Turn Bay Length (ft)					425	
Base Capacity (vph)	578	888	1603	1451	622	3579
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	0.65	0.52	1.03	0.23	0.96	0.32

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.

The Cove
3: McLoughlin Blvd/OR 99E & I-205 NB Ramps

Total Traffic AM Peak Hour
7/28/2015

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	149	500	1327	913	216	1238
v/c Ratio	0.65	0.33	0.50	0.81	0.87	0.34
Control Delay	48.8	0.6	14.3	11.1	58.1	3.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	48.8	0.6	14.3	11.1	58.1	3.5
Queue Length 50th (ft)	81	0	164	58	122	45
Queue Length 95th (ft)	134	0	233	#445	#237	91
Internal Link Dist (ft)	398		467			831
Turn Bay Length (ft)		200		225	600	
Base Capacity (vph)	328	1495	2628	1130	259	3627
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	0.45	0.33	0.50	0.81	0.83	0.34

Intersection Summary

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

The Cove
4: OR 213 & Washington St/Clackamas River Dr

Total Traffic AM Peak Hour
7/28/2015

						
Lane Group	EBR	WBR	NBT	NBR	SBT	SBR
Lane Group Flow (vph)	65	413	2517	146	1630	471
v/c Ratio	0.13	0.86	0.68	0.14	0.42	0.39
Control Delay	3.8	59.9	11.2	1.5	6.2	1.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	3.8	59.9	11.2	1.5	6.2	1.5
Queue Length 50th (ft)	0	159	372	6	186	0
Queue Length 95th (ft)	10	220	436	m7	213	28
Internal Link Dist (ft)			1644		882	
Turn Bay Length (ft)				500		475
Base Capacity (vph)	601	559	3693	1060	3863	1207
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	0.11	0.74	0.68	0.14	0.42	0.39

Intersection Summary

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

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	623	153	102	2120	1335	325
v/c Ratio	0.95	0.27	0.49	0.88	0.70	0.25
Control Delay	75.3	21.8	61.8	20.6	17.8	0.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	75.3	21.8	61.8	20.6	17.8	0.5
Queue Length 50th (ft)	268	63	81	667	417	0
Queue Length 95th (ft)	#379	118	142	808	504	2
Internal Link Dist (ft)	764			753	1644	
Turn Bay Length (ft)	400		415			
Base Capacity (vph)	669	574	209	2398	1897	1283
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	0.93	0.27	0.49	0.88	0.70	0.25

Intersection Summary

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

The Cove
1: McLoughlin Blvd & Dunes Dr

Total Traffic PM Peak Hour
7/28/2015

									
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	22	60	269	90	55	1513	148	1629	282
v/c Ratio	0.07	0.15	0.84	0.20	0.42	0.58	0.68	0.55	0.30
Control Delay	29.8	9.0	61.0	8.7	23.9	9.7	61.2	16.9	10.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0
Total Delay	29.8	9.0	61.0	8.7	23.9	9.9	61.2	16.9	10.7
Queue Length 50th (ft)	12	2	180	4	35	61	101	256	65
Queue Length 95th (ft)	30	32	259	40	m37	m54	162	379	147
Internal Link Dist (ft)		225		221		468		538	
Turn Bay Length (ft)							425		50
Base Capacity (vph)	383	516	415	550	193	2596	292	2948	950
Starvation Cap Reductn	0	0	0	0	0	288	0	0	0
Spillback Cap Reductn	0	3	1	0	0	0	0	69	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.06	0.12	0.65	0.16	0.28	0.66	0.51	0.57	0.30

Intersection Summary

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

The Cove
2: McLoughlin Blvd & I-205 SB Ramps

Total Traffic PM Peak Hour
7/28/2015

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	837	363	1308	312	523	1429
v/c Ratio	0.88	0.32	1.24	0.21	0.77	0.45
Control Delay	48.8	6.5	145.9	0.3	46.0	14.9
Queue Delay	0.0	0.0	0.0	0.0	2.2	0.5
Total Delay	48.8	6.5	145.9	0.3	48.2	15.4
Queue Length 50th (ft)	288	81	~433	0	372	295
Queue Length 95th (ft)	351	108	#566	0	486	369
Internal Link Dist (ft)	531		831			468
Turn Bay Length (ft)					425	
Base Capacity (vph)	1066	1127	1055	1518	675	3182
Starvation Cap Reductn	0	0	0	0	64	1162
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.79	0.32	1.24	0.21	0.86	0.71

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.

The Cove
3: McLoughlin Blvd/OR 99E & I-205 NB Ramps

Total Traffic PM Peak Hour
7/28/2015

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	126	545	1166	931	335	1901
v/c Ratio	0.65	0.34	0.45	0.91	0.81	0.48
Control Delay	61.0	0.6	19.3	25.7	36.6	3.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	61.0	0.6	19.3	25.7	36.6	3.1
Queue Length 50th (ft)	86	0	183	288	154	78
Queue Length 95th (ft)	142	0	283	#701	m201	84
Internal Link Dist (ft)	398		467			831
Turn Bay Length (ft)		200		225	600	
Base Capacity (vph)	231	1583	2567	1024	653	4011
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	0.55	0.34	0.45	0.91	0.51	0.47

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.

						
Lane Group	EBR	WBR	NBT	NBR	SBT	SBR
Lane Group Flow (vph)	196	436	1814	194	2940	492
v/c Ratio	0.62	0.81	0.48	0.16	0.71	0.37
Control Delay	47.0	54.9	9.6	2.6	6.5	1.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	47.0	54.9	9.6	2.6	6.5	1.1
Queue Length 50th (ft)	64	169	237	12	276	0
Queue Length 95th (ft)	100	222	269	m27	505	23
Internal Link Dist (ft)			1644		882	
Turn Bay Length (ft)				500		475
Base Capacity (vph)	610	841	3808	1243	4136	1345
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	0.52	0.48	0.16	0.71	0.37

Intersection Summary

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

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	416	174	75	1601	2399	695
v/c Ratio	0.88	0.36	0.35	0.59	1.12	0.54
Control Delay	75.5	36.6	57.4	7.3	91.3	5.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	75.5	36.6	57.4	7.3	91.3	5.2
Queue Length 50th (ft)	178	110	59	258	~1253	163
Queue Length 95th (ft)	#262	176	110	307	#1398	138
Internal Link Dist (ft)	764			753	1644	
Turn Bay Length (ft)	400		415			
Base Capacity (vph)	486	488	213	2710	2150	1286
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	0.86	0.36	0.35	0.59	1.12	0.54

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.