



TRANSPORTATION IMPACT ANALYSIS

To

City of Corvallis

For

Mary's Annexation

Prepared

March 28, 2017

Revised

April 21, 2017
August 26, 2017
October 9, 2017

Project Number

20161202.00

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I. INTRODUCTION

Property Description and Proposed Land Use Action

This Transportation Impact Analysis (TIA) supports the proposed Mary's annexation and zone change in Corvallis, Oregon. The Mary's property is approximately 119 acres in size and is located north of SW West Hills Road and east of SW 53rd Street as depicted in the attached graphic, labeled Attachment A in Appendix A. Proposed land use actions include annexing the property from Benton County into the City of Corvallis and rezoning from Benton County Urban Residential 50-Acre Minimum (UR-50) and Urban Residential 5-Acre Minimum (UR-5) to Corvallis Mixed-Use Residential (MUR), Residential – Medium High Density (RS-12) and Conservation - Open Space (C-OS), consistent with the Corvallis Comprehensive plan.

It is noted a significant amount of property is included as part of the natural features inventory. The attached General Land Use Plan, labeled Attachment H in Appendix A, depicts natural feature constraints, a schematic roadway layout, and anticipated land uses. This plan is used as a basis to estimate potential property development and resulting trip generation.

Transportation Analysis Description

Based on adopted agency documents, the Mary's TIA needs to address the following criteria:

- Transportation Planning Rule (TPR) criteria outlined in Oregon Administrative Rule (OAR) 660 012-0060
- September 2015 Traffic Impact Study Requirements for Development within the City of Corvallis
- Corvallis Transportation Plan (CTP) Section 3.30.40 – Traffic Levels of Service
- Corvallis Comprehensive Plan (CP) Policy 11.3.9
- Corvallis Land Development Code (LDC) Section 4.0.60 – Public and Private Street Requirements
- Corvallis Land Development Code (LDC) Section 2.6.30.06 – Review Criteria for Annexation Proposals (Specific to Transportation)

The following materials specifically describe each of the above-identified criteria.

Transportation Planning Rule (TPR) Criteria

OAR 660-012-0060 (1) states, *“If an amendment to a functional plan, an acknowledged comprehensive plan, or a land use regulation (including a zoning map) would significantly affect an existing or planned transportation facility, then the local government must put in place measures as provided in section (2) of this rule, unless the amendment is allowed under section (3), (9) or (10) of this rule. A plan or land use regulation amendment significantly affects a transportation facility if it would:*

- (a) Change the functional classification of an existing or planned transportation facility (exclusive of correction of map errors in an adopted plan);*
- (b) Change standards implementing a functional classification system; or*

(c) *Result in any of the effects listed in paragraphs (A) through (C) of this subsection based on projected conditions measured at the end of the planning period identified in the adopted TSP. As part of evaluating projected conditions, the amount of traffic projected to be generated within the area of the amendment may be reduced if the amendment includes an enforceable, ongoing requirement that would demonstrably limit traffic generation, including, but not limited to, transportation demand management. This reduction may diminish or completely eliminate the significant effect of the amendment.*

(A) *Types or levels of travel or access that are inconsistent with the functional classification of an existing or planned transportation facility;*

(B) *Degrade the performance of an existing or planned transportation facility such that it would not meet the performance standards identified in the TSP or comprehensive plan; or*

(C) *Degrade the performance of an existing or planned transportation facility that is otherwise projected to not meet the performance standards identified in the TSP or comprehensive plan.”*

OAR 660-012-0060 (9) further states, *“Notwithstanding section (1) of this rule, a local government may find that an amendment to a zoning map does not significantly affect an existing or planned transportation facility if all of the following requirements are met.*

(a) *The proposed zoning is consistent with the existing comprehensive plan map designation and the amendment does not change the comprehensive plan map;*

(b) *The local government has an acknowledged TSP and the proposed zoning is consistent with the TSP; and*

(c) *The area subject to the zoning map amendment was not exempted from this rule at the time of an urban growth boundary amendment as permitted in OAR 660-024-0020(1)(d), or the area was exempted from this rule but the local government has a subsequently acknowledged TSP amendment that accounted for urbanization of the area.”*

The proposed Mary's annexation is consistent with the existing comprehensive plan map designation and the amendment does not change the comprehensive plan map; the local government has an acknowledged TSP and the proposed zoning is consistent with the TSP; and the area subject to the zoning map amendment was not exempted from this rule. As such, TPR criteria is met and no further analysis is necessary to address this specific criteria.

September 2015 Traffic Impact Study Requirements

The September 2015 Traffic Impact Study Requirements for Development within the City of Corvallis, Section IV.C states, *“Existing Level of Service (LOS) based on delay and volume to capacity ratio (V/C) shall be provided for each intersection identified for analysis in the traffic study scope. Intersections which are impacted with at least 30 trips from the proposed site during the AM or PM peak hours, and have trip volumes increase by at least 10% and are within expected routes of travel are typically reviewed. Where there are other facilities, such as a school, in the vicinity that have a peak hour outside the typical AM or PM peak, those may need to be studied. The City Engineer will make the final determination of the study area.”*

Section VIII – Mitigation Alternatives states, *“Possible mitigation identified in the above analysis sections should be discussed here. If the traffic study identifies safety concerns or LOS conditions less than the minimum standard established in the CTP, improvements and funding strategies shall be considered concurrent with a development proposal. Mitigation should be addressed for each phase of a development. Any ROW required for mitigation also needs to be identified.*

CTP 3.30.40 and CP Policy 11.3.9 state that adequate capacity should be provided and maintained on arterial and collector streets to accommodate intersection LOS standards and to avoid traffic diversion to local streets. The LOS standards shall be:

- *V/C less than 0.85*
- *LOS D or better during morning (7:00-9:00 am) and evening (4:00-6:00pm) peak hours of operation for all intersections with arterial or collector streets*
- *LOS C for all other times of the day”*

It should be noted, the September 2015 Traffic Impact Study Requirements incorrectly identify LOS standards. Specifically, neither the CTP or the CP identify the LOS standard to include a v/c ratio. Rather, the LOS standard is specifically limited to a letter grade LOS.

Corvallis Transportation Plan (CTP) Criteria

Corvallis CTP Section 3.30.40 – Traffic Levels of Service **defines LOS categories** for signalized and unsignalized intersections; however, it **does not define LOS standards**. For signalized intersections, CTP materials state:

“Table 3-7 defines level of service categories for signalized intersections. These categories are similar to report card ratings for intersection traffic performance. Intersections are the primary limiters of traffic flow, and the ability of a roadway system to carry traffic efficiently is nearly always diminished in their vicinities. Other limiters include driveway accesses, especially problematic on arterial streets, where traffic pulling in and out can impede through movement. Levels of Service A, B, and C indicate conditions where traffic moves without significant delays. Levels of Service D and E are progressively worse operating conditions, and level of service F represents conditions where demand exceeds the capacity of an intersection. Most urban communities set level of service D as the minimum acceptable level of service for peak-hour operation and they seek level of service C or better for all other times of the day. The Level of Service Standard adopted in the 1991 Oregon Highway Plan for Hwy 20/34 is “C” and for Highways 20 and 99W is “D” (Table A-1).”

For unsignalized intersections, CTP materials state:

“Table 3-9 summarizes the capacity analysis for morning and evening peak conditions at five unsignalized intersections in Corvallis. These five intersections, combined with the 21 signalized intersections mentioned above, represent the 27 key study intersections identified by City staff for analysis in the transportation plan update. Unsignalized intersections are subject to a separate capacity analysis methodology. Table 3-10 summarizes the descriptions of level of service. The method assesses available and critical gaps in the traffic stream which make it possible for side street traffic to enter the main street flow. The 1985 Highway Capacity Manual describes the detailed methodology. The minor street approaches at the intersections of 30th/Harrison, 9th/Grant experience level of service D conditions or worse during the a.m. or p.m. peak period. This indicates that these cross street locations are subject to longer-than-desirable delays; however, the vehicle volume subject to these delays is typically small, and overall vehicle delay is generally low because the main street volume is not subject to delay.”

CTP materials additionally describe LOS operations at a number of signalized and unsignalized intersections as measured in 1991, but again, LOS standards are not defined except at state highway intersections – which have subsequently been redefined by 1999 Oregon Highway Plan.

Corvallis Comprehensive Plan (CP) Criteria

Corvallis CP Policy 11.3.9 states, *“Adequate capacity should be provided and maintained on arterial and collector streets to accommodate intersection level-of-service (LOS) standards and to avoid traffic diversion to local streets. The level-of-service standards shall be: LOS “D” or better during morning and evening peak hours of operation for all streets intersecting with arterial or collector streets, and LOS “C” for all other times of day. Where level-of-service standards are not being met, the City shall develop a plan for meeting the LOS standards that evaluates transportation demand management and system management opportunities for delaying or reducing the need for street widening. The plan should attempt to avoid the degradation of travel modes other than the single-occupant vehicle.”*

In summary, CP Policy 11.3.9 states that the LOS standards shall be LOS D or better during morning and evening peak hours of operation for all intersections with arterial or collector streets and LOS C for all other times of the day. No v/c ratio standard is identified.

Corvallis Land Development Code (LDC) Criteria – Public and Private Streets

Corvallis LDC Section 4.0.60(a) states, *“Traffic evaluations shall be required of all development proposals in accordance with the following:*

- 1. Any proposal generating 30 or more trips per hour shall include Level of Service (LOS) analyses for the affected intersections. A Traffic Impact Analysis (TIA) is required, if required by the City Engineer. The TIA shall be prepared by a registered professional engineer. The City Engineer shall define the scope of the traffic impact study based on established procedures. The TIA shall be submitted for review to the City Engineer. The proposed TIA shall reflect the magnitude of the project in accordance with accepted traffic engineering practices. The applicant shall complete the evaluation and present the results with an overall site development proposal.”*

Corvallis Land Development Code (LDC) Criteria – Annexations

Corvallis LDC Section 2.6.30.06 presents review criteria for Annexations to ensure consistency with applicable policies of the Comprehensive Plan, particularly Article 14, and other applicable policies and standards adopted by the City Council and the State of Oregon. Criteria include demonstrating the site is capable of being served by transportation facilities required with development which includes providing information on community-wide livability indicators and determining compliance with adopted community-wide benchmarks.

As further defined in LDC Section 2.6.30.07.c., *Table 2.6-1 – Community-wide Livability Indicators and Benchmarks for Annexation Proposals*, the *Benchmark for the Intersection Load Livability Indicator* states, *“Levels of service for intersections of Arterial and/or Collector Streets affected by the proposal, as determined by the City’s Traffic Engineer, and generally within a one-mile radius of the site, will be a level of service “D” or better following urban level development of the Annexation site.”* And, *“For those livability indicators and benchmarks that require distance measurements from an amenity to a proposed Annexation site, measurements shall be taken from the average point within the Annexation site.”*

Summary of Corvallis Transportation Impact Analysis Criteria

A summary of all required analysis criteria is as follows:

- 1) The proposed Mary’s annexation is consistent with the existing comprehensive plan map designation and the amendment does not change the comprehensive plan map; the local government has an acknowledged TSP and the proposed zoning is consistent with the TSP; and the area subject to the zoning map amendment was not exempted from this rule. As such, TPR criteria is met and no further analysis is necessary to address this specific criteria.
- 2) The study area is defined as all major intersections within a one-mile radius of the site, measured from the average point within the Annexation site.
- 3) Study intersections are defined as those impacted with at least 30 trips from the proposed site during the AM or PM peak hours, and have a trip volume increase by at least 10%.
- 4) Based on Corvallis LDC Criteria specific to annexations, the *“Levels of service for intersections of Arterial and/or Collector Streets affected by the proposal, as determined by the City’s Traffic Engineer, and generally within a one-mile radius of the site, will be a level of service “D” or better following urban level development of the Annexation site.”* No v/c ratio standard is identified; however, v/c ratios are reported in this TIA for informational purposes only.

The proposed land use action is for a zone change and not a specific development application. As such, the TIA evaluates operating conditions for the following AM and PM peak hour analysis scenarios in the existing 2017 “base” year and the 2037 planning horizon year. Analysis scenarios include:

- 2017 Existing Conditions
- 2037 Current Zone Designation
- 2037 Proposed Zone Designation – Maximum Development
- 2037 Proposed Zone Designation – Reasonable Development

Study Area

The TIA study area includes an evaluation of all collector-collector intersections (or higher classification) within a one-mile radius of the site (measured from the average point within the Annexation site) impacted with at least 30 trips from the proposed site during the AM or PM peak hours, and having a trip volume increase by at least 10%.

Based on the study area shown in the attached Figure 1, and the anticipated development trip generation and distribution described later in this analysis, the following intersections were considered:

TABLE 1 – MAJOR INTERSECTIONS IN 1-MILE RADIUS STUDY AREA

Intersection	Maximum Development Scenario						Reasonable Development Scenario					
	AM Peak Hour			PM Peak Hour			AM Peak Hour			PM Peak Hour		
	Development Trips	Trip Volume Increase	Analysis Criteria Met?	Development Trips	Trip Volume Increase	Analysis Criteria Met?	Development Trips	Trip Volume Increase	Analysis Criteria Met?	Development Trips	Trip Volume Increase	Analysis Criteria Met?
Intersections Evaluated												
NW 53 rd Street/ NW Harrison Boulevard	492	29%	Y	567	29%	Y	171	10%	Y	211	11%	Y
SW 53 rd Street/ SW Reservoir Avenue	492	33%	Y	567	33%	Y	171	12%	Y	211	11%	Y
SW 53 rd Street/ Site Access (West)	903	104%	Y	1039	108%	Y	313	36%	Y	387	40%	Y
SW 53 rd Street/ SW West Hills Road	608	48%	Y	699	50%	Y	212	17%	Y	260	18%	Y
SW Philomath Boulevard (OR 34)/ SW 53 rd Street	410	21%	Y	473	19%	Y	143	7%	N	176	7%	N
SW West Hills Road/ Site Access (SW)	525	150%	Y	604	168%	Y	181	52%	Y	225	63%	Y
SW West Hills Road/ SW Timian Street/Site Access (SE)	738	191%	Y	850	219%	Y	257	67%	Y	316	81%	Y
SW Philomath Boulevard (OR 34)/ SW Technology Loop	312	16%	Y	257	11%	Y	107	5%	N	133	6%	N
SW Philomath Boulevard (OR 34)/ SW Timian Street	312	17%	Y	359	17%	Y	108	6%	N	133	6%	N
SW Philomath Boulevard (OR 34)/ SW Western Boulevard	92	9%	N	187	18%	Y	20	2%	N	77	7%	N
SW West Hills Road/ SW Western Boulevard	574	59%	Y	660	60%	Y	199	20%	Y	246	23%	Y
SW 35 th Street/ SW Washington Way	164	17%	Y	188	16%	Y	57	6%	N	70	6%	N
SW 35 th Street/ SW Western Boulevard	574	32%	Y	660	33%	Y	199	11%	Y	246	12%	N
SW Philomath Boulevard (OR 34)/ SW 35 th Street	361	15%	Y	415	17%	Y	124	5%	N	154	6%	N
Intersections Considered but Not Evaluated												
SW 53 rd Street/ SW Technology Loop	49	5%	N	57	6%	N	18	<5%	N	22	<5%	N
SW Technology Loop/ SW Research Way	82	8%	N	84	8%	N	28	<5%	N	35	<5%	N
SW Country Club Drive/ SW 49 th Street	<30	<10%	N	<30	<10%	N	<10	<5%	N	<30	<5%	N
SW Country Club Drive/ SW 45 th Street	<30	<10%	N	<30	<10%	N	<10	<5%	N	<30	<5%	N
SW Country Club Drive/ SW Research Way	<30	<10%	N	<30	<10%	N	<15	<5%	N	<15	<5%	N

II. EXISTING CONDITIONS

Existing Site Conditions

The Mary's property, located east of SW 53rd Street and north of SW West Hills Road is approximately 119 acres in size and is currently vacant. Property access is to SW West Hills Road to the south and SW 53rd Street to the west.

Roadway Facilities

The following table summarizes existing roadway classifications and characteristics within the study area.

TABLE 2 – EXISTING ROADWAY CHARACTERISTICS						
Roadway	Functional Classification	Lanes	Speed Limit (mph)	Sidewalks	Bicycle Lanes	On-Street Parking
NW Harrison Boulevard	Arterial	2	45	No	Yes	No
SW Reservoir Avenue	Arterial	2	45	Yes	Yes	No
SW West Hills Road	Collector	2	35	No	Yes	No
NW/SW 53 rd Street	Arterial	2	45	No	No	No
SW Western Boulevard	Arterial	2	35 W/O 35 th 30 E/O 35 th	No	Yes	No
SW Philomath Boulevard (OR 34)	Arterial (State Highway)	3	45	No	No	No
SW 35 th Street	Arterial	2	35 N/O Western 25 S/O Western	Yes	Yes	No
SW Technology Loop	Collector	3	30	Yes	Yes	No
SW Washington Way	Collector	2	30	No	No	No

Rail Facilities

There is an existing rail line parallel to SW West Hills Road approximately 2,160 feet to the north. The existing rail crossing at SW 53rd Street is grade separated with a roadway undercrossing. Benton County is currently designing SW 53rd Street Roadway improvements with a roadway overcrossing.

Transit Facilities

Corvallis Transit System (CTS) currently operates two bus routes in the study area: C3 and PC. The routes originate at the Downtown Intermodal Mall at 5th Street and Monroe Avenue and are described as follows:

- Route C3 – Harrison/53rd Street/Grand Oaks/Research Way/35th Street/OSU – operates with limited weekday service (3 times in the AM and 3 times in the PM) and Saturday service (2 times in the AM and 2 times in the PM). In the project area, the route travels on SW West Hills Road west of the site and on SW 53rd Street abutting the site.
- Route PC – Philomath Connection (Philomath/OSU/Corvallis Transit Center) – operates with approximate 60-minute headways on weekdays only. In the project area, the route travels on SW West Hills Road abutting the site, on SW 53rd Street south of the site and the Corvallis-Philomath Highway (OR 34).

Existing Traffic

Existing mid-week AM and PM peak hour intersection turning movement traffic counts were obtained at the following intersections:

- NW 53rd Street/NW Harrison Boulevard
- SW 53rd Street/SW Reservoir Avenue
- SW 53rd Street/SW West Hills Road
- SW 53rd Street/SW Philomath Boulevard (OR 34)
- SW 53rd Street/SW Technology Loop
- SW West Hills Road/SW Timian Street
- SW Philomath Boulevard (OR34)/SW Technology Loop
- SW Philomath Boulevard (OR34)/SW Timian Street
- SW Philomath Boulevard (OR34)/SW Western Boulevard
- SW West Hills Road/SW Western Boulevard
- SW 35th Street/SW Washington Way
- SW 35th Street/SW Western Boulevard
- SW Philomath Boulevard (OR34)/SW 35th Street

Traffic count summaries are provided in Appendix B.

2017 Existing traffic volumes are presented in Figures 2 and 3 for the AM peak hour and Figures 4 and 5 for the PM peak hour.

III. DEVELOPMENT ZONE ASSUMPTIONS

Because specific development is unknown, this transportation analysis evaluates impacts resulting from development scenarios in the current Benton County UR-50 and UR-5 zone designations, and the proposed Corvallis MUR and RS-12 zone designations. Further, based on guidance from City of Corvallis staff, two development scenarios for the proposed zone designations are evaluated: 1) Maximum Development Scenario, and 2) The Reasonable Development Scenario, described as follows:

- 1) **Maximum Development Scenario** – Per direction from City staff, this analysis scenario has been prepared to address Corvallis Traffic Impact Study Requirements. This scenario contemplates development impacts resulting from maximum allowed property development under the proposed zone designations.

The September 2015 Traffic Impact Study Requirements for Development within the City of Corvallis, Section IV.C states, *“For land use actions such as a zone change, annexation or comprehensive plan amendment, the traffic forecasts and analysis shall include the reasonable worst-case scenario of the area subject to the land use action, i.e. the total acres and max density. A proposed development plan, typically, doesn’t provide the worst-case scenario. Per the LDC, a full range of development potential (min. to max.) under current vs. proposed land use designations shall be addressed in the analysis. Reasonable worst-case analysis must have justification and should be based on maximum viable development. ODOT’s Development Review Guidelines, 2005 and 2013 editions provide guidance on reasonable worst-case analysis.”*

It is important to note this **Maximum Development Scenario** is considered the **Worst-Case Development Scenario** and has been developed to address Corvallis Traffic Impact Study requirements as interpreted by City staff. This scenario **is not** the **Reasonable Worst-Case Development Scenario** identified in the ODOT Development Review Guidelines.

- 2) **Reasonable Development Scenario** – This scenario has been prepared to address ODOT Development Review Guidelines. This scenario contemplates development impacts resulting from the Applicant’s General Land Use Plan and represents the reasonable worst-case development of the property under the proposed zone designations.

The following presents base development assumptions for all zone designations.

Benton County UR-50 Zone Assumptions

- Gross UR-50 zone area is approximately 75 acres.
- Assumes 1 parcel or lot may be created per 50 acres of gross area.
- Assumes there is 1 lot with 1 residential dwelling.

Benton County UR-5 Zone Assumptions

- Gross UR-5 zone area is approximately 44 acres.
- Assumes 1 parcel or lot may be created per 5 acres of gross area.
- Assumes there are 8 lots with 8 residential dwellings.

Maximum Development Scenario Assumptions

Corvallis MUR Zone Development Standards

- This zone is intended to increase housing opportunities proximate to designated commercial zones. The MUR Zone is intended primarily for the development of multi-family housing at densities high enough to support the retail uses of adjacent commercial zones and to provide residents with direct and convenient access to commercial services. Varied Housing Types are encouraged in the MUR Zone. Small-scale retail, office, and service uses are also allowed when developed as part of a mixed-use building.
- Minimum residential densities for strictly residential development shall be 20 units per acre.
- Minimum residential densities for developments including mixed uses shall be 12 units per acre.
- For mixed-use developments, if less than 20 units per acre are provided, the development shall include a minimum of 10% of the total gross floor area in nonresidential uses.
- No maximum residential densities are established for the MUR Zone. Building heights regulate maximum densities.
- Nonresidential uses shall not exceed 3,000 square feet of gross floor area per individual use and shall be limited to a maximum of 20% of the total gross floor area of the development site.
- Nonresidential uses shall be developed as part of a mixed-use building that includes housing (with exception of Civic Uses) and shall be developed to maintain a minimum density of 12 dwelling units per acre.
- Primary structures in the MUR Zone shall not exceed a height of 65 feet. Additional height restrictions apply where the property abuts RS zone property.

Corvallis MUR Analysis Assumptions

- Gross MUR zone area is 17.98 acres.
- Net developable MUR zone area is 17.69 acres (770,576 square feet) based on the future sale of 0.29 acres for SW 53rd Street right-of-way to accommodate the future railroad overpass.
- Assumes a maximum 5-story building height. In buildings with commercial uses, it is assumed the ground floor is commercial and the remaining floors are residential.
- Assumes individual commercial uses do not exceed 3,000 square feet each and are 20% of the total floor area of the development site.
- Residential dwelling units (apartments) are 1,000 square feet each.
- Parking is provided at code-required ratios, is outside the building footprint, and ground level.
- Parking spaces are 325 square feet including associated circulation area.

Corvallis RS-12 Analysis Assumptions

- Gross RS-12 zone area is 91.15 acres.
- Net developable RS-12 zone area is 86.13 acres based on the future sale of 5.02 acres for SW 53rd Street right-of-way to accommodate the future railroad overpass.
- Assumes 20 residential dwellings per acre.
- Assumes 1,722 apartments.

Reasonable Development Scenario Assumptions (General Land Use Plan)

- Assumes 840 apartments.
- Assumes 82 townhomes.
- Assumes 131 single-family detached residences.
- Assumes 64 senior attached residences.

IV. AREA ASSUMPTIONS AND MODEL ASSUMPTIONS

The 1996 Corvallis Transportation System Plan (TSP) is currently being updated. While the new TSP is not yet adopted, it contains current data and relies on the Corvallis-Albany-Lebanon Model (CALM) transportation model for plan year development assumptions and traffic volume estimates. As such, the CALM model is used as a basis for traffic growth assumptions, trip distribution, and traffic assignment. All CALM model information relative to the proposed project is available in electronic format by request.

Within the CALM model, the Mary's property is in transportation analysis zones (TAZs) 376 and 378. The following table presents model assumptions for these TAZs over the planning period.

TABLE 3 – CALM MODEL ASSUMPTIONS			
Description	Households	Employees	PM Peak Hour Trip Generation
TAZ 376			
2010 Model Land Use Assumptions	0	32	18
2040 Model Land Use Assumptions	249	38	141
Change	249	6	123
TAZ 378			
2010 Model Land Use Assumptions	11	5	9
2040 Model Land Use Assumptions	385	5	196
Change	374	0	187

Based on CALM model data, during the planning period, 249 households (residences) are constructed and 6 jobs added in TAZ 376, and 374 residences are constructed and 6 jobs are added in TAZ 378. As illustrated in Figure 1, the Mary's property is a significant portion of these TAZs; therefore, it can be assumed a proportional amount of the trip generation occurs on the Mary's property as presented in the following table.

TABLE 4 – MARY'S PROPERTY ASSUMPTIONS			
Description	Area (≈ Acres)	% Occupied by Mary's Property	Assumed Mary's Property Trip Generation
Mary's Property	119	100	
TAZ 376	92	90	90% x 123 = 110
TAZ 378	120	30	30% x 187 = 56
Total CALM Model Trip Generation Assumed on Mary's Property			166

As identified in the previous table, the CALM model assumes 166 trips on the Mary's property. Because the CALM model growth rate is consistent with the currently adopted Corvallis Transportation Plan growth rate; the proposed Mary's annexation is consistent with the existing comprehensive plan map designation and the amendment does not change the comprehensive plan map; and the local government has an acknowledged TSP and the proposed zoning is consistent with the TSP, it is acceptable engineering practice to assume these 166 trips are included in the development assumptions for the Mary's property. However, based in instruction from City staff, it is conservatively assumed all TAZ 376 and 378 development does not occur on the on the Mary's property and all proposed Mary's trip generation is added to the plan year traffic volumes as further described below.

V. DEVELOPMENT TRIP GENERATION

Specific development is unknown. As such, two development scenarios, 1) The Maximum Development Scenario, and 2) The Reasonable Development Scenario have been developed for the proposed MUR and RS-12 zone designations and are further described as follows:

Maximum Development Scenario

This scenario is based on the maximum allowed development in the MUR and RS-12 zone designations and has the highest peak hour trip generation using the Institute of Transportation Engineers (ITE) *Trip Generation Manual*, 9th Edition and practices from the *ITE Trip Generation Handbook*, 3rd Edition. Detailed development assumptions and resulting trip generation are attached in Appendix C for reference. In general, it is noted this development scenario contemplates 5-story buildings with 20% commercial/80% residential uses, and surface parking.

The intensity, proximity, and variety of proposed land uses in the MUR zone designation suggests there will be internal (or shared) trip capture. Internal trip capture is the portion of trips generated by a mixed-use development having both an origin and destination in the development. The importance of identifying internal trip capture is these trips satisfy a portion of the total development trip generation without using the external roadway system. As a result, a mixed-use development with internal trip capture has less impact on the external road system than does a single-use development generating the same number of total trips. Internal capture trips were calculated using practices from the *ITE Trip Generation Handbook*, 3rd Edition and which is based on the Transportation Research Board's National Cooperative Highway Research Program (NCHRP) Report 684: *Enhancing Internal Trip Capture Estimation for Mixed-Use Developments*. Detailed calculations are attached in Appendix C for reference.

Further, for commercial uses, a portion of the trips generated are primary (new trips on the roadway system travelling specifically to/from the proposed development), and a portion are pass-by (existing trips on the roadway system that 'divert' to the subject development before continuing their original trip path to their destination.) Pass-by/diverted-link trips were calculated using practices from the *ITE Trip Generation Handbook*, 3rd Edition.

The following table presents Maximum Development Scenario trip generation.

TABLE 5 – DEVELOPMENT TRIP GENERATION (MAXIMUM DEVELOPMENT SCENARIO)								
Land Use	ITE Code	Size	AM Peak Hour Trip Generation			PM Peak Hour Trip Generation		
			Enter	Exit	Total	Enter	Exit	Total
Current Benton County UR-50								
Single-Family Residential	210	1 DU	0	1	1	1	0	1
Current Benton County UR-5								
Single-Family Residential	210	8 DU	2	4	6	5	3	8
Primary (Net New) Current Zone Trip Generation			2	5	7	6	3	9
Proposed Corvallis MUR Zone Designation (Maximum Development Scenario)								
Total Office ¹	710	132,000 SF	182	24	206	34	162	196
Total Retail ¹	826,850,851 880,911	33,000 SF	127	122	249	147	156	303
Total Restaurant ¹	932	6,000 SF	36	30	66	36	24	60
Total Residential ¹	220	696 DU	71	282	353	280	152	432
Total Other – Day Care ¹	565	3,000 SF	20	17	37	17	20	37
Total Trip Generation ¹			436	475	911	514	514	1,028
<i>Internal Capture Trips²</i>			<i>(69)</i>	<i>(70)</i>	<i>(139)</i>	<i>(102)</i>	<i>(96)</i>	<i>(198)</i>
Total External Trip Generation			367	405	772	412	418	830
<i>Pass-By Trips (61%AM, 61%PM ITE Code 851)</i>			<i>(60)</i>	<i>(56)</i>	<i>(116)</i>	<i>(62)</i>	<i>(50)</i>	<i>(112)</i>
Primary (Net New) MUR Zone Trip Generation			307	349	656	350	368	718
Proposed Corvallis RS-12 Zone Designation (Maximum Development Scenario)								
ITE – Apartments (LDC – Multi-Family Dwelling)	220	1,722 DU	176	702	878	694	374	1,068
Primary (Net New) Proposed Zone Trip Generation (MUR + RS-12)			483	1,051	1,534	1,044	742	1,786
Increase in Primary (Net New) Trip Generation (Proposed – Current)			481	1,046	1,527	1,038	739	1,777

¹ Data is presented for aggregated uses. Refer to attached spreadsheet in Appendix C for detailed development assumptions.

² Refer to attached spreadsheet in Appendix C for detailed internal capture calculations.

Reasonable Development Scenario

This scenario is described by the Applicant's General Land Use Plan and assumes apartments, townhouses, single-family residences and attached senior housing totaling 1,117 dwelling units.

The following table presents Reasonable Development Scenario trip generation.

TABLE 6 – DEVELOPMENT TRIP GENERATION (REASONABLE DEVELOPMENT SCENARIO)								
Land Use	ITE Code	Size	AM Peak Hour Trip Generation			PM Peak Hour Trip Generation		
			Enter	Exit	Total	Enter	Exit	Total
Current Benton County UR-50								
Single-Family Residential	210	1 DU	0	1	1	1	0	1
Current Benton County UR-5								
Single-Family Residential	210	8 DU	2	4	6	5	3	8
Primary (Net New) Current Zone Trip Generation			2	5	7	6	3	9
Proposed General Land Use Plan Development								
ITE – Apartments (LDC – Multi-Family Dwelling)	220	840 DU	86	342	428	339	182	521
ITE – Residential Condominium/Townhouse (LDC – Attached Townhouse)	230	82 DU	6	30	36	29	14	43
ITE – Single Family Residential (LDC – Single – Detached)	210	131 DU	25	73	98	83	48	131
ITE - Senior Adult Housing - Attached (LDC – Senior Housing)	252	64 DU	4	9	13	9	7	16
Primary (Net New) Proposed General Land Use Plan Trip Generation			121	454	575	460	251	711
Increase in Primary (Net New) Trip Generation (Proposed – Current)			119	449	568	454	248	702

Background Growth

Background growth is assumed to be 1.5% per year (consistent with CALM transportation modeling and the Corvallis Transportation Plan) and is used to estimate 2037 Current Zone Designation traffic volumes, except for Philomath Boulevard (OR 34) volumes which have an assumed growth rate of 0.35% per year based on CALM transportation modeling.

Noting this analysis contemplates plan year development conditions, which typically assume full-buildout of the 20-year land supply, all in-process projects are considered part of the 20-year background growth.

2037 Current Zone Designation traffic volumes are presented in Figures 6 and 7 for the AM peak hour and Figures 8 and 9 for the PM peak hour.

Trip Distribution and Traffic Assignment

Mary's development trip distribution and traffic assignment are based on background traffic volumes and discussions with City staff. Proposed Mary's development trip distribution is presented in Figure 10.

Traffic assignments for the Maximum Development Scenario are presented in Figures 11 and 12 for the AM peak hour and Figures 13 and 14 for the PM peak hour.

Traffic assignments for the Reasonable Development Scenario are presented in Figures 15 and 16 for the AM peak hour and Figures 17 and 18 for the PM peak hour.

This trip distribution considers roadway connections contemplated in the plan year including those identified in:

- The West Corvallis Access Strategy, Figure A-2 which depicts multiple collector roadway alignments (specific to the Mary's annexation area);
- The Applicant's proposed General Land Use Plan which assumes a collector roadway alignment consistent with the Corvallis Access Strategy, including local roadway connections; and
- CALM model assumptions.

Based on City staff direction, TIA trip distribution and traffic assignment is based on the existing roadway network, anticipated traffic patterns on this network, and existing levels of adjacent property development. However, because this TIA contemplates plan year impacts resulting from development of the subject property, including generalized plan year development of all Corvallis property (which is reflected in background traffic growth assumptions), it is appropriate to assume some other (future) roadway connections will exist and there will be surrounding property development.

It is important to note this plan year analysis contemplates theoretical development scenarios and is not a specific development application. Additional transportation analysis will need to be performed at the time of a specific development application contemplating specific development impacts and the actual existing (including applicant-constructed) roadway system.

Future Year Traffic

2037 Proposed Zone Designation traffic volumes are the sum 2037 Current Zone Designation traffic volumes and the net new trips resulting from the two development scenarios.

2037 Proposed Zone Designation traffic volumes for the Maximum Development Scenario are presented in Figures 19 and 20 AM peak hour and Figures 21 and 22 for the PM peak hour.

2037 Proposed Zone Designation traffic volumes for the Reasonable Development Scenario are presented in Figures 23 and 24 for the AM peak hour and Figures 25 and 26 for the PM peak hour.

VI. INTERSECTION ANALYSIS

Analysis Scope

The TIA study area includes an evaluation of all collector-collector intersections (or higher classification) within a one-mile driving radius of the site (measured from the average point within the Annexation site impacted with at least 30 trips from the proposed site during the AM or PM peak hours, and having a trip volume increase by at least 10%. Based on these criteria, illustrated in Table 1, the following intersections are evaluated:

- NW 53rd Street/NW Harrison Boulevard
- SW 53rd Street/SW Reservoir Avenue
- SW 53rd Street/Site Access (West)
- SW 53rd Street/SW West Hills Road
- SW 53rd Street/SW Philomath Boulevard (OR 34)
- SW West Hills Road/Site Access (Southwest)
- SW West Hills Road/SW Timian Street/Site Access (Southeast)
- SW Philomath Boulevard (OR 34)/SW Technology Loop
- SW Philomath Boulevard (OR 34)/SW Timian Street
- SW Philomath Boulevard (OR 34)/SW Western Boulevard
- SW West Hills Road/SW Western Boulevard
- SW 35th Street/SW Washington Way
- SW 35th Street/SW Western Boulevard
- SW 35th Street/SW Philomath Boulevard

Future Intersection Assumptions

The General Land Use Plan contemplates one site access intersection to SW 53rd Street and five site access intersections to SW West Hills Road that do not yet exist. For analysis purposes, The following roadway geometry was assumed:

- The new north-south collector roadway on the Mary's site will be aligned to intersect at the existing SW West Hills Road/SW Timian Street intersection.
- While the General Land Use Plan Contemplates five site access intersections to SW West Hills Road, for analysis purposes traffic was assumed to use two access locations.
- Major roadways (SW 53rd Street and SW West Hills Road) will have left-turn lanes with 150 feet of storage and right-turn lanes with 100 feet of storage.
- Minor roadways (site accesses) will have separate left and right-turn lanes with 150 feet of storage.
- A southbound center receiving lane is provided on SW 53rd Street allow for two-stage westbound left-turns from the site access.

Analysis Description

Intersection operations analyses described in this report are performed in accordance with Transportation Research Board's *Highway Capacity Manual 2010* (HCM 2010) procedures. AM and PM system peak hours were used based on the maximum one-hour volumes of all intersections.

Future intersection peak hour factors (PHFs) are based on the Oregon Department of Transportation *Analysis Procedures Manual* Version 2, Section 5.8.3. Specifically, the following future intersection PHFs are assumed:

- 0.95 for major arterial-major arterial
- 0.90 for minor arterial-minor arterial
- 0.85 for collector-collector or lower classification

Intersection operation characteristics are generally defined by two mobility standards: volume-to-capacity (v/c) ratio and level-of-service (LOS). At signalized intersections, the v/c ratio is a measurement of an intersection's ability to accommodate the critical movements, while LOS is based on the average control delay per vehicle for the entire intersection. At unsignalized intersections, the v/c ratio and LOS are calculated for intersection approach movements yielding right-of-way.

Based on Corvallis LDC Criteria specific to annexations, the *"Levels of service for intersections of Arterial and/or Collector Streets affected by the proposal, as determined by the City's Traffic Engineer, and generally within a one-mile radius of the site, will be a level of service "D" or better following urban level development of the Annexation site."* No v/c ratio standard is identified; however, v/c ratios are reported in this TIA for informational purposes only.

Table 6 of Policy 1F in the *Oregon Highway Plan* (OHP), as updated through November 21, 2014, provides ODOT mobility standards for state roadways. In the study area, SW Philomath Boulevard is defined as a Regional Highway and is a Statewide Freight Route. The intersection mobility target along this roadway is a v/c ratio ≤ 0.85 .

Operations Analysis

Unsignalized (stop-controlled) and roundabout intersection operations analyses were performed using Trafficware's *Synchro* software (Version 9) implementing *HCM 2010* methodologies. Signalized intersection operations analysis was performed implementing *HCM 2000* methodologies.

The proposed land use action is for a zone change and not a specific development application. As such, the TIA evaluates operating conditions for the following AM and PM peak hour analysis scenarios in the existing 2017 "base" year and the 2037 planning horizon year. Analysis scenarios include:

- 2017 Existing Conditions
- 2037 Current Zone Designation
- 2037 Proposed Zone Designation – Maximum Development
- 2037 Proposed Zone Designation – Reasonable Development

The following tables summarize weekday AM and PM peak hour operation analysis results. For intersections not meeting mobility standards, deficiencies and potential mitigation are identified, and mitigated analysis results are also presented. Data output sheets from all operations calculations are in Appendix D.

Mitigation identified for the 2037 Current Zone Designation is assumed necessary for both the 2037 Proposed Zone Designation scenarios and is assumed to be 'in place' for these scenarios.

TABLE 7 – INTERSECTION OPERATIONS ANALYSIS, CURRENT ZONE DESIGNATION – AM PEAK HOUR						
Intersection	Critical Movement Lane Group	v/c Ratio/LOS		Deficiencies and Limitations	Potential Mitigation	v/c Ratio/LOS 2037 Current Zone Designation Mitigated
		2017 Existing	2037 Current Zone Designation			
NW 53 rd Street/ NW Harrison Boulevard	Intersection	0.52/B	0.67/B	Mitigation Necessary for PM peak hour.	Widen 53 rd to 2 thru lanes. Add 2 nd WB left-turn lane.	0.37/B
SW 53 rd Street/ SW Reservoir Avenue	Intersection	0.49/A	0.65/B	—	—	0.65/B
SW 53 rd Street/ Site Access (West)	SB L	—	—	—	—	—
	WB L	—	—	—	—	—
	WB R	—	—	—	—	—
SW 53 rd Street/ SW West Hills Road	NB	0.35/A	0.51/B	—	—	0.51/B
	SB	0.35/A	0.46/A	—	—	0.46/A
	EB	0.47/B	0.68/C	—	—	0.68/C
	WB	0.07/A	0.10/A	—	—	0.10/A
SW 53 rd Street/ SW Philomath Boulevard	Intersection	0.72	0.77	—	—	0.77
SW West Hills Road/ Site Access (Southwest)	SB L	—	—	—	—	—
	SB R	—	—	—	—	—
	EB L	—	—	—	—	—
SW West Hills Road/ SW Timian Street/ Site Access (Southeast)	NB L/T/R	0.03/B	0.04/B	—	—	0.04/B
	SB L	—	—	—	—	—
	SB T/R	—	—	—	—	—
	EB L	—	—	—	—	—
	WB L	—	—	—	—	—
SW Philomath Boulevard/ SW Technology Loop	Intersection	0.73	0.82	—	—	0.82
SW Philomath Boulevard/ SW Timian Street	SB L/R	0.09	0.10	—	—	0.10
	EB L	0.01	0.01	—	—	0.01
SW Philomath Boulevard/ SW Western Boulevard	NB T/L	0.77	0.82	—	—	0.82
SW Hills Road/ SW Western Boulevard	EB L/R	0.57/C	0.73/D	—	—	0.73/D
SW 35 th Street/ SW Washington Way	EB L/T/R	0.01/C	0.01/D	—	—	0.01/D
	WB L/T/R	0.1/C	0.15/C	—	—	0.15/C
SW 35 th Street/ SW Western Boulevard	Intersection	0.77/B	0.84/C	Mitigation Necessary for PM peak hour.	Add WB right-turn lane. Add NB left and right-turn lanes.	0.75/B
SW 35 th Street/ SW Philomath Boulevard	Intersection	0.95	1.05	High EB and WB thru volumes in one lane. High NB thru/right volumes in one lane.	Add 2 nd EB and WB thru lanes and NB right-turn lane.	0.64

TABLE 8 – INTERSECTION OPERATIONS ANALYSIS, CURRENT ZONE DESIGNATION – PM PEAK HOUR

Intersection	Critical Movement Lane Group	v/c Ratio/LOS		Deficiencies and Limitations	Potential Mitigation	v/c Ratio/LOS
		2017 Existing	2037 Current Zone Designation			
NW 53 rd Street/ NW Harrison Boulevard	Intersection	0.75/B	0.97/C	High NB and SB thru volumes in one travel lane. High WB left-turn volumes in one travel lane.	Widen 53 rd to 2 thru lanes. Add 2 nd WB left-turn lane.	0.50/B
SW 53 rd Street/ SW Reservoir Avenue	Intersection	0.44/A	0.58/B	—	—	0.58/B
SW 53 rd Street/ Site Access (West)	SB L	—	—	—	—	—
	WB L	—	—	—	—	—
SW 53 rd Street/ SW West Hills Road	WB R	—	—	—	—	—
	NB	0.43/A	0.60/B	—	—	0.60/B
	SB	0.46/B	0.67/C	—	—	0.67/C
	EB	0.22/A	0.33/A	—	—	0.33/A
SW 53 rd Street/ SW Philomath Boulevard	WB	0.27/A	0.42/B	—	—	0.42/B
	Intersection	0.69	0.83	—	—	0.83
SW West Hills Road/ Site Access (Southwest)	SB L	—	—	—	—	—
	SB R	—	—	—	—	—
SW West Hills Road/ SW Timian Street/ Site Access (Southeast)	EB L	—	—	—	—	—
	NB L/T/R	0.02/A	0.02/B	—	—	0.02/B
	SB L	—	—	—	—	—
	SB T/R	—	—	—	—	—
SW Philomath Boulevard/ SW Technology Loop	EB L	—	—	—	—	—
	Intersection	0.74	0.77	—	—	0.77
SW Philomath Boulevard/ SW Timian Street	WB L	—	—	—	—	—
	SB L/R	0.12	0.13	—	—	0.13
SW Philomath Boulevard/ SW Western Boulevard	EB L	0.01	0.01	—	—	0.01
	NB T/L	0.83	0.80	—	—	0.80
SW Hills Road/ SW Western Boulevard	Intersection	0.23/C	0.35/C	—	—	0.35/C
SW 35 th Street/ SW Washington Way	EB L/T/R	0.01/C	0.02/C	—	—	0.02/C
	WB L/T/R	0.27/C	0.63/E	—	—	0.63/E
SW 35 th Street/ SW Western Boulevard	Intersection	0.73/C	0.97/D	High WB thru volumes in one travel lane. No separate NB left-turn lane.	Add WB right-turn lane. Add NB left and right-turn lanes.	0.86/C
SW 35 th Street/ SW Philomath Boulevard	Intersection	0.75	0.94	High EB and WB thru volumes in one lane. High NB thru/right volumes in one lane.	Add 2 nd EB and WB thru lanes and NB right-turn lane.	0.59

**TABLE 9 – INTERSECTION OPERATIONS ANALYSIS, PROPOSED ZONE DESIGNATION
(MAXIMUM DEVELOPMENT SCENARIO) – AM PEAK HOUR**

Intersection	Critical Movement Lane Group	v/c Ratio/LOS			
		2037 Proposed Zone Designation (Maximum Development)	2037 Proposed Zone Designation (Maximum Development) Mitigated		
NW 53 rd Street/ NW Harrison Boulevard	Intersection	0.49/B	0.49/B		
SW 53 rd Street/ SW Reservoir Avenue	Intersection	0.85/B	0.85/B		
SW 53 rd Street/ Site Access (West)	SB L	0.16/A	Single-lane roundabout with SB by-pass and NB and WB right-turn lanes.		
	WB L	2.28/F			
	WB R	0.61/C			
SW 53 rd Street/ SW West Hills Road	NB	0.77/D	High EB volumes conflicting with high NB and SB volumes and only one circulating roadway.		
	SB	0.87/D			
	EB	1.04/F			
	WB	0.39/B			
SW 53 rd Street/ SW Philomath Boulevard	Intersection	0.91	High SB left-turn, WB and EB thru volumes in one lane.	Add 2 nd SB left-turn lane and widen Philomath to 2 thru lanes.	0.59
SW West Hills Road/ Site Access (Southwest)	SB L	0.55/C	—	—	0.55/C
	SB R	0.11/A			0.11/A
	EB L	0.04/A			0.04/A
SW West Hills Road/ SW Timian Street/ Site Access (Southeast)	NB L/T/R	0.17/C	High SB approach volume.	Single-lane roundabout.	NB 0.11/A
	SB L	0.79/F			SB 0.35/A
	SB T/R	0.28/C			EB 0.71/C
	EB L	0.02/A			WB 0.28/A
	WB L	0.01/A			—
SW Philomath Boulevard/ SW Technology Loop	Intersection	1.00	High WB and EB thru volumes in one lane.	Widen Philomath to 2 thru lanes in each direction.	0.63
SW Philomath Boulevard/ SW Timian Street	SB L/R	0.90	High WB and EB thru volumes in one lane.	Widen Philomath to 2 thru lanes in each direction.	0.44
	EB L	0.03			0.03
SW Philomath Boulevard/ SW Western Boulevard	NB T/L	0.94	High NB volume crossing high WB volume in one lane.	Widen Philomath to 2 thru lanes.	0.58
SW Hills Road/ SW Western Boulevard	EB L/R	1.65/F	High West Hills Road left-turn volumes conflicting with Western thru volumes.	Single-lane roundabout with NB and WB right-turn by-pass lanes.	NB 0.29/A
					EB 0.79/C
SW 35 th Street/ SW Washington Way	EB L/T/R	0.02/D	High NB and SB thru volumes in one lane.	Traffic signal.	0.55/A
	WB L/T/R	0.28/D			
SW 35 th Street/ SW Western Boulevard	Intersection	0.90/C	High WB thru volumes in one travel lane. No separate NBL left-turn lane.	Widen Western to 2 thru lanes. Add NB left-turn lane.	0.94/D
SW 35 th Street/ SW Philomath Boulevard	Intersection	0.71	High EB and WB thru volumes in one lane. High NB and SB thru/right volumes in one lane.	Widen 35 th to 2 thru lanes.	0.71

**TABLE 10 – INTERSECTION OPERATIONS ANALYSIS, PROPOSED ZONE DESIGNATION
(MAXIMUM DEVELOPMENT SCENARIO) – PM PEAK HOUR**

Intersection	Critical Movement Lane Group	v/c Ratio/LOS	Deficiencies and Limitations	Potential Mitigation	v/c Ratio/LOS
		2037 Proposed Zone Designation (Maximum Development)			2037 Proposed Zone Designation (Maximum Development) Mitigated
NW 53 rd Street/ NW Harrison Boulevard	Intersection	0.67/B	—	—	0.67/B
SW 53 rd Street/ SW Reservoir Avenue	Intersection	0.80/B	—	—	0.80/B
SW 53 rd Street/ Site Access (West)	SB L	0.31/A	High WB exiting volumes.	Single-lane roundabout with SB by-pass and NB and WB right-turn lanes.	NB 0.59/B
	WB L	3.61/F			SB 0.00/A
	WB R	0.42/C			WB 0.36/B
SW 53 rd Street/ SW West Hills Road	NB	1.07/F	High EB volumes conflicting with high NB and SB volumes and only one circulating roadway.	Add right-turn lanes on all approaches.	0.88/D
	SB	1.11/F			0.81/C
	EB	0.57/C			0.32/A
	WB	0.88/E			0.44/B
SW 53 rd Street/ SW Philomath Boulevard	Intersection	0.92	High SB left-turn and EB thru volumes in one lane.	Add 2 nd SB left-turn lane and widen Philomath to 2 thru lanes.	0.65
SW West Hills Road/ Site Access (Southwest)	SB L	0.54/D	—	—	0.54/D
	SB R	0.10/B			0.10/B
	EB L	0.09/A			0.09/A
SW West Hills Road/ SW Timian Street/ Site Access (Southeast)	NB L/T/R	0.31/D	High SB approach volume.	Single-lane roundabout.	NB 0.12/A
	SB L	0.83/F			SB 0.6/B
	SB T/R	0.27/C			EB 0.44/A
	EB L	0.06/A			WB 0.73/C
	WB L	0.01/A			—
SW Philomath Boulevard/ SW Technology Loop	Intersection	0.89	High WB and EB thru volumes in one lane.	Widen Philomath to 2 thru lanes in each direction.	0.62
SW Philomath Boulevard/ SW Timian Street	SB L/R	1.25/F	High WB and EB thru volumes in one lane.	Widen Philomath to 2 thru lanes in each direction.	0.66
	EB L	0.06/B			0.06
SW Philomath Boulevard/ SW Western Boulevard	NB T/L	1.05	High NB volume crossing high WB volume in one lane.	Widen Philomath to 2 thru lanes.	0.55
SW Hills Road/ SW Western Boulevard	EB L/R	1.15/F	High West Hills Road left-turn volumes conflicting with Western thru volumes.	Single-lane roundabout with NB and WB right-turn by-pass lanes.	NB 0.17/A
					EB 0.65/C
SW 35 th Street/ SW Washington Way	EB L/T/R	0.03/D	High NB and SB thru volumes in one lane.	Traffic signal.	0.60/A
	WB L/T/R	1.00/F			
SW 35 th Street/ SW Western Boulevard	Intersection	1.15/E	High WB thru volumes in one travel lane. No separate NBL left-turn lane.	Widen Western to 2 thru lanes. Add NB left-turn lane.	0.96/C
SW 35 th Street/ SW Philomath Boulevard	Intersection	0.65	High EB and WB thru volumes in one lane. High NB and SB thru/right volumes in one lane.	Widen 35 th to 2 thru lanes.	0.65/C

**TABLE 11 – INTERSECTION OPERATIONS ANALYSIS, PROPOSED ZONE DESIGNATION
(REASONABLE DEVELOPMENT SCENARIO) – AM PEAK HOUR**

Intersection	Critical Movement Lane Group	v/c Ratio/LOS	Deficiencies and Limitations	Potential Mitigation	v/c Ratio/LOS
		2037 Proposed Zone Designation (Reasonable Development)			2037 Proposed Zone Designation (Reasonable Development) Mitigated
NW 53 rd Street/ NW Harrison Boulevard	Intersection	0.41/B	—	—	0.41/B
SW 53 rd Street/ SW Reservoir Avenue	Intersection	0.72/B	—	—	0.72/B
SW 53 rd Street/ Site Access (West)	NB	—	<i>Mitigation Necessary for PM peak hour.</i>	Single-lane roundabout.	NB 0.54/B
	SB L	0.03/A			SB 0.48/A
	WB L	0.23/B			WB 0.39/B
SW 53 rd Street/ SW West Hills Road	WB R	0.51/D	—	—	—
	NB	0.57/B			0.57/B
	SB	0.61/B			0.61/B
	EB	0.80/D			0.80/D
SW 53 rd Street/ SW Philomath Boulevard	WB	0.20/A	<i>Mitigation Necessary for PM peak hour.</i>	Add 2 nd SB left-turn lane and 2 nd EB thru lane.	0.20/A
	Intersection	0.82			0.60
SW West Hills Road/ Site Access (Southwest)	SB L	0.16/B	—	—	0.16/B
	SB R	0.04/A			0.04/A
	EB L	0.01/A			0.01/A
SW West Hills Road/ SW Timian Street/ Site Access (Southeast)	NB L/T/R	0.06/B	—	—	0.06/B
	SB L	0.18/B			0.18/C
	SB T/R	0.09/B			0.09/B
	EB L	0.00/A			0.00/A
SW Philomath Boulevard/ SW Technology Loop	WB L	0.01/A	High EB thru volumes in one lane.	Add 2 nd EB thru lane.	0.01/A
	Intersection	0.89			0.59
SW Philomath Boulevard/ SW Timian Street	SB L/R	0.35	—	Add 2 nd EB thru lane.	0.20
	EB L	0.01			0.01
SW Philomath Boulevard/ SW Western Boulevard	NB T/L	0.85	<i>Mitigation Necessary for PM peak hour.</i>	Add 2 nd WB thru lane	0.55
SW Hills Road/ SW Western Boulevard	EB L/R	1.05/F	High West Hills Road left-turn volumes conflicting with Western thru volumes.	Single-lane roundabout with WB right-turn bypass lane.	NB 0.29/A EB 0.54/B WB 0.23/A
SW 35 th Street/ SW Washington Way	EB L/T/R	0.01/D	<i>Mitigation Necessary for PM peak hour.</i>	Traffic Signal.	—
	WB L/T/R	0.17/C			—
Intersection	—	—			0.47/A
SW 35 th Street/ SW Western Boulevard	Intersection	0.82/C	—	—	0.81/C
SW 35 th Street/ SW Philomath Boulevard	Intersection	0.67	—	—	0.67

**TABLE 12 – INTERSECTION OPERATIONS ANALYSIS, PROPOSED ZONE DESIGNATION
(REASONABLE DEVELOPMENT SCENARIO) – PM PEAK HOUR**

Intersection	Critical Movement Lane Group	v/c Ratio/LOS	Deficiencies and Limitations	Potential Mitigation	v/c Ratio/LOS
		2037 Proposed Zone Designation (Reasonable Development)			2037 Proposed Zone Designation (Reasonable Development) Mitigated
NW 53 rd Street/ NW Harrison Boulevard	Intersection	0.56/B	—	—	0.56/B
SW 53 rd Street/ SW Reservoir Avenue	Intersection	0.67/B	—	—	0.67/B
SW 53 rd Street/ Site Access (West)	NB	—	High WB approach volumes turning on major roadway.	Single-lane roundabout.	NB 0.65/B
	SB L	0.12/A			SB 0.68/B
	WB L	0.46/E			WB 0.21/A
	WB R	0.12/B			—
SW 53 rd Street/ SW West Hills Road	NB	0.78/C	—	—	0.78/C
	SB	0.82/D			0.82/D
	EB	0.41/B			0.41/B
	WB	0.56/C			0.56/C
SW 53 rd Street/ SW Philomath Boulevard	Intersection	0.86	High SB left-turn and EB thru volumes in one lane.	Add 2 nd SB left-turn lane and 2 nd EB thru lane.	0.85
SW West Hills Road/ Site Access (Southwest)	SB L	0.11/B	—	—	0.11/B
	SB R	0.03/B			0.03/B
	EB L	0.03/A			0.03/A
SW West Hills Road/ SW Timian Street/ Site Access (Southeast)	NB L/T/R	0.10/B	—	—	0.10/B
	SB L	0.12/C			0.12/C
	SB T/R	0.06/B			0.05/B
	EB L	0.02/A			0.02/A
SW Philomath Boulevard/ SW Technology Loop	Intersection	0.81	Mitigation Necessary for AM peak hour.	Add 2 nd EB thru lane.	0.73
		0.37	—	Add 2 nd EB thru lane.	0.22
SW Philomath Boulevard/ SW Timian Street	EB L	0.03			0.03
SW Philomath Boulevard/ SW Western Boulevard	NB T/L	0.89	High NB thru volumes crossing major roadway.	Add 2 nd WB thru lane.	0.51
SW Hills Road/ SW Western Boulevard	EB L/R	0.60/D	Mitigation Necessary for AM peak hour.	Single-lane roundabout with WB right-turn by-pass lane.	NB 0.17/A EB 0.34/A WB 0.83/C
SW 35 th Street/ SW Washington Way	EB L/T/R	0.02/C	High WB approach volumes turning on major roadway.	Traffic signal.	—
	WB L/T/R	0.76/F			—
SW 35 th Street/ SW Washington Way	Intersection	—	—	—	0.52/A
SW 35 th Street/ SW Western Boulevard	Intersection	0.98/D	—	—	0.74/B
SW 35 th Street/ SW Philomath Boulevard	Intersection	0.61	—	—	0.61

VII. MITIGATION

As identified in the tables in the *Intersection Analysis* section above, plan year (2037) transportation infrastructure mitigation is necessary regardless of the scenario, and as expected, the greater the level of assumed development, the more mitigation necessary. The following summarizes mitigation necessary for each development scenario in ascending order of development.

2017 Existing Conditions

- SW 35th Street/SW Philomath Boulevard intersection operations exceed the mobility standard; however, no mitigation is contemplated for this scenario.

2037 Current Zone Designation

- Widen NW 53rd Street to two thru lanes in both north and southbound directions – from north of NW Harrison Boulevard to SW Reservoir Avenue.
- Widen SW Philomath Boulevard to two thru lanes in both east and westbound directions – near the SW 35th Street intersection.
- Widen SW 35th Street – at the SW Philomath Boulevard intersection.
- Widen SW 35th Street – at the SW Western Boulevard intersection.

2037 Proposed Zone Designation – Maximum Development Scenario

- Install a roundabout with bypass lanes – at the SW 53rd Street/Site Access (West) intersection.
- Install roundabout bypass lanes – at the SW 53rd Street/SW West Hills Road intersection.
- Widen SW Philomath Boulevard to two thru lanes in the both east and westbound directions – from SW 53rd Street to SW Timian Street.
- Add a second southbound left-turn lane on 53rd Street – at the SW Philomath Boulevard intersection.
- Install a roundabout – at the SW West Hills Road/SW Timian Street/Site Access (Southeast) intersection.
- Widen SW Philomath Boulevard to two thru lanes in the westbound direction – near the SW Western Boulevard intersection.
- Realign the SW West Hills Road/SW Western Boulevard Loop intersection and install a roundabout.
- Install a traffic signal – at the SW 35th Street/SW Washington Way intersection.
- Widen SW Western Boulevard to two thru lanes in both east and westbound directions – at the SW 35th Street intersection.

- Widen SW 35th Street to two thru lanes in both the north and southbound directions – at the SW Philomath Boulevard intersection. However, due to the nature of roadway improvements and adjacent intersection operations, consideration should be given to widening the roadway to two thru lanes in both north and southbound directions – from SW Western Boulevard to SW Philomath Boulevard.

2037 Proposed Zone Designation – Reasonable Development Scenario

- Install a roundabout – at the SW 53rd Street/Site Access (West) intersection.
- Widen SW Philomath Boulevard to two thru lanes in the eastbound direction – from SW 53rd Street to SW Timian Street. However, due to the nature of roadway improvements, consideration should be given to widening the roadway to two thru lanes in both east and westbound directions.
- Add a second southbound left-turn lane on 53rd Street – at the SW Philomath Boulevard intersection.
- Widen SW Philomath Boulevard to two thru lanes in the westbound direction – near the SW Western Boulevard intersection.
- Realign the SW West Hills Road/SW Western Boulevard Loop intersection and install a roundabout.
- Install a traffic signal at the SW 35th Street/SW Washington Way intersection.

Considering the identified mitigation, all intersections are anticipated to operate at acceptable Corvallis and ODOT mobility standards in the plan year, thereby addressing agency criteria.

It is important to note; the identified infrastructure improvements mitigate Maximum Development and the Reasonable Development scenario impacts. As such, this may not be the mitigation necessary for a specific development application – but the identified infrastructure needs/improvements can be generally used to identify plan year infrastructure deficiencies (improvement needs).

VIII. CONCLUSION

The following are key findings supported by analysis results presented in this TIA for the proposed Mary's Annexation.

- The Mary's property is approximately 119 acres in size and is located north of SW West Hills Road and east of SW 53rd Street.
- Proposed land use actions include annexing the property from Benton County into the City of Corvallis and rezoning from Benton County Urban Residential 50-Acre Minimum (UR-50) and Urban Residential 5-Acre Minimum (UR-5) to Corvallis Mixed-Use Residential (MUR), Residential – Medium High Density (RS-12) and Conservation - Open Space (C-OS), consistent with the Corvallis Comprehensive plan.
- TIA addresses the following requirements:
 - Transportation Planning Rule (TPR) criteria outlined in Oregon Administrative Rule (OAR) 660 012-0060
 - September 2015 Traffic Impact Study Requirements for Development within the City of Corvallis
 - Corvallis Transportation Plan (CTP) Section 3.30.40 – Traffic Levels of Service
 - Corvallis Comprehensive Plan (CP) Policy 11.3.9
 - Corvallis Land Development Code (LDC) Section 4.0.60 – Public and Private Street Requirements
 - Corvallis Land Development Code (LDC) Section 2.6.30.06 – Review Criteria for Annexation Proposals (Specific to Transportation)
- The TIA study area includes an evaluation of 14 intersections within a one-mile radius of the site (measured from the average point within the Annexation site impacted with at least 30 trips from the proposed site during the AM or PM peak hours, and having a trip volume increase by at least 10%.
- Because specific development is unknown, this transportation analysis evaluates impacts resulting from hypothetical development scenarios in the current Benton County UR-50 and UR-5 zone designations, and proposed Corvallis MUR and RS-12 zone designations. Based on guidance from City of Corvallis staff, two development scenarios for the proposed zone designations are evaluated: 1) The Maximum Development Scenario, and 2) The Reasonable Development Scenario.
- Within the existing study area, multiple intersections exceed Agency mobility standards in the plan year for either the Maximum Development or Reasonable Development Scenarios. With either scenario, mitigation is necessary to address deficiencies and to allow the intersections to operate at acceptable Corvallis mobility standards in the plan year, thereby addressing TPR criteria.
- Considering the identified mitigation, all intersections are anticipated to operate at acceptable Corvallis and ODOT mobility standards in the plan year, thereby addressing agency criteria.
- It is important to note; the identified infrastructure improvements mitigate Maximum Development and the Reasonable Development scenario impacts. As such, this may not be the mitigation necessary for a specific development application but the identified infrastructure needs/improvements can be generally used to identify plan year infrastructure deficiencies (improvement needs).

IX. APPENDICES

- A. Figures**
- B. Traffic Count Summaries**
- C. Trip Generation Reference Materials**
- D. Synchro HCM Reports**

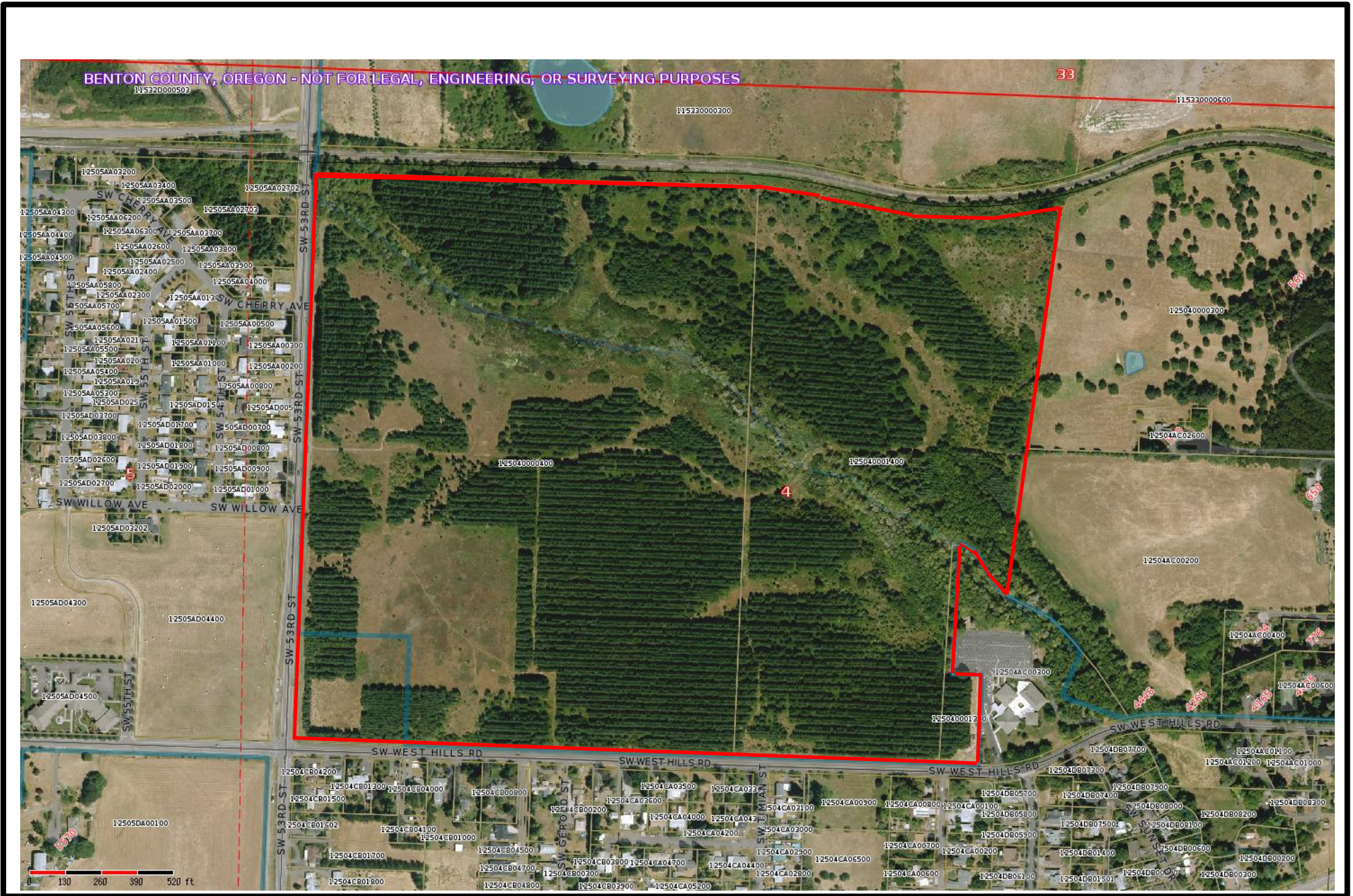
Appendix A



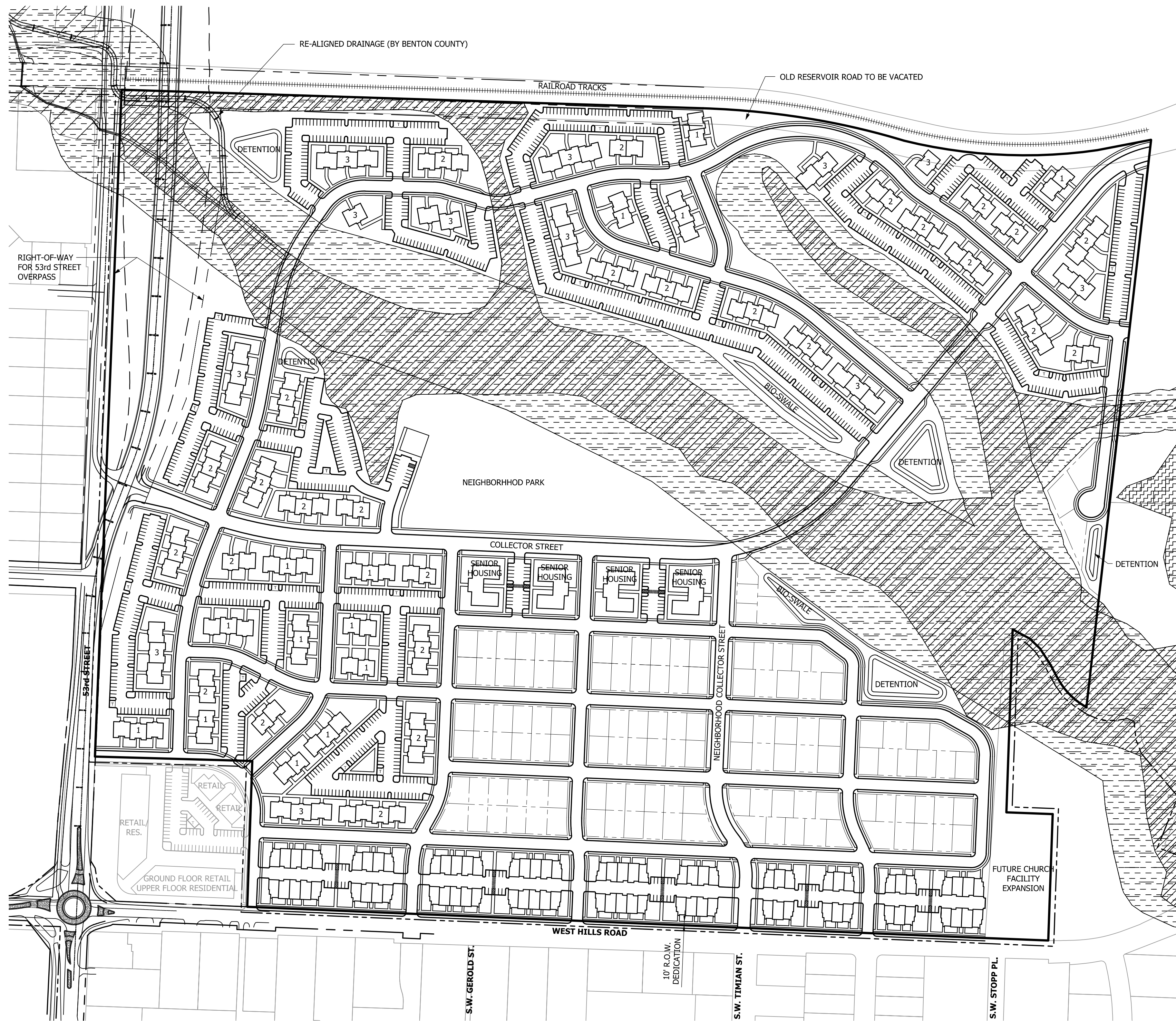


Map

CMT ANNEXATION BOUNDARY



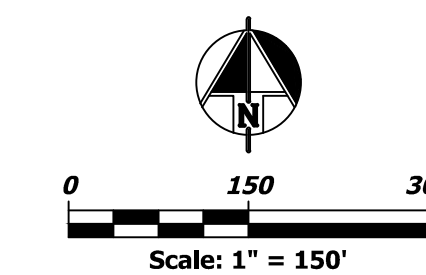
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UNIT STATISTICS				
DWELLING TYPE	# BEDROOMS	# STORIES	# UNITS	% TOTAL UNITS
APARTMENTS	1	3	234	21%
APARTMENTS	2	3	432	39%
APARTMENTS	3	3	174	15%
TOWNHOMES	3	2	82	7%
SINGLE FAMILY HOMES	2/3	1/2	131	12%
SENIOR HOUSING	16/BLDG	1	64	6%
TOTAL			1,117	100%

SITE STATISTICS	
GROSS ANNEXATION AREA	118.63 AC
PROTECTED RIPARIAN COORIDOR / WETLANDS	30.88 AC
53rd ST. RIGHT-OF-WAY TO BE SOLD TO BENTON COUNTY	5.31 AC
NEIGHBORHOOD PARK	4.78 AC
FUTURE CHURCH EXPANSION	1.47 AC
NET DEVELOPABLE	76.19 AC
ACTUAL DENSITY WITH 1,117 UNITS	14.66 UNITS / AC

LEGEND	
	PROTECTED RIPARIAN CORRIDOR
	WETLAND
	CITY LIMITS
	ANNEXATION BOUNDARY

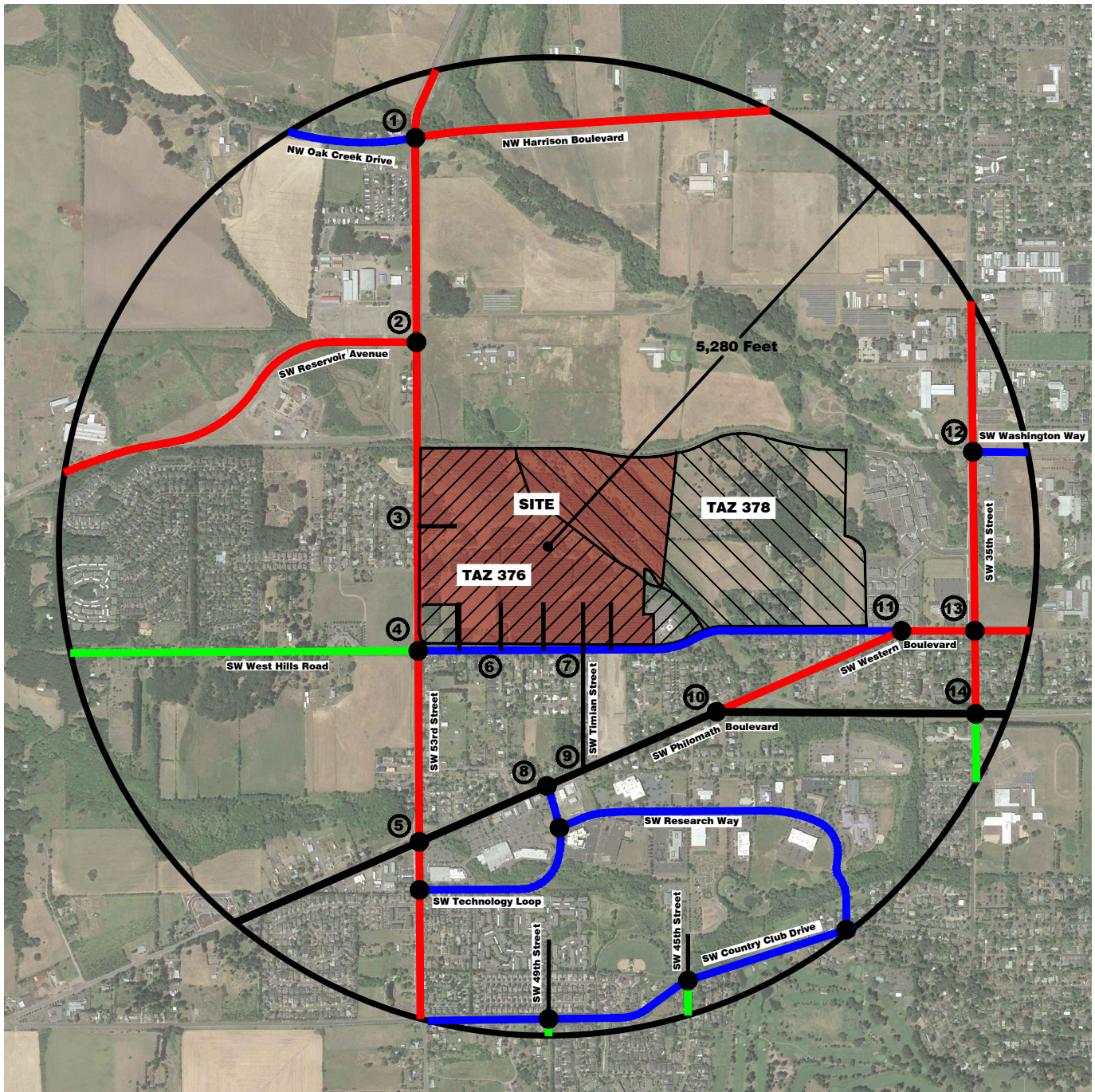


Designed:	
Drafted:	
Checked:	
Date:	
Revision:	

General Land Use Plan

Mary's Annexation

WILLAMETTE
 VALLEY PLANNING, LLC
 545 N.W. ELIZABETH DRIVE
 CORVALLIS, OR. 97330
 541-231-6111



DEVELOPMENT AREA		
Description	Area (approx. AC)	% Occupied by Development
Development Site	119	100
TAZ 376	92	90
TAZ 378	120	30

Corvallis Transportation Plan Roadway Classifications

LEGEND

- Arterial Highways
- Arterials
- Collectors
- Neighborhood Collectors
- Local Streets
- Major Intersections
- ⊕ Study Intersections



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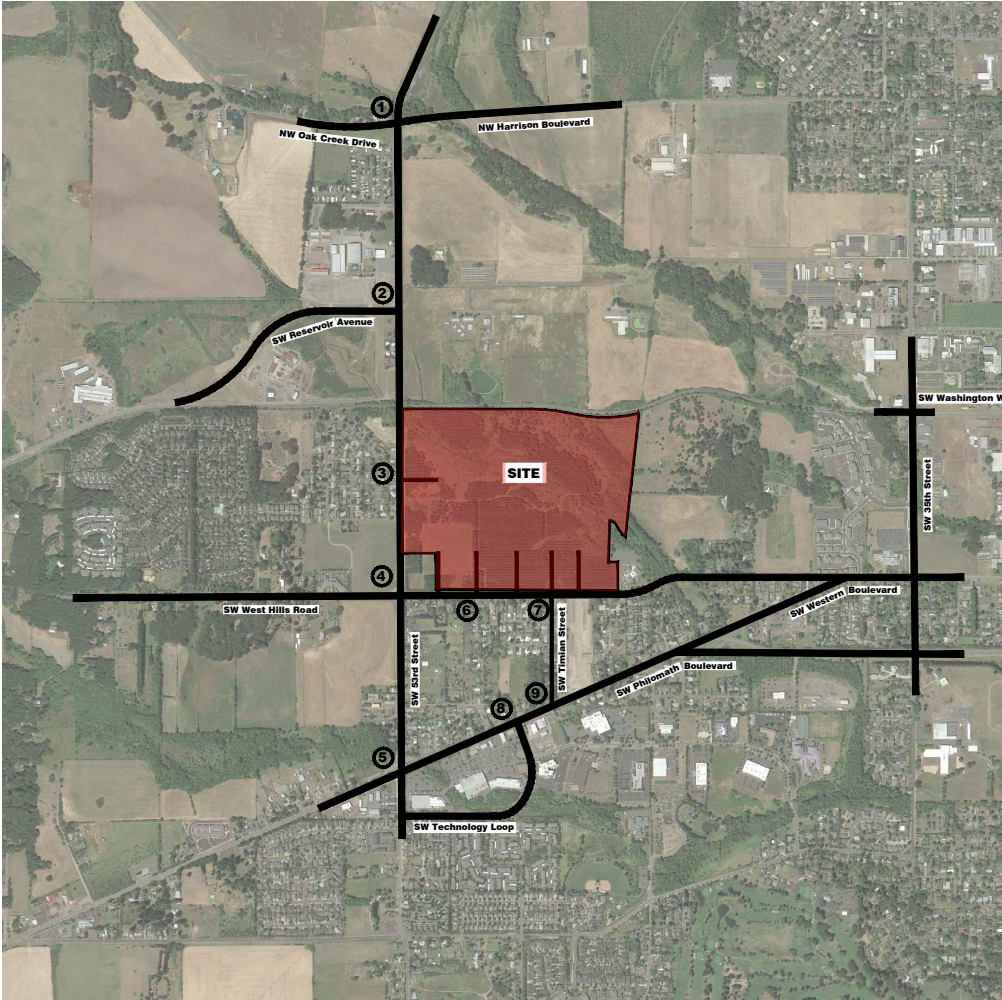
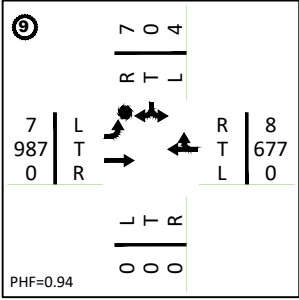
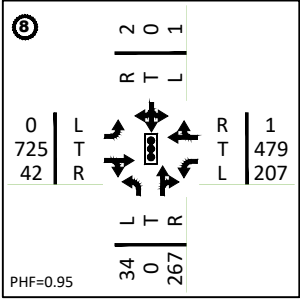
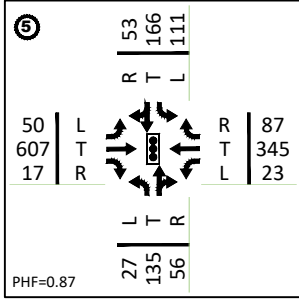
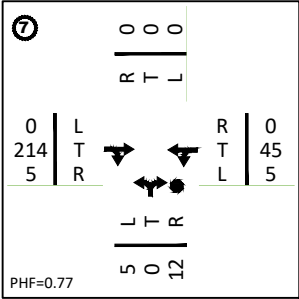
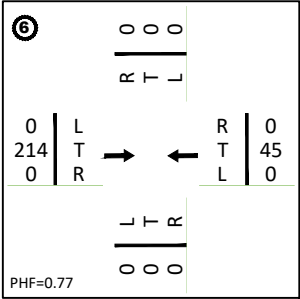
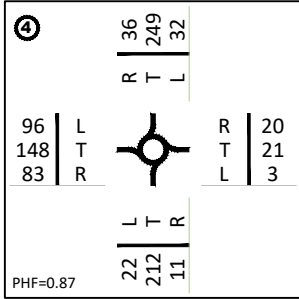
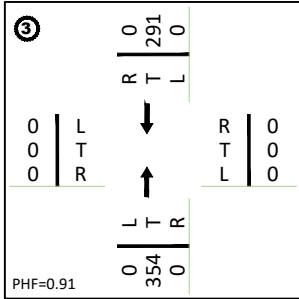
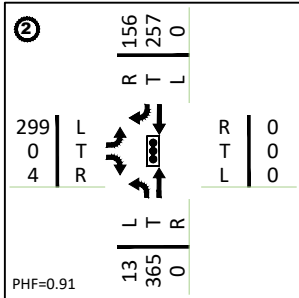
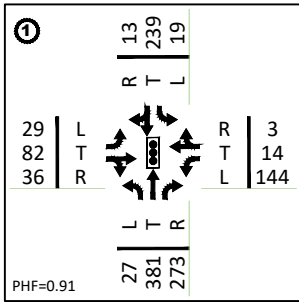
STUDY AREA

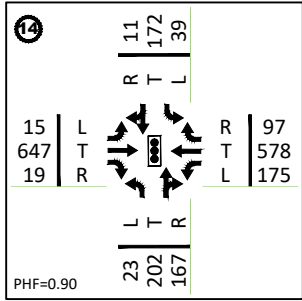
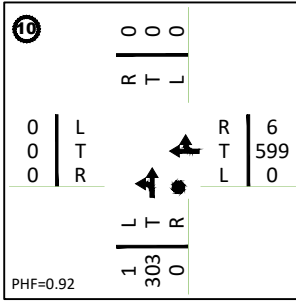
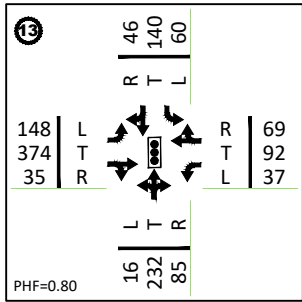
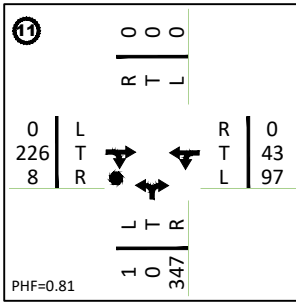
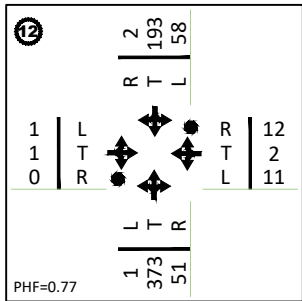
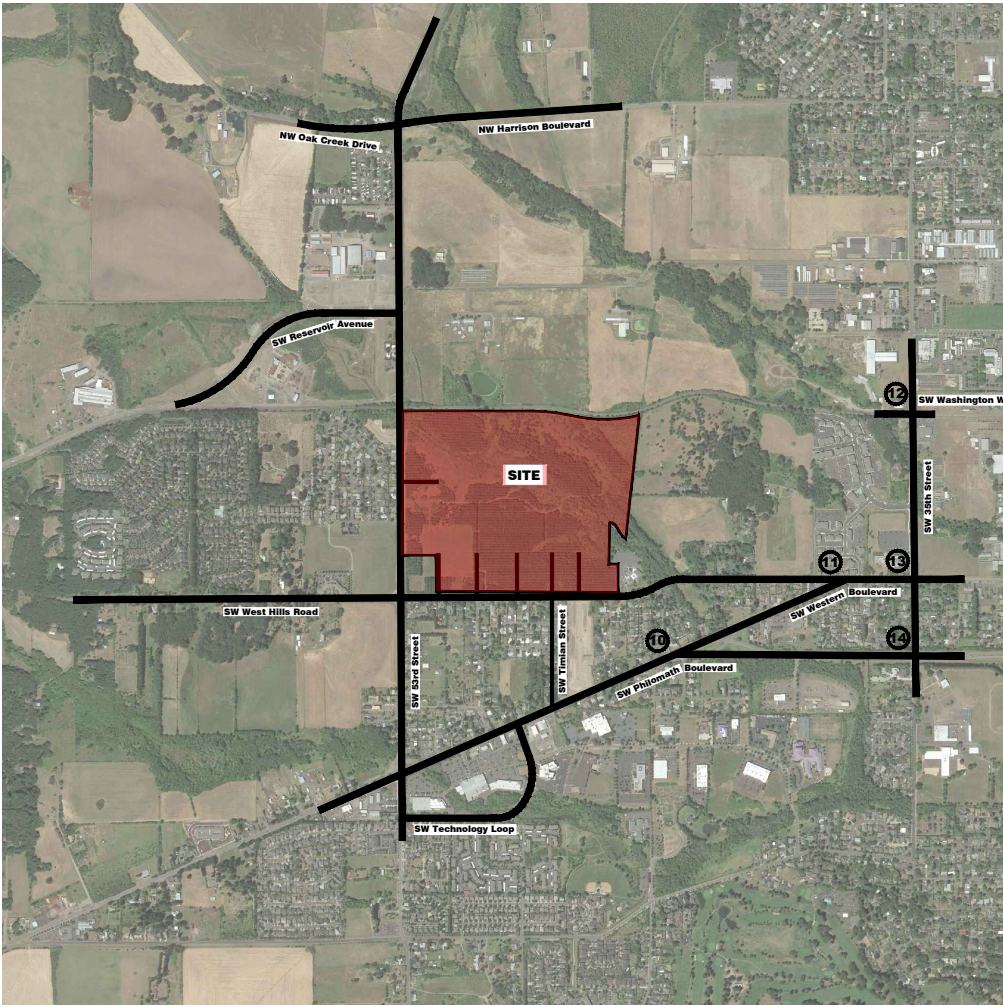
Mary's Annexation - Corvallis, Oregon

Project No. 20161202.00

FIGURE

1

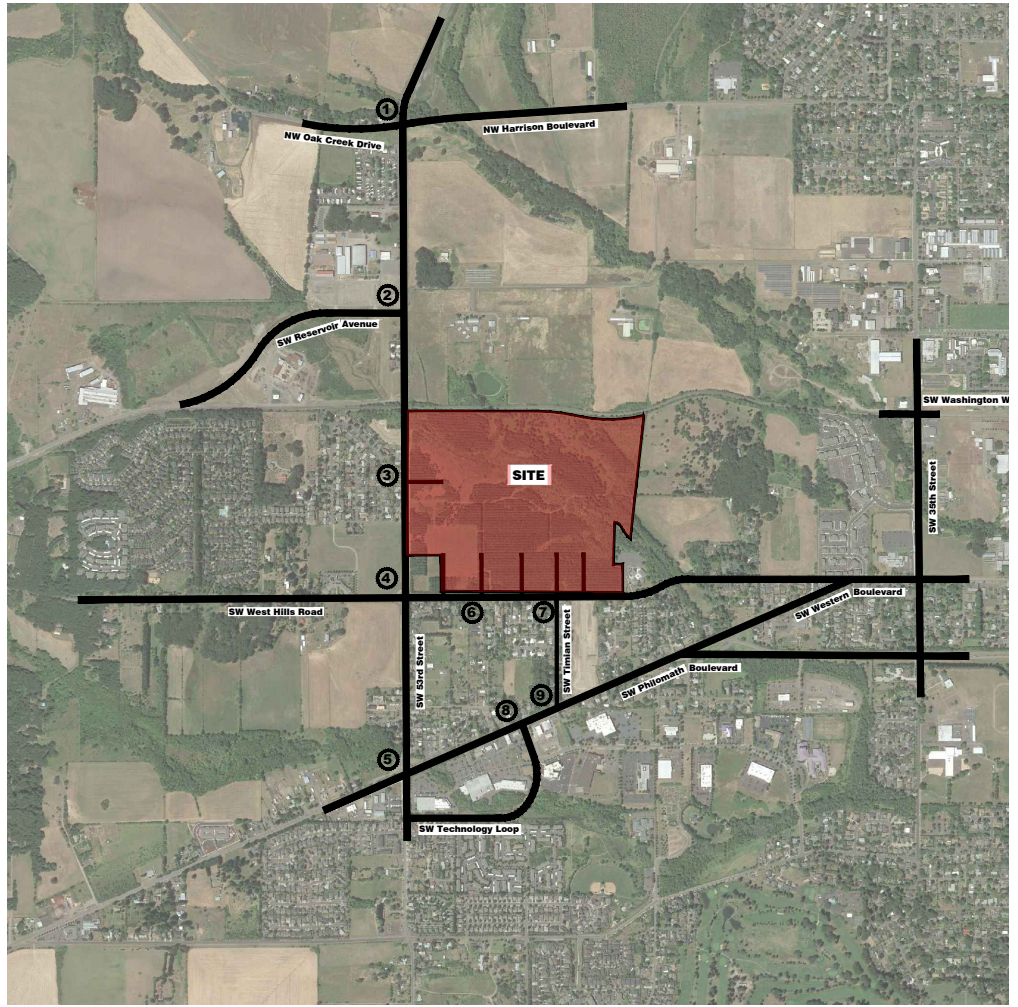
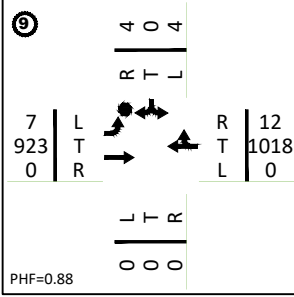
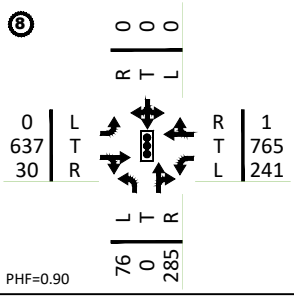
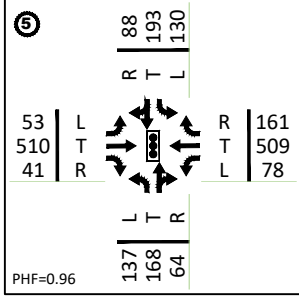
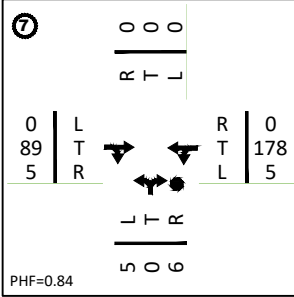
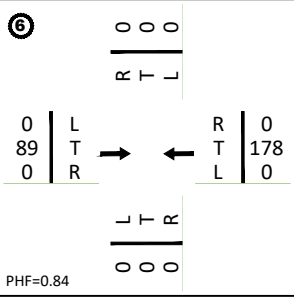
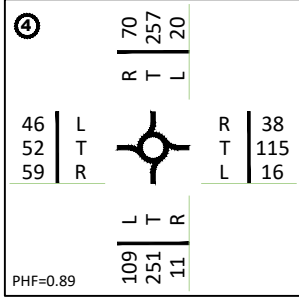
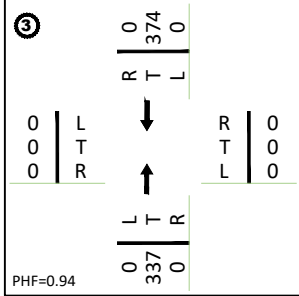
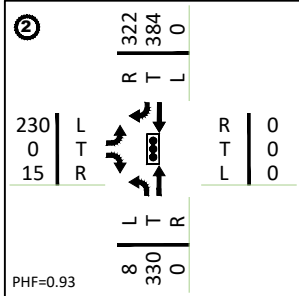
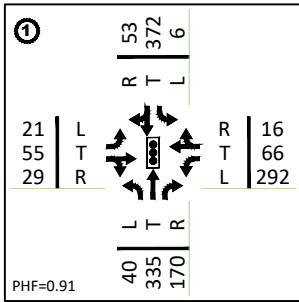




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2017 CURRENT ZONE DESIGNATION TRAFFIC VOLUMES
AM Peak Hour (East Portion)
 Mary's Annexation - Corvallis, Oregon
 Project No. 20161202.00

FIGURE
3



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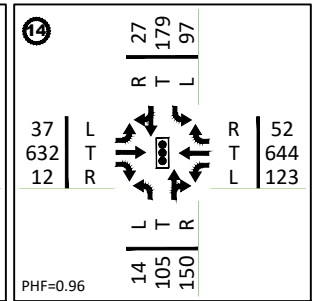
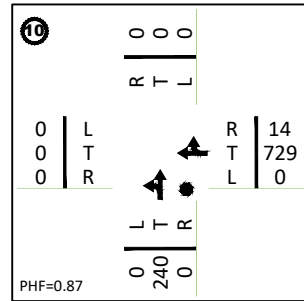
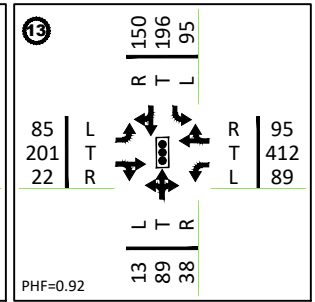
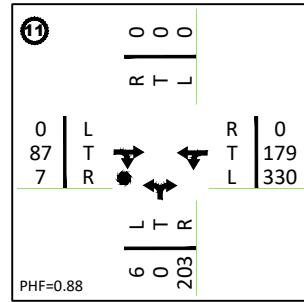
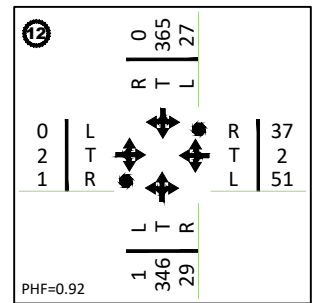
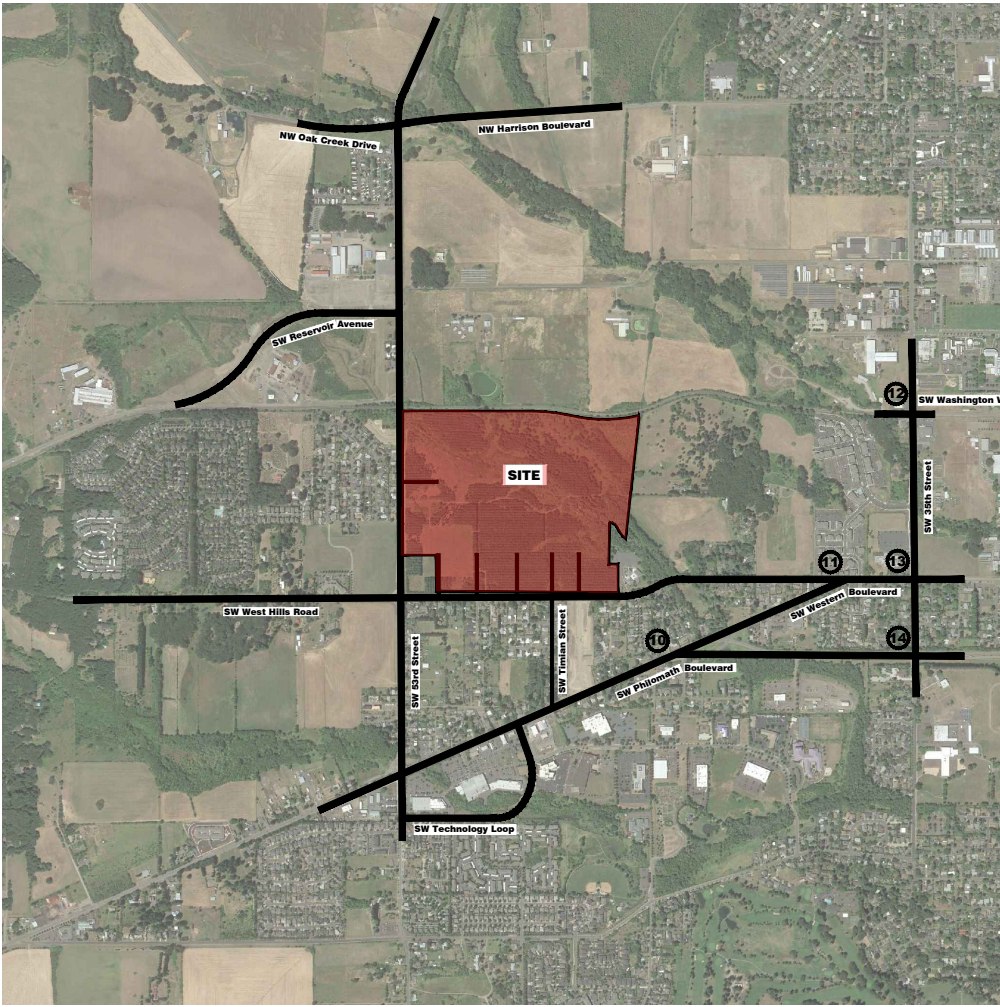
2017 CURRENT ZONE DESIGNATION TRAFFIC VOLUMES
PM Peak Hour (West Portion)

Mary's Annexation - Corvallis, Oregon

Project No. 20161202.00

FIGURE

4



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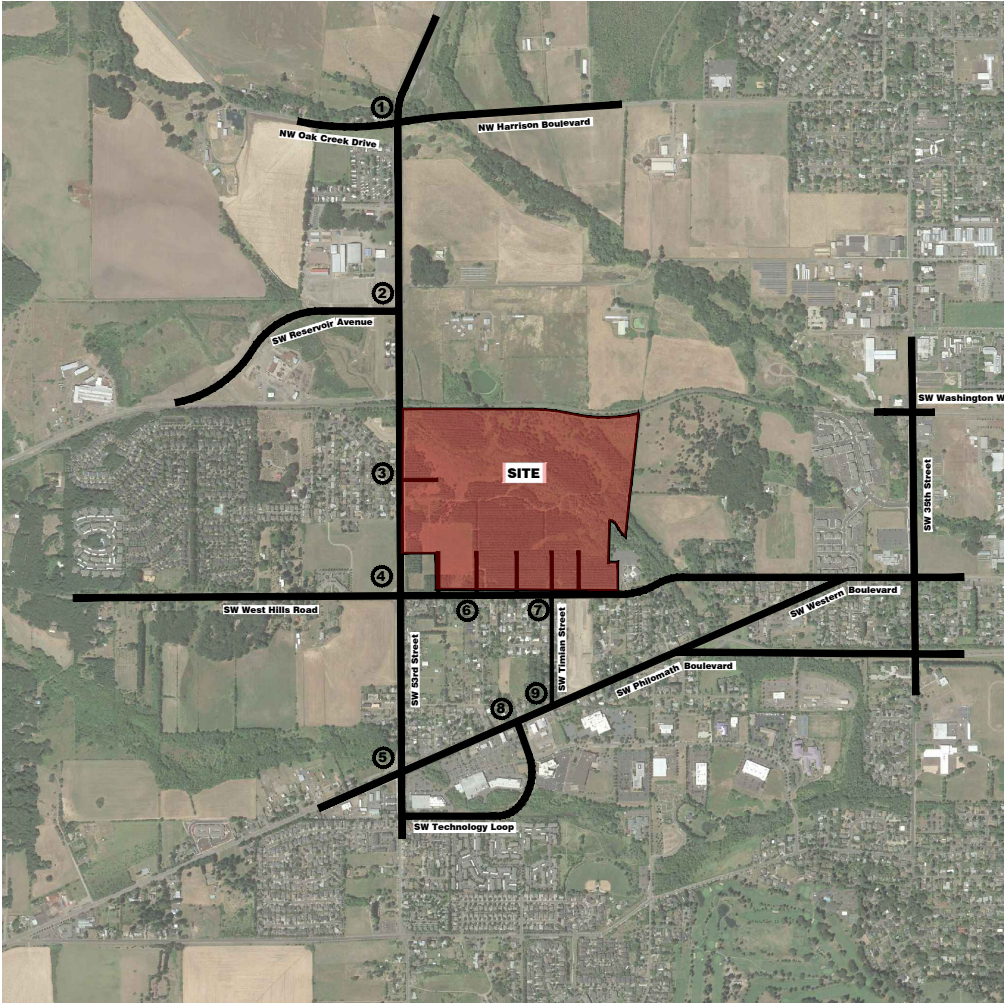
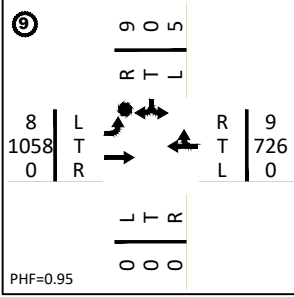
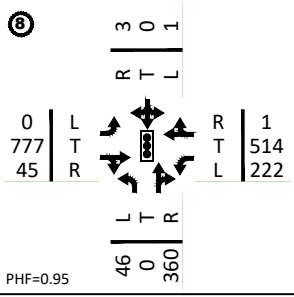
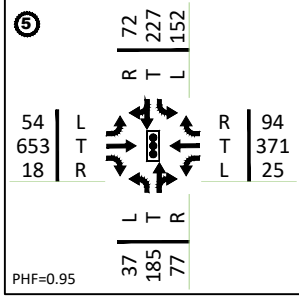
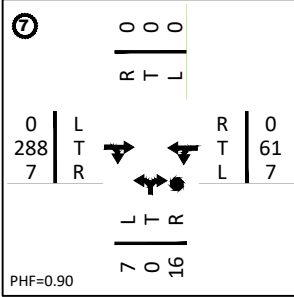
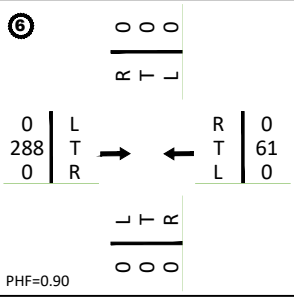
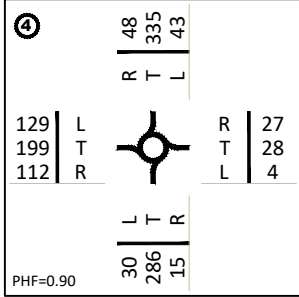
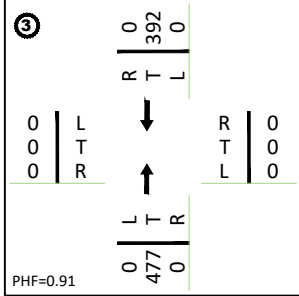
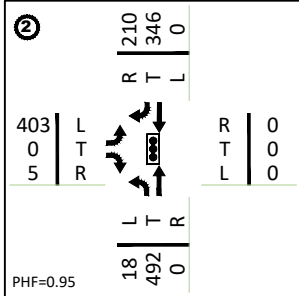
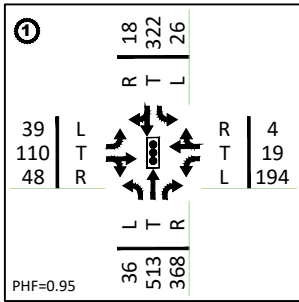
**2017 CURRENT ZONE DESIGNATION TRAFFIC VOLUMES
 PM Peak Hour (East Portion)**

Mary's Annexation - Corvallis, Oregon

Project No. 20161202.00

FIGURE

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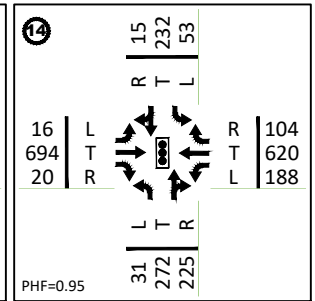
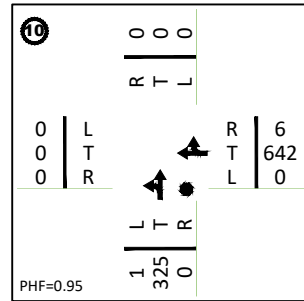
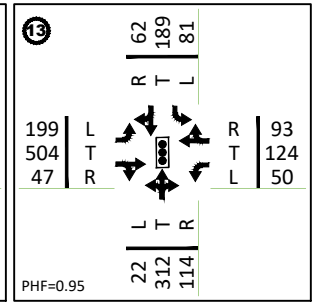
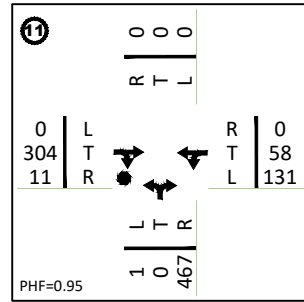
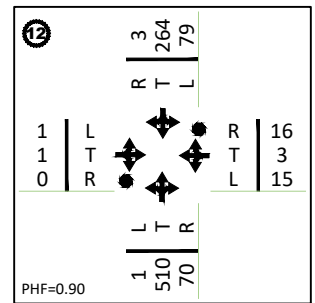
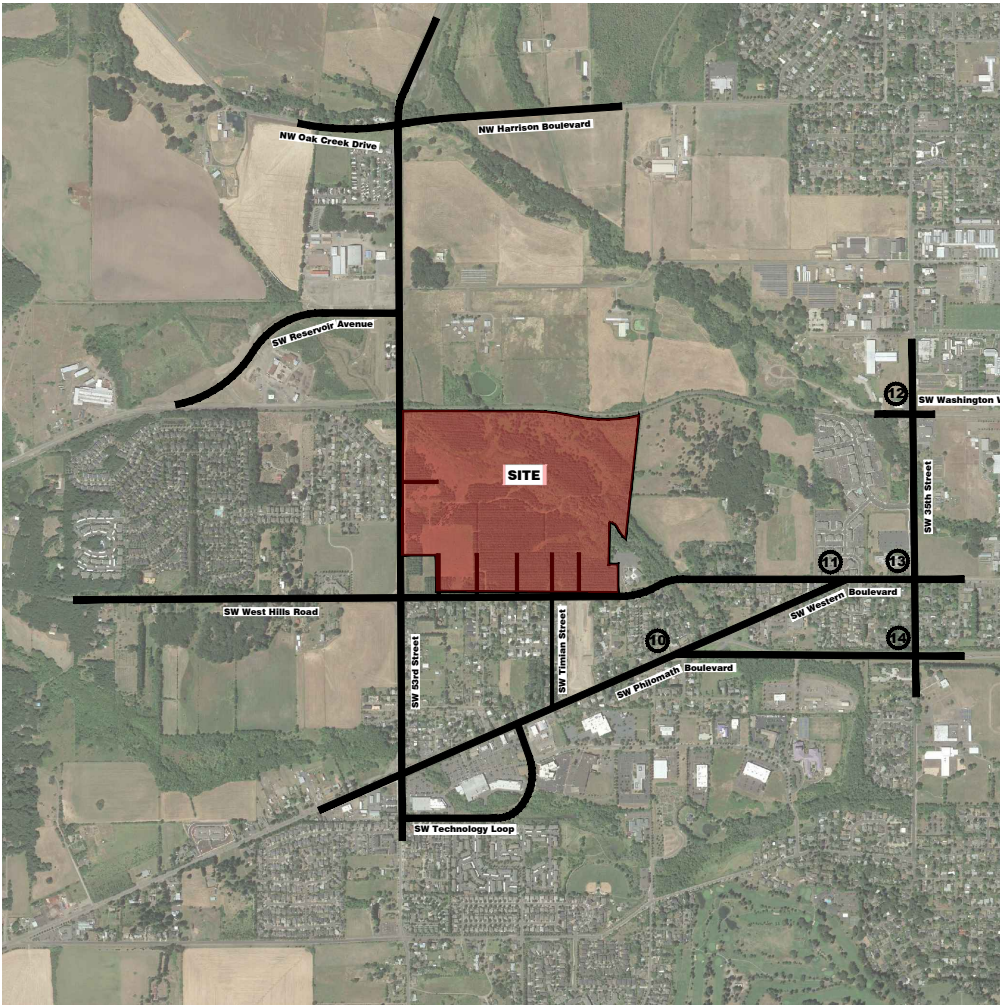
**2037 CURRENT ZONE DESIGNATION TRAFFIC VOLUMES
 AM Peak Hour (West Portion)**

Mary's Annexation - Corvallis, Oregon

Project No. 20161202.00

FIGURE

6



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**2037 CURRENT ZONE DESIGNATION TRAFFIC VOLUMES
 AM Peak Hour (East Portion)**

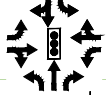
Mary's Annexation - Corvallis, Oregon

Project No. 20161202.00


FIGURE

7

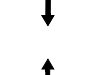
1

			71		
			R	T	L
28	L			R	22
74	T			T	89
39	R			L	393
PHF=0.95					
			54		
			L	T	R
			451		
			L	T	R
			229		


2

			434		
			R	T	L
310	L			R	0
0	T			T	0
20	R			L	0
PHF=0.95					
			11		
			L	T	R
			444		
			L	T	R
			0		


3

			0		
			R	T	L
0	L			R	0
0	T			T	0
0	R			L	0
PHF=0.91					
			0		
			L	T	R
			454		
			L	T	R
			0		

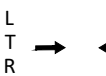
4

			94		
			R	T	L
62	L			R	51
70	T			T	155
79	R			L	22
PHF=0.90					
			147		
			L	T	R
			338		
			L	T	R
			15		


5

			120		
			R	T	L
57	L			R	173
549	T			T	548
44	R			L	84
PHF=0.95					
			187		
			L	T	R
			230		
			L	T	R
			87		

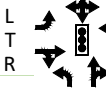
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			0		
			R	T	L
0	L			R	0
120	T			T	240
0	R			L	0
PHF=0.90					
			0		
			L	T	R
			0		
			0		
			0		


7

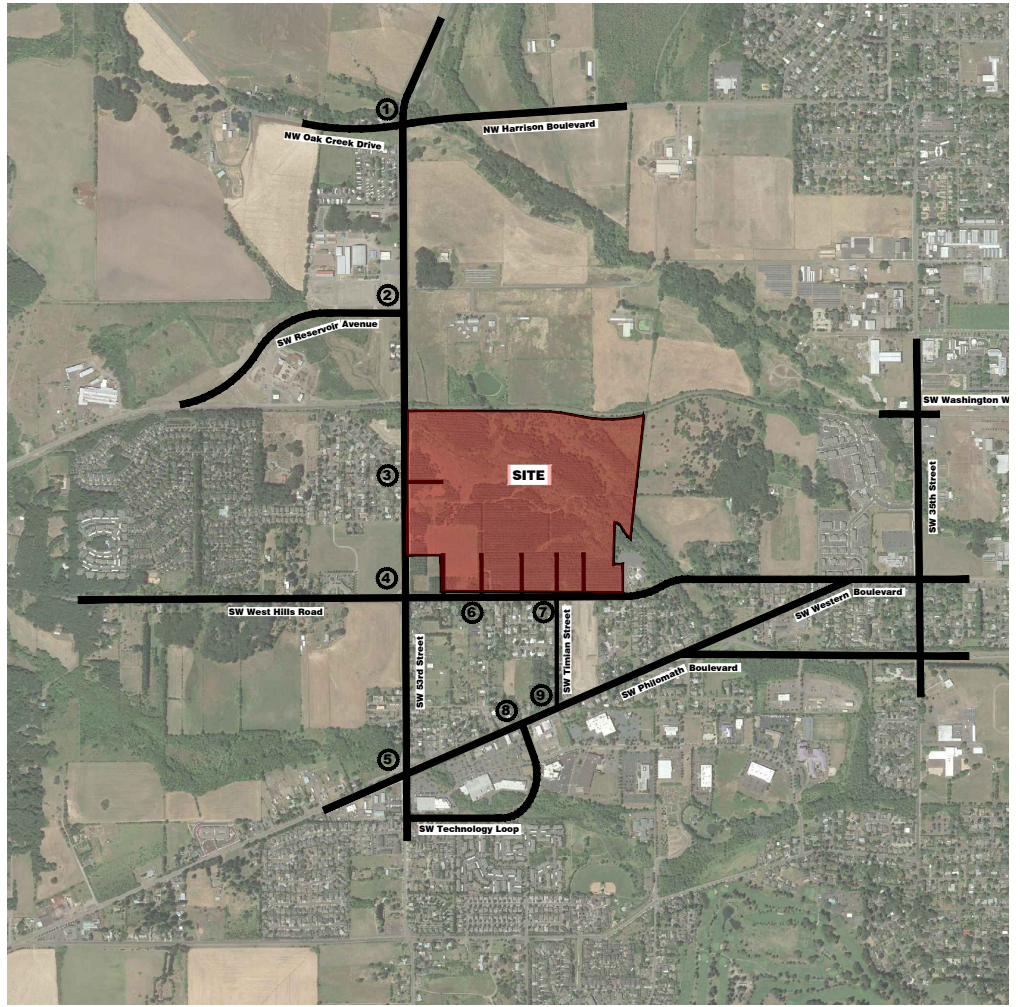
			0		
			R	T	L
0	L			R	0
120	T			T	240
7	R			L	7
PHF=0.90					
			7		
			L	T	R
			0		
			0		
			8		

8

			0		
			R	T	L
0	L			R	1
683	T			T	820
32	R			L	258
PHF=0.95					
			102		
			L	T	R
			0		
			0		
			384		

9

			5		
			R	T	L
8	L			R	13
990	T			T	1092
0	R			L	0
PHF=0.95					
			0		
			L	T	R
			0		
			0		

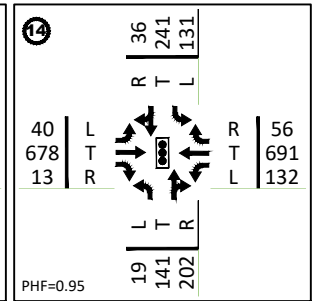
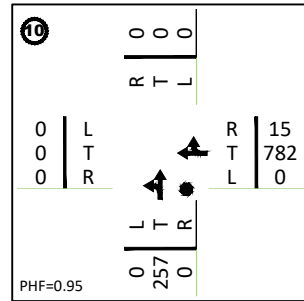
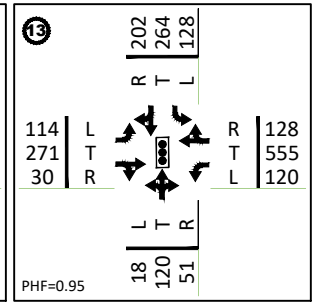
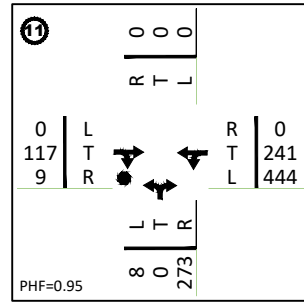
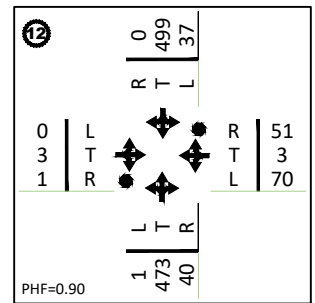
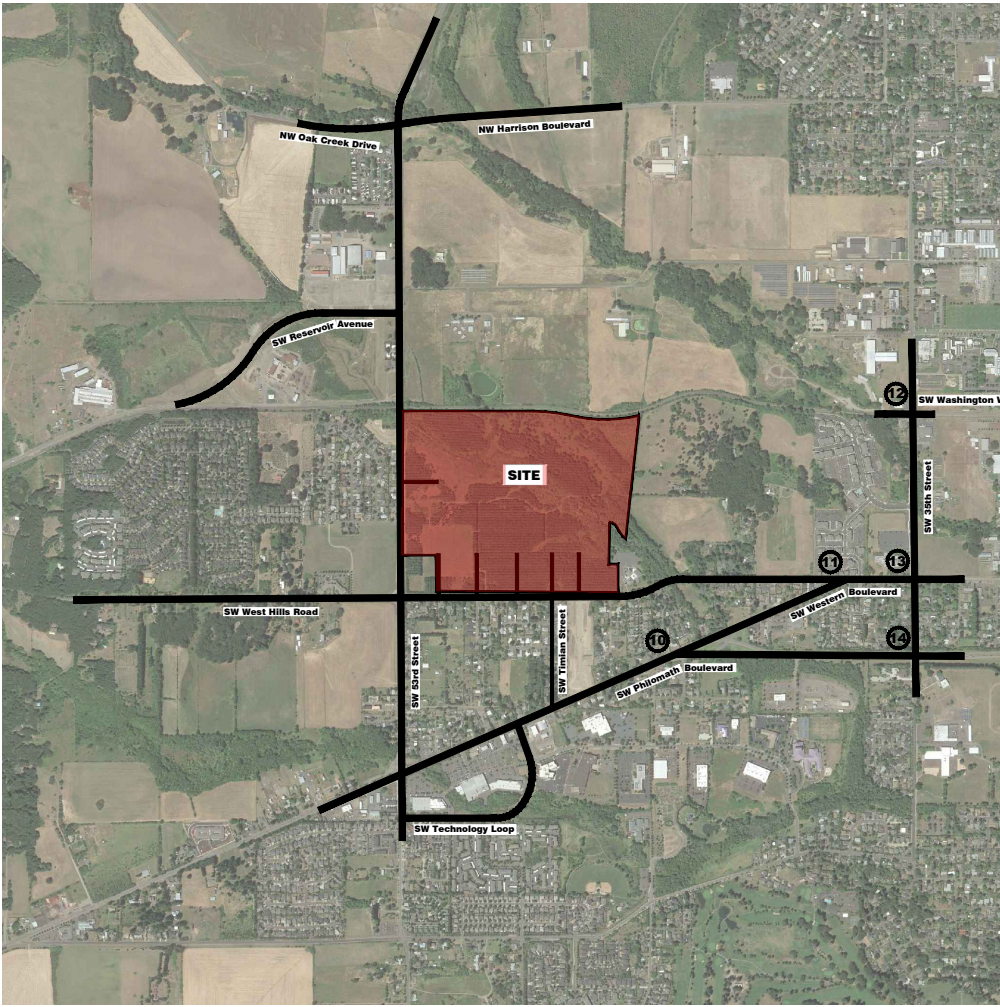


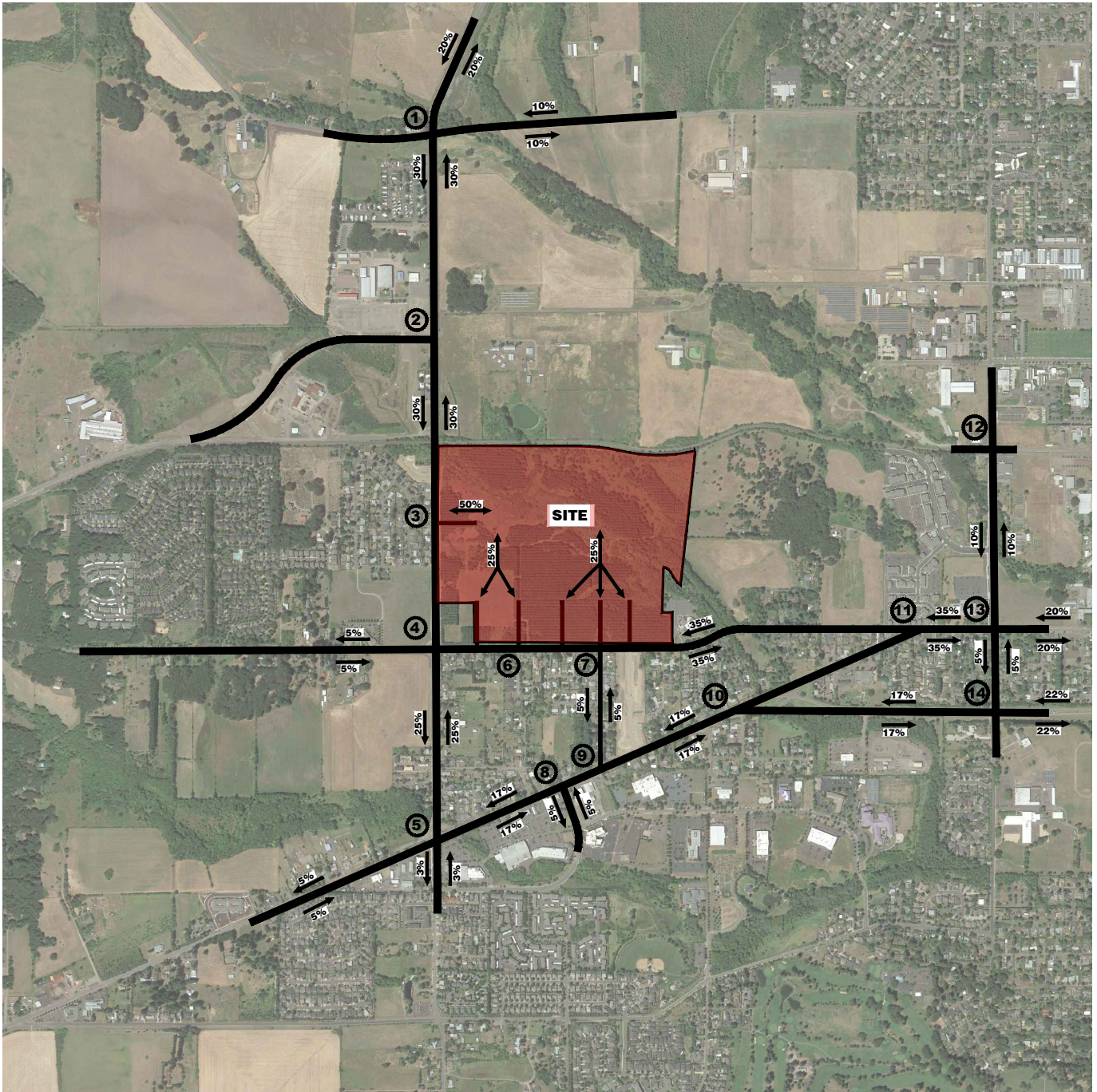
1582 Fetters Loop
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2037 CURRENT ZONE DESIGNATION TRAFFIC VOLUMES
PM Peak Hour (West Portion)

Mary's Annexation - Corvallis, Oregon

Project No. 20161202.00





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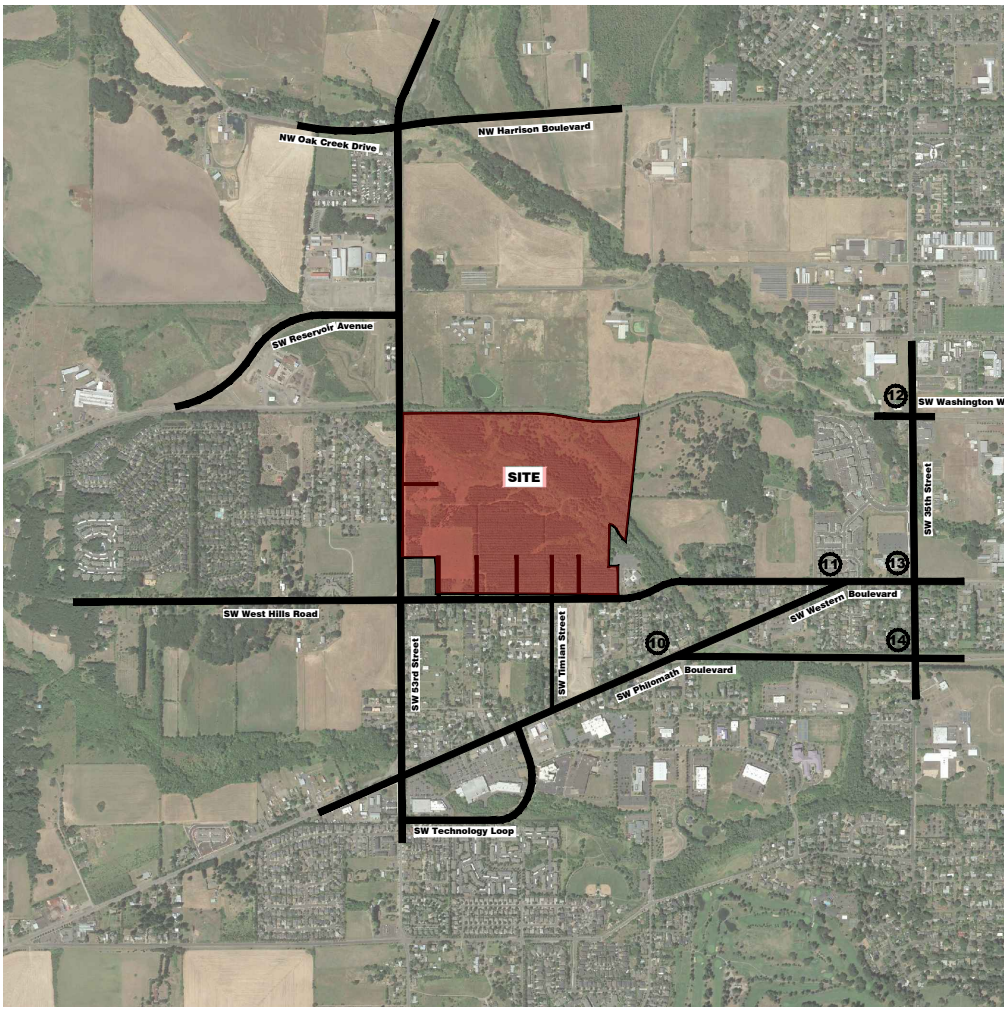
TRIP DISTRIBUTION

Mary's Annexation - Corvallis, Oregon

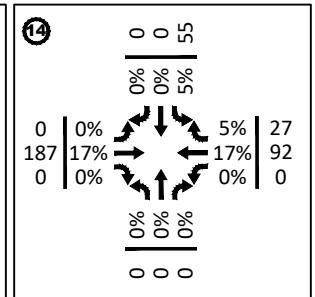
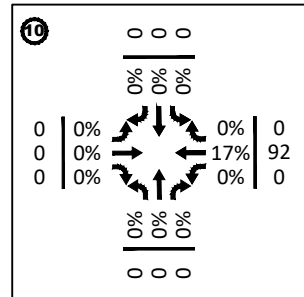
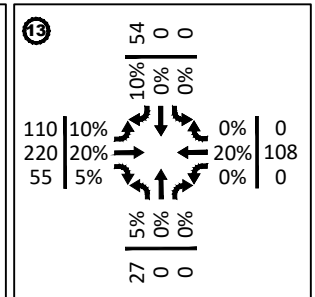
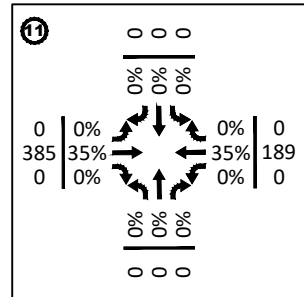
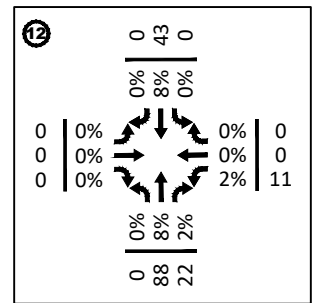
Project No. 20161202.00

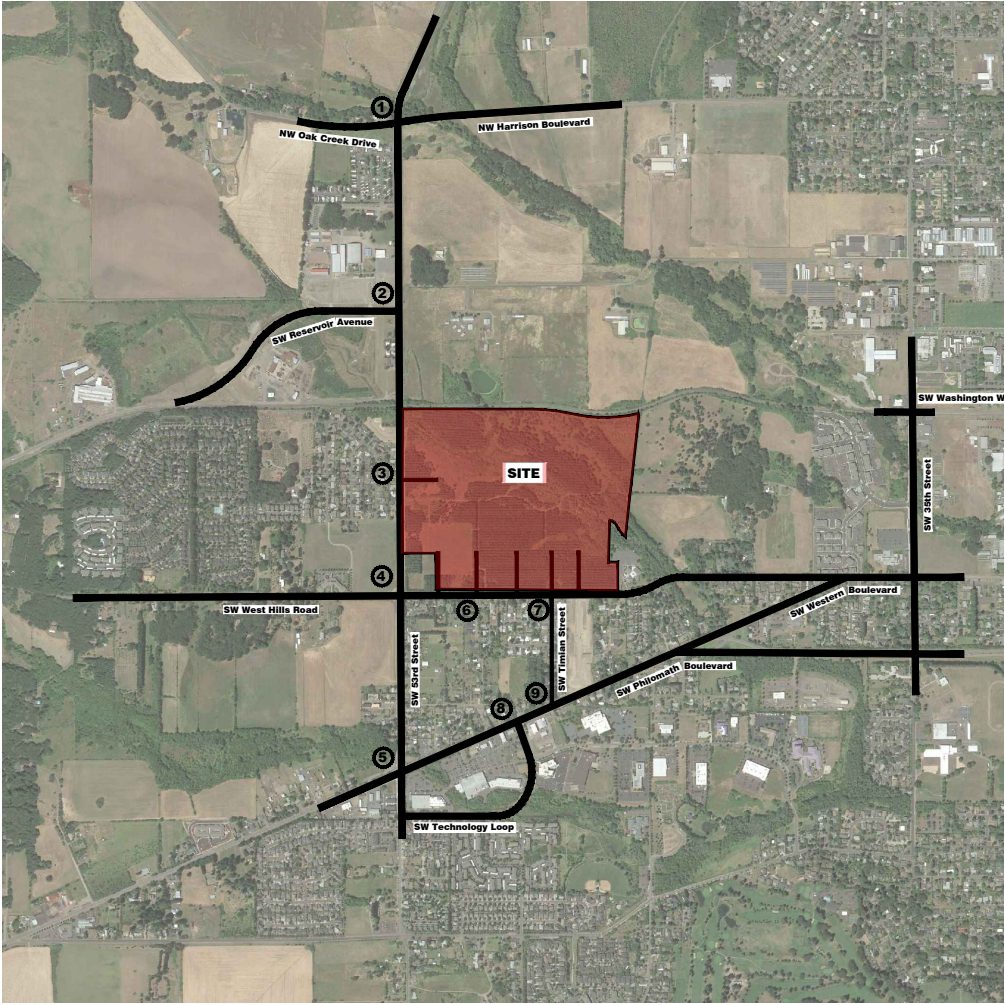
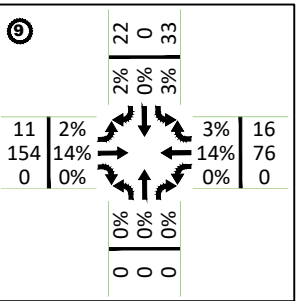
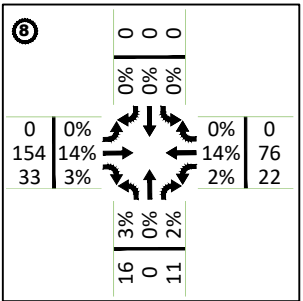
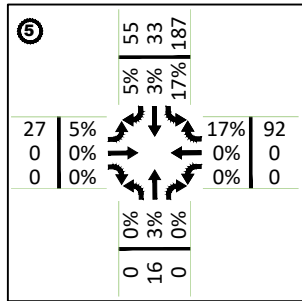
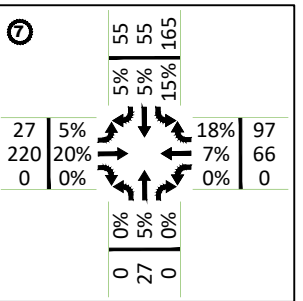
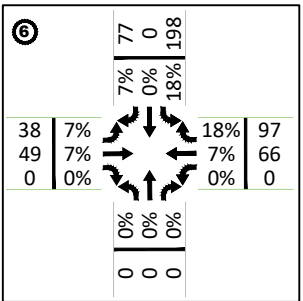
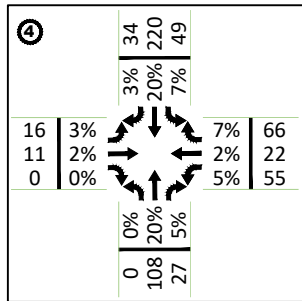
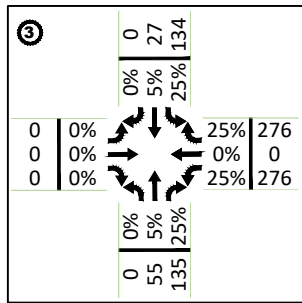
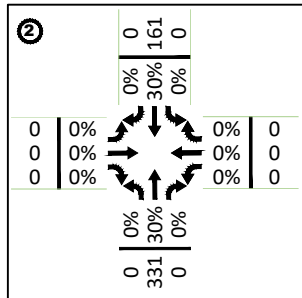
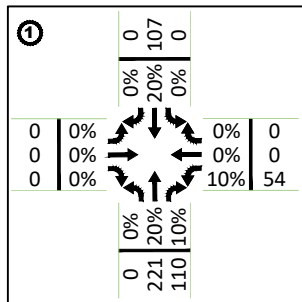
FIGURE

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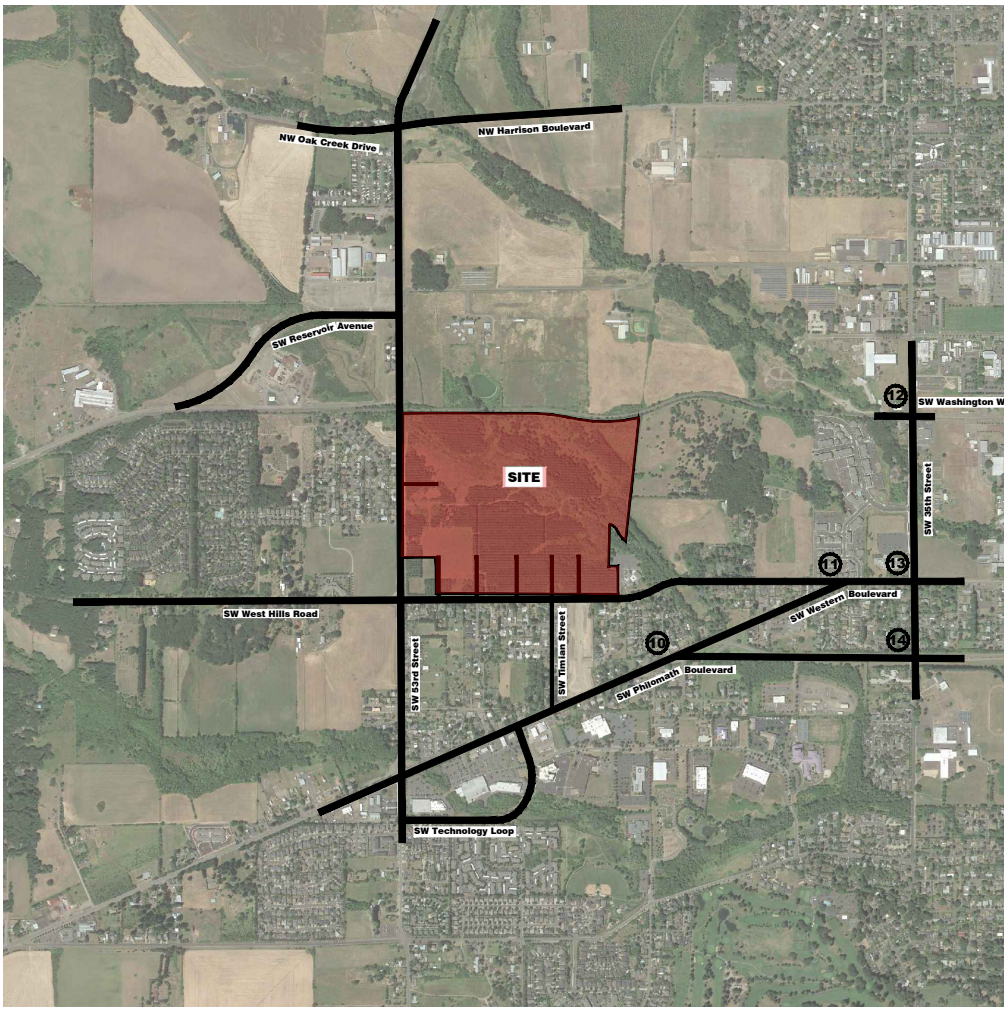


Notes: - Distribution percentages and traffic assignment include both entering and exiting volumes.
 - Excludes pass-by traffic.

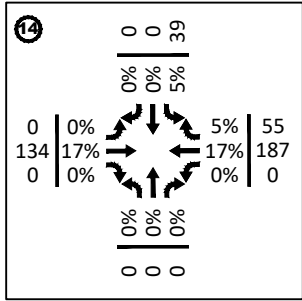
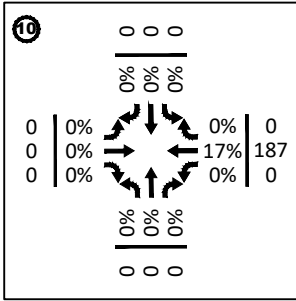
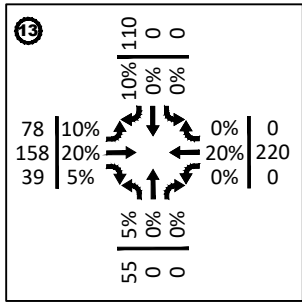
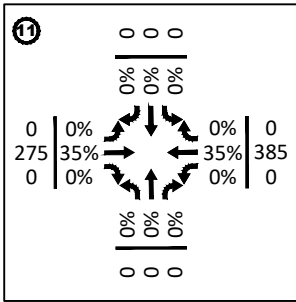
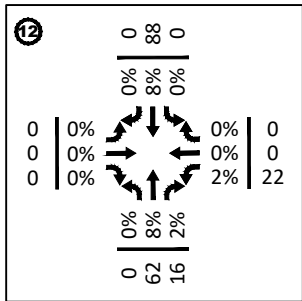




Notes: - Distribution percentages and traffic assignment include both entering and exiting volumes.
 - Excludes pass-by traffic.



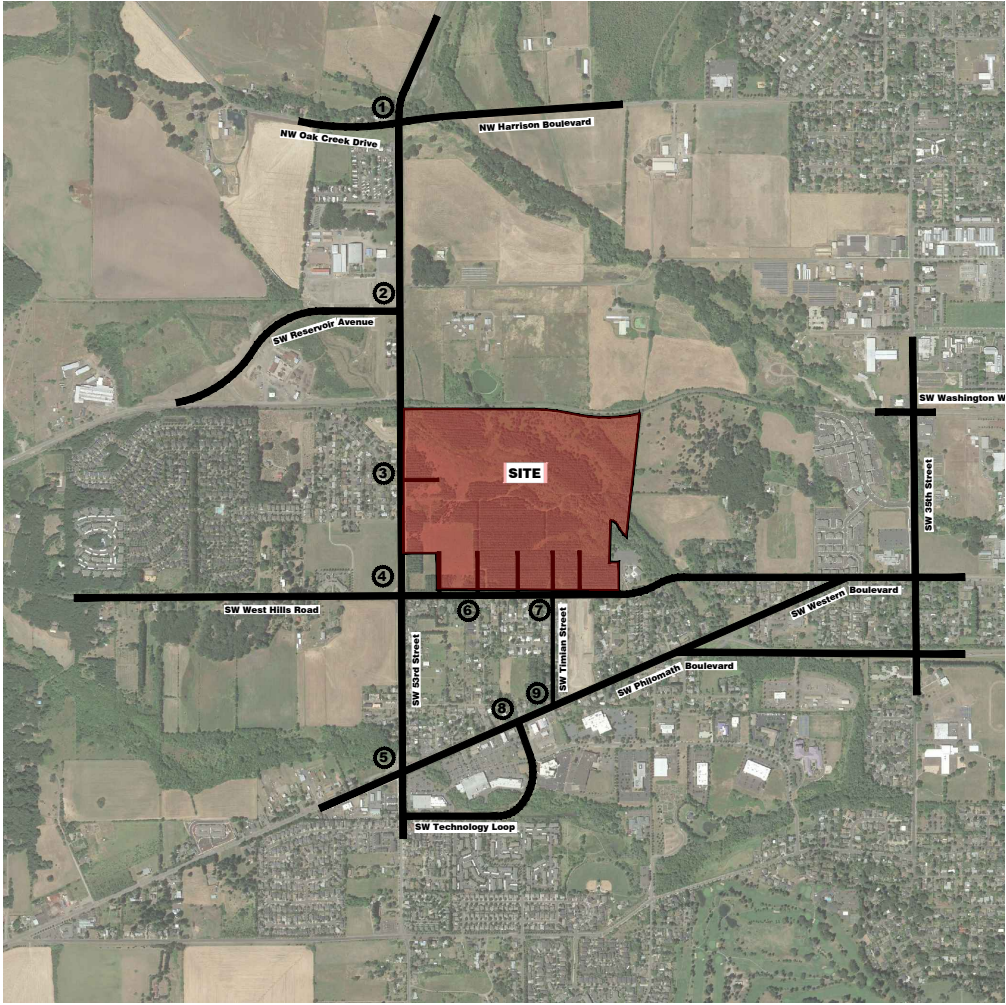
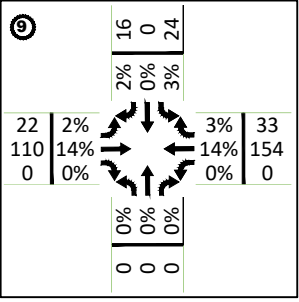
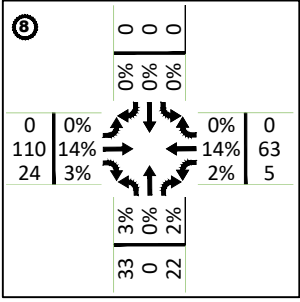
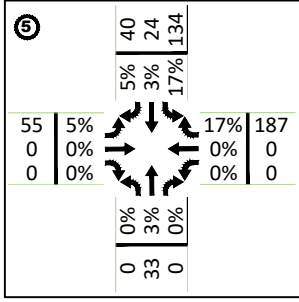
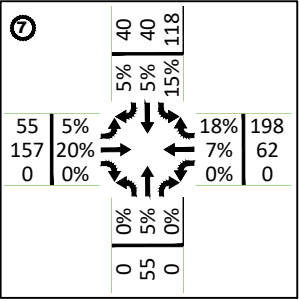
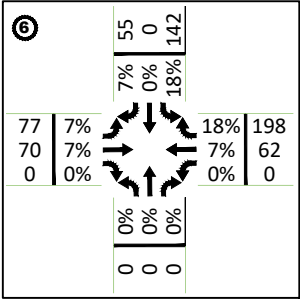
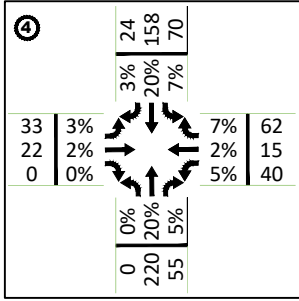
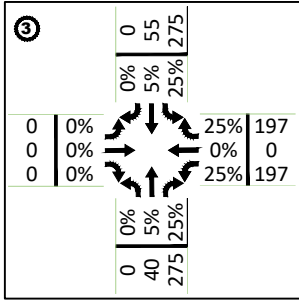
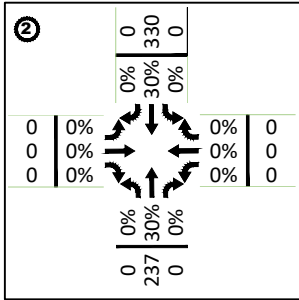
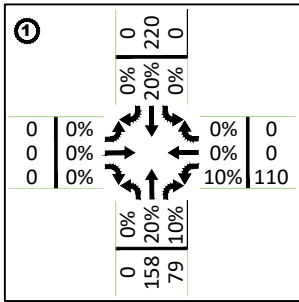
Notes: - Distribution percentages and traffic assignment include both entering and exiting volumes.
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DEVELOPMENT TRAFFIC VOLUMES
PM Peak Hour (East Portion) - Maximum Development
 Mary's Annexation - Corvallis, Oregon
 Project No. 20161202.00

FIGURE
14



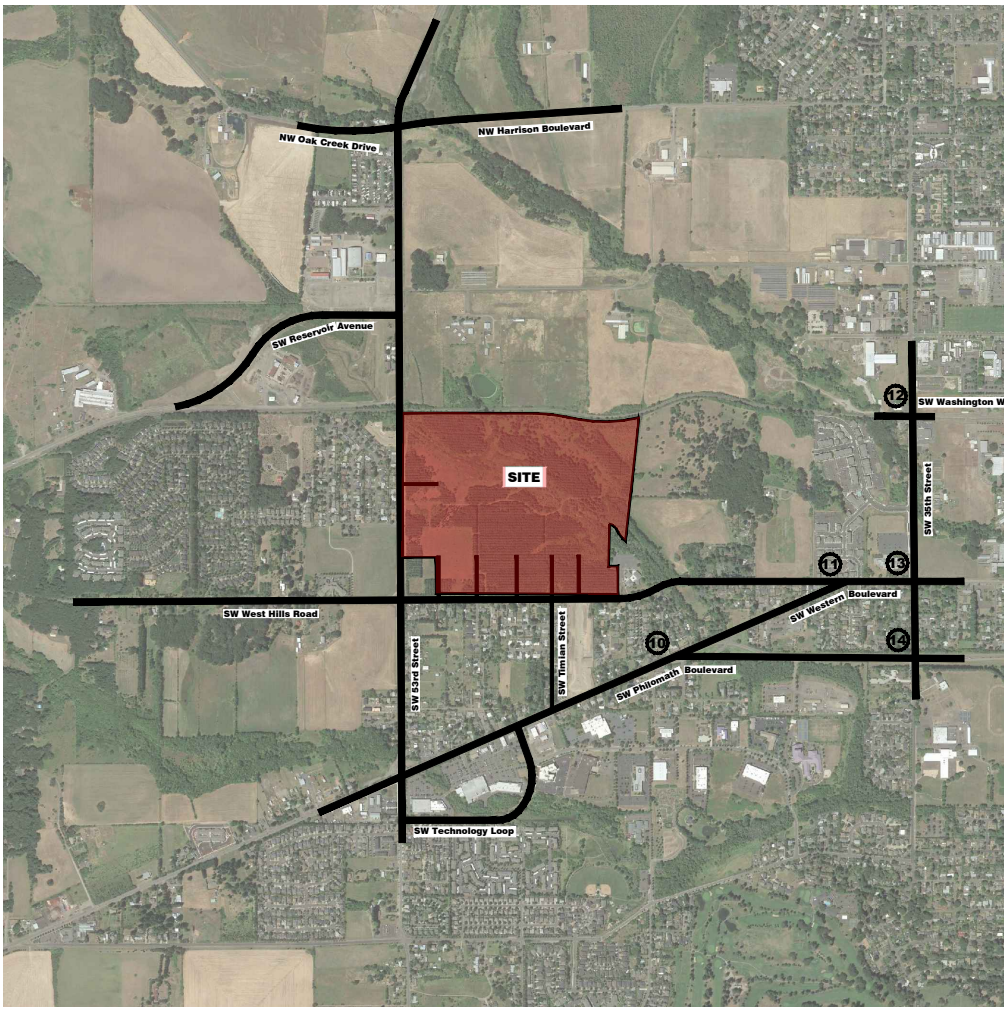
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- Excludes pass-by traffic.



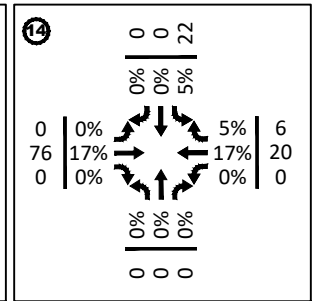
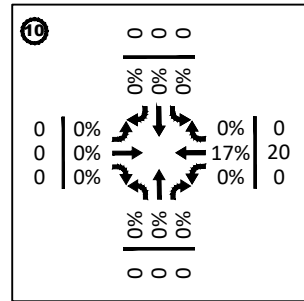
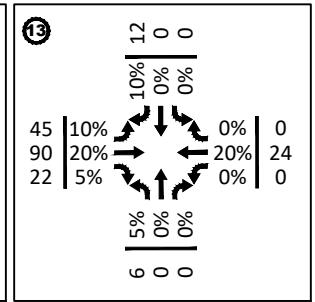
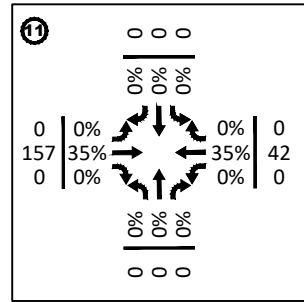
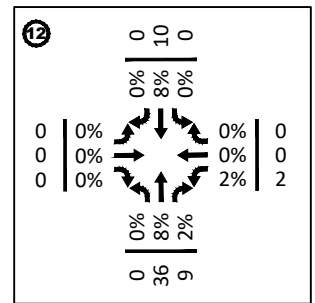
1582 Fetters Loop
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541-579-8315
cclemow@clemow-associates.com

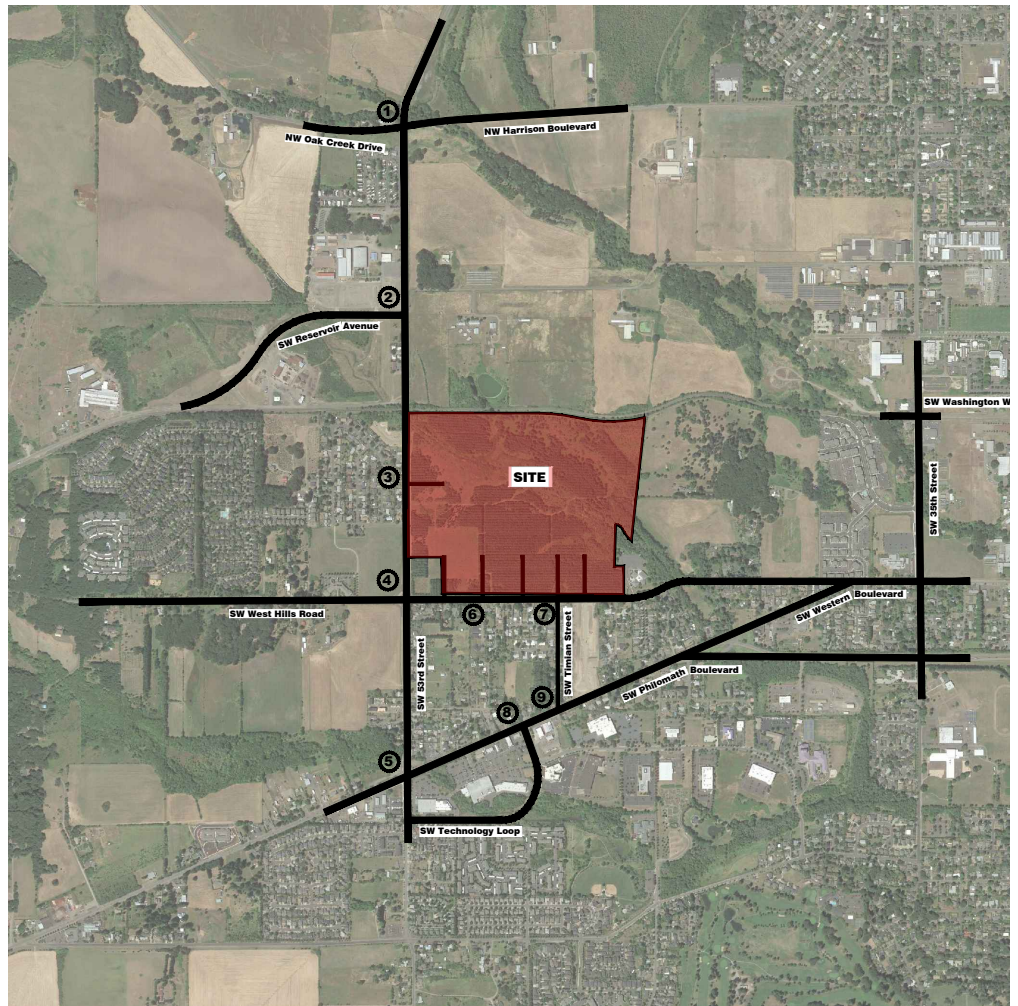
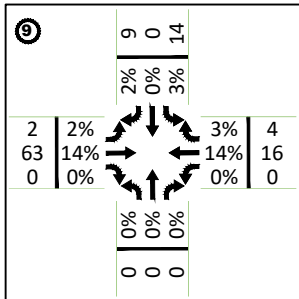
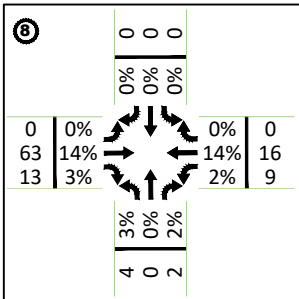
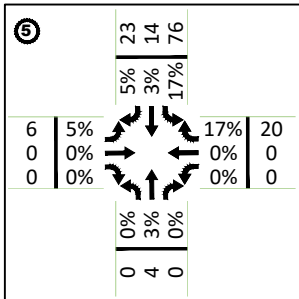
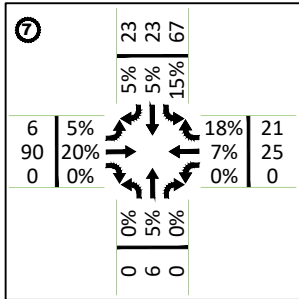
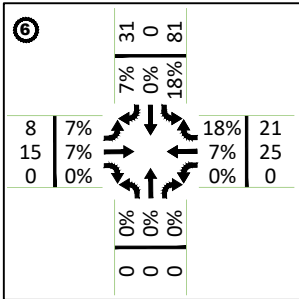
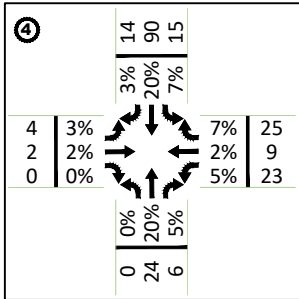
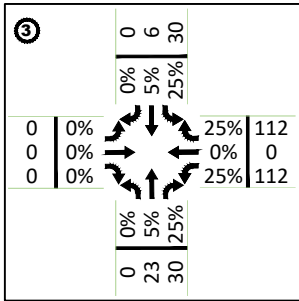
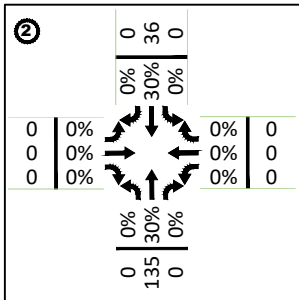
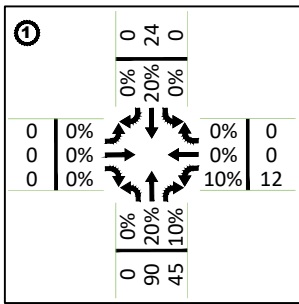
DEVELOPMENT TRAFFIC VOLUMES
PM Peak Hour (West Portion) - Maximum Development
Mary's Annexation - Corvallis, Oregon
Project No. 20161202.00

FIGURE
13

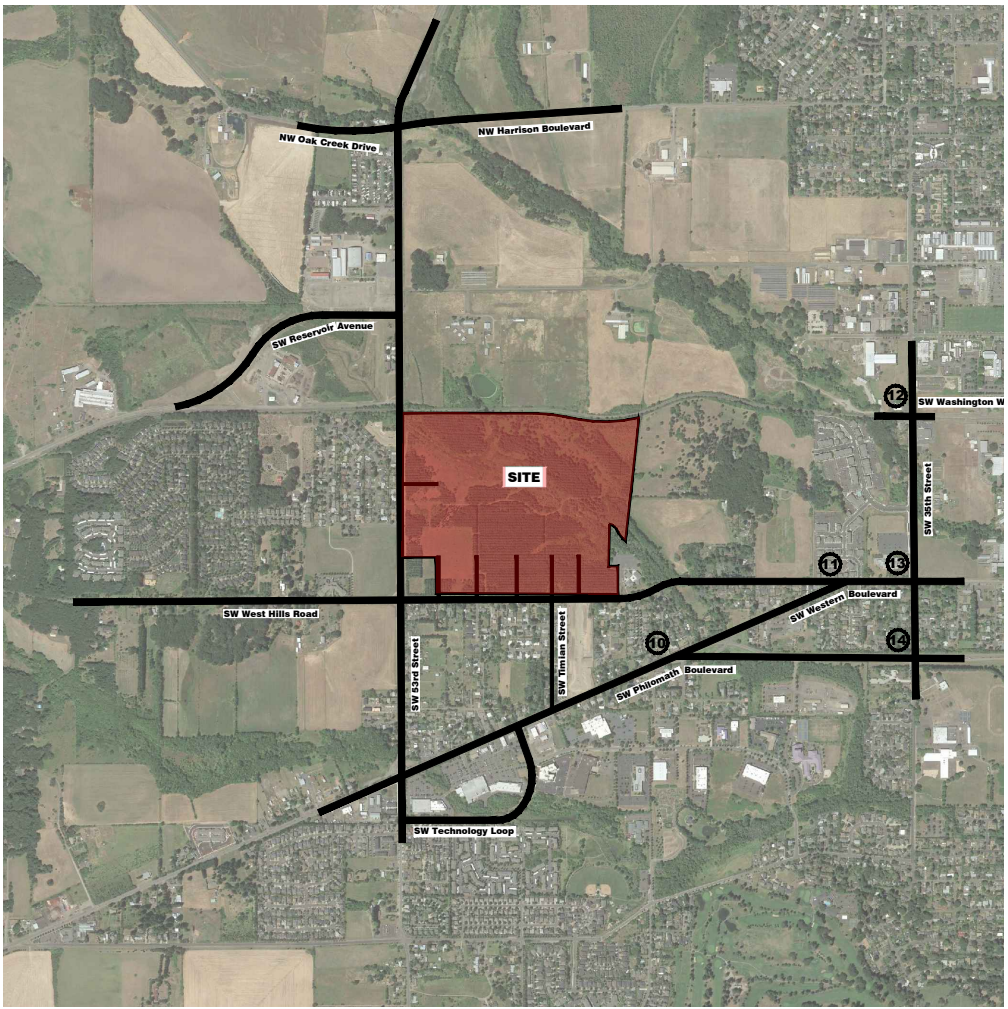


Notes: - Distribution percentages and traffic assignment include both entering and exiting volumes.

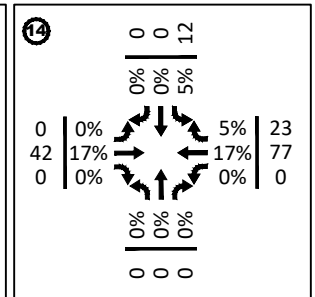
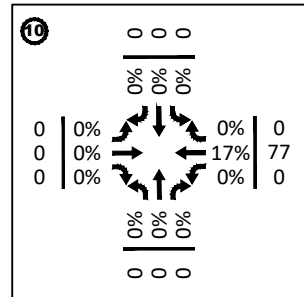
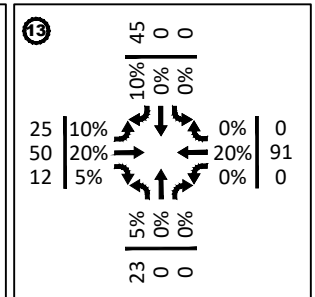
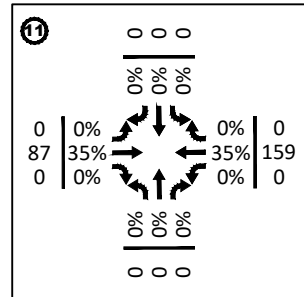
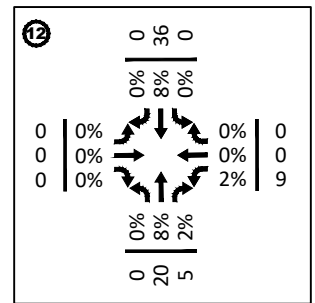




Notes: - Distribution percentages and traffic assignment include both entering and exiting volumes.



Notes: - Distribution percentages and traffic assignment include both entering and exiting volumes.



1				
0				
0	0%	0%	0%	0
0	0%	0%	0%	0
0	0%	0%	0%	0
0	0%	0%	10%	46
0				
0%				
0	20%	20%	0%	0
50	20%	10%	0%	0
24	0%	0%	0%	0

2				
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	30%	30%	0%	0
74	30%	0%	0%	0
0	0%	0%	0%	0

3				
0				
0	0%	0%	25%	62
0	0%	0%	0%	0
0	0%	0%	25%	62
0	0%	0%	25%	62
0	5%	5%	0%	0
12	5%	25%	0%	0
114	25%	0%	0%	0

4				
7				
3%				
14	3%	20%	7%	21
9	2%	0%	2%	5
0	0%	0%	5%	12
0	0%	0%	0%	0
0	0%	0%	0%	0
0				
0%				
0	20%	20%	5%	0
91	20%	5%	0%	0
23	5%	0%	0%	0

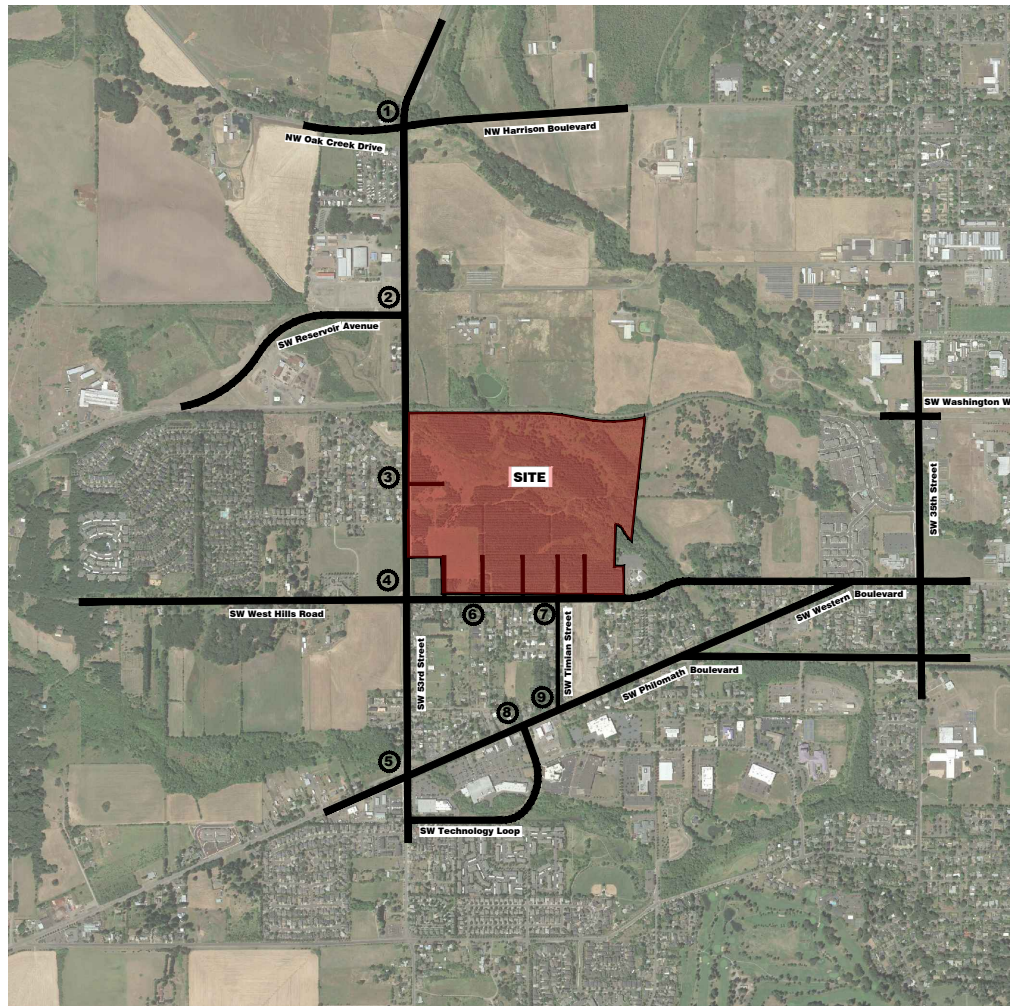
6				
17				
7%				
32	7%	18%	7%	82
28	7%	0%	7%	21
0	0%	0%	0%	0
0	0%	0%	0%	0
0	0%	0%	0%	0
0				
0%				
0	0%	0%	0%	0
0	0%	0%	0%	0
0	0%	0%	0%	0

7				
12				
5%				
23	5%	18%	5%	82
50	20%	7%	5%	21
0	0%	0%	0%	0
0	0%	0%	0%	0
0	0%	0%	0%	0
0				
0%				
0	5%	5%	0%	0
23	5%	15%	0%	0
0	0%	0%	0%	0

8				
12				
5%				
23	5%	17%	5%	77
0	0%	0%	0%	0
0	0%	0%	0%	0
0	0%	0%	0%	0
0	0%	0%	0%	0
0				
0%				
0	3%	3%	0%	0
14	3%	17%	0%	0
0	0%	0%	0%	0

8				
0				
0%				
0	0%	0%	0%	0
35	14%	14%	0%	63
7	3%	2%	0%	5
0	0%	0%	0%	0
0	0%	0%	0%	0
0				
0%				
3%	0%	2%	0%	0
14	0%	14%	0%	0
0	0%	0%	0%	0

9				
5				
2%				
9	2%	3%	2%	14
35	14%	14%	2%	63
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



Notes: - Distribution percentages and traffic assignment include both entering and exiting volumes.



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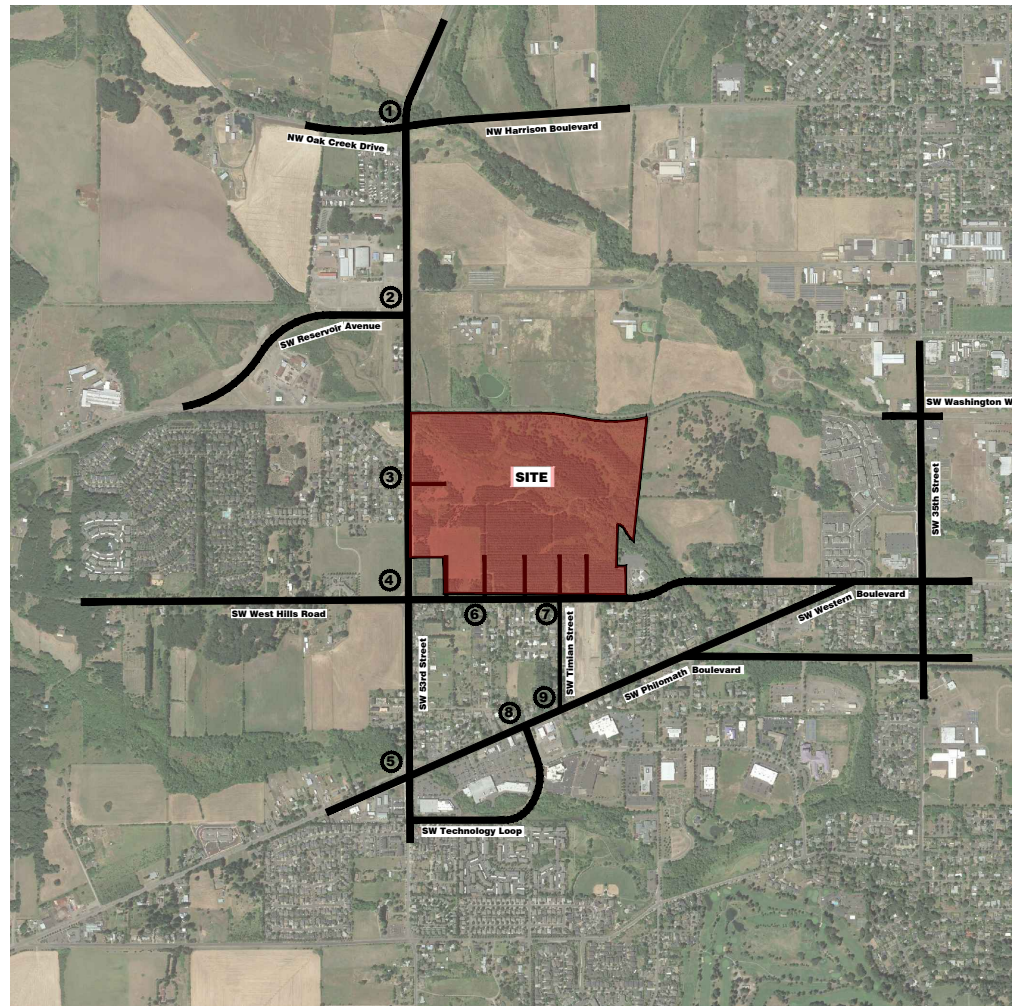
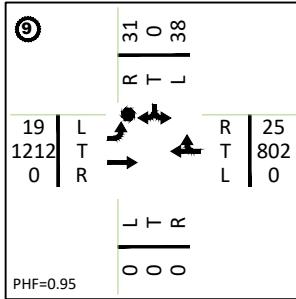
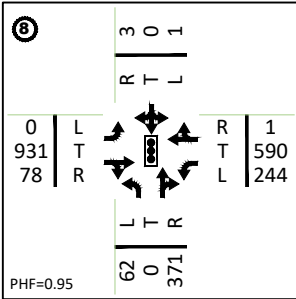
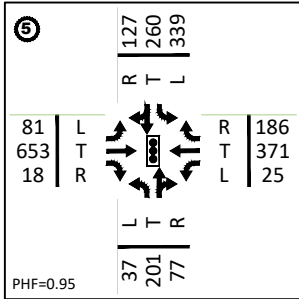
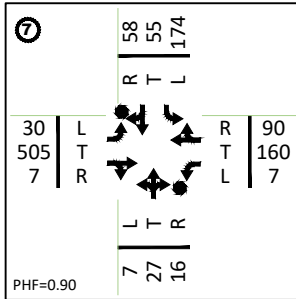
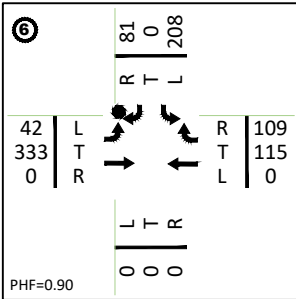
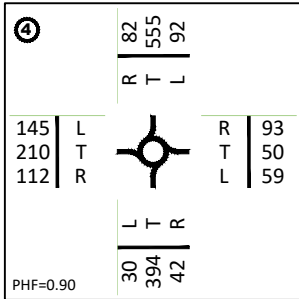
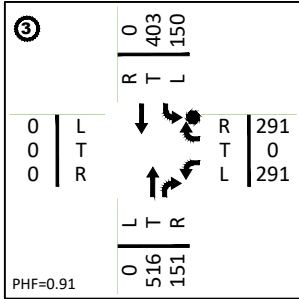
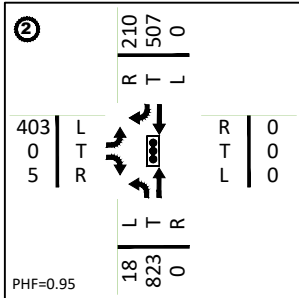
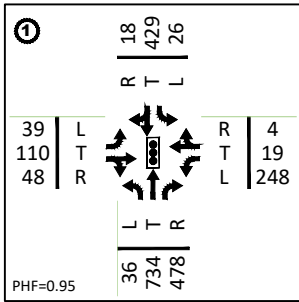
DEVELOPMENT TRAFFIC VOLUMES PM Peak Hour (West Portion) - Reasonable Development

Mary's Annexation - Corvallis, Oregon

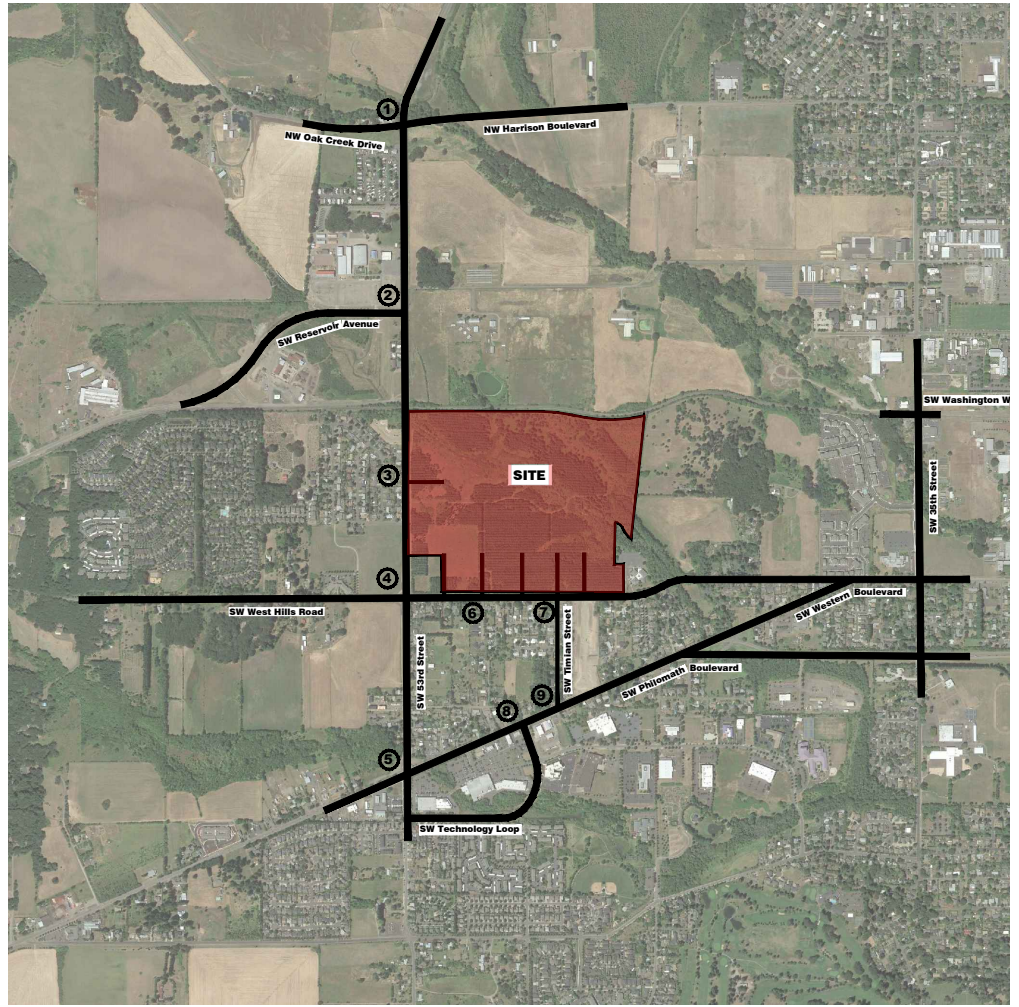
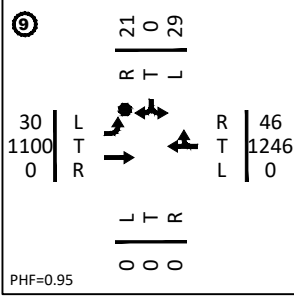
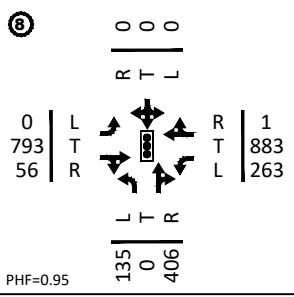
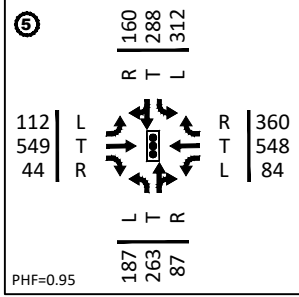
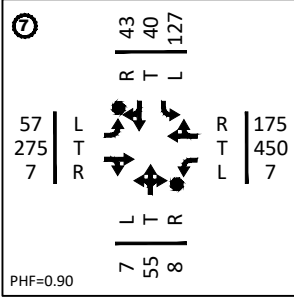
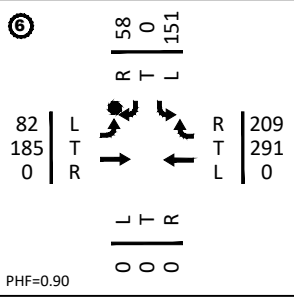
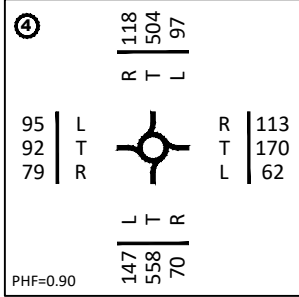
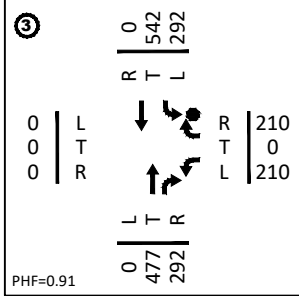
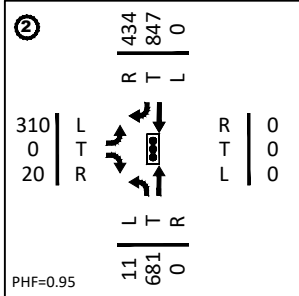
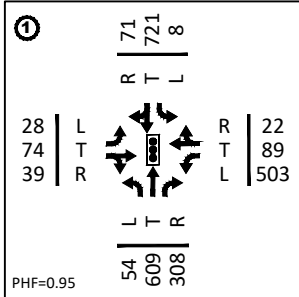
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FIGURE

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Notes: - Includes pass-by traffic at site accesses.



Notes: - Includes pass-by traffic at site accesses.



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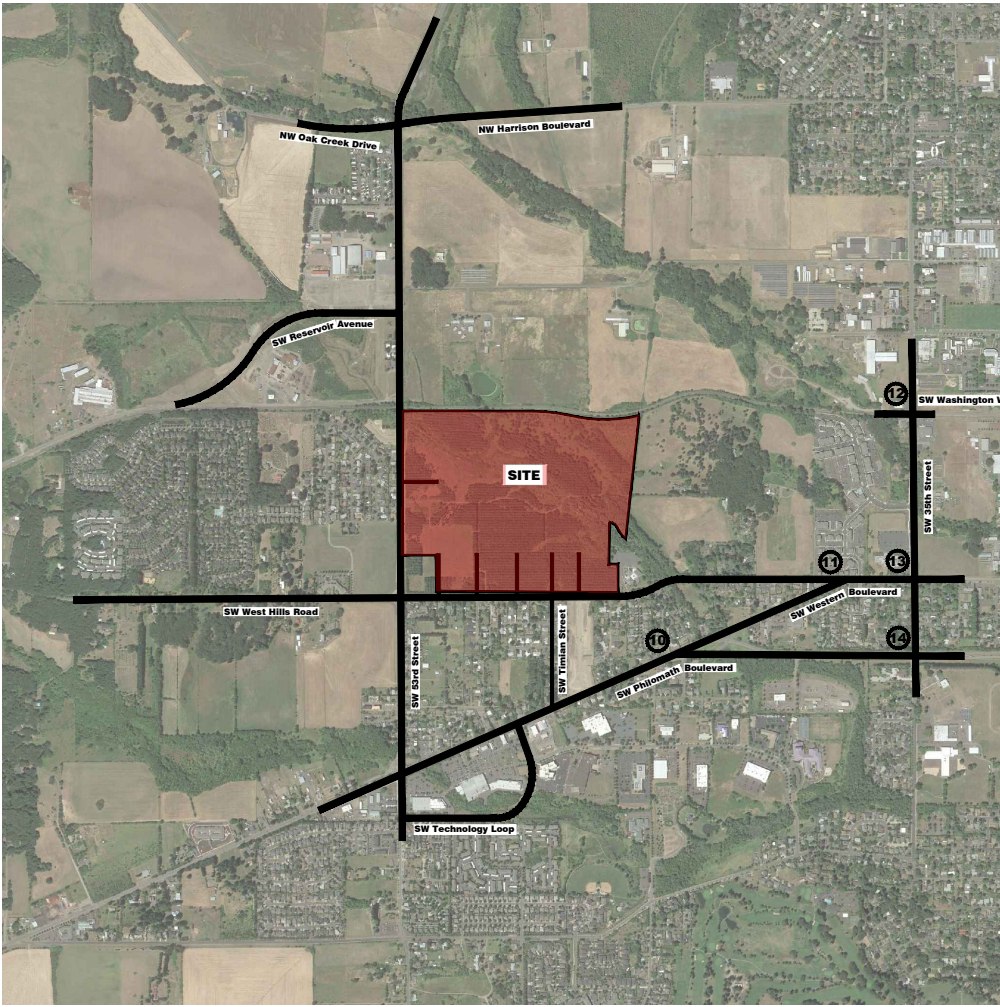
**2037 PROPOSED ZONE DESIGNATION TRAFFIC VOLUMES
PM Peak Hour (West Portion) - Maximum Development**

Mary's Annexation - Corvallis, Oregon

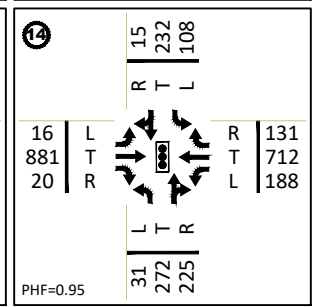
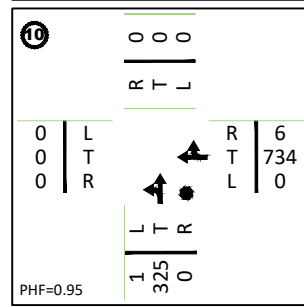
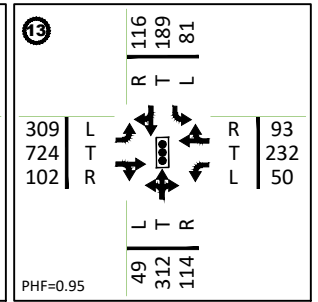
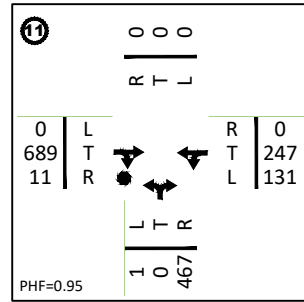
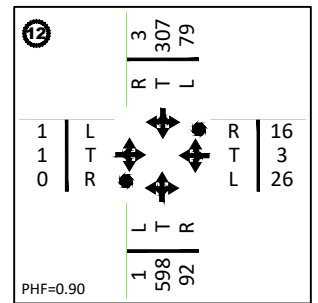
Project No. 20161202.00

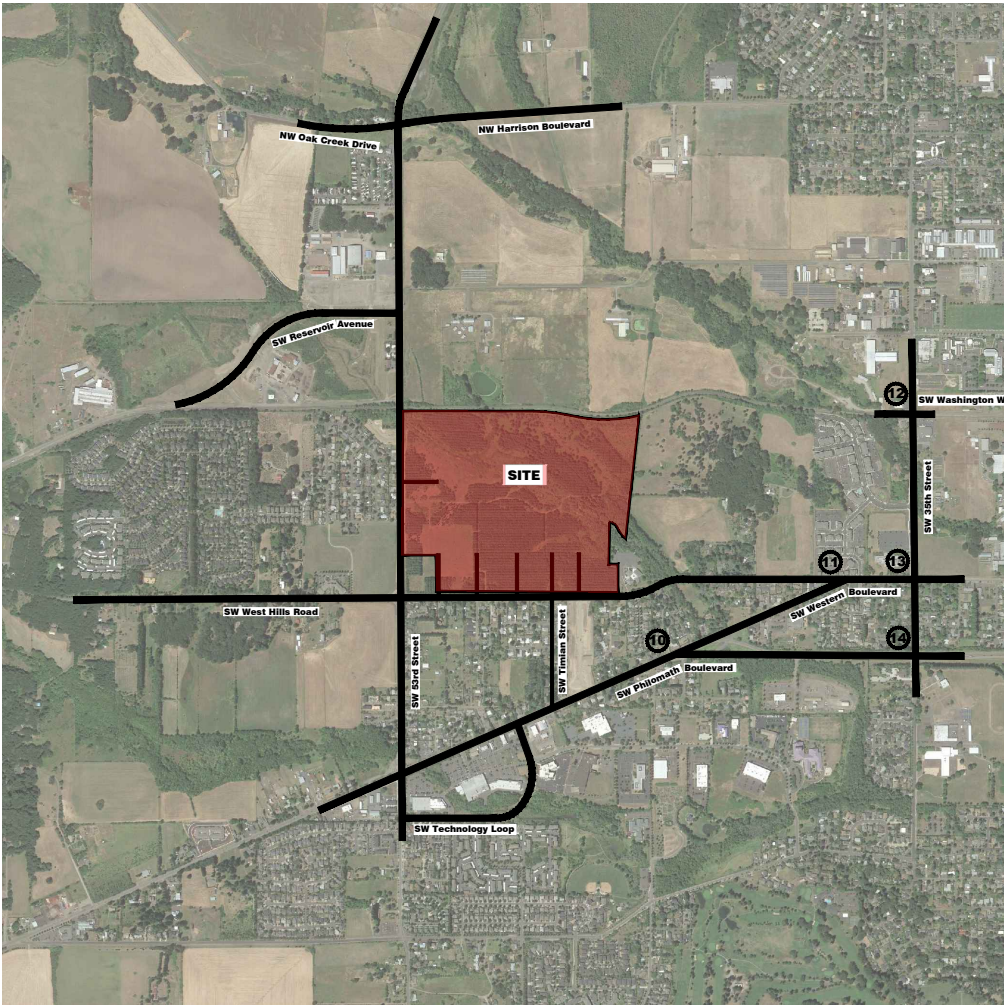
FIGURE

21

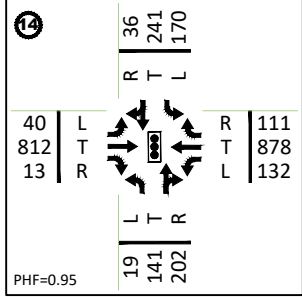
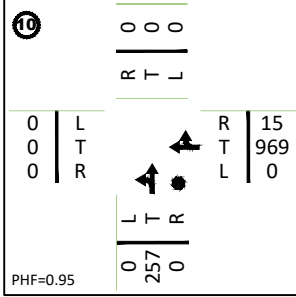
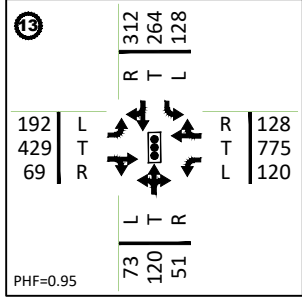
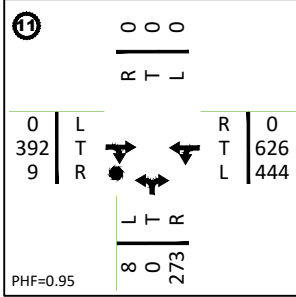
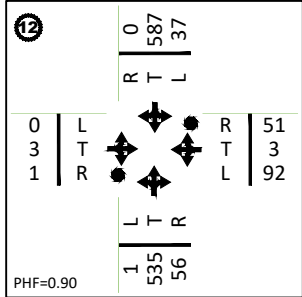


Notes: - Includes pass-by traffic at site accesses.





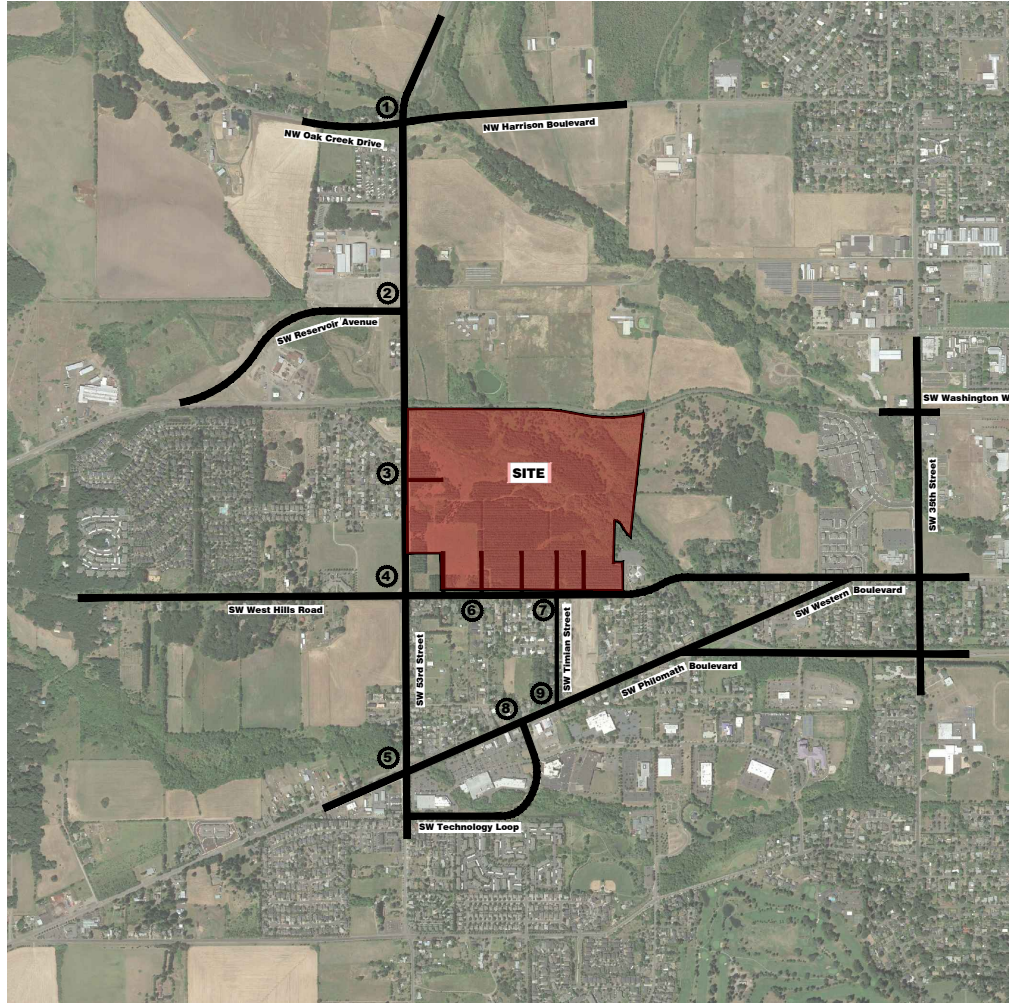
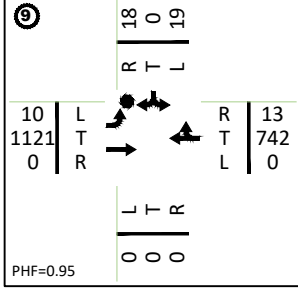
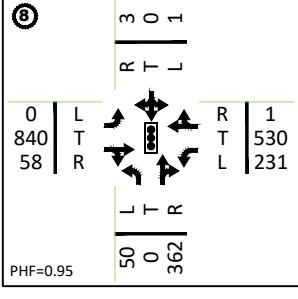
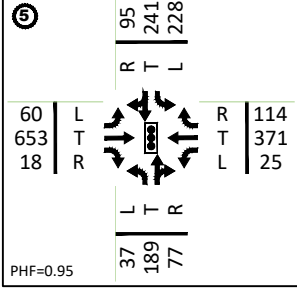
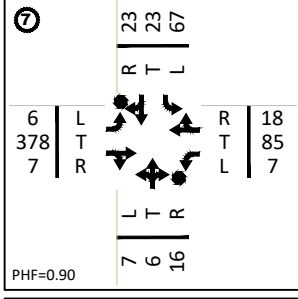
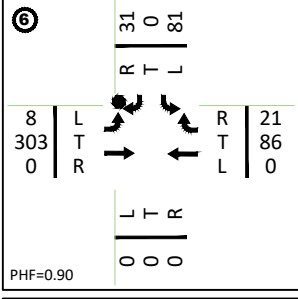
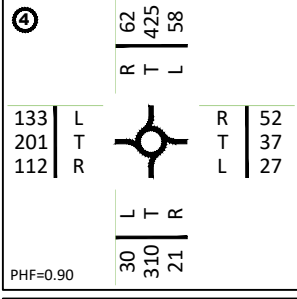
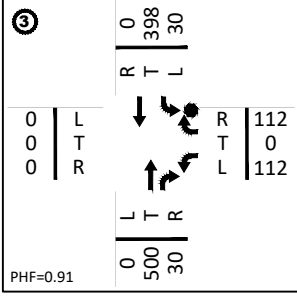
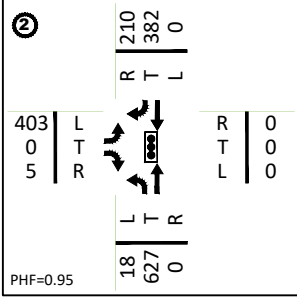
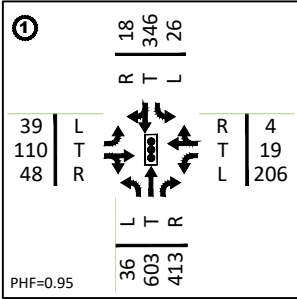
Notes: - Includes pass-by traffic at site accesses.



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**2037 PROPOSED ZONE DESIGNATION TRAFFIC VOLUMES
 PM Peak Hour (East Portion) - Maximum Development**

Mary's Annexation - Corvallis, Oregon
 Project No. 20161202.00



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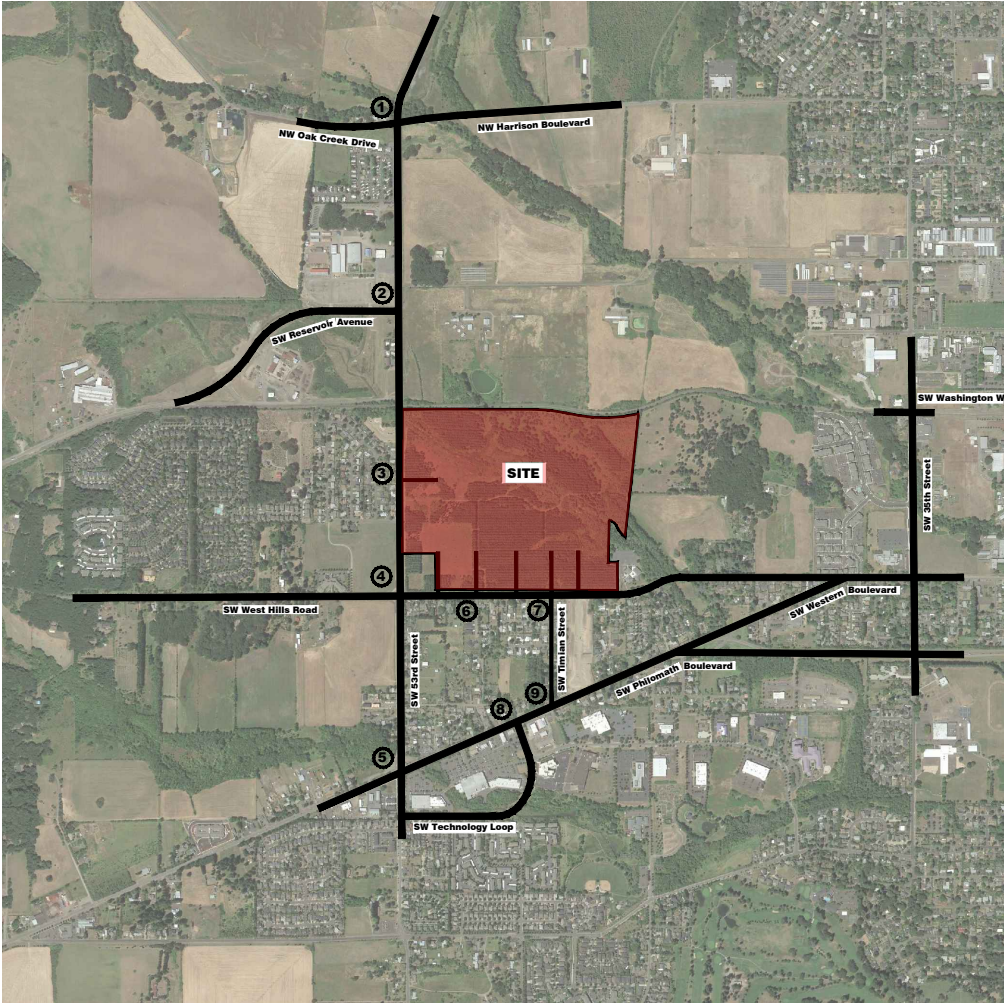
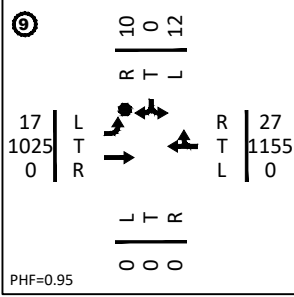
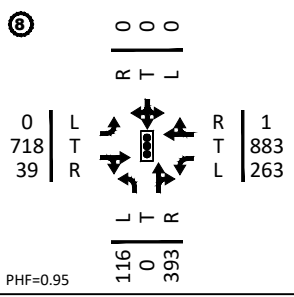
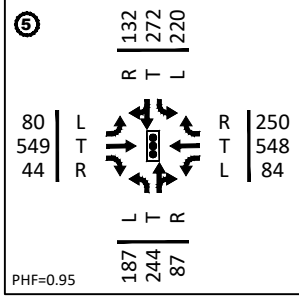
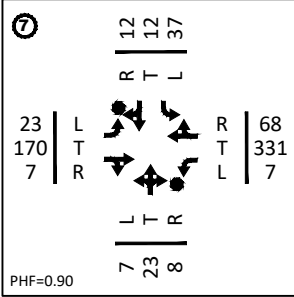
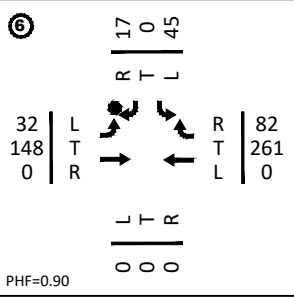
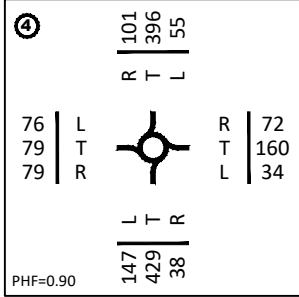
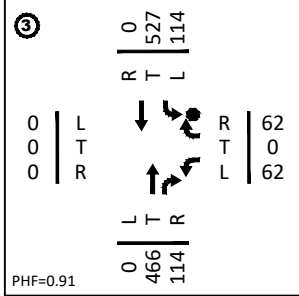
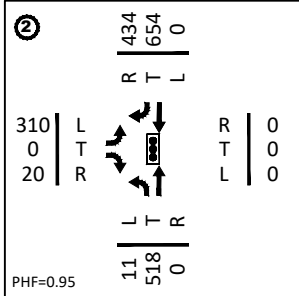
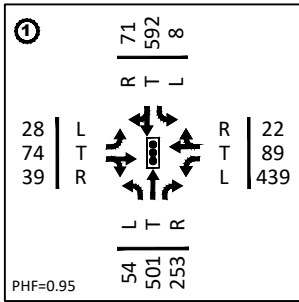
**2037 PROPOSED ZONE DESIGNATION TRAFFIC VOLUMES
AM Peak Hour (West Portion) - Reasonable Development**

Mary's Annexation - Corvallis, Oregon

Project No. 20161202.00

FIGURE

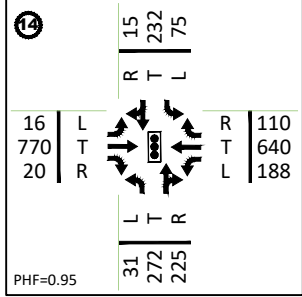
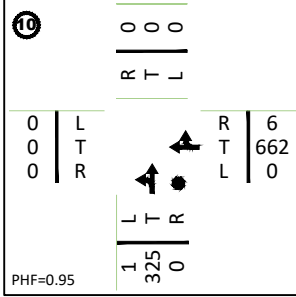
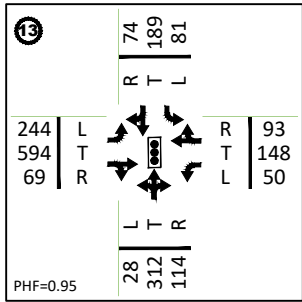
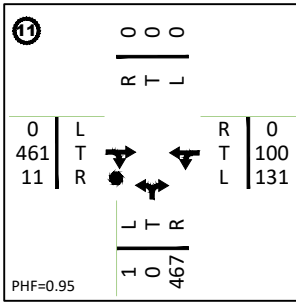
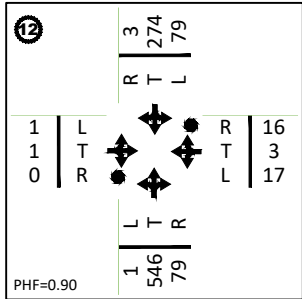
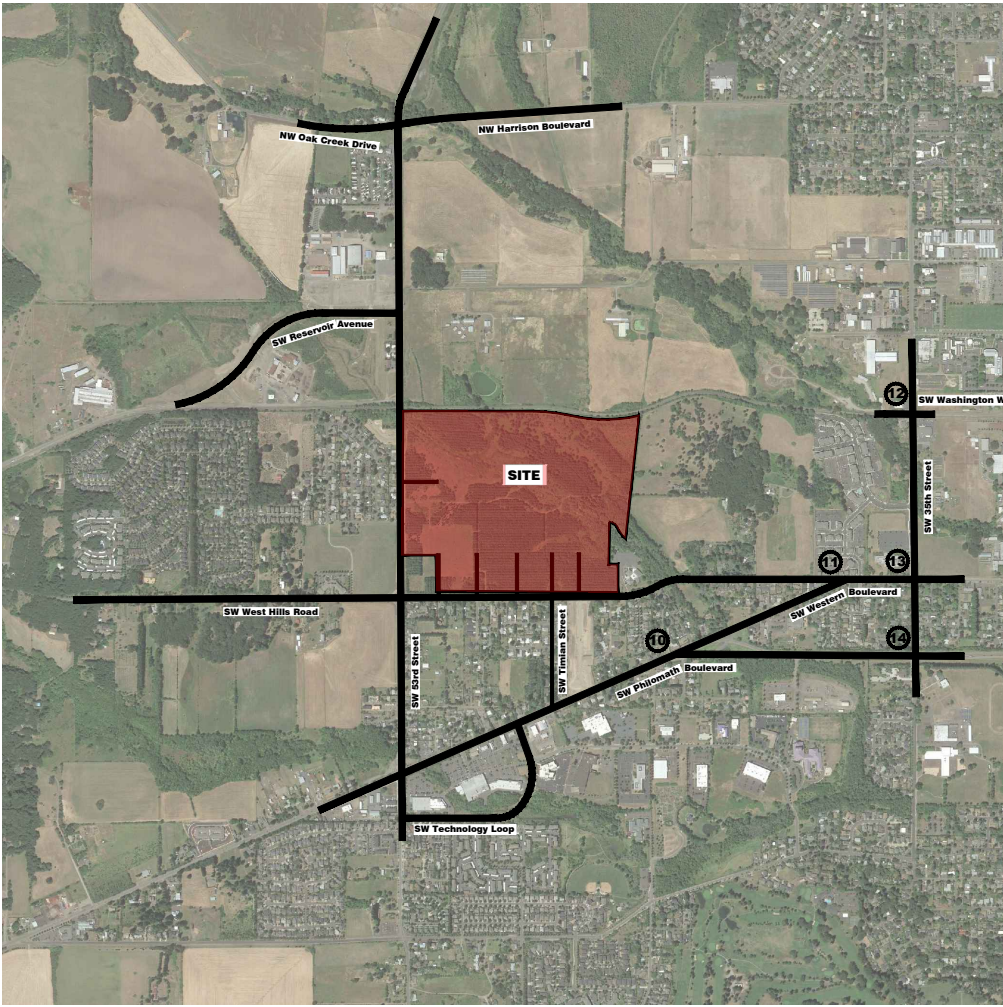
23



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**2037 PROPOSED ZONE DESIGNATION TRAFFIC VOLUMES
PM Peak Hour (West Portion) - Reasonable Development**

Mary's Annexation - Corvallis, Oregon
Project No. 20161202.00



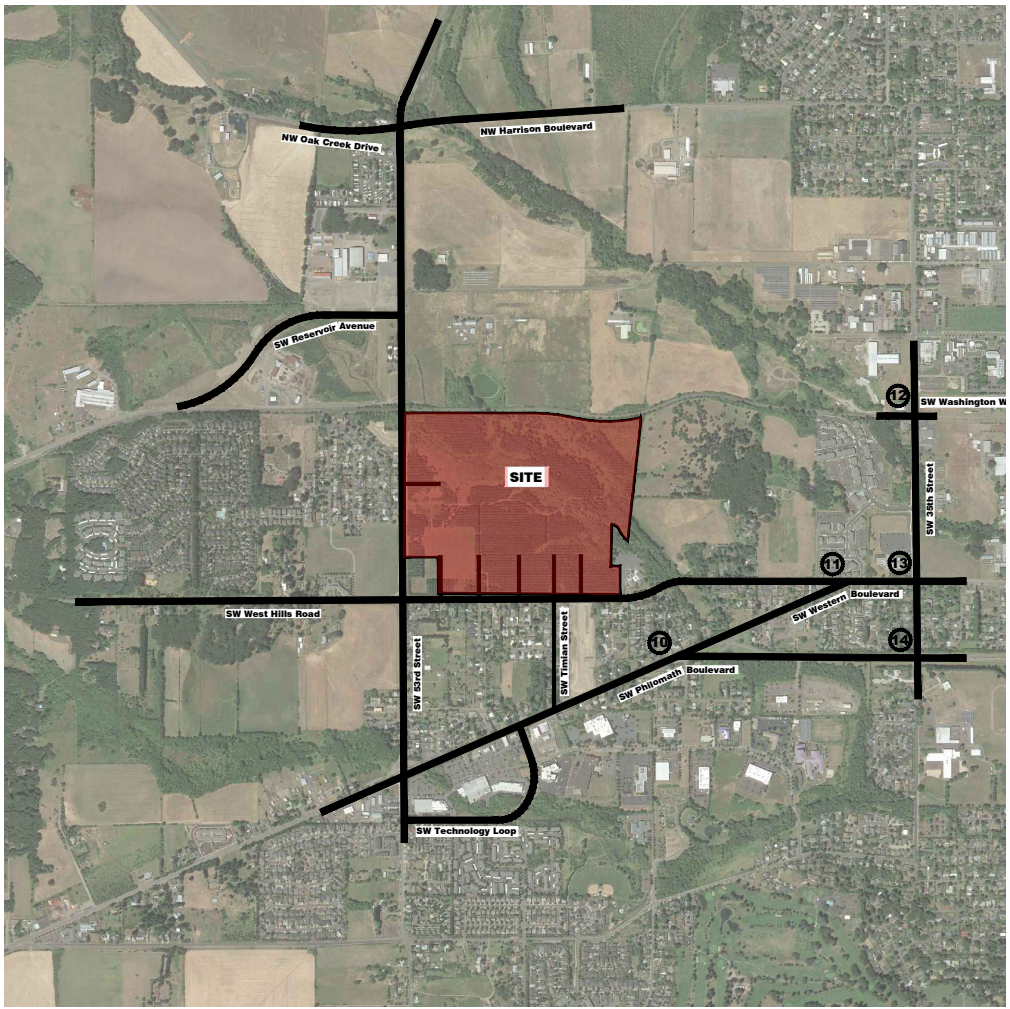
1582 Fetters Loop
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**2037 PROPOSED ZONE DESIGNATION TRAFFIC VOLUMES
 AM Peak Hour (East Portion) - Reasonable Development**

Mary's Annexation - Corvallis, Oregon

Project No. 20161202.00

**FIGURE
 24**



12	0	535	37	
	R	T	L	
0	L	↕	R	51
3	T	↕	T	3
1	R	↕	L	79
	L	T	R	
1	493	45		
	PHF=0.90			

11	0	0	0	
	R	T	L	
0	L	↕	R	0
204	T	↕	T	400
9	R	↕	L	444
	L	T	R	
8	0	273		
	PHF=0.95			

13	247	264	128	
	R	T	L	
139	L	↕	R	128
321	T	↕	T	646
42	R	↕	L	120
	L	T	R	
41	120	51		
	PHF=0.95			

10	0	0	0	
	R	T	L	
0	L	↕	R	15
0	T	↕	T	859
0	R	↕	L	0
	L	T	R	
0	257	0		
	PHF=0.95			

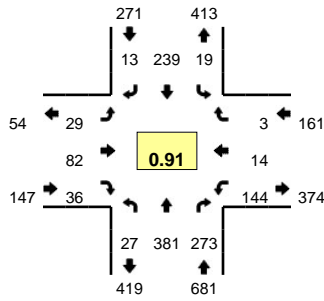
14	36	241	143	
	R	T	L	
40	L	↕	R	79
720	T	↕	T	768
13	R	↕	L	132
	L	T	R	
19	141	202		
	PHF=0.95			

Appendix B

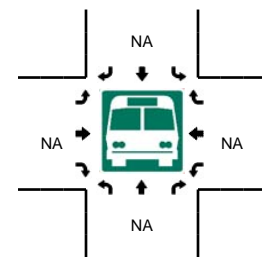
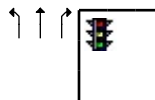
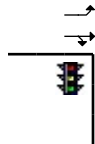
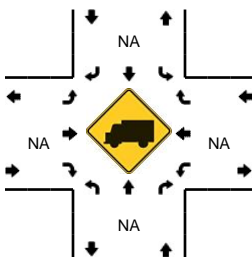
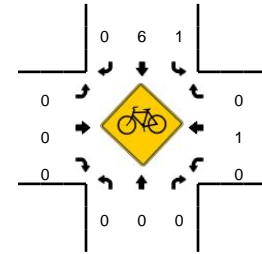
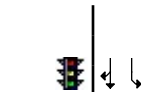
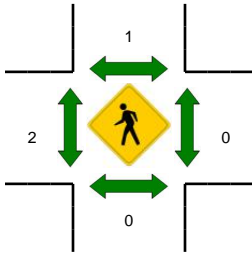
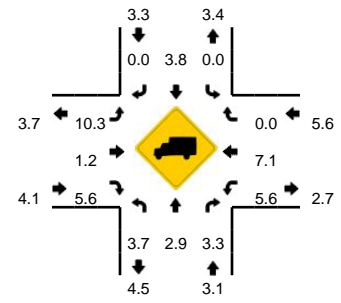


LOCATION: NW Walnut Blvd -- NW Harrison Blvd
CITY/STATE: Corvallis, OR

QC JOB #: 14246305
DATE: Wed, Mar 08 2017



Peak-Hour: 7:30 AM -- 8:30 AM
Peak 15-Min: 7:45 AM -- 8:00 AM

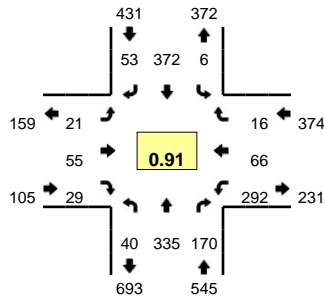


15-Min Count Period Beginning At	NW Walnut Blvd (Northbound)				NW Walnut Blvd (Southbound)				NW Harrison Blvd (Eastbound)				NW Harrison Blvd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	3	36	21	0	3	38	4	0	9	9	10	0	23	1	1	0	158	
7:15 AM	4	80	39	0	2	39	3	0	10	17	5	0	17	4	0	0	220	
7:30 AM	2	110	94	0	7	53	2	0	7	34	11	0	24	1	0	0	345	
7:45 AM	10	91	78	0	5	70	4	0	8	19	10	0	45	5	2	0	347	1070
8:00 AM	8	100	48	0	3	51	3	0	8	16	8	0	51	1	1	0	298	1210
8:15 AM	7	80	53	0	4	65	4	0	6	13	7	0	24	7	0	0	270	1260
8:30 AM	5	98	49	0	4	46	9	0	7	19	6	0	23	6	1	0	273	1188
8:45 AM	5	66	45	0	6	59	4	0	11	19	6	0	44	3	0	0	268	1109
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
All Vehicles	40	364	312	0	20	280	16	0	32	76	40	0	180	20	8	0	1388	
Heavy Trucks	0	12	8		0	0	0		0	0	0		8	0	0		28	
Pedestrians	0	0	0		0	0	0		0	0	0		0	0	0		0	
Bicycles	0	0	0		1	0	0		0	0	0		0	1	0		2	
Railroad																		
Stopped Buses																		

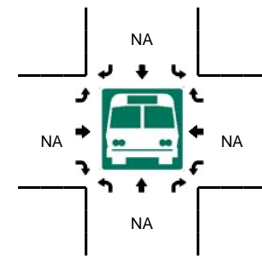
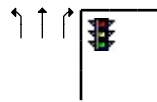
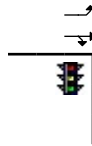
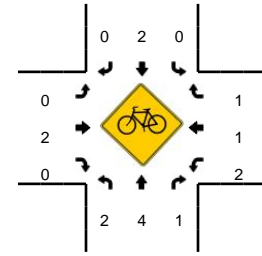
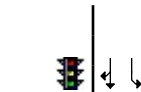
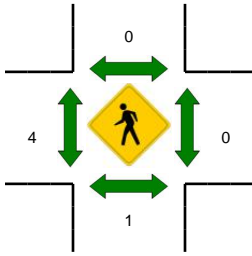
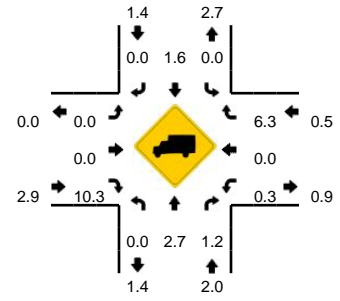
Comments:

LOCATION: NW Walnut Blvd -- NW Harrison Blvd
CITY/STATE: Corvallis, OR

QC JOB #: 14246306
DATE: Wed, Mar 08 2017



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

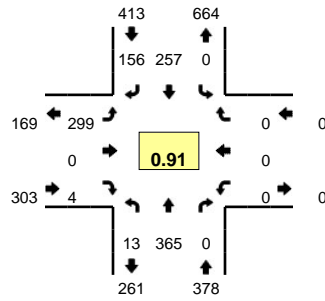


15-Min Count Period Beginning At	NW Walnut Blvd (Northbound)				NW Walnut Blvd (Southbound)				NW Harrison Blvd (Eastbound)				NW Harrison Blvd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	11	88	27	0	2	94	16	0	4	6	6	0	76	13	6	0	349	
4:15 PM	8	83	37	0	1	111	8	0	5	9	10	0	77	14	2	0	365	
4:30 PM	5	70	30	0	1	94	6	0	6	15	4	0	67	22	6	0	326	
4:45 PM	10	75	35	0	2	83	12	0	4	7	8	0	64	12	2	0	314	1354
5:00 PM	7	97	37	0	2	86	17	0	6	19	7	0	94	22	5	0	399	1404
5:15 PM	8	80	48	0	0	112	14	0	7	17	6	0	66	21	7	0	386	1425
5:30 PM	15	83	50	0	2	91	10	0	4	12	8	0	68	11	2	0	356	1455
5:45 PM	11	61	41	0	3	85	5	0	4	11	3	0	48	13	7	0	292	1433
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	28	388	148	0	8	344	68	0	24	76	28	0	376	88	20	0	1596	
Heavy Trucks	0	8	0		0	0	0		0	0	0		0	0	0		8	
Pedestrians		4				0				4				0			8	
Bicycles	1	0	0		0	0	0		0	0	0		0	0	0		1	
Railroad																		
Stopped Buses																		

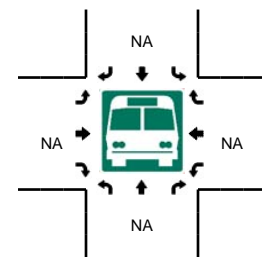
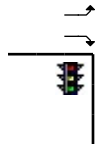
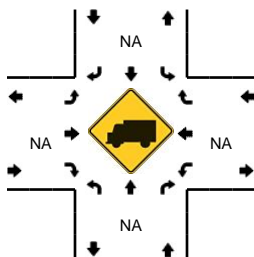
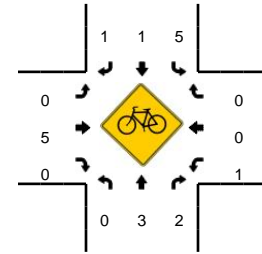
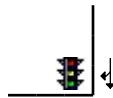
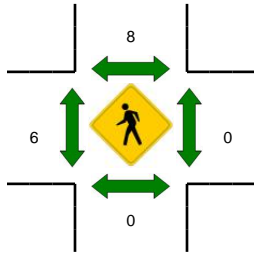
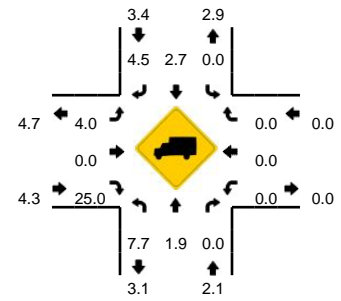
Comments:

LOCATION: NW 53rd St -- SW Reservoir Ave
CITY/STATE: Corvallis, OR

QC JOB #: 14246303
DATE: Wed, Mar 08 2017



Peak-Hour: 7:30 AM -- 8:30 AM
Peak 15-Min: 7:45 AM -- 8:00 AM

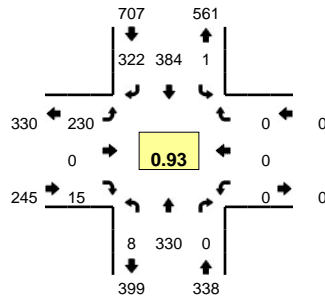


15-Min Count Period Beginning At	NW 53rd St (Northbound)				NW 53rd St (Southbound)				SW Reservoir Ave (Eastbound)				SW Reservoir Ave (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	31	0	0	0	42	26	0	30	0	0	0	0	0	0	0	129	
7:15 AM	0	54	0	0	0	32	29	0	66	0	0	0	0	0	0	0	181	
7:30 AM	2	120	0	0	0	48	42	0	82	0	3	0	0	0	0	0	297	
7:45 AM	5	87	0	0	0	77	47	0	83	0	1	0	0	0	0	0	300	907
8:00 AM	2	86	0	0	0	68	34	0	67	0	0	0	0	0	0	0	257	1035
8:15 AM	4	72	0	0	0	64	33	0	67	0	0	0	0	0	0	0	240	1094
8:30 AM	1	72	0	0	0	40	43	0	74	0	1	0	0	0	0	0	231	1028
8:45 AM	4	52	0	0	0	61	46	0	62	0	3	0	0	0	0	0	228	956
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	20	348	0	0	0	308	188	0	332	0	4	0	0	0	0	0	1200	
Heavy Trucks	0	4	0	0	0	0	8	0	16	0	0	0	0	0	0	0	28	
Pedestrians		0				8				16				0			24	
Bicycles	0	0	0		1	0	0		0	1	0		0	0	0		2	
Railroad																		
Stopped Buses																		

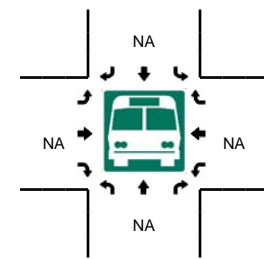
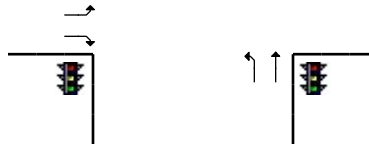
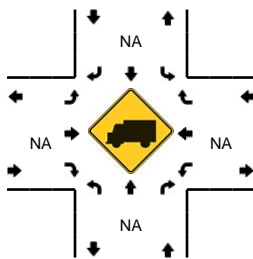
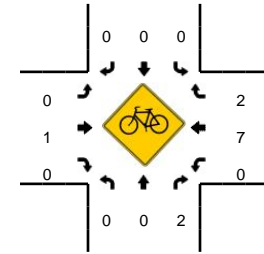
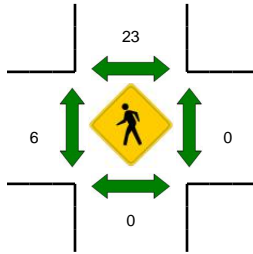
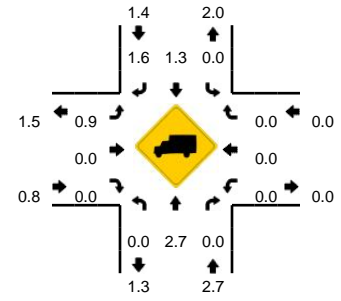
Comments:

LOCATION: NW 53rd St -- SW Reservoir Ave
CITY/STATE: Corvallis, OR

QC JOB #: 14246304
DATE: Wed, Mar 08 2017



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

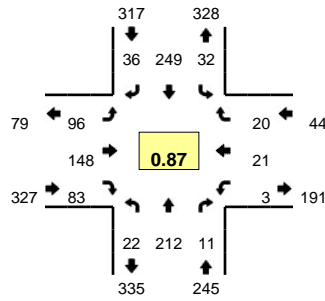


15-Min Count Period Beginning At	NW 53rd St (Northbound)				NW 53rd St (Southbound)				SW Reservoir Ave (Eastbound)				SW Reservoir Ave (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	1	72	0	0	0	90	77	0	49	0	5	0	0	0	0	0	294	
4:15 PM	1	83	0	0	0	98	110	0	46	0	4	0	0	0	0	0	342	
4:30 PM	1	60	0	0	0	82	85	0	56	0	2	0	0	0	0	0	286	
4:45 PM	2	72	0	0	0	94	60	0	57	0	1	0	0	0	0	0	286	1208
5:00 PM	2	102	0	0	0	86	105	0	46	0	6	0	0	0	0	0	347	1261
5:15 PM	3	72	0	0	0	104	87	1	66	0	3	0	0	0	0	0	336	1255
5:30 PM	1	84	0	0	0	100	70	0	61	0	5	0	0	0	0	0	321	1290
5:45 PM	0	80	0	0	0	75	61	0	44	0	2	0	0	0	0	0	262	1266
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
All Vehicles	8	408	0	0	0	344	420	0	184	0	24	0	0	0	0	0	1388	
Heavy Trucks	0	0	0	0	0	4	4	0	4	0	0	0	0	0	0	0	12	
Pedestrians		0				20				8				0			28	
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	4	1	0	5	
Railroad																		
Stopped Buses																		

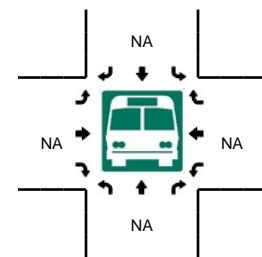
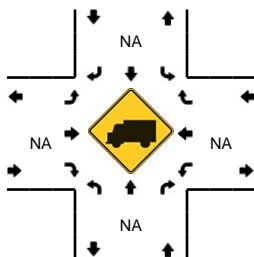
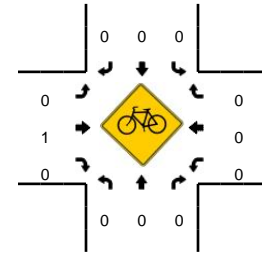
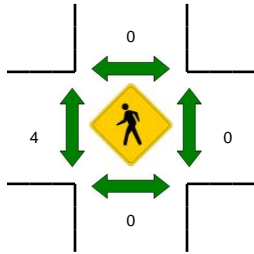
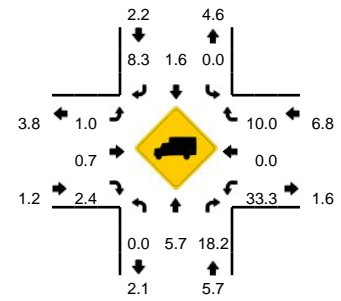
Comments:

LOCATION: SW 53rd St -- SW West Hills Rd
CITY/STATE: Corvallis, OR

QC JOB #: 14119601
DATE: Tue, Feb 07 2017



Peak-Hour: 7:30 AM -- 8:30 AM
Peak 15-Min: 7:45 AM -- 8:00 AM



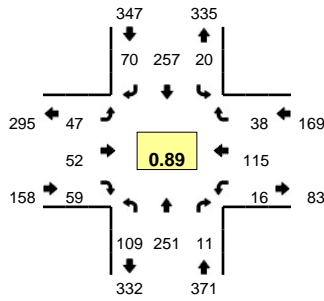
15-Min Count Period Beginning At	SW 53rd St (Northbound)				SW 53rd St (Southbound)				SW West Hills Rd (Eastbound)				SW West Hills Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	3	14	3	0	3	17	2	0	10	10	9	0	0	2	2	0	75	
7:15 AM	3	31	1	0	2	33	3	0	20	26	16	0	0	4	1	0	140	
7:30 AM	4	62	4	0	8	46	6	0	49	39	21	0	0	1	8	0	248	
7:45 AM	7	48	1	0	10	91	10	0	17	51	23	0	2	6	3	0	269	732
8:00 AM	3	59	2	0	5	60	12	0	14	36	27	0	0	6	5	0	229	886
8:15 AM	8	43	4	0	9	52	8	0	16	22	12	0	1	8	4	0	187	933
8:30 AM	2	64	3	0	5	47	8	0	8	16	12	0	1	9	3	0	178	863
8:45 AM	7	46	1	0	4	49	9	0	7	26	6	0	1	6	3	0	165	759

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	28	192	4	0	40	364	40	0	68	204	92	0	8	24	12	0	1076
Heavy Trucks	0	8	0	0	0	0	0	0	0	4	0	0	4	0	0	0	16
Pedestrians	0	0	0	0	0	0	0	0	0	8	0	0	0	0	0	0	8
Bicycles	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
Railroad																	
Stopped Buses																	

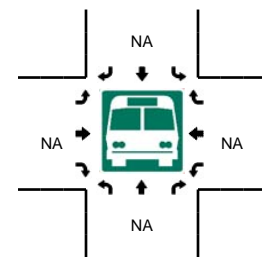
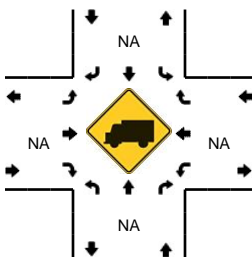
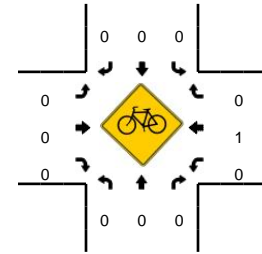
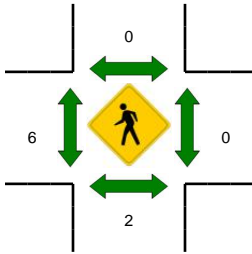
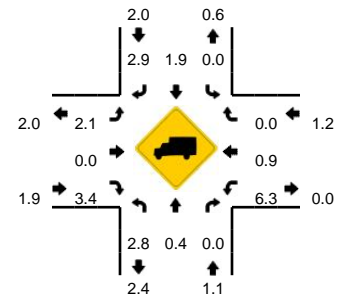
Comments:

LOCATION: SW 53rd St -- SW West Hills Rd
CITY/STATE: Corvallis, OR

QC JOB #: 14119602
DATE: Tue, Feb 07 2017



Peak-Hour: 4:45 PM -- 5:45 PM
Peak 15-Min: 5:30 PM -- 5:45 PM

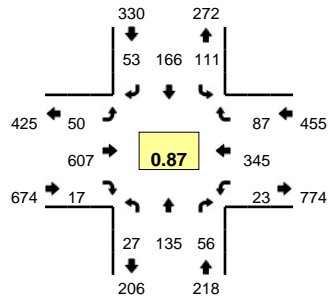


15-Min Count Period Beginning At	SW 53rd St (Northbound)				SW 53rd St (Southbound)				SW West Hills Rd (Eastbound)				SW West Hills Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	18	60	1	0	7	70	13	0	8	10	10	0	3	21	5	0	226	
4:15 PM	21	51	4	0	8	66	26	0	9	14	21	0	2	16	8	0	246	
4:30 PM	23	54	2	0	1	67	17	0	10	6	18	0	2	17	12	0	229	
4:45 PM	31	49	4	0	5	63	17	0	8	13	8	1	2	23	9	0	233	934
5:00 PM	15	75	3	0	8	70	12	0	13	10	12	0	5	25	6	0	254	962
5:15 PM	28	56	2	0	2	59	23	0	10	14	14	0	3	41	14	0	266	982
5:30 PM	35	71	2	0	5	65	18	0	15	15	25	0	6	26	9	0	292	1045
5:45 PM	19	48	0	0	5	59	17	0	10	11	17	0	2	27	7	0	222	1034
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
All Vehicles	140	284	8	0	20	260	72	0	60	60	100	0	24	104	36	0	1168	
Heavy Trucks	0	4	0	0	0	4	0	0	0	0	8	0	4	4	0	0	24	
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	1	0	0	1	
Railroad																		
Stopped Buses																		

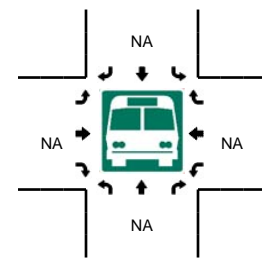
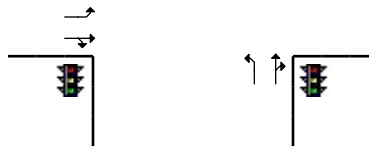
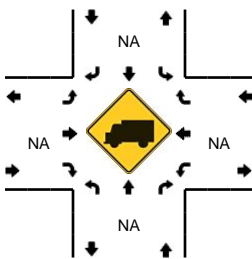
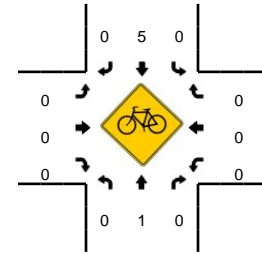
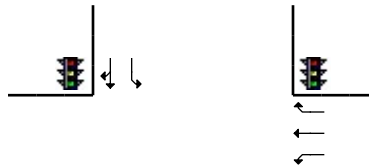
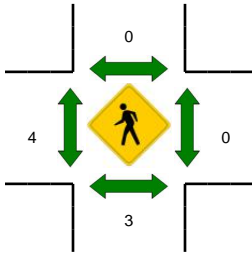
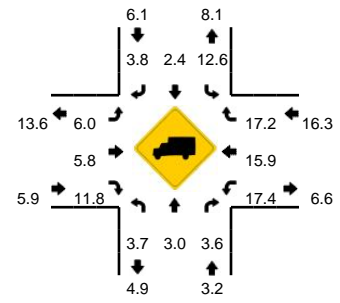
Comments:

LOCATION: SW 53rd St -- SW Philomath Blvd
CITY/STATE: Corvallis, OR

QC JOB #: 13760301
DATE: Tue, Mar 29 2016



Peak-Hour: 7:30 AM -- 8:30 AM
Peak 15-Min: 7:45 AM -- 8:00 AM

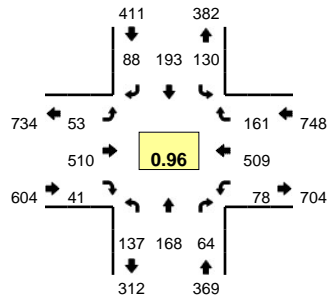


15-Min Count Period Beginning At	SW 53rd St (Northbound)				SW 53rd St (Southbound)				SW Philomath Blvd (Eastbound)				SW Philomath Blvd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	3	10	5	0	23	8	5	0	8	121	0	0	2	61	10	0	256	
7:15 AM	6	22	7	0	29	11	5	0	10	138	3	0	5	56	8	0	300	
7:30 AM	8	42	14	0	29	23	11	0	15	187	2	0	8	90	10	0	439	
7:45 AM	7	34	21	0	34	64	23	0	9	152	4	0	4	100	31	0	483	1478
8:00 AM	3	24	13	0	18	44	11	0	11	133	4	0	6	73	22	0	362	1584
8:15 AM	9	35	8	0	30	35	8	0	15	135	7	0	5	82	24	0	393	1677
8:30 AM	4	37	11	0	28	25	14	0	17	118	3	0	8	64	12	0	341	1579
8:45 AM	14	27	14	0	22	33	9	0	8	108	6	0	11	88	15	0	355	1451
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	28	136	84	0	136	256	92	0	36	608	16	0	16	400	124	0	1932	
Heavy Trucks	0	0	4		12	0	0		0	24	0		4	32	12		88	
Pedestrians		8				0				8				0			16	
Bicycles	0	0	0		0	3	0		0	0	0		0	0	0		3	
Railroad																		
Stopped Buses																		

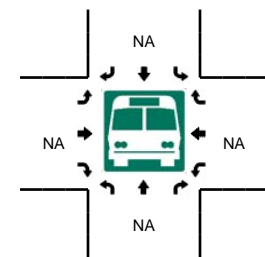
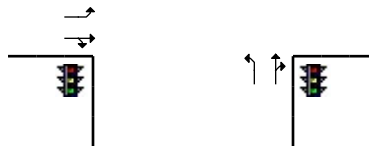
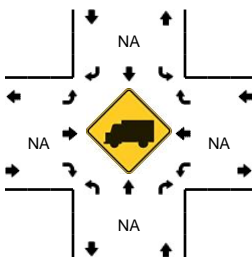
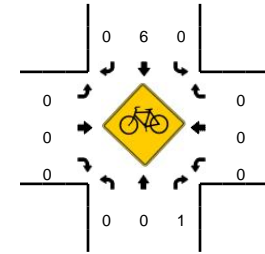
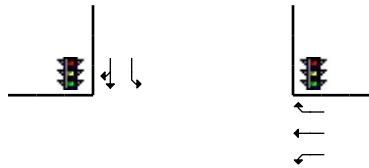
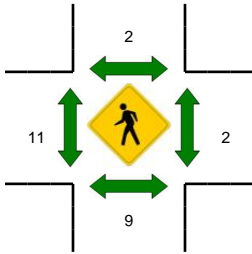
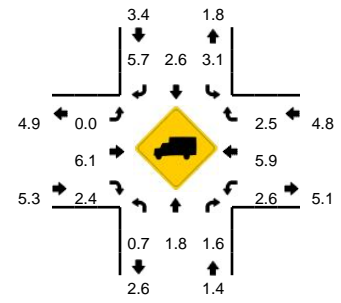
Comments:

LOCATION: SW 53rd St -- SW Philomath Blvd
CITY/STATE: Corvallis, OR

QC JOB #: 13760302
DATE: Tue, Mar 29 2016



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

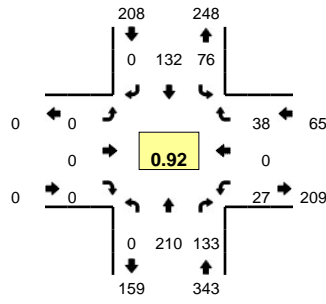


15-Min Count Period Beginning At	SW 53rd St (Northbound)				SW 53rd St (Southbound)				SW Philomath Blvd (Eastbound)				SW Philomath Blvd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	30	30	15	0	44	44	18	0	22	117	12	0	16	139	30	0	517	
4:15 PM	31	47	15	0	32	39	16	0	13	109	21	0	22	134	33	0	512	
4:30 PM	23	38	12	0	49	36	14	0	18	137	18	0	21	107	37	0	510	
4:45 PM	33	34	16	0	23	56	25	0	19	137	12	0	20	108	29	0	512	2051
5:00 PM	33	46	19	0	30	50	16	0	14	142	10	0	18	129	49	0	556	2090
5:15 PM	40	44	14	0	29	41	26	0	7	126	10	0	21	144	45	0	547	2125
5:30 PM	31	44	15	0	48	46	21	0	13	105	9	0	19	128	38	0	517	2132
5:45 PM	32	42	18	0	38	40	13	0	9	105	8	0	15	115	36	0	471	2091
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
All Vehicles	132	184	76	0	120	200	64	0	56	568	40	0	72	516	196	0	2224	
Heavy Trucks	0	4	4		8	8	0		0	16	4		4	52	0		100	
Pedestrians		28				0				16				0			44	
Bicycles	0	0	0		0	2	0		0	0	0		0	0	0		2	
Railroad																		
Stopped Buses																		

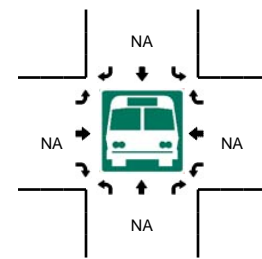
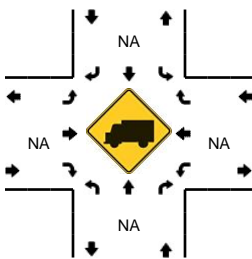
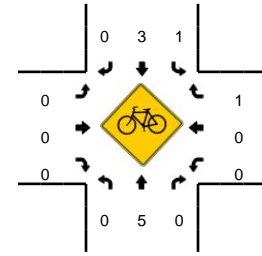
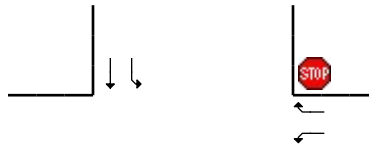
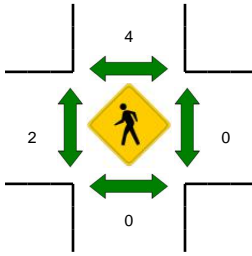
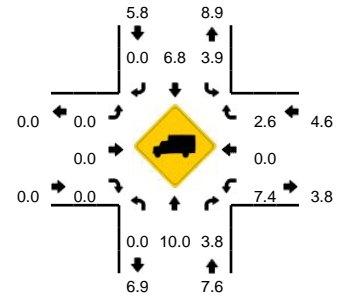
Comments:

LOCATION: SW 53rd St -- SW Technology Loop
CITY/STATE: Corvallis, OR

QC JOB #: 14430205
DATE: Thu, May 25 2017



Peak-Hour: 7:30 AM -- 8:30 AM
Peak 15-Min: 7:30 AM -- 7:45 AM

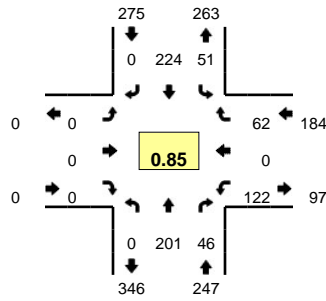


15-Min Count Period Beginning At	SW 53rd St (Northbound)				SW 53rd St (Southbound)				SW Technology Loop (Eastbound)				SW Technology Loop (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	24	12	0	3	20	0	0	0	0	0	0	4	0	5	0	68	
7:15 AM	0	47	27	0	11	13	0	0	0	0	0	0	0	0	8	0	106	
7:30 AM	0	62	44	0	18	20	0	0	0	0	0	0	9	0	14	0	167	
7:45 AM	0	47	40	0	33	30	0	0	0	0	0	0	9	0	7	0	166	507
8:00 AM	0	44	28	0	16	49	0	0	0	0	0	0	4	0	11	0	152	591
8:15 AM	0	57	21	0	9	33	0	0	0	0	0	0	5	0	6	0	131	616
8:30 AM	0	57	21	0	13	29	0	0	0	0	0	0	3	0	2	0	125	574
8:45 AM	0	39	20	0	9	37	0	0	0	0	0	0	9	0	7	0	121	529
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
All Vehicles	0	248	176	0	72	80	0	0	0	0	0	0	36	0	56	0	668	
Heavy Trucks	0	24	4		0	8	0		0	0	0		4	0	4		44	
Pedestrians		0				8				0				0			8	
Bicycles	0	0	0		1	0	0		0	0	0		0	0	0		1	
Railroad																		
Stopped Buses																		

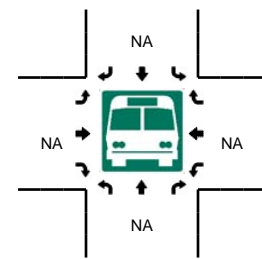
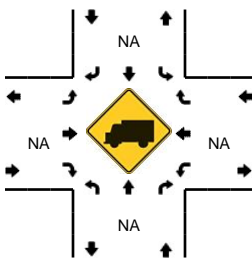
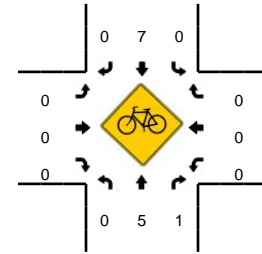
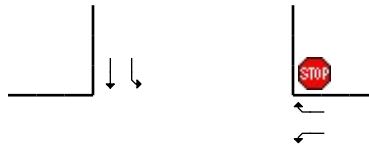
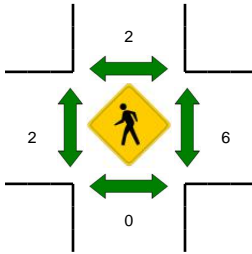
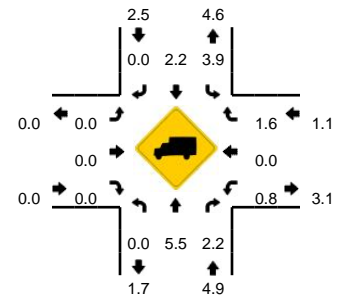
Comments:

LOCATION: SW 53rd St -- SW Technology Loop
CITY/STATE: Corvallis, OR

QC JOB #: 14430206
DATE: Thu, May 25 2017



Peak-Hour: 4:45 PM -- 5:45 PM
Peak 15-Min: 5:15 PM -- 5:30 PM

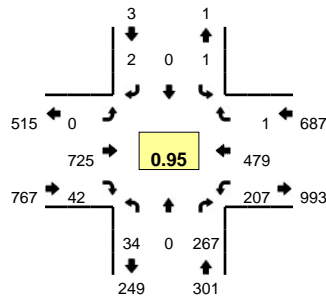


15-Min Count Period Beginning At	SW 53rd St (Northbound)				SW 53rd St (Southbound)				SW Technology Loop (Eastbound)				SW Technology Loop (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	54	18	0	7	43	0	0	0	0	0	0	11	0	14	0	147	
4:15 PM	0	40	11	0	4	55	0	0	0	0	0	0	21	0	9	0	140	
4:30 PM	0	44	16	0	15	46	0	0	0	0	0	0	23	0	13	0	157	
4:45 PM	0	49	13	0	10	47	0	0	0	0	0	0	26	0	8	0	153	597
5:00 PM	0	50	13	0	16	50	0	0	0	0	0	0	24	0	16	0	169	619
5:15 PM	0	53	12	0	11	68	0	0	0	0	0	0	46	0	18	0	208	687
5:30 PM	0	49	8	0	14	59	0	0	0	0	0	0	26	0	20	0	176	706
5:45 PM	0	34	13	0	13	58	0	0	0	0	0	0	21	0	10	0	149	702
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	212	48	0	44	272	0	0	0	0	0	0	184	0	72	0	832	
Heavy Trucks	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	8	0	0	0	8	
Bicycles	0	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	4	
Railroad																		
Stopped Buses																		

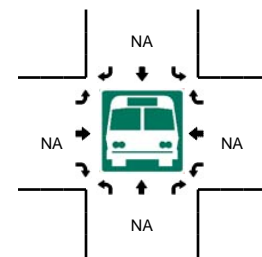
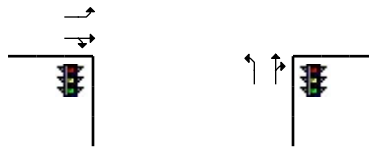
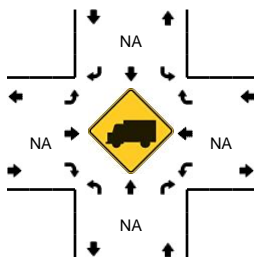
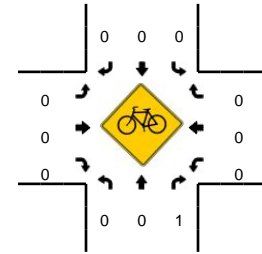
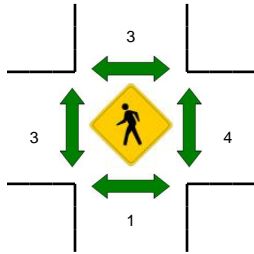
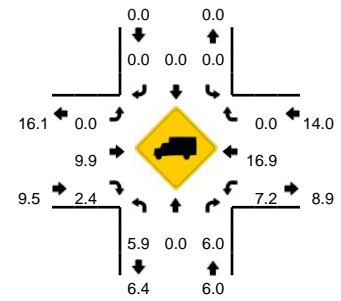
Comments:

LOCATION: SW Technology Loop -- SW Philomath Blvd
CITY/STATE: Corvallis, OR

QC JOB #: 14430203
DATE: Thu, May 25 2017



Peak-Hour: 7:30 AM -- 8:30 AM
Peak 15-Min: 7:45 AM -- 8:00 AM

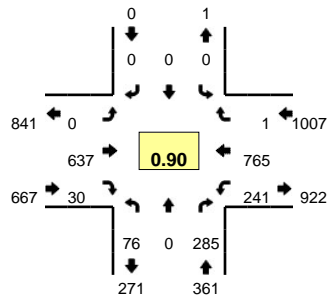


15-Min Count Period Beginning At	SW Technology Loop (Northbound)				SW Technology Loop (Southbound)				SW Philomath Blvd (Eastbound)				SW Philomath Blvd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	2	0	27	0	0	0	0	0	0	122	6	0	18	93	0	0	268	
7:15 AM	3	0	46	0	0	0	0	0	0	162	5	0	33	89	0	0	338	
7:30 AM	10	0	73	0	0	0	1	0	0	195	12	0	43	120	0	0	454	
7:45 AM	4	0	84	0	0	0	0	0	0	202	13	0	54	107	0	0	464	1524
8:00 AM	10	0	64	0	0	0	0	0	0	157	10	0	61	118	0	0	420	1676
8:15 AM	10	0	46	0	1	0	1	0	0	171	7	0	49	134	1	0	420	1758
8:30 AM	5	0	47	0	0	0	0	0	0	169	8	0	25	122	0	0	376	1680
8:45 AM	3	0	67	0	0	0	0	0	0	157	7	0	27	119	0	0	380	1596
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	16	0	336	0	0	0	0	0	0	808	52	0	216	428	0	0	1856	
Heavy Trucks	0	0	8	0	0	0	0	0	0	56	0	0	20	72	0	0	156	
Pedestrians			0			8				4				12			24	
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Railroad																		
Stopped Buses																		

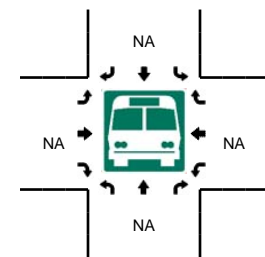
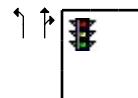
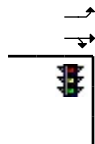
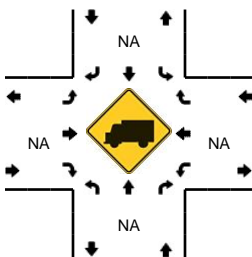
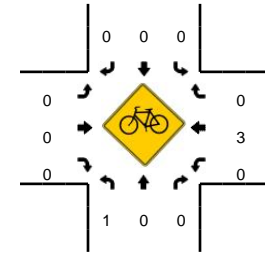
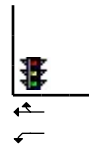
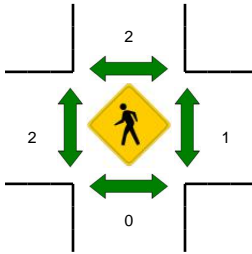
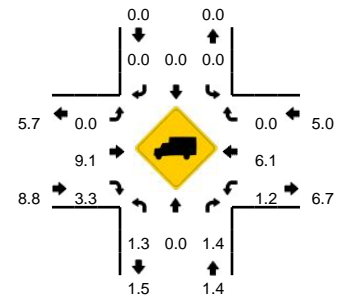
Comments:

LOCATION: SW Technology Loop -- SW Philomath Blvd
CITY/STATE: Corvallis, OR

QC JOB #: 14430204
DATE: Thu, May 25 2017



Peak-Hour: 4:45 PM -- 5:45 PM
Peak 15-Min: 5:15 PM -- 5:30 PM

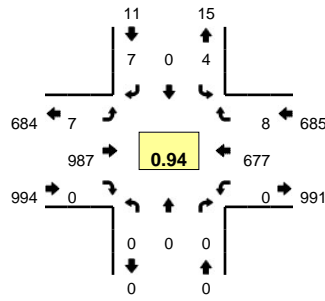


15-Min Count Period Beginning At	SW Technology Loop (Northbound)				SW Technology Loop (Southbound)				SW Philomath Blvd (Eastbound)				SW Philomath Blvd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	14	0	82	0	0	0	0	0	0	142	3	0	42	156	0	0	439	
4:15 PM	11	0	51	0	0	0	0	0	0	162	8	0	39	172	0	0	443	
4:30 PM	18	0	55	0	0	0	1	0	0	155	8	0	46	177	0	0	460	
4:45 PM	14	0	70	0	0	0	0	0	0	159	8	0	39	201	0	0	491	1833
5:00 PM	29	0	86	0	0	0	0	0	0	137	3	0	58	177	1	0	491	1885
5:15 PM	16	0	68	0	0	0	0	0	0	180	10	0	79	213	0	0	566	2008
5:30 PM	17	0	61	0	0	0	0	0	0	161	9	0	65	174	0	0	487	2035
5:45 PM	11	0	67	0	0	1	0	0	0	148	5	0	47	183	0	0	462	2006
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	64	0	272	0	0	0	0	0	0	720	40	0	316	852	0	0	2264	
Heavy Trucks	4	0	0	0	0	0	0	0	0	56	0	0	0	48	0	0	108	
Pedestrians		0				0				0				0			0	
Bicycles	0	0	0		0	0	0		0	0	0		0	2	0		2	
Railroad																		
Stopped Buses																		

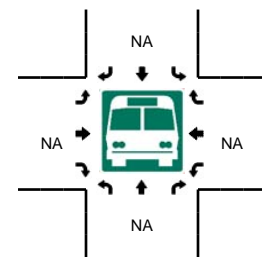
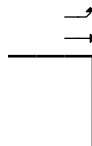
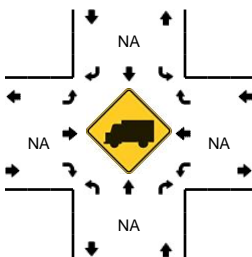
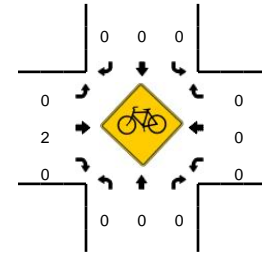
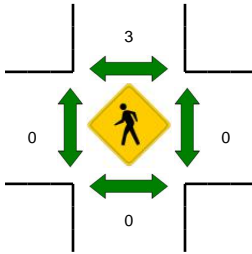
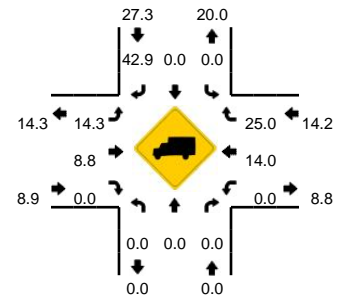
Comments:

LOCATION: SW Timian St -- SW Philomath Blvd
CITY/STATE: Corvallis, OR

QC JOB #: 14430201
DATE: Thu, May 25 2017



Peak-Hour: 7:30 AM -- 8:30 AM
Peak 15-Min: 7:45 AM -- 8:00 AM

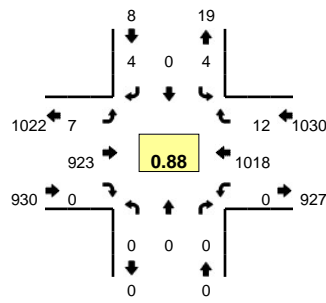


15-Min Count Period Beginning At	SW Timian St (Northbound)				SW Timian St (Southbound)				SW Philomath Blvd (Eastbound)				SW Philomath Blvd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	0	0	0	4	0	3	0	0	149	0	0	0	114	0	0	270	
7:15 AM	0	0	0	0	1	0	1	0	1	208	0	0	0	127	0	0	338	
7:30 AM	0	0	0	0	1	0	1	0	0	272	0	0	0	161	2	0	437	
7:45 AM	0	0	0	0	3	0	2	0	3	280	0	0	0	161	2	0	451	1496
8:00 AM	0	0	0	0	0	0	3	0	2	219	0	0	0	178	2	0	404	1630
8:15 AM	0	0	0	0	0	0	1	0	2	216	0	0	0	177	2	0	398	1690
8:30 AM	0	0	0	0	3	0	3	0	0	216	0	0	0	147	1	0	370	1623
8:45 AM	0	0	0	0	1	0	2	0	1	222	0	0	0	153	3	0	382	1554
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	0	0	0	0	12	0	8	0	12	1120	0	0	0	644	8	0	1804	
Heavy Trucks	0	0	0	0	0	0	0	0	0	60	0	0	0	92	4	0	156	
Pedestrians		0				4				0				0			4	
Bicycles	0	0	0		0	0	0		0	1	0		0	0	0		1	
Railroad																		
Stopped Buses																		

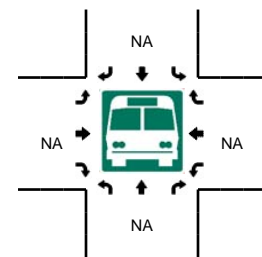
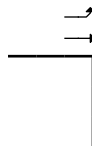
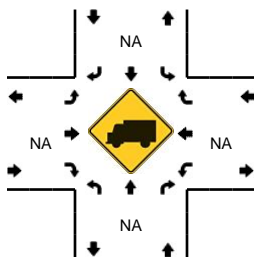
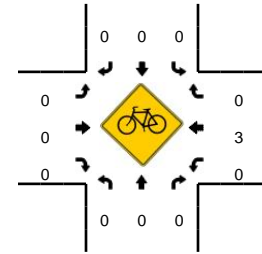
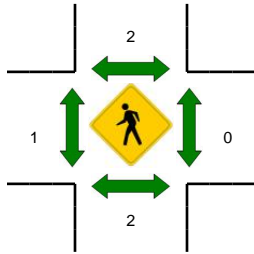
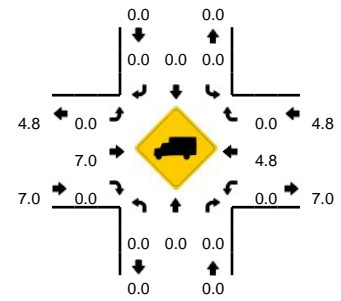
Comments:

LOCATION: SW Timian St -- SW Philomath Blvd
CITY/STATE: Corvallis, OR

QC JOB #: 14430202
DATE: Thu, May 25 2017



Peak-Hour: 4:45 PM -- 5:45 PM
Peak 15-Min: 5:15 PM -- 5:30 PM

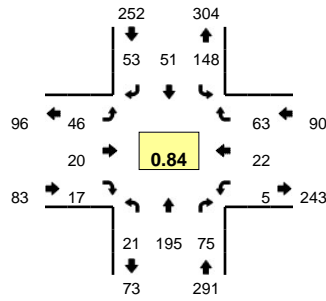


15-Min Count Period Beginning At	SW Timian St (Northbound)				SW Timian St (Southbound)				SW Philomath Blvd (Eastbound)				SW Philomath Blvd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	0	0	0	0	0	1	0	2	226	0	0	0	206	0	0	435	
4:15 PM	0	0	0	0	1	0	0	0	1	212	0	0	0	218	0	0	432	
4:30 PM	0	0	0	0	2	0	3	0	1	208	0	0	0	226	2	0	442	
4:45 PM	0	0	0	0	0	0	1	0	3	229	0	0	0	242	0	0	475	1784
5:00 PM	0	0	0	0	0	0	1	0	1	224	0	0	0	241	4	0	471	1820
5:15 PM	0	0	0	0	1	0	1	0	2	250	0	0	0	299	3	0	556	1944
5:30 PM	0	0	0	0	3	0	1	0	1	220	0	0	0	236	5	0	466	1968
5:45 PM	0	0	0	0	0	0	0	0	1	216	0	0	0	219	0	0	436	1929
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	0	0	0	0	4	0	4	0	8	1000	0	0	0	1196	12	0	2224	
Heavy Trucks	0	0	0	0	0	0	0	0	0	56	0	0	0	52	0	0	108	
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	2	0	0	2	
Railroad																		
Stopped Buses																		

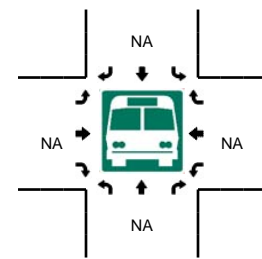
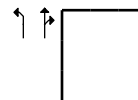
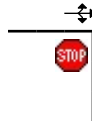
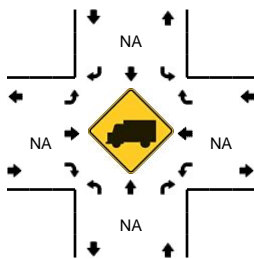
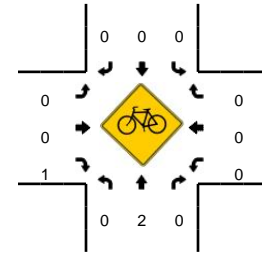
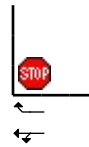
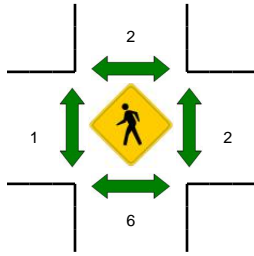
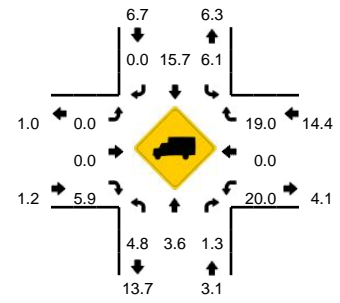
Comments:

LOCATION: SW Technology Loop -- SW Research Way
CITY/STATE: Corvallis, OR

QC JOB #: 14430215
DATE: Thu, May 25 2017



Peak-Hour: 7:30 AM -- 8:30 AM
Peak 15-Min: 7:45 AM -- 8:00 AM

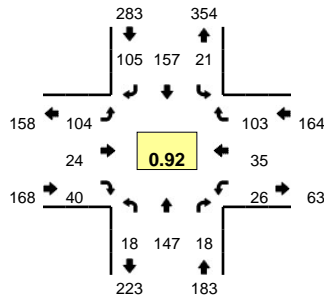


15-Min Count Period Beginning At	SW Technology Loop (Northbound)				SW Technology Loop (Southbound)				SW Research Way (Eastbound)				SW Research Way (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	3	20	4	0	14	3	6	1	5	4	0	0	0	1	2	0	63	
7:15 AM	4	44	10	0	21	9	9	0	3	3	2	0	1	1	4	0	111	
7:30 AM	7	73	13	0	31	8	14	0	10	5	3	0	1	5	13	0	183	
7:45 AM	5	58	35	0	43	10	17	0	13	6	7	0	2	4	12	0	212	569
8:00 AM	4	35	19	0	38	22	13	0	14	6	3	0	1	8	26	0	189	695
8:15 AM	5	29	8	0	36	11	9	0	9	3	4	0	1	5	12	0	132	716
8:30 AM	6	45	7	0	20	4	11	0	5	6	2	0	0	5	3	0	114	647
8:45 AM	0	46	7	0	15	8	10	0	15	4	4	0	1	5	11	0	126	561
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
All Vehicles	20	232	140	0	172	40	68	0	52	24	28	0	8	16	48	0	848	
Heavy Trucks	0	8	0		12	8	0		0	0	4		0	0	4		36	
Pedestrians		12				0				0				8			20	
Bicycles	0	1	0		0	0	0		0	0	0		0	0	0		1	
Railroad																		
Stopped Buses																		

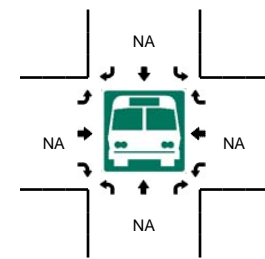
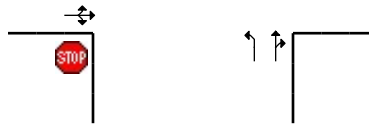
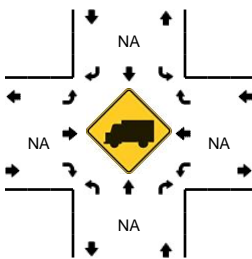
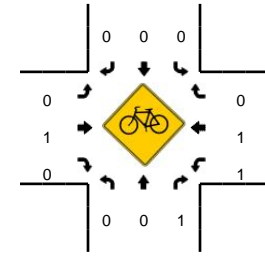
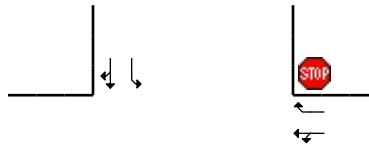
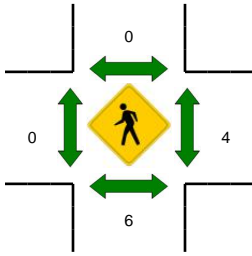
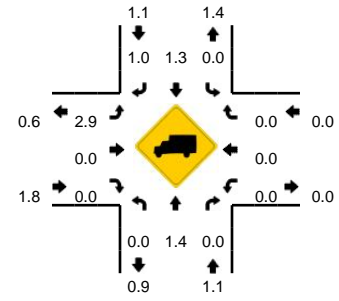
Comments:

LOCATION: SW Technology Loop -- SW Research Way
CITY/STATE: Corvallis, OR

QC JOB #: 14430216
DATE: Thu, May 25 2017



Peak-Hour: 4:45 PM -- 5:45 PM
Peak 15-Min: 5:15 PM -- 5:30 PM



15-Min Count Period Beginning At	SW Technology Loop (Northbound)				SW Technology Loop (Southbound)				SW Research Way (Eastbound)				SW Research Way (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	6	38	2	0	3	29	17	0	29	3	7	0	5	9	28	0	176	
4:15 PM	1	21	3	0	2	30	14	0	17	5	7	0	7	12	17	0	136	
4:30 PM	4	28	3	0	5	15	24	0	24	5	9	0	5	6	25	0	153	
4:45 PM	5	39	7	0	7	25	21	0	29	3	9	0	4	7	20	0	176	641
5:00 PM	6	42	4	0	4	35	19	0	25	5	11	0	8	12	41	0	212	677
5:15 PM	4	35	3	0	5	57	35	0	29	6	10	0	6	10	17	0	217	758
5:30 PM	3	31	4	0	5	40	30	0	21	10	10	0	8	6	25	0	193	798
5:45 PM	4	37	2	0	5	30	19	0	29	4	13	0	1	3	16	0	163	785
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	16	140	12	0	20	228	140	0	116	24	40	0	24	40	68	0	868	
Heavy Trucks	0	0	0	0	0	0	0	0	4	0	0	0	0	0	0	0	4	
Pedestrians		4				0				0				4			8	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Railroad																		
Stopped Buses																		

Comments:



Location: SW Western Blvd & SW Philomath Blvd
 Start Date: 5/25/2017
 Start Time: 7:00:00 AM
 Site Code: 14430217

Start Time	SW Western Blvd Southbound					SW Philomath Blvd Westbound					SW Western Blvd Northbound					SW Philomath Blvd Eastbound					Slip Lane Southwestbound				
	Right to Slip Lane	Right	Thru	Left	U-Turns	Right	Right to Slip Lane	Thru	Left	U-Turns	Right	Thru	Left to Slip Lane	Left	U-Turns	Right	Thru	Left	Left to Slip Lane	U-Turns	Right to SW Philomath Blvd	Right to SW Western Blvd	Left to SW Philomath Blvd	Left to SW Western Blvd	U-Turns
07:00	0	0	0	0	0	2	0	29	0	0	0	11	0	0	0	0	0	0	0	0	0	0	0	0	0
07:05	0	0	0	0	0	0	0	39	0	0	0	9	0	0	0	0	0	0	0	0	0	0	0	0	0
07:10	0	0	0	0	0	0	0	37	0	0	0	9	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15	0	0	0	0	0	0	0	31	0	0	0	9	0	0	0	0	0	0	0	0	0	0	0	0	0
07:20	0	0	0	0	0	0	0	43	0	0	0	8	0	0	0	0	0	0	0	0	0	0	0	0	0
07:25	0	0	0	0	0	0	0	32	0	0	0	24	0	0	0	0	0	0	0	0	0	0	0	0	0
07:30	0	0	0	0	0	0	0	38	0	0	0	23	1	0	0	0	0	0	0	0	0	0	0	0	0
07:35	0	0	0	0	0	1	0	49	0	0	0	23	0	0	0	0	0	0	0	0	0	0	0	0	0
07:40	0	0	0	0	0	1	0	63	0	0	0	25	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45	0	0	0	0	0	0	0	37	0	0	0	41	0	0	0	0	0	0	0	0	0	0	0	0	0
07:50	0	0	0	0	0	1	0	44	0	0	0	37	0	0	0	0	0	0	0	0	0	0	0	0	0
07:55	0	0	0	0	0	0	0	55	0	0	0	33	0	0	0	0	0	0	0	0	0	0	0	0	0
08:00	0	0	0	0	0	0	0	42	0	0	0	21	0	0	0	0	0	0	0	0	0	0	0	0	0
08:05	0	0	0	0	0	0	0	59	0	0	0	26	0	0	0	0	0	0	0	0	0	0	0	0	0
08:10	0	0	0	0	0	0	0	65	0	0	0	22	0	0	0	0	0	0	0	0	0	0	0	0	0
08:15	0	0	0	0	0	1	0	49	0	0	0	13	0	0	0	0	0	0	0	0	0	0	0	0	0
08:20	0	0	0	0	0	0	0	50	0	0	0	19	0	0	0	0	0	0	0	0	0	0	0	0	0
08:25	0	0	0	0	0	1	1	48	0	0	0	20	0	0	0	0	0	0	0	0	0	0	0	0	0
08:30	0	0	0	0	0	0	0	38	0	0	0	15	0	0	0	0	0	0	0	0	0	0	0	0	0
08:35	0	0	0	0	0	0	0	35	0	0	0	15	0	0	0	0	0	0	0	0	0	0	0	0	0
08:40	0	0	0	0	0	0	0	50	0	0	0	16	0	0	0	0	0	0	0	0	0	0	0	0	0
08:45	0	0	0	0	0	0	0	44	0	0	0	19	0	0	0	0	0	0	0	0	0	0	0	0	0
08:50	0	0	0	0	0	1	0	46	0	0	0	20	0	0	0	0	0	0	0	0	0	0	0	0	0
08:55	0	0	0	0	0	1	0	46	0	0	0	23	1	1	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	8	1	1069	0	0	0	481	2	1	0	0	0	0	0	0	0	0	0	0	0

Peak Hour: 7:30:00 AM - 8:30:00 AM
 Peak 15-Min: 7:40:00 AM - 7:55:00 AM
 PHF: 0.91265



Time Period	WBR	WBT	NBT	NBL	Total	Hourly Total
7:00 AM	0	105	29	0	136	136
7:15 AM	0	106	41	0	147	147
7:30 AM	0	150	71	1	224	224
7:45 AM	0	136	111	0	248	248
8:00 AM	0	166	69	0	235	854
8:15 AM	0	147	52	0	202	909
8:30 AM	0	123	46	0	169	854
8:45 AM	0	136	62	2	201	807



Location: SW Western Blvd & SW Philomath Blvd
 Start Date: 5/25/2017
 Start Time: 4:00:00 PM
 Site Code: 14430218

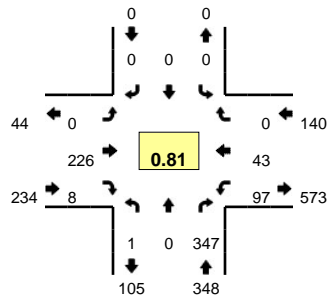
Start Time	SW Western Blvd Southbound					SW Philomath Blvd Westbound					SW Western Blvd Northbound					SW Philomath Blvd Eastbound					Slip Lane Southwestbound				
	Right to Slip Lane	Right	Thru	Left	U-Turns	Right	Right to Slip Lane	Thru	Left	U-Turns	Right	Thru	Left to Slip Lane	Left	U-Turns	Right	Thru	Left	Left to Slip Lane	U-Turns	Right to SW Philomath Blvd	Right to SW Western Blvd	Left to SW Philomath Blvd	Left to SW Western Blvd	U-Turns
16:00	0	0	0	0	0	0	0	56	0	0	0	13	1	0	0	0	0	0	0	0	0	0	0	0	0
16:05	0	0	0	0	0	0	0	56	0	0	0	18	0	0	0	0	0	0	0	0	0	0	0	0	0
16:10	0	0	0	0	0	0	0	37	0	0	0	15	0	0	0	0	0	0	0	0	0	0	0	0	0
16:15	0	0	0	0	0	0	0	52	0	0	0	10	0	0	0	0	0	0	0	0	0	0	0	0	0
16:20	0	0	0	0	0	0	0	64	0	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0
16:25	0	0	0	0	0	1	0	60	0	0	0	7	0	0	0	0	0	0	0	0	0	0	0	0	0
16:30	0	0	0	0	0	0	0	48	0	0	0	8	0	0	0	0	0	0	0	0	0	0	0	0	0
16:35	0	0	0	0	0	0	0	66	0	0	0	16	0	0	0	0	0	0	0	0	0	0	0	0	0
16:40	0	0	0	0	0	0	0	60	0	0	0	14	0	0	0	0	0	0	0	0	0	0	0	0	0
16:45	0	0	0	0	0	1	0	50	0	0	0	26	0	0	0	0	0	0	0	0	0	0	0	0	0
16:50	0	0	0	0	0	0	0	58	0	0	0	21	0	0	0	0	0	0	0	0	0	0	0	0	0
16:55	0	0	0	0	0	0	1	68	0	0	0	12	0	0	0	0	0	0	0	0	0	0	0	0	0
17:00	0	0	0	0	0	0	0	58	0	0	0	20	0	0	0	0	0	0	0	0	0	0	0	0	0
17:05	0	0	0	0	0	0	0	56	0	0	0	9	0	0	0	0	0	0	0	0	0	0	0	0	0
17:10	0	0	0	0	0	1	0	72	0	0	0	20	0	0	0	0	0	0	0	0	0	0	0	0	0
17:15	0	0	0	0	0	4	0	72	0	0	0	20	0	0	0	0	0	0	0	0	0	0	0	0	0
17:20	0	0	0	0	0	1	0	69	0	0	0	32	0	0	0	0	0	0	0	0	0	0	0	0	0
17:25	0	0	0	0	0	1	0	60	0	0	0	25	0	0	0	0	0	0	0	0	0	0	0	0	0
17:30	0	0	0	0	0	0	0	53	0	0	0	26	0	0	0	0	0	0	0	0	0	0	0	0	0
17:35	0	0	0	0	0	2	0	59	0	0	0	16	0	0	0	0	0	0	0	0	0	0	0	0	0
17:40	0	0	0	0	0	3	0	54	0	0	0	13	0	0	0	0	0	0	0	0	0	0	0	0	0
17:45	0	0	0	0	0	0	0	53	0	0	0	16	1	1	0	0	0	0	0	0	0	0	0	0	0
17:50	0	0	0	0	0	1	0	64	0	0	0	15	0	0	0	0	0	0	0	0	0	0	0	0	0
17:55	0	0	0	0	0	0	0	44	0	0	0	11	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	15	1	1389	0	0	0	389	2	1	0	0	0	0	0	0	0	0	0	0	0

Peak Hour: 4:35:00 PM - 5:35:00 PM
 Peak 15-Min: 5:10:00 PM - 5:25:00 PM
 PHF: 0.85223

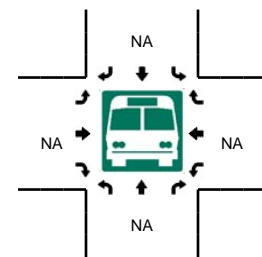
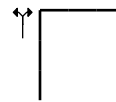
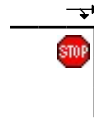
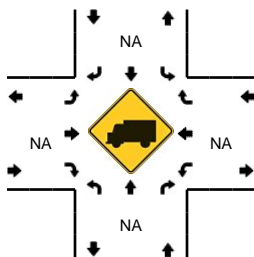
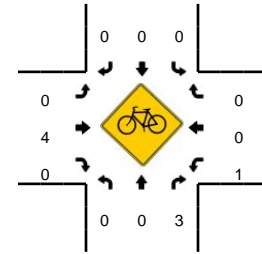
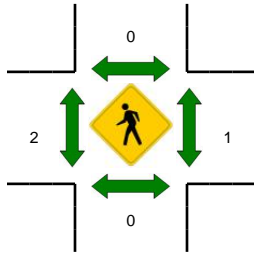
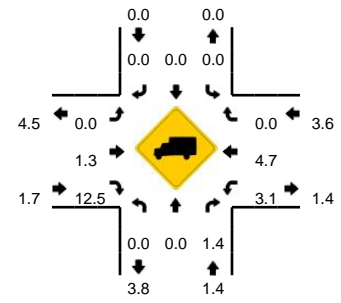
Time Period	WBR	WBT	NBT	NBL	Total	Hourly Total
4:00 PM	0	149	46	1	196	196
4:15 PM	0	176	23	0	200	200
4:30 PM	0	174	38	0	212	212
4:45 PM	0	176	59	0	237	237
5:00 PM	0	186	49	0	236	885
5:15 PM	0	201	77	0	284	969
5:30 PM	0	166	55	0	226	983
5:45 PM	0	161	42	2	206	952

LOCATION: SW Western Blvd -- SW West Hills Rd
CITY/STATE: Corvallis, OR

QC JOB #: 14119603
DATE: Tue, Feb 07 2017



Peak-Hour: 7:30 AM -- 8:30 AM
Peak 15-Min: 7:45 AM -- 8:00 AM

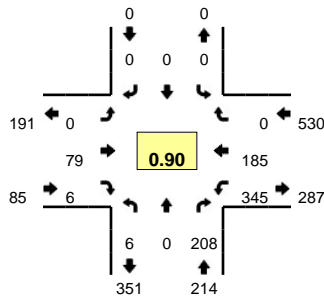


15-Min Count Period Beginning At	SW Western Blvd (Northbound)				SW Western Blvd (Southbound)				SW West Hills Rd (Eastbound)				SW West Hills Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	0	29	0	0	0	0	0	0	18	0	0	17	5	0	0	69	
7:15 AM	0	0	30	0	0	0	0	0	0	24	0	0	17	4	0	0	75	
7:30 AM	0	0	72	0	0	0	0	0	0	55	0	0	16	5	0	0	148	
7:45 AM	1	0	108	0	0	0	0	0	0	72	5	0	21	15	0	0	222	514
8:00 AM	0	0	103	0	0	0	0	0	0	55	1	0	31	12	0	0	202	647
8:15 AM	0	0	64	0	0	0	0	0	0	44	2	0	29	11	0	0	150	722
8:30 AM	0	0	62	0	0	0	0	0	0	26	1	0	21	11	0	0	121	695
8:45 AM	1	0	55	0	0	0	0	0	0	31	1	0	24	16	0	0	128	601
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	4	0	432	0	0	0	0	0	0	288	20	0	84	60	0	0	888	
Heavy Trucks	0	0	8	0	0	0	0	0	0	4	0	0	8	4	0	0	24	
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	4	
Bicycles	0	0	2	0	0	0	0	0	0	1	0	0	0	0	0	0	3	
Railroad																		
Stopped Buses																		

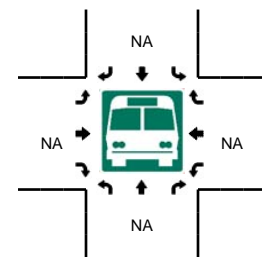
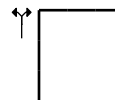
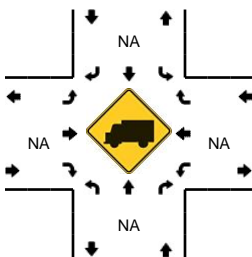
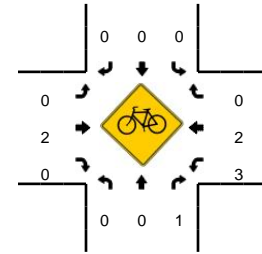
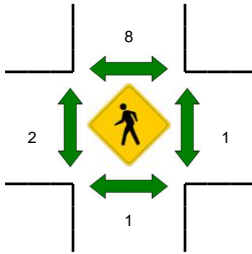
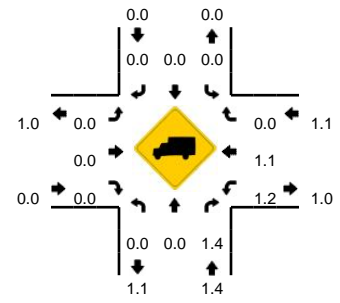
Comments:

LOCATION: SW Western Blvd -- SW West Hills Rd
CITY/STATE: Corvallis, OR

QC JOB #: 14119604
DATE: Tue, Feb 07 2017



Peak-Hour: 5:00 PM -- 6:00 PM
Peak 15-Min: 5:15 PM -- 5:30 PM

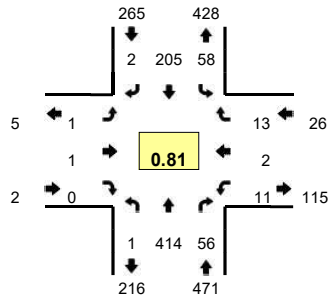


15-Min Count Period Beginning At	SW Western Blvd (Northbound)				SW Western Blvd (Southbound)				SW West Hills Rd (Eastbound)				SW West Hills Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	0	25	0	0	0	0	0	0	16	2	0	52	38	0	0	133	
4:15 PM	0	0	33	0	0	0	0	0	0	21	1	0	61	28	0	0	144	
4:30 PM	2	0	30	0	0	0	0	0	0	12	2	0	57	35	0	0	138	
4:45 PM	1	0	50	0	0	0	0	0	0	25	1	0	65	34	0	0	176	591
5:00 PM	0	0	52	0	0	0	0	0	0	22	2	0	97	38	0	0	211	669
5:15 PM	2	0	55	0	0	0	0	0	0	19	1	0	93	60	0	0	230	755
5:30 PM	3	0	46	0	0	0	0	0	0	21	3	0	75	47	0	0	195	812
5:45 PM	1	0	55	0	0	0	0	0	0	17	0	0	80	40	0	0	193	829
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
All Vehicles	8	0	220	0	0	0	0	0	0	76	4	0	372	240	0	0	920	
Heavy Trucks	0	0	8	0	0	0	0	0	0	0	0	0	4	0	0	0	12	
Pedestrians	0	0	0	0	0	8	0	0	0	4	0	0	0	0	0	0	12	
Bicycles	0	0	1	0	0	0	0	0	0	0	0	0	2	0	0	0	3	
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	

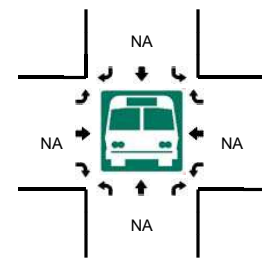
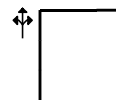
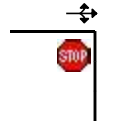
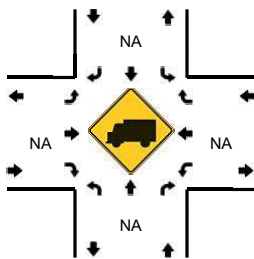
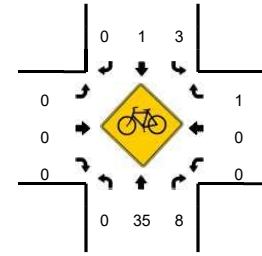
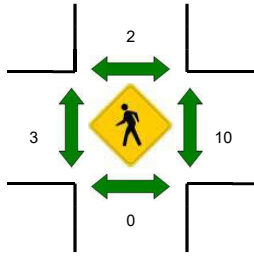
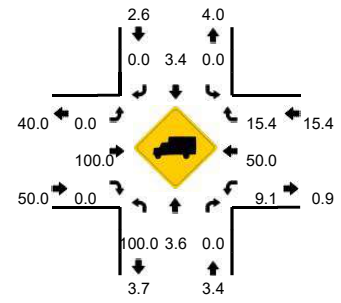
Comments:

LOCATION: SW 35th St -- SW Washington Way
CITY/STATE: Benton, OR

QC JOB #: 13917961
DATE: Tue, Oct 18 2016



Peak-Hour: 7:40 AM -- 8:40 AM
Peak 15-Min: 7:55 AM -- 8:10 AM

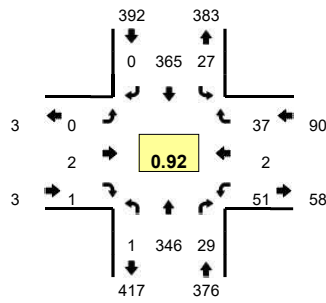


5-Min Count Period Beginning At	SW 35th St (Northbound)				SW 35th St (Southbound)				SW Washington Way (Eastbound)				SW Washington Way (Westbound)				Total	Hourly Totals	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U			
7:40 AM	0	41	5	0	0	12	0	0	0	0	0	0	0	0	0	1	0	59	
7:45 AM	0	40	7	0	12	25	0	0	0	0	0	0	0	0	0	1	0	85	
7:50 AM	0	44	3	0	5	21	2	0	0	0	0	0	0	0	1	1	0	77	
7:55 AM	0	39	5	0	2	16	0	0	0	1	0	0	3	0	1	0	0	67	
8:00 AM	0	43	11	0	7	21	0	0	0	0	0	0	0	0	1	0	0	83	
8:05 AM	0	41	9	0	7	24	0	0	1	0	0	0	2	0	1	0	0	85	
8:10 AM	1	29	2	0	1	12	0	0	0	0	0	0	1	0	0	0	0	46	
8:15 AM	0	37	3	0	3	16	0	0	0	0	0	0	1	0	3	0	0	63	
8:20 AM	0	32	2	0	5	18	0	0	0	0	0	0	0	0	1	0	0	58	
8:25 AM	0	22	4	0	5	14	0	0	0	0	0	0	2	0	0	0	0	47	
8:30 AM	0	25	0	0	7	11	0	0	0	0	0	0	0	0	1	0	0	44	
8:35 AM	0	21	5	0	4	15	0	0	0	0	0	0	2	1	2	0	0	50	764
8:40 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	705
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	620
8:50 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	543
8:55 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	476
9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	393
9:05 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	308
9:10 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	262
9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	199
9:20 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	141
9:25 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	94
9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	50
9:35 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total		
All Vehicles	0	492	100	0	64	244	0	0	4	4	0	0	20	0	12	0	940		
Heavy Trucks	0	16	0	0	0	0	0	0	0	4	0	0	0	0	4	0	24		
Pedestrians	0	0	0	0	0	4	0	0	0	8	0	0	0	4	0	0	16		
Bicycles	0	8	3	0	0	1	0	0	0	0	0	0	0	0	0	0	12		
Railroad																			
Stopped Buses																			

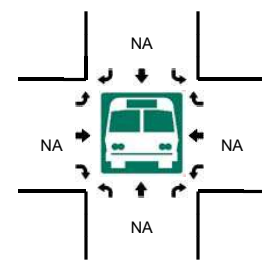
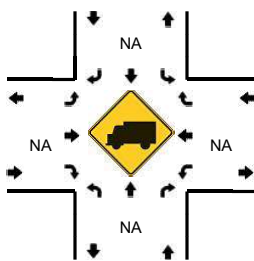
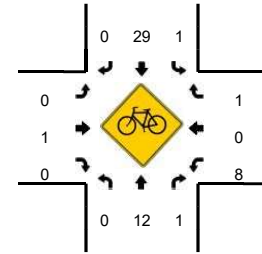
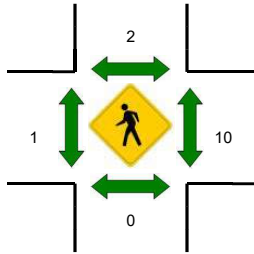
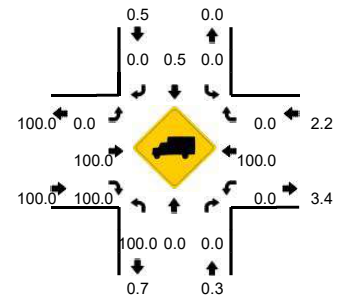
Comments:

LOCATION: SW 35th St -- SW Washington Way
CITY/STATE: Benton, OR

QC JOB #: 13917962
DATE: Tue, Oct 18 2016



Peak-Hour: 5:00 PM -- 6:00 PM
Peak 15-Min: 5:15 PM -- 5:30 PM



5-Min Count Period Beginning At	SW 35th St (Northbound)				SW 35th St (Southbound)				SW Washington Way (Eastbound)				SW Washington Way (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
5:00 PM	0	24	3	0	2	26	0	0	0	0	0	0	4	1	1	0	61	
5:05 PM	0	23	3	0	2	42	0	0	0	0	1	0	3	0	4	0	78	
5:10 PM	0	34	2	0	4	27	0	0	0	0	0	0	3	0	4	0	74	
5:15 PM	0	36	1	0	0	33	0	0	0	0	0	0	4	0	3	0	77	
5:20 PM	0	33	0	0	4	37	0	0	0	0	0	0	1	0	3	0	78	
5:25 PM	1	26	3	0	2	33	0	0	0	0	0	0	11	0	3	0	79	
5:30 PM	0	33	2	0	0	30	0	0	0	1	0	0	4	0	4	0	74	
5:35 PM	0	31	3	0	3	29	0	0	0	0	0	0	9	0	4	0	79	
5:40 PM	0	23	6	0	3	24	0	0	0	1	0	0	9	1	2	0	69	
5:45 PM	0	30	3	0	1	33	0	0	0	0	0	0	1	0	4	0	72	
5:50 PM	0	28	0	0	3	34	0	0	0	0	0	0	0	0	4	0	69	
5:55 PM	0	25	3	0	3	17	0	0	0	0	0	0	2	0	1	0	51	861
6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	800
6:05 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	722
6:10 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	648
6:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	571
6:20 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	493
6:25 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	414
6:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	340
6:35 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	261
6:40 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	192
6:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	120
6:50 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	51
6:55 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	4	380	16	0	24	412	0	0	0	0	0	0	64	0	36	0	936	
Heavy Trucks	4	0	0	0	0	8	0	0	0	0	0	0	0	0	0	0	12	
Pedestrians		0				0								12			12	
Bicycles	0	1	1		0	6	0		0	0	0		3	0	0		11	
Railroad																		
Stopped Buses																		

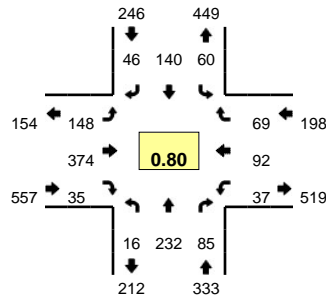
Comments:

Type of peak hour being reported: Intersection Peak

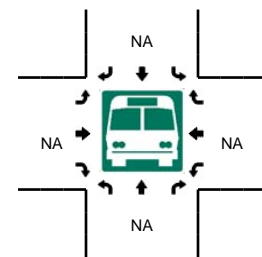
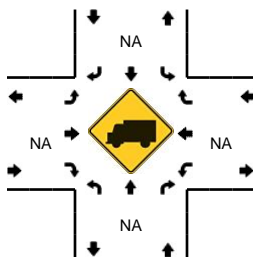
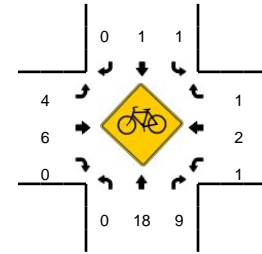
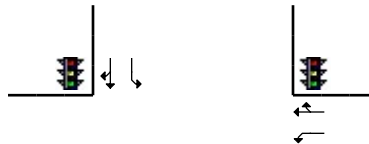
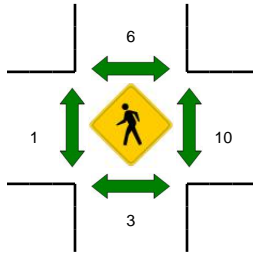
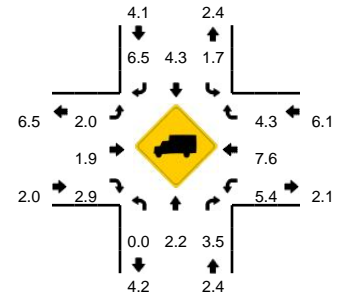
Method for determining peak hour: Total Entering Volume

LOCATION: SW 35th St -- SW Western Blvd
CITY/STATE: Corvallis, OR

QC JOB #: 14246301
DATE: Wed, Mar 08 2017



Peak-Hour: 7:30 AM -- 8:30 AM
Peak 15-Min: 7:45 AM -- 8:00 AM



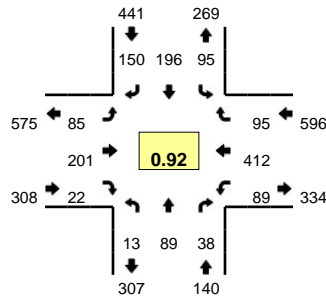
15-Min Count Period Beginning At	SW 35th St (Northbound)				SW 35th St (Southbound)				SW Western Blvd (Eastbound)				SW Western Blvd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	1	25	8	0	4	9	6	0	14	40	2	0	2	17	6	0	134	
7:15 AM	1	20	8	0	7	23	6	0	19	58	1	0	7	19	6	0	175	
7:30 AM	1	49	25	0	11	29	8	0	39	92	8	0	8	16	22	0	308	
7:45 AM	2	62	23	0	21	39	10	0	50	127	11	0	14	37	19	0	415	1032
8:00 AM	6	65	20	0	17	35	15	0	36	84	10	0	9	19	13	0	329	1227
8:15 AM	7	56	17	0	11	37	13	0	23	71	6	0	6	20	15	0	282	1334
8:30 AM	4	40	15	0	22	31	15	0	31	92	9	0	7	15	10	0	291	1317
8:45 AM	5	39	10	0	19	31	20	0	38	78	2	0	6	31	11	0	290	1192

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	8	248	92	0	84	156	40	0	200	508	44	0	56	148	76	0	1660
Heavy Trucks	0	8	0		4	4	8		4	12	4		0	16	0		60
Pedestrians		8				4				0				12			24
Bicycles	0	8	3		0	0	0		2	2	0		0	0	1		16
Railroad																	
Stopped Buses																	

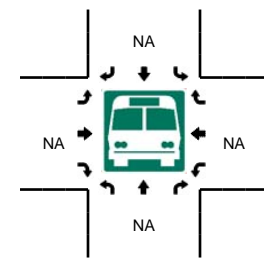
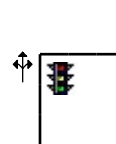
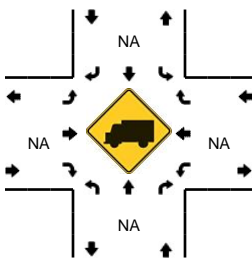
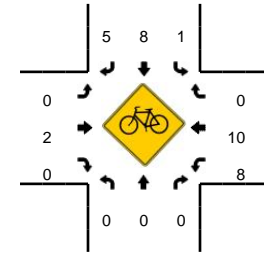
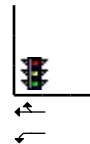
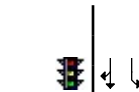
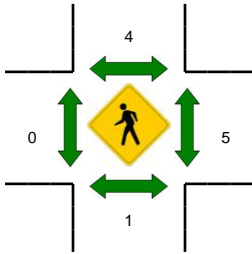
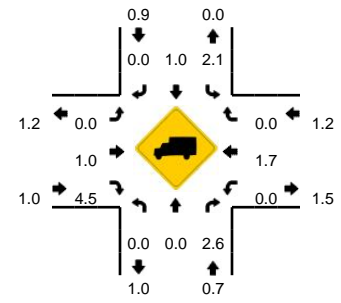
Comments:

LOCATION: SW 35th St -- SW Western Blvd
CITY/STATE: Corvallis, OR

QC JOB #: 14246302
DATE: Wed, Mar 08 2017



Peak-Hour: 4:45 PM -- 5:45 PM
Peak 15-Min: 5:15 PM -- 5:30 PM

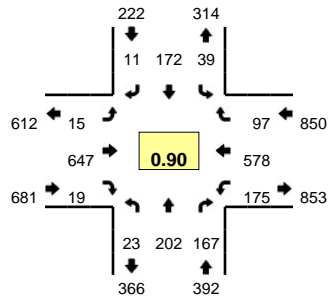


15-Min Count Period Beginning At	SW 35th St (Northbound)				SW 35th St (Southbound)				SW Western Blvd (Eastbound)				SW Western Blvd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	4	24	6	0	22	35	24	0	15	45	4	0	16	68	17	0	280	
4:15 PM	4	39	10	0	19	51	25	0	19	43	3	0	14	59	14	0	300	
4:30 PM	2	28	15	0	29	48	21	0	21	39	3	0	14	78	13	0	311	
4:45 PM	3	21	13	0	19	44	33	0	20	49	6	0	21	91	15	0	335	1226
5:00 PM	2	28	11	0	25	68	38	0	22	51	2	0	19	103	30	0	399	1345
5:15 PM	4	19	10	0	26	41	55	0	21	49	9	0	27	126	17	0	404	1449
5:30 PM	4	21	4	0	25	43	24	0	22	52	5	0	22	92	33	0	347	1485
5:45 PM	5	23	13	0	18	39	29	0	15	55	4	0	13	72	25	0	311	1461
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	16	76	40	0	104	164	220	0	84	196	36	0	108	504	68	0	1616	
Heavy Trucks	0	0	0		0	4	0		0	0	0		0	4	0		8	
Pedestrians		4				8				0				4			16	
Bicycles	0	0	0		0	0	3		0	1	0		1	1	0		6	
Railroad																		
Stopped Buses																		

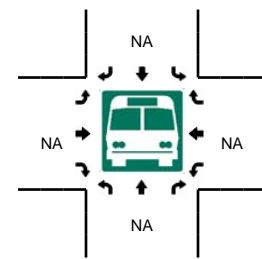
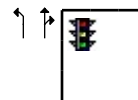
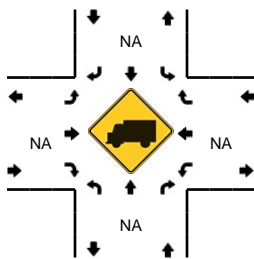
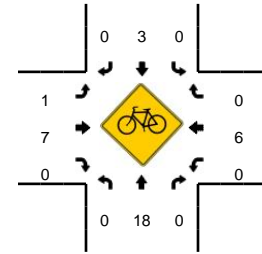
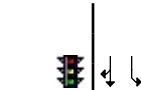
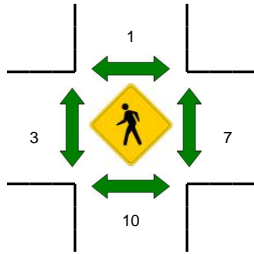
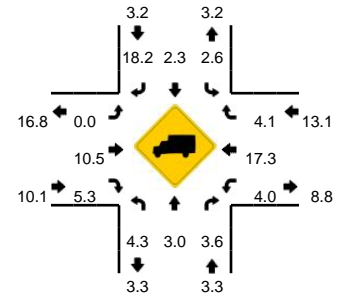
Comments:

LOCATION: SW 35th St -- SW Philomath Blvd
CITY/STATE: Corvallis, OR

QC JOB #: 14430219
DATE: Thu, May 25 2017



Peak-Hour: 7:30 AM -- 8:30 AM
Peak 15-Min: 8:00 AM -- 8:15 AM

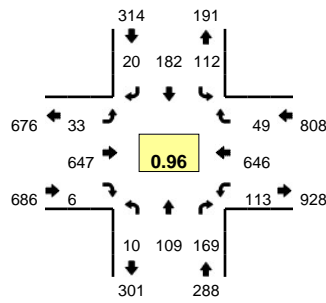


15-Min Count Period Beginning At	SW 35th St (Northbound)				SW 35th St (Southbound)				SW Philomath Blvd (Eastbound)				SW Philomath Blvd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	2	17	12	0	7	4	4	0	1	151	3	0	13	86	13	0	313	
7:15 AM	0	20	14	0	10	16	0	0	2	166	2	0	14	117	16	0	377	
7:30 AM	3	49	29	0	4	41	1	0	1	164	6	0	24	134	15	0	471	
7:45 AM	2	52	44	0	8	49	4	0	3	168	5	0	62	147	39	0	583	1744
8:00 AM	11	47	55	0	13	59	2	0	7	154	7	0	50	165	26	0	596	2027
8:15 AM	7	54	39	0	14	23	4	0	4	161	1	0	39	132	17	0	495	2145
8:30 AM	0	34	32	0	12	13	1	0	5	174	4	0	23	123	23	0	444	2118
8:45 AM	3	14	29	0	14	17	3	0	1	171	1	0	25	140	19	0	437	1972
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
All Vehicles	44	188	220	0	52	236	8	0	28	616	28	0	200	660	104	0	2384	
Heavy Trucks	4	4	0		4	4	0		0	80	0		12	104	8		220	
Pedestrians		8				4				0				12			24	
Bicycles	0	5	0		0	0	0		0	0	0		0	0	0		5	
Railroad																		
Stopped Buses																		

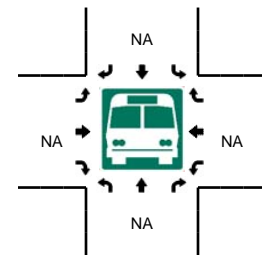
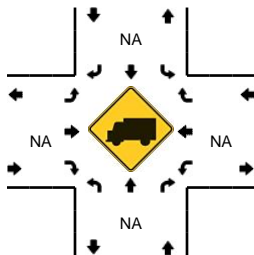
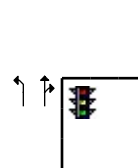
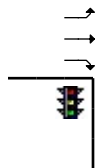
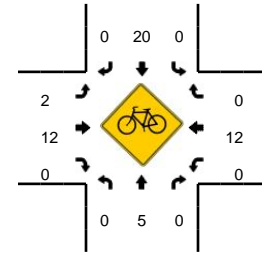
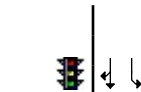
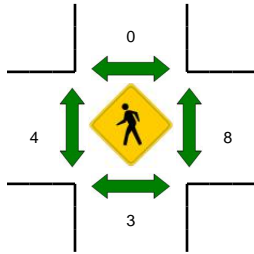
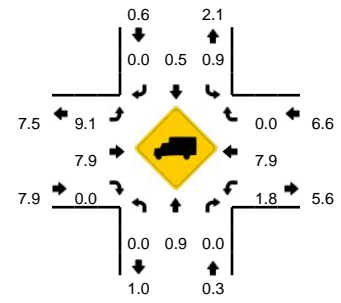
Comments:

LOCATION: SW 35th St -- SW Philomath Blvd
CITY/STATE: Corvallis, OR

QC JOB #: 14430220
DATE: Thu, May 25 2017



Peak-Hour: 4:30 PM -- 5:30 PM
Peak 15-Min: 4:30 PM -- 4:45 PM



15-Min Count Period Beginning At	SW 35th St (Northbound)				SW 35th St (Southbound)				SW Philomath Blvd (Eastbound)				SW Philomath Blvd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	3	23	42	0	23	38	6	0	1	186	0	0	26	191	12	0	551	
4:15 PM	4	39	31	0	14	31	8	0	8	163	1	0	29	170	9	0	507	
4:30 PM	0	31	46	0	35	42	3	0	8	175	0	0	25	170	9	0	544	
4:45 PM	4	25	38	0	21	26	4	0	10	175	2	0	32	139	13	0	489	2091
5:00 PM	2	32	54	0	20	47	6	0	7	153	0	0	25	176	15	0	537	2077
5:15 PM	4	21	31	0	36	67	7	0	8	144	4	0	31	161	12	0	526	2096
5:30 PM	4	27	27	0	20	39	10	0	12	160	6	0	35	168	12	0	520	2072
5:45 PM	0	32	20	0	13	42	4	0	12	165	6	0	24	139	13	0	470	2053
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	124	184	0	140	168	12	0	32	700	0	0	100	680	36	0	2176	
Heavy Trucks	0	4	0		0	4	0		4	48	0		0	80	0		140	
Pedestrians		4				0				4				4			12	
Bicycles	0	1	0		0	1	0		1	0	0		0	3	0		6	
Railroad																		
Stopped Buses																		

Comments:

Appendix D



Table 5 – Development Trip Generation (Maximum Development Potential Scenario)

Land Use	ITE Code	Size	AM Peak Hour Trip Generation			PM Peak Hour Trip Generation		
			Enter	Exit	Total	Enter	Exit	Total
Current Benton County UR-50								
Single-Family Residential	210	1 DU	0	1	1	1	0	1
Current Benton County UR-5								
Single-Family Residential	210	8 DU	2	4	6	5	3	8
Primary (Net New) Current Zone Trip Generation			2	5	7	6	3	9
Proposed Corvallis MUR Zone Designation (Maximum Development Potential Scenario)								
Total Office ¹	710	132,000 SF	182	24	206	34	162	196
Total Retail ¹	826,850,851 880,911	33,000 SF	127	122	249	147	156	303
Total Restaurant ¹	932	6,000 SF	36	30	66	36	24	60
Total Residential ¹	220	696 DU	71	282	353	280	152	432
Total Other – Day Care ¹	565	3,000 SF	20	17	37	17	20	37
Total Trip Generation ¹			436	475	911	514	514	1,028
<i>Internal Capture Trips ²</i>			-69	-70	-139	-102	-96	-198
Total External Trip Generation			367	405	772	412	418	830
<i>Pass-By Trips (61%AM, 61%PM ITE Code 851)</i>			-60	-56	-116	-62	-50	-112
Primary (Net New) MUR Zone Trip Generation			307	349	656	350	368	718
Proposed Corvallis RS-12 Zone Designation (Maximum Development Potential Scenario)								
ITE – Apartments (LDC – Multi-Family Dwelling)	220	1,722 DU	176	702	878	694	374	1,068
Primary (Net New) Proposed Zone Trip Generation (MUR + RS-12)			483	1,051	1,534	1,044	742	1,786
Increase in Primary (Net New) Trip Generation (Proposed – Current)			481	1046	1,527	1038	739	1,777

¹ Data is presented for aggregated uses. Refer to attached spreadsheet in Appendix C for detailed development assumptions.

² Refer to attached spreadsheet in Appendix C for detailed internal capture calculations.

Table 6 – Development Trip Generation (Reasonable Development Scenario)

Land Use	ITE Code	Size	AM Peak Hour Trip Generation			PM Peak Hour Trip Generation		
			Enter	Exit	Total	Enter	Exit	Total
Current Benton County UR-50								
Single-Family Residential	210	1 DU	0	1	1	1	0	1
Current Benton County UR-5								
Single-Family Residential	210	8 DU	2	4	6	5	3	8
Primary (Net New) Current Zone Trip Generation			2	5	7	6	3	9
Proposed General Land Use Plan Development								
ITE – Apartments (LDC – Multi-Family Dwelling)	220	840 DU	86	342	428	339	182	521
ITE – Residential Condominium/Townhouse (LDC – Attached Townhouse)	230	82 DU	6	30	36	29	14	43
ITE – Single Family Residential (LDC – Single – Detached)	210	131 DU	25	73	98	83	48	131
ITE - Senior Adult Housing - Attached (LDC – Senior Housing)	252	64 DU	4	9	13	9	7	16
Primary (Net New) Proposed General Land Use Plan Trip Generation			121	454	575	460	251	711
Increase in Primary (Net New) Trip Generation (Proposed – Current)			119	449	568	454	248	702

Mary's Annexation and Zone Change

RS-12 Zone Trip Generation

Data Entry Cells
 Developable Site Area - Total (Acres) 95.63 Per info received from Willamette Valley Planning on 16 April 2017
 Maximum Development Density (Dwelling Units/Acre) 20
 Maximum Dwelling Units 1,912

Maximum Development Potential Scenario - PM Peak Hour																				Highlighted cells without internal capture reduction																					
A	B		C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ	AK	AL			
Convallis Development Code	ITE Land Use Code	ITE Land Use Description	PM Peak Trip Generation Rate or Equation	ADT			Dwelling Units								Enter	Exit	Exit	Exit	Total	Enter	Exit	Exit	Exit	Total	Enter	Exit	Total	Total	Total	Total	Total	Total	Total	Total	Total	Total	Total	Notes			
Land Use Description							[B565]								[User]	[1*P]	[1-P]	[T-Q]	[H*D]	[User]	[U*Q]	[User]	[W*S]	[V*X]	[Q-V]	[S-X]	[Z+AA]	[2*AC]	[AF-AD]	[AB*AC]	[Z-AD]	[AA-AE]	[AB-AF]								
Multi-Family Dwelling	220	Apartments	0.62	6.65			1,722								65%	694	35%	374	1,068									0%													
																694	374	1,068																							
Maximum Development Potential Scenario - AM Peak Hour																																									
A	B		C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ	AK	AL			
Convallis Development Code	ITE Land Use Code	ITE Land Use Description	AM Peak Trip Generation Rate or Equation	ADT			Dwelling Units								Enter	Exit	Exit	Exit	Total	Enter	Exit	Exit	Exit	Total	Enter	Exit	Total	Total	Total	Total	Total	Total	Total	Total	Total	Total	Total	Total	Notes		
Land Use Description							[B565]								[User]	[1*P]	[1-P]	[T-Q]	[H*D]	[User]	[U*Q]	[User]	[W*S]	[V*X]	[Q-V]	[S-X]	[Z+AA]	[2*AC]	[AF-AD]	[AB*AC]	[Z-AD]	[AA-AE]	[AB-AF]								
Multi-Family Dwelling	220	Apartments	0.51	6.65			1,722								20%	176	80%	702	878									0%													
																176	702	878																							

Mary's Annexation and Zone Change

General Land Use Plan Trip Generation

Data Entry Cells:
 Development Assumptions based on Willamette Valley General Land Use Plan received via email on 4/17/17

Highlighted cells without internal capture reduction

General Land Use Plan (Reasonable Worst-Case Development) - PM Peak Hour																																											
A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ	AK	AL						
Corvallis Development Code	ITE Land Use Code	ITE Land Use Description	PM Peak Trip Generation Rate or Equation	ADT		Dwelling Units									Enter %	PM Peak Trip Enter #	Generation Exit %	Exit #	Total	Enter %	Internal Capture Enter #	Exit %	Exit #	Total	Enter #	Exit #	Total	Enter #	Exit #	Total	Enter #	Exit #	Total	Enter #	Exit #	Total	Enter #	Exit #	Total	Notes			
Multi-Family Dwelling	220	Apartments	0.62	6.65		840									[User]	[T*P]	[1-P]	[T-Q]	[H*D]	[User]	[U*Q]	[User]	[W*S]	[V+X]	[Q-V]	[S-X]	[Z+AA]		[Z*AC]	[AF-AD]	[AB*AC]	[Z-AD]	[AA-AE]	[AB-AF]									
Attached - Townhouse	230	Residential Condominium/Townhouse	0.52	5.81		82									65%	239	35%	182	521										0%														
Single - Detached	210	Single-Family Residential	1	9.52		131									67%	29	33%	14	43										0%														
Senior Housing	252	Senior Adult Housing - Attached	0.25	3.44		64									54%	9	46%	7	16										0%														
						1,117														460	251	711																					

General Land Use Plan (Reasonable Worst-Case Development) - AM Peak Hour																																													
A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ	AK	AL								
Corvallis Development Code	ITE Land Use Code	ITE Land Use Description	AM Peak Trip Generation Rate or Equation	ADT		Dwelling Units									Enter %	AM Peak Trip Enter #	Generation Exit %	Exit #	Total	Enter %	Internal Capture Enter #	Exit %	Exit #	Total	Enter #	Exit #	Total	Enter #	Exit #	Total	Enter #	Exit #	Total	Enter #	Exit #	Total	Enter #	Exit #	Total	Notes					
Multi-Family Dwelling	220	Apartments	0.51	6.65		840									[User]	[T*P]	[1-P]	[T-Q]	[H*D]	[User]	[U*Q]	[User]	[W*S]	[V+X]	[Q-V]	[S-X]	[Z+AA]		[Z*AC]	[AF-AD]	[AB*AC]	[Z-AD]	[AA-AE]	[AB-AF]											
Attached - Townhouse	230	Residential Condominium/Townhouse	0.44	5.81		82									20%	86	80%	342	428										0%																
Single - Detached	210	Single-Family Residential	0.75	9.52		131									17%	6	83%	30	36										0%																
Senior Housing	252	Senior Adult Housing - Attached	0.2	3.44		64									25%	25	75%	73	98										0%																
						1,117														121	454	575																							

Mary's Annexation and Zone Change

MUR Zone Trip Generation

Data Entry Cells

Land Uses not evaluated

Notes

Area per Parking space (SF)	325	
Developable Site Area - Total (Acres)	17.69	Per info received from Willamette Valley Planning on 16 April 2017
Developable Site Area - Total (SF)	770,576	
Area per Residential Dwelling (SF)	1,000	
Commercial Floor Area - Maximum 20% of Total Floor Area		

All Potential Uses

A	B	C	D	E	F	G
Corvallis Development Code Land Use Description	ITE Land Use Code	ITE Land Use Description	PM Peak Trip Generation Rate or Equation	ADT	Required Parking (1 Space:SF) (or Spaces:DU)	
Civic Uses						
Social Service Facilities	720	Medical-Dental Office Building	EQN	36.13	400	
Cultural Exhibits and Library Services	590	Library	7.3	56.24	200	
Community Recreation						
Postal Services	732		11.22	108.19	exempt	
Commercial Uses						
Business Support Services	710	General Office Building	1.49	11.57	400	
Convenience Sales and Personal Service	880	Pharmacy/Drugstore without Drive-Thru	8.4	90.06	400	
Convenience Sales and Personal Service	851	Convenience Market (Open 24 Hours)	52.41	737.99	400	
Day Care, Commercial	565	Day Care Center	12.34	74.06	2 per classroom	
Eating and Drinking Establishment, Sit Down, ≤ 15 Seats	932	High-Turnover/Sit-Down Restaurant	9.85	127.15	1 per 4 fixed seats	
Financial, Insurance, and Real Estate Services	911	Walk-in Bank	12.13		400	
Food and Beverage Sales - such as deli, espresso bar	850	Supermarket	9.48	102.24	400	
Laundry Services	826	Specialty Retail	2.71	44.32	400	
Lodging Services - Bed & Breakfast Only						
Professional and Administrative Offices	710	General Office Building	1.49	11.03	400	
Vocational and professional Training - w/in buildings only	710	General Office Building	1.49	11.57	400	
Residential Uses						
Attached - Townhouse	230	Residential Condominium/Townhouse	0.52	5.81	2	
Multi-Family Dwelling	220	Apartments	0.62	6.65	2	

All Potential Uses Sorted By Trip Generation/Total Developed Site Area - Highest to Lowest

A	B	C	D	E	F	G
Corvallis Development Code Land Use Description	ITE Land Use Code	ITE Land Use Description	PM Peak Trip Generation Rate or Equation	ADT	Required Parking (1 Space:SF) (or Spaces:DU)	
Civic Uses						
Social Service Facilities	720	Medical-Dental Office Building	EQN	36.13	400	
Cultural Exhibits and Library Services	590	Library	7.3	56.24	200	
Community Recreation						
Postal Services	732		11.22	108.19	exempt	
Commercial Uses						
Convenience Sales and Personal Service	851	Convenience Market (Open 24 Hours)	52.41	737.99	400	
Day Care, Commercial	565	Day Care Center	12.34	74.06	2 per classroom	
Financial, Insurance, and Real Estate Services	911	Walk-in Bank	12.13		400	
Eating and Drinking Establishment, Sit Down, ≤ 15 Seats	932	High-Turnover/Sit-Down Restaurant	9.85	127.15	1 per 4 fixed seats	
Food and Beverage Sales - such as deli, espresso bar	850	Supermarket	9.48	102.24	400	
Convenience Sales and Personal Service	880	Pharmacy/Drugstore without Drive-Thru	8.4	90.06	400	
Laundry Services	826	Specialty Retail	2.71	44.32	400	
Business Support Services	710	General Office Building	1.49	11.57	400	
Professional and Administrative Offices	710	General Office Building	1.49	11.03	400	
Vocational and professional Training - w/in buildings only	710	General Office Building	1.49	11.57	400	
Lodging Services - Bed & Breakfast Only						
Residential Uses						
Multi-Family Dwelling	220	Apartments	0.62	6.65	2	
Attached - Townhouse	230	Residential Condominium/Townhouse	0.52	5.81	2	

Potential Development Scenarios

A	B	C	D	E	F	G
Corvallis Development Code	ITE Land Use Code	ITE Land Use Description	PM Peak Trip Generation Rate or Equation	ADT	Required Parking (1 Space:SF) (or Spaces:DU)	
Scenario - Maximum Development Potential						
<u>Building 1</u>						
Convenience Sales and Personal Service	851	Convenience Market (Open 24 Hours)	52.41	737.99	400	
General Retail	826	Specialty Retail	2.71	44.32	400	
Multi-Family Dwelling	220	Apartments	0.62	6.65	2	
<u>Building 2</u>						
Day Care, Commercial	565	Day Care Center	12.34	74.06	2 per classroom	
Professional and Administrative Offices	710	General Office Building	1.49	11.03	400	
Multi-Family Dwelling	220	Apartments	0.62	6.65	2	
<u>Building 3</u>						
Financial, Insurance, and Real Estate Services	911	Walk-in Bank	12.13		400	
Eating and Drinking Establishment, Sit Down, ≤ 15 Seats	932	High-Turnover/Sit-Down Restaurant	9.85	127.15	1 per 4 fixed seats	
Eating and Drinking Establishment, Sit Down, ≤ 15 Seats	932	High-Turnover/Sit-Down Restaurant	9.85	127.15	1 per 4 fixed seats	
Eating and Drinking Establishment, Sit Down, ≤ 15 Seats	932	High-Turnover/Sit-Down Restaurant	9.85	127.15	1 per 4 fixed seats	
Multi-Family Dwelling	220	Apartments	0.62	6.65	2	
<u>Building 4</u>						
Food and Beverage Sales - such as deli, espresso bar	850	Supermarket	9.48	102.24	400	
General Retail	826	Specialty Retail	2.71	44.32	400	
Multi-Family Dwelling	220	Apartments	0.62	6.65	2	
<u>Building 5</u>						
Convenience Sales and Personal Service	880	Pharmacy/Drugstore without Drive-Thru	8.4	90.06	400	
Laundry Services	826	Specialty Retail	2.71	44.32	400	
General Retail	826	Specialty Retail	2.71	44.32	400	
Multi-Family Dwelling	220	Apartments	0.62	6.65	2	
<u>Buildings 6-15 (10 Buildings Total with 12.5 KSF Footprint Each)</u>						
Professional and Administrative Offices	710	General Office Building	1.49	11.03	400	
Multi-Family Dwelling	220	Apartments	0.62	6.65	2	

H	I	J	K	L	M	N	O	P	Q	R	S	T
Floor Area per Floor (SF)	# of Stories	Building Ground Floor Area (SF)	Total Building Area (SF)	Parking Spaces [K/F] or [K/BS85*F]	Parking Area (FT)	Total Developed Site Area (SF)		Enter %	PM Peak Enter #	Trip Exit %	Generation Exit #	Total [K/1000*D] or [K/BS85*D]
[H/I]	[H*]	[H*]	[H*]	[K/BS85*F]	[L*BS65]	[J+M]		[User]	[T*P]	[1-P]	[T-Q]	[K/BS85*D]
5,000	1	5,000	5,000	13	4,225	9,225		28%	6	72%	14	20

5,000	1	5,000	5,000	13	4,225	9,225		17%	1	83%	6	7
5,000	1	5,000	5,000	13	4,225	9,225		49%	21	51%	21	42
3,000	1	3,000	3,000	8	2,600	5,600		51%	80	49%	77	157
5,000	1	5,000	5,000	13	4,225	9,225		47%	29	53%	33	62
2,000	1	2,000	2,000	4	1,300	3,300		60%	12	40%	8	20
5,000	1	5,000	5,000	13	4,225	9,225		44%	27	56%	34	61
5,000	1	5,000	5,000	13	4,225	9,225		51%	24	49%	23	47
5,000	1	5,000	5,000	13	4,225	9,225		44%	6	56%	8	14
5,000	1	5,000	5,000	13	4,225	9,225		-	100%	-	-	-
5,000	1	5,000	5,000	13	4,225	9,225		17%	1	83%	6	7
5,000	1	5,000	5,000	13	4,225	9,225		17%	1	83%	6	7

10,000	4	-	40,000	80	26,000	26,000		67%	14	33%	7	21
10,000	4	-	40,000	80	26,000	26,000		65%	16	35%	9	25

H	I	J	K	L	M	N	O	P	Q	R	S	T
Floor Area per Floor (SF)	# of Stories	Building Ground Floor Area (SF)	Total Building Area (SF)	Parking Spaces [K/F] or [K/BS85*F]	Parking Area (FT)	Total Developed Site Area (SF)		Enter %	PM Peak Enter #	Trip Exit %	Generation Exit #	Total [K/1000*D] or [K/BS85*D]
[H/I]	[H*]	[H*]	[H*]	[K/BS85*F]	[L*BS65]	[J+M]		[User]	[T*P]	[1-P]	[T-Q]	[K/BS85*D]
5,000	1	5,000	5,000	13	4,225	9,225		28%	6	72%	14	20

3,000	1	3,000	3,000	8	2,600	5,600		51%	80	49%	77	157
5,000	1	5,000	5,000	13	4,225	9,225		47%	29	53%	33	62
5,000	1	5,000	5,000	13	4,225	9,225		44%	27	56%	34	61
2,000	1	2,000	2,000	4	1,300	3,300		60%	12	40%	8	20
5,000	1	5,000	5,000	13	4,225	9,225		51%	24	49%	23	47
5,000	1	5,000	5,000	13	4,225	9,225		49%	21	51%	21	42
5,000	1	5,000	5,000	13	4,225	9,225		44%	6	56%	8	14
5,000	1	5,000	5,000	13	4,225	9,225		17%	1	83%	6	7
5,000	1	5,000	5,000	13	4,225	9,225		17%	1	83%	6	7
5,000	1	5,000	5,000	13	4,225	9,225		17%	1	83%	6	7
5,000	1	5,000	5,000	13	4,225	9,225		17%	1	83%	6	7
5,000	1	5,000	5,000	13	4,225	9,225		-	100%	-	-	-

10,000	3	-	30,000	60	19,500	19,500		65%	12	35%	7	19
10,000	3	-	30,000	60	19,500	19,500		67%	11	33%	5	16

H	I	J	K	L	M	N	O	P	Q	R	S	T
Floor Area per Floor (SF)	# of Stories	Building Ground Floor Area (SF) [H/I]	Total Building Area (SF) [H*J]	Parking Spaces [K/F] or [K/BS85*F]	Parking Area (FT) [L*BS65]	Total Developed Site Area (SF) [J+M]		Enter % [User]	PM Peak Enter # [T*P]	Trip Generation Exit % [1-P]	Exit # [T-Q]	Total [K/1000*D] or [K/BS85*D]
3,000	1	3,000	3,000	8	2,600	5,600		51%	80	49%	77	157
7,000	1	7,000	7,000	18	5,850	12,850		44%	8	56%	11	19
10,000	4	-	40,000	80	26,000	26,000		65%	16	35%	9	25
3,000	1	3,000	3,000	8	2,600	5,600		47%	17	53%	20	37
7,000	1	7,000	7,000	18	5,850	12,850		17%	2	83%	8	10
10,000	4	-	40,000	80	26,000	26,000		65%	16	35%	9	25
3,000	1	3,000	3,000	8	2,600	5,600		44%	16	56%	20	36
2,000	1	2,000	2,000	4	1,300	3,300		60%	12	40%	8	20
2,000	1	2,000	2,000	4	1,300	3,300		60%	12	40%	8	20
2,000	1	2,000	2,000	4	1,300	3,300		60%	12	40%	8	20
9,000	4	-	36,000	72	23,400	23,400		65%	14	35%	8	22
3,000	1	3,000	3,000	8	2,600	5,600		51%	14	49%	14	28
7,000	1	7,000	7,000	18	5,850	12,850		44%	8	56%	11	19
10,000	4	-	40,000	80	26,000	26,000		65%	16	35%	9	25
3,000	1	3,000	3,000	8	2,600	5,600		49%	12	51%	13	25
3,000	1	3,000	3,000	8	2,600	5,600		44%	4	56%	4	8
4,000	1	4,000	4,000	10	3,250	7,250		44%	5	56%	6	11
10,000	4	-	40,000	80	26,000	26,000		65%	16	35%	9	25
125,000	1	125,000	125,000	313	101,725	226,725		17%	32	83%	154	186
125,000	4	-	500,000	1,000	325,000	325,000		65%	202	35%	108	310
Developable Site Area - Total (SF)				770,576					514		514	1,028
Total Developed Site Area				768,425								
Total Floor Area - All Uses			870,000	100%								
Total Commercial Floor Area			174,000	20%								
Total Residential Floor Area			696,000	80%								

For Internal Capture Calculation per NCHRP 684

132,000	Office	34	162	196
33,000	Retail	147	156	303
6,000	Restaurant	36	24	60
0	Cinema/Entertainment	0	0	0
696,000	MUR Residential	280	152	432
0	Hotel	0	0	0
3,000	Other Uses	17	20	37
870,000		514	514	1,028

Highlighted cells without internal capture reduction

U	V	W	X	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ	AK	
Internal Capture Trips				Total	External Trips			Total	P-B/D-L Trips			Net New External Trips			Trip Gen Rate/Total Developed Site Area [AE/N*1000]	Notes	
Enter %	Enter #	Exit %	Exit #		Enter #	Exit #	Total		Enter %	Enter #	Exit #	Total	Enter #	Exit #			Total
[User]	[U*Q]	[User]	[W*S]		[V+X]	[Q-V]	[S-X]		[Z+AA]	[Z*AC]	[AF-AD]	[AB*AC]	[Z-AD]	[AA-AE]			[AB-AF]
								0%						20	2.17		
								0%						7	0.76		
								53%						22	2.14		
								61%						96	10.93		
								0%						62	6.72	Parking assumed 1 space/400 SF	
								43%						9	3.45	Assumed 15 seats. Parking 1 space/4 seats	
								35%						21	4.30		
								36%						17	3.26		
								0%						14	1.52		
								0%						7	0.76		
								0%						7	0.76		
								0%						21	0.81	Assumes ground floor commercial and no ground floor residential.	
								0%						25	0.96		

U	V	W	X	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ	AK	
Internal Capture Trips				Total	External Trips			Total	P-B/D-L Trips			Net New External Trips			Trip Gen Rate/Total Developed Site Area [AE/N*1000]	Notes	
Enter %	Enter #	Exit %	Exit #		Enter #	Exit #	Total		Enter %	Enter #	Exit #	Total	Enter #	Exit #			Total
[User]	[U*Q]	[User]	[W*S]		[V+X]	[Q-V]	[S-X]		[Z+AA]	[Z*AC]	[AF-AD]	[AB*AC]	[Z-AD]	[AA-AE]			[AB-AF]
								0%						20	2.17		
								61%						96	10.93		
								0%						62	6.72	Parking assumed 1 space/400 SF	
								35%						21	4.30	Assumed 15 seats. Parking 1 space/4 seats	
								43%						9	3.45		
								36%						17	3.26		
								53%						22	2.14		
								0%						14	1.52		
								0%						7	0.76		
								0%						7	0.76		
								0%						7	0.76		
								0%						19	0.97	Assumes ground floor commercial and no ground floor residential.	
								0%						16	0.82		

U	V	W	X	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ	AK	AL		
Internal Capture Trips		External Trips			P-B/D-L Trips			Net New External Trips			Trip Gen Rate/Total Developed Site Area			Notes					
Enter	Exit	Enter	Exit	Enter	Exit	Enter	Exit	Enter	Exit	Enter	Exit	Enter	Exit			Enter	Exit	Enter	
%	%	#	#	%	%	#	#	%	%	#	#	%	%			#	#	#	#
[User]	[U*Q]	[User]	[W*S]	[V*X]	[Q-V]	[S-X]	[Z+AA]	[Z*AC]	[AF-AD]	[AB*AC]	[Z-AD]	[AA-AE]	[AB-AF]			[AE/N*1000]			
21%	17	34%	26	43	63	51	114	61%	38	32	70	25	19	44	7.86				
21%	2	34%	4	6	6	7	13	0%	-	-	-	6	7	13	1.01	General Retail uses assumed to be Specialty Retail			
17%	3	14%	1	4	13	8	21	0%	-	-	-	13	8	21	0.81				
29%	1	9%	1	2	1	7	8	0%	-	-	-	17	20	37	6.61	Parking assumed 1 space/400 SF			
17%	3	14%	1	4	13	8	21	0%	-	-	-	13	8	21	0.81				
42%	5	63%	5	10	7	3	10	43%	3	1	4	4	2	6	1.82	Assumed 15 seats. Parking 1 space/4 seats			
42%	5	63%	5	10	7	3	10	43%	3	1	4	4	2	6	1.82				
42%	5	63%	5	10	7	3	10	43%	3	1	4	4	2	6	1.82				
17%	2	14%	1	3	12	7	19	0%	-	-	-	12	7	19	0.81				
21%	3	34%	5	8	11	9	20	36%	4	3	7	7	6	13	2.32	General Retail uses assumed to be Specialty Retail			
21%	2	34%	4	6	6	7	13	0%	-	-	-	6	7	13	1.01				
17%	3	14%	1	4	13	8	21	0%	-	-	-	13	8	21	0.81				
21%	3	34%	4	7	9	9	18	53%	5	5	10	4	4	8	1.43				
21%	1	34%	1	2	3	3	6	0%	-	-	-	3	3	6	1.07				
21%	1	34%	2	3	4	4	8	0%	-	-	-	4	4	8	1.10				
17%	3	14%	1	4	13	8	21	0%	-	-	-	13	8	21	0.81				
29%	9	9%	14	23	23	140	163	0%	-	-	-	23	140	163	0.72				
17%	34	14%	15	49	168	93	261	0%	-	-	-	168	93	261	0.80				
102		96		198	412	418	830	62		50	112	350	368	718					

Calculated Internal Capture	
Enter	Exit
29%	9%
21%	34%
42%	63%
17%	14%

Mary's Annexation and Zone Change

MUR Zone Trip Generation

Data Entry Cells	
Land Uses not evaluated	
Notes	
Area per Parking space (SF)	325
Developable Site Area - Total (Acres)	17.69
Developable Site Area - Total (SF)	770,576
Area per Residential Dwelling (SF)	1,000
Commercial Floor Area - Maximum 20% of Total Floor Area	

Per info received from Willamette Valley Planning on 16 April 2017

Potential Development Scenarios

A	B	C	D	E	F
Corvallis Development Code	ITE Land Use Code	ITE Land Use Description	AM Peak Trip Generation Rate or Equation	ADT	Required Parking (1 Space:SF) (or Spaces:DU)
Scenario - Maximum Development Potential					
<u>Building 1</u>					
Convenience Sales and Personal Service	851	Convenience Market (Open 24 Hours)	67.03	737.99	400
General Retail	826	Specialty Retail	1.36	44.32	400
Multi-Family Dwelling	220	Apartments	0.51	6.65	2
<u>Building 2</u>					
Day Care, Commercial	565	Day Care Center	12.18	74.06	2 per classroom
Professional and Administrative Offices	710	General Office Building	1.56	11.03	400
Multi-Family Dwelling	220	Apartments	0.51	6.65	2
<u>Building 3</u>					
Financial, Insurance, and Real Estate Services	911	Walk-in Bank	0		400
Eating and Drinking Establishment, Sit Down, ≤ 15 Seats	932	High-Turnover/Sit-Down Restaurant	10.81	127.15	1 per 4 fixed seats
Eating and Drinking Establishment, Sit Down, ≤ 15 Seats	932	High-Turnover/Sit-Down Restaurant	10.81	127.15	1 per 4 fixed seats
Eating and Drinking Establishment, Sit Down, ≤ 15 Seats	932	High-Turnover/Sit-Down Restaurant	10.81	127.15	1 per 4 fixed seats
Multi-Family Dwelling	220	Apartments	0.51	6.65	2
<u>Building 4</u>					
Food and Beverage Sales - such as deli, espresso bar	850	Supermarket	3.4	102.24	400
General Retail	826	Specialty Retail	1.36	44.32	400
Multi-Family Dwelling	220	Apartments	0.51	6.65	2
<u>Building 5</u>					
Convenience Sales and Personal Service	880	Pharmacy/Drugstore without Drive-Thru	2.94	90.06	400
Laundry Services	826	Specialty Retail	1.36	44.32	400
General Retail	826	Specialty Retail	1.36	44.32	400
Multi-Family Dwelling	220	Apartments	0.51	6.65	2
<u>Buildings 6-15 (10 Buildings Total with 12.5 KSF Footprint Each)</u>					
Professional and Administrative Offices	710	General Office Building	1.56	11.03	400
Multi-Family Dwelling	220	Apartments	0.51	6.65	2

Highligh

G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y
Floor Area per Floor (SF)	# of Stories	Building Ground Floor Area (SF)	Total Building Area (SF)	Parking Spaces [K/F] or [K/B\$8\$*F]	Parking Area (FT)	Total Developed Site Area (SF)	Enter %	AM Peak Trip Generation	Enter #	Exit %	Exit #	Total [K/1000*D] or [K/B\$8\$*D]	Enter %	Enter #	Exit %	Exit #	Total	
[H/I]	[H*J]	[H*J]	[H*J]	[K/B\$8\$*F]	[L*B\$6\$]	[J+M]	[User]	[T*P]	[1-P]	[T-Q]	[K/B\$8\$*D]	[User]	[U*Q]	[User]	[W*S]	[V+X]		
3,000	1	3,000	3,000	8	2,600	5,600	50%	101	50%	100	201	11%	11	20%	20	31		
7,000	1	7,000	7,000	18	5,850	12,850	48%	5	52%	5	10	11%	1	20%	1	2		
10,000	4	-	40,000	80	26,000	26,000	20%	4	80%	16	20	3%	-	5%	1	1		
3,000	1	3,000	3,000	8	2,600	5,600	53%	20	47%	17	37	0%	-	0%	-	-		
7,000	1	7,000	7,000	18	5,850	12,850	88%	10	12%	1	11	12%	1	63%	1	2		
10,000	4	-	40,000	80	26,000	26,000	20%	4	80%	16	20	3%	-	5%	1	1		
3,000	1	3,000	3,000	8	2,600	5,600	0%	-	100%	-	-	0%	-	0%	-	-		
2,000	1	2,000	2,000	4	1,300	3,300	55%	12	45%	10	22	86%	10	47%	5	15		
2,000	1	2,000	2,000	4	1,300	3,300	55%	12	45%	10	22	86%	10	47%	5	15		
2,000	1	2,000	2,000	4	1,300	3,300	55%	12	45%	10	22	86%	10	47%	5	15		
9,000	4	-	36,000	72	23,400	23,400	20%	4	80%	14	18	3%	-	5%	1	1		
3,000	1	3,000	3,000	8	2,600	5,600	62%	6	38%	4	10	11%	1	20%	1	2		
7,000	1	7,000	7,000	18	5,850	12,850	48%	5	52%	5	10	11%	1	20%	1	2		
10,000	4	-	40,000	80	26,000	26,000	20%	4	80%	16	20	3%	-	5%	1	1		
3,000	1	3,000	3,000	8	2,600	5,600	65%	6	35%	3	9	11%	1	20%	1	2		
3,000	1	3,000	3,000	8	2,600	5,600	48%	2	52%	2	4	11%	-	20%	-	-		
4,000	1	4,000	4,000	10	3,250	7,250	48%	2	52%	3	5	11%	-	20%	1	1		
10,000	4	-	40,000	80	26,000	26,000	20%	4	80%	16	20	3%	-	5%	1	1		
125,000	1	125,000	125,000	313	101,725	226,725	88%	172	12%	23	195	12%	21	63%	14	35		
125,000	4	-	500,000	1,000	325,000	325,000	20%	51	80%	204	255	3%	2	5%	10	12		
Developable Site Area - Total (SF)					770,576				436	475	911		69		70	139		
Total Developed Site Area					768,425													
Total Floor Area - All Uses				870,000	100%													
Total Commercial Floor Area				174,000	20%													
Total Residential Floor Area				696,000	80%													

For Internal Capture Calculation per NCHRP 684					Calculated Internal Capture	
					Enter	Exit
132,000	Office	182	24	206	12%	63%
33,000	Retail	127	122	249	11%	20%
6,000	Restaurant	36	30	66	86%	47%
0	Cinema/Entertainment	0	0	0		
696,000	MUR Residential	71	282	353	3%	5%
0	Hotel	0	0	0		
3,000	Other Uses	20	17	37		
870,000		436	475	911		

ted cells without internal capture reduction

											AL				
Z	AA		AB	AC	AD		AE	AF	AG		AH	AI	AJ	AK	Notes
Enter	Exit	Total	Total	P-B/D-L Trips		Enter	Exit	Total	Enter	Exit	Total	Enter	Exit	Total	Trip Gen Rate/Total Developed Site Area
[Q-V]	[S-X]	[Z+AA]		[Z*AC]	[AF-AD]	[AB*AC]			[Z-AD]	[AA-AE]	[AB-AF]			[AE/N*1000]	
90	80	170	61%	55	49	104	35	31	66	11.79					
4	4	8	0%	-	-	-	4	4	8	0.62					AM trip generation rate assumed to be 50% of PM
4	15	19	0%	-	-	-	4	15	19	0.73					
20	17	37	0%	-	-	-	20	17	37	6.61					Parking assumed 1 space/400 SF
9	-	9	0%	-	-	-	9	-	9	0.70					
4	15	19	0%	-	-	-	4	15	19	0.73					
-	-	-	0%	-	-	-	-	-	-	-					
2	5	7	43%	1	2	3	1	3	4	1.21					Assumed 15 seats. Parking 1 space/4 seats
2	5	7	43%	1	2	3	1	3	4	1.21					Assumed 15 seats. Parking 1 space/4 seats
2	5	7	43%	1	2	3	1	3	4	1.21					Assumed 15 seats. Parking 1 space/4 seats
4	13	17	0%	-	-	-	4	13	17	0.73					
5	3	8	18%	1	-	1	4	3	7	1.25					
4	4	8	0%	-	-	-	4	4	8	0.62					AM trip generation rate assumed to be 50% of PM
4	15	19	0%	-	-	-	4	15	19	0.73					
5	2	7	26%	1	1	2	4	1	5	0.89					
2	2	4	0%	-	-	-	2	2	4	0.71					AM trip generation rate assumed to be 50% of PM
2	2	4	0%	-	-	-	2	2	4	0.55					AM trip generation rate assumed to be 50% of PM
4	15	19	0%	-	-	-	4	15	19	0.73					
151	9	160	0%	-	-	-	151	9	160	0.71					
49	194	243	0%	-	-	-	49	194	243	0.75					
367	405	772		60	56	116	307	349	656						

Mary's Annexation and Zone Change

RS-12 Zone Trip Generation

Data Entry Cells

Developable Site Area - Total (Acres)	95.63	Per info received from Willamette Valley Planning on 16 April 2017
Maximum Development Density (Dwelling Units/Acre)	20	
Maximum Dwelling Units	1,912	

Maximum Development Potential Scenario - PM Peak Hour

A	B	C	D	E	F	G	H	I	J	K	L	M	N
Corvallis Development Code	ITE Land Use Code	ITE Land Use Description	PM Peak Trip Generation Rate or Equation	ADT			Dwelling Units						
Multi-Family Dwelling	220	Apartments	0.62	6.65			[B\$6\$] 1,722						

Maximum Development Potential Scenario - AM Peak Hour

A	B	C	D	E	F	G	H	I	J	K	L	M	N
Corvallis Development Code	ITE Land Use Code	ITE Land Use Description	AM Peak Trip Generation Rate or Equation	ADT			Dwelling Units						
Multi-Family Dwelling	220	Apartments	0.51	6.65			[B\$6\$] 1,722						

Mary's Annexation and Zone Change

General Land Use Plan Trip Generation

Data Entry Cells

Development Assumptions based on Willamette Valley General Land Use Plan received via email on 4/17/17

General Land Use Plan Plan (Reasonable Worst-Case Development) - PM Peak Hour

A	B	C	D	E	F
Corvallis Development Code	ITE Land	ITE	PM Peak Trip	ADT	
Land Use Description	Use Code	Land Use Description	Generation Rate or Equation		
Multi-Family Dwelling	220	Apartments	0.62	6.65	
Attached - Townhouse	230	Residential Condominium/Townhouse	0.52	5.81	
Single - Detached	210	Single-Family Residential	1	9.52	
Senior Housing	252	Senior Adult Housing - Attached	0.25	3.44	

General Land Use Plan Plan (Reasonable Worst-Case Development) - AM Peak Hour

A	B	C	D	E	F
Corvallis Development Code	ITE Land	ITE	AM Peak Trip	ADT	
Land Use Description	Use Code	Land Use Description	Generation Rate or Equation		
Multi-Family Dwelling	220	Apartments	0.51	6.65	
Attached - Townhouse	230	Residential Condominium/Townhouse	0.44	5.81	
Single - Detached	210	Single-Family Residential	0.75	9.52	
Senior Housing	252	Senior Adult Housing - Attached	0.2	3.44	

G	H	I	J	K	L	M	N	O	P	Q	R	S	T
	Dwelling Units								Enter %	Enter #	Exit %	Exit #	Total
									[User]	[T*P]	[1-P]	[T-Q]	[H*D]
	840								65%	339	35%	182	521
	82								67%	29	33%	14	43
	131								63%	83	37%	48	131
	64								54%	9	46%	7	16
	1,117									460		251	711

G	H	I	J	K	L	M	N	O	P	Q	R	S	T
	Dwelling Units								Enter %	Enter #	Exit %	Exit #	Total
									[User]	[T*P]	[1-P]	[T-Q]	[H*D]
	840								20%	86	80%	342	428
	82								17%	6	83%	30	36
	131								25%	25	75%	73	98
	64								34%	4	66%	9	13
	1,117									121		454	575

Highlighted cells without internal capture reduction

U	V	W	X	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ	AK
Internal Capture Trips					External Trips			P-B/D-L Trips				Net New External Trips				
Enter	Enter	Exit	Exit	Total	Enter	Exit	Total	Total	Enter	Exit	Total	Enter	Exit	Total		
%	#	%	#		#	#		%	#	#		#	#			
[% From Worksheet]																
[User]	[U*Q]	[User]	[W*S]	[V+X]	[Q-V]	[S-X]	[Z+AA]		[Z*AC]	[AF-AD]	[AB*AC]	[Z-AD]	[AA-AE]	[AB-AF]		
								0%					-	521		
								0%					-	43		
								0%					-	131		
								0%					-	16		

U	V	W	X	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ	AK
Internal Capture Trips					External Trips			P-B/D-L Trips				Net New External Trips				
Enter	Enter	Exit	Exit	Total	Enter	Exit	Total	Total	Enter	Exit	Total	Enter	Exit	Total		
%	#	%	#		#	#		%	#	#		#	#			
[% From Worksheet]																
[User]	[U*Q]	[User]	[W*S]	[V+X]	[Q-V]	[S-X]	[Z+AA]		[Z*AC]	[AF-AD]	[AB*AC]	[Z-AD]	[AA-AE]	[AB-AF]		
								0%					-	428		
								0%					-	36		
								0%					-	98		
								0%					-	13		

Notes **AL**

Notes **AL**

NCHRP 684 Internal Trip Capture Estimation Tool			
Project Name:	Mary's Annexation	Organization:	CMC
Project Location:	Corvallis	Performed By:	CMC
Scenario Description:	MUR Worst-Case	Date:	
Analysis Year:	2037	Checked By:	
Analysis Period:	AM Street Peak Hour	Date:	

Table 1-A: Base Vehicle-Trip Generation Estimates (Single-Use Site Estimate)						
Land Use	Development Data (For Information Only)			Estimated Vehicle-Trips ³		
	ITE LUCs ¹	Quantity	Units	Total	Entering	Exiting
Office	710	132	KSF	206	182	24
Retail	50,51,26,80,9	33	KSF	249	127	122
Restaurant	932	6	KSF	66	36	30
Cinema/Entertainment	N/A	-	-	0	0	0
Residential	220	696	DU	353	71	282
Hotel	N/A	-	-	0	0	0
All Other Land Uses ²	565	3	KSF	37	20	17
				911	436	475

Table 2-A: Mode Split and Vehicle Occupancy Estimates						
Land Use	Entering Trips			Exiting Trips		
	Veh. Occ. ⁴	% Transit	% Non-Motorized	Veh. Occ. ⁴	% Transit	% Non-Motorized
Office						
Retail						
Restaurant						
Cinema/Entertainment						
Residential						
Hotel						
All Other Land Uses ²						

Table 3-A: Average Land Use Interchange Distances (Feet Walking Distance)						
Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office						
Retail						
Restaurant						
Cinema/Entertainment						
Residential						
Hotel						

Table 4-A: Internal Person-Trip Origin-Destination Matrix*						
Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		7	8	0	0	0
Retail	7		16	0	1	0
Restaurant	9	4		0	1	0
Cinema/Entertainment	0	0	0		0	0
Residential	5	3	7	0		0
Hotel	0	0	0	0	0	

Table 5-A: Computations Summary			
	Total	Entering	Exiting
All Person-Trips	911	436	475
Internal Capture Percentage	15%	16%	14%
External Vehicle-Trips ⁵	775	368	407
External Transit-Trips ⁶	0	0	0
External Non-Motorized Trips ⁶	0	0	0

Table 6-A: Internal Trip Capture Percentages by Land Use		
Land Use	Entering Trips	Exiting Trips
Office	12%	63%
Retail	11%	20%
Restaurant	86%	47%
Cinema/Entertainment	N/A	N/A
Residential	3%	5%
Hotel	N/A	N/A

¹Land Use Codes (LUCs) from *Trip Generation Manual*, published by the Institute of Transportation Engineers.

²Total estimate for all other land uses at mixed-use development site is not subject to internal trip capture computations in this estimator.

³Enter trips assuming no transit or non-motorized trips (as assumed in ITE *Trip Generation Manual*).

⁴Enter vehicle occupancy assumed in Table 1-A vehicle trips. If vehicle occupancy changes for proposed mixed-use project, manual adjustments must be made to Tables 5-A, 9-A (O and D). Enter transit, non-motorized percentages that will result with proposed mixed-use project complete.

⁵Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-A.

⁶Person-Trips

*Indicates computation that has been rounded to the nearest whole number.

Estimation Tool Developed by the Texas A&M Transportation Institute - Version 2013.1

Project Name:	Mary's Annexation
Analysis Period:	AM Street Peak Hour

Land Use	Table 7-A (D): Entering Trips			Table 7-A (O): Exiting Trips		
	Veh. Occ.	Vehicle-Trips	Person-Trips*	Veh. Occ.	Vehicle-Trips	Person-Trips*
Office	1.00	182	182	1.00	24	24
Retail	1.00	127	127	1.00	122	122
Restaurant	1.00	36	36	1.00	30	30
Cinema/Entertainment	1.00	0	0	1.00	0	0
Residential	1.00	71	71	1.00	282	282
Hotel	1.00	0	0	1.00	0	0

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		7	15	0	0	0
Retail	35		16	0	17	0
Restaurant	9	4		0	1	1
Cinema/Entertainment	0	0	0		0	0
Residential	6	3	56	0		0
Hotel	0	0	0	0	0	

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		41	8	0	0	0
Retail	7		18	0	1	0
Restaurant	25	10		0	4	0
Cinema/Entertainment	0	0	0		0	0
Residential	5	22	7	0		0
Hotel	5	5	2	0	0	

Destination Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles ¹	Transit ²	Non-Motorized ²
Office	21	161	182	161	0	0
Retail	14	113	127	113	0	0
Restaurant	31	5	36	5	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	2	69	71	69	0	0
Hotel	0	0	0	0	0	0
All Other Land Uses ³	0	20	20	20	0	0

Origin Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles ¹	Transit ²	Non-Motorized ²
Office	15	9	24	9	0	0
Retail	24	98	122	98	0	0
Restaurant	14	16	30	16	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	15	267	282	267	0	0
Hotel	0	0	0	0	0	0
All Other Land Uses ³	0	17	17	17	0	0

¹Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-A
²Person-Trips
³Total estimate for all other land uses at mixed-use development site is not subject to internal trip capture computations in this estimator
*Indicates computation that has been rounded to the nearest whole number.

NCHRP 684 Internal Trip Capture Estimation Tool			
Project Name:	Mary's Annexation	Organization:	CMC
Project Location:	Corvallis	Performed By:	CMC
Scenario Description:	MUR Worst-Case	Date:	
Analysis Year:	2037	Checked By:	
Analysis Period:	PM Street Peak Hour	Date:	

Table 1-P: Base Vehicle-Trip Generation Estimates (Single-Use Site Estimate)						
Land Use	Development Data (For Information Only)			Estimated Vehicle-Trips ³		
	ITE LUCs ¹	Quantity	Units	Total	Entering	Exiting
Office	710	132	KSF	196	34	162
Retail	50,51,26,80,91	33	KSF	303	147	156
Restaurant	932	6	KSF	60	36	24
Cinema/Entertainment	N/A	-	-	0	0	0
Residential	220	696	DU	432	280	152
Hotel	N/A	-	-	0	0	0
All Other Land Uses ²	565	3	KSF	37	17	20
				1,028	514	514

Table 2-P: Mode Split and Vehicle Occupancy Estimates						
Land Use	Entering Trips			Exiting Trips		
	Veh. Occ. ⁴	% Transit	% Non-Motorized	Veh. Occ. ⁴	% Transit	% Non-Motorized
Office	1.20	2%	2%	1.20	2%	2%
Retail	1.20	2%	2%	1.20	2%	2%
Restaurant						
Cinema/Entertainment						
Residential	1.20	2%	2%	1.20	2%	2%
Hotel						
All Other Land Uses ²	1.20	2%	2%	1.20	2%	2%

Table 3-P: Average Land Use Interchange Distances (Feet Walking Distance)						
Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		750	750		750	
Retail					750	
Restaurant					750	
Cinema/Entertainment					750	
Residential		750	750			
Hotel					750	

Table 4-P: Internal Person-Trip Origin-Destination Matrix*						
Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		12	1	0	4	0
Retail	4		10	0	49	0
Restaurant	1	10		0	4	0
Cinema/Entertainment	0	0	0		0	0
Residential	7	15	4	0		0
Hotel	0	0	0	0	0	

Table 5-P: Computations Summary			
	Total	Entering	Exiting
All Person-Trips	1,220	609	611
Internal Capture Percentage	20%	20%	20%
External Vehicle-Trips ⁵	790	395	395
External Transit-Trips ⁶	19	10	9
External Non-Motorized Trips ⁶	19	10	9

Table 6-P: Internal Trip Capture Percentages by Land Use		
Land Use	Entering Trips	Exiting Trips
Office	29%	9%
Retail	21%	34%
Restaurant	42%	63%
Cinema/Entertainment	N/A	N/A
Residential	17%	14%
Hotel	N/A	N/A

¹Land Use Codes (LUCs) from *Trip Generation Manual*, published by the Institute of Transportation Engineers.

²Total estimate for all other land uses at mixed-use development site is not subject to internal trip capture computations in this estimator.

³Enter trips assuming no transit or non-motorized trips (as assumed in ITE *Trip Generation Manual*).

⁴Enter vehicle occupancy assumed in Table 1-P vehicle trips. If vehicle occupancy changes for proposed mixed-use project, manual adjustments must be made.

⁵Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-P.

⁶Person-Trips

*Indicates computation that has been rounded to the nearest whole number.

Estimation Tool Developed by the Texas A&M Transportation Institute - Version 2013.1

Project Name:	Mary's Annexation
Analysis Period:	PM Street Peak Hour

Land Use	Table 7-P (D): Entering Trips			Table 7-P (O): Exiting Trips		
	Veh. Occ.	Vehicle-Trips	Person-Trips*	Veh. Occ.	Vehicle-Trips	Person-Trips*
Office	1.20	34	41	1.20	162	194
Retail	1.20	147	176	1.20	156	187
Restaurant	1.00	36	36	1.00	24	24
Cinema/Entertainment	1.00	0	0	1.00	0	0
Residential	1.20	280	336	1.20	152	182
Hotel	1.00	0	0	1.00	0	0

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		32	6	0	4	0
Retail	4		54	7	49	9
Restaurant	1	10		2	4	2
Cinema/Entertainment	0	0	0		0	0
Residential	7	64	32	0		5
Hotel	0	0	0	0	0	

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		12	1	0	13	0
Retail	13		10	0	155	0
Restaurant	12	88		0	54	0
Cinema/Entertainment	2	7	1		13	0
Residential	23	15	4	0		0
Hotel	0	4	2	0	0	

Destination Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles ¹	Transit ²	Non-Motorized ²
Office	12	29	41	23	1	1
Retail	37	139	176	111	3	3
Restaurant	15	21	36	21	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	57	279	336	223	6	6
Hotel	0	0	0	0	0	0
All Other Land Uses ³	0	20	20	17	0	0

Origin Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles ¹	Transit ²	Non-Motorized ²
Office	17	177	194	141	4	4
Retail	63	124	187	100	2	2
Restaurant	15	9	24	9	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	26	156	182	125	3	3
Hotel	0	0	0	0	0	0
All Other Land Uses ³	0	24	24	20	0	0

¹Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-P
²Person-Trips
³Total estimate for all other land uses at mixed-use development site is not subject to internal trip capture computations in this estimator
*Indicates computation that has been rounded to the nearest whole number.

Intersection 1:		NW 53rd Street			NW Harrison Boulevard			System PM peak hour i 7:30-8:30AM						Hourly		All	
ALL-VEHICLE VOLUMES		PHF = 0.91											Totals	Ints	Cells shaded this color have manual inpl.		
Time Period	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	Total				
7:00 AM	3	36	21	3	38	4	9	9	10	23	1	1	158				
7:15 AM	4	80	39	2	39	3	10	17	5	17	4	0	220				
7:30 AM	2	110	94	7	53	2	7	34	11	24	1	0	345				
7:45 AM	10	91	78	5	70	4	8	19	10	45	5	2	347	1070	4583		
8:00 AM	8	100	48	3	51	3	8	16	8	51	1	1	298	1210	5191		
8:15 AM	7	80	53	4	65	4	6	13	7	24	7	0	270	1260	5482		
8:30 AM	5	98	49	4	46	9	7	19	6	23	6	1	273	1188	5132		
8:45 AM	5	66	45	6	59	4	11	19	6	44	3	0	268	1109	4673		
Base Year PM Peak Hour	27	381	273	19	239	13	29	82	36	144	14	3				2017 Traffic Count Base Year	
Background Growth	9	132	95	7	83	5	10	28	12	50	5	1				1.5% Background Growth Rate	
2037 Current Zone AM Peak	36	513	368	26	322	18	39	110	48	194	19	4				2037 Pre-Development Year	
	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR					
Total Net New Development Volumes		90	45		24					12						171 Total Development Volume	
% of Net New Development		20%	10%		20%					10%						1697 Pre-Development Volume	
P-B/D-L Volumes																10% % increase	
Proposed Zone GLUP AM Peak	36	603	413	26	346	18	39	110	48	206	19	4					

Intersection 2:		SW 53rd Street			SW Reservoir Avenue			System PM peak hour i 7:30-8:30AM						Hourly		All	
ALL-VEHICLE VOLUMES		PHF = 0.91											Totals	Ints	Cells shaded this color have manual inpl.		
Time Period	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	Total				
7:00 AM	0	31	0	0	42	26	30	0	0	0	0	0	129				
7:15 AM	0	54	0	0	32	29	66	0	0	0	0	0	181				
7:30 AM	2	120	0	0	48	42	82	0	3	0	0	0	297				
7:45 AM	5	87	0	0	77	47	83	0	1	0	0	0	300	907			
8:00 AM	2	86	0	0	68	34	67	0	0	0	0	0	257	1035			
8:15 AM	4	72	0	0	64	33	67	0	0	0	0	0	240	1094			
8:30 AM	1	72	0	0	40	43	74	0	1	0	0	0	231	1028			
8:45 AM	4	52	0	0	61	46	62	0	3	0	0	0	228	956			
Base Year PM Peak Hour	13	365	0	0	257	156	299	0	4	0	0	0				2017 Traffic Count Base Year	
Background Growth	5	127	0	0	89	54	104	0	1	0	0	0				1.5% Background Growth Rate	
2037 Current Zone AM Peak	18	492	0	0	346	210	403	0	5	0	0	0				2037 Pre-Development Year	
	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR					
Total Net New Development Volumes		135			36											171 Total Development Volume	
% of Net New Development		30%			30%											1474 Pre-Development Volume	
P-B/D-L Volumes																12% % increase	
Proposed Zone GLUP AM Peak	18	627	0	0	382	210	403	0	5	0	0	0					

Intersection 3:		SW 53rd Street			Site Access (West)			System PM peak hour i 7:30-8:30AM						Hourly		All	
ALL-VEHICLE VOLUMES		PHF = 0.91											Totals	Ints	Cells shaded this color have manual inpl.		
Time Period	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	Total				
7:00 AM		29			32								61				
7:15 AM		53			35								88				
7:30 AM		121			56								177				
7:45 AM		80			95								175	501			
8:00 AM		83			73								156	596			
8:15 AM		70			67								137	645			
8:30 AM		74			51								125	593			
8:45 AM		56			63								119	537			
Base Year PM Peak Hour	0	354	0	0	291	0	0	0	0	0	0	0				2017 Traffic Count Base Year	
Background Growth	0	123	0	0	101	0	0	0	0	0	0	0				1.5% Background Growth Rate	
2037 Current Zone AM Peak	0	477	0	0	392	0	0	0	0	0	0	0				2037 Pre-Development Year	
	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR					
Total Net New Development Volumes		23	30		30	6				112		112				313 Total Development Volume	
% of Net New Development		5%	25%		25%	5%				25%		25%				869 Pre-Development Volume	
P-B/D-L Volumes																36% % increase	
Proposed Zone GLUP AM Peak	0	500	30	30	398	0	0	0	0	112	0	112					

Intersection 4:		SW 53rd Street			SW West Hills Road			System PM peak hour i 7:30-8:30AM								
ALL-VEHICLE VOLUMES		PHF = 0.87											Hourly			
Time Period	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	Total	Hourly Totals		
7:00 AM	3	14	3	3	17	2	10	10	9	0	2	2	75		Cells shaded this color have manual input	
7:15 AM	3	31	1	2	33	3	20	26	16	0	4	1	140			
7:30 AM	4	62	4	8	46	6	49	39	21	0	1	8	248			
7:45 AM	7	48	1	10	91	10	17	51	23	2	6	3	269	732		
8:00 AM	3	59	2	5	60	12	14	36	27	0	6	5	229	886		
8:15 AM	8	43	4	9	52	8	16	22	12	1	8	4	187	933		
8:30 AM	2	64	3	5	47	8	8	16	12	1	9	3	178	863		
8:45 AM	7	46	1	4	49	9	7	26	6	1	6	3	165	759		
Base Year PM Peak Hour	22	212	11	32	249	36	96	148	83	3	21	20			2017 Traffic Count Base Year	
Background Growth	8	74	4	11	86	12	33	51	29	1	7	7			1.5% Background Growth Rate	
2037 Current Zone AM Peak	30	286	15	43	335	48	129	199	112	4	28	27			2037 Pre-Development Year	
	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR				
Total Net New Development Volumes	24	6	6	15	90	14	4	2		23	9	25			212 Total Development Volume	
% of Net New Development	20%	5%		7%	20%	3%	3%	2%		5%	2%	7%			1256 Pre-Development Volume	
P-B/D-L Volumes															17% % increase	
Proposed Zone GLUP AM Peak	30	310	21	58	425	62	133	201	112	27	37	52				

Intersection 5:		SW 53rd Street			Philomath Boulevard (OR42)			System PM peak hour i 7:30-8:30AM								
ALL-VEHICLE VOLUMES		PHF = 0.87											Hourly			
Time Period	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	Total	Hourly Totals		
7:00 AM	3	10	5	23	8	5	8	121	0	2	61	10	256		Cells shaded this color have manual input	
7:15 AM	6	22	7	29	11	5	10	138	3	5	56	8	300			
7:30 AM	8	42	14	29	23	11	15	187	2	8	90	10	439			
7:45 AM	7	34	21	34	64	23	9	152	4	4	100	31	483	1478		
8:00 AM	3	24	13	18	44	11	11	133	4	6	73	22	362	1584		
8:15 AM	9	35	8	30	35	8	15	135	7	5	82	24	393	1677		
8:30 AM	4	37	11	28	25	14	17	118	3	8	64	12	341	1579		
8:45 AM	14	27	14	22	33	9	8	108	6	11	88	15	355	1451		
Base Year PM Peak Hour	27	135	56	111	166	53	50	607	17	23	345	87			2016 Traffic Count Base Year	
Background Growth	10	50	21	41	61	19	4	46	1	2	26	7			1.5% Background Growth Rate	
2037 Current Zone AM Peak	37	185	77	152	227	72	54	653	18	25	371	94			2037 Pre-Development Year	
	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR				
Total Net New Development Volumes	4			76	14	23	6					20			143 Total Development Volume	
% of Net New Development		3%		17%	3%	5%	5%					17%			1965 Pre-Development Volume	
P-B/D-L Volumes															7% % increase	
Proposed Zone GLUP AM Peak	37	189	77	228	241	95	60	653	18	25	371	114				

Intersection 6:		SW West Hills Road			Site Access (SW)			System PM peak hour i 7:30-8:30AM								
ALL-VEHICLE VOLUMES		PHF = 0.77											Hourly			
Time Period	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	Total	Hourly Totals		
7:00 AM								17			5		22		Cells shaded this color have manual input	
7:15 AM								27			5		32			
7:30 AM								53			7		60			
7:45 AM								70			14		84	198		
8:00 AM								50			12		62	238		
8:15 AM								41			12		53	259		
8:30 AM								26			12		38	237		
8:45 AM								32			14		46	199		
Base Year PM Peak Hour	0	0	0	0	0	0	0	214	0	0	45	0			2017 Traffic Count Base Year	
Background Growth	0	0	0	0	0	0	0	74	0	0	16	0			1.5% Background Growth Rate	
2037 Current Zone AM Peak	0	0	0	0	0	0	0	288	0	0	61	0			2037 Pre-Development Year	
	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR				
Total Net New Development Volumes				81	31		8	15			25	21			181 Total Development Volume	
% of Net New Development				18%	7%		7%	7%			7%	18%			349 Pre-Development Volume	
P-B/D-L Volumes															52% % increase	
Proposed Zone GLUP AM Peak	0	0	0	81	0	31	8	303	0	0	86	21				

Intersection 7:		SW West Hills Road			Site Access (SE)/Timian			System PM peak hour i 7:30-8:30AM							
ALL-VEHICLE VOLUMES		PHF = 0.77											Hourly		
Time Period	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	Total	Totals	
7:00 AM								17			5		22		Cells shaded this color have manual inpt.
7:15 AM								27			5		32		
7:30 AM								53			7		60		
7:45 AM								70			14		84	198	
8:00 AM								50			12		62	238	
8:15 AM								41			12		53	259	Estimated Vs from Sylvia TIA
8:30 AM								26			12		38	237	
8:45 AM								32			14		46	199	
Base Year PM Peak Hour	5	0	12	0	0	0	0	214	5	5	45	0			2017 Traffic Count Base Year
Background Growth	2	0	4	0	0	0	0	74	2	2	16	0			1.5% Background Growth Rate
2037 Current Zone AM Peak	7	0	16	0	0	0	0	288	7	7	61	0			2037 Pre-Development Year
	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR			
Total Net New Development Volumes	6			67	23	23	6	90			24	18			257 Total Development Volume
% of Net New Development		5%		15%	5%	5%	5%	20%			20%	15%			386 Pre-Development Volume
P-B/D-L Volumes															67% % increase
Proposed Zone GLUP AM Peak	7	6	16	67	23	23	6	378	7	7	85	18			

Intersection 8:		SW Technology Loop			Philomath Boulevard (OR42)			System PM peak hour i 7:30-8:30AM							
ALL-VEHICLE VOLUMES		PHF = 0.95											Hourly		
Time Period	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	Total	Totals	
7:00 AM	2	0	27	0	0	0	0	122	6	18	93	0	268		Cells shaded this color have manual inpt.
7:15 AM	3	0	46	0	0	0	0	162	5	33	89	0	338		
7:30 AM	10	0	73	0	0	1	0	195	12	43	120	0	454		
7:45 AM	4	0	84	0	0	0	0	202	13	54	107	0	464	1524	
8:00 AM	10	0	64	0	0	0	0	157	10	61	118	0	420	1676	
8:15 AM	10	0	46	1	0	1	0	171	7	49	134	1	420	1758	
8:30 AM	5	0	47	0	0	0	0	169	8	25	122	0	376	1680	
8:45 AM	3	0	67	0	0	0	0	157	7	27	119	0	380	1596	
Base Year PM Peak Hour	34	0	267	1	0	2	0	725	42	207	479	1			2017 Traffic Count Base Year
Background Growth	12	0	93	0	0	1	0	52	3	15	35	0			1.5% Background Growth Rate
2037 Current Zone AM Peak	46	0	360	1	0	3	0	777	45	222	514	1			2037 Pre-Development Year
	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR			0.35% Background Growth Rate on OR42
Total Net New Development Volume	4		2					63	13	9	16				107 Total Development Volume
% of Net New Development		3%	2%					14%	3%	2%	14%				1969 Pre-Development Volume
P-B/D-L Volumes															5% % increase
Proposed Zone GLUP AM Peak	50	0	362	1	0	3	0	840	58	231	530	1			

Intersection 9:		SW Timian Street			SW Philomath Boulevard			System PM peak hour i 7:30-8:30AM							
ALL-VEHICLE VOLUMES		PHF = 0.94											Hourly		
Time Period	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	Total	Totals	
7:00 AM	0	0	0	4	0	3	0	149	0	0	114	0	270		Cells shaded this color have manual inpt.
7:15 AM	0	0	0	1	0	1	1	208	0	0	127	0	338		
7:30 AM	0	0	0	1	0	1	0	272	0	0	161	2	437		
7:45 AM	0	0	0	3	0	2	3	280	0	0	161	2	451	1496	
8:00 AM	0	0	0	0	0	3	2	219	0	0	178	2	404	1630	
8:15 AM	0	0	0	0	0	1	2	216	0	0	177	2	398	1690	
8:30 AM	0	0	0	3	0	3	0	216	0	0	147	1	370	1623	
8:45 AM	0	0	0	1	0	2	1	222	0	0	153	3	382	1554	
Base Year PM Peak Hour	0	0	0	4	0	7	7	987	0	0	677	8			2017 Traffic Count Base Year
Background Growth	0	0	0	1	0	2	1	71	0	0	49	1			1.5% Background Growth Rate
2037 Current Zone AM Peak	0	0	0	5	0	9	8	1058	0	0	726	9			2037 Pre-Development Year
	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR			0.35% Background Growth Rate on OR42
Total Net New Development Volumes				14		9	2	63			16	4			108 Total Development Volume
% of Net New Development				3%		2%	2%	14%			14%	3%			1815 Pre-Development Volume
P-B/D-L Volumes															6% % increase
Proposed Zone GLUP AM Peak	0	0	0	19	0	18	10	1121	0	0	742	13			West Portion

Intersection 10:		SW Western Boulevard			SW Philomath Boulevard			System PM peak hour i 7:30-8:30AM						East Portion	
ALL-VEHICLE VOLUMES		PHF = 0.92											Hourly		
Time Period	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	Total	Totals	
7:00 AM	0	29									105	2	136		Cells shaded this color have manual input
7:15 AM	0	41									106	0	147		
7:30 AM	1	71		Western is NORTHBOUND and							150	2	224		
7:45 AM	0	111									136	1	248	755	
8:00 AM	0	69									166	0	235	854	
8:15 AM	0	52									147	3	202	909	
8:30 AM	0	46									123	0	169	854	
8:45 AM	2	62									136	1	201	807	
Base Year PM Peak Hour	1	303	0	0	0	0	0	0	0	0	599	6			2017 Traffic Count Base Year
Background Growth	0	22	0	0	0	0	0	0	0	0	43	0			1.5% Background Growth Rate
2037 Current Zone AM Peak	1	325	0	0	0	0	0	0	0	0	642	6			2037 Pre-Development Year
	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR			0.35% Background Growth Rate on OR42
Total Net New Development Volumes											20				20 Total Development Volume
% of Net New Development											17%				974 Pre-Development Volume
P-B/D-L Volumes															2% increase
Proposed Zone GLUP AM Peak	1	325	0	0	0	0	0	0	0	0	662	6			

Intersection 11:		SW West Hills Road			SW Western Boulevard			System PM peak hour i 7:30-8:30AM						East Portion	
ALL-VEHICLE VOLUMES		PHF = 0.81											Hourly		
Time Period	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	Total	Totals	
7:00 AM	0	0	29	0	0	0	0	18	0	17	5	0	69		Cells shaded this color have manual input
7:15 AM	0	0	30	0	0	0	0	24	0	17	4	0	75		
7:30 AM	0	0	72	0	0	0	0	55	0	16	5	0	148		
7:45 AM	1	0	108	0	0	0	0	72	5	21	15	0	222	514	
8:00 AM	0	0	103	0	0	0	0	55	1	31	12	0	202	647	
8:15 AM	0	0	64	0	0	0	0	44	2	29	11	0	150	722	
8:30 AM	0	0	62	0	0	0	0	26	1	21	11	0	121	695	
8:45 AM	1	0	55	0	0	0	0	31	1	24	16	0	128	601	
Base Year PM Peak Hour	1	0	347	0	0	0	0	226	8	97	43	0			2017 Traffic Count Base Year
Background Growth	0	0	120	0	0	0	0	78	3	34	15	0			1.5% Background Growth Rate
2037 Current Zone AM Peak	1	0	467	0	0	0	0	304	11	131	58	0			2037 Pre-Development Year
	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR			199 Total Development Volume
Total Net New Development Volumes								157			42				972 Pre-Development Volume
% of Net New Development								35%			35%				20% increase
P-B/D-L Volumes															
Proposed Zone GLUP AM Peak	1	0	467	0	0	0	0	461	11	131	100	0			

Intersection 12:		SW Washington Way			SW 35th Street			System PM peak hour i 7:30-8:30AM						East Portion	
ALL-VEHICLE VOLUMES		PHF = 0.77											Hourly		
Time Period	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	Total	Totals	
7:00 AM															Cells shaded this color have manual input
7:15 AM															
7:30 AM															
7:45 AM	0	123	15	19	62	2	0	1	0	3	1	3	229		
8:00 AM	1	113	22	15	57	0	1	0	0	3	0	2	214		
8:15 AM	0	91	9	13	48	0	0	0	0	3	0	4	168		
8:30 AM	0	46	5	11	26	0	0	0	0	2	1	3	94	705	
8:45 AM															
Base Year PM Peak Hour	1	373	51	58	193	2	1	1	0	11	2	12			2016 Traffic Count Base Year
Background Growth	0	137	19	21	71	1	0	0	0	4	1	4			1.5% Background Growth Rate
2037 Current Zone AM Peak	1	510	70	79	264	3	1	1	0	15	3	16			2037 Pre-Development Year
	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR			57 Total Development Volume
Total Net New Development Volumes		36	9		10					2					963 Pre-Development Volume
% of Net New Development		8%	2%		8%					2%					6% increase
P-B/D-L Volumes															
Proposed Zone GLUP AM Peak	1	546	79	79	274	3	1	1	0	17	3	16			

Intersection 13:		SW Western Boulevard			SW 35th Street			System PM peak hour i 7:30-8:30AM							
ALL-VEHICLE VOLUMES		PHF = 0.80									Hourly				
Time Period	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	Total	Totals	
7:00 AM	1	25	8	4	9	6	14	40	2	2	17	6	134		
7:15 AM	1	20	8	7	23	6	19	58	1	7	19	6	175		
7:30 AM	1	49	25	11	29	8	39	92	8	8	16	22	308		
7:45 AM	2	62	23	21	39	10	50	127	11	14	37	19	415	1032	
8:00 AM	6	65	20	17	35	15	36	84	10	9	19	13	329	1227	
8:15 AM	7	56	17	11	37	13	23	71	6	6	20	15	282	1334	
8:30 AM	4	40	15	22	31	15	31	92	9	7	15	10	291	1317	
8:45 AM	5	39	10	19	31	20	38	78	2	6	31	11	290	1192	
Base Year PM Peak Hour	16	232	85	60	140	46	148	374	35	37	92	69		2017 Traffic Count Base Year	
Background Growth	6	80	29	21	49	16	51	130	12	13	32	24		1.5% Background Growth Rate	
2037 Current Zone AM Peak	22	312	114	81	189	62	199	504	47	50	124	93		2037 Pre-Development Year	
Total Net New Development Volume	6					12	45	90	22		24			199 Total Development Volume	
% of Net New Development	5%					10%	10%	20%	5%		20%			1797 Pre-Development Volume	
P-B/D-L Volumes														11% % increase	
Proposed Zone GLUP AM Peak	28	312	114	81	189	74	244	594	69	50	148	93			

Intersection 14:		SW 35th Street			SW Philomath Boulevard			System PM peak hour i 7:30-8:30AM							
ALL-VEHICLE VOLUMES		PHF = 0.90									Hourly				
Time Period	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	Total	Totals	
7:00 AM	2	17	12	7	4	4	1	151	3	13	86	13	313		
7:15 AM	0	20	14	10	16	0	2	166	2	14	117	16	377		
7:30 AM	3	49	29	4	41	1	1	164	6	24	134	15	471		
7:45 AM	2	52	44	8	49	4	3	168	5	62	147	39	583	1744	
8:00 AM	11	47	55	13	59	2	7	154	7	50	165	26	596	2027	
8:15 AM	7	54	39	14	23	4	4	161	1	39	132	17	495	2145	
8:30 AM	0	34	32	12	13	1	5	174	4	23	123	23	444	2118	
8:45 AM	3	14	29	14	17	3	1	171	1	25	140	19	437	1972	
Base Year PM Peak Hour	23	202	167	39	172	11	15	647	19	175	578	97		2017 Traffic Count Base Year	
Background Growth	8	70	58	14	60	4	1	47	1	13	42	7		1.5% Background Growth Rate	
2037 Current Zone AM Peak	31	272	225	53	232	15	16	694	20	188	620	104		2037 Pre-Development Year	
Total Net New Development Volumes								76			20	6		124 Total Development Volume	
% of Net New Development								17%			17%	5%		2470 Pre-Development Volume	
P-B/D-L Volumes														5% % increase	
Proposed Zone GLUP AM Peak	31	272	225	75	232	15	16	770	20	188	640	110			

Intersection 1:		NW 53rd Street			NW Harrison Boulevard			System PM peak hour 4:45-5:45PM						Hourly		All	Ints
ALL-VEHICLE VOLUMES		PHF = 0.91											Totals		Ints		
Time Period	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	Total				
4:00 PM	11	88	27	2	94	16	4	6	6	76	13	6	349				
4:15 PM	8	83	37	1	111	8	5	9	10	77	14	2	365				
4:30 PM	5	70	30	1	94	6	6	15	4	67	22	6	326				
4:45 PM	10	75	35	2	83	12	4	7	8	64	12	2	314	1354	13917		
5:00 PM	7	97	37	2	86	17	6	19	7	94	22	5	399	1404	14398		
5:15 PM	8	80	48	0	112	14	7	17	6	66	21	7	386	1425	15008		
5:30 PM	15	83	50	2	91	10	4	12	8	68	11	2	356	1455	15277		
5:45 PM	11	61	41	3	85	5	4	11	3	48	13	7	292	1433	15054		
Base Year PM Peak Hour	40	335	170	6	372	53	21	55	29	292	66	16	2017 Traffic Count Base Year				
Background Growth	14	116	59	2	129	18	7	19	10	101	23	6	1.5% Background Growth Rate				
2037 Current Zone PM Peak	54	451	229	8	501	71	28	74	39	393	89	22	2037 Pre-Development Year				
				NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR		
Total Net New Development Volumes				50	24	91				46						211 Total Development Volume	
% of Net New Development				20%	10%	20%				10%						1959 Pre-Development Volume	
P-B/D-L Volumes															11% % increase		
Proposed Zone GLUP PM Peak	54	501	253	8	592	71	28	74	39	439	89	22					

Intersection 2:		SW 53rd Street			SW Reservoir Avenue			System PM peak hour 4:45-5:45PM						Hourly		All	Ints
ALL-VEHICLE VOLUMES		PHF = 0.93											Totals		Ints		
Time Period	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	Total				
4:00 PM	1	72	0	0	90	77	49	0	5	0	0	0	294				
4:15 PM	1	83	0	0	98	110	46	0	4	0	0	0	342				
4:30 PM	1	60	0	0	82	85	56	0	2	0	0	0	286				
4:45 PM	2	72	0	0	94	60	57	0	1	0	0	0	286	1208	1261		
5:00 PM	2	102	0	0	86	105	46	0	6	0	0	0	347	1261	1255		
5:15 PM	3	72	0	0	104	87	66	0	3	0	0	0	336	1255	1290		
5:30 PM	1	84	0	0	100	70	61	0	5	0	0	0	321	1290	1266		
5:45 PM	0	80	0	0	75	61	44	0	2	0	0	0	262	1266			
Base Year PM Peak Hour	8	330	0	0	384	322	230	0	15	0	0	0	2017 Traffic Count Base Year				
Background Growth	3	114	0	0	133	112	80	0	5	0	0	0	1.5% Background Growth Rate				
2037 Current Zone PM Peak	11	444	0	0	517	434	310	0	20	0	0	0	2037 Pre-Development Year				
				NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR		
Total Net New Development Volumes				74	137									211 Total Development Volume			
% of Net New Development				30%	30%									1737 Pre-Development Volume			
P-B/D-L Volumes															12% % increase		
Proposed Zone GLUP PM Peak	11	518	0	0	654	434	310	0	20	0	0	0					

Intersection 3:		SW 53rd Street			Site Access (West)			System PM peak hour 4:45-5:45PM						Hourly		All	Ints
ALL-VEHICLE VOLUMES		PHF = 0.94											Totals		Ints		
Time Period	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	Total				
4:00 PM		73			93								166				
4:15 PM		76			101								177				
4:30 PM		69			85								154				
4:45 PM		70			90								160	657	681		
5:00 PM		99			91								190	681	678		
5:15 PM		78			96								174	678	711		
5:30 PM		90			97								187	711			
5:45 PM		73			79								152	703			
Base Year PM Peak Hour	0	337	0	0	374	0	0	0	0	0	0	0	2017 Traffic Count Base Year				
Background Growth	0	117	0	0	130	0	0	0	0	0	0	0	1.5% Background Growth Rate				
2037 Current Zone PM Peak	0	454	0	0	504	0	0	0	0	0	0	0	2037 Pre-Development Year				
				NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR		
Total Net New Development Volumes				12	114	114	23				62	62			387 Total Development Volume		
% of Net New Development				5%	25%	25%	5%				25%	25%			958 Pre-Development Volume		
P-B/D-L Volumes															40% % increase		
Proposed Zone GLUP PM Peak	0	466	114	114	527	0	0	0	0	62	0	62					

Intersection 4:		SW 53rd Street			SW West Hills Road			System PM peak hour i 4:45-5:45PM							
ALL-VEHICLE VOLUMES		PHF = 0.89											Hourly		
Time Period	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	Total	Totals	
4:00 PM	18	60	1	7	70	13	8	10	10	3	21	5	226		
4:15 PM	21	51	4	8	66	26	9	14	21	2	16	8	246		
4:30 PM	23	54	2	1	67	17	10	6	18	2	17	12	229		
4:45 PM	31	49	4	5	63	17	8	13	8	2	23	9	233	934	
5:00 PM	15	75	3	8	70	12	13	10	12	5	25	6	254	962	
5:15 PM	28	56	2	2	59	23	10	14	14	3	41	14	266	982	
5:30 PM	35	71	2	5	65	18	15	15	25	6	26	9	292	1045	
5:45 PM	19	48	0	5	59	17	10	11	17	2	27	7	222	1034	
Base Year PM Peak Hour	109	251	11	20	257	70	46	52	59	16	115	38			
Background Growth	38	87	4	7	89	24	16	18	20	6	40	13			
2037 Current Zone PM Peak	147	338	15	27	346	94	62	70	79	22	155	51			
	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR			
Total Net New Development Volumes	91	23		28	50	7	14	9		12	5	21			
% of Net New Development	20%	5%		7%	20%	3%	3%	2%		5%	2%	7%			
P-B/D-L Volumes															
Proposed Zone GLUP PM Peak	147	429	38	55	396	101	76	79	79	34	160	72			

2017 Traffic Count Base Year
1.5% Background Growth Rate
2037 Pre-Development Year

260 Total Development Volume
1407 Pre-Development Volume
18% % increase

Intersection 5:		SW 53rd Street			Philomath Boulevard (OR42)			System PM peak hour i 4:45-5:45PM							
ALL-VEHICLE VOLUMES		PHF = 0.96											Hourly		
Time Period	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	Total	Totals	
4:00 PM	30	30	15	44	44	18	22	117	12	16	139	30	517		
4:15 PM	31	47	15	32	39	16	13	109	21	22	134	33	512		
4:30 PM	23	38	12	49	36	14	18	137	18	21	107	37	510		
4:45 PM	33	34	16	23	56	25	19	137	12	20	108	29	512	2051	
5:00 PM	33	46	19	30	50	16	14	142	10	18	129	49	556	2090	
5:15 PM	40	44	14	29	41	26	7	126	10	21	144	45	547	2125	
5:30 PM	31	44	15	48	46	21	13	105	9	19	128	38	517	2132	
5:45 PM	32	42	18	38	40	13	9	105	8	15	115	36	471	2091	
Base Year PM Peak Hour	137	168	64	130	193	88	53	510	41	78	509	161			
Background Growth	50	62	23	48	71	32	4	39	3	6	39	12			
2037 Current Zone PM Peak	187	230	87	178	264	120	57	549	44	84	548	173			
	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR			
Total Net New Development Volumes	14			42	8	12	23					77			
% of Net New Development	3%			17%	3%	5%	5%					17%			
P-B/D-L Volumes															
Proposed Zone GLUP PM Peak	187	244	87	220	272	132	80	549	44	84	548	250			

2016 Traffic Count Base Year
1.5% Background Growth Rate
2037 Pre-Development Year
0.35% Background Growth Rate on OR42

176 Total Development Volume
2521 Pre-Development Volume
7% % increase

Intersection 6:		SW West Hills Road			Site Access (SW)			System PM peak hour i 4:45-5:45PM							
ALL-VEHICLE VOLUMES		PHF = 0.84											Hourly		
Time Period	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	Total	Totals	
4:00 PM								18			34		52		
4:15 PM								24			27		51		
4:30 PM								12			34		46		
4:45 PM								24			35		59	208	
5:00 PM								23			37		60	216	
5:15 PM								19			60		79	244	
5:30 PM								23			46		69	267	
5:45 PM								17			39		56	264	
Base Year PM Peak Hour	0	0	0	0	0	0	0	89	0	0	178	0			
Background Growth	0	0	0	0	0	0	0	31	0	0	62	0			
2037 Current Zone PM Peak	0	0	0	0	0	0	0	120	0	0	240	0			
	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR			
Total Net New Development Volumes				45	17		32	28			21	82			
% of Net New Development				18%	7%		7%	7%			7%	18%			
P-B/D-L Volumes															
Proposed Zone GLUP PM Peak	0	0	0	45	0	17	32	148	0	0	261	82			

2017 Traffic Count Base Year
1.5% Background Growth Rate
2037 Pre-Development Year

225 Total Development Volume
360 Pre-Development Volume
63% % increase

Intersection 7:		SW West Hills Road			Site Access (SE)/Timian			System PM peak hour i 4:45-5:45PM								
ALL-VEHICLE VOLUMES		PHF = 0.84											Hourly			
Time Period	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	Total	Totals		
4:00 PM								18			34		52		Cells shaded this color have manual inpt.	
4:15 PM								24			27		51			
4:30 PM								12			34		46			
4:45 PM								24			35		59	208		
5:00 PM								23			37		60	216		
5:15 PM								19			60		79	244	Estimated Vs from Sylvia TIA	
5:30 PM								23			46		69	267		
5:45 PM								17			39		56	264		
Base Year PM Peak Hour	5	0	6	0	0	0	0	89	5	5	178	0			2017 Traffic Count Base Year	
Background Growth	2	0	2	0	0	0	0	31	2	2	62	0			1.5% Background Growth Rate	
2037 Current Zone PM Peak	7	0	8	0	0	0	0	120	7	7	240	0			2037 Pre-Development Year	
	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR				
Total Net New Development Volumes	23			37	12	12	23	50			91	68			316 Total Development Volume	
% of Net New Development	5%			15%	5%	5%	5%	20%			20%	15%			389 Pre-Development Volume	
P-B/D-L Volumes															81% % increase	
Proposed Zone GLUP PM Peak	7	23	8	37	12	12	23	170	7	7	331	68				

Intersection 8:		SW Technology Loop			Philomath Boulevard (OR42)			System PM peak hour i 4:45-5:45PM								
ALL-VEHICLE VOLUMES		PHF = 0.90											Hourly			
Time Period	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	Total	Totals		
4:00 PM	14	0	82	0	0	0	0	142	3	42	156	0	439		Cells shaded this color have manual inpt.	
4:15 PM	11	0	51	0	0	0	0	162	8	39	172	0	443			
4:30 PM	18	0	55	0	0	1	0	155	8	46	177	0	460			
4:45 PM	14	0	70	0	0	0	0	159	8	39	201	0	491	1833		
5:00 PM	29	0	86	0	0	0	0	137	3	58	177	1	491	1885		
5:15 PM	16	0	68	0	0	0	0	180	10	79	213	0	566	2008		
5:30 PM	17	0	61	0	0	0	0	161	9	65	174	0	487	2035		
5:45 PM	11	0	67	0	1	0	0	148	5	47	183	0	462	2006		
Base Year PM Peak Hour	76	0	285	0	0	0	0	637	30	241	765	1			2017 Traffic Count Base Year	
Background Growth	26	0	99	0	0	0	0	46	2	17	55	0			1.5% Background Growth Rate	
2037 Current Zone PM Peak	102	0	384	0	0	0	0	683	32	258	820	1			2037 Pre-Development Year	
	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR			0.35% Background Growth Rate on OR42	
Total Net New Development Volume	14		9					35	7	5	63				133 Total Development Volume	
% of Net New Development	3%		2%					14%	3%	2%	14%				2280 Pre-Development Volume	
P-B/D-L Volumes															6% % increase	
Proposed Zone GLUP PM Peak	116	0	393	0	0	0	0	718	39	263	883	1				

Intersection 9:		SW Timian Street			SW Philomath Boulevard			System PM peak hour i 4:45-5:45PM								
ALL-VEHICLE VOLUMES		PHF = 0.88											Hourly			
Time Period	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	Total	Totals		
4:00 PM	0	0	0	0	0	1	2	226	0	0	206	0	435		Cells shaded this color have manual inpt.	
4:15 PM	0	0	0	1	0	0	1	212	0	0	218	0	432			
4:30 PM	0	0	0	2	0	3	1	208	0	0	226	2	442			
4:45 PM	0	0	0	0	0	1	3	229	0	0	242	0	475	1784		
5:00 PM	0	0	0	0	0	1	1	224	0	0	241	4	471	1820		
5:15 PM	0	0	0	1	0	1	2	250	0	0	299	3	556	1944		
5:30 PM	0	0	0	3	0	1	1	220	0	0	236	5	466	1968		
5:45 PM	0	0	0	0	0	0	1	216	0	0	219	0	436	1929		
Base Year PM Peak Hour	0	0	0	4	0	4	7	923	0	0	1018	12			2017 Traffic Count Base Year	
Background Growth	0	0	0	1	0	1	1	67	0	0	74	1			1.5% Background Growth Rate	
2037 Current Zone PM Peak	0	0	0	5	0	5	8	990	0	0	1092	13			2037 Pre-Development Year	
	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR			0.35% Background Growth Rate on OR42	
Total Net New Development Volumes				7		5	9	35			63	14			133 Total Development Volume	
% of Net New Development				3%		2%	2%	14%			14%	3%			2113 Pre-Development Volume	
P-B/D-L Volumes															6% % increase	
Proposed Zone GLUP PM Peak	0	0	0	12	0	10	17	1025	0	0	1155	27			West Portion	

Intersection 10:		SW Western Boulevard			SW Philomath Boulevard			System PM peak hour i 4:45-5:45PM						Hourly		East Portion
ALL-VEHICLE VOLUMES		PHF = 0.87											Hourly			
Time Period	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	Total	Totals		
4:00 PM	1	46									149	0	196		Cells shaded this color have manual input	
4:15 PM	0	23									176	1	200			
4:30 PM	0	38									174	0	212			
4:45 PM	0	59		Western is NORTHBOUND and							176	2	237	845		
5:00 PM	0	49									186	1	236	885		
5:15 PM	0	77									201	6	284	969		
5:30 PM	0	55									166	5	226	983		
5:45 PM	2	42									161	1	206	952		
Base Year PM Peak Hour	0	240	0	0	0	0	0	0	0	0	729	14			2017 Traffic Count Base Year	
Background Growth	0	17	0	0	0	0	0	0	0	0	53	1			1.5% Background Growth Rate	
2037 Current Zone PM Peak	0	257	0	0	0	0	0	0	0	0	782	15			2037 Pre-Development Year	
Total Net New Development Volumes											77				0.35% Background Growth Rate on OR42	
% of Net New Development											17%				77 Total Development Volume	
P-B/D-L Volumes															1054 Pre-Development Volume	
Proposed Zone GLUP PM Peak	0	257	0	0	0	0	0	0	0	0	859	15			7% % increase	

Intersection 11:		SW West Hills Road			SW Western Boulevard			System PM peak hour i 4:45-5:45PM						Hourly		
ALL-VEHICLE VOLUMES		PHF = 0.88											Hourly			
Time Period	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	Total	Totals		
4:00 PM	0	0	25	0	0	0	0	16	2	52	38	0	133		Cells shaded this color have manual input	
4:15 PM	0	0	33	0	0	0	0	21	1	61	28	0	144			
4:30 PM	2	0	30	0	0	0	0	12	2	57	35	0	138			
4:45 PM	1	0	50	0	0	0	0	25	1	65	34	0	176	591		
5:00 PM	0	0	52	0	0	0	0	22	2	97	38	0	211	669		
5:15 PM	2	0	55	0	0	0	0	19	1	93	60	0	230	755		
5:30 PM	3	0	46	0	0	0	0	21	3	75	47	0	195	812		
5:45 PM	1	0	55	0	0	0	0	17	0	80	40	0	193	829		
Base Year PM Peak Hour	6	0	203	0	0	0	0	87	7	330	179	0			2017 Traffic Count Base Year	
Background Growth	2	0	70	0	0	0	0	30	2	114	62	0			1.5% Background Growth Rate	
2037 Current Zone PM Peak	8	0	273	0	0	0	0	117	9	444	241	0			2037 Pre-Development Year	
Total Net New Development Volumes								87		159					246 Total Development Volume	
% of Net New Development								35%		35%					1092 Pre-Development Volume	
P-B/D-L Volumes															23% % increase	
Proposed Zone GLUP PM Peak	8	0	273	0	0	0	0	204	9	444	400	0				

Intersection 12:		SW Washington Way			SW 35th Street			System PM peak hour i 4:45-5:45PM						Hourly		
ALL-VEHICLE VOLUMES		PHF = 0.92											Hourly			
Time Period	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	Total	Totals		
4:00 PM																
4:15 PM																
4:30 PM																
4:45 PM																
5:00 PM	0	81	8	8	95	0	0	0	1	10	1	9	213			
5:15 PM	1	95	4	6	103	0	0	0	0	16	0	9	234			
5:30 PM	0	87	11	6	83	0	0	2	0	22	1	10	222			
5:45 PM	0	83	6	7	84	0	0	0	0	3	0	9	192	861		
Base Year PM Peak Hour	1	346	29	27	365	0	0	2	1	51	2	37			2016 Traffic Count Base Year	
Background Growth	0	127	11	10	134	0	0	1	0	19	1	14			1.5% Background Growth Rate	
2037 Current Zone PM Peak	1	473	40	37	499	0	0	3	1	70	3	51			2037 Pre-Development Year	
Total Net New Development Volumes		20	5		36					9					70 Total Development Volume	
% of Net New Development		8%	2%		8%					2%					1178 Pre-Development Volume	
P-B/D-L Volumes															6% % increase	
Proposed Zone GLUP PM Peak	1	493	45	37	535	0	0	3	1	79	3	51				

Intersection 13:		SW Western Boulevard			SW 35th Street			System PM peak hour i 4:45-5:45PM							
ALL-VEHICLE VOLUMES		PHF = 0.92									Hourly				
Time Period	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	Total	Totals	
4:00 PM	4	24	6	22	35	24	15	45	4	16	68	17	280		Cells shaded this color have manual input
4:15 PM	4	39	10	19	51	25	19	43	3	14	59	14	300		
4:30 PM	2	28	15	29	48	21	21	39	3	14	78	13	311		
4:45 PM	3	21	13	19	44	33	20	49	6	21	91	15	335	1226	
5:00 PM	2	28	11	25	68	38	22	51	2	19	103	30	399	1345	
5:15 PM	4	19	10	26	41	55	21	49	9	27	126	17	404	1449	
5:30 PM	4	21	4	25	43	24	22	52	5	22	92	33	347	1485	
5:45 PM	5	23	13	18	39	29	15	55	4	13	72	25	311	1461	
Base Year PM Peak Hour	13	89	38	95	196	150	85	201	22	89	412	95			2017 Traffic Count Base Year
Background Growth	5	31	13	33	68	52	29	70	8	31	143	33			1.5% Background Growth Rate
2037 Current Zone PM Peak	18	120	51	128	264	202	114	271	30	120	555	128			2037 Pre-Development Year
Total Net New Development Volume	23					45	25	50	12		91				246 Total Development Volume
% of Net New Development	5%					10%	10%	20%	5%		20%				2001 Pre-Development Volume
P-B/D-L Volumes															12% % increase
Proposed Zone GLUP PM Peak	41	120	51	128	264	247	139	321	42	120	646	128			

Intersection 14:		SW 35th Street			SW Philomath Boulevard			System PM peak hour i 4:45-5:45PM							
ALL-VEHICLE VOLUMES		PHF = 0.96									Hourly				
Time Period	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	Total	Totals	
4:00 PM	3	23	42	23	38	6	1	186	0	26	191	12	551		Cells shaded this color have manual input
4:15 PM	4	39	31	14	31	8	8	163	1	29	170	9	507		
4:30 PM	0	31	46	35	42	3	8	175	0	25	170	9	544		
4:45 PM	4	25	38	21	26	4	10	175	2	32	139	13	489	2091	
5:00 PM	2	32	54	20	47	6	7	153	0	25	176	15	537	2077	
5:15 PM	4	21	31	36	67	7	8	144	4	31	161	12	526	2096	
5:30 PM	4	27	27	20	39	10	12	160	6	35	168	12	520	2072	
5:45 PM	0	32	20	13	42	4	12	165	6	24	139	13	470	2053	
Base Year PM Peak Hour	14	105	150	97	179	27	37	632	12	123	644	52			2017 Traffic Count Base Year
Background Growth	5	36	52	34	62	9	3	46	1	9	47	4			1.5% Background Growth Rate
2037 Current Zone PM Peak	19	141	202	131	241	36	40	678	13	132	691	56			2037 Pre-Development Year
Total Net New Development Volumes				12				42			77	23			154 Total Development Volume
% of Net New Development				5%				17%			17%	5%			2380 Pre-Development Volume
P-B/D-L Volumes															6% % increase
Proposed Zone GLUP PM Peak	19	141	202	143	241	36	40	720	13	132	768	79			

Intersection 1:		NW 53rd Street			NW Harrison Boulevard			System PM peak hour i 7:30-8:30AM								
ALL-VEHICLE VOLUMES		PHF = 0.91											Hourly	All		
Time Period	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	Total	Totals	Ints	Cells shaded this color have manual inpt.
7:00 AM	3	36	21	3	38	4	9	9	10	23	1	1	158			
7:15 AM	4	80	39	2	39	3	10	17	5	17	4	0	220			
7:30 AM	2	110	94	7	53	2	7	34	11	24	1	0	345			
7:45 AM	10	91	78	5	70	4	8	19	10	45	5	2	347	1070	4583	
8:00 AM	8	100	48	3	51	3	8	16	8	51	1	1	298	1210	5191	
8:15 AM	7	80	53	4	65	4	6	13	7	24	7	0	270	1260	5482	
8:30 AM	5	98	49	4	46	9	7	19	6	23	6	1	273	1188	5132	
8:45 AM	5	66	45	6	59	4	11	19	6	44	3	0	268	1109	4673	
Base Year AM Peak Hour	27	381	273	19	239	13	29	82	36	144	14	3				2017 Traffic Count Base Year
Background Growth	9	132	95	7	83	5	10	28	12	50	5	1				1.5% Background Growth Rate
2037 Current Zone AM Peak	36	513	368	26	322	18	39	110	48	194	19	4				2037 Pre-Development Year
	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR				
Total Net New Development Volumes		221	110		107					54						492 Total Development Volume
% of Net New Development		20%	10%		20%					10%						1697 Pre-Development Volume
P-B/D-L Volumes																29% % increase
Proposed Zone WC AM Peak	36	734	478	26	429	18	39	110	48	248	19	4				

Intersection 2:		SW 53rd Street			SW Reservoir Avenue			System PM peak hour i 7:30-8:30AM								
ALL-VEHICLE VOLUMES		PHF = 0.91											Hourly	All		
Time Period	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	Total	Totals	Ints	Cells shaded this color have manual inpt.
7:00 AM	0	31	0	0	42	26	30	0	0	0	0	0	129			
7:15 AM	0	54	0	0	32	29	66	0	0	0	0	0	181			
7:30 AM	2	120	0	0	48	42	82	0	3	0	0	0	297			
7:45 AM	5	87	0	0	77	47	83	0	1	0	0	0	300	907		
8:00 AM	2	86	0	0	68	34	67	0	0	0	0	0	257	1035		
8:15 AM	4	72	0	0	64	33	67	0	0	0	0	0	240	1094		
8:30 AM	1	72	0	0	40	43	74	0	1	0	0	0	231	1028		
8:45 AM	4	52	0	0	61	46	62	0	3	0	0	0	228	956		
Base Year AM Peak Hour	13	365	0	0	257	156	299	0	4	0	0	0				2017 Traffic Count Base Year
Background Growth	5	127	0	0	89	54	104	0	1	0	0	0				1.5% Background Growth Rate
2037 Current Zone AM Peak	18	492	0	0	346	210	403	0	5	0	0	0				2037 Pre-Development Year
	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR				
Total Net New Development Volumes		331			161											492 Total Development Volume
% of Net New Development		30%			30%											1474 Pre-Development Volume
P-B/D-L Volumes																33% % increase
Proposed Zone WC AM Peak	18	823	0	0	507	210	403	0	5	0	0	0				

Intersection 3:		SW 53rd Street			Site Access (West)			System PM peak hour i 7:30-8:30AM								
ALL-VEHICLE VOLUMES		PHF = 0.91											Hourly	All		
Time Period	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	Total	Totals	Ints	Cells shaded this color have manual inpt.
7:00 AM		29			32								61			
7:15 AM		53			35								88			
7:30 AM		121			56								177			
7:45 AM		80			95								175	501		
8:00 AM		83			73								156	596		
8:15 AM		70			67								137	645		
8:30 AM		74			51								125	593		
8:45 AM		56			63								119	537		
Base Year AM Peak Hour	0	354	0	0	291	0	0	0	0	0	0	0				2017 Traffic Count Base Year
Background Growth	0	123	0	0	101	0	0	0	0	0	0	0				1.5% Background Growth Rate
2037 Current Zone AM Peak	0	477	0	0	392	0	0	0	0	0	0	0				2037 Pre-Development Year
	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR				
Total Net New Development Volumes		55	135	134	27					276		276				903 Total Development Volume
% of Net New Development		5%	25%	25%	5%					25%		25%				869 Pre-Development Volume
P-B/D-L Volumes		-16	16	16	-16					15		15				104% % increase
Proposed Zone WC AM Peak	0	516	151	150	403	0	0	0	0	291	0	291				

Intersection 4:		SW 53rd Street			SW West Hills Road			System PM peak hour i 7:30-8:30AM								
ALL-VEHICLE VOLUMES		PHF = 0.87											Hourly			
Time Period	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	Total	Hourly Totals		
7:00 AM	3	14	3	3	17	2	10	10	9	0	2	2	75		Cells shaded this color have manual input	
7:15 AM	3	31	1	2	33	3	20	26	16	0	4	1	140			
7:30 AM	4	62	4	8	46	6	49	39	21	0	1	8	248			
7:45 AM	7	48	1	10	91	10	17	51	23	2	6	3	269	732		
8:00 AM	3	59	2	5	60	12	14	36	27	0	6	5	229	886		
8:15 AM	8	43	4	9	52	8	16	22	12	1	8	4	187	933		
8:30 AM	2	64	3	5	47	8	8	16	12	1	9	3	178	863		
8:45 AM	7	46	1	4	49	9	7	26	6	1	6	3	165	759		
Base Year AM Peak Hour	22	212	11	32	249	36	96	148	83	3	21	20			2017 Traffic Count Base Year	
Background Growth	8	74	4	11	86	12	33	51	29	1	7	7			1.5% Background Growth Rate	
2037 Current Zone AM Peak	30	286	15	43	335	48	129	199	112	4	28	27			2037 Pre-Development Year	
	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR				
Total Net New Development Volumes	108	27		49	220	34	16	11		55	22	66			608 Total Development Volume	
% of Net New Development	20%	5%		7%	20%	3%	3%	2%		5%	2%	7%			1256 Pre-Development Volume	
P-B/D-L Volumes															48% % increase	
Proposed Zone WC AM Peak	30	394	42	92	555	82	145	210	112	59	50	93				

Intersection 5:		SW 53rd Street			Philomath Boulevard (OR42)			System PM peak hour i 7:30-8:30AM								
ALL-VEHICLE VOLUMES		PHF = 0.87											Hourly			
Time Period	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	Total	Hourly Totals		
7:00 AM	3	10	5	23	8	5	8	121	0	2	61	10	256		Cells shaded this color have manual input	
7:15 AM	6	22	7	29	11	5	10	138	3	5	56	8	300			
7:30 AM	8	42	14	29	23	11	15	187	2	8	90	10	439			
7:45 AM	7	34	21	34	64	23	9	152	4	4	100	31	483	1478		
8:00 AM	3	24	13	18	44	11	11	133	4	6	73	22	362	1584		
8:15 AM	9	35	8	30	35	8	15	135	7	5	82	24	393	1677		
8:30 AM	4	37	11	28	25	14	17	118	3	8	64	12	341	1579		
8:45 AM	14	27	14	22	33	9	8	108	6	11	88	15	355	1451		
Base Year AM Peak Hour	27	135	56	111	166	53	50	607	17	23	345	87			2016 Traffic Count Base Year	
Background Growth	10	50	21	41	61	19	4	46	1	2	26	7			1.5% Background Growth Rate	
2037 Current Zone AM Peak	37	185	77	152	227	72	54	653	18	25	371	94			2037 Pre-Development Year	
	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR				
Total Net New Development Volumes	16			187	33	55	27					92			410 Total Development Volume	
% of Net New Development	3%			17%	3%	5%	5%					17%			1965 Pre-Development Volume	
P-B/D-L Volumes															21% % increase	
Proposed Zone WC AM Peak	37	201	77	339	260	127	81	653	18	25	371	186				

Intersection 6:		SW West Hills Road			Site Access (SW)			System PM peak hour i 7:30-8:30AM								
ALL-VEHICLE VOLUMES		PHF = 0.77											Hourly			
Time Period	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	Total	Hourly Totals		
7:00 AM								17			5		22		Cells shaded this color have manual input	
7:15 AM								27			5		32			
7:30 AM								53			7		60			
7:45 AM								70			14		84	198		
8:00 AM								50			12		62	238		
8:15 AM								41			12		53	259		
8:30 AM								26			12		38	237		
8:45 AM								32			14		46	199		
Base Year AM Peak Hour	0	0	0	0	0	0	0	214	0	0	45	0			2017 Traffic Count Base Year	
Background Growth	0	0	0	0	0	0	0	74	0	0	16	0			1.5% Background Growth Rate	
2037 Current Zone AM Peak	0	0	0	0	0	0	0	288	0	0	61	0			2037 Pre-Development Year	
	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR				
Total Net New Development Volumes				198	77	77	38	49			66	97			525 Total Development Volume	
% of Net New Development				18%		7%	7%	7%			7%	18%			349 Pre-Development Volume	
P-B/D-L Volumes				10		4	4	-4			-12	12			150% % increase	
Proposed Zone WC AM Peak	0	0	0	208	0	81	42	333	0	0	115	109				

Intersection 7: SW West Hills Road		Site Access (SE)/Timian			System PM peak hour i 7:30-8:30AM										
ALL-VEHICLE VOLUMES		PHF = 0.77											Hourly		
Time Period	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	Total	Totals	
7:00 AM								17			5		22		Cells shaded this color have manual inpt.
7:15 AM								27			5		32		
7:30 AM								53			7		60		
7:45 AM								70			14		84	198	
8:00 AM								50			12		62	238	
8:15 AM								41			12		53	259	Estimated Vs from Sylvia TIA
8:30 AM								26			12		38	237	
8:45 AM								32			14		46	199	
Base Year AM Peak Hour	5	0	12	0	0	0	0	214	5	5	45	0		2017 Traffic Count Base Year	
Background Growth	2	0	4	0	0	0	0	74	2	2	16	0		1.5% Background Growth Rate	
2037 Current Zone AM Peak	7	0	16	0	0	0	0	288	7	7	61	0		2037 Pre-Development Year	
	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR			
Total Net New Development Volumes	27			165	55	55	27	220			108	81		738 Total Development Volume	
% of Net New Development		5%		15%	5%	5%	5%	20%			20%	15%		386 Pre-Development Volume	
P-B/D-L Volumes				9		3	3	-3			-9	9		191% % increase	
Proposed Zone WC AM Peak	7	27	16	174	55	58	30	505	7	7	160	90			

Intersection 8: SW Technology Loop		Philomath Boulevard (OR42)			System PM peak hour i 7:30-8:30AM										
ALL-VEHICLE VOLUMES		PHF = 0.95											Hourly		
Time Period	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	Total	Totals	
7:00 AM	2	0	27	0	0	0	0	122	6	18	93	0	268		Cells shaded this color have manual inpt.
7:15 AM	3	0	46	0	0	0	0	162	5	33	89	0	338		
7:30 AM	10	0	73	0	0	1	0	195	12	43	120	0	454	1524	
7:45 AM	4	0	84	0	0	0	0	202	13	54	107	0	464	1676	
8:00 AM	10	0	64	0	0	0	0	157	10	61	118	0	420	1758	
8:15 AM	10	0	46	1	0	1	0	171	7	49	134	1	420	1680	
8:30 AM	5	0	47	0	0	0	0	169	8	25	122	0	376	1596	
8:45 AM	3	0	67	0	0	0	0	157	7	27	119	0	380		
Base Year AM Peak Hour	34	0	267	1	0	2	0	725	42	207	479	1		2017 Traffic Count Base Year	
Background Growth	12	0	93	0	0	1	0	52	3	15	35	0		1.5% Background Growth Rate	
2037 Current Zone AM Peak	46	0	360	1	0	3	0	777	45	222	514	1		2037 Pre-Development Year	
	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR			
Total Net New Development Volume	16		11					154	33	22	76			0.35% Background Growth Rate on OR42	
% of Net New Development	3%		2%					14%	3%	2%	14%			312 Total Development Volume	
P-B/D-L Volumes														1969 Pre-Development Volume	
Proposed Zone WC AM Peak	62	0	371	1	0	3	0	931	78	244	590	1		16% % increase	

Intersection 9: SW Timian Street		SW Philomath Boulevard			System PM peak hour i 7:30-8:30AM										
ALL-VEHICLE VOLUMES		PHF = 0.94											Hourly		
Time Period	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	Total	Totals	
7:00 AM	0	0	0	4	0	3	0	149	0	0	114	0	270		Cells shaded this color have manual inpt.
7:15 AM	0	0	0	1	0	1	1	208	0	0	127	0	338		
7:30 AM	0	0	0	1	0	1	0	272	0	0	161	2	437	1496	
7:45 AM	0	0	0	3	0	2	3	280	0	0	161	2	451	1630	
8:00 AM	0	0	0	0	0	3	2	219	0	0	178	2	404	1690	
8:15 AM	0	0	0	0	0	1	2	216	0	0	177	2	398	1623	
8:30 AM	0	0	0	3	0	3	0	216	0	0	147	1	370	1554	
8:45 AM	0	0	0	1	0	2	1	222	0	0	153	3	382		
Base Year AM Peak Hour	0	0	0	4	0	7	7	987	0	0	677	8		2017 Traffic Count Base Year	
Background Growth	0	0	0	1	0	2	1	71	0	0	49	1		1.5% Background Growth Rate	
2037 Current Zone AM Peak	0	0	0	5	0	9	8	1058	0	0	726	9		2037 Pre-Development Year	
	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR			
Total Net New Development Volumes				33		22	11	154			76	16		0.35% Background Growth Rate on OR42	
% of Net New Development				3%		2%	2%	14%			14%	3%		312 Total Development Volume	
P-B/D-L Volumes														1815 Pre-Development Volume	
Proposed Zone WC AM Peak	0	0	0	38	0	31	19	1212	0	0	802	25		17% % increase	

West Portion

Intersection 10:		SW Western Boulevard			SW Philomath Boulevard			System PM peak hour i 7:30-8:30AM						East Portion	
ALL-VEHICLE VOLUMES		PHF = 0.92											Hourly		
Time Period	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	Total	Totals	
7:00 AM	0	29									105	2	136		Cells shaded this color have manual input
7:15 AM	0	41									106	0	147		
7:30 AM	1	71		Western is NORTHBOUND and							150	2	224		
7:45 AM	0	111									136	1	248	755	
8:00 AM	0	69									166	0	235	854	
8:15 AM	0	52									147	3	202	909	
8:30 AM	0	46									123	0	169	854	
8:45 AM	2	62									136	1	201	807	
Base Year AM Peak Hour	1	303	0	0	0	0	0	0	0	0	599	6		2017 Traffic Count Base Year	
Background Growth	0	22	0	0	0	0	0	0	0	0	43	0		1.5% Background Growth Rate	
2037 Current Zone AM Peak	1	325	0	0	0	0	0	0	0	0	642	6		2037 Pre-Development Year	
	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR		0.35% Background Growth Rate on OR42	
Total Net New Development Volumes											92			92 Total Development Volume	
% of Net New Development											17%			974 Pre-Development Volume	
P-B/D-L Volumes														9% % increase	
Proposed Zone WC AM Peak	1	325	0	0	0	0	0	0	0	0	734	6			

Intersection 11:		SW West Hills Road			SW Western Boulevard			System PM peak hour i 7:30-8:30AM						East Portion	
ALL-VEHICLE VOLUMES		PHF = 0.81											Hourly		
Time Period	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	Total	Totals	
7:00 AM	0	0	29	0	0	0	0	18	0	17	5	0	69		Cells shaded this color have manual input
7:15 AM	0	0	30	0	0	0	0	24	0	17	4	0	75		
7:30 AM	0	0	72	0	0	0	0	55	0	16	5	0	148		
7:45 AM	1	0	108	0	0	0	0	72	5	21	15	0	222	514	
8:00 AM	0	0	103	0	0	0	0	55	1	31	12	0	202	647	
8:15 AM	0	0	64	0	0	0	0	44	2	29	11	0	150	722	
8:30 AM	0	0	62	0	0	0	0	26	1	21	11	0	121	695	
8:45 AM	1	0	55	0	0	0	0	31	1	24	16	0	128	601	
Base Year AM Peak Hour	1	0	347	0	0	0	0	226	8	97	43	0		2017 Traffic Count Base Year	
Background Growth	0	0	120	0	0	0	0	78	3	34	15	0		1.5% Background Growth Rate	
2037 Current Zone AM Peak	1	0	467	0	0	0	0	304	11	131	58	0		2037 Pre-Development Year	
	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR		574 Total Development Volume	
Total Net New Development Volumes								385			189			972 Pre-Development Volume	
% of Net New Development								35%			35%			59% % increase	
P-B/D-L Volumes															
Proposed Zone WC AM Peak	1	0	467	0	0	0	0	689	11	131	247	0			

Intersection 12:		SW Washington Way			SW 35th Street			System PM peak hour i 7:30-8:30AM						East Portion	
ALL-VEHICLE VOLUMES		PHF = 0.77											Hourly		
Time Period	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	Total	Totals	
7:00 AM															Cells shaded this color have manual input
7:15 AM															
7:30 AM															
7:45 AM	0	123	15	19	62	2	0	1	0	3	1	3	229		
8:00 AM	1	113	22	15	57	0	1	0	0	3	0	2	214		
8:15 AM	0	91	9	13	48	0	0	0	0	3	0	4	168		
8:30 AM	0	46	5	11	26	0	0	0	0	2	1	3	94	705	
8:45 AM															
Base Year AM Peak Hour	1	373	51	58	193	2	1	1	0	11	2	12		2016 Traffic Count Base Year	
Background Growth	0	137	19	21	71	1	0	0	0	4	1	4		1.5% Background Growth Rate	
2037 Current Zone AM Peak	1	510	70	79	264	3	1	1	0	15	3	16		2037 Pre-Development Year	
	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR		164 Total Development Volume	
Total Net New Development Volumes		88	22		43					11				963 Pre-Development Volume	
% of Net New Development		8%	2%		8%					2%				17% % increase	
P-B/D-L Volumes															
Proposed Zone WC AM Peak	1	598	92	79	307	3	1	1	0	26	3	16			

Intersection 13:		SW Western Boulevard			SW 35th Street			System PM peak hour i 7:30-8:30AM							
ALL-VEHICLE VOLUMES		PHF = 0.80											Hourly		
Time Period	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	Total	Totals	
7:00 AM	1	25	8	4	9	6	14	40	2	2	17	6	134		Cells shaded this color have manual input
7:15 AM	1	20	8	7	23	6	19	58	1	7	19	6	175		
7:30 AM	1	49	25	11	29	8	39	92	8	8	16	22	308		
7:45 AM	2	62	23	21	39	10	50	127	11	14	37	19	415	1032	
8:00 AM	6	65	20	17	35	15	36	84	10	9	19	13	329	1227	
8:15 AM	7	56	17	11	37	13	23	71	6	6	20	15	282	1334	
8:30 AM	4	40	15	22	31	15	31	92	9	7	15	10	291	1317	
8:45 AM	5	39	10	19	31	20	38	78	2	6	31	11	290	1192	
Base Year AM Peak Hour	16	232	85	60	140	46	148	374	35	37	92	69			2017 Traffic Count Base Year
Background Growth	6	80	29	21	49	16	51	130	12	13	32	24			1.5% Background Growth Rate
2037 Current Zone AM Peak	22	312	114	81	189	62	199	504	47	50	124	93			2037 Pre-Development Year
Total Net New Development Volume	27					54	110	220	55		108				574 Total Development Volume
% of Net New Development	5%					10%	10%	20%	5%		20%				1797 Pre-Development Volume
P-B/D-L Volumes															32% % increase
Proposed Zone WC AM Peak	49	312	114	81	189	116	309	724	102	50	232	93			

Intersection 14:		SW 35th Street			SW Philomath Boulevard			System PM peak hour i 7:30-8:30AM							
ALL-VEHICLE VOLUMES		PHF = 0.90											Hourly		
Time Period	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	Total	Totals	
7:00 AM	2	17	12	7	4	4	1	151	3	13	86	13	313		Cells shaded this color have manual input
7:15 AM	0	20	14	10	16	0	2	166	2	14	117	16	377		
7:30 AM	3	49	29	4	41	1	1	164	6	24	134	15	471		
7:45 AM	2	52	44	8	49	4	3	168	5	62	147	39	583	1744	
8:00 AM	11	47	55	13	59	2	7	154	7	50	165	26	596	2027	
8:15 AM	7	54	39	14	23	4	4	161	1	39	132	17	495	2145	
8:30 AM	0	34	32	12	13	1	5	174	4	23	123	23	444	2118	
8:45 AM	3	14	29	14	17	3	1	171	1	25	140	19	437	1972	
Base Year AM Peak Hour	23	202	167	39	172	11	15	647	19	175	578	97			2017 Traffic Count Base Year
Background Growth	8	70	58	14	60	4	1	47	1	13	42	7			1.5% Background Growth Rate
2037 Current Zone AM Peak	31	272	225	53	232	15	16	694	20	188	620	104			2037 Pre-Development Year
Total Net New Development Volumes				55				187			92	27			361 Total Development Volume
% of Net New Development				5%				17%			17%	5%			2470 Pre-Development Volume
P-B/D-L Volumes															15% % increase
Proposed Zone WC AM Peak	31	272	225	108	232	15	16	881	20	188	712	131			

Intersection 1:		NW 53rd Street			NW Harrison Boulevard			System PM peak hour i 4:45-5:45PM									
ALL-VEHICLE VOLUMES		PHF = 0.91											Hourly	All			
Time Period	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	Total	Totals	Ints		
4:00 PM	11	88	27	2	94	16	4	6	6	76	13	6	349			Cells shaded this color have manual inpt.	
4:15 PM	8	83	37	1	111	8	5	9	10	77	14	2	365				
4:30 PM	5	70	30	1	94	6	6	15	4	67	22	6	326				
4:45 PM	10	75	35	2	83	12	4	7	8	64	12	2	314	1354	13917		
5:00 PM	7	97	37	2	86	17	6	19	7	94	22	5	399	1404	14398		
5:15 PM	8	80	48	0	112	14	7	17	6	66	21	7	386	1425	15008		
5:30 PM	15	83	50	2	91	10	4	12	8	68	11	2	356	1455	15277		
5:45 PM	11	61	41	3	85	5	4	11	3	48	13	7	292	1433	15054		
Base Year PM Peak Hour	40	335	170	6	372	53	21	55	29	292	66	16				2017 Traffic Count Base Year	
Background Growth	14	116	59	2	129	18	7	19	10	101	23	6				1.5% Background Growth Rate	
2037 Current Zone PM Peak	54	451	229	8	501	71	28	74	39	393	89	22				2037 Pre-Development Year	
	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR					
Total Net New Development Volumes		158	79		220					110							567 Total Development Volume
% of Net New Development		20%	10%		20%					10%							1959 Pre-Development Volume
P-B/D-L Volumes																	29% % increase
Proposed Zone WC PM Peak	54	609	308	8	721	71	28	74	39	503	89	22					

Intersection 2:		SW 53rd Street			SW Reservoir Avenue			System PM peak hour i 4:45-5:45PM									
ALL-VEHICLE VOLUMES		PHF = 0.93											Hourly	All			
Time Period	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	Total	Totals	Ints		
4:00 PM	1	72	0	0	90	77	49	0	5	0	0	0	294			Cells shaded this color have manual inpt.	
4:15 PM	1	83	0	0	98	110	46	0	4	0	0	0	342				
4:30 PM	1	60	0	0	82	85	56	0	2	0	0	0	286				
4:45 PM	2	72	0	0	94	60	57	0	1	0	0	0	286	1208			
5:00 PM	2	102	0	0	86	105	46	0	6	0	0	0	347	1261			
5:15 PM	3	72	0	0	104	87	66	0	3	0	0	0	336	1255			
5:30 PM	1	84	0	0	100	70	61	0	5	0	0	0	321	1290			
5:45 PM	0	80	0	0	75	61	44	0	2	0	0	0	262	1266			
Base Year PM Peak Hour	8	330	0	0	384	322	230	0	15	0	0	0				2017 Traffic Count Base Year	
Background Growth	3	114	0	0	133	112	80	0	5	0	0	0				1.5% Background Growth Rate	
2037 Current Zone PM Peak	11	444	0	0	517	434	310	0	20	0	0	0				2037 Pre-Development Year	
	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR					
Total Net New Development Volumes		237			330												567 Total Development Volume
% of Net New Development		30%			30%												1737 Pre-Development Volume
P-B/D-L Volumes																	33% % increase
Proposed Zone WC PM Peak	11	681	0	0	847	434	310	0	20	0	0	0					

Intersection 3:		SW 53rd Street			Site Access (West)			System PM peak hour i 4:45-5:45PM									
ALL-VEHICLE VOLUMES		PHF = 0.94											Hourly	All			
Time Period	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	Total	Totals	Ints		
4:00 PM		73			93								166			Cells shaded this color have manual inpt.	
4:15 PM		76			101								177				
4:30 PM		69			85								154				
4:45 PM		70			90								160	657			
5:00 PM		99			91								190	681			
5:15 PM		78			96								174	678			
5:30 PM		90			97								187	711			
5:45 PM		73			79								152	703			
Base Year PM Peak Hour	0	337	0	0	374	0	0	0	0	0	0	0				2017 Traffic Count Base Year	
Background Growth	0	117	0	0	130	0	0	0	0	0	0	0				1.5% Background Growth Rate	
2037 Current Zone PM Peak	0	454	0	0	504	0	0	0	0	0	0	0				2037 Pre-Development Year	
	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR					
Total Net New Development Volumes		40	275		275	55				197		197					1039 Total Development Volume
% of Net New Development		5%	25%		25%	5%				25%		25%					958 Pre-Development Volume
P-B/D-L Volumes		-17	17		17	-17				13		13					108% % increase
Proposed Zone WC PM Peak	0	477	292		292	542	0	0	0	210	0	210					

Intersection 4:		SW 53rd Street			SW West Hills Road			System PM peak hour i 4:45-5:45PM							
ALL-VEHICLE VOLUMES		PHF = 0.89											Hourly		
Time Period	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	Total	Totals	
4:00 PM	18	60	1	7	70	13	8	10	10	3	21	5	226		
4:15 PM	21	51	4	8	66	26	9	14	21	2	16	8	246		
4:30 PM	23	54	2	1	67	17	10	6	18	2	17	12	229		
4:45 PM	31	49	4	5	63	17	8	13	8	2	23	9	233	934	
5:00 PM	15	75	3	8	70	12	13	10	12	5	25	6	254	962	
5:15 PM	28	56	2	2	59	23	10	14	14	3	41	14	266	982	
5:30 PM	35	71	2	5	65	18	15	15	25	6	26	9	292	1045	
5:45 PM	19	48	0	5	59	17	10	11	17	2	27	7	222	1034	
Base Year PM Peak Hour	109	251	11	20	257	70	46	52	59	16	115	38			
Background Growth	38	87	4	7	89	24	16	18	20	6	40	13			
2037 Current Zone PM Peak	147	338	15	27	346	94	62	70	79	22	155	51			
	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR			
Total Net New Development Volumes	220	55	70	158	24	33	22			40	15	62			
% of Net New Development	20%	5%	7%	20%	3%	3%	2%			5%	2%	7%			
P-B/D-L Volumes															
Proposed Zone WC PM Peak	147	558	70	97	504	118	95	92	79	62	170	113			

2017 Traffic Count Base Year
1.5% Background Growth Rate
2037 Pre-Development Year

699 Total Development Volume
1407 Pre-Development Volume
50% % increase

Intersection 5:		SW 53rd Street			Philomath Boulevard (OR42)			System PM peak hour i 4:45-5:45PM							
ALL-VEHICLE VOLUMES		PHF = 0.96											Hourly		
Time Period	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	Total	Totals	
4:00 PM	30	30	15	44	44	18	22	117	12	16	139	30	517		
4:15 PM	31	47	15	32	39	16	13	109	21	22	134	33	512		
4:30 PM	23	38	12	49	36	14	18	137	18	21	107	37	510		
4:45 PM	33	34	16	23	56	25	19	137	12	20	108	29	512	2051	
5:00 PM	33	46	19	30	50	16	14	142	10	18	129	49	556	2090	
5:15 PM	40	44	14	29	41	26	7	126	10	21	144	45	547	2125	
5:30 PM	31	44	15	48	46	21	13	105	9	19	128	38	517	2132	
5:45 PM	32	42	18	38	40	13	9	105	8	15	115	36	471	2091	
Base Year PM Peak Hour	137	168	64	130	193	88	53	510	41	78	509	161			
Background Growth	50	62	23	48	71	32	4	39	3	6	39	12			
2037 Current Zone PM Peak	187	230	87	178	264	120	57	549	44	84	548	173			
	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR			
Total Net New Development Volumes	33			134	24	40	55					187			
% of Net New Development		3%		17%	3%	5%	5%					17%			
P-B/D-L Volumes															
Proposed Zone WC PM Peak	187	263	87	312	288	160	112	549	44	84	548	360			

2016 Traffic Count Base Year
1.5% Background Growth Rate
2037 Pre-Development Year

0.35% Background Growth Rate on OR42
473 Total Development Volume
2521 Pre-Development Volume
19% % increase

Intersection 6:		SW West Hills Road			Site Access (SW)			System PM peak hour i 4:45-5:45PM							
ALL-VEHICLE VOLUMES		PHF = 0.84											Hourly		
Time Period	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	Total	Totals	
4:00 PM								18			34		52		
4:15 PM								24			27		51		
4:30 PM								12			34		46		
4:45 PM								24			35		59	208	
5:00 PM								23			37		60	216	
5:15 PM								19			60		79	244	
5:30 PM								23			46		69	267	
5:45 PM								17			39		56	264	
Base Year PM Peak Hour	0	0	0	0	0	0	0	89	0	0	178	0			
Background Growth	0	0	0	0	0	0	0	31	0	0	62	0			
2037 Current Zone PM Peak	0	0	0	0	0	0	0	120	0	0	240	0			
	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR			
Total Net New Development Volumes				142		55	77	70			62	198			
% of Net New Development				18%		7%	7%	7%			7%	18%			
P-B/D-L Volumes				9		3	5	-5			-11	11			
Proposed Zone WC PM Peak	0	0	0	151	0	58	82	185	0	0	291	209			

2017 Traffic Count Base Year
1.5% Background Growth Rate
2037 Pre-Development Year

604 Total Development Volume
360 Pre-Development Volume
168% % increase

Intersection 7:		SW West Hills Road			Site Access (SE)/Timian			System PM peak hour i 4:45-5:45PM								
ALL-VEHICLE VOLUMES		PHF = 0.84											Hourly			
Time Period	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	Total	Totals		
4:00 PM								18			34		52		Cells shaded this color have manual input	
4:15 PM								24			27		51			
4:30 PM								12			34		46			
4:45 PM								24			35		59	208		
5:00 PM								23			37		60	216		
5:15 PM								19			60		79	244	Estimated Vs from Sylvia TIA	
5:30 PM								23			46		69	267		
5:45 PM								17			39		56	264		
Base Year PM Peak Hour	5	0	6	0	0	0	0	89	5	5	178	0			2017 Traffic Count Base Year	
Background Growth	2	0	2	0	0	0	0	31	2	2	62	0			1.5% Background Growth Rate	
2037 Current Zone PM Peak	7	0	8	0	0	0	0	120	7	7	240	0			2037 Pre-Development Year	
	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR				
Total Net New Development Volumes		55		118	40	40	55	157			220	165			850 Total Development Volume	
% of Net New Development		5%		15%	5%	5%	5%	20%			20%	15%			389 Pre-Development Volume	
P-B/D-L Volumes				9		3	2	-2			-10	10			219% % increase	
Proposed Zone WC PM Peak	7	55	8	127	40	43	57	275	7	7	450	175				

Intersection 8:		SW Technology Loop			Philomath Boulevard (OR42)			System PM peak hour i 4:45-5:45PM								
ALL-VEHICLE VOLUMES		PHF = 0.90											Hourly			
Time Period	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	Total	Totals		
4:00 PM	14	0	82	0	0	0	0	142	3	42	156	0	439		Cells shaded this color have manual input	
4:15 PM	11	0	51	0	0	0	0	162	8	39	172	0	443			
4:30 PM	18	0	55	0	0	1	0	155	8	46	177	0	460			
4:45 PM	14	0	70	0	0	0	0	159	8	39	201	0	491	1833		
5:00 PM	29	0	86	0	0	0	0	137	3	58	177	1	491	1885		
5:15 PM	16	0	68	0	0	0	0	180	10	79	213	0	566	2008		
5:30 PM	17	0	61	0	0	0	0	161	9	65	174	0	487	2035		
5:45 PM	11	0	67	0	1	0	0	148	5	47	183	0	462	2006		
Base Year PM Peak Hour	76	0	285	0	0	0	0	637	30	241	765	1			2017 Traffic Count Base Year	
Background Growth	26	0	99	0	0	0	0	46	2	17	55	0			1.5% Background Growth Rate	
2037 Current Zone PM Peak	102	0	384	0	0	0	0	683	32	258	820	1			2037 Pre-Development Year	
	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR			0.35% Background Growth Rate on OR42	
Total Net New Development Volume		33	22					110	24	5	63				257 Total Development Volume	
% of Net New Development		3%	2%					14%	3%	2%	14%				2280 Pre-Development Volume	
P-B/D-L Volumes															11% % increase	
Proposed Zone WC PM Peak	135	0	406	0	0	0	0	793	56	263	883	1				

Intersection 9:		SW Timian Street			SW Philomath Boulevard			System PM peak hour i 4:45-5:45PM								
ALL-VEHICLE VOLUMES		PHF = 0.88											Hourly			
Time Period	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	Total	Totals		
4:00 PM	0	0	0	0	0	1	2	226	0	0	206	0	435		Cells shaded this color have manual input	
4:15 PM	0	0	0	1	0	0	1	212	0	0	218	0	432			
4:30 PM	0	0	0	2	0	3	1	208	0	0	226	2	442			
4:45 PM	0	0	0	0	0	1	3	229	0	0	242	0	475	1784		
5:00 PM	0	0	0	0	0	1	1	224	0	0	241	4	471	1820		
5:15 PM	0	0	0	1	0	1	2	250	0	0	299	3	556	1944		
5:30 PM	0	0	0	3	0	1	1	220	0	0	236	5	466	1968		
5:45 PM	0	0	0	0	0	0	1	216	0	0	219	0	436	1929		
Base Year PM Peak Hour	0	0	0	4	0	4	7	923	0	0	1018	12			2017 Traffic Count Base Year	
Background Growth	0	0	0	1	0	1	1	67	0	0	74	1			1.5% Background Growth Rate	
2037 Current Zone PM Peak	0	0	0	5	0	5	8	990	0	0	1092	13			2037 Pre-Development Year	
	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR			0.35% Background Growth Rate on OR42	
Total Net New Development Volumes				24		16	22	110			154	33			359 Total Development Volume	
% of Net New Development				3%		2%	2%	14%			14%	3%			2113 Pre-Development Volume	
P-B/D-L Volumes															17% % increase	
Proposed Zone WC PM Peak	0	0	0	29	0	21	30	1100	0	0	1246	46			West Portion	

Intersection 10:		SW Western Boulevard			SW Philomath Boulevard			System PM peak hour i 4:45-5:45PM						Hourly		East Portion
ALL-VEHICLE VOLUMES		PHF = 0.87											Hourly			
Time Period	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	Total	Totals		
4:00 PM	1	46									149	0	196		Cells shaded this color have manual input	
4:15 PM	0	23									176	1	200			
4:30 PM	0	38									174	0	212			
4:45 PM	0	59		Western is NORTHBOUND and							176	2	237	845		
5:00 PM	0	49									186	1	236	885		
5:15 PM	0	77									201	6	284	969		
5:30 PM	0	55									166	5	226	983		
5:45 PM	2	42									161	1	206	952		
Base Year PM Peak Hour	0	240	0	0	0	0	0	0	0	0	729	14			2017 Traffic Count Base Year	
Background Growth	0	17	0	0	0	0	0	0	0	0	53	1			1.5% Background Growth Rate	
2037 Current Zone PM Peak	0	257	0	0	0	0	0	0	0	0	782	15			2037 Pre-Development Year	
Total Net New Development Volumes													187		0.35% Background Growth Rate on OR42	
% of Net New Development													17%		187 Total Development Volume	
P-B/D-L Volumes															1054 Pre-Development Volume	
Proposed Zone WC PM Peak	0	257	0	0	0	0	0	0	0	0	969	15			18% % increase	

Intersection 11:		SW West Hills Road			SW Western Boulevard			System PM peak hour i 4:45-5:45PM						Hourly		
ALL-VEHICLE VOLUMES		PHF = 0.88											Hourly			
Time Period	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	Total	Totals		
4:00 PM	0	0	25	0	0	0	0	16	2	52	38	0	133		Cells shaded this color have manual input	
4:15 PM	0	0	33	0	0	0	0	21	1	61	28	0	144			
4:30 PM	2	0	30	0	0	0	0	12	2	57	35	0	138			
4:45 PM	1	0	50	0	0	0	0	25	1	65	34	0	176	591		
5:00 PM	0	0	52	0	0	0	0	22	2	97	38	0	211	669		
5:15 PM	2	0	55	0	0	0	0	19	1	93	60	0	230	755		
5:30 PM	3	0	46	0	0	0	0	21	3	75	47	0	195	812		
5:45 PM	1	0	55	0	0	0	0	17	0	80	40	0	193	829		
Base Year PM Peak Hour	6	0	203	0	0	0	0	87	7	330	179	0			2017 Traffic Count Base Year	
Background Growth	2	0	70	0	0	0	0	30	2	114	62	0			1.5% Background Growth Rate	
2037 Current Zone PM Peak	8	0	273	0	0	0	0	117	9	444	241	0			2037 Pre-Development Year	
Total Net New Development Volumes								275			385				660 Total Development Volume	
% of Net New Development								35%			35%				1092 Pre-Development Volume	
P-B/D-L Volumes															60% % increase	
Proposed Zone WC PM Peak	8	0	273	0	0	0	0	392	9	444	626	0				

Intersection 12:		SW Washington Way			SW 35th Street			System PM peak hour i 4:45-5:45PM						Hourly		
ALL-VEHICLE VOLUMES		PHF = 0.92											Hourly			
Time Period	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	Total	Totals		
4:00 PM																
4:15 PM																
4:30 PM																
4:45 PM																
5:00 PM	0	81	8	8	95	0	0	0	1	10	1	9	213			
5:15 PM	1	95	4	6	103	0	0	0	0	16	0	9	234			
5:30 PM	0	87	11	6	83	0	0	2	0	22	1	10	222			
5:45 PM	0	83	6	7	84	0	0	0	0	3	0	9	192	861		
Base Year PM Peak Hour	1	346	29	27	365	0	0	2	1	51	2	37			2016 Traffic Count Base Year	
Background Growth	0	127	11	10	134	0	0	1	0	19	1	14			1.5% Background Growth Rate	
2037 Current Zone PM Peak	1	473	40	37	499	0	0	3	1	70	3	51			2037 Pre-Development Year	
Total Net New Development Volumes					88					22					188 Total Development Volume	
% of Net New Development					8%					2%					1178 Pre-Development Volume	
P-B/D-L Volumes															16% % increase	
Proposed Zone WC PM Peak	1	535	56	37	587	0	0	3	1	92	3	51				

Intersection 13:		SW Western Boulevard			SW 35th Street			System PM peak hour i 4:45-5:45PM							
ALL-VEHICLE VOLUMES		PHF = 0.92									Hourly				
Time Period	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	Total	Totals	
4:00 PM	4	24	6	22	35	24	15	45	4	16	68	17	280		
4:15 PM	4	39	10	19	51	25	19	43	3	14	59	14	300		
4:30 PM	2	28	15	29	48	21	21	39	3	14	78	13	311		
4:45 PM	3	21	13	19	44	33	20	49	6	21	91	15	335	1226	
5:00 PM	2	28	11	25	68	38	22	51	2	19	103	30	399	1345	
5:15 PM	4	19	10	26	41	55	21	49	9	27	126	17	404	1449	
5:30 PM	4	21	4	25	43	24	22	52	5	22	92	33	347	1485	
5:45 PM	5	23	13	18	39	29	15	55	4	13	72	25	311	1461	
Base Year PM Peak Hour	13	89	38	95	196	150	85	201	22	89	412	95		2017 Traffic Count Base Year	
Background Growth	5	31	13	33	68	52	29	70	8	31	143	33		1.5% Background Growth Rate	
2037 Current Zone PM Peak	18	120	51	128	264	202	114	271	30	120	555	128		2037 Pre-Development Year	
Total Net New Development Volume	55					110	78	158	39			220		660 Total Development Volume	
% of Net New Development	5%					10%	10%	20%	5%			20%		2001 Pre-Development Volume	
P-B/D-L Volumes														33% % increase	
Proposed Zone WC PM Peak	73	120	51	128	264	312	192	429	69	120	775	128			

Intersection 14:		SW 35th Street			SW Philomath Boulevard			System PM peak hour i 4:45-5:45PM							
ALL-VEHICLE VOLUMES		PHF = 0.96									Hourly				
Time Period	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	Total	Totals	
4:00 PM	3	23	42	23	38	6	1	186	0	26	191	12	551		
4:15 PM	4	39	31	14	31	8	8	163	1	29	170	9	507		
4:30 PM	0	31	46	35	42	3	8	175	0	25	170	9	544		
4:45 PM	4	25	38	21	26	4	10	175	2	32	139	13	489	2091	
5:00 PM	2	32	54	20	47	6	7	153	0	25	176	15	537	2077	
5:15 PM	4	21	31	36	67	7	8	144	4	31	161	12	526	2096	
5:30 PM	4	27	27	20	39	10	12	160	6	35	168	12	520	2072	
5:45 PM	0	32	20	13	42	4	12	165	6	24	139	13	470	2053	
Base Year PM Peak Hour	14	105	150	97	179	27	37	632	12	123	644	52		2017 Traffic Count Base Year	
Background Growth	5	36	52	34	62	9	3	46	1	9	47	4		1.5% Background Growth Rate	
2037 Current Zone PM Peak	19	141	202	131	241	36	40	678	13	132	691	56		2037 Pre-Development Year	
Total Net New Development Volumes				39				134			187	55		415 Total Development Volume	
% of Net New Development				5%				17%			17%	5%		2380 Pre-Development Volume	
P-B/D-L Volumes														17% % increase	
Proposed Zone WC PM Peak	19	141	202	170	241	36	40	812	13	132	878	111			

Appendix E



HCM Signalized Intersection Capacity Analysis

1: 53rd Street & NW Harrison Boulevard

08/18/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	29	82	36	144	14	3	27	381	273	19	239	13
Future Volume (vph)	29	82	36	144	14	3	27	381	273	19	239	13
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.95		1.00	0.97		1.00	1.00	0.85	1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1630	1637		1630	1673		1630	1716	1458	1630	1703	
Flt Permitted	0.75	1.00		0.49	1.00		0.55	1.00	1.00	0.41	1.00	
Satd. Flow (perm)	1279	1637		848	1673		941	1716	1458	710	1703	
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	32	90	40	158	15	3	30	419	300	21	263	14
RTOR Reduction (vph)	0	31	0	0	2	0	0	0	155	0	3	0
Lane Group Flow (vph)	32	99	0	158	16	0	30	419	145	21	274	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2		2	6		
Actuated Green, G (s)	9.6	8.8		15.7	11.9		24.5	23.7	23.7	24.5	23.7	
Effective Green, g (s)	9.6	8.8		15.7	11.9		24.5	23.7	23.7	24.5	23.7	
Actuated g/C Ratio	0.20	0.18		0.32	0.24		0.50	0.48	0.48	0.50	0.48	
Clearance Time (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	255	292		332	404		479	826	702	368	820	
v/s Ratio Prot	0.00	0.06		c0.04	0.01		c0.00	c0.24		0.00	0.16	
v/s Ratio Perm	0.02			c0.11			0.03		0.10	0.03		
v/c Ratio	0.13	0.34		0.48	0.04		0.06	0.51	0.21	0.06	0.33	
Uniform Delay, d1	16.3	17.7		12.7	14.3		6.3	8.7	7.3	6.5	7.9	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.2	0.7		1.1	0.0		0.1	2.2	0.7	0.1	1.1	
Delay (s)	16.5	18.3		13.8	14.3		6.4	11.0	8.0	6.6	9.0	
Level of Service	B	B		B	B		A	B	A	A	A	
Approach Delay (s)		18.0			13.9			9.6			8.8	
Approach LOS		B			B			A			A	

Intersection Summary

HCM 2000 Control Delay	11.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	49.2	Sum of lost time (s)	12.0
Intersection Capacity Utilization	46.4%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

2: SW 53rd Street/53rd Street & SW Reservoir Avenue

08/18/2017



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	299	4	13	365	257	156
Future Volume (vph)	299	4	13	365	257	156
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Total Lost time (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Util. Factor	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)	1630	1458	1630	1716	1716	1458
Flt Permitted	0.95	1.00	0.57	1.00	1.00	1.00
Satd. Flow (perm)	1630	1458	975	1716	1716	1458
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	329	4	14	401	282	171
RTOR Reduction (vph)	0	3	0	0	0	70
Lane Group Flow (vph)	329	1	14	401	282	101
Turn Type	Prot	Perm	Perm	NA	NA	Perm
Protected Phases	4			2	6	
Permitted Phases		4	2			6
Actuated Green, G (s)	15.3	15.3	30.4	30.4	30.4	30.4
Effective Green, g (s)	15.3	15.3	30.4	30.4	30.4	30.4
Actuated g/C Ratio	0.30	0.30	0.59	0.59	0.59	0.59
Clearance Time (s)	3.0	3.0	3.0	3.0	3.0	3.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	482	431	573	1009	1009	857
v/s Ratio Prot	c0.20			c0.23	0.16	
v/s Ratio Perm		0.00	0.01			0.07
v/c Ratio	0.68	0.00	0.02	0.40	0.28	0.12
Uniform Delay, d1	16.1	12.8	4.5	5.7	5.3	4.7
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	4.0	0.0	0.1	1.2	0.7	0.3
Delay (s)	20.0	12.8	4.5	6.9	5.9	5.0
Level of Service	C	B	A	A	A	A
Approach Delay (s)	19.9			6.8	5.6	
Approach LOS	B			A	A	

Intersection Summary

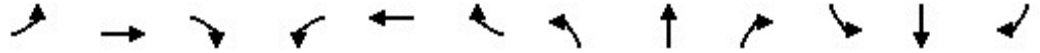
HCM 2000 Control Delay	10.0	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	51.7	Sum of lost time (s)	6.0
Intersection Capacity Utilization	45.5%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Intersection				
Intersection Delay, s/veh	8.7			
Intersection LOS	A			
Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	375	50	282	364
Demand Flow Rate, veh/h	382	50	288	372
Vehicles Circulating, veh/h	333	386	323	52
Vehicles Exiting, veh/h	91	224	392	384
Follow-Up Headway, s	3.186	3.186	3.186	3.186
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	10.9	5.4	8.7	7.0
Approach LOS	B	A	A	A
Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Critical Headway, s	5.193	5.193	5.193	5.193
Entry Flow, veh/h	382	50	288	372
Cap Entry Lane, veh/h	810	768	818	1073
Entry HV Adj Factor	0.981	0.991	0.980	0.979
Flow Entry, veh/h	375	50	282	364
Cap Entry, veh/h	794	761	801	1050
V/C Ratio	0.472	0.065	0.352	0.347
Control Delay, s/veh	10.9	5.4	8.7	7.0
LOS	B	A	A	A
95th %tile Queue, veh	3	0	2	2

HCM Signalized Intersection Capacity Analysis
 5: SW 53rd Street & SW Philomath Boulevard

08/18/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	50	609	17	23	345	87	27	137	57	111	166	53
Future Volume (vph)	50	609	17	23	345	87	27	137	57	111	166	53
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.96		1.00	0.96	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1630	1716	1458	1630	1716	1458	1630	1640		1630	1653	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1630	1716	1458	1630	1716	1458	1630	1640		1630	1653	
Peak-hour factor, PHF	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Adj. Flow (vph)	57	700	20	26	397	100	31	157	66	128	191	61
RTOR Reduction (vph)	0	0	11	0	0	60	0	11	0	0	8	0
Lane Group Flow (vph)	57	700	9	26	397	40	31	212	0	128	244	0
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8						
Actuated Green, G (s)	6.7	44.2	44.2	2.6	40.1	40.1	3.1	28.2		12.2	37.3	
Effective Green, g (s)	6.7	44.2	44.2	2.6	40.1	40.1	3.1	28.2		12.2	37.3	
Actuated g/C Ratio	0.07	0.45	0.45	0.03	0.40	0.40	0.03	0.28		0.12	0.38	
Clearance Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	110	764	649	42	693	589	50	466		200	621	
v/s Ratio Prot	c0.03	c0.41		0.02	0.23		0.02	c0.13		c0.08	0.15	
v/s Ratio Perm			0.01			0.03						
v/c Ratio	0.52	0.92	0.01	0.62	0.57	0.07	0.62	0.45		0.64	0.39	
Uniform Delay, d1	44.7	25.8	15.3	47.8	22.9	18.1	47.5	29.2		41.4	22.7	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	4.1	15.6	0.0	24.2	1.1	0.0	20.7	3.2		6.8	1.9	
Delay (s)	48.8	41.4	15.3	72.0	24.1	18.2	68.2	32.3		48.2	24.5	
Level of Service	D	D	B	E	C	B	E	C		D	C	
Approach Delay (s)		41.2			25.3			36.7			32.5	
Approach LOS		D			C			D			C	

Intersection Summary

HCM 2000 Control Delay	34.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	99.2	Sum of lost time (s)	12.0
Intersection Capacity Utilization	70.6%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Intersection

Int Delay, s/veh 0.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	214	5	5	45	0	5	0	12	0	0	0
Future Vol, veh/h	0	214	5	5	45	0	5	0	12	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	-	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	77	77	77	77	77	77	77	77	77	77	77	77
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	278	6	6	58	0	6	0	16	0	0	0

Major/Minor	Major1			Major2			Minor1		
Conflicting Flow All	-	0	0	284	0	0	352	352	281
Stage 1	-	-	-	-	-	-	281	281	-
Stage 2	-	-	-	-	-	-	71	71	-
Critical Hdwy	-	-	-	4.12	-	-	6.42	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	5.42	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.42	5.52	-
Follow-up Hdwy	-	-	-	2.218	-	-	3.518	4.018	3.318
Pot Cap-1 Maneuver	0	-	-	1278	-	0	646	573	758
Stage 1	0	-	-	-	-	0	767	678	-
Stage 2	0	-	-	-	-	0	952	836	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	1278	-	-	643	0	758
Mov Cap-2 Maneuver	-	-	-	-	-	-	643	0	-
Stage 1	-	-	-	-	-	-	767	0	-
Stage 2	-	-	-	-	-	-	947	0	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.8	10.2
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	720	-	-	1278	-
HCM Lane V/C Ratio	0.031	-	-	0.005	-
HCM Control Delay (s)	10.2	-	-	7.8	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0	-

HCM Signalized Intersection Capacity Analysis

8: SW Technology Loop & SW Philomath Boulevard

08/18/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	725	42	207	479	1	34	0	267	1	0	2
Future Volume (vph)	0	725	42	207	479	1	34	0	267	1	0	2
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		3.0		3.0	3.0			3.0	3.0		3.0	
Lane Util. Factor		1.00		1.00	1.00			1.00	1.00		1.00	
Frt		0.99		1.00	1.00			1.00	0.85		0.91	
Flt Protected		1.00		0.95	1.00			0.95	1.00		0.98	
Satd. Flow (prot)		1702		1630	1715			1630	1458		1536	
Flt Permitted		1.00		0.95	1.00			0.76	1.00		0.97	
Satd. Flow (perm)		1702		1630	1715			1297	1458		1514	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	0	763	44	218	504	1	36	0	281	1	0	2
RTOR Reduction (vph)	0	2	0	0	0	0	0	0	220	0	2	0
Lane Group Flow (vph)	0	805	0	218	505	0	0	36	61	0	1	0
Turn Type	Prot	NA		Prot	NA		Perm	NA	Perm	Perm	NA	
Protected Phases	7	4		3	8			2		6		6
Permitted Phases							2		2		6	
Actuated Green, G (s)		43.0		14.1	60.1			18.2	18.2		18.2	
Effective Green, g (s)		43.0		14.1	60.1			18.2	18.2		18.2	
Actuated g/C Ratio		0.51		0.17	0.71			0.22	0.22		0.22	
Clearance Time (s)		3.0		3.0	3.0			3.0	3.0		3.0	
Vehicle Extension (s)		3.0		3.0	3.0			3.0	3.0		3.0	
Lane Grp Cap (vph)		868		272	1222			280	314		326	
v/s Ratio Prot		c0.47		c0.13	0.29							
v/s Ratio Perm								0.03	c0.04		0.00	
v/c Ratio		0.93		0.80	0.41			0.13	0.19		0.00	
Uniform Delay, d1		19.2		33.8	4.9			26.7	27.0		25.9	
Progression Factor		1.00		1.00	1.00			1.00	1.00		1.00	
Incremental Delay, d2		15.6		15.5	0.2			0.9	1.4		0.0	
Delay (s)		34.8		49.2	5.2			27.6	28.4		25.9	
Level of Service		C		D	A			C	C		C	
Approach Delay (s)		34.8			18.4			28.3			25.9	
Approach LOS		C			B			C			C	

Intersection Summary

HCM 2000 Control Delay	27.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	84.3	Sum of lost time (s)	9.0
Intersection Capacity Utilization	76.3%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Intersection

Int Delay, s/veh 0.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	7	987	677	8	4	7
Future Vol, veh/h	7	987	677	8	4	7
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	150	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	7	1050	720	9	4	7

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	729	0	1789
Stage 1	-	-	724
Stage 2	-	-	1065
Critical Hdwy	4.12	-	7.12
Critical Hdwy Stg 1	-	-	6.12
Critical Hdwy Stg 2	-	-	6.12
Follow-up Hdwy	2.218	-	3.518
Pot Cap-1 Maneuver	875	-	63
Stage 1	-	-	417
Stage 2	-	-	269
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	875	-	63
Mov Cap-2 Maneuver	-	-	63
Stage 1	-	-	414
Stage 2	-	-	267

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	33.5
HCM LOS			D

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	875	-	-	-	138
HCM Lane V/C Ratio	0.009	-	-	-	0.085
HCM Control Delay (s)	9.2	-	-	-	33.5
HCM Lane LOS	A	-	-	-	D
HCM 95th %tile Q(veh)	0	-	-	-	0.3

Intersection												
Int Delay, s/veh	12											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↔			↔				
Traffic Vol, veh/h	0	0	0	0	599	6	1	303	0	0	0	0
Future Vol, veh/h	0	0	0	0	599	6	1	303	0	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	-	-	-	0	-	-	0	-	-	-	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	0	651	7	1	329	0	0	0	0

Major/Minor	Major2			Minor1		
Conflicting Flow All	-	-	0	654	658	-
Stage 1	-	-	-	0	0	-
Stage 2	-	-	-	654	658	-
Critical Hdwy	-	-	-	6.42	6.52	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	5.42	5.52	-
Follow-up Hdwy	-	-	-	3.518	4.018	-
Pot Cap-1 Maneuver	0	-	-	431	384	0
Stage 1	0	-	-	-	-	0
Stage 2	0	-	-	517	461	0
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	431	0	-
Mov Cap-2 Maneuver	-	-	-	431	0	-
Stage 1	-	-	-	-	0	-
Stage 2	-	-	-	517	0	-

Approach	WB	NB
HCM Control Delay, s	0	35.9
HCM LOS		E

Minor Lane/Major Mvmt	NBLn1	WBT	WBR
Capacity (veh/h)	431	-	-
HCM Lane V/C Ratio	0.767	-	-
HCM Control Delay (s)	35.9	-	-
HCM Lane LOS	E	-	-
HCM 95th %tile Q(veh)	6.5	-	-

HCM 2010 TWSC
 11: SW Western Boulevard & Hills/Western Connector

08/18/2017

Intersection

Int Delay, s/veh 7.4

Movement	EBL	EBT	WBT	WBR	SEL	SER
Lane Configurations		↖	↗		↘	
Traffic Vol, veh/h	1	347	97	0	226	8
Future Vol, veh/h	1	347	97	0	226	8
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	81	81	81	81	81	81
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1	428	120	0	279	10

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	120	0	120
Stage 1	-	-	120
Stage 2	-	-	431
Critical Hdwy	4.12	-	6.22
Critical Hdwy Stg 1	-	-	5.42
Critical Hdwy Stg 2	-	-	5.42
Follow-up Hdwy	2.218	-	3.318
Pot Cap-1 Maneuver	1468	-	931
Stage 1	-	-	905
Stage 2	-	-	655
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	1468	-	931
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	905
Stage 2	-	-	654

Approach	EB	WB	SE
HCM Control Delay, s	0	0	21.4
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SELn1
Capacity (veh/h)	1468	-	-	-	503
HCM Lane V/C Ratio	0.001	-	-	-	0.574
HCM Control Delay (s)	7.5	0	-	-	21.4
HCM Lane LOS	A	A	-	-	C
HCM 95th %tile Q(veh)	0	-	-	-	3.6

Intersection												
Int Delay, s/veh	1.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	1	1	0	11	2	12	1	373	51	58	193	2
Future Vol, veh/h	1	1	0	11	2	12	1	373	51	58	193	2
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	77	77	77	77	77	77	77	77	77	77	77	77
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	1	0	14	3	16	1	484	66	75	251	3

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	932	956	252	923	924	518	253	0	0	551	0	0
Stage 1	403	403	-	520	520	-	-	-	-	-	-	-
Stage 2	529	553	-	403	404	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	247	258	787	250	269	558	1312	-	-	1019	-	-
Stage 1	624	600	-	539	532	-	-	-	-	-	-	-
Stage 2	533	514	-	624	599	-	-	-	-	-	-	-
Platoon blocked, %												
Mov Cap-1 Maneuver	222	236	787	232	246	558	1312	-	-	1019	-	-
Mov Cap-2 Maneuver	222	236	-	232	246	-	-	-	-	-	-	-
Stage 1	623	548	-	538	531	-	-	-	-	-	-	-
Stage 2	515	513	-	569	547	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	20.9	17.3	0	2
HCM LOS	C	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1312	-	-	229	324	1019	-	-
HCM Lane V/C Ratio	0.001	-	-	0.011	0.1	0.074	-	-
HCM Control Delay (s)	7.7	0	-	20.9	17.3	8.8	0	-
HCM Lane LOS	A	A	-	C	C	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0	0.3	0.2	-	-

HCM Signalized Intersection Capacity Analysis

13: SW 35th Street & SW Western Boulevard

08/18/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	148	374	35	37	92	69	16	232	85	60	140	46
Future Volume (vph)	148	374	35	37	92	69	16	232	85	60	140	46
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	3.0	3.0		3.0	3.0			3.0		3.0	3.0	
Lane Util. Factor	1.00	1.00		1.00	1.00			1.00		1.00	1.00	
Frt	1.00	0.99		1.00	0.94			0.97		1.00	0.96	
Flt Protected	0.95	1.00		0.95	1.00			1.00		0.95	1.00	
Satd. Flow (prot)	1467	1524		1467	1445			1487		1467	1486	
Flt Permitted	0.50	1.00		0.27	1.00			0.98		0.42	1.00	
Satd. Flow (perm)	772	1524		413	1445			1466		644	1486	
Peak-hour factor, PHF	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Adj. Flow (vph)	185	468	44	46	115	86	20	290	106	75	175	58
RTOR Reduction (vph)	0	6	0	0	48	0	0	19	0	0	18	0
Lane Group Flow (vph)	185	506	0	46	153	0	0	397	0	75	215	0
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases	7	4		3	8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	26.2	20.8		20.8	18.1			22.5		22.5	22.5	
Effective Green, g (s)	26.2	20.8		20.8	18.1			22.5		22.5	22.5	
Actuated g/C Ratio	0.48	0.38		0.38	0.33			0.41		0.41	0.41	
Clearance Time (s)	3.0	3.0		3.0	3.0			3.0		3.0	3.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0		3.0	3.0	
Lane Grp Cap (vph)	435	576		207	475			599		263	607	
v/s Ratio Prot	c0.04	c0.33		0.01	0.11						0.14	
v/s Ratio Perm	0.16			0.07				c0.27		0.12		
v/c Ratio	0.43	0.88		0.22	0.32			0.66		0.29	0.35	
Uniform Delay, d1	8.8	15.9		11.6	13.8			13.2		10.9	11.2	
Progression Factor	1.00	1.00		1.00	1.00			1.00		1.00	1.00	
Incremental Delay, d2	0.7	14.3		0.5	0.4			5.7		2.7	1.6	
Delay (s)	9.5	30.2		12.1	14.2			18.9		13.6	12.8	
Level of Service	A	C		B	B			B		B	B	
Approach Delay (s)		24.7			13.9			18.9			13.0	
Approach LOS		C			B			B			B	

Intersection Summary

HCM 2000 Control Delay	19.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	55.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	77.8%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

14: SW 35th Street & SW Philomath Boulevard

08/18/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	15	647	19	175	578	97	23	202	167	39	172	11
Future Volume (vph)	15	647	19	175	578	97	23	202	167	39	172	11
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.93		1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1467	1544	1312	1467	1544	1312	1467	1439		1467	1530	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.49	1.00		0.17	1.00	
Satd. Flow (perm)	1467	1544	1312	1467	1544	1312	761	1439		269	1530	
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)	17	719	21	194	642	108	26	224	186	43	191	12
RTOR Reduction (vph)	0	0	11	0	0	37	0	33	0	0	2	0
Lane Group Flow (vph)	17	719	10	194	642	71	26	377	0	43	201	0
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Perm	NA		Perm	NA	
Protected Phases	7	4		3	8			2			6	
Permitted Phases			4			8	2			6		
Actuated Green, G (s)	2.0	44.6	44.6	13.0	55.6	55.6	25.0	25.0		25.0	25.0	
Effective Green, g (s)	2.0	44.6	44.6	13.0	55.6	55.6	25.0	25.0		25.0	25.0	
Actuated g/C Ratio	0.02	0.49	0.49	0.14	0.61	0.61	0.27	0.27		0.27	0.27	
Clearance Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	32	751	638	208	937	796	207	392		73	417	
v/s Ratio Prot	0.01	c0.47		c0.13	0.42			c0.26			0.13	
v/s Ratio Perm			0.01			0.05	0.03			0.16		
v/c Ratio	0.53	0.96	0.02	0.93	0.69	0.09	0.13	0.96		0.59	0.48	
Uniform Delay, d1	44.3	22.6	12.2	38.9	12.1	7.5	25.1	32.8		28.8	27.9	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	15.9	22.7	0.0	43.6	2.1	0.0	1.2	36.6		30.4	3.9	
Delay (s)	60.2	45.3	12.2	82.5	14.2	7.5	26.3	69.4		59.2	31.8	
Level of Service	E	D	B	F	B	A	C	E		E	C	
Approach Delay (s)		44.7			27.5			66.8			36.6	
Approach LOS		D			C			E			D	

Intersection Summary

HCM 2000 Control Delay	41.1	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.95		
Actuated Cycle Length (s)	91.6	Sum of lost time (s)	9.0
Intersection Capacity Utilization	95.4%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

1: 53rd Street & NW Harrison Boulevard

08/18/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	21	55	29	292	66	16	40	335	170	6	372	53
Future Volume (vph)	21	55	29	292	66	16	40	335	170	6	372	53
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.95		1.00	0.97		1.00	1.00	0.85	1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1630	1626		1630	1665		1630	1716	1458	1630	1684	
Flt Permitted	0.70	1.00		0.46	1.00		0.36	1.00	1.00	0.49	1.00	
Satd. Flow (perm)	1204	1626		789	1665		610	1716	1458	836	1684	
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	23	60	32	321	73	18	44	368	187	7	409	58
RTOR Reduction (vph)	0	28	0	0	14	0	0	0	94	0	7	0
Lane Group Flow (vph)	23	64	0	321	77	0	44	368	93	7	460	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2		2	6		
Actuated Green, G (s)	6.5	5.7		14.3	10.5		25.3	23.6	23.6	23.5	22.7	
Effective Green, g (s)	6.5	5.7		14.3	10.5		25.3	23.6	23.6	23.5	22.7	
Actuated g/C Ratio	0.14	0.12		0.30	0.22		0.53	0.49	0.49	0.49	0.48	
Clearance Time (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	171	194		335	366		359	849	721	425	801	
v/s Ratio Prot	0.00	0.04		c0.11	0.05		c0.00	0.21		0.00	c0.27	
v/s Ratio Perm	0.02			c0.17			0.06		0.06	0.01		
v/c Ratio	0.13	0.33		0.96	0.21		0.12	0.43	0.13	0.02	0.57	
Uniform Delay, d1	18.0	19.2		15.7	15.2		5.9	7.8	6.5	6.2	9.0	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.4	1.0		37.7	0.3		0.2	1.6	0.4	0.0	3.0	
Delay (s)	18.4	20.2		53.4	15.5		6.0	9.4	6.9	6.2	12.0	
Level of Service	B	C		D	B		A	A	A	A	B	
Approach Delay (s)		19.9			45.1			8.3			11.9	
Approach LOS		B			D			A			B	

Intersection Summary

HCM 2000 Control Delay	19.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	47.7	Sum of lost time (s)	12.0
Intersection Capacity Utilization	63.1%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

2: SW 53rd Street/53rd Street & SW Reservoir Avenue

08/18/2017



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	230	15	8	330	384	322
Future Volume (vph)	230	15	8	330	384	322
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Total Lost time (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Util. Factor	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)	1630	1458	1630	1716	1716	1458
Flt Permitted	0.95	1.00	0.48	1.00	1.00	1.00
Satd. Flow (perm)	1630	1458	823	1716	1716	1458
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	247	16	9	355	413	346
RTOR Reduction (vph)	0	12	0	0	0	122
Lane Group Flow (vph)	247	4	9	355	413	224
Turn Type	Prot	Perm	Perm	NA	NA	Perm
Protected Phases	4			2	6	
Permitted Phases		4	2			6
Actuated Green, G (s)	13.3	13.3	35.5	35.5	35.5	35.5
Effective Green, g (s)	13.3	13.3	35.5	35.5	35.5	35.5
Actuated g/C Ratio	0.24	0.24	0.65	0.65	0.65	0.65
Clearance Time (s)	3.0	3.0	3.0	3.0	3.0	3.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	395	353	533	1111	1111	944
v/s Ratio Prot	c0.15			0.21	c0.24	
v/s Ratio Perm		0.00	0.01			0.15
v/c Ratio	0.63	0.01	0.02	0.32	0.37	0.24
Uniform Delay, d1	18.5	15.8	3.4	4.3	4.5	4.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	3.1	0.0	0.1	0.8	1.0	0.6
Delay (s)	21.6	15.8	3.5	5.0	5.4	4.6
Level of Service	C	B	A	A	A	A
Approach Delay (s)	21.2			5.0	5.1	
Approach LOS	C			A	A	

Intersection Summary

HCM 2000 Control Delay	8.1	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.44		
Actuated Cycle Length (s)	54.8	Sum of lost time (s)	6.0
Intersection Capacity Utilization	42.4%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM 2010 Roundabout
4: SW 53rd Street & SW West Hills Road

08/18/2017

Intersection				
Intersection Delay, s/veh	8.9			
Intersection LOS	A			
Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	176	190	416	390
Demand Flow Rate, veh/h	179	194	424	398
Vehicles Circulating, veh/h	335	465	134	274
Vehicles Exiting, veh/h	337	93	380	385
Follow-Up Headway, s	3.186	3.186	3.186	3.186
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	6.9	8.5	8.6	10.2
Approach LOS	A	A	A	B
Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Critical Headway, s	5.193	5.193	5.193	5.193
Entry Flow, veh/h	179	194	424	398
Cap Entry Lane, veh/h	808	710	988	859
Entry HV Adj Factor	0.982	0.982	0.982	0.980
Flow Entry, veh/h	176	190	416	390
Cap Entry, veh/h	794	697	970	842
V/C Ratio	0.221	0.273	0.429	0.463
Control Delay, s/veh	6.9	8.5	8.6	10.2
LOS	A	A	A	B
95th %tile Queue, veh	1	1	2	2

HCM Signalized Intersection Capacity Analysis

5: SW 53rd Street & SW Philomath Boulevard

08/18/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	53	510	41	78	509	161	137	168	64	132	193	88
Future Volume (vph)	53	510	41	78	509	161	137	168	64	132	193	88
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.96		1.00	0.95	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1630	1716	1458	1630	1716	1458	1630	1644		1630	1635	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1630	1716	1458	1630	1716	1458	1630	1644		1630	1635	
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)	55	531	43	81	530	168	143	175	67	138	201	92
RTOR Reduction (vph)	0	0	28	0	0	53	0	10	0	0	13	0
Lane Group Flow (vph)	55	531	15	81	530	115	143	232	0	138	280	0
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8						
Actuated Green, G (s)	5.8	36.0	36.0	7.6	37.8	37.8	13.5	32.3		13.6	32.4	
Effective Green, g (s)	5.8	36.0	36.0	7.6	37.8	37.8	13.5	32.3		13.6	32.4	
Actuated g/C Ratio	0.06	0.35	0.35	0.07	0.37	0.37	0.13	0.32		0.13	0.32	
Clearance Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	93	608	517	122	639	542	216	523		218	521	
v/s Ratio Prot	0.03	c0.31		c0.05	0.31		c0.09	0.14		0.08	c0.17	
v/s Ratio Perm			0.01			0.08						
v/c Ratio	0.59	0.87	0.03	0.66	0.83	0.21	0.66	0.44		0.63	0.54	
Uniform Delay, d1	46.7	30.6	21.4	45.7	28.9	21.7	41.8	27.5		41.6	28.4	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	9.7	13.1	0.0	12.8	8.8	0.2	7.4	2.7		5.9	3.9	
Delay (s)	56.4	43.8	21.4	58.5	37.7	21.9	49.2	30.2		47.5	32.3	
Level of Service	E	D	C	E	D	C	D	C		D	C	
Approach Delay (s)		43.3			36.4			37.3			37.2	
Approach LOS		D			D			D			D	

Intersection Summary

HCM 2000 Control Delay	38.7	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	101.5	Sum of lost time (s)	12.0
Intersection Capacity Utilization	72.3%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Intersection

Int Delay, s/veh 0.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↶			↷			↕				
Traffic Vol, veh/h	0	89	5	5	178	0	5	0	6	0	0	0
Future Vol, veh/h	0	89	5	5	178	0	5	0	6	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	-	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	84	84	84	84	84	84	84	84	84	84	84	84
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	106	6	6	212	0	6	0	7	0	0	0

Major/Minor	Major1			Major2			Minor1		
Conflicting Flow All	-	0	0	112	0	0	333	333	109
Stage 1	-	-	-	-	-	-	109	109	-
Stage 2	-	-	-	-	-	-	224	224	-
Critical Hdwy	-	-	-	4.12	-	-	6.42	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	5.42	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.42	5.52	-
Follow-up Hdwy	-	-	-	2.218	-	-	3.518	4.018	3.318
Pot Cap-1 Maneuver	0	-	-	1478	-	0	662	587	945
Stage 1	0	-	-	-	-	0	916	805	-
Stage 2	0	-	-	-	-	0	813	718	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	1478	-	-	659	0	945
Mov Cap-2 Maneuver	-	-	-	-	-	-	659	0	-
Stage 1	-	-	-	-	-	-	916	0	-
Stage 2	-	-	-	-	-	-	809	0	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.2	9.6
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	789	-	-	1478	-
HCM Lane V/C Ratio	0.017	-	-	0.004	-
HCM Control Delay (s)	9.6	-	-	7.4	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0	-

HCM Signalized Intersection Capacity Analysis
 8: SW Technology Loop & SW Philomath Boulevard

08/18/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗			↕	↗		↕	↖
Traffic Volume (vph)	0	637	30	241	765	1	76	0	285	0	0	0
Future Volume (vph)	0	637	30	241	765	1	76	0	285	0	0	0
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		3.0		3.0	3.0			3.0	3.0			
Lane Util. Factor		1.00		1.00	1.00			1.00	1.00			
Frt		0.99		1.00	1.00			1.00	0.85			
Flt Protected		1.00		0.95	1.00			0.95	1.00			
Satd. Flow (prot)		1704		1630	1715			1630	1458			
Flt Permitted		1.00		0.95	1.00			0.76	1.00			
Satd. Flow (perm)		1704		1630	1715			1299	1458			
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	708	33	268	850	1	84	0	317	0	0	0
RTOR Reduction (vph)	0	2	0	0	0	0	0	0	248	0	0	0
Lane Group Flow (vph)	0	739	0	268	851	0	0	84	69	0	0	0
Turn Type	Prot	NA		Prot	NA		Perm	NA	Perm			
Protected Phases	7	4		3	8			2				6
Permitted Phases							2		2	6		
Actuated Green, G (s)		39.3		17.0	59.3			18.3	18.3			
Effective Green, g (s)		39.3		17.0	59.3			18.3	18.3			
Actuated g/C Ratio		0.47		0.20	0.71			0.22	0.22			
Clearance Time (s)		3.0		3.0	3.0			3.0	3.0			
Vehicle Extension (s)		3.0		3.0	3.0			3.0	3.0			
Lane Grp Cap (vph)		801		331	1216			284	319			
v/s Ratio Prot		c0.43		c0.16	0.50							
v/s Ratio Perm								c0.06	0.05			
v/c Ratio		0.92		0.81	0.70			0.30	0.22			
Uniform Delay, d1		20.7		31.8	7.0			27.3	26.8			
Progression Factor		1.00		1.00	1.00			1.00	1.00			
Incremental Delay, d2		16.0		13.6	1.8			2.6	1.6			
Delay (s)		36.7		45.3	8.8			29.9	28.3			
Level of Service		D		D	A			C	C			
Approach Delay (s)		36.7			17.5			28.7			0.0	
Approach LOS		D			B			C			A	

Intersection Summary

HCM 2000 Control Delay	25.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	83.6	Sum of lost time (s)	9.0
Intersection Capacity Utilization	67.4%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Intersection

Int Delay, s/veh 0.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↑	↑	↑		↑	
Traffic Vol, veh/h	7	923	1018	12	4	4
Future Vol, veh/h	7	923	1018	12	4	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	150	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	8	1049	1157	14	5	5

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	1170	0	1164
Stage 1	-	-	1164
Stage 2	-	-	1065
Critical Hdwy	4.12	-	6.22
Critical Hdwy Stg 1	-	-	5.42
Critical Hdwy Stg 2	-	-	5.42
Follow-up Hdwy	2.218	-	3.318
Pot Cap-1 Maneuver	597	-	237
Stage 1	-	-	297
Stage 2	-	-	331
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	597	-	237
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	297
Stage 2	-	-	327

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	57.9
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	597	-	-	-	77
HCM Lane V/C Ratio	0.013	-	-	-	0.118
HCM Control Delay (s)	11.1	-	-	-	57.9
HCM Lane LOS	B	-	-	-	F
HCM 95th %tile Q(veh)	0	-	-	-	0.4

Intersection

Int Delay, s/veh 12.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↔			↔				
Traffic Vol, veh/h	0	0	0	0	729	14	1	240	0	0	0	0
Future Vol, veh/h	0	0	0	0	729	14	1	240	0	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	-	-	-	0	-	-	0	-	-	-	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	87	87	87	87	87	87	87	87	87	87	87	87
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	0	838	16	1	276	0	0	0	0

Major/Minor	Major2			Minor1		
Conflicting Flow All	-	-	0	846	854	-
Stage 1	-	-	-	0	0	-
Stage 2	-	-	-	846	854	-
Critical Hdwy	-	-	-	6.42	6.52	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	5.42	5.52	-
Follow-up Hdwy	-	-	-	3.518	4.018	-
Pot Cap-1 Maneuver	0	-	-	333	296	0
Stage 1	0	-	-	-	-	0
Stage 2	0	-	-	421	375	0
Platoon blocked, %		-	-			
Mov Cap-1 Maneuver	-	-	-	333	0	-
Mov Cap-2 Maneuver	-	-	-	333	0	-
Stage 1	-	-	-	-	0	-
Stage 2	-	-	-	421	0	-

Approach	WB	NB
HCM Control Delay, s	0	52
HCM LOS		F

Minor Lane/Major Mvmt	NBLn1	WBT	WBR
Capacity (veh/h)	333	-	-
HCM Lane V/C Ratio	0.832	-	-
HCM Control Delay (s)	52	-	-
HCM Lane LOS	F	-	-
HCM 95th %tile Q(veh)	7.3	-	-

Intersection

Int Delay, s/veh 2.3

Movement	EBL	EBT	WBT	WBR	SEL	SER
Lane Configurations		↖	↗		↘	
Traffic Vol, veh/h	6	203	330	0	87	7
Future Vol, veh/h	6	203	330	0	87	7
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	7	231	375	0	99	8

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	375	0	375
Stage 1	-	-	375
Stage 2	-	-	244
Critical Hdwy	4.12	-	6.22
Critical Hdwy Stg 1	-	-	5.42
Critical Hdwy Stg 2	-	-	5.42
Follow-up Hdwy	2.218	-	3.318
Pot Cap-1 Maneuver	1183	-	671
Stage 1	-	-	695
Stage 2	-	-	797
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	1183	-	671
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	695
Stage 2	-	-	791

Approach	EB	WB	SE
HCM Control Delay, s	0.2	0	15.2
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SELn1
Capacity (veh/h)	1183	-	-	-	460
HCM Lane V/C Ratio	0.006	-	-	-	0.232
HCM Control Delay (s)	8.1	0	-	-	15.2
HCM Lane LOS	A	A	-	-	C
HCM 95th %tile Q(veh)	0	-	-	-	0.9

HCM 2010 TWSC
 12: SW 35th Street & SW Washington Way

08/19/2017

Intersection												
Int Delay, s/veh	2.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	2	1	51	2	37	1	346	29	27	365	0
Future Vol, veh/h	0	2	1	51	2	37	1	346	29	27	365	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	2	1	55	2	40	1	376	32	29	397	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	870	865	397	851	849	392	397	0	0	408	0	0
Stage 1	455	455	-	394	394	-	-	-	-	-	-	-
Stage 2	415	410	-	457	455	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	272	292	652	280	298	657	1162	-	-	1151	-	-
Stage 1	585	569	-	631	605	-	-	-	-	-	-	-
Stage 2	615	595	-	583	569	-	-	-	-	-	-	-
Platoon blocked, %												
Mov Cap-1 Maneuver	247	282	652	271	288	657	1162	-	-	1151	-	-
Mov Cap-2 Maneuver	247	282	-	271	288	-	-	-	-	-	-	-
Stage 1	584	551	-	630	604	-	-	-	-	-	-	-
Stage 2	575	594	-	561	551	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	15.4	18.8	0	0.6
HCM LOS	C	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1162	-	-	348	358	1151	-	-
HCM Lane V/C Ratio	0.001	-	-	0.009	0.273	0.025	-	-
HCM Control Delay (s)	8.1	0	-	15.4	18.8	8.2	0	-
HCM Lane LOS	A	A	-	C	C	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0	1.1	0.1	-	-

HCM Signalized Intersection Capacity Analysis

13: SW 35th Street & SW Western Boulevard

08/19/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	85	201	22	89	412	95	13	89	38	95	196	150
Future Volume (vph)	85	201	22	89	412	95	13	89	38	95	196	150
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	3.0	3.0		3.0	3.0			3.0		3.0	3.0	
Lane Util. Factor	1.00	1.00		1.00	1.00			1.00		1.00	1.00	
Frt	1.00	0.99		1.00	0.97			0.96		1.00	0.93	
Flt Protected	0.95	1.00		0.95	1.00			1.00		0.95	1.00	
Satd. Flow (prot)	1467	1521		1467	1501			1481		1467	1444	
Flt Permitted	0.21	1.00		0.55	1.00			0.96		0.67	1.00	
Satd. Flow (perm)	331	1521		844	1501			1433		1031	1444	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	92	218	24	97	448	103	14	97	41	103	213	163
RTOR Reduction (vph)	0	7	0	0	14	0	0	21	0	0	44	0
Lane Group Flow (vph)	92	235	0	97	537	0	0	131	0	103	332	0
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases	7	4		3	8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	26.5	22.7		26.5	22.7			21.4		21.4	21.4	
Effective Green, g (s)	26.5	22.7		26.5	22.7			21.4		21.4	21.4	
Actuated g/C Ratio	0.47	0.40		0.47	0.40			0.38		0.38	0.38	
Clearance Time (s)	3.0	3.0		3.0	3.0			3.0		3.0	3.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0		3.0	3.0	
Lane Grp Cap (vph)	230	606		434	598			538		387	543	
v/s Ratio Prot	c0.03	0.15		0.01	c0.36						c0.23	
v/s Ratio Perm	0.16			0.09				0.09		0.10		
v/c Ratio	0.40	0.39		0.22	0.90			0.24		0.27	0.61	
Uniform Delay, d1	10.1	12.2		8.7	16.0			12.2		12.3	14.4	
Progression Factor	1.00	1.00		1.00	1.00			1.00		1.00	1.00	
Incremental Delay, d2	1.1	0.4		0.3	16.1			1.1		1.7	5.1	
Delay (s)	11.3	12.6		9.0	32.1			13.3		14.0	19.4	
Level of Service	B	B		A	C			B		B	B	
Approach Delay (s)		12.2			28.6			13.3			18.3	
Approach LOS		B			C			B			B	

Intersection Summary

HCM 2000 Control Delay	20.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	56.9	Sum of lost time (s)	9.0
Intersection Capacity Utilization	84.9%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
 14: SW 35th Street & SW Philomath Boulevard

08/19/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	37	632	12	123	644	52	14	105	150	97	179	27
Future Volume (vph)	37	632	12	123	644	52	14	105	150	97	179	27
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.91		1.00	0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1467	1544	1312	1467	1544	1312	1467	1408		1467	1514	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.50	1.00		0.42	1.00	
Satd. Flow (perm)	1467	1544	1312	1467	1544	1312	772	1408		655	1514	
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)	39	658	12	128	671	54	15	109	156	101	186	28
RTOR Reduction (vph)	0	0	7	0	0	20	0	55	0	0	6	0
Lane Group Flow (vph)	39	658	6	128	671	34	15	210	0	101	208	0
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Perm	NA		Perm	NA	
Protected Phases	7	4		3	8			2			6	
Permitted Phases			4			8	2			6		
Actuated Green, G (s)	2.8	40.3	40.3	10.3	47.8	47.8	25.3	25.3		25.3	25.3	
Effective Green, g (s)	2.8	40.3	40.3	10.3	47.8	47.8	25.3	25.3		25.3	25.3	
Actuated g/C Ratio	0.03	0.47	0.47	0.12	0.56	0.56	0.30	0.30		0.30	0.30	
Clearance Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	48	732	622	177	869	738	230	419		195	451	
v/s Ratio Prot	0.03	c0.43		c0.09	0.43			0.15			0.14	
v/s Ratio Perm			0.00			0.03	0.02			c0.15		
v/c Ratio	0.81	0.90	0.01	0.72	0.77	0.05	0.07	0.50		0.52	0.46	
Uniform Delay, d1	40.8	20.4	11.8	35.9	14.3	8.3	21.3	24.6		24.7	24.3	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	64.2	13.8	0.0	13.6	4.3	0.0	0.5	4.2		9.5	3.4	
Delay (s)	105.0	34.3	11.8	49.5	18.6	8.4	21.9	28.8		34.2	27.6	
Level of Service	F	C	B	D	B	A	C	C		C	C	
Approach Delay (s)		37.7			22.6			28.4			29.8	
Approach LOS		D			C			C			C	

Intersection Summary		
HCM 2000 Control Delay	29.4	HCM 2000 Level of Service C
HCM 2000 Volume to Capacity ratio	0.75	
Actuated Cycle Length (s)	84.9	Sum of lost time (s) 9.0
Intersection Capacity Utilization	85.9%	ICU Level of Service E
Analysis Period (min)	15	

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

1: 53rd Street & NW Harrison Boulevard

08/18/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	39	110	48	194	19	4	36	513	368	26	322	18
Future Volume (vph)	39	110	48	194	19	4	36	513	368	26	322	18
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.95		1.00	0.97		1.00	1.00	0.85	1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1630	1637		1630	1673		1630	1716	1458	1630	1702	
Flt Permitted	0.74	1.00		0.43	1.00		0.43	1.00	1.00	0.31	1.00	
Satd. Flow (perm)	1272	1637		741	1673		746	1716	1458	523	1702	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	41	116	51	204	20	4	38	540	387	27	339	19
RTOR Reduction (vph)	0	31	0	0	3	0	0	0	206	0	3	0
Lane Group Flow (vph)	41	136	0	204	21	0	38	540	181	27	355	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2		2	6		
Actuated Green, G (s)	10.9	10.0		18.2	14.3		26.6	24.8	24.8	24.8	23.9	
Effective Green, g (s)	10.9	10.0		18.2	14.3		26.6	24.8	24.8	24.8	23.9	
Actuated g/C Ratio	0.21	0.19		0.34	0.27		0.50	0.47	0.47	0.47	0.45	
Clearance Time (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	268	309		342	452		405	804	683	264	768	
v/s Ratio Prot	0.00	0.08		c0.06	0.01		c0.00	c0.31		0.00	0.21	
v/s Ratio Perm	0.03			c0.15			0.04		0.12	0.05		
v/c Ratio	0.15	0.44		0.60	0.05		0.09	0.67	0.27	0.10	0.46	
Uniform Delay, d1	17.1	19.0		13.2	14.3		6.9	10.9	8.5	8.2	10.0	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.3	1.0		2.8	0.0		0.1	4.4	1.0	0.2	2.0	
Delay (s)	17.4	20.0		16.0	14.3		7.1	15.3	9.5	8.4	12.0	
Level of Service	B	B		B	B		A	B	A	A	B	
Approach Delay (s)		19.5			15.8			12.7			11.8	
Approach LOS		B			B			B			B	

Intersection Summary

HCM 2000 Control Delay	13.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	52.9	Sum of lost time (s)	12.0
Intersection Capacity Utilization	63.6%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

2: SW 53rd Street/53rd Street & SW Reservoir Avenue

08/18/2017



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	403	5	18	492	346	210
Future Volume (vph)	403	5	18	492	346	210
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Total Lost time (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Util. Factor	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)	1630	1458	1630	1716	1716	1458
Flt Permitted	0.95	1.00	0.47	1.00	1.00	1.00
Satd. Flow (perm)	1630	1458	813	1716	1716	1458
Peak-hour factor, PHF	0.95	0.95	0.95	0.91	0.91	0.91
Adj. Flow (vph)	424	5	19	541	380	231
RTOR Reduction (vph)	0	3	0	0	0	103
Lane Group Flow (vph)	424	2	19	541	380	128
Turn Type	Prot	Perm	Perm	NA	NA	Perm
Protected Phases	4			2	6	
Permitted Phases		4	2			6
Actuated Green, G (s)	18.4	18.4	30.4	30.4	30.4	30.4
Effective Green, g (s)	18.4	18.4	30.4	30.4	30.4	30.4
Actuated g/C Ratio	0.34	0.34	0.55	0.55	0.55	0.55
Clearance Time (s)	3.0	3.0	3.0	3.0	3.0	3.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	547	489	451	951	951	808
v/s Ratio Prot	c0.26			c0.32	0.22	
v/s Ratio Perm		0.00	0.02			0.09
v/c Ratio	0.78	0.00	0.04	0.57	0.40	0.16
Uniform Delay, d1	16.3	12.1	5.6	7.9	7.0	6.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	6.8	0.0	0.2	2.5	1.3	0.4
Delay (s)	23.1	12.1	5.7	10.4	8.2	6.4
Level of Service	C	B	A	B	A	A
Approach Delay (s)	23.0			10.2	7.5	
Approach LOS	C			B	A	

Intersection Summary

HCM 2000 Control Delay	12.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	54.8	Sum of lost time (s)	6.0
Intersection Capacity Utilization	59.0%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Intersection				
Intersection Delay, s/veh	12.9			
Intersection LOS	B			
Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	488	65	368	473
Demand Flow Rate, veh/h	497	67	375	482
Vehicles Circulating, veh/h	432	504	420	70
Vehicles Exiting, veh/h	120	291	509	501
Follow-Up Headway, s	3.186	3.186	3.186	3.186
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	18.2	6.5	12.4	8.7
Approach LOS	C	A	B	A
Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Critical Headway, s	5.193	5.193	5.193	5.193
Entry Flow, veh/h	497	67	375	482
Cap Entry Lane, veh/h	734	683	742	1054
Entry HV Adj Factor	0.981	0.976	0.980	0.980
Flow Entry, veh/h	488	65	368	473
Cap Entry, veh/h	720	666	728	1033
V/C Ratio	0.678	0.098	0.505	0.457
Control Delay, s/veh	18.2	6.5	12.4	8.7
LOS	C	A	B	A
95th %tile Queue, veh	5	0	3	2

HCM Signalized Intersection Capacity Analysis

5: SW 53rd Street & SW Philomath Boulevard

08/18/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	54	653	18	25	371	94	37	185	77	152	227	72
Future Volume (vph)	54	653	18	25	371	94	37	185	77	152	227	72
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.96		1.00	0.96	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1630	1716	1458	1630	1716	1458	1630	1640		1630	1654	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1630	1716	1458	1630	1716	1458	1630	1640		1630	1654	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	57	687	19	26	391	99	39	195	81	160	239	76
RTOR Reduction (vph)	0	0	11	0	0	60	0	11	0	0	9	0
Lane Group Flow (vph)	57	687	8	26	391	39	39	265	0	160	306	0
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8						
Actuated Green, G (s)	6.8	45.6	45.6	2.6	41.4	41.4	3.7	30.7		14.0	41.0	
Effective Green, g (s)	6.8	45.6	45.6	2.6	41.4	41.4	3.7	30.7		14.0	41.0	
Actuated g/C Ratio	0.06	0.43	0.43	0.02	0.39	0.39	0.04	0.29		0.13	0.39	
Clearance Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	105	745	633	40	677	575	57	479		217	646	
v/s Ratio Prot	c0.03	c0.40		c0.02	0.23		0.02	c0.16		c0.10	0.19	
v/s Ratio Perm			0.01			0.03						
v/c Ratio	0.54	0.92	0.01	0.65	0.58	0.07	0.68	0.55		0.74	0.47	
Uniform Delay, d1	47.5	28.0	16.9	50.7	24.9	19.7	50.0	31.3		43.7	23.9	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	5.6	16.9	0.0	32.0	1.2	0.1	28.9	4.5		12.3	2.5	
Delay (s)	53.2	44.8	16.9	82.7	26.1	19.8	78.9	35.8		56.0	26.4	
Level of Service	D	D	B	F	C	B	E	D		E	C	
Approach Delay (s)		44.8			27.7			41.2			36.3	
Approach LOS		D			C			D			D	

Intersection Summary

HCM 2000 Control Delay	38.0	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	104.9	Sum of lost time (s)	12.0
Intersection Capacity Utilization	79.6%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Intersection

Int Delay, s/veh 0.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↻			↻			↻				
Traffic Vol, veh/h	0	288	7	7	61	0	7	0	16	0	0	0
Future Vol, veh/h	0	288	7	7	61	0	7	0	16	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	-	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	320	8	8	68	0	8	0	18	0	0	0

Major/Minor	Major1			Major2			Minor1		
Conflicting Flow All	-	0	0	328	0	0	407	407	324
Stage 1	-	-	-	-	-	-	324	324	-
Stage 2	-	-	-	-	-	-	83	83	-
Critical Hdwy	-	-	-	4.12	-	-	6.42	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	5.42	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.42	5.52	-
Follow-up Hdwy	-	-	-	2.218	-	-	3.518	4.018	3.318
Pot Cap-1 Maneuver	0	-	-	1232	-	0	600	533	717
Stage 1	0	-	-	-	-	0	733	650	-
Stage 2	0	-	-	-	-	0	940	826	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	1232	-	-	596	0	717
Mov Cap-2 Maneuver	-	-	-	-	-	-	596	0	-
Stage 1	-	-	-	-	-	-	733	0	-
Stage 2	-	-	-	-	-	-	933	0	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.8	10.5
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	675	-	-	1232	-
HCM Lane V/C Ratio	0.038	-	-	0.006	-
HCM Control Delay (s)	10.5	-	-	7.9	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0	-

HCM Signalized Intersection Capacity Analysis
 8: SW Technology Loop & SW Philomath Boulevard

08/18/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗			↖	↗		↕	
Traffic Volume (vph)	0	777	45	222	514	1	46	0	360	1	0	3
Future Volume (vph)	0	777	45	222	514	1	46	0	360	1	0	3
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		3.0		3.0	3.0			3.0	3.0		3.0	
Lane Util. Factor		1.00		1.00	1.00			1.00	1.00		1.00	
Frt		0.99		1.00	1.00			1.00	0.85		0.90	
Flt Protected		1.00		0.95	1.00			0.95	1.00		0.99	
Satd. Flow (prot)		1702		1630	1715			1630	1458		1523	
Flt Permitted		1.00		0.95	1.00			0.76	1.00		0.98	
Satd. Flow (perm)		1702		1630	1715			1296	1458		1506	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	0	818	47	234	541	1	48	0	379	1	0	3
RTOR Reduction (vph)	0	2	0	0	0	0	0	0	248	0	3	0
Lane Group Flow (vph)	0	863	0	234	542	0	0	48	131	0	1	0
Turn Type	Prot	NA		Prot	NA		Perm	NA	Perm	Perm	NA	
Protected Phases	7	4		3	8			2		6		6
Permitted Phases							2		2		6	
Actuated Green, G (s)		46.4		14.0	63.4			20.0	20.0		20.0	
Effective Green, g (s)		46.4		14.0	63.4			20.0	20.0		20.0	
Actuated g/C Ratio		0.52		0.16	0.71			0.22	0.22		0.22	
Clearance Time (s)		3.0		3.0	3.0			3.0	3.0		3.0	
Vehicle Extension (s)		3.0		3.0	3.0			3.0	3.0		3.0	
Lane Grp Cap (vph)		883		255	1216			289	326		336	
v/s Ratio Prot		c0.51		c0.14	0.32							
v/s Ratio Perm								0.04	c0.09		0.00	
v/c Ratio		0.98		0.92	0.45			0.17	0.40		0.00	
Uniform Delay, d1		21.0		37.1	5.5			28.0	29.6		27.0	
Progression Factor		1.00		1.00	1.00			1.00	1.00		1.00	
Incremental Delay, d2		24.5		34.7	0.3			1.2	3.7		0.0	
Delay (s)		45.4		71.9	5.8			29.2	33.3		27.0	
Level of Service		D		E	A			C	C		C	
Approach Delay (s)		45.4			25.7			32.8			27.0	
Approach LOS		D			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	35.4	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	89.4	Sum of lost time (s)	9.0
Intersection Capacity Utilization	85.7%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Intersection

Int Delay, s/veh 0.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↑	↑	↑		↑	
Traffic Vol, veh/h	8	1058	726	9	5	9
Future Vol, veh/h	8	1058	726	9	5	9
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	150	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	8	1114	764	9	5	9

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	774	0	1900
Stage 1	-	-	769
Stage 2	-	-	1131
Critical Hdwy	4.12	-	6.42
Critical Hdwy Stg 1	-	-	5.42
Critical Hdwy Stg 2	-	-	5.42
Follow-up Hdwy	2.218	-	3.518
Pot Cap-1 Maneuver	842	-	76
Stage 1	-	-	457
Stage 2	-	-	308
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	842	-	75
Mov Cap-2 Maneuver	-	-	75
Stage 1	-	-	457
Stage 2	-	-	305

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	30.3
HCM LOS			D

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	842	-	-	-	157
HCM Lane V/C Ratio	0.01	-	-	-	0.094
HCM Control Delay (s)	9.3	-	-	-	30.3
HCM Lane LOS	A	-	-	-	D
HCM 95th %tile Q(veh)	0	-	-	-	0.3

Intersection

Int Delay, s/veh 14.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↕			↕				
Traffic Vol, veh/h	0	0	0	0	642	6	1	325	0	0	0	0
Future Vol, veh/h	0	0	0	0	642	6	1	325	0	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	-	-	-	0	-	-	0	-	-	-	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	0	676	6	1	342	0	0	0	0

Major/Minor	Major2	Minor1
Conflicting Flow All	- - 0	679 682 -
Stage 1	- - -	0 0 -
Stage 2	- - -	679 682 -
Critical Hdwy	- - -	6.42 6.52 -
Critical Hdwy Stg 1	- - -	- - -
Critical Hdwy Stg 2	- - -	5.42 5.52 -
Follow-up Hdwy	- - -	3.518 4.018 -
Pot Cap-1 Maneuver	0 - -	417 372 0
Stage 1	0 - -	- - 0
Stage 2	0 - -	504 450 0
Platoon blocked, %	- - -	- - -
Mov Cap-1 Maneuver	- - -	417 0 -
Mov Cap-2 Maneuver	- - -	417 0 -
Stage 1	- - -	- 0 -
Stage 2	- - -	504 0 -

Approach	WB	NB
HCM Control Delay, s	0	43
HCM LOS		E

Minor Lane/Major Mvmt	NBLn1	WBT	WBR
Capacity (veh/h)	417	-	-
HCM Lane V/C Ratio	0.823	-	-
HCM Control Delay (s)	43	-	-
HCM Lane LOS	E	-	-
HCM 95th %tile Q(veh)	7.6	-	-

Intersection

Int Delay, s/veh 11

Movement	EBL	EBT	WBT	WBR	SEL	SER
Lane Configurations		↖	↗		↘	
Traffic Vol, veh/h	1	467	131	0	304	11
Future Vol, veh/h	1	467	131	0	304	11
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1	492	138	0	320	12

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	138	0	138
Stage 1	-	-	138
Stage 2	-	-	494
Critical Hdwy	4.12	-	6.22
Critical Hdwy Stg 1	-	-	5.42
Critical Hdwy Stg 2	-	-	5.42
Follow-up Hdwy	2.218	-	3.318
Pot Cap-1 Maneuver	1446	-	910
Stage 1	-	-	889
Stage 2	-	-	613
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	1446	-	910
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	889
Stage 2	-	-	612

Approach	EB	WB	SE
HCM Control Delay, s	0	0	31.9
HCM LOS			D

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SELn1
Capacity (veh/h)	1446	-	-	-	452
HCM Lane V/C Ratio	0.001	-	-	-	0.734
HCM Control Delay (s)	7.5	0	-	-	31.9
HCM Lane LOS	A	A	-	-	D
HCM 95th %tile Q(veh)	0	-	-	-	5.9

HCM 2010 TWSC
 12: SW 35th Street & SW Washington Way

08/18/2017

Intersection												
Int Delay, s/veh	1.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	1	1	0	15	3	16	1	510	70	79	264	3
Future Vol, veh/h	1	1	0	15	3	16	1	510	70	79	264	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	1	0	17	3	18	1	567	78	88	293	3

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1089	1118	295	1079	1080	606	297	0	0	644	0	0
Stage 1	471	471	-	608	608	-	-	-	-	-	-	-
Stage 2	618	647	-	471	472	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	193	207	744	196	218	497	1264	-	-	941	-	-
Stage 1	573	560	-	483	486	-	-	-	-	-	-	-
Stage 2	477	467	-	573	559	-	-	-	-	-	-	-
Platoon blocked, %												
Mov Cap-1 Maneuver	168	184	744	178	193	497	1264	-	-	941	-	-
Mov Cap-2 Maneuver	168	184	-	178	193	-	-	-	-	-	-	-
Stage 1	572	497	-	483	486	-	-	-	-	-	-	-
Stage 2	456	467	-	508	496	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	25.7	21.3	0	2.1
HCM LOS	D	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1264	-	-	176	258	941	-	-
HCM Lane V/C Ratio	0.001	-	-	0.013	0.146	0.093	-	-
HCM Control Delay (s)	7.9	0	-	25.7	21.3	9.2	0	-
HCM Lane LOS	A	A	-	D	C	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0	0.5	0.3	-	-

HCM Signalized Intersection Capacity Analysis

13: SW 35th Street & SW Western Boulevard

08/18/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	199	504	47	50	124	93	22	312	114	81	189	62
Future Volume (vph)	199	504	47	50	124	93	22	312	114	81	189	62
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	3.0	3.0		3.0	3.0			3.0		3.0	3.0	
Lane Util. Factor	1.00	1.00		1.00	1.00			1.00		1.00	1.00	
Frt	1.00	0.99		1.00	0.94			0.97		1.00	0.96	
Flt Protected	0.95	1.00		0.95	1.00			1.00		0.95	1.00	
Satd. Flow (prot)	1467	1525		1467	1445			1487		1467	1487	
Flt Permitted	0.44	1.00		0.26	1.00			0.98		0.36	1.00	
Satd. Flow (perm)	684	1525		397	1445			1462		551	1487	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	209	531	49	53	131	98	23	328	120	85	199	65
RTOR Reduction (vph)	0	5	0	0	46	0	0	20	0	0	19	0
Lane Group Flow (vph)	209	575	0	53	183	0	0	451	0	85	245	0
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases	7	4		3	8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	29.1	23.3		20.4	17.6			22.2		22.2	22.2	
Effective Green, g (s)	29.1	23.3		20.4	17.6			22.2		22.2	22.2	
Actuated g/C Ratio	0.51	0.41		0.36	0.31			0.39		0.39	0.39	
Clearance Time (s)	3.0	3.0		3.0	3.0			3.0		3.0	3.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0		3.0	3.0	
Lane Grp Cap (vph)	463	620		193	443			566		213	576	
v/s Ratio Prot	c0.07	c0.38		0.01	0.13						0.16	
v/s Ratio Perm	0.16			0.08				c0.31		0.15		
v/c Ratio	0.45	0.93		0.27	0.41			0.80		0.40	0.43	
Uniform Delay, d1	8.5	16.2		12.9	15.7			15.6		12.7	12.9	
Progression Factor	1.00	1.00		1.00	1.00			1.00		1.00	1.00	
Incremental Delay, d2	0.7	20.0		0.8	0.6			11.2		5.5	2.3	
Delay (s)	9.2	36.2		13.6	16.4			26.7		18.2	15.2	
Level of Service	A	D		B	B			C		B	B	
Approach Delay (s)		29.0			15.9			26.7			15.9	
Approach LOS		C			B			C			B	

Intersection Summary

HCM 2000 Control Delay	24.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	57.3	Sum of lost time (s)	9.0
Intersection Capacity Utilization	99.1%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
 14: SW 35th Street & SW Philomath Boulevard

08/18/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗	↘	↖	↗	↘	↖	↗	↘	↖	↗	↘
Traffic Volume (vph)	16	694	20	188	620	104	31	272	225	53	232	15
Future Volume (vph)	16	694	20	188	620	104	31	272	225	53	232	15
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.93		1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1467	1544	1312	1467	1544	1312	1467	1439		1467	1530	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.44	1.00		0.14	1.00	
Satd. Flow (perm)	1467	1544	1312	1467	1544	1312	682	1439		213	1530	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	17	731	21	198	653	109	33	286	237	56	244	16
RTOR Reduction (vph)	0	0	11	0	0	37	0	34	0	0	3	0
Lane Group Flow (vph)	17	731	10	198	653	72	33	489	0	56	257	0
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Perm	NA		Perm	NA	
Protected Phases	7	4		3	8			2			6	
Permitted Phases			4			8	2			6		
Actuated Green, G (s)	2.0	41.8	41.8	12.0	51.8	51.8	29.0	29.0		29.0	29.0	
Effective Green, g (s)	2.0	41.8	41.8	12.0	51.8	51.8	29.0	29.0		29.0	29.0	
Actuated g/C Ratio	0.02	0.46	0.46	0.13	0.56	0.56	0.32	0.32		0.32	0.32	
Clearance Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	31	703	597	191	871	740	215	454		67	483	
v/s Ratio Prot	0.01	c0.47		c0.13	0.42			c0.34			0.17	
v/s Ratio Perm			0.01			0.06	0.05			0.26		
v/c Ratio	0.55	1.04	0.02	1.04	0.75	0.10	0.15	1.08		0.84	0.53	
Uniform Delay, d1	44.5	25.0	13.7	39.9	15.1	9.2	22.6	31.4		29.2	25.8	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	18.4	44.7	0.0	75.1	3.6	0.1	1.5	64.8		70.2	4.2	
Delay (s)	62.8	69.7	13.7	115.0	18.7	9.3	24.1	96.2		99.3	30.0	
Level of Service	E	E	B	F	B	A	C	F		F	C	
Approach Delay (s)		68.0			37.5			92.0			42.3	
Approach LOS		E			D			F			D	

Intersection Summary

HCM 2000 Control Delay	58.7	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.05		
Actuated Cycle Length (s)	91.8	Sum of lost time (s)	9.0
Intersection Capacity Utilization	108.0%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

1: 53rd Street & NW Harrison Boulevard

08/18/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	28	74	39	393	89	22	54	451	229	8	501	71
Future Volume (vph)	28	74	39	393	89	22	54	451	229	8	501	71
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.95		1.00	0.97		1.00	1.00	0.85	1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1630	1627		1630	1665		1630	1716	1458	1630	1684	
Flt Permitted	0.68	1.00		0.50	1.00		0.20	1.00	1.00	0.39	1.00	
Satd. Flow (perm)	1170	1627		855	1665		341	1716	1458	665	1684	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	29	78	41	414	94	23	57	475	241	8	527	75
RTOR Reduction (vph)	0	34	0	0	16	0	0	0	127	0	7	0
Lane Group Flow (vph)	29	85	0	414	101	0	57	475	114	8	595	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2		2	6		
Actuated Green, G (s)	9.0	8.2		16.5	12.7		26.3	23.7	23.7	22.7	21.9	
Effective Green, g (s)	9.0	8.2		16.5	12.7		26.3	23.7	23.7	22.7	21.9	
Actuated g/C Ratio	0.18	0.16		0.33	0.25		0.53	0.47	0.47	0.45	0.44	
Clearance Time (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	217	266		364	422		246	813	691	317	737	
v/s Ratio Prot	0.00	0.05		c0.12	0.06		c0.01	0.28		0.00	c0.35	
v/s Ratio Perm	0.02			c0.25			0.11		0.08	0.01		
v/c Ratio	0.13	0.32		1.14	0.24		0.23	0.58	0.17	0.03	0.81	
Uniform Delay, d1	17.1	18.4		16.3	14.8		7.6	9.6	7.5	7.7	12.2	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.3	0.7		90.0	0.3		0.5	3.1	0.5	0.0	9.2	
Delay (s)	17.4	19.1		106.2	15.1		8.1	12.6	8.0	7.7	21.4	
Level of Service	B	B		F	B		A	B	A	A	C	
Approach Delay (s)		18.8			86.1			10.9			21.3	
Approach LOS		B			F			B			C	

Intersection Summary

HCM 2000 Control Delay	33.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.97		
Actuated Cycle Length (s)	50.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	77.8%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

2: SW 53rd Street/53rd Street & SW Reservoir Avenue

08/18/2017



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	310	20	11	444	517	434
Future Volume (vph)	310	20	11	444	517	434
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Total Lost time (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Util. Factor	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)	1630	1458	1630	1716	1716	1458
Flt Permitted	0.95	1.00	0.38	1.00	1.00	1.00
Satd. Flow (perm)	1630	1458	644	1716	1716	1458
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	326	21	12	467	544	457
RTOR Reduction (vph)	0	15	0	0	0	177
Lane Group Flow (vph)	326	6	12	467	544	280
Turn Type	Prot	Perm	Perm	NA	NA	Perm
Protected Phases	4			2	6	
Permitted Phases		4	2			6
Actuated Green, G (s)	15.7	15.7	34.4	34.4	34.4	34.4
Effective Green, g (s)	15.7	15.7	34.4	34.4	34.4	34.4
Actuated g/C Ratio	0.28	0.28	0.61	0.61	0.61	0.61
Clearance Time (s)	3.0	3.0	3.0	3.0	3.0	3.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	456	408	394	1052	1052	894
v/s Ratio Prot	c0.20			0.27	c0.32	
v/s Ratio Perm		0.00	0.02			0.19
v/c Ratio	0.71	0.01	0.03	0.44	0.52	0.31
Uniform Delay, d1	18.2	14.6	4.3	5.8	6.1	5.2
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	5.3	0.0	0.1	1.4	1.8	0.9
Delay (s)	23.5	14.6	4.4	7.1	8.0	6.1
Level of Service	C	B	A	A	A	A
Approach Delay (s)	22.9			7.1	7.1	
Approach LOS	C			A	A	

Intersection Summary

HCM 2000 Control Delay	10.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	56.1	Sum of lost time (s)	6.0
Intersection Capacity Utilization	54.9%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Intersection				
Intersection Delay, s/veh	13.6			
Intersection LOS	B			
Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	235	253	556	518
Demand Flow Rate, veh/h	240	257	567	529
Vehicles Circulating, veh/h	447	620	181	365
Vehicles Exiting, veh/h	447	128	506	512
Follow-Up Headway, s	3.186	3.186	3.186	3.186
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	9.2	12.5	12.6	17.2
Approach LOS	A	B	B	C
Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Critical Headway, s	5.193	5.193	5.193	5.193
Entry Flow, veh/h	240	257	567	529
Cap Entry Lane, veh/h	723	608	943	784
Entry HV Adj Factor	0.981	0.983	0.981	0.980
Flow Entry, veh/h	235	253	556	518
Cap Entry, veh/h	709	597	925	769
V/C Ratio	0.332	0.423	0.601	0.674
Control Delay, s/veh	9.2	12.5	12.6	17.2
LOS	A	B	B	C
95th %tile Queue, veh	1	2	4	5

HCM Signalized Intersection Capacity Analysis

5: SW 53rd Street & SW Philomath Boulevard

08/18/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	57	549	44	84	548	173	187	230	87	178	264	120
Future Volume (vph)	57	549	44	84	548	173	187	230	87	178	264	120
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.96		1.00	0.95	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1630	1716	1458	1630	1716	1458	1630	1645		1630	1635	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1630	1716	1458	1630	1716	1458	1630	1645		1630	1635	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	60	578	46	88	577	182	197	242	92	187	278	126
RTOR Reduction (vph)	0	0	29	0	0	50	0	11	0	0	13	0
Lane Group Flow (vph)	60	578	17	88	577	132	197	323	0	187	391	0
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8						
Actuated Green, G (s)	6.0	41.1	41.1	8.0	43.1	43.1	16.2	31.9		16.1	31.8	
Effective Green, g (s)	6.0	41.1	41.1	8.0	43.1	43.1	16.2	31.9		16.1	31.8	
Actuated g/C Ratio	0.05	0.38	0.38	0.07	0.40	0.40	0.15	0.29		0.15	0.29	
Clearance Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	89	646	549	119	677	575	242	480		240	476	
v/s Ratio Prot	0.04	c0.34		c0.05	0.34		c0.12	0.20		0.11	c0.24	
v/s Ratio Perm			0.01			0.09						
v/c Ratio	0.67	0.89	0.03	0.74	0.85	0.23	0.81	0.67		0.78	0.82	
Uniform Delay, d1	50.6	32.0	21.4	49.5	30.1	22.0	45.0	34.0		44.8	36.0	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	18.3	14.9	0.0	21.2	10.1	0.2	18.6	7.4		14.7	14.7	
Delay (s)	68.9	46.8	21.5	70.7	40.2	22.2	63.5	41.4		59.5	50.8	
Level of Service	E	D	C	E	D	C	E	D		E	D	
Approach Delay (s)		47.1			39.5			49.6			53.5	
Approach LOS		D			D			D			D	

Intersection Summary

HCM 2000 Control Delay	46.6	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	109.1	Sum of lost time (s)	12.0
Intersection Capacity Utilization	84.0%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Intersection												
Int Delay, s/veh	0.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↻			↻			↻				
Traffic Vol, veh/h	0	120	7	7	240	0	7	0	8	0	0	0
Future Vol, veh/h	0	120	7	7	240	0	7	0	8	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	-	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	133	8	8	267	0	8	0	9	0	0	0

Major/Minor	Major1			Major2			Minor1		
Conflicting Flow All	-	0	0	141	0	0	419	419	137
Stage 1	-	-	-	-	-	-	137	137	-
Stage 2	-	-	-	-	-	-	282	282	-
Critical Hdwy	-	-	-	4.12	-	-	6.42	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	5.42	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.42	5.52	-
Follow-up Hdwy	-	-	-	2.218	-	-	3.518	4.018	3.318
Pot Cap-1 Maneuver	0	-	-	1442	-	0	591	525	911
Stage 1	0	-	-	-	-	0	890	783	-
Stage 2	0	-	-	-	-	0	766	678	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	1442	-	-	587	0	911
Mov Cap-2 Maneuver	-	-	-	-	-	-	587	0	-
Stage 1	-	-	-	-	-	-	890	0	-
Stage 2	-	-	-	-	-	-	761	0	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.2	10.1
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	724	-	-	1442	-
HCM Lane V/C Ratio	0.023	-	-	0.005	-
HCM Control Delay (s)	10.1	-	-	7.5	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0	-

HCM Signalized Intersection Capacity Analysis

8: SW Technology Loop & SW Philomath Boulevard

08/18/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	683	32	258	820	1	102	0	384	0	0	0
Future Volume (vph)	0	683	32	258	820	1	102	0	384	0	0	0
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		3.0		3.0	3.0			3.0	3.0			
Lane Util. Factor		1.00		1.00	1.00			1.00	1.00			
Frt		0.99		1.00	1.00			1.00	0.85			
Flt Protected		1.00		0.95	1.00			0.95	1.00			
Satd. Flow (prot)		1704		1630	1715			1630	1458			
Flt Permitted		1.00		0.95	1.00			0.76	1.00			
Satd. Flow (perm)		1704		1630	1715			1299	1458			
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	0	719	34	272	863	1	107	0	404	0	0	0
RTOR Reduction (vph)	0	2	0	0	0	0	0	0	306	0	0	0
Lane Group Flow (vph)	0	751	0	272	864	0	0	107	98	0	0	0
Turn Type	Prot	NA		Prot	NA		Perm	NA	Perm			
Protected Phases	7	4		3	8			2				6
Permitted Phases							2		2	6		
Actuated Green, G (s)		40.4		16.9	60.3			19.2	19.2			
Effective Green, g (s)		40.4		16.9	60.3			19.2	19.2			
Actuated g/C Ratio		0.47		0.20	0.71			0.22	0.22			
Clearance Time (s)		3.0		3.0	3.0			3.0	3.0			
Vehicle Extension (s)		3.0		3.0	3.0			3.0	3.0			
Lane Grp Cap (vph)		805		322	1209			291	327			
v/s Ratio Prot		c0.44		c0.17	0.50							
v/s Ratio Perm								c0.08	0.07			
v/c Ratio		0.93		0.84	0.71			0.37	0.30			
Uniform Delay, d1		21.3		33.0	7.5			28.0	27.6			
Progression Factor		1.00		1.00	1.00			1.00	1.00			
Incremental Delay, d2		17.5		18.0	2.0			3.6	2.3			
Delay (s)		38.7		51.0	9.5			31.6	29.9			
Level of Service		D		D	A			C	C			
Approach Delay (s)		38.7			19.5			30.2			0.0	
Approach LOS		D			B			C			A	

Intersection Summary

HCM 2000 Control Delay	27.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	85.5	Sum of lost time (s)	9.0
Intersection Capacity Utilization	73.6%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Intersection

Int Delay, s/veh 0.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	8	990	1092	13	5	5
Future Vol, veh/h	8	990	1092	13	5	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	150	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	8	1042	1149	14	5	5

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	1163	0	1156
Stage 1	-	-	1156
Stage 2	-	-	1059
Critical Hdwy	4.12	-	6.22
Critical Hdwy Stg 1	-	-	5.42
Critical Hdwy Stg 2	-	-	5.42
Follow-up Hdwy	2.218	-	3.318
Pot Cap-1 Maneuver	601	-	239
Stage 1	-	-	300
Stage 2	-	-	333
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	601	-	239
Mov Cap-2 Maneuver	-	-	47
Stage 1	-	-	300
Stage 2	-	-	329

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	57.5
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	601	-	-	-	79
HCM Lane V/C Ratio	0.014	-	-	-	0.133
HCM Control Delay (s)	11.1	-	-	-	57.5
HCM Lane LOS	B	-	-	-	F
HCM 95th %tile Q(veh)	0	-	-	-	0.4

Intersection

Int Delay, s/veh 11.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↔			↔				
Traffic Vol, veh/h	0	0	0	0	782	15	1	257	0	0	0	0
Future Vol, veh/h	0	0	0	0	782	15	1	257	0	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	-	-	-	0	-	-	0	-	-	-	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	0	823	16	1	271	0	0	0	0

Major/Minor	Major2	Minor1
Conflicting Flow All	- - 0	831 839 -
Stage 1	- - -	0 0 -
Stage 2	- - -	831 839 -
Critical Hdwy	- - -	6.42 6.52 -
Critical Hdwy Stg 1	- - -	- - -
Critical Hdwy Stg 2	- - -	5.42 5.52 -
Follow-up Hdwy	- - -	3.518 4.018 -
Pot Cap-1 Maneuver	0 - -	340 302 0
Stage 1	0 - -	- - 0
Stage 2	0 - -	428 381 0
Platoon blocked, %	- - -	- - -
Mov Cap-1 Maneuver	- - -	340 0 -
Mov Cap-2 Maneuver	- - -	340 0 -
Stage 1	- - -	- 0 -
Stage 2	- - -	428 0 -

Approach	WB	NB
HCM Control Delay, s	0	46.8
HCM LOS		E

Minor Lane/Major Mvmt	NBLn1	WBT	WBR
Capacity (veh/h)	340	-	-
HCM Lane V/C Ratio	0.799	-	-
HCM Control Delay (s)	46.8	-	-
HCM Lane LOS	E	-	-
HCM 95th %tile Q(veh)	6.7	-	-

Intersection

Int Delay, s/veh 3

Movement	EBL	EBT	WBT	WBR	SEL	SER
Lane Configurations		↖	↗		↘	
Traffic Vol, veh/h	8	273	444	0	117	9
Future Vol, veh/h	8	273	444	0	117	9
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	8	287	467	0	123	9

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	467	0	467
Stage 1	-	-	467
Stage 2	-	-	304
Critical Hdwy	4.12	-	6.22
Critical Hdwy Stg 1	-	-	5.42
Critical Hdwy Stg 2	-	-	5.42
Follow-up Hdwy	2.218	-	3.318
Pot Cap-1 Maneuver	1094	-	596
Stage 1	-	-	631
Stage 2	-	-	748
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	1094	-	596
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	631
Stage 2	-	-	741

Approach	EB	WB	SE
HCM Control Delay, s	0.2	0	19.8
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SELn1
Capacity (veh/h)	1094	-	-	-	375
HCM Lane V/C Ratio	0.008	-	-	-	0.354
HCM Control Delay (s)	8.3	0	-	-	19.8
HCM Lane LOS	A	A	-	-	C
HCM 95th %tile Q(veh)	0	-	-	-	1.6

Intersection												
Int Delay, s/veh	5.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	3	1	70	3	51	1	473	40	37	499	0
Future Vol, veh/h	0	3	1	70	3	51	1	473	40	37	499	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	3	1	78	3	57	1	526	44	41	554	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1217	1209	554	1189	1187	548	554	0	0	570	0	0
Stage 1	637	637	-	550	550	-	-	-	-	-	-	-
Stage 2	580	572	-	639	637	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	158	183	532	165	188	536	1016	-	-	1002	-	-
Stage 1	465	471	-	519	516	-	-	-	-	-	-	-
Stage 2	500	504	-	464	471	-	-	-	-	-	-	-
Platoon blocked, %												
Mov Cap-1 Maneuver	133	172	532	155	177	536	1016	-	-	1002	-	-
Mov Cap-2 Maneuver	133	172	-	155	177	-	-	-	-	-	-	-
Stage 1	465	443	-	518	515	-	-	-	-	-	-	-
Stage 2	444	503	-	432	443	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	22.8	45.4	0	0.6
HCM LOS	C	E		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1016	-	-	207	220	1002	-	-
HCM Lane V/C Ratio	0.001	-	-	0.021	0.626	0.041	-	-
HCM Control Delay (s)	8.5	0	-	22.8	45.4	8.7	0	-
HCM Lane LOS	A	A	-	C	E	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.1	3.7	0.1	-	-

HCM Signalized Intersection Capacity Analysis

13: SW 35th Street & SW Western Boulevard

08/19/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	114	271	30	120	555	128	18	120	51	128	264	202
Future Volume (vph)	114	271	30	120	555	128	18	120	51	128	264	202
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	3.0	3.0		3.0	3.0			3.0		3.0	3.0	
Lane Util. Factor	1.00	1.00		1.00	1.00			1.00		1.00	1.00	
Frt	1.00	0.98		1.00	0.97			0.96		1.00	0.93	
Flt Protected	0.95	1.00		0.95	1.00			1.00		0.95	1.00	
Satd. Flow (prot)	1467	1521		1467	1501			1480		1467	1444	
Flt Permitted	0.15	1.00		0.47	1.00			0.84		0.58	1.00	
Satd. Flow (perm)	235	1521		722	1501			1243		893	1444	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	120	285	32	126	584	135	19	126	54	135	278	213
RTOR Reduction (vph)	0	7	0	0	14	0	0	22	0	0	45	0
Lane Group Flow (vph)	120	310	0	126	705	0	0	177	0	135	446	0
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases	7	4		3	8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	30.2	26.3		31.8	27.1			19.1		19.1	19.1	
Effective Green, g (s)	30.2	26.3		31.8	27.1			19.1		19.1	19.1	
Actuated g/C Ratio	0.51	0.45		0.54	0.46			0.32		0.32	0.32	
Clearance Time (s)	3.0	3.0		3.0	3.0			3.0		3.0	3.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0		3.0	3.0	
Lane Grp Cap (vph)	201	676		447	688			401		288	466	
v/s Ratio Prot	c0.04	0.20		c0.02	c0.47						c0.31	
v/s Ratio Perm	0.27			0.13				0.14		0.15		
v/c Ratio	0.60	0.46		0.28	1.03			0.44		0.47	0.96	
Uniform Delay, d1	10.8	11.4		7.1	16.0			15.8		16.0	19.6	
Progression Factor	1.00	1.00		1.00	1.00			1.00		1.00	1.00	
Incremental Delay, d2	4.7	0.5		0.3	40.9			3.5		5.4	32.1	
Delay (s)	15.5	11.9		7.5	56.9			19.3		21.3	51.7	
Level of Service	B	B		A	E			B		C	D	
Approach Delay (s)		12.9			49.5			19.3			45.2	
Approach LOS		B			D			B			D	

Intersection Summary

HCM 2000 Control Delay	37.8	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.97		
Actuated Cycle Length (s)	59.1	Sum of lost time (s)	9.0
Intersection Capacity Utilization	109.8%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
 14: SW 35th Street & SW Philomath Boulevard

08/19/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	40	678	13	132	691	56	19	141	202	131	241	36
Future Volume (vph)	40	678	13	132	691	56	19	141	202	131	241	36
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.91		1.00	0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1467	1544	1312	1467	1544	1312	1467	1407		1467	1514	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.40	1.00		0.31	1.00	
Satd. Flow (perm)	1467	1544	1312	1467	1544	1312	621	1407		481	1514	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	42	714	14	139	727	59	20	148	213	138	254	38
RTOR Reduction (vph)	0	0	7	0	0	19	0	58	0	0	6	0
Lane Group Flow (vph)	42	714	7	139	727	40	20	303	0	138	286	0
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Perm	NA		Perm	NA	
Protected Phases	7	4		3	8			2			6	
Permitted Phases			4			8	2			6		
Actuated Green, G (s)	3.0	43.6	43.6	9.0	49.6	49.6	29.0	29.0		29.0	29.0	
Effective Green, g (s)	3.0	43.6	43.6	9.0	49.6	49.6	29.0	29.0		29.0	29.0	
Actuated g/C Ratio	0.03	0.48	0.48	0.10	0.55	0.55	0.32	0.32		0.32	0.32	
Clearance Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	48	743	631	145	845	718	198	450		153	484	
v/s Ratio Prot	0.03	c0.46		c0.09	0.47			0.22			0.19	
v/s Ratio Perm			0.01			0.03	0.03			c0.29		
v/c Ratio	0.88	0.96	0.01	0.96	0.86	0.06	0.10	0.67		0.90	0.59	
Uniform Delay, d1	43.6	22.7	12.3	40.6	17.5	9.6	21.6	26.7		29.4	25.8	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	83.6	23.7	0.0	61.5	8.9	0.0	1.0	7.8		50.5	5.2	
Delay (s)	127.2	46.4	12.3	102.1	26.5	9.6	22.7	34.5		79.9	31.0	
Level of Service	F	D	B	F	C	A	C	C		E	C	
Approach Delay (s)		50.2			36.7			33.9			46.7	
Approach LOS		D			D			C			D	

Intersection Summary

HCM 2000 Control Delay	42.2	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.94		
Actuated Cycle Length (s)	90.6	Sum of lost time (s)	9.0
Intersection Capacity Utilization	97.8%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

1: 53rd Street & NW Harrison Boulevard

08/19/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	39	110	48	194	19	4	36	513	368	26	322	18
Future Volume (vph)	39	110	48	194	19	4	36	513	368	26	322	18
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Util. Factor	1.00	1.00		0.97	1.00		1.00	0.95	1.00	1.00	0.95	
Frt	1.00	0.95		1.00	0.97		1.00	1.00	0.85	1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1630	1637		3162	1673		1630	3260	1458	1630	3234	
Flt Permitted	0.74	1.00		0.43	1.00		0.51	1.00	1.00	0.42	1.00	
Satd. Flow (perm)	1272	1637		1437	1673		875	3260	1458	729	3234	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	41	116	51	204	20	4	38	540	387	27	339	19
RTOR Reduction (vph)	0	31	0	0	3	0	0	0	206	0	5	0
Lane Group Flow (vph)	41	136	0	204	21	0	38	540	181	27	353	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2		2	6		
Actuated Green, G (s)	10.9	10.0		18.2	14.3		26.6	24.8	24.8	24.8	23.9	
Effective Green, g (s)	10.9	10.0		18.2	14.3		26.6	24.8	24.8	24.8	23.9	
Actuated g/C Ratio	0.21	0.19		0.34	0.27		0.50	0.47	0.47	0.47	0.45	
Clearance Time (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	268	309		663	452		465	1528	683	357	1461	
v/s Ratio Prot	0.00	c0.08		c0.03	0.01		c0.00	c0.17		0.00	0.11	
v/s Ratio Perm	0.03			0.08			0.04		0.12	0.03		
v/c Ratio	0.15	0.44		0.31	0.05		0.08	0.35	0.27	0.08	0.24	
Uniform Delay, d1	17.1	19.0		12.4	14.3		6.7	8.9	8.5	7.6	8.9	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.3	1.0		0.3	0.0		0.1	0.6	1.0	0.1	0.4	
Delay (s)	17.4	20.0		12.6	14.3		6.8	9.6	9.5	7.7	9.3	
Level of Service	B	B		B	B		A	A	A	A	A	
Approach Delay (s)		19.5			12.8			9.4			9.2	
Approach LOS		B			B			A			A	

Intersection Summary

HCM 2000 Control Delay	11.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.37		
Actuated Cycle Length (s)	52.9	Sum of lost time (s)	12.0
Intersection Capacity Utilization	48.4%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

2: SW 53rd Street/53rd Street & SW Reservoir Avenue

08/19/2017



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	403	5	18	492	346	210
Future Volume (vph)	403	5	18	492	346	210
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Total Lost time (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Util. Factor	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)	1630	1458	1630	1716	1716	1458
Flt Permitted	0.95	1.00	0.47	1.00	1.00	1.00
Satd. Flow (perm)	1630	1458	813	1716	1716	1458
Peak-hour factor, PHF	0.95	0.95	0.95	0.91	0.91	0.91
Adj. Flow (vph)	424	5	19	541	380	231
RTOR Reduction (vph)	0	3	0	0	0	103
Lane Group Flow (vph)	424	2	19	541	380	128
Turn Type	Prot	Perm	Perm	NA	NA	Perm
Protected Phases	4			2	6	
Permitted Phases		4	2			6
Actuated Green, G (s)	18.4	18.4	30.4	30.4	30.4	30.4
Effective Green, g (s)	18.4	18.4	30.4	30.4	30.4	30.4
Actuated g/C Ratio	0.34	0.34	0.55	0.55	0.55	0.55
Clearance Time (s)	3.0	3.0	3.0	3.0	3.0	3.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	547	489	451	951	951	808
v/s Ratio Prot	c0.26			c0.32	0.22	
v/s Ratio Perm		0.00	0.02			0.09
v/c Ratio	0.78	0.00	0.04	0.57	0.40	0.16
Uniform Delay, d1	16.3	12.1	5.6	7.9	7.0	6.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	6.8	0.0	0.2	2.5	1.3	0.4
Delay (s)	23.1	12.1	5.7	10.4	8.2	6.4
Level of Service	C	B	A	B	A	A
Approach Delay (s)	23.0			10.2	7.5	
Approach LOS	C			B	A	

Intersection Summary

HCM 2000 Control Delay	12.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	54.8	Sum of lost time (s)	6.0
Intersection Capacity Utilization	59.0%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Intersection				
Intersection Delay, s/veh	12.9			
Intersection LOS	B			
Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	488	65	368	473
Demand Flow Rate, veh/h	497	67	375	482
Vehicles Circulating, veh/h	432	504	420	70
Vehicles Exiting, veh/h	120	291	509	501
Follow-Up Headway, s	3.186	3.186	3.186	3.186
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	18.2	6.5	12.4	8.7
Approach LOS	C	A	B	A
Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Critical Headway, s	5.193	5.193	5.193	5.193
Entry Flow, veh/h	497	67	375	482
Cap Entry Lane, veh/h	734	683	742	1054
Entry HV Adj Factor	0.981	0.976	0.980	0.980
Flow Entry, veh/h	488	65	368	473
Cap Entry, veh/h	720	666	728	1033
V/C Ratio	0.678	0.098	0.505	0.457
Control Delay, s/veh	18.2	6.5	12.4	8.7
LOS	C	A	B	A
95th %tile Queue, veh	5	0	3	2

HCM Signalized Intersection Capacity Analysis

5: SW 53rd Street & SW Philomath Boulevard

08/19/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	54	653	18	25	371	94	37	185	77	152	227	72
Future Volume (vph)	54	653	18	25	371	94	37	185	77	152	227	72
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.96		1.00	0.96	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1630	1716	1458	1630	1716	1458	1630	1640		1630	1654	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1630	1716	1458	1630	1716	1458	1630	1640		1630	1654	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	57	687	19	26	391	99	39	195	81	160	239	76
RTOR Reduction (vph)	0	0	11	0	0	60	0	11	0	0	9	0
Lane Group Flow (vph)	57	687	8	26	391	39	39	265	0	160	306	0
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8						
Actuated Green, G (s)	6.8	45.6	45.6	2.6	41.4	41.4	3.7	30.7		14.0	41.0	
Effective Green, g (s)	6.8	45.6	45.6	2.6	41.4	41.4	3.7	30.7		14.0	41.0	
Actuated g/C Ratio	0.06	0.43	0.43	0.02	0.39	0.39	0.04	0.29		0.13	0.39	
Clearance Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	105	745	633	40	677	575	57	479		217	646	
v/s Ratio Prot	c0.03	c0.40		c0.02	0.23		0.02	c0.16		c0.10	0.19	
v/s Ratio Perm			0.01			0.03						
v/c Ratio	0.54	0.92	0.01	0.65	0.58	0.07	0.68	0.55		0.74	0.47	
Uniform Delay, d1	47.5	28.0	16.9	50.7	24.9	19.7	50.0	31.3		43.7	23.9	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	5.6	16.9	0.0	32.0	1.2	0.1	28.9	4.5		12.3	2.5	
Delay (s)	53.2	44.8	16.9	82.7	26.1	19.8	78.9	35.8		56.0	26.4	
Level of Service	D	D	B	F	C	B	E	D		E	C	
Approach Delay (s)		44.8			27.7			41.2			36.3	
Approach LOS		D			C			D			D	

Intersection Summary

HCM 2000 Control Delay	38.0	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	104.9	Sum of lost time (s)	12.0
Intersection Capacity Utilization	79.6%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Intersection

Int Delay, s/veh 0.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	288	7	7	61	0	7	0	16	0	0	0
Future Vol, veh/h	0	288	7	7	61	0	7	0	16	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	-	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	320	8	8	68	0	8	0	18	0	0	0

Major/Minor	Major1			Major2			Minor1		
Conflicting Flow All	-	0	0	328	0	0	407	407	324
Stage 1	-	-	-	-	-	-	324	324	-
Stage 2	-	-	-	-	-	-	83	83	-
Critical Hdwy	-	-	-	4.12	-	-	6.42	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	5.42	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.42	5.52	-
Follow-up Hdwy	-	-	-	2.218	-	-	3.518	4.018	3.318
Pot Cap-1 Maneuver	0	-	-	1232	-	0	600	533	717
Stage 1	0	-	-	-	-	0	733	650	-
Stage 2	0	-	-	-	-	0	940	826	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	1232	-	-	596	0	717
Mov Cap-2 Maneuver	-	-	-	-	-	-	596	0	-
Stage 1	-	-	-	-	-	-	733	0	-
Stage 2	-	-	-	-	-	-	933	0	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.8	10.5
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	675	-	-	1232	-
HCM Lane V/C Ratio	0.038	-	-	0.006	-
HCM Control Delay (s)	10.5	-	-	7.9	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0	-

HCM Signalized Intersection Capacity Analysis
 8: SW Technology Loop & SW Philomath Boulevard

08/19/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗			↖	↗		↕	
Traffic Volume (vph)	0	777	45	222	514	1	46	0	360	1	0	3
Future Volume (vph)	0	777	45	222	514	1	46	0	360	1	0	3
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		3.0		3.0	3.0			3.0	3.0		3.0	
Lane Util. Factor		1.00		1.00	1.00			1.00	1.00		1.00	
Frt		0.99		1.00	1.00			1.00	0.85		0.90	
Flt Protected		1.00		0.95	1.00			0.95	1.00		0.99	
Satd. Flow (prot)		1702		1630	1715			1630	1458		1523	
Flt Permitted		1.00		0.95	1.00			0.76	1.00		0.98	
Satd. Flow (perm)		1702		1630	1715			1296	1458		1506	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	0	818	47	234	541	1	48	0	379	1	0	3
RTOR Reduction (vph)	0	2	0	0	0	0	0	0	248	0	3	0
Lane Group Flow (vph)	0	863	0	234	542	0	0	48	131	0	1	0
Turn Type	Prot	NA		Prot	NA		Perm	NA	Perm	Perm	NA	
Protected Phases	7	4		3	8			2		6		6
Permitted Phases							2		2		6	
Actuated Green, G (s)		46.4		14.0	63.4			20.0	20.0		20.0	
Effective Green, g (s)		46.4		14.0	63.4			20.0	20.0		20.0	
Actuated g/C Ratio		0.52		0.16	0.71			0.22	0.22		0.22	
Clearance Time (s)		3.0		3.0	3.0			3.0	3.0		3.0	
Vehicle Extension (s)		3.0		3.0	3.0			3.0	3.0		3.0	
Lane Grp Cap (vph)		883		255	1216			289	326		336	
v/s Ratio Prot		c0.51		c0.14	0.32							
v/s Ratio Perm								0.04	c0.09		0.00	
v/c Ratio		0.98		0.92	0.45			0.17	0.40		0.00	
Uniform Delay, d1		21.0		37.1	5.5			28.0	29.6		27.0	
Progression Factor		1.00		1.00	1.00			1.00	1.00		1.00	
Incremental Delay, d2		24.5		34.7	0.3			1.2	3.7		0.0	
Delay (s)		45.4		71.9	5.8			29.2	33.3		27.0	
Level of Service		D		E	A			C	C		C	
Approach Delay (s)		45.4			25.7			32.8			27.0	
Approach LOS		D			C			C			C	

Intersection Summary

HCM 2000 Control Delay	35.4	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	89.4	Sum of lost time (s)	9.0
Intersection Capacity Utilization	85.7%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Intersection

Int Delay, s/veh 0.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	8	1058	726	9	5	9
Future Vol, veh/h	8	1058	726	9	5	9
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	150	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	8	1114	764	9	5	9

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	774	0	1900
Stage 1	-	-	769
Stage 2	-	-	1131
Critical Hdwy	4.12	-	6.42
Critical Hdwy Stg 1	-	-	5.42
Critical Hdwy Stg 2	-	-	5.42
Follow-up Hdwy	2.218	-	3.518
Pot Cap-1 Maneuver	842	-	76
Stage 1	-	-	457
Stage 2	-	-	308
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	842	-	75
Mov Cap-2 Maneuver	-	-	75
Stage 1	-	-	457
Stage 2	-	-	305

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	30.3
HCM LOS			D

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	842	-	-	-	157
HCM Lane V/C Ratio	0.01	-	-	-	0.094
HCM Control Delay (s)	9.3	-	-	-	30.3
HCM Lane LOS	A	-	-	-	D
HCM 95th %tile Q(veh)	0	-	-	-	0.3

Intersection

Int Delay, s/veh 14.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↕			↕				
Traffic Vol, veh/h	0	0	0	0	642	6	1	325	0	0	0	0
Future Vol, veh/h	0	0	0	0	642	6	1	325	0	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	-	-	-	0	-	-	0	-	-	-	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	0	676	6	1	342	0	0	0	0

Major/Minor	Major2	Minor1
Conflicting Flow All	- - 0	679 682 -
Stage 1	- - -	0 0 -
Stage 2	- - -	679 682 -
Critical Hdwy	- - -	6.42 6.52 -
Critical Hdwy Stg 1	- - -	- - -
Critical Hdwy Stg 2	- - -	5.42 5.52 -
Follow-up Hdwy	- - -	3.518 4.018 -
Pot Cap-1 Maneuver	0 - -	417 372 0
Stage 1	0 - -	- - 0
Stage 2	0 - -	504 450 0
Platoon blocked, %	- - -	- - -
Mov Cap-1 Maneuver	- - -	417 0 -
Mov Cap-2 Maneuver	- - -	417 0 -
Stage 1	- - -	- 0 -
Stage 2	- - -	504 0 -

Approach	WB	NB
HCM Control Delay, s	0	43
HCM LOS		E

Minor Lane/Major Mvmt	NBLn1	WBT	WBR
Capacity (veh/h)	417	-	-
HCM Lane V/C Ratio	0.823	-	-
HCM Control Delay (s)	43	-	-
HCM Lane LOS	E	-	-
HCM 95th %tile Q(veh)	7.6	-	-

Intersection

Int Delay, s/veh 11

Movement	EBL	EBT	WBT	WBR	SEL	SER
Lane Configurations		↖	↗		↘	
Traffic Vol, veh/h	1	467	131	0	304	11
Future Vol, veh/h	1	467	131	0	304	11
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1	492	138	0	320	12

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	138	0	632
Stage 1	-	-	138
Stage 2	-	-	494
Critical Hdwy	4.12	-	6.42
Critical Hdwy Stg 1	-	-	5.42
Critical Hdwy Stg 2	-	-	5.42
Follow-up Hdwy	2.218	-	3.518
Pot Cap-1 Maneuver	1446	-	444
Stage 1	-	-	889
Stage 2	-	-	613
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	1446	-	444
Mov Cap-2 Maneuver	-	-	444
Stage 1	-	-	889
Stage 2	-	-	612

Approach	EB	WB	SE
HCM Control Delay, s	0	0	31.9
HCM LOS			D

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SELn1
Capacity (veh/h)	1446	-	-	-	452
HCM Lane V/C Ratio	0.001	-	-	-	0.734
HCM Control Delay (s)	7.5	0	-	-	31.9
HCM Lane LOS	A	A	-	-	D
HCM 95th %tile Q(veh)	0	-	-	-	5.9

HCM 2010 TWSC
 12: SW 35th Street & SW Washington Way

08/19/2017

Intersection												
Int Delay, s/veh	1.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	1	1	0	15	3	16	1	510	70	79	264	3
Future Vol, veh/h	1	1	0	15	3	16	1	510	70	79	264	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	1	0	17	3	18	1	567	78	88	293	3

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1089	1118	295	1079	1080	606	297	0	0	644	0	0
Stage 1	471	471	-	608	608	-	-	-	-	-	-	-
Stage 2	618	647	-	471	472	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	193	207	744	196	218	497	1264	-	-	941	-	-
Stage 1	573	560	-	483	486	-	-	-	-	-	-	-
Stage 2	477	467	-	573	559	-	-	-	-	-	-	-
Platoon blocked, %												
Mov Cap-1 Maneuver	168	184	744	178	193	497	1264	-	-	941	-	-
Mov Cap-2 Maneuver	168	184	-	178	193	-	-	-	-	-	-	-
Stage 1	572	497	-	483	486	-	-	-	-	-	-	-
Stage 2	456	467	-	508	496	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	25.7	21.3	0	2.1
HCM LOS	D	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1264	-	-	176	258	941	-	-
HCM Lane V/C Ratio	0.001	-	-	0.013	0.146	0.093	-	-
HCM Control Delay (s)	7.9	0	-	25.7	21.3	9.2	0	-
HCM Lane LOS	A	A	-	D	C	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0	0.5	0.3	-	-

HCM Signalized Intersection Capacity Analysis

13: SW 35th Street & SW Western Boulevard

08/19/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	199	504	47	50	124	93	22	312	114	81	189	62
Future Volume (vph)	199	504	47	50	124	93	22	312	114	81	189	62
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.96	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1467	1525		1467	1544	1312	1467	1544	1312	1467	1487	
Flt Permitted	0.59	1.00		0.26	1.00	1.00	0.50	1.00	1.00	0.42	1.00	
Satd. Flow (perm)	913	1525		397	1544	1312	775	1544	1312	649	1487	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	209	531	49	53	131	98	23	328	120	85	199	65
RTOR Reduction (vph)	0	6	0	0	0	61	0	0	78	0	18	0
Lane Group Flow (vph)	209	574	0	53	131	37	23	328	42	85	246	0
Turn Type	pm+pt	NA		pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA	
Protected Phases	7	4		3	8			2			6	
Permitted Phases	4			8		8	2		2	6		
Actuated Green, G (s)	28.5	23.1		22.9	20.3	20.3	18.7	18.7	18.7	18.7	18.7	
Effective Green, g (s)	28.5	23.1		22.9	20.3	20.3	18.7	18.7	18.7	18.7	18.7	
Actuated g/C Ratio	0.53	0.43		0.43	0.38	0.38	0.35	0.35	0.35	0.35	0.35	
Clearance Time (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	543	659		222	586	498	271	540	459	227	520	
v/s Ratio Prot	c0.04	c0.38		0.01	0.08			c0.21			0.17	
v/s Ratio Perm	0.17			0.09		0.03	0.03		0.03	0.13		
v/c Ratio	0.38	0.87		0.24	0.22	0.07	0.08	0.61	0.09	0.37	0.47	
Uniform Delay, d1	6.9	13.8		9.8	11.2	10.6	11.6	14.3	11.6	13.0	13.5	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.5	12.1		0.6	0.2	0.1	0.6	5.0	0.4	4.7	3.1	
Delay (s)	7.3	25.9		10.3	11.4	10.6	12.2	19.3	12.0	17.6	16.6	
Level of Service	A	C		B	B	B	B	B	B	B	B	
Approach Delay (s)		21.0			10.9			17.1			16.8	
Approach LOS		C			B			B			B	

Intersection Summary

HCM 2000 Control Delay	17.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	53.4	Sum of lost time (s)	9.0
Intersection Capacity Utilization	78.2%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

14: SW 35th Street & SW Philomath Boulevard

08/19/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↗↗	↘	↘	↗↗	↘	↘	↗	↘	↘	↘	↗
Traffic Volume (vph)	16	694	20	188	620	104	31	272	225	53	232	15
Future Volume (vph)	16	694	20	188	620	104	31	272	225	53	232	15
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1467	2934	1312	1467	2934	1312	1467	1544	1312	1467	1530	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.48	1.00	1.00	0.45	1.00	
Satd. Flow (perm)	1467	2934	1312	1467	2934	1312	747	1544	1312	698	1530	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	17	731	21	198	653	109	33	286	237	56	244	16
RTOR Reduction (vph)	0	0	14	0	0	54	0	0	150	0	3	0
Lane Group Flow (vph)	17	731	7	198	653	55	33	286	87	56	257	0
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Perm	NA	Perm	Perm	NA	
Protected Phases	7	4		3	8			2			6	
Permitted Phases			4			8	2		2	6		
Actuated Green, G (s)	1.8	26.9	26.9	15.4	40.5	40.5	29.5	29.5	29.5	29.5	29.5	
Effective Green, g (s)	1.8	26.9	26.9	15.4	40.5	40.5	29.5	29.5	29.5	29.5	29.5	
Actuated g/C Ratio	0.02	0.33	0.33	0.19	0.50	0.50	0.37	0.37	0.37	0.37	0.37	
Clearance Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	32	976	436	279	1470	657	272	563	479	254	558	
v/s Ratio Prot	0.01	c0.25		c0.13	0.22			c0.19			0.17	
v/s Ratio Perm			0.01			0.04	0.04		0.07	0.08		
v/c Ratio	0.53	0.75	0.02	0.71	0.44	0.08	0.12	0.51	0.18	0.22	0.46	
Uniform Delay, d1	39.1	23.9	18.1	30.6	12.9	10.5	17.0	20.0	17.4	17.7	19.6	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	15.9	3.2	0.0	8.0	0.2	0.1	0.9	3.3	0.8	2.0	2.7	
Delay (s)	55.0	27.1	18.1	38.6	13.1	10.5	18.0	23.2	18.3	19.7	22.3	
Level of Service	D	C	B	D	B	B	B	C	B	B	C	
Approach Delay (s)		27.5			18.1			20.8			21.9	
Approach LOS		C			B			C			C	

Intersection Summary

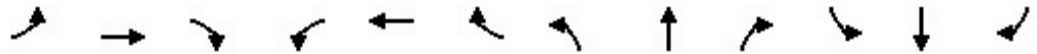
HCM 2000 Control Delay	21.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	80.8	Sum of lost time (s)	9.0
Intersection Capacity Utilization	70.5%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

1: 53rd Street & NW Harrison Boulevard

08/19/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	28	74	39	393	89	22	54	451	229	8	501	71
Future Volume (vph)	28	74	39	393	89	22	54	451	229	8	501	71
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Util. Factor	1.00	1.00		0.97	1.00		1.00	0.95	1.00	1.00	0.95	
Frt	1.00	0.95		1.00	0.97		1.00	1.00	0.85	1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1630	1627		3162	1665		1630	3260	1458	1630	3199	
Flt Permitted	0.68	1.00		0.50	1.00		0.33	1.00	1.00	0.48	1.00	
Satd. Flow (perm)	1170	1627		1653	1665		568	3260	1458	824	3199	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	29	78	41	414	94	23	57	475	241	8	527	75
RTOR Reduction (vph)	0	34	0	0	15	0	0	0	131	0	16	0
Lane Group Flow (vph)	29	85	0	414	102	0	57	475	110	8	586	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2		2	6		
Actuated Green, G (s)	8.9	8.1		17.3	13.5		25.3	22.7	22.7	21.7	20.9	
Effective Green, g (s)	8.9	8.1		17.3	13.5		25.3	22.7	22.7	21.7	20.9	
Actuated g/C Ratio	0.18	0.16		0.35	0.27		0.51	0.46	0.46	0.44	0.42	
Clearance Time (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	216	264		762	451		344	1485	664	372	1342	
v/s Ratio Prot	0.00	0.05		c0.07	0.06		c0.01	0.15		0.00	c0.18	
v/s Ratio Perm	0.02			c0.12			0.08		0.08	0.01		
v/c Ratio	0.13	0.32		0.54	0.23		0.17	0.32	0.17	0.02	0.44	
Uniform Delay, d1	17.1	18.4		12.3	14.1		6.5	8.6	8.0	8.0	10.3	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.3	0.7		0.8	0.3		0.2	0.6	0.5	0.0	1.0	
Delay (s)	17.4	19.1		13.1	14.3		6.7	9.2	8.5	8.0	11.3	
Level of Service	B	B		B	B		A	A	A	A	B	
Approach Delay (s)		18.8			13.4			8.8			11.3	
Approach LOS		B			B			A			B	

Intersection Summary

HCM 2000 Control Delay	11.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	49.8	Sum of lost time (s)	12.0
Intersection Capacity Utilization	50.5%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
 2: SW 53rd Street/53rd Street & SW Reservoir Avenue

08/19/2017



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	310	20	11	444	517	434
Future Volume (vph)	310	20	11	444	517	434
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Total Lost time (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Util. Factor	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)	1630	1458	1630	1716	1716	1458
Flt Permitted	0.95	1.00	0.38	1.00	1.00	1.00
Satd. Flow (perm)	1630	1458	644	1716	1716	1458
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	326	21	12	467	544	457
RTOR Reduction (vph)	0	15	0	0	0	177
Lane Group Flow (vph)	326	6	12	467	544	280
Turn Type	Prot	Perm	Perm	NA	NA	Perm
Protected Phases	4			2	6	
Permitted Phases		4	2			6
Actuated Green, G (s)	15.7	15.7	34.4	34.4	34.4	34.4
Effective Green, g (s)	15.7	15.7	34.4	34.4	34.4	34.4
Actuated g/C Ratio	0.28	0.28	0.61	0.61	0.61	0.61
Clearance Time (s)	3.0	3.0	3.0	3.0	3.0	3.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	456	408	394	1052	1052	894
v/s Ratio Prot	c0.20			0.27	c0.32	
v/s Ratio Perm		0.00	0.02			0.19
v/c Ratio	0.71	0.01	0.03	0.44	0.52	0.31
Uniform Delay, d1	18.2	14.6	4.3	5.8	6.1	5.2
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	5.3	0.0	0.1	1.4	1.8	0.9
Delay (s)	23.5	14.6	4.4	7.1	8.0	6.1
Level of Service	C	B	A	A	A	A
Approach Delay (s)	22.9			7.1	7.1	
Approach LOS	C			A	A	

Intersection Summary			
HCM 2000 Control Delay	10.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	56.1	Sum of lost time (s)	6.0
Intersection Capacity Utilization	54.9%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Intersection				
Intersection Delay, s/veh	13.6			
Intersection LOS	B			
Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	235	253	556	518
Demand Flow Rate, veh/h	240	257	567	529
Vehicles Circulating, veh/h	447	620	181	365
Vehicles Exiting, veh/h	447	128	506	512
Follow-Up Headway, s	3.186	3.186	3.186	3.186
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	9.2	12.5	12.6	17.2
Approach LOS	A	B	B	C
Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Critical Headway, s	5.193	5.193	5.193	5.193
Entry Flow, veh/h	240	257	567	529
Cap Entry Lane, veh/h	723	608	943	784
Entry HV Adj Factor	0.981	0.983	0.981	0.980
Flow Entry, veh/h	235	253	556	518
Cap Entry, veh/h	709	597	925	769
V/C Ratio	0.332	0.423	0.601	0.674
Control Delay, s/veh	9.2	12.5	12.6	17.2
LOS	A	B	B	C
95th %tile Queue, veh	1	2	4	5

HCM Signalized Intersection Capacity Analysis

5: SW 53rd Street & SW Philomath Boulevard

08/19/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	57	549	44	84	548	173	187	230	87	178	264	120
Future Volume (vph)	57	549	44	84	548	173	187	230	87	178	264	120
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.96		1.00	0.95	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1630	1716	1458	1630	1716	1458	1630	1645		1630	1635	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1630	1716	1458	1630	1716	1458	1630	1645		1630	1635	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	60	578	46	88	577	182	197	242	92	187	278	126
RTOR Reduction (vph)	0	0	29	0	0	50	0	11	0	0	13	0
Lane Group Flow (vph)	60	578	17	88	577	132	197	323	0	187	391	0
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8						
Actuated Green, G (s)	6.0	41.1	41.1	8.0	43.1	43.1	16.2	31.9		16.1	31.8	
Effective Green, g (s)	6.0	41.1	41.1	8.0	43.1	43.1	16.2	31.9		16.1	31.8	
Actuated g/C Ratio	0.05	0.38	0.38	0.07	0.40	0.40	0.15	0.29		0.15	0.29	
Clearance Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	89	646	549	119	677	575	242	480		240	476	
v/s Ratio Prot	0.04	c0.34		c0.05	0.34		c0.12	0.20		0.11	c0.24	
v/s Ratio Perm			0.01			0.09						
v/c Ratio	0.67	0.89	0.03	0.74	0.85	0.23	0.81	0.67		0.78	0.82	
Uniform Delay, d1	50.6	32.0	21.4	49.5	30.1	22.0	45.0	34.0		44.8	36.0	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	18.3	14.9	0.0	21.2	10.1	0.2	18.6	7.4		14.7	14.7	
Delay (s)	68.9	46.8	21.5	70.7	40.2	22.2	63.5	41.4		59.5	50.8	
Level of Service	E	D	C	E	D	C	E	D		E	D	
Approach Delay (s)		47.1			39.5			49.6			53.5	
Approach LOS		D			D			D			D	

Intersection Summary

HCM 2000 Control Delay	46.6	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	109.1	Sum of lost time (s)	12.0
Intersection Capacity Utilization	84.0%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Intersection												
Int Delay, s/veh	0.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↻			↻			↻				
Traffic Vol, veh/h	0	120	7	7	240	0	7	0	8	0	0	0
Future Vol, veh/h	0	120	7	7	240	0	7	0	8	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	-	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	133	8	8	267	0	8	0	9	0	0	0

Major/Minor	Major1			Major2			Minor1		
Conflicting Flow All	-	0	0	141	0	0	419	419	137
Stage 1	-	-	-	-	-	-	137	137	-
Stage 2	-	-	-	-	-	-	282	282	-
Critical Hdwy	-	-	-	4.12	-	-	6.42	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	5.42	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.42	5.52	-
Follow-up Hdwy	-	-	-	2.218	-	-	3.518	4.018	3.318
Pot Cap-1 Maneuver	0	-	-	1442	-	0	591	525	911
Stage 1	0	-	-	-	-	0	890	783	-
Stage 2	0	-	-	-	-	0	766	678	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	1442	-	-	587	0	911
Mov Cap-2 Maneuver	-	-	-	-	-	-	587	0	-
Stage 1	-	-	-	-	-	-	890	0	-
Stage 2	-	-	-	-	-	-	761	0	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.2	10.1
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	724	-	-	1442	-
HCM Lane V/C Ratio	0.023	-	-	0.005	-
HCM Control Delay (s)	10.1	-	-	7.5	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0	-

HCM Signalized Intersection Capacity Analysis

8: SW Technology Loop & SW Philomath Boulevard

08/19/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗			↖	↗		↕	
Traffic Volume (vph)	0	683	32	258	820	1	102	0	384	0	0	0
Future Volume (vph)	0	683	32	258	820	1	102	0	384	0	0	0
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		3.0		3.0	3.0			3.0	3.0			
Lane Util. Factor		1.00		1.00	1.00			1.00	1.00			
Frt		0.99		1.00	1.00			1.00	0.85			
Flt Protected		1.00		0.95	1.00			0.95	1.00			
Satd. Flow (prot)		1704		1630	1715			1630	1458			
Flt Permitted		1.00		0.95	1.00			0.76	1.00			
Satd. Flow (perm)		1704		1630	1715			1299	1458			
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	0	719	34	272	863	1	107	0	404	0	0	0
RTOR Reduction (vph)	0	2	0	0	0	0	0	0	306	0	0	0
Lane Group Flow (vph)	0	751	0	272	864	0	0	107	98	0	0	0
Turn Type	Prot	NA		Prot	NA		Perm	NA	Perm			
Protected Phases	7	4		3	8			2			6	
Permitted Phases							2		2	6		
Actuated Green, G (s)		40.4		16.9	60.3			19.2	19.2			
Effective Green, g (s)		40.4		16.9	60.3			19.2	19.2			
Actuated g/C Ratio		0.47		0.20	0.71			0.22	0.22			
Clearance Time (s)		3.0		3.0	3.0			3.0	3.0			
Vehicle Extension (s)		3.0		3.0	3.0			3.0	3.0			
Lane Grp Cap (vph)		805		322	1209			291	327			
v/s Ratio Prot		c0.44		c0.17	0.50							
v/s Ratio Perm								c0.08	0.07			
v/c Ratio		0.93		0.84	0.71			0.37	0.30			
Uniform Delay, d1		21.3		33.0	7.5			28.0	27.6			
Progression Factor		1.00		1.00	1.00			1.00	1.00			
Incremental Delay, d2		17.5		18.0	2.0			3.6	2.3			
Delay (s)		38.7		51.0	9.5			31.6	29.9			
Level of Service		D		D	A			C	C			
Approach Delay (s)		38.7			19.5			30.2			0.0	
Approach LOS		D			B			C			A	

Intersection Summary

HCM 2000 Control Delay	27.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	85.5	Sum of lost time (s)	9.0
Intersection Capacity Utilization	73.6%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Intersection

Int Delay, s/veh 0.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	8	990	1092	13	5	5
Future Vol, veh/h	8	990	1092	13	5	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	150	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	8	1042	1149	14	5	5

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	1163	0	1156
Stage 1	-	-	1156
Stage 2	-	-	1059
Critical Hdwy	4.12	-	6.22
Critical Hdwy Stg 1	-	-	5.42
Critical Hdwy Stg 2	-	-	5.42
Follow-up Hdwy	2.218	-	3.318
Pot Cap-1 Maneuver	601	-	239
Stage 1	-	-	300
Stage 2	-	-	333
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	601	-	239
Mov Cap-2 Maneuver	-	-	47
Stage 1	-	-	300
Stage 2	-	-	329

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	57.5
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	601	-	-	-	79
HCM Lane V/C Ratio	0.014	-	-	-	0.133
HCM Control Delay (s)	11.1	-	-	-	57.5
HCM Lane LOS	B	-	-	-	F
HCM 95th %tile Q(veh)	0	-	-	-	0.4

Intersection

Int Delay, s/veh 11.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↕			↕				
Traffic Vol, veh/h	0	0	0	0	782	15	1	257	0	0	0	0
Future Vol, veh/h	0	0	0	0	782	15	1	257	0	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	-	-	-	0	-	-	0	-	-	-	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	0	823	16	1	271	0	0	0	0

Major/Minor	Major2	Minor1
Conflicting Flow All	- - 0	831 839 -
Stage 1	- - -	0 0 -
Stage 2	- - -	831 839 -
Critical Hdwy	- - -	6.42 6.52 -
Critical Hdwy Stg 1	- - -	- - -
Critical Hdwy Stg 2	- - -	5.42 5.52 -
Follow-up Hdwy	- - -	3.518 4.018 -
Pot Cap-1 Maneuver	0 - -	340 302 0
Stage 1	0 - -	- - 0
Stage 2	0 - -	428 381 0
Platoon blocked, %	- - -	- - -
Mov Cap-1 Maneuver	- - -	340 0 -
Mov Cap-2 Maneuver	- - -	340 0 -
Stage 1	- - -	- 0 -
Stage 2	- - -	428 0 -

Approach	WB	NB
HCM Control Delay, s	0	46.8
HCM LOS		E

Minor Lane/Major Mvmt	NBLn1	WBT	WBR
Capacity (veh/h)	340	-	-
HCM Lane V/C Ratio	0.799	-	-
HCM Control Delay (s)	46.8	-	-
HCM Lane LOS	E	-	-
HCM 95th %tile Q(veh)	6.7	-	-

Intersection

Int Delay, s/veh 3

Movement	EBL	EBT	WBT	WBR	SEL	SER
Lane Configurations		↖	↗		↘	
Traffic Vol, veh/h	8	273	444	0	117	9
Future Vol, veh/h	8	273	444	0	117	9
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	8	287	467	0	123	9

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	467	0	467
Stage 1	-	-	467
Stage 2	-	-	304
Critical Hdwy	4.12	-	6.22
Critical Hdwy Stg 1	-	-	5.42
Critical Hdwy Stg 2	-	-	5.42
Follow-up Hdwy	2.218	-	3.318
Pot Cap-1 Maneuver	1094	-	596
Stage 1	-	-	631
Stage 2	-	-	748
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	1094	-	596
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	631
Stage 2	-	-	741

Approach	EB	WB	SE
HCM Control Delay, s	0.2	0	19.8
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SELn1
Capacity (veh/h)	1094	-	-	-	375
HCM Lane V/C Ratio	0.008	-	-	-	0.354
HCM Control Delay (s)	8.3	0	-	-	19.8
HCM Lane LOS	A	A	-	-	C
HCM 95th %tile Q(veh)	0	-	-	-	1.6

HCM 2010 TWSC
 12: SW 35th Street & SW Washington Way

08/19/2017

Intersection												
Int Delay, s/veh	5.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	3	1	70	3	51	1	473	40	37	499	0
Future Vol, veh/h	0	3	1	70	3	51	1	473	40	37	499	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	3	1	78	3	57	1	526	44	41	554	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1217	1209	554	1189	1187	548	554	0	0	570	0	0
Stage 1	637	637	-	550	550	-	-	-	-	-	-	-
Stage 2	580	572	-	639	637	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	158	183	532	165	188	536	1016	-	-	1002	-	-
Stage 1	465	471	-	519	516	-	-	-	-	-	-	-
Stage 2	500	504	-	464	471	-	-	-	-	-	-	-
Platoon blocked, %												
Mov Cap-1 Maneuver	133	172	532	155	177	536	1016	-	-	1002	-	-
Mov Cap-2 Maneuver	133	172	-	155	177	-	-	-	-	-	-	-
Stage 1	465	443	-	518	515	-	-	-	-	-	-	-
Stage 2	444	503	-	432	443	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	22.8	45.4	0	0.6
HCM LOS	C	E		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1016	-	-	207	220	1002	-	-
HCM Lane V/C Ratio	0.001	-	-	0.021	0.626	0.041	-	-
HCM Control Delay (s)	8.5	0	-	22.8	45.4	8.7	0	-
HCM Lane LOS	A	A	-	C	E	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.1	3.7	0.1	-	-

HCM Signalized Intersection Capacity Analysis

13: SW 35th Street & SW Western Boulevard

08/19/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	114	271	30	120	555	128	18	120	51	128	264	202
Future Volume (vph)	114	271	30	120	555	128	18	120	51	128	264	202
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.98		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.93	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1467	1521		1467	1544	1312	1467	1544	1312	1467	1444	
Flt Permitted	0.23	1.00		0.46	1.00	1.00	0.22	1.00	1.00	0.68	1.00	
Satd. Flow (perm)	357	1521		708	1544	1312	332	1544	1312	1044	1444	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	120	285	32	126	584	135	19	126	54	135	278	213
RTOR Reduction (vph)	0	7	0	0	0	73	0	0	36	0	44	0
Lane Group Flow (vph)	120	310	0	126	584	62	19	126	18	135	447	0
Turn Type	pm+pt	NA		pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA	
Protected Phases	7	4		3	8			2			6	
Permitted Phases	4			8		8	2		2	6		
Actuated Green, G (s)	27.1	23.4		28.7	24.2	24.2	18.6	18.6	18.6	18.6	18.6	
Effective Green, g (s)	27.1	23.4		28.7	24.2	24.2	18.6	18.6	18.6	18.6	18.6	
Actuated g/C Ratio	0.49	0.42		0.52	0.44	0.44	0.34	0.34	0.34	0.34	0.34	
Clearance Time (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	248	641		427	673	572	111	517	439	349	483	
v/s Ratio Prot	c0.03	0.20		c0.02	c0.38			0.08			c0.31	
v/s Ratio Perm	0.20			0.13		0.05	0.06		0.01	0.13		
v/c Ratio	0.48	0.48		0.30	0.87	0.11	0.17	0.24	0.04	0.39	0.93	
Uniform Delay, d1	9.3	11.7		7.3	14.2	9.3	13.0	13.4	12.4	14.1	17.8	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	1.5	0.6		0.4	11.4	0.1	3.3	1.1	0.2	3.2	26.1	
Delay (s)	10.8	12.2		7.7	25.6	9.3	16.3	14.5	12.6	17.3	43.9	
Level of Service	B	B		A	C	A	B	B	B	B	D	
Approach Delay (s)		11.8			20.3			14.1			38.1	
Approach LOS		B			C			B			D	

Intersection Summary

HCM 2000 Control Delay	23.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.86		
Actuated Cycle Length (s)	55.5	Sum of lost time (s)	9.0
Intersection Capacity Utilization	84.5%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
 14: SW 35th Street & SW Philomath Boulevard

08/19/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↗↗	↘	↘	↗↗	↘	↘	↗	↘	↘	↗	↘
Traffic Volume (vph)	40	678	13	132	691	56	19	141	202	131	241	36
Future Volume (vph)	40	678	13	132	691	56	19	141	202	131	241	36
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.98	1.00
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1467	2934	1312	1467	2934	1312	1467	1544	1312	1467	1514	1514
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.47	1.00	1.00	0.64	1.00	1.00
Satd. Flow (perm)	1467	2934	1312	1467	2934	1312	729	1544	1312	985	1514	1514
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	42	714	14	139	727	59	20	148	213	138	254	38
RTOR Reduction (vph)	0	0	9	0	0	34	0	0	126	0	5	0
Lane Group Flow (vph)	42	714	5	139	727	25	20	148	87	138	287	0
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Perm	NA	Perm	Perm	NA	NA
Protected Phases	7	4		3	8			2				6
Permitted Phases			4			8	2		2	6		
Actuated Green, G (s)	3.9	25.9	25.9	12.2	34.2	34.2	32.5	32.5	32.5	32.5	32.5	32.5
Effective Green, g (s)	3.9	25.9	25.9	12.2	34.2	34.2	32.5	32.5	32.5	32.5	32.5	32.5
Actuated g/C Ratio	0.05	0.33	0.33	0.15	0.43	0.43	0.41	0.41	0.41	0.41	0.41	0.41
Clearance Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	71	954	426	224	1260	563	297	630	535	402	618	618
v/s Ratio Prot	0.03	c0.24		c0.09	0.25			0.10				c0.19
v/s Ratio Perm			0.00			0.02	0.03		0.07	0.14		
v/c Ratio	0.59	0.75	0.01	0.62	0.58	0.05	0.07	0.23	0.16	0.34	0.46	0.46
Uniform Delay, d1	37.1	23.9	18.2	31.5	17.2	13.2	14.3	15.4	14.9	16.2	17.2	17.2
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	12.5	3.3	0.0	5.3	0.6	0.0	0.4	0.9	0.7	2.3	2.5	2.5
Delay (s)	49.6	27.2	18.2	36.8	17.9	13.2	14.8	16.3	15.6	18.5	19.7	19.7
Level of Service	D	C	B	D	B	B	B	B	B	B	B	B
Approach Delay (s)		28.3			20.4			15.8			19.3	
Approach LOS		C			C			B			B	

Intersection Summary

HCM 2000 Control Delay	21.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	79.6	Sum of lost time (s)	9.0
Intersection Capacity Utilization	66.9%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

1: 53rd Street & NW Harrison Boulevard

10/08/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖↗	↗		↖	↑↑	↗	↖	↗↖	
Traffic Volume (vph)	39	110	48	206	19	4	36	603	413	26	346	18
Future Volume (vph)	39	110	48	206	19	4	36	603	413	26	346	18
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Util. Factor	1.00	1.00		0.97	1.00		1.00	0.95	1.00	1.00	0.95	
Frt	1.00	0.95		1.00	0.97		1.00	1.00	0.85	1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1630	1637		3162	1673		1630	3260	1458	1630	3236	
Flt Permitted	0.74	1.00		0.43	1.00		0.49	1.00	1.00	0.37	1.00	
Satd. Flow (perm)	1272	1637		1432	1673		845	3260	1458	632	3236	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	41	116	51	217	20	4	38	635	435	27	364	19
RTOR Reduction (vph)	0	31	0	0	3	0	0	0	231	0	5	0
Lane Group Flow (vph)	41	136	0	217	21	0	38	635	204	27	378	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2		2	6		
Actuated Green, G (s)	10.6	9.8		18.0	14.2		26.2	24.5	24.5	24.4	23.6	
Effective Green, g (s)	10.6	9.8		18.0	14.2		26.2	24.5	24.5	24.4	23.6	
Actuated g/C Ratio	0.20	0.19		0.34	0.27		0.50	0.47	0.47	0.47	0.45	
Clearance Time (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	263	306		664	454		448	1527	683	310	1460	
v/s Ratio Prot	0.00	c0.08		c0.03	0.01		c0.00	c0.19		0.00	0.12	
v/s Ratio Perm	0.03			0.08			0.04		0.14	0.04		
v/c Ratio	0.16	0.44		0.33	0.05		0.08	0.42	0.30	0.09	0.26	
Uniform Delay, d1	17.1	18.8		12.3	14.1		6.7	9.2	8.6	7.6	8.9	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.3	1.0		0.3	0.0		0.1	0.8	1.1	0.1	0.4	
Delay (s)	17.3	19.9		12.6	14.1		6.8	10.0	9.7	7.7	9.3	
Level of Service	B	B		B	B		A	B	A	A	A	
Approach Delay (s)		19.4			12.7			9.8			9.2	
Approach LOS		B			B			A			A	

Intersection Summary

HCM 2000 Control Delay	11.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.41		
Actuated Cycle Length (s)	52.3	Sum of lost time (s)	12.0
Intersection Capacity Utilization	51.4%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

2: SW 53rd Street/53rd Street & SW Reservoir Avenue

10/08/2017



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	403	5	18	627	382	210
Future Volume (vph)	403	5	18	627	382	210
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Total Lost time (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Util. Factor	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)	1630	1458	1630	1716	1716	1458
Flt Permitted	0.95	1.00	0.46	1.00	1.00	1.00
Satd. Flow (perm)	1630	1458	790	1716	1716	1458
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	424	5	19	660	402	221
RTOR Reduction (vph)	0	3	0	0	0	95
Lane Group Flow (vph)	424	2	19	660	402	126
Turn Type	Prot	Perm	Perm	NA	NA	Perm
Protected Phases	4			2	6	
Permitted Phases		4	2			6
Actuated Green, G (s)	18.4	18.4	32.3	32.3	32.3	32.3
Effective Green, g (s)	18.4	18.4	32.3	32.3	32.3	32.3
Actuated g/C Ratio	0.32	0.32	0.57	0.57	0.57	0.57
Clearance Time (s)	3.0	3.0	3.0	3.0	3.0	3.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	528	473	450	977	977	830
v/s Ratio Prot	c0.26			c0.38	0.23	
v/s Ratio Perm		0.00	0.02			0.09
v/c Ratio	0.80	0.00	0.04	0.68	0.41	0.15
Uniform Delay, d1	17.5	12.9	5.4	8.5	6.9	5.7
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	8.6	0.0	0.2	3.7	1.3	0.4
Delay (s)	26.1	13.0	5.6	12.3	8.1	6.1
Level of Service	C	B	A	B	A	A
Approach Delay (s)	26.0			12.1	7.4	
Approach LOS	C			B	A	

Intersection Summary

HCM 2000 Control Delay	13.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	56.7	Sum of lost time (s)	6.0
Intersection Capacity Utilization	66.7%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM 2010 TWSC
 3: SW 53rd Street & Site Access (West)

10/08/2017

Intersection

Int Delay, s/veh 4.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↘	↗	↑	↗	↘	↑
Traffic Vol, veh/h	112	112	500	30	30	398
Future Vol, veh/h	112	112	500	30	30	398
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	150	0	-	100	150	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	123	123	549	33	33	437

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	1052	549	0
Stage 1	549	-	-
Stage 2	503	-	-
Critical Hdwy	6.42	6.22	4.12
Critical Hdwy Stg 1	5.42	-	-
Critical Hdwy Stg 2	5.42	-	-
Follow-up Hdwy	3.518	3.318	2.218
Pot Cap-1 Maneuver	251	535	1021
Stage 1	579	-	-
Stage 2	607	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	243	535	1021
Mov Cap-2 Maneuver	243	-	-
Stage 1	579	-	-
Stage 2	587	-	-

Approach	WB	NB	SB
HCM Control Delay, s	23.9	0	0.6
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	243	535	1021	-
HCM Lane V/C Ratio	-	-	0.506	0.23	0.032	-
HCM Control Delay (s)	-	-	34.1	13.7	8.6	-
HCM Lane LOS	-	-	D	B	A	-
HCM 95th %tile Q(veh)	-	-	2.6	0.9	0.1	-

HCM 2010 Roundabout
 4: SW 53rd Street & SW West Hills Road

10/08/2017

Intersection				
Intersection Delay, s/veh	17.4			
Intersection LOS	C			
Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	495	129	400	610
Demand Flow Rate, veh/h	504	132	408	621
Vehicles Circulating, veh/h	582	536	448	107
Vehicles Exiting, veh/h	146	320	638	561
Follow-Up Headway, s	3.186	3.186	3.186	3.186
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	28.8	7.9	14.3	12.2
Approach LOS	D	A	B	B
Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Critical Headway, s	5.193	5.193	5.193	5.193
Entry Flow, veh/h	504	132	408	621
Cap Entry Lane, veh/h	631	661	722	1015
Entry HV Adj Factor	0.981	0.979	0.981	0.982
Flow Entry, veh/h	495	129	400	610
Cap Entry, veh/h	620	647	708	997
V/C Ratio	0.798	0.200	0.565	0.612
Control Delay, s/veh	28.8	7.9	14.3	12.2
LOS	D	A	B	B
95th %tile Queue, veh	8	1	4	4

HCM Signalized Intersection Capacity Analysis

5: SW 53rd Street & SW Philomath Boulevard

10/08/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	60	653	18	25	371	114	37	189	77	228	241	95
Future Volume (vph)	60	653	18	25	371	114	37	189	77	228	241	95
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.96		1.00	0.96	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1630	1716	1458	1630	1716	1458	1630	1641		1630	1643	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1630	1716	1458	1630	1716	1458	1630	1641		1630	1643	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	63	687	19	26	391	120	39	199	81	240	254	100
RTOR Reduction (vph)	0	0	11	0	0	67	0	12	0	0	11	0
Lane Group Flow (vph)	63	687	8	26	391	53	39	268	0	240	343	0
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8						
Actuated Green, G (s)	7.1	46.3	46.3	2.7	41.9	41.9	3.7	28.3		19.3	43.9	
Effective Green, g (s)	7.1	46.3	46.3	2.7	41.9	41.9	3.7	28.3		19.3	43.9	
Actuated g/C Ratio	0.07	0.43	0.43	0.02	0.39	0.39	0.03	0.26		0.18	0.40	
Clearance Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	106	731	621	40	662	562	55	427		289	664	
v/s Ratio Prot	c0.04	c0.40		0.02	0.23		0.02	c0.16		c0.15	0.21	
v/s Ratio Perm			0.01			0.04						
v/c Ratio	0.59	0.94	0.01	0.65	0.59	0.09	0.71	0.63		0.83	0.52	
Uniform Delay, d1	49.3	29.8	18.0	52.5	26.5	21.3	51.9	35.5		43.1	24.4	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	8.6	19.7	0.0	32.0	1.4	0.1	34.2	6.8		18.0	2.9	
Delay (s)	58.0	49.6	18.0	84.4	27.9	21.3	86.1	42.3		61.0	27.2	
Level of Service	E	D	B	F	C	C	F	D		E	C	
Approach Delay (s)		49.5			29.2			47.7			40.9	
Approach LOS		D			C			D			D	

Intersection Summary

HCM 2000 Control Delay	42.0	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	108.6	Sum of lost time (s)	12.0
Intersection Capacity Utilization	84.4%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Intersection

Int Delay, s/veh 2.6

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↕	↕	↕		↕	↕
Traffic Vol, veh/h	8	303	86	21	81	31
Future Vol, veh/h	8	303	86	21	81	31
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	150	-	-	-	150	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	9	337	96	23	90	34

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	119	0	107
Stage 1	-	-	107
Stage 2	-	-	354
Critical Hdwy	4.12	-	6.22
Critical Hdwy Stg 1	-	-	5.42
Critical Hdwy Stg 2	-	-	5.42
Follow-up Hdwy	2.218	-	3.318
Pot Cap-1 Maneuver	1469	-	947
Stage 1	-	-	917
Stage 2	-	-	710
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	1469	-	947
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	917
Stage 2	-	-	706

Approach	EB	WB	SB
HCM Control Delay, s	0.2	0	11.6
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1469	-	-	-	556	947
HCM Lane V/C Ratio	0.006	-	-	-	0.162	0.036
HCM Control Delay (s)	7.5	-	-	-	12.7	8.9
HCM Lane LOS	A	-	-	-	B	A
HCM 95th %tile Q(veh)	0	-	-	-	0.6	0.1

Intersection												
Int Delay, s/veh	3.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	6	378	7	7	85	18	7	6	16	67	23	23
Future Vol, veh/h	6	378	7	7	85	18	7	6	16	67	23	23
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	150	-	-	150	-	100	-	-	-	150	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	7	420	8	8	94	20	8	7	18	74	26	26
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	94	0	0	428	0	0	573	547	424	559	551	94
Stage 1	-	-	-	-	-	-	437	437	-	110	110	-
Stage 2	-	-	-	-	-	-	136	110	-	449	441	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1500	-	-	1131	-	-	430	445	630	440	442	963
Stage 1	-	-	-	-	-	-	598	579	-	895	804	-
Stage 2	-	-	-	-	-	-	867	804	-	589	577	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1500	-	-	1131	-	-	396	440	630	419	437	963
Mov Cap-2 Maneuver	-	-	-	-	-	-	396	440	-	419	437	-
Stage 1	-	-	-	-	-	-	595	576	-	891	798	-
Stage 2	-	-	-	-	-	-	811	798	-	563	574	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.1			0.5			12.5			13.8		
HCM LOS							B			B		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2			
Capacity (veh/h)	511	1500	-	-	1131	-	-	419	601			
HCM Lane V/C Ratio	0.063	0.004	-	-	0.007	-	-	0.178	0.085			
HCM Control Delay (s)	12.5	7.4	-	-	8.2	-	-	15.4	11.5			
HCM Lane LOS	B	A	-	-	A	-	-	C	B			
HCM 95th %tile Q(veh)	0.2	0	-	-	0	-	-	0.6	0.3			

HCM Signalized Intersection Capacity Analysis
 8: SW Technology Loop & SW Philomath Boulevard

10/08/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗			↖	↗		↕	↖
Traffic Volume (vph)	0	840	58	231	530	1	50	0	362	1	0	3
Future Volume (vph)	0	840	58	231	530	1	50	0	362	1	0	3
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		3.0		3.0	3.0			3.0	3.0		3.0	
Lane Util. Factor		1.00		1.00	1.00			1.00	1.00		1.00	
Frt		0.99		1.00	1.00			1.00	0.85		0.90	
Flt Protected		1.00		0.95	1.00			0.95	1.00		0.99	
Satd. Flow (prot)		1699		1630	1715			1630	1458		1523	
Flt Permitted		1.00		0.95	1.00			0.76	1.00		0.97	
Satd. Flow (perm)		1699		1630	1715			1296	1458		1503	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	0	884	61	243	558	1	53	0	381	1	0	3
RTOR Reduction (vph)	0	3	0	0	0	0	0	0	243	0	3	0
Lane Group Flow (vph)	0	942	0	243	559	0	0	53	138	0	1	0
Turn Type	Prot	NA		Prot	NA		Perm	NA	Perm	Perm	NA	
Protected Phases	7	4		3	8			2		6		6
Permitted Phases							2		2		6	
Actuated Green, G (s)		49.0		14.0	66.0			18.0	18.0		18.0	
Effective Green, g (s)		49.0		14.0	66.0			18.0	18.0		18.0	
Actuated g/C Ratio		0.54		0.16	0.73			0.20	0.20		0.20	
Clearance Time (s)		3.0		3.0	3.0			3.0	3.0		3.0	
Vehicle Extension (s)		3.0		3.0	3.0			3.0	3.0		3.0	
Lane Grp Cap (vph)		925		253	1257			259	291		300	
v/s Ratio Prot		c0.55		c0.15	0.33							
v/s Ratio Perm								0.04	c0.09		0.00	
v/c Ratio		1.02		0.96	0.44			0.20	0.47		0.00	
Uniform Delay, d1		20.5		37.7	4.7			30.0	31.8		28.8	
Progression Factor		1.00		1.00	1.00			1.00	1.00		1.00	
Incremental Delay, d2		34.4		45.5	0.3			1.8	5.4		0.0	
Delay (s)		54.9		83.2	5.0			31.8	37.3		28.8	
Level of Service		D		F	A			C	D		C	
Approach Delay (s)		54.9			28.7			36.6			28.8	
Approach LOS		D			C			D			C	

Intersection Summary

HCM 2000 Control Delay	41.6	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.89		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	90.3%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Intersection

Int Delay, s/veh 1.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	10	1121	742	13	19	18
Future Vol, veh/h	10	1121	742	13	19	18
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	150	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	11	1180	781	14	20	19

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	795	0	1989
Stage 1	-	-	788
Stage 2	-	-	1201
Critical Hdwy	4.12	-	6.42
Critical Hdwy Stg 1	-	-	5.42
Critical Hdwy Stg 2	-	-	5.42
Follow-up Hdwy	2.218	-	3.518
Pot Cap-1 Maneuver	826	-	67
Stage 1	-	-	448
Stage 2	-	-	285
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	826	-	66
Mov Cap-2 Maneuver	-	-	66
Stage 1	-	-	448
Stage 2	-	-	281

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	54
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	826	-	-	-	111
HCM Lane V/C Ratio	0.013	-	-	-	0.351
HCM Control Delay (s)	9.4	-	-	-	54
HCM Lane LOS	A	-	-	-	F
HCM 95th %tile Q(veh)	0	-	-	-	1.4

Intersection												
Int Delay, s/veh	15.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↕			↕				
Traffic Vol, veh/h	0	0	0	0	662	6	1	325	0	0	0	0
Future Vol, veh/h	0	0	0	0	662	6	1	325	0	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	-	-	-	0	-	-	0	-	-	-	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	0	697	6	1	342	0	0	0	0

Major/Minor	Major2			Minor1		
Conflicting Flow All	-	-	0	700	703	-
Stage 1	-	-	-	0	0	-
Stage 2	-	-	-	700	703	-
Critical Hdwy	-	-	-	6.42	6.52	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	5.42	5.52	-
Follow-up Hdwy	-	-	-	3.518	4.018	-
Pot Cap-1 Maneuver	0	-	-	405	362	0
Stage 1	0	-	-	-	-	0
Stage 2	0	-	-	493	440	0
Platoon blocked, %						
Mov Cap-1 Maneuver	-	-	-	405	0	-
Mov Cap-2 Maneuver	-	-	-	405	0	-
Stage 1	-	-	-	-	0	-
Stage 2	-	-	-	493	0	-

Approach	WB	NB
HCM Control Delay, s	0	47.1
HCM LOS		E

Minor Lane/Major Mvmt	NBLn1	WBT	WBR
Capacity (veh/h)	405	-	-
HCM Lane V/C Ratio	0.847	-	-
HCM Control Delay (s)	47.1	-	-
HCM Lane LOS	E	-	-
HCM 95th %tile Q(veh)	8.1	-	-

Intersection

Int Delay, s/veh 46.1

Movement	EBL	EBT	WBT	WBR	SEL	SER
Lane Configurations		↖	↗		↘	
Traffic Vol, veh/h	1	467	131	0	461	11
Future Vol, veh/h	1	467	131	0	461	11
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1	492	138	0	485	12

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	138	0	632
Stage 1	-	-	138
Stage 2	-	-	494
Critical Hdwy	4.12	-	6.42
Critical Hdwy Stg 1	-	-	5.42
Critical Hdwy Stg 2	-	-	5.42
Follow-up Hdwy	2.218	-	3.518
Pot Cap-1 Maneuver	1446	-	~ 444
Stage 1	-	-	889
Stage 2	-	-	613
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	1446	-	~ 444
Mov Cap-2 Maneuver	-	-	~ 444
Stage 1	-	-	889
Stage 2	-	-	612

Approach	EB	WB	SE
HCM Control Delay, s	0	0	104.6
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SELn1
Capacity (veh/h)	1446	-	-	-	449
HCM Lane V/C Ratio	0.001	-	-	-	1.107
HCM Control Delay (s)	7.5	0	-	-	104.6
HCM Lane LOS	A	A	-	-	F
HCM 95th %tile Q(veh)	0	-	-	-	17

Notes

~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

HCM 2010 TWSC
 12: SW 35th Street & SW Washington Way

10/07/2017

Intersection												
Int Delay, s/veh	1.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	1	1	0	17	3	16	1	546	79	79	274	3
Future Vol, veh/h	1	1	0	17	3	16	1	546	79	79	274	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	1	0	19	3	18	1	607	88	88	304	3

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1145	1179	306	1135	1136	651	308	0	0	694	0	0
Stage 1	482	482	-	653	653	-	-	-	-	-	-	-
Stage 2	663	697	-	482	483	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	177	190	734	179	202	469	1253	-	-	901	-	-
Stage 1	565	553	-	456	464	-	-	-	-	-	-	-
Stage 2	450	443	-	565	553	-	-	-	-	-	-	-
Platoon blocked, %												
Mov Cap-1 Maneuver	153	167	734	162	178	469	1253	-	-	901	-	-
Mov Cap-2 Maneuver	153	167	-	162	178	-	-	-	-	-	-	-
Stage 1	564	488	-	456	464	-	-	-	-	-	-	-
Stage 2	429	443	-	497	488	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	27.8	23.8	0	2.1
HCM LOS	D	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1253	-	-	160	231	901	-	-
HCM Lane V/C Ratio	0.001	-	-	0.014	0.173	0.097	-	-
HCM Control Delay (s)	7.9	0	-	27.8	23.8	9.4	0	-
HCM Lane LOS	A	A	-	D	C	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0	0.6	0.3	-	-

HCM Signalized Intersection Capacity Analysis
 13: SW 35th Street & SW Western Boulevard

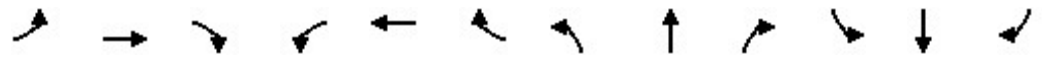
10/07/2017

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	244	594	69	50	148	93	28	312	114	81	189	74
Future Volume (vph)	244	594	69	50	148	93	28	312	114	81	189	74
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.98		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.96	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1467	1520		1467	1544	1312	1467	1544	1312	1467	1479	
Flt Permitted	0.57	1.00		0.21	1.00	1.00	0.45	1.00	1.00	0.38	1.00	
Satd. Flow (perm)	883	1520		325	1544	1312	699	1544	1312	589	1479	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	257	625	73	53	156	98	29	328	120	85	199	78
RTOR Reduction (vph)	0	7	0	0	0	60	0	0	82	0	23	0
Lane Group Flow (vph)	257	691	0	53	156	38	29	328	38	85	254	0
Turn Type	pm+pt	NA		pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA	
Protected Phases	7	4		3	8			2			6	
Permitted Phases	4			8		8	2		2	6		
Actuated Green, G (s)	33.6	27.8		25.3	22.5	22.5	18.1	18.1	18.1	18.1	18.1	
Effective Green, g (s)	33.6	27.8		25.3	22.5	22.5	18.1	18.1	18.1	18.1	18.1	
Actuated g/C Ratio	0.58	0.48		0.44	0.39	0.39	0.31	0.31	0.31	0.31	0.31	
Clearance Time (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	596	732		197	602	511	219	484	411	184	463	
v/s Ratio Prot	c0.06	c0.45		0.01	0.10			c0.21			0.17	
v/s Ratio Perm	0.19			0.10		0.03	0.04		0.03	0.14		
v/c Ratio	0.43	0.94		0.27	0.26	0.07	0.13	0.68	0.09	0.46	0.55	
Uniform Delay, d1	6.2	14.2		10.5	11.9	11.1	14.2	17.3	14.0	15.9	16.4	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.5	20.7		0.7	0.2	0.1	1.3	7.4	0.4	8.1	4.6	
Delay (s)	6.7	34.9		11.2	12.2	11.1	15.4	24.7	14.4	24.0	21.0	
Level of Service	A	C		B	B	B	B	C	B	C	C	
Approach Delay (s)		27.3			11.7			21.6			21.7	
Approach LOS		C			B			C			C	
Intersection Summary												
HCM 2000 Control Delay			22.8	HCM 2000 Level of Service				C				
HCM 2000 Volume to Capacity ratio			0.82									
Actuated Cycle Length (s)			57.7	Sum of lost time (s)				9.0				
Intersection Capacity Utilization			85.5%	ICU Level of Service				E				
Analysis Period (min)			15									

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
 14: SW 35th Street & SW Philomath Boulevard

10/07/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	16	770	20	188	640	110	31	272	225	75	232	15
Future Volume (vph)	16	770	20	188	640	110	31	272	225	75	232	15
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1467	2934	1312	1467	2934	1312	1467	1544	1312	1467	1530	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.47	1.00	1.00	0.44	1.00	
Satd. Flow (perm)	1467	2934	1312	1467	2934	1312	729	1544	1312	677	1530	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	17	811	21	198	674	116	33	286	237	79	244	16
RTOR Reduction (vph)	0	0	14	0	0	56	0	0	155	0	3	0
Lane Group Flow (vph)	17	811	7	198	674	60	33	286	82	79	257	0
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Perm	NA	Perm	Perm	NA	
Protected Phases	7	4		3	8			2			6	
Permitted Phases			4			8	2		2	6		
Actuated Green, G (s)	1.8	29.1	29.1	15.4	42.7	42.7	28.5	28.5	28.5	28.5	28.5	
Effective Green, g (s)	1.8	29.1	29.1	15.4	42.7	42.7	28.5	28.5	28.5	28.5	28.5	
Actuated g/C Ratio	0.02	0.35	0.35	0.19	0.52	0.52	0.35	0.35	0.35	0.35	0.35	
Clearance Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	32	1041	465	275	1527	683	253	536	456	235	531	
v/s Ratio Prot	0.01	c0.28		c0.13	0.23			c0.19			0.17	
v/s Ratio Perm			0.01			0.05	0.05		0.06	0.12		
v/c Ratio	0.53	0.78	0.02	0.72	0.44	0.09	0.13	0.53	0.18	0.34	0.48	
Uniform Delay, d1	39.7	23.6	17.2	31.3	12.2	9.9	18.3	21.4	18.6	19.8	21.0	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	15.9	3.7	0.0	8.7	0.2	0.1	1.1	3.8	0.9	3.8	3.1	
Delay (s)	55.6	27.3	17.2	40.0	12.4	9.9	19.3	25.2	19.5	23.6	24.1	
Level of Service	E	C	B	D	B	A	B	C	B	C	C	
Approach Delay (s)		27.6			17.7			22.4			24.0	
Approach LOS		C			B			C			C	

Intersection Summary

HCM 2000 Control Delay	22.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	82.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	73.9%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

1: 53rd Street & NW Harrison Boulevard

10/07/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖↗	↖		↖	↕	↗	↖	↕↗	
Traffic Volume (vph)	28	74	39	439	89	22	54	501	253	8	592	71
Future Volume (vph)	28	74	39	439	89	22	54	501	253	8	592	71
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Util. Factor	1.00	1.00		0.97	1.00		1.00	0.95	1.00	1.00	0.95	
Frt	1.00	0.95		1.00	0.97		1.00	1.00	0.85	1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1630	1627		3162	1665		1630	3260	1458	1630	3207	
Flt Permitted	0.68	1.00		0.50	1.00		0.27	1.00	1.00	0.45	1.00	
Satd. Flow (perm)	1170	1627		1653	1665		463	3260	1458	770	3207	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	29	78	41	462	94	23	57	527	266	8	623	75
RTOR Reduction (vph)	0	34	0	0	16	0	0	0	151	0	13	0
Lane Group Flow (vph)	29	85	0	462	101	0	57	527	115	8	685	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2		2	6		
Actuated Green, G (s)	8.9	8.1		18.4	14.6		24.2	21.6	21.6	20.6	19.8	
Effective Green, g (s)	8.9	8.1		18.4	14.6		24.2	21.6	21.6	20.6	19.8	
Actuated g/C Ratio	0.18	0.16		0.37	0.29		0.49	0.43	0.43	0.41	0.40	
Clearance Time (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	216	264		831	488		285	1413	632	332	1275	
v/s Ratio Prot	0.00	0.05		c0.08	0.06		c0.01	0.16		0.00	c0.21	
v/s Ratio Perm	0.02			c0.12			0.09		0.08	0.01		
v/c Ratio	0.13	0.32		0.56	0.21		0.20	0.37	0.18	0.02	0.54	
Uniform Delay, d1	17.1	18.4		11.7	13.2		7.3	9.5	8.7	8.6	11.5	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.3	0.7		0.8	0.2		0.3	0.8	0.6	0.0	1.6	
Delay (s)	17.4	19.1		12.5	13.5		7.6	10.3	9.3	8.6	13.1	
Level of Service	B	B		B	B		A	B	A	A	B	
Approach Delay (s)		18.8			12.7			9.8			13.1	
Approach LOS		B			B			A			B	

Intersection Summary

HCM 2000 Control Delay	12.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	49.8	Sum of lost time (s)	12.0
Intersection Capacity Utilization	54.7%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
 2: SW 53rd Street/53rd Street & SW Reservoir Avenue

10/07/2017



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	310	20	11	518	654	434
Future Volume (vph)	310	20	11	518	654	434
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Total Lost time (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Util. Factor	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)	1630	1458	1630	1716	1716	1458
Flt Permitted	0.95	1.00	0.29	1.00	1.00	1.00
Satd. Flow (perm)	1630	1458	495	1716	1716	1458
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	326	21	12	545	688	457
RTOR Reduction (vph)	0	15	0	0	0	170
Lane Group Flow (vph)	326	6	12	545	688	287
Turn Type	Prot	Perm	Perm	NA	NA	Perm
Protected Phases	4			2	6	
Permitted Phases		4	2			6
Actuated Green, G (s)	15.6	15.6	36.3	36.3	36.3	36.3
Effective Green, g (s)	15.6	15.6	36.3	36.3	36.3	36.3
Actuated g/C Ratio	0.27	0.27	0.63	0.63	0.63	0.63
Clearance Time (s)	3.0	3.0	3.0	3.0	3.0	3.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	439	392	310	1075	1075	914
v/s Ratio Prot	c0.20			0.32	c0.40	
v/s Ratio Perm		0.00	0.02			0.20
v/c Ratio	0.74	0.01	0.04	0.51	0.64	0.31
Uniform Delay, d1	19.3	15.5	4.1	5.9	6.7	5.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	6.7	0.0	0.2	1.7	2.9	0.9
Delay (s)	26.0	15.5	4.4	7.6	9.7	5.9
Level of Service	C	B	A	A	A	A
Approach Delay (s)	25.3			7.5	8.2	
Approach LOS	C			A	A	

Intersection Summary			
HCM 2000 Control Delay	10.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	57.9	Sum of lost time (s)	6.0
Intersection Capacity Utilization	62.7%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

HCM 2010 TWSC
 3: SW 53rd Street & Site Access (West)

10/07/2017

Intersection

Int Delay, s/veh 3.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↘	↗	↑	↗	↘	↑
Traffic Vol, veh/h	62	62	466	114	114	527
Future Vol, veh/h	62	62	466	114	114	527
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	150	0	-	100	150	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	68	68	512	125	125	579

Major/Minor	Minor1	Minor2	Major1	Major2	Major3	Major4
Conflicting Flow All	1342	512	0	0	512	0
Stage 1	512	-	-	-	-	-
Stage 2	830	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	168	562	-	-	1053	-
Stage 1	602	-	-	-	-	-
Stage 2	428	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	148	562	-	-	1053	-
Mov Cap-2 Maneuver	148	-	-	-	-	-
Stage 1	602	-	-	-	-	-
Stage 2	377	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	30.5	0	1.6
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	148	562	1053	-
HCM Lane V/C Ratio	-	-	0.46	0.121	0.119	-
HCM Control Delay (s)	-	-	48.6	12.3	8.9	-
HCM Lane LOS	-	-	E	B	A	-
HCM 95th %tile Q(veh)	-	-	2.1	0.4	0.4	-

HCM 2010 Roundabout
 4: SW 53rd Street & SW West Hills Road

10/07/2017

Intersection				
Intersection Delay, s/veh	20.9			
Intersection LOS	C			
Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	260	296	682	613
Demand Flow Rate, veh/h	266	303	696	625
Vehicles Circulating, veh/h	550	739	238	387
Vehicles Exiting, veh/h	462	195	578	655
Follow-Up Headway, s	3.186	3.186	3.186	3.186
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	11.5	18.0	21.0	26.2
Approach LOS	B	C	C	D
Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Critical Headway, s	5.193	5.193	5.193	5.193
Entry Flow, veh/h	266	303	696	625
Cap Entry Lane, veh/h	652	540	891	767
Entry HV Adj Factor	0.978	0.978	0.981	0.981
Flow Entry, veh/h	260	296	682	613
Cap Entry, veh/h	638	528	873	753
V/C Ratio	0.408	0.561	0.781	0.815
Control Delay, s/veh	11.5	18.0	21.0	26.2
LOS	B	C	C	D
95th %tile Queue, veh	2	3	8	9

HCM Signalized Intersection Capacity Analysis

5: SW 53rd Street & SW Philomath Boulevard

10/07/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	80	549	44	84	548	250	187	244	87	220	272	132
Future Volume (vph)	80	549	44	84	548	250	187	244	87	220	272	132
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.96		1.00	0.95	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1630	1716	1458	1630	1716	1458	1630	1648		1630	1632	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1630	1716	1458	1630	1716	1458	1630	1648		1630	1632	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	84	578	46	88	577	263	197	257	92	232	286	139
RTOR Reduction (vph)	0	0	29	0	0	71	0	11	0	0	14	0
Lane Group Flow (vph)	84	578	17	88	577	192	197	338	0	232	411	0
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8						
Actuated Green, G (s)	8.0	41.8	41.8	8.0	41.8	41.8	16.7	33.7		19.2	36.2	
Effective Green, g (s)	8.0	41.8	41.8	8.0	41.8	41.8	16.7	33.7		19.2	36.2	
Actuated g/C Ratio	0.07	0.36	0.36	0.07	0.36	0.36	0.15	0.29		0.17	0.32	
Clearance Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	113	625	531	113	625	531	237	484		272	515	
v/s Ratio Prot	0.05	c0.34		c0.05	0.34		0.12	0.21		c0.14	c0.25	
v/s Ratio Perm			0.01			0.13						
v/c Ratio	0.74	0.92	0.03	0.78	0.92	0.36	0.83	0.70		0.85	0.80	
Uniform Delay, d1	52.3	34.9	23.4	52.5	34.9	26.7	47.6	36.0		46.4	35.9	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	22.9	19.6	0.0	27.9	19.4	0.4	21.3	8.2		21.9	12.1	
Delay (s)	75.3	54.5	23.5	80.4	54.3	27.1	68.9	44.1		68.3	48.0	
Level of Service	E	D	C	F	D	C	E	D		E	D	
Approach Delay (s)		55.0			49.1			53.1			55.2	
Approach LOS		D			D			D			E	

Intersection Summary

HCM 2000 Control Delay	52.7	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.86		
Actuated Cycle Length (s)	114.7	Sum of lost time (s)	12.0
Intersection Capacity Utilization	85.3%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

HCM 2010 TWSC
 6: SW West Hills Road & Site Access (SW)

10/07/2017

Intersection

Int Delay, s/veh 1.8

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↘	↗	↗		↘	↗
Traffic Vol, veh/h	32	148	261	82	45	17
Future Vol, veh/h	32	148	261	82	45	17
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	150	-	-	-	150	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	36	164	290	91	50	19

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	381	0	336
Stage 1	-	-	336
Stage 2	-	-	236
Critical Hdwy	4.12	-	6.22
Critical Hdwy Stg 1	-	-	5.42
Critical Hdwy Stg 2	-	-	5.42
Follow-up Hdwy	2.218	-	3.318
Pot Cap-1 Maneuver	1177	-	706
Stage 1	-	-	724
Stage 2	-	-	803
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	1177	-	706
Mov Cap-2 Maneuver	-	-	467
Stage 1	-	-	724
Stage 2	-	-	778

Approach	EB	WB	SB
HCM Control Delay, s	1.4	0	12.7
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1177	-	-	-	467	706
HCM Lane V/C Ratio	0.03	-	-	-	0.107	0.027
HCM Control Delay (s)	8.2	-	-	-	13.6	10.2
HCM Lane LOS	A	-	-	-	B	B
HCM 95th %tile Q(veh)	0.1	-	-	-	0.4	0.1

Intersection

Int Delay, s/veh 2.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	23	170	7	7	331	68	7	23	8	37	12	12
Future Vol, veh/h	23	170	7	7	331	68	7	23	8	37	12	12
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	150	-	-	150	-	100	-	-	-	150	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	26	189	8	8	368	76	8	26	9	41	13	13

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	368	0	0	197	0	0	641	627	193	644	631	368
Stage 1	-	-	-	-	-	-	244	244	-	383	383	-
Stage 2	-	-	-	-	-	-	397	383	-	261	248	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1191	-	-	1376	-	-	388	400	849	386	398	677
Stage 1	-	-	-	-	-	-	760	704	-	640	612	-
Stage 2	-	-	-	-	-	-	629	612	-	744	701	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1191	-	-	1376	-	-	363	389	849	355	387	677
Mov Cap-2 Maneuver	-	-	-	-	-	-	363	389	-	355	387	-
Stage 1	-	-	-	-	-	-	743	689	-	626	608	-
Stage 2	-	-	-	-	-	-	600	608	-	693	686	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.9	0.1	14.2	15
HCM LOS			B	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	433	1191	-	-	1376	-	-	355	492
HCM Lane V/C Ratio	0.098	0.021	-	-	0.006	-	-	0.116	0.054
HCM Control Delay (s)	14.2	8.1	-	-	7.6	-	-	16.5	12.7
HCM Lane LOS	B	A	-	-	A	-	-	C	B
HCM 95th %tile Q(veh)	0.3	0.1	-	-	0	-	-	0.4	0.2

HCM Signalized Intersection Capacity Analysis
 8: SW Technology Loop & SW Philomath Boulevard

10/07/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	718	39	263	883	1	116	0	393	0	0	0
Future Volume (vph)	0	718	39	263	883	1	116	0	393	0	0	0
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		3.0		3.0	3.0			3.0	3.0			
Lane Util. Factor		1.00		1.00	1.00			1.00	1.00			
Frt		0.99		1.00	1.00			1.00	0.85			
Flt Protected		1.00		0.95	1.00			0.95	1.00			
Satd. Flow (prot)		1702		1630	1715			1630	1458			
Flt Permitted		1.00		0.95	1.00			0.76	1.00			
Satd. Flow (perm)		1702		1630	1715			1299	1458			
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	0	756	41	277	929	1	122	0	414	0	0	0
RTOR Reduction (vph)	0	2	0	0	0	0	0	0	292	0	0	0
Lane Group Flow (vph)	0	795	0	277	930	0	0	122	122	0	0	0
Turn Type	Prot	NA		Prot	NA		Perm	NA	Perm			
Protected Phases	7	4		3	8			2				6
Permitted Phases							2		2	6		
Actuated Green, G (s)		43.0		16.6	62.6			19.1	19.1			
Effective Green, g (s)		43.0		16.6	62.6			19.1	19.1			
Actuated g/C Ratio		0.49		0.19	0.71			0.22	0.22			
Clearance Time (s)		3.0		3.0	3.0			3.0	3.0			
Vehicle Extension (s)		3.0		3.0	3.0			3.0	3.0			
Lane Grp Cap (vph)		834		308	1224			282	317			
v/s Ratio Prot		c0.47		c0.17	0.54							
v/s Ratio Perm								c0.09	0.08			
v/c Ratio		0.95		0.90	0.76			0.43	0.39			
Uniform Delay, d1		21.4		34.7	7.8			29.6	29.3			
Progression Factor		1.00		1.00	1.00			1.00	1.00			
Incremental Delay, d2		20.5		27.0	2.8			4.8	3.5			
Delay (s)		41.9		61.7	10.6			34.4	32.8			
Level of Service		D		E	B			C	C			
Approach Delay (s)		41.9			22.3			33.2			0.0	
Approach LOS		D			C			C			A	

Intersection Summary

HCM 2000 Control Delay	30.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	87.7	Sum of lost time (s)	9.0
Intersection Capacity Utilization	76.7%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Intersection

Int Delay, s/veh 1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	17	1025	1155	27	12	10
Future Vol, veh/h	17	1025	1155	27	12	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	150	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	18	1079	1216	28	13	11

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	1244	0	2345
Stage 1	-	-	1230
Stage 2	-	-	1115
Critical Hdwy	4.12	-	6.42
Critical Hdwy Stg 1	-	-	5.42
Critical Hdwy Stg 2	-	-	5.42
Follow-up Hdwy	2.218	-	3.518
Pot Cap-1 Maneuver	560	-	40
Stage 1	-	-	276
Stage 2	-	-	314
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	560	-	39
Mov Cap-2 Maneuver	-	-	39
Stage 1	-	-	276
Stage 2	-	-	304

Approach	EB	WB	SB
HCM Control Delay, s	0.2	0	94.2
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	560	-	-	-	62
HCM Lane V/C Ratio	0.032	-	-	-	0.374
HCM Control Delay (s)	11.6	-	-	-	94.2
HCM Lane LOS	B	-	-	-	F
HCM 95th %tile Q(veh)	0.1	-	-	-	1.4

Intersection												
Int Delay, s/veh	15											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↔			↔				
Traffic Vol, veh/h	0	0	0	0	859	15	1	257	0	0	0	0
Future Vol, veh/h	0	0	0	0	859	15	1	257	0	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	-	-	-	0	-	-	0	-	-	-	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	0	904	16	1	271	0	0	0	0

Major/Minor	Major2			Minor1		
Conflicting Flow All	-	-	0	912	920	-
Stage 1	-	-	-	0	0	-
Stage 2	-	-	-	912	920	-
Critical Hdwy	-	-	-	6.42	6.52	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	5.42	5.52	-
Follow-up Hdwy	-	-	-	3.518	4.018	-
Pot Cap-1 Maneuver	0	-	-	304	271	0
Stage 1	0	-	-	-	-	0
Stage 2	0	-	-	392	350	0
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	304	0	-
Mov Cap-2 Maneuver	-	-	-	304	0	-
Stage 1	-	-	-	-	0	-
Stage 2	-	-	-	392	0	-

Approach	WB	NB
HCM Control Delay, s	0	65.9
HCM LOS		F

Minor Lane/Major Mvmt	NBLn1	WBT	WBR
Capacity (veh/h)	304	-	-
HCM Lane V/C Ratio	0.893	-	-
HCM Control Delay (s)	65.9	-	-
HCM Lane LOS	F	-	-
HCM 95th %tile Q(veh)	8.3	-	-

Intersection

Int Delay, s/veh 6.5

Movement	EBL	EBT	WBT	WBR	SEL	SER
Lane Configurations		↖	↗		↘	
Traffic Vol, veh/h	8	273	444	0	204	9
Future Vol, veh/h	8	273	444	0	204	9
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	8	287	467	0	215	9

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	467	0	467
Stage 1	-	-	467
Stage 2	-	-	304
Critical Hdwy	4.12	-	6.22
Critical Hdwy Stg 1	-	-	5.42
Critical Hdwy Stg 2	-	-	5.42
Follow-up Hdwy	2.218	-	3.318
Pot Cap-1 Maneuver	1094	-	596
Stage 1	-	-	631
Stage 2	-	-	748
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	1094	-	596
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	631
Stage 2	-	-	741

Approach	EB	WB	SE
HCM Control Delay, s	0.2	0	28.5
HCM LOS			D

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SELn1
Capacity (veh/h)	1094	-	-	-	371
HCM Lane V/C Ratio	0.008	-	-	-	0.604
HCM Control Delay (s)	8.3	0	-	-	28.5
HCM Lane LOS	A	A	-	-	D
HCM 95th %tile Q(veh)	0	-	-	-	3.8

HCM 2010 TWSC
 12: SW 35th Street & SW Washington Way

10/07/2017

Intersection

Int Delay, s/veh 7.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	3	1	79	3	51	1	493	45	37	535	0
Future Vol, veh/h	0	3	1	79	3	51	1	493	45	37	535	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	3	1	88	3	57	1	548	50	41	594	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1282	1277	594	1254	1252	573	594	0	0	598	0	0
Stage 1	677	677	-	575	575	-	-	-	-	-	-	-
Stage 2	605	600	-	679	677	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	142	166	505	149	172	519	982	-	-	979	-	-
Stage 1	443	452	-	503	503	-	-	-	-	-	-	-
Stage 2	485	490	-	441	452	-	-	-	-	-	-	-
Platoon blocked, %												
Mov Cap-1 Maneuver	118	155	505	139	161	519	982	-	-	979	-	-
Mov Cap-2 Maneuver	118	155	-	139	161	-	-	-	-	-	-	-
Stage 1	442	424	-	502	502	-	-	-	-	-	-	-
Stage 2	428	489	-	409	424	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	24.7	66	0	0.6
HCM LOS	C	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	982	-	-	187	194	979	-	-
HCM Lane V/C Ratio	0.001	-	-	0.024	0.762	0.042	-	-
HCM Control Delay (s)	8.7	0	-	24.7	66	8.8	0	-
HCM Lane LOS	A	A	-	C	F	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.1	5.1	0.1	-	-

HCM Signalized Intersection Capacity Analysis

13: SW 35th Street & SW Western Boulevard

10/07/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	139	321	42	120	646	128	41	120	51	128	264	247
Future Volume (vph)	139	321	42	120	646	128	41	120	51	128	264	247
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.98		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.93	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1467	1517		1467	1544	1312	1467	1544	1312	1467	1432	
Flt Permitted	0.16	1.00		0.39	1.00	1.00	0.20	1.00	1.00	0.68	1.00	
Satd. Flow (perm)	244	1517		608	1544	1312	307	1544	1312	1044	1432	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	146	338	44	126	680	135	43	126	54	135	278	260
RTOR Reduction (vph)	0	7	0	0	0	59	0	0	36	0	55	0
Lane Group Flow (vph)	146	375	0	126	680	76	43	126	18	135	483	0
Turn Type	pm+pt	NA		pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA	
Protected Phases	7	4		3	8			2			6	
Permitted Phases	4			8		8	2		2	6		
Actuated Green, G (s)	29.2	25.3		30.8	26.1	26.1	20.1	20.1	20.1	20.1	20.1	
Effective Green, g (s)	29.2	25.3		30.8	26.1	26.1	20.1	20.1	20.1	20.1	20.1	
Actuated g/C Ratio	0.49	0.43		0.52	0.44	0.44	0.34	0.34	0.34	0.34	0.34	
Clearance Time (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	201	649		385	681	579	104	525	446	355	487	
v/s Ratio Prot	c0.05	0.25		c0.03	c0.44			0.08			c0.34	
v/s Ratio Perm	0.31			0.14		0.06	0.14		0.01	0.13		
v/c Ratio	0.73	0.58		0.33	1.00	0.13	0.41	0.24	0.04	0.38	0.99	
Uniform Delay, d1	11.2	12.8		7.9	16.5	9.8	15.0	14.0	13.1	14.8	19.4	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	12.3	1.2		0.5	33.9	0.1	11.7	1.1	0.2	3.1	38.6	
Delay (s)	23.5	14.1		8.4	50.3	9.9	26.7	15.1	13.2	17.9	58.0	
Level of Service	C	B		A	D	A	C	B	B	B	E	
Approach Delay (s)		16.7			38.9			16.9			50.0	
Approach LOS		B			D			B			D	

Intersection Summary

HCM 2000 Control Delay	35.0	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.98		
Actuated Cycle Length (s)	59.1	Sum of lost time (s)	9.0
Intersection Capacity Utilization	101.4%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
 14: SW 35th Street & SW Philomath Boulevard

10/07/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	40	720	13	132	768	79	19	141	202	143	241	36
Future Volume (vph)	40	720	13	132	768	79	19	141	202	143	241	36
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1467	2934	1312	1467	2934	1312	1467	1544	1312	1467	1514	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.46	1.00	1.00	0.63	1.00	
Satd. Flow (perm)	1467	2934	1312	1467	2934	1312	716	1544	1312	980	1514	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	42	758	14	139	808	83	20	148	213	151	254	38
RTOR Reduction (vph)	0	0	9	0	0	46	0	0	129	0	5	0
Lane Group Flow (vph)	42	758	5	139	808	37	20	148	84	151	287	0
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Perm	NA	Perm	Perm	NA	
Protected Phases	7	4		3	8			2			6	
Permitted Phases			4			8	2		2	6		
Actuated Green, G (s)	3.9	27.2	27.2	12.2	35.5	35.5	31.5	31.5	31.5	31.5	31.5	31.5
Effective Green, g (s)	3.9	27.2	27.2	12.2	35.5	35.5	31.5	31.5	31.5	31.5	31.5	31.5
Actuated g/C Ratio	0.05	0.34	0.34	0.15	0.44	0.44	0.39	0.39	0.39	0.39	0.39	0.39
Clearance Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	71	998	446	223	1303	582	282	608	517	386	596	
v/s Ratio Prot	0.03	c0.26		c0.09	0.28			0.10			c0.19	
v/s Ratio Perm			0.00			0.03	0.03		0.06	0.15		
v/c Ratio	0.59	0.76	0.01	0.62	0.62	0.06	0.07	0.24	0.16	0.39	0.48	
Uniform Delay, d1	37.2	23.4	17.4	31.7	17.0	12.7	15.1	16.2	15.7	17.3	18.1	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	12.5	3.4	0.0	5.3	0.9	0.0	0.5	0.9	0.7	3.0	2.8	
Delay (s)	49.7	26.8	17.5	37.0	18.0	12.7	15.6	17.2	16.3	20.3	20.9	
Level of Service	D	C	B	D	B	B	B	B	B	C	C	
Approach Delay (s)		27.8			20.1			16.6			20.7	
Approach LOS		C			C			B			C	

Intersection Summary

HCM 2000 Control Delay	22.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	79.9	Sum of lost time (s)	9.0
Intersection Capacity Utilization	68.3%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

1: 53rd Street & NW Harrison Boulevard

10/08/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖↗	↖		↖	↑↑	↗	↖	↑↗	
Traffic Volume (vph)	39	110	48	206	19	4	36	603	413	26	346	18
Future Volume (vph)	39	110	48	206	19	4	36	603	413	26	346	18
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Util. Factor	1.00	1.00		0.97	1.00		1.00	0.95	1.00	1.00	0.95	
Frt	1.00	0.95		1.00	0.97		1.00	1.00	0.85	1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1630	1637		3162	1673		1630	3260	1458	1630	3236	
Flt Permitted	0.74	1.00		0.43	1.00		0.49	1.00	1.00	0.37	1.00	
Satd. Flow (perm)	1272	1637		1432	1673		845	3260	1458	632	3236	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	41	116	51	217	20	4	38	635	435	27	364	19
RTOR Reduction (vph)	0	31	0	0	3	0	0	0	231	0	5	0
Lane Group Flow (vph)	41	136	0	217	21	0	38	635	204	27	378	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2		2	6		
Actuated Green, G (s)	10.6	9.8		18.0	14.2		26.2	24.5	24.5	24.4	23.6	
Effective Green, g (s)	10.6	9.8		18.0	14.2		26.2	24.5	24.5	24.4	23.6	
Actuated g/C Ratio	0.20	0.19		0.34	0.27		0.50	0.47	0.47	0.47	0.45	
Clearance Time (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	263	306		664	454		448	1527	683	310	1460	
v/s Ratio Prot	0.00	c0.08		c0.03	0.01		c0.00	c0.19		0.00	0.12	
v/s Ratio Perm	0.03			0.08			0.04		0.14	0.04		
v/c Ratio	0.16	0.44		0.33	0.05		0.08	0.42	0.30	0.09	0.26	
Uniform Delay, d1	17.1	18.8		12.3	14.1		6.7	9.2	8.6	7.6	8.9	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.3	1.0		0.3	0.0		0.1	0.8	1.1	0.1	0.4	
Delay (s)	17.3	19.9		12.6	14.1		6.8	10.0	9.7	7.7	9.3	
Level of Service	B	B		B	B		A	B	A	A	A	
Approach Delay (s)		19.4			12.7			9.8			9.2	
Approach LOS		B			B			A			A	

Intersection Summary

HCM 2000 Control Delay	11.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.41		
Actuated Cycle Length (s)	52.3	Sum of lost time (s)	12.0
Intersection Capacity Utilization	51.4%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

2: SW 53rd Street/53rd Street & SW Reservoir Avenue

10/08/2017



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	403	5	18	627	382	210
Future Volume (vph)	403	5	18	627	382	210
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Total Lost time (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Util. Factor	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)	1630	1458	1630	1716	1716	1458
Flt Permitted	0.95	1.00	0.46	1.00	1.00	1.00
Satd. Flow (perm)	1630	1458	786	1716	1716	1458
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	424	5	19	660	402	221
RTOR Reduction (vph)	0	3	0	0	0	97
Lane Group Flow (vph)	424	2	19	660	402	124
Turn Type	Prot	Perm	Perm	NA	NA	Perm
Protected Phases	4			2	6	
Permitted Phases		4	2			6
Actuated Green, G (s)	18.4	18.4	31.4	31.4	31.4	31.4
Effective Green, g (s)	18.4	18.4	31.4	31.4	31.4	31.4
Actuated g/C Ratio	0.33	0.33	0.56	0.56	0.56	0.56
Clearance Time (s)	3.0	3.0	3.0	3.0	3.0	3.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	537	480	442	965	965	820
v/s Ratio Prot	c0.26			c0.38	0.23	
v/s Ratio Perm		0.00	0.02			0.09
v/c Ratio	0.79	0.00	0.04	0.68	0.42	0.15
Uniform Delay, d1	16.9	12.5	5.5	8.7	7.0	5.8
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	7.6	0.0	0.2	3.9	1.3	0.4
Delay (s)	24.5	12.6	5.6	12.6	8.3	6.2
Level of Service	C	B	A	B	A	A
Approach Delay (s)	24.4			12.4	7.6	
Approach LOS	C			B	A	

Intersection Summary

HCM 2000 Control Delay	13.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	55.8	Sum of lost time (s)	6.0
Intersection Capacity Utilization	66.7%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Intersection			
Intersection Delay, s/veh	10.0		
Intersection LOS	B		
Approach	WB	NB	SB
Entry Lanes	1	1	1
Conflicting Circle Lanes	1	1	1
Adj Approach Flow, veh/h	246	582	470
Demand Flow Rate, veh/h	250	594	480
Vehicles Circulating, veh/h	560	34	125
Vehicles Exiting, veh/h	68	571	685
Follow-Up Headway, s	3.186	3.186	3.186
Ped Vol Crossing Leg, #/h	0	0	0
Ped Cap Adj	1.000	1.000	1.000
Approach Delay, s/veh	11.1	10.0	9.5
Approach LOS	B	B	A
Lane	Left	Left	Left
Designated Moves	LR	TR	LT
Assumed Moves	LR	TR	LT
RT Channelized			
Lane Util	1.000	1.000	1.000
Critical Headway, s	5.193	5.193	5.193
Entry Flow, veh/h	250	594	480
Cap Entry Lane, veh/h	645	1092	997
Entry HV Adj Factor	0.984	0.980	0.980
Flow Entry, veh/h	246	582	470
Cap Entry, veh/h	635	1070	977
V/C Ratio	0.387	0.544	0.481
Control Delay, s/veh	11.1	10.0	9.5
LOS	B	B	A
95th %tile Queue, veh	2	3	3

Intersection				
Intersection Delay, s/veh	17.4			
Intersection LOS	C			
Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	495	129	400	610
Demand Flow Rate, veh/h	504	132	408	621
Vehicles Circulating, veh/h	582	536	448	107
Vehicles Exiting, veh/h	146	320	638	561
Follow-Up Headway, s	3.186	3.186	3.186	3.186
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	28.8	7.9	14.3	12.2
Approach LOS	D	A	B	B
Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Critical Headway, s	5.193	5.193	5.193	5.193
Entry Flow, veh/h	504	132	408	621
Cap Entry Lane, veh/h	631	661	722	1015
Entry HV Adj Factor	0.981	0.979	0.981	0.982
Flow Entry, veh/h	495	129	400	610
Cap Entry, veh/h	620	647	708	997
V/C Ratio	0.798	0.200	0.565	0.612
Control Delay, s/veh	28.8	7.9	14.3	12.2
LOS	D	A	B	B
95th %tile Queue, veh	8	1	4	4

HCM Signalized Intersection Capacity Analysis

5: SW 53rd Street & SW Philomath Boulevard

10/08/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	60	653	18	25	371	114	37	189	77	228	241	95
Future Volume (vph)	60	653	18	25	371	114	37	189	77	228	241	95
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00		0.97	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.96		1.00	0.96	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1630	3260	1458	1630	1716	1458	1630	1641		3162	1643	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1630	3260	1458	1630	1716	1458	1630	1641		3162	1643	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	63	687	19	26	391	120	39	199	81	240	254	100
RTOR Reduction (vph)	0	0	13	0	0	78	0	11	0	0	10	0
Lane Group Flow (vph)	63	687	6	26	391	42	39	269	0	240	344	0
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8						
Actuated Green, G (s)	6.9	32.3	32.3	3.2	28.6	28.6	3.8	40.8		12.8	49.8	
Effective Green, g (s)	6.9	32.3	32.3	3.2	28.6	28.6	3.8	40.8		12.8	49.8	
Actuated g/C Ratio	0.07	0.32	0.32	0.03	0.28	0.28	0.04	0.40		0.13	0.49	
Clearance Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	111	1041	465	51	485	412	61	662		400	809	
v/s Ratio Prot	c0.04	0.21		0.02	c0.23		0.02	0.16		c0.08	c0.21	
v/s Ratio Perm			0.00			0.03						
v/c Ratio	0.57	0.66	0.01	0.51	0.81	0.10	0.64	0.41		0.60	0.43	
Uniform Delay, d1	45.7	29.7	23.5	48.2	33.7	26.8	48.0	21.5		41.7	16.5	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	6.5	1.5	0.0	7.8	9.5	0.1	19.9	1.9		2.4	1.6	
Delay (s)	52.2	31.2	23.5	56.0	43.1	26.9	67.9	23.4		44.2	18.1	
Level of Service	D	C	C	E	D	C	E	C		D	B	
Approach Delay (s)		32.7			40.1			28.8			28.6	
Approach LOS		C			D			C			C	

Intersection Summary

HCM 2000 Control Delay	32.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	101.1	Sum of lost time (s)	12.0
Intersection Capacity Utilization	62.9%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Intersection

Int Delay, s/veh 2.6

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↕	↕	↕		↕	↕
Traffic Vol, veh/h	8	303	86	21	81	31
Future Vol, veh/h	8	303	86	21	81	31
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	150	-	-	-	150	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	9	337	96	23	90	34

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	119	0	461
Stage 1	-	-	107
Stage 2	-	-	354
Critical Hdwy	4.12	-	6.42
Critical Hdwy Stg 1	-	-	5.42
Critical Hdwy Stg 2	-	-	5.42
Follow-up Hdwy	2.218	-	3.518
Pot Cap-1 Maneuver	1469	-	559
Stage 1	-	-	917
Stage 2	-	-	710
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	1469	-	556
Mov Cap-2 Maneuver	-	-	556
Stage 1	-	-	917
Stage 2	-	-	706

Approach	EB	WB	SB
HCM Control Delay, s	0.2	0	11.6
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1469	-	-	-	556	947
HCM Lane V/C Ratio	0.006	-	-	-	0.162	0.036
HCM Control Delay (s)	7.5	-	-	-	12.7	8.9
HCM Lane LOS	A	-	-	-	B	A
HCM 95th %tile Q(veh)	0	-	-	-	0.6	0.1

Intersection												
Int Delay, s/veh	3.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	6	378	7	7	85	18	7	6	16	67	23	23
Future Vol, veh/h	6	378	7	7	85	18	7	6	16	67	23	23
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	150	-	-	150	-	100	-	-	-	150	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	7	420	8	8	94	20	8	7	18	74	26	26
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	94	0	0	428	0	0	573	547	424	559	551	94
Stage 1	-	-	-	-	-	-	437	437	-	110	110	-
Stage 2	-	-	-	-	-	-	136	110	-	449	441	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1500	-	-	1131	-	-	430	445	630	440	442	963
Stage 1	-	-	-	-	-	-	598	579	-	895	804	-
Stage 2	-	-	-	-	-	-	867	804	-	589	577	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1500	-	-	1131	-	-	396	440	630	419	437	963
Mov Cap-2 Maneuver	-	-	-	-	-	-	396	440	-	419	437	-
Stage 1	-	-	-	-	-	-	595	576	-	891	798	-
Stage 2	-	-	-	-	-	-	811	798	-	563	574	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.1			0.5			12.5			13.8		
HCM LOS							B			B		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2			
Capacity (veh/h)	511	1500	-	-	1131	-	-	419	601			
HCM Lane V/C Ratio	0.063	0.004	-	-	0.007	-	-	0.178	0.085			
HCM Control Delay (s)	12.5	7.4	-	-	8.2	-	-	15.4	11.5			
HCM Lane LOS	B	A	-	-	A	-	-	C	B			
HCM 95th %tile Q(veh)	0.2	0	-	-	0	-	-	0.6	0.3			

HCM Signalized Intersection Capacity Analysis
 8: SW Technology Loop & SW Philomath Boulevard

10/08/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗			↖	↗		↕	
Traffic Volume (vph)	0	840	58	231	530	1	50	0	362	1	0	3
Future Volume (vph)	0	840	58	231	530	1	50	0	362	1	0	3
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		3.0		3.0	3.0			3.0	3.0		3.0	
Lane Util. Factor		0.95		1.00	1.00			1.00	1.00		1.00	
Frt		0.99		1.00	1.00			1.00	0.85		0.90	
Flt Protected		1.00		0.95	1.00			0.95	1.00		0.99	
Satd. Flow (prot)		3228		1630	1715			1630	1458		1523	
Flt Permitted		1.00		0.95	1.00			0.76	1.00		0.98	
Satd. Flow (perm)		3228		1630	1715			1296	1458		1511	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	0	884	61	243	558	1	53	0	381	1	0	3
RTOR Reduction (vph)	0	6	0	0	0	0	0	0	262	0	3	0
Lane Group Flow (vph)	0	939	0	243	559	0	0	53	119	0	1	0
Turn Type	Prot	NA		Prot	NA		Perm	NA	Perm	Perm	NA	
Protected Phases	7	4		3	8			2		6		6
Permitted Phases							2		2		6	
Actuated Green, G (s)		28.6		16.5	48.1			24.5	24.5		24.5	
Effective Green, g (s)		28.6		16.5	48.1			24.5	24.5		24.5	
Actuated g/C Ratio		0.36		0.21	0.61			0.31	0.31		0.31	
Clearance Time (s)		3.0		3.0	3.0			3.0	3.0		3.0	
Vehicle Extension (s)		3.0		3.0	3.0			3.0	3.0		3.0	
Lane Grp Cap (vph)		1174		342	1049			403	454		470	
v/s Ratio Prot		c0.29		c0.15	0.33							
v/s Ratio Perm								0.04	c0.08		0.00	
v/c Ratio		0.80		0.71	0.53			0.13	0.26		0.00	
Uniform Delay, d1		22.4		28.8	8.8			19.4	20.3		18.6	
Progression Factor		1.00		1.00	1.00			1.00	1.00		1.00	
Incremental Delay, d2		4.0		6.8	0.5			0.7	1.4		0.0	
Delay (s)		26.4		35.6	9.3			20.1	21.7		18.6	
Level of Service		C		D	A			C	C		B	
Approach Delay (s)		26.4			17.3			21.5			18.6	
Approach LOS		C			B			C			B	

Intersection Summary			
HCM 2000 Control Delay	22.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	78.6	Sum of lost time (s)	9.0
Intersection Capacity Utilization	65.7%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Intersection

Int Delay, s/veh 0.6

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	10	1121	742	13	19	18
Future Vol, veh/h	10	1121	742	13	19	18
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	150	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	11	1180	781	14	20	19

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	795	0	1399
Stage 1	-	-	788
Stage 2	-	-	611
Critical Hdwy	4.13	-	6.63
Critical Hdwy Stg 1	-	-	5.43
Critical Hdwy Stg 2	-	-	5.83
Follow-up Hdwy	2.219	-	3.519
Pot Cap-1 Maneuver	824	-	143
Stage 1	-	-	447
Stage 2	-	-	505
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	824	-	141
Mov Cap-2 Maneuver	-	-	141
Stage 1	-	-	447
Stage 2	-	-	498

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	26.6
HCM LOS			D

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	824	-	-	-	205
HCM Lane V/C Ratio	0.013	-	-	-	0.19
HCM Control Delay (s)	9.4	-	-	-	26.6
HCM Lane LOS	A	-	-	-	D
HCM 95th %tile Q(veh)	0	-	-	-	0.7

Intersection												
Int Delay, s/veh	5.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↑↑			↑				
Traffic Vol, veh/h	0	0	0	0	662	6	1	325	0	0	0	0
Future Vol, veh/h	0	0	0	0	662	6	1	325	0	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	-	-	-	0	-	-	0	-	-	-	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	0	697	6	1	342	0	0	0	0

Major/Minor	Major2			Minor1		
Conflicting Flow All	-	-	0	348	703	-
Stage 1	-	-	-	0	0	-
Stage 2	-	-	-	348	703	-
Critical Hdwy	-	-	-	6.84	6.54	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	5.84	5.54	-
Follow-up Hdwy	-	-	-	3.52	4.02	-
Pot Cap-1 Maneuver	0	-	-	623	360	0
Stage 1	0	-	-	-	-	0
Stage 2	0	-	-	686	438	0
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	623	0	-
Mov Cap-2 Maneuver	-	-	-	623	0	-
Stage 1	-	-	-	-	0	-
Stage 2	-	-	-	686	0	-

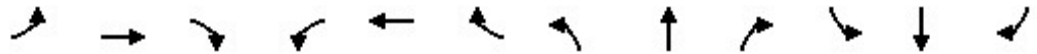
Approach	WB	NB
HCM Control Delay, s	0	17.6
HCM LOS		C

Minor Lane/Major Mvmt	NBLn1	WBT	WBR
Capacity (veh/h)	623	-	-
HCM Lane V/C Ratio	0.551	-	-
HCM Control Delay (s)	17.6	-	-
HCM Lane LOS	C	-	-
HCM 95th %tile Q(veh)	3.4	-	-

HCM Signalized Intersection Capacity Analysis

12: SW 35th Street & SW Washington Way

10/08/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	1	1	0	17	3	16	1	546	79	79	274	3
Future Volume (vph)	1	1	0	17	3	16	1	546	79	79	274	3
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		3.0			3.0			3.0			3.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frt		1.00			0.94			0.98			1.00	
Flt Protected		0.98			0.98			1.00			0.99	
Satd. Flow (prot)		1674			1574			1686			1695	
Flt Permitted		1.00			0.98			1.00			0.79	
Satd. Flow (perm)		1716			1585			1686			1362	
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)	1	1	0	19	3	18	1	607	88	88	304	3
RTOR Reduction (vph)	0	0	0	0	17	0	0	3	0	0	0	0
Lane Group Flow (vph)	0	2	0	0	23	0	0	693	0	0	395	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		3.0			3.0			50.0			50.0	
Effective Green, g (s)		3.0			3.0			50.0			50.0	
Actuated g/C Ratio		0.05			0.05			0.85			0.85	
Clearance Time (s)		3.0			3.0			3.0			3.0	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		87			80			1428			1154	
v/s Ratio Prot												
v/s Ratio Perm		0.00			0.01			0.41			0.29	
v/c Ratio		0.02			0.29			0.49			0.34	
Uniform Delay, d1		26.6			27.0			1.2			1.0	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		0.1			2.0			1.2			0.8	
Delay (s)		26.7			28.9			2.3			1.8	
Level of Service		C			C			A			A	
Approach Delay (s)		26.7			28.9			2.3			1.8	
Approach LOS		C			C			A			A	

Intersection Summary

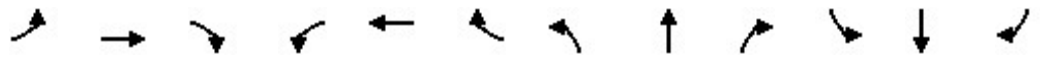
HCM 2000 Control Delay	3.1	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.47		
Actuated Cycle Length (s)	59.0	Sum of lost time (s)	6.0
Intersection Capacity Utilization	71.2%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

13: SW 35th Street & SW Western Boulevard

10/08/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	244	594	69	50	148	93	28	312	114	81	189	74
Future Volume (vph)	244	594	69	50	148	93	28	312	114	81	189	74
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.98		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1467	1520		1467	1544	1312	1467	1544	1312	1467	1544	1312
Flt Permitted	0.66	1.00		0.16	1.00	1.00	0.56	1.00	1.00	0.38	1.00	1.00
Satd. Flow (perm)	1016	1520		240	1544	1312	872	1544	1312	587	1544	1312
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	257	625	73	53	156	98	29	328	120	85	199	78
RTOR Reduction (vph)	0	7	0	0	0	41	0	0	82	0	0	54
Lane Group Flow (vph)	257	691	0	53	156	57	29	328	38	85	199	24
Turn Type	Perm	NA		pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4		3	8			2			6	
Permitted Phases	4			8		8	2		2	6		6
Actuated Green, G (s)	28.0	28.0		33.8	33.8	33.8	18.1	18.1	18.1	18.1	18.1	18.1
Effective Green, g (s)	28.0	28.0		33.8	33.8	33.8	18.1	18.1	18.1	18.1	18.1	18.1
Actuated g/C Ratio	0.48	0.48		0.58	0.58	0.58	0.31	0.31	0.31	0.31	0.31	0.31
Clearance Time (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	491	735		199	901	765	272	482	410	183	482	410
v/s Ratio Prot		c0.45		c0.01	0.10			c0.21			0.13	
v/s Ratio Perm	0.25			0.14		0.04	0.03		0.03	0.14		0.02
v/c Ratio	0.52	0.94		0.27	0.17	0.07	0.11	0.68	0.09	0.46	0.41	0.06
Uniform Delay, d1	10.3	14.2		8.6	5.6	5.2	14.2	17.4	14.1	16.0	15.7	13.9
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.0	20.0		0.7	0.1	0.0	0.8	7.6	0.4	8.2	2.6	0.3
Delay (s)	11.3	34.2		9.3	5.7	5.3	14.9	24.9	14.5	24.3	18.3	14.2
Level of Service	B	C		A	A	A	B	C	B	C	B	B
Approach Delay (s)		28.0			6.2			21.7			18.8	
Approach LOS		C			A			C			B	

Intersection Summary

HCM 2000 Control Delay	21.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	57.9	Sum of lost time (s)	9.0
Intersection Capacity Utilization	85.5%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
 14: SW 35th Street & SW Philomath Boulevard

10/08/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↗↗	↘	↘	↗↗	↘	↘	↗	↘	↘	↗	↗
Traffic Volume (vph)	16	770	20	188	640	110	31	272	225	75	232	15
Future Volume (vph)	16	770	20	188	640	110	31	272	225	75	232	15
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1467	2934	1312	1467	2934	1312	1467	1544	1312	1467	1530	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.47	1.00	1.00	0.44	1.00	
Satd. Flow (perm)	1467	2934	1312	1467	2934	1312	729	1544	1312	677	1530	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	17	811	21	198	674	116	33	286	237	79	244	16
RTOR Reduction (vph)	0	0	14	0	0	56	0	0	155	0	3	0
Lane Group Flow (vph)	17	811	7	198	674	60	33	286	82	79	257	0
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Perm	NA	Perm	Perm	NA	
Protected Phases	7	4		3	8			2			6	
Permitted Phases			4			8	2		2	6		
Actuated Green, G (s)	1.8	29.1	29.1	15.4	42.7	42.7	28.5	28.5	28.5	28.5	28.5	
Effective Green, g (s)	1.8	29.1	29.1	15.4	42.7	42.7	28.5	28.5	28.5	28.5	28.5	
Actuated g/C Ratio	0.02	0.35	0.35	0.19	0.52	0.52	0.35	0.35	0.35	0.35	0.35	
Clearance Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	32	1041	465	275	1527	683	253	536	456	235	531	
v/s Ratio Prot	0.01	c0.28		c0.13	0.23			c0.19			0.17	
v/s Ratio Perm			0.01			0.05	0.05		0.06	0.12		
v/c Ratio	0.53	0.78	0.02	0.72	0.44	0.09	0.13	0.53	0.18	0.34	0.48	
Uniform Delay, d1	39.7	23.6	17.2	31.3	12.2	9.9	18.3	21.4	18.6	19.8	21.0	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	15.9	3.7	0.0	8.7	0.2	0.1	1.1	3.8	0.9	3.8	3.1	
Delay (s)	55.6	27.3	17.2	40.0	12.4	9.9	19.3	25.2	19.5	23.6	24.1	
Level of Service	E	C	B	D	B	A	B	C	B	C	C	
Approach Delay (s)		27.6			17.7			22.4			24.0	
Approach LOS		C			B			C			C	

Intersection Summary

HCM 2000 Control Delay	22.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	82.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	73.9%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Intersection				
Intersection Delay, s/veh	5.4			
Intersection LOS	A			
Approach	EB	WB	NB	
Entry Lanes	1	2	1	
Conflicting Circle Lanes	1	1	1	
Adj Approach Flow, veh/h	513	251	509	
Demand Flow Rate, veh/h	523	256	519	
Vehicles Circulating, veh/h	145	1	511	
Vehicles Exiting, veh/h	112	511	157	
Follow-Up Headway, s	3.186	3.186	3.186	
Ped Vol Crossing Leg, #/h	0	0	0	
Ped Cap Adj	1.000	1.000	1.000	
Approach Delay, s/veh	10.7	5.3	0.0	
Approach LOS	B	A	A	
Lane	Left	Left	Left	Bypass
Designated Moves	TR	LT	L	R
Assumed Moves	TR	LT	L	R
RT Channelized				Free
Lane Util	1.000	1.000	1.000	
Critical Headway, s	5.193	5.193	5.193	
Entry Flow, veh/h	523	256	1	518
Cap Entry Lane, veh/h	977	1129	678	1785
Entry HV Adj Factor	0.981	0.980	1.000	0.980
Flow Entry, veh/h	513	251	1	508
Cap Entry, veh/h	959	1106	678	1750
V/C Ratio	0.535	0.227	0.001	0.290
Control Delay, s/veh	10.7	5.3	5.3	0.0
LOS	B	A	A	A
95th %tile Queue, veh	3	1	0	1

HCM Signalized Intersection Capacity Analysis

1: 53rd Street & NW Harrison Boulevard

10/08/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖↗	↖		↖	↕	↗	↖	↕↗	
Traffic Volume (vph)	28	74	39	439	89	22	54	501	253	8	592	71
Future Volume (vph)	28	74	39	439	89	22	54	501	253	8	592	71
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Util. Factor	1.00	1.00		0.97	1.00		1.00	0.95	1.00	1.00	0.95	
Frt	1.00	0.95		1.00	0.97		1.00	1.00	0.85	1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1630	1627		3162	1665		1630	3260	1458	1630	3207	
Flt Permitted	0.68	1.00		0.50	1.00		0.27	1.00	1.00	0.45	1.00	
Satd. Flow (perm)	1170	1627		1653	1665		463	3260	1458	770	3207	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	29	78	41	462	94	23	57	527	266	8	623	75
RTOR Reduction (vph)	0	34	0	0	16	0	0	0	151	0	13	0
Lane Group Flow (vph)	29	85	0	462	101	0	57	527	115	8	685	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2		2	6		
Actuated Green, G (s)	8.9	8.1		18.4	14.6		24.2	21.6	21.6	20.6	19.8	
Effective Green, g (s)	8.9	8.1		18.4	14.6		24.2	21.6	21.6	20.6	19.8	
Actuated g/C Ratio	0.18	0.16		0.37	0.29		0.49	0.43	0.43	0.41	0.40	
Clearance Time (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	216	264		831	488		285	1413	632	332	1275	
v/s Ratio Prot	0.00	0.05		c0.08	0.06		c0.01	0.16		0.00	c0.21	
v/s Ratio Perm	0.02			c0.12			0.09		0.08	0.01		
v/c Ratio	0.13	0.32		0.56	0.21		0.20	0.37	0.18	0.02	0.54	
Uniform Delay, d1	17.1	18.4		11.7	13.2		7.3	9.5	8.7	8.6	11.5	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.3	0.7		0.8	0.2		0.3	0.8	0.6	0.0	1.6	
Delay (s)	17.4	19.1		12.5	13.5		7.6	10.3	9.3	8.6	13.1	
Level of Service	B	B		B	B		A	B	A	A	B	
Approach Delay (s)		18.8			12.7			9.8			13.1	
Approach LOS		B			B			A			B	

Intersection Summary

HCM 2000 Control Delay	12.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	49.8	Sum of lost time (s)	12.0
Intersection Capacity Utilization	54.7%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
 2: SW 53rd Street/53rd Street & SW Reservoir Avenue

10/08/2017



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	310	20	11	518	654	434
Future Volume (vph)	310	20	11	518	654	434
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Total Lost time (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Util. Factor	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)	1630	1458	1630	1716	1716	1458
Flt Permitted	0.95	1.00	0.29	1.00	1.00	1.00
Satd. Flow (perm)	1630	1458	495	1716	1716	1458
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	326	21	12	545	688	457
RTOR Reduction (vph)	0	15	0	0	0	170
Lane Group Flow (vph)	326	6	12	545	688	287
Turn Type	Prot	Perm	Perm	NA	NA	Perm
Protected Phases	4			2	6	
Permitted Phases		4	2			6
Actuated Green, G (s)	15.6	15.6	36.3	36.3	36.3	36.3
Effective Green, g (s)	15.6	15.6	36.3	36.3	36.3	36.3
Actuated g/C Ratio	0.27	0.27	0.63	0.63	0.63	0.63
Clearance Time (s)	3.0	3.0	3.0	3.0	3.0	3.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	439	392	310	1075	1075	914
v/s Ratio Prot	c0.20			0.32	c0.40	
v/s Ratio Perm		0.00	0.02			0.20
v/c Ratio	0.74	0.01	0.04	0.51	0.64	0.31
Uniform Delay, d1	19.3	15.5	4.1	5.9	6.7	5.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	6.7	0.0	0.2	1.7	2.9	0.9
Delay (s)	26.0	15.5	4.4	7.6	9.7	5.9
Level of Service	C	B	A	A	A	A
Approach Delay (s)	25.3			7.5	8.2	
Approach LOS	C			A	A	

Intersection Summary			
HCM 2000 Control Delay	10.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	57.9	Sum of lost time (s)	6.0
Intersection Capacity Utilization	62.7%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

HCM 2010 Roundabout
 3: SW 53rd Street & Site Access (West)

10/08/2017

Intersection			
Intersection Delay, s/veh	13.3		
Intersection LOS	B		
Approach	WB	NB	SB
Entry Lanes	1	1	1
Conflicting Circle Lanes	1	1	1
Adj Approach Flow, veh/h	136	637	704
Demand Flow Rate, veh/h	138	650	719
Vehicles Circulating, veh/h	522	127	69
Vehicles Exiting, veh/h	254	660	591
Follow-Up Headway, s	3.186	3.186	3.186
Ped Vol Crossing Leg, #/h	0	0	0
Ped Cap Adj	1.000	1.000	1.000
Approach Delay, s/veh	7.9	13.6	14.0
Approach LOS	A	B	B
Lane	Left	Left	Left
Designated Moves	LR	TR	LT
Assumed Moves	LR	TR	LT
RT Channelized			
Lane Util	1.000	1.000	1.000
Critical Headway, s	5.193	5.193	5.193
Entry Flow, veh/h	138	650	719
Cap Entry Lane, veh/h	670	995	1055
Entry HV Adj Factor	0.986	0.980	0.980
Flow Entry, veh/h	136	637	704
Cap Entry, veh/h	661	975	1033
V/C Ratio	0.206	0.653	0.682
Control Delay, s/veh	7.9	13.6	14.0
LOS	A	B	B
95th %tile Queue, veh	1	5	6

Intersection				
Intersection Delay, s/veh20.9				
Intersection LOS C				
Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	260	296	682	613
Demand Flow Rate, veh/h	266	303	696	625
Vehicles Circulating, veh/h	550	739	238	387
Vehicles Exiting, veh/h	462	195	578	655
Follow-Up Headway, s	3.186	3.186	3.186	3.186
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	11.5	18.0	21.0	26.2
Approach LOS	B	C	C	D
Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Critical Headway, s	5.193	5.193	5.193	5.193
Entry Flow, veh/h	266	303	696	625
Cap Entry Lane, veh/h	652	540	891	767
Entry HV Adj Factor	0.978	0.978	0.981	0.981
Flow Entry, veh/h	260	296	682	613
Cap Entry, veh/h	638	528	873	753
V/C Ratio	0.408	0.561	0.781	0.815
Control Delay, s/veh	11.5	18.0	21.0	26.2
LOS	B	C	C	D
95th %tile Queue, veh	2	3	8	9

HCM Signalized Intersection Capacity Analysis

5: SW 53rd Street & SW Philomath Boulevard

10/08/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	80	549	44	84	548	250	187	244	87	220	272	132
Future Volume (vph)	80	549	44	84	548	250	187	244	87	220	272	132
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00		0.97	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.96		1.00	0.95	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1630	3260	1458	1630	1716	1458	1630	1648		3162	1632	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1630	3260	1458	1630	1716	1458	1630	1648		3162	1632	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	84	578	46	88	577	263	197	257	92	232	286	139
RTOR Reduction (vph)	0	0	30	0	0	70	0	10	0	0	14	0
Lane Group Flow (vph)	84	578	16	88	577	193	197	339	0	232	411	0
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8						
Actuated Green, G (s)	8.0	41.4	41.4	9.2	42.6	42.6	16.7	40.5		12.6	36.4	
Effective Green, g (s)	8.0	41.4	41.4	9.2	42.6	42.6	16.7	40.5		12.6	36.4	
Actuated g/C Ratio	0.07	0.36	0.36	0.08	0.37	0.37	0.14	0.35		0.11	0.31	
Clearance Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	112	1166	521	129	631	536	235	576		344	513	
v/s Ratio Prot	c0.05	0.18		0.05	c0.34		c0.12	0.21		0.07	c0.25	
v/s Ratio Perm			0.01			0.13						
v/c Ratio	0.75	0.50	0.03	0.68	0.91	0.36	0.84	0.59		0.67	0.80	
Uniform Delay, d1	52.9	29.0	24.1	51.8	34.8	26.6	48.2	30.8		49.6	36.3	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	24.2	0.3	0.0	13.9	17.8	0.4	22.2	4.4		5.2	12.4	
Delay (s)	77.1	29.3	24.2	65.7	52.6	27.0	70.3	35.1		54.7	48.7	
Level of Service	E	C	C	E	D	C	E	D		D	D	
Approach Delay (s)		34.7			46.6			47.8			50.8	
Approach LOS		C			D			D			D	

Intersection Summary

HCM 2000 Control Delay	44.8	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	115.7	Sum of lost time (s)	12.0
Intersection Capacity Utilization	85.0%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Intersection

Int Delay, s/veh 1.8

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↘	↗	↗		↘	↗
Traffic Vol, veh/h	32	148	261	82	45	17
Future Vol, veh/h	32	148	261	82	45	17
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	150	-	-	-	150	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	36	164	290	91	50	19

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	381	0	336
Stage 1	-	-	336
Stage 2	-	-	236
Critical Hdwy	4.12	-	6.22
Critical Hdwy Stg 1	-	-	5.42
Critical Hdwy Stg 2	-	-	5.42
Follow-up Hdwy	2.218	-	3.318
Pot Cap-1 Maneuver	1177	-	706
Stage 1	-	-	724
Stage 2	-	-	803
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	1177	-	706
Mov Cap-2 Maneuver	-	-	467
Stage 1	-	-	724
Stage 2	-	-	778

Approach	EB	WB	SB
HCM Control Delay, s	1.4	0	12.7
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1177	-	-	-	467	706
HCM Lane V/C Ratio	0.03	-	-	-	0.107	0.027
HCM Control Delay (s)	8.2	-	-	-	13.6	10.2
HCM Lane LOS	A	-	-	-	B	B
HCM 95th %tile Q(veh)	0.1	-	-	-	0.4	0.1

Intersection												
Int Delay, s/veh	2.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	23	170	7	7	331	68	7	23	8	37	12	12
Future Vol, veh/h	23	170	7	7	331	68	7	23	8	37	12	12
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	150	-	-	150	-	100	-	-	-	150	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	26	189	8	8	368	76	8	26	9	41	13	13

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	368	0	0	197	0	0	641	627	193	644	631	368
Stage 1	-	-	-	-	-	-	244	244	-	383	383	-
Stage 2	-	-	-	-	-	-	397	383	-	261	248	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1191	-	-	1376	-	-	388	400	849	386	398	677
Stage 1	-	-	-	-	-	-	760	704	-	640	612	-
Stage 2	-	-	-	-	-	-	629	612	-	744	701	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1191	-	-	1376	-	-	363	389	849	355	387	677
Mov Cap-2 Maneuver	-	-	-	-	-	-	363	389	-	355	387	-
Stage 1	-	-	-	-	-	-	743	689	-	626	608	-
Stage 2	-	-	-	-	-	-	600	608	-	693	686	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.9	0.1	14.2	15
HCM LOS			B	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	433	1191	-	-	1376	-	-	355	492
HCM Lane V/C Ratio	0.098	0.021	-	-	0.006	-	-	0.116	0.054
HCM Control Delay (s)	14.2	8.1	-	-	7.6	-	-	16.5	12.7
HCM Lane LOS	B	A	-	-	A	-	-	C	B
HCM 95th %tile Q(veh)	0.3	0.1	-	-	0	-	-	0.4	0.2

HCM Signalized Intersection Capacity Analysis
 8: SW Technology Loop & SW Philomath Boulevard

10/08/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	718	39	263	883	1	116	0	393	0	0	0
Future Volume (vph)	0	718	39	263	883	1	116	0	393	0	0	0
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		3.0		3.0	3.0			3.0	3.0			
Lane Util. Factor		0.95		1.00	1.00			1.00	1.00			
Frt		0.99		1.00	1.00			1.00	0.85			
Flt Protected		1.00		0.95	1.00			0.95	1.00			
Satd. Flow (prot)		3235		1630	1715			1630	1458			
Flt Permitted		1.00		0.95	1.00			0.76	1.00			
Satd. Flow (perm)		3235		1630	1715			1299	1458			
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	0	756	41	277	929	1	122	0	414	0	0	0
RTOR Reduction (vph)	0	5	0	0	0	0	0	0	298	0	0	0
Lane Group Flow (vph)	0	792	0	277	930	0	0	122	116	0	0	0
Turn Type	Prot	NA		Prot	NA		Perm	NA	Perm			
Protected Phases	7	4		3	8			2				6
Permitted Phases							2		2	6		
Actuated Green, G (s)		23.8		17.3	44.1			19.6	19.6			
Effective Green, g (s)		23.8		17.3	44.1			19.6	19.6			
Actuated g/C Ratio		0.34		0.25	0.63			0.28	0.28			
Clearance Time (s)		3.0		3.0	3.0			3.0	3.0			
Vehicle Extension (s)		3.0		3.0	3.0			3.0	3.0			
Lane Grp Cap (vph)		1104		404	1085			365	409			
v/s Ratio Prot		0.24		0.17	c0.54							
v/s Ratio Perm								c0.09	0.08			
v/c Ratio		0.72		0.69	0.86			0.33	0.28			
Uniform Delay, d1		20.0		23.7	10.3			19.9	19.6			
Progression Factor		1.00		1.00	1.00			1.00	1.00			
Incremental Delay, d2		2.3		4.8	6.8			2.5	1.7			
Delay (s)		22.3		28.5	17.1			22.3	21.3			
Level of Service		C		C	B			C	C			
Approach Delay (s)		22.3			19.7			21.5			0.0	
Approach LOS		C			B			C			A	

Intersection Summary

HCM 2000 Control Delay	20.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	69.7	Sum of lost time (s)	9.0
Intersection Capacity Utilization	71.7%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Intersection

Int Delay, s/veh 0.6

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	17	1025	1155	27	12	10
Future Vol, veh/h	17	1025	1155	27	12	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	150	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	18	1079	1216	28	13	11

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	1244	0	1805
Stage 1	-	-	1230
Stage 2	-	-	575
Critical Hdwy	4.13	-	6.63
Critical Hdwy Stg 1	-	-	5.43
Critical Hdwy Stg 2	-	-	5.83
Follow-up Hdwy	2.219	-	3.519
Pot Cap-1 Maneuver	558	-	78
Stage 1	-	-	275
Stage 2	-	-	527
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	558	-	75
Mov Cap-2 Maneuver	-	-	75
Stage 1	-	-	275
Stage 2	-	-	510

Approach	EB	WB	SB
HCM Control Delay, s	0.2	0	47.7
HCM LOS			E

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	558	-	-	-	107
HCM Lane V/C Ratio	0.032	-	-	-	0.216
HCM Control Delay (s)	11.7	-	-	-	47.7
HCM Lane LOS	B	-	-	-	E
HCM 95th %tile Q(veh)	0.1	-	-	-	0.8

Intersection												
Int Delay, s/veh	4.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↑↑			↑				
Traffic Vol, veh/h	0	0	0	0	859	15	1	257	0	0	0	0
Future Vol, veh/h	0	0	0	0	859	15	1	257	0	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	-	-	-	0	-	-	0	-	-	-	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	0	904	16	1	271	0	0	0	0

Major/Minor	Major2			Minor1		
Conflicting Flow All	-	-	0	452	920	-
Stage 1	-	-	-	0	0	-
Stage 2	-	-	-	452	920	-
Critical Hdwy	-	-	-	6.84	6.54	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	5.84	5.54	-
Follow-up Hdwy	-	-	-	3.52	4.02	-
Pot Cap-1 Maneuver	0	-	-	536	~ 269	0
Stage 1	0	-	-	-	-	0
Stage 2	0	-	-	608	348	0
Platoon blocked, %						
Mov Cap-1 Maneuver	-	-	-	536	0	-
Mov Cap-2 Maneuver	-	-	-	536	0	-
Stage 1	-	-	-	-	0	-
Stage 2	-	-	-	608	0	-

Approach	WB	NB
HCM Control Delay, s	0	18.4
HCM LOS		C

Minor Lane/Major Mvmt	NBLn1	WBT	WBR
Capacity (veh/h)	536	-	-
HCM Lane V/C Ratio	0.507	-	-
HCM Control Delay (s)	18.4	-	-
HCM Lane LOS	C	-	-
HCM 95th %tile Q(veh)	2.8	-	-

Notes
 ~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

HCM Signalized Intersection Capacity Analysis

12: SW 35th Street & SW Washington Way

10/08/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	0	3	1	79	3	51	1	493	45	37	535	0
Future Volume (vph)	0	3	1	79	3	51	1	493	45	37	535	0
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		3.0			3.0			3.0			3.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frt		0.97			0.95			0.99			1.00	
Flt Protected		1.00			0.97			1.00			1.00	
Satd. Flow (prot)		1658			1580			1696			1710	
Flt Permitted		1.00			0.82			1.00			0.95	
Satd. Flow (perm)		1658			1326			1696			1631	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	3	1	88	3	57	1	548	50	41	594	0
RTOR Reduction (vph)	0	1	0	0	46	0	0	4	0	0	0	0
Lane Group Flow (vph)	0	3	0	0	102	0	0	595	0	0	635	0
Turn Type		NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		8.3			8.3			42.3			42.3	
Effective Green, g (s)		8.3			8.3			42.3			42.3	
Actuated g/C Ratio		0.15			0.15			0.75			0.75	
Clearance Time (s)		3.0			3.0			3.0			3.0	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		243			194			1267			1218	
v/s Ratio Prot		0.00										
v/s Ratio Perm					c0.08			0.35			c0.39	
v/c Ratio		0.01			0.53			0.47			0.52	
Uniform Delay, d1		20.6			22.3			2.8			3.0	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		0.0			2.6			1.3			1.6	
Delay (s)		20.7			24.9			4.0			4.6	
Level of Service		C			C			A			A	
Approach Delay (s)		20.7			24.9			4.0			4.6	
Approach LOS		C			C			A			A	

Intersection Summary

HCM 2000 Control Delay	6.5	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	56.6	Sum of lost time (s)	6.0
Intersection Capacity Utilization	83.6%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

13: SW 35th Street & SW Western Boulevard

10/08/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	139	321	42	120	646	128	41	120	51	128	264	247
Future Volume (vph)	139	321	42	120	646	128	41	120	51	128	264	247
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.98		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1467	1517		1467	1544	1312	1467	1544	1312	1467	1544	1312
Flt Permitted	0.30	1.00		0.35	1.00	1.00	0.49	1.00	1.00	0.68	1.00	1.00
Satd. Flow (perm)	465	1517		536	1544	1312	754	1544	1312	1044	1544	1312
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	146	338	44	126	680	135	43	126	54	135	278	260
RTOR Reduction (vph)	0	8	0	0	0	64	0	0	35	0	0	152
Lane Group Flow (vph)	146	374	0	126	680	71	43	126	19	135	278	108
Turn Type	Perm	NA		pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4		3	8			2			6	
Permitted Phases	4			8		8	2		2	6		6
Actuated Green, G (s)	21.7	21.7		28.5	28.5	28.5	19.4	19.4	19.4	19.4	19.4	19.4
Effective Green, g (s)	21.7	21.7		28.5	28.5	28.5	19.4	19.4	19.4	19.4	19.4	19.4
Actuated g/C Ratio	0.40	0.40		0.53	0.53	0.53	0.36	0.36	0.36	0.36	0.36	0.36
Clearance Time (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	187	610		349	816	693	271	555	472	375	555	472
v/s Ratio Prot		0.25		0.03	c0.44			0.08			c0.18	
v/s Ratio Perm	0.31			0.17		0.05	0.06		0.01	0.13		0.08
v/c Ratio	0.78	0.61		0.36	0.83	0.10	0.16	0.23	0.04	0.36	0.50	0.23
Uniform Delay, d1	14.0	12.8		7.4	10.7	6.3	11.7	12.0	11.2	12.7	13.5	12.0
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	18.8	1.8		0.6	7.3	0.1	1.2	0.9	0.2	2.7	3.2	1.1
Delay (s)	32.8	14.6		8.0	18.0	6.4	13.0	13.0	11.4	15.4	16.7	13.2
Level of Service	C	B		A	B	A	B	B	B	B	B	B
Approach Delay (s)		19.6			15.0			12.6			15.1	
Approach LOS		B			B			B			B	

Intersection Summary

HCM 2000 Control Delay	15.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	53.9	Sum of lost time (s)	9.0
Intersection Capacity Utilization	84.6%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

14: SW 35th Street & SW Philomath Boulevard

10/08/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	40	720	13	132	768	79	19	141	202	143	241	36
Future Volume (vph)	40	720	13	132	768	79	19	141	202	143	241	36
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1467	2934	1312	1467	2934	1312	1467	1544	1312	1467	1514	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.46	1.00	1.00	0.63	1.00	
Satd. Flow (perm)	1467	2934	1312	1467	2934	1312	716	1544	1312	980	1514	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	42	758	14	139	808	83	20	148	213	151	254	38
RTOR Reduction (vph)	0	0	9	0	0	46	0	0	129	0	5	0
Lane Group Flow (vph)	42	758	5	139	808	37	20	148	84	151	287	0
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Perm	NA	Perm	Perm	NA	
Protected Phases	7	4		3	8			2			6	
Permitted Phases			4			8	2		2	6		
Actuated Green, G (s)	3.9	27.2	27.2	12.2	35.5	35.5	31.5	31.5	31.5	31.5	31.5	31.5
Effective Green, g (s)	3.9	27.2	27.2	12.2	35.5	35.5	31.5	31.5	31.5	31.5	31.5	31.5
Actuated g/C Ratio	0.05	0.34	0.34	0.15	0.44	0.44	0.39	0.39	0.39	0.39	0.39	0.39
Clearance Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	71	998	446	223	1303	582	282	608	517	386	596	
v/s Ratio Prot	0.03	c0.26		c0.09	0.28			0.10			c0.19	
v/s Ratio Perm			0.00			0.03	0.03		0.06	0.15		
v/c Ratio	0.59	0.76	0.01	0.62	0.62	0.06	0.07	0.24	0.16	0.39	0.48	
Uniform Delay, d1	37.2	23.4	17.4	31.7	17.0	12.7	15.1	16.2	15.7	17.3	18.1	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	12.5	3.4	0.0	5.3	0.9	0.0	0.5	0.9	0.7	3.0	2.8	
Delay (s)	49.7	26.8	17.5	37.0	18.0	12.7	15.6	17.2	16.3	20.3	20.9	
Level of Service	D	C	B	D	B	B	B	B	B	C	C	
Approach Delay (s)		27.8			20.1			16.6			20.7	
Approach LOS		C			C			B			C	

Intersection Summary

HCM 2000 Control Delay	22.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	79.9	Sum of lost time (s)	9.0
Intersection Capacity Utilization	68.3%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Intersection				
Intersection Delay, s/veh	15.2			
Intersection LOS	C			
Approach	EB	WB	NB	
Entry Lanes	1	2	1	
Conflicting Circle Lanes	1	1	1	
Adj Approach Flow, veh/h	232	918	306	
Demand Flow Rate, veh/h	236	937	312	
Vehicles Circulating, veh/h	493	9	226	
Vehicles Exiting, veh/h	453	226	503	
Follow-Up Headway, s	3.186	3.186	3.186	
Ped Vol Crossing Leg, #/h	0	0	0	
Ped Cap Adj	1.000	1.000	1.000	
Approach Delay, s/veh	9.8	21.6	0.1	
Approach LOS	A	C	A	
Lane	Left	Left	Left	Bypass
Designated Moves	TR	LT	L	R
Assumed Moves	TR	LT	L	R
RT Channelized				Free
Lane Util	1.000	1.000	1.000	
Critical Headway, s	5.193	5.193	5.193	
Entry Flow, veh/h	236	937	9	303
Cap Entry Lane, veh/h	690	1120	901	1785
Entry HV Adj Factor	0.981	0.980	1.000	0.980
Flow Entry, veh/h	232	918	9	297
Cap Entry, veh/h	677	1097	901	1750
V/C Ratio	0.342	0.837	0.010	0.170
Control Delay, s/veh	9.8	21.6	4.1	0.0
LOS	A	C	A	A
95th %tile Queue, veh	2	10	0	1

HCM Signalized Intersection Capacity Analysis

1: 53rd Street & NW Harrison Boulevard

10/08/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	39	110	48	248	19	4	36	734	478	26	429	18
Future Volume (vph)	39	110	48	248	19	4	36	734	478	26	429	18
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Util. Factor	1.00	1.00		0.97	1.00		1.00	0.95	1.00	1.00	0.95	
Frt	1.00	0.95		1.00	0.97		1.00	1.00	0.85	1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1630	1637		3162	1673		1630	3260	1458	1630	3240	
Flt Permitted	0.74	1.00		0.43	1.00		0.43	1.00	1.00	0.29	1.00	
Satd. Flow (perm)	1272	1637		1440	1673		741	3260	1458	502	3240	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	41	116	51	261	20	4	38	773	503	27	452	19
RTOR Reduction (vph)	0	31	0	0	3	0	0	0	271	0	4	0
Lane Group Flow (vph)	41	136	0	261	21	0	38	773	232	27	467	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2		2	6		
Actuated Green, G (s)	10.5	9.7		17.9	14.1		25.4	23.7	23.7	23.6	22.8	
Effective Green, g (s)	10.5	9.7		17.9	14.1		25.4	23.7	23.7	23.6	22.8	
Actuated g/C Ratio	0.20	0.19		0.35	0.27		0.49	0.46	0.46	0.46	0.44	
Clearance Time (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	265	308		675	458		395	1503	672	248	1437	
v/s Ratio Prot	0.00	0.08		c0.04	0.01		c0.00	c0.24		0.00	0.14	
v/s Ratio Perm	0.03			c0.10			0.04		0.16	0.05		
v/c Ratio	0.15	0.44		0.39	0.05		0.10	0.51	0.35	0.11	0.33	
Uniform Delay, d1	16.7	18.5		12.1	13.7		6.8	9.8	8.9	7.8	9.3	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.3	1.0		0.4	0.0		0.1	1.3	1.4	0.2	0.6	
Delay (s)	17.0	19.5		12.5	13.7		6.9	11.0	10.3	8.0	9.9	
Level of Service	B	B		B	B		A	B	B	A	A	
Approach Delay (s)		19.0			12.6			10.6			9.8	
Approach LOS		B			B			B			A	

Intersection Summary

HCM 2000 Control Delay	11.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	51.4	Sum of lost time (s)	12.0
Intersection Capacity Utilization	56.7%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

2: SW 53rd Street/53rd Street & SW Reservoir Avenue

10/08/2017



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	403	5	18	823	507	210
Future Volume (vph)	403	5	18	823	507	210
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Total Lost time (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Util. Factor	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)	1630	1458	1630	1716	1716	1458
Flt Permitted	0.95	1.00	0.37	1.00	1.00	1.00
Satd. Flow (perm)	1630	1458	639	1716	1716	1458
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	424	5	19	866	534	221
RTOR Reduction (vph)	0	3	0	0	0	89
Lane Group Flow (vph)	424	2	19	866	534	132
Turn Type	Prot	Perm	Perm	NA	NA	Perm
Protected Phases	4			2	6	
Permitted Phases		4	2			6
Actuated Green, G (s)	17.8	17.8	35.2	35.2	35.2	35.2
Effective Green, g (s)	17.8	17.8	35.2	35.2	35.2	35.2
Actuated g/C Ratio	0.30	0.30	0.60	0.60	0.60	0.60
Clearance Time (s)	3.0	3.0	3.0	3.0	3.0	3.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	491	439	381	1023	1023	869
v/s Ratio Prot	c0.26			c0.50	0.31	
v/s Ratio Perm		0.00	0.03			0.09
v/c Ratio	0.86	0.00	0.05	0.85	0.52	0.15
Uniform Delay, d1	19.5	14.4	4.9	9.7	7.0	5.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	14.6	0.0	0.2	8.6	1.9	0.4
Delay (s)	34.0	14.4	5.2	18.3	8.9	5.6
Level of Service	C	B	A	B	A	A
Approach Delay (s)	33.8			18.0	7.9	
Approach LOS	C			B	A	

Intersection Summary

HCM 2000 Control Delay	17.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	59.0	Sum of lost time (s)	6.0
Intersection Capacity Utilization	77.9%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

HCM 2010 TWSC
 3: SW 53rd Street & Site Access (West)

10/08/2017

Intersection

Int Delay, s/veh 109.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↘	↗	↑	↗	↘	↑
Traffic Vol, veh/h	291	291	516	151	150	403
Future Vol, veh/h	291	291	516	151	150	403
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	150	0	-	100	150	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	320	320	567	166	165	443

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	1340	567	0
Stage 1	567	-	-
Stage 2	773	-	-
Critical Hdwy	6.42	6.22	-
Critical Hdwy Stg 1	5.42	-	-
Critical Hdwy Stg 2	5.42	-	-
Follow-up Hdwy	3.518	3.318	-
Pot Cap-1 Maneuver	~ 168	523	-
Stage 1	568	-	-
Stage 2	455	-	-
Platoon blocked, %			
Mov Cap-1 Maneuver	~ 140	523	-
Mov Cap-2 Maneuver	~ 140	-	-
Stage 1	568	-	-
Stage 2	380	-	-

Approach	WB	NB	SB
HCM Control Delay, s	\$ 336.7	0	2.5
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	140	523	1005	-
HCM Lane V/C Ratio	-	-	2.284	0.611	0.164	-
HCM Control Delay (s)	-	-	\$ 651.2	22.1	9.3	-
HCM Lane LOS	-	-	F	C	A	-
HCM 95th %tile Q(veh)	-	-	26.9	4.1	0.6	-

Notes

~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

HCM 2010 Roundabout
4: SW 53rd Street & SW West Hills Road

10/08/2017

Intersection				
Intersection Delay, s/veh	37.8			
Intersection LOS	E			
Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	518	225	518	810
Demand Flow Rate, veh/h	528	229	529	826
Vehicles Circulating, veh/h	800	645	506	158
Vehicles Exiting, veh/h	184	390	822	716
Follow-Up Headway, s	3.186	3.186	3.186	3.186
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	80.0	12.0	25.4	25.9
Approach LOS	F	B	D	D
Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Critical Headway, s	5.193	5.193	5.193	5.193
Entry Flow, veh/h	528	229	529	826
Cap Entry Lane, veh/h	508	593	681	965
Entry HV Adj Factor	0.982	0.982	0.980	0.980
Flow Entry, veh/h	518	225	518	810
Cap Entry, veh/h	498	582	667	946
V/C Ratio	1.040	0.386	0.777	0.856
Control Delay, s/veh	80.0	12.0	25.4	25.9
LOS	F	B	D	D
95th %tile Queue, veh	15	2	7	11

HCM Signalized Intersection Capacity Analysis

5: SW 53rd Street & SW Philomath Boulevard

10/08/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	81	653	18	25	371	186	37	201	77	339	260	127
Future Volume (vph)	81	653	18	25	371	186	37	201	77	339	260	127
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.96		1.00	0.95	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1630	1716	1458	1630	1716	1458	1630	1645		1630	1631	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1630	1716	1458	1630	1716	1458	1630	1645		1630	1631	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	85	687	19	26	391	196	39	212	81	357	274	134
RTOR Reduction (vph)	0	0	11	0	0	75	0	11	0	0	14	0
Lane Group Flow (vph)	85	687	8	26	391	121	39	282	0	357	394	0
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8						
Actuated Green, G (s)	9.0	47.8	47.8	2.8	41.6	41.6	3.4	25.6		27.0	49.2	
Effective Green, g (s)	9.0	47.8	47.8	2.8	41.6	41.6	3.4	25.6		27.0	49.2	
Actuated g/C Ratio	0.08	0.41	0.41	0.02	0.36	0.36	0.03	0.22		0.23	0.43	
Clearance Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	127	712	604	39	619	526	48	365		382	696	
v/s Ratio Prot	c0.05	c0.40		0.02	0.23		0.02	c0.17		c0.22	0.24	
v/s Ratio Perm			0.01			0.08						
v/c Ratio	0.67	0.96	0.01	0.67	0.63	0.23	0.81	0.77		0.93	0.57	
Uniform Delay, d1	51.7	32.9	19.8	55.7	30.5	25.6	55.6	42.1		43.2	24.9	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	12.6	25.1	0.0	35.5	2.1	0.2	64.2	14.7		29.7	3.3	
Delay (s)	64.2	58.0	19.8	91.3	32.6	25.9	119.8	56.7		73.0	28.3	
Level of Service	E	E	B	F	C	C	F	E		E	C	
Approach Delay (s)		57.7			32.9			64.2			49.1	
Approach LOS		E			C			E			D	

Intersection Summary

HCM 2000 Control Delay	49.9	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.91		
Actuated Cycle Length (s)	115.2	Sum of lost time (s)	12.0
Intersection Capacity Utilization	91.8%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

HCM 2010 TWSC
 6: SW West Hills Road & Site Access (SW)

10/08/2017

Intersection

Int Delay, s/veh 6.8

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↘	↗	↗		↘	↗
Traffic Vol, veh/h	42	333	115	109	208	81
Future Vol, veh/h	42	333	115	109	208	81
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	150	-	-	-	150	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	47	370	128	121	231	90

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	249	0	188
Stage 1	-	-	188
Stage 2	-	-	463
Critical Hdwy	4.12	-	6.22
Critical Hdwy Stg 1	-	-	5.42
Critical Hdwy Stg 2	-	-	5.42
Follow-up Hdwy	2.218	-	3.318
Pot Cap-1 Maneuver	1317	-	854
Stage 1	-	-	844
Stage 2	-	-	634
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	1317	-	854
Mov Cap-2 Maneuver	-	-	418
Stage 1	-	-	844
Stage 2	-	-	611

Approach	EB	WB	SB
HCM Control Delay, s	0.9	0	19.8
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1317	-	-	-	418	854
HCM Lane V/C Ratio	0.035	-	-	-	0.553	0.105
HCM Control Delay (s)	7.8	-	-	-	23.8	9.7
HCM Lane LOS	A	-	-	-	C	A
HCM 95th %tile Q(veh)	0.1	-	-	-	3.3	0.4

Intersection

Int Delay, s/veh 11.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	30	505	7	7	160	90	7	27	16	174	55	58
Future Vol, veh/h	30	505	7	7	160	90	7	27	16	174	55	58
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	150	-	-	150	-	100	-	-	-	150	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	33	561	8	8	178	100	8	30	18	193	61	64

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	178	0	0	569	0	0	888	825	565	849	829	178
Stage 1	-	-	-	-	-	-	632	632	-	193	193	-
Stage 2	-	-	-	-	-	-	256	193	-	656	636	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1398	-	-	1003	-	-	264	308	524	281	306	865
Stage 1	-	-	-	-	-	-	468	474	-	809	741	-
Stage 2	-	-	-	-	-	-	749	741	-	454	472	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1398	-	-	1003	-	-	201	298	524	245	296	865
Mov Cap-2 Maneuver	-	-	-	-	-	-	201	298	-	245	296	-
Stage 1	-	-	-	-	-	-	457	463	-	790	735	-
Stage 2	-	-	-	-	-	-	630	735	-	400	461	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.4	0.2	18.5	42
HCM LOS			C	E

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	321	1398	-	-	1003	-	-	245	447
HCM Lane V/C Ratio	0.173	0.024	-	-	0.008	-	-	0.789	0.281
HCM Control Delay (s)	18.5	7.6	-	-	8.6	-	-	58.7	16.2
HCM Lane LOS	C	A	-	-	A	-	-	F	C
HCM 95th %tile Q(veh)	0.6	0.1	-	-	0	-	-	5.9	1.1

HCM Signalized Intersection Capacity Analysis
 8: SW Technology Loop & SW Philomath Boulevard

10/08/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	931	78	244	590	1	62	0	371	1	0	3
Future Volume (vph)	0	931	78	244	590	1	62	0	371	1	0	3
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		3.0		3.0	3.0			3.0	3.0		3.0	
Lane Util. Factor		1.00		1.00	1.00			1.00	1.00		1.00	
Frt		0.99		1.00	1.00			1.00	0.85		0.90	
Flt Protected		1.00		0.95	1.00			0.95	1.00		0.99	
Satd. Flow (prot)		1696		1630	1715			1630	1458		1523	
Flt Permitted		1.00		0.95	1.00			0.76	1.00		0.97	
Satd. Flow (perm)		1696		1630	1715			1296	1458		1501	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	0	980	82	257	621	1	65	0	391	1	0	3
RTOR Reduction (vph)	0	4	0	0	0	0	0	0	216	0	3	0
Lane Group Flow (vph)	0	1058	0	257	622	0	0	65	175	0	1	0
Turn Type	Prot	NA		Prot	NA		Perm	NA	Perm	Perm	NA	
Protected Phases	7	4		3	8			2		6		6
Permitted Phases							2		2		6	
Actuated Green, G (s)		50.0		13.0	66.0			18.0	18.0		18.0	
Effective Green, g (s)		50.0		13.0	66.0			18.0	18.0		18.0	
Actuated g/C Ratio		0.56		0.14	0.73			0.20	0.20		0.20	
Clearance Time (s)		3.0		3.0	3.0			3.0	3.0		3.0	
Vehicle Extension (s)		3.0		3.0	3.0			3.0	3.0		3.0	
Lane Grp Cap (vph)		942		235	1257			259	291		300	
v/s Ratio Prot		c0.62		c0.16	0.36							
v/s Ratio Perm								0.05	c0.12		0.00	
v/c Ratio		1.12		1.09	0.49			0.25	0.60		0.00	
Uniform Delay, d1		20.0		38.5	5.0			30.3	32.7		28.8	
Progression Factor		1.00		1.00	1.00			1.00	1.00		1.00	
Incremental Delay, d2		69.5		86.0	0.3			2.3	8.9		0.0	
Delay (s)		89.5		124.5	5.3			32.6	41.6		28.8	
Level of Service		F		F	A			C	D		C	
Approach Delay (s)		89.5			40.2			40.3			28.8	
Approach LOS		F			D			D			C	

Intersection Summary

HCM 2000 Control Delay	62.0	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.00		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	97.4%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Intersection

Int Delay, s/veh 5.4

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	19	1212	802	25	38	31
Future Vol, veh/h	19	1212	802	25	38	31
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	150	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	20	1276	844	26	40	33

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	871	0	857
Stage 1	-	-	857
Stage 2	-	-	1316
Critical Hdwy	4.12	-	6.22
Critical Hdwy Stg 1	-	-	5.42
Critical Hdwy Stg 2	-	-	5.42
Follow-up Hdwy	2.218	-	3.318
Pot Cap-1 Maneuver	774	-	357
Stage 1	-	-	416
Stage 2	-	-	251
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	774	-	357
Mov Cap-2 Maneuver	-	-	50
Stage 1	-	-	416
Stage 2	-	-	245

Approach	EB	WB	SB
HCM Control Delay, s	0.2	0	162.1
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	774	-	-	-	81
HCM Lane V/C Ratio	0.026	-	-	-	0.897
HCM Control Delay (s)	9.8	-	-	-	162.1
HCM Lane LOS	A	-	-	-	F
HCM 95th %tile Q(veh)	0.1	-	-	-	4.7

Intersection

Int Delay, s/veh 20.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↔			↔				
Traffic Vol, veh/h	0	0	0	0	734	6	1	325	0	0	0	0
Future Vol, veh/h	0	0	0	0	734	6	1	325	0	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	-	-	-	0	-	-	0	-	-	-	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	0	773	6	1	342	0	0	0	0

Major/Minor	Major2	Minor1
Conflicting Flow All	- - 0	776 779 -
Stage 1	- - -	0 0 -
Stage 2	- - -	776 779 -
Critical Hdwy	- - -	6.42 6.52 -
Critical Hdwy Stg 1	- - -	- - -
Critical Hdwy Stg 2	- - -	5.42 5.52 -
Follow-up Hdwy	- - -	3.518 4.018 -
Pot Cap-1 Maneuver	0 - -	366 ~ 327 0
Stage 1	0 - -	- - 0
Stage 2	0 - -	454 406 0
Platoon blocked, %	- - -	- - -
Mov Cap-1 Maneuver	- - -	366 0 -
Mov Cap-2 Maneuver	- - -	366 0 -
Stage 1	- - -	- 0 -
Stage 2	- - -	454 0 -

Approach	WB	NB
HCM Control Delay, s	0	66.7
HCM LOS		F

Minor Lane/Major Mvmt	NBLn1	WBT	WBR
Capacity (veh/h)	366	-	-
HCM Lane V/C Ratio	0.938	-	-
HCM Control Delay (s)	66.7	-	-
HCM Lane LOS	F	-	-
HCM 95th %tile Q(veh)	10	-	-

Notes

~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Intersection

Int Delay, s/veh 173.7

Movement	EBL	EBT	WBT	WBR	SEL	SER
Lane Configurations		↖	↗		↘	
Traffic Vol, veh/h	1	467	131	0	689	11
Future Vol, veh/h	1	467	131	0	689	11
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1	492	138	0	725	12

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	138	0	632
Stage 1	-	-	138
Stage 2	-	-	494
Critical Hdwy	4.12	-	6.42
Critical Hdwy Stg 1	-	-	5.42
Critical Hdwy Stg 2	-	-	5.42
Follow-up Hdwy	2.218	-	3.518
Pot Cap-1 Maneuver	1446	-	~ 444
Stage 1	-	-	889
Stage 2	-	-	~ 613
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	1446	-	~ 444
Mov Cap-2 Maneuver	-	-	~ 444
Stage 1	-	-	889
Stage 2	-	-	~ 612

Approach	EB	WB	SE
HCM Control Delay, s	0	0	\$ 322.4
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SELn1
Capacity (veh/h)	1446	-	-	-	448
HCM Lane V/C Ratio	0.001	-	-	-	1.645
HCM Control Delay (s)	7.5	0	-	-	\$ 322.4
HCM Lane LOS	A	A	-	-	F
HCM 95th %tile Q(veh)	0	-	-	-	42.6

Notes

~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

HCM 2010 TWSC
 12: SW 35th Street & SW Washington Way

10/08/2017

Intersection												
Int Delay, s/veh	2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	1	1	0	26	3	16	1	598	92	79	307	3
Future Vol, veh/h	1	1	0	26	3	16	1	598	92	79	307	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	1	0	29	3	18	1	664	102	88	341	3

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1246	1287	343	1237	1238	716	344	0	0	767	0	0
Stage 1	518	518	-	718	718	-	-	-	-	-	-	-
Stage 2	728	769	-	519	520	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	151	164	700	153	176	430	1215	-	-	847	-	-
Stage 1	541	533	-	420	433	-	-	-	-	-	-	-
Stage 2	415	411	-	540	532	-	-	-	-	-	-	-
Platoon blocked, %												
Mov Cap-1 Maneuver	128	143	700	137	153	430	1215	-	-	847	-	-
Mov Cap-2 Maneuver	128	143	-	137	153	-	-	-	-	-	-	-
Stage 1	540	464	-	420	433	-	-	-	-	-	-	-
Stage 2	394	411	-	469	463	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	32.1	32.1	0	2
HCM LOS	D	D		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1215	-	-	135	182	847	-	-
HCM Lane V/C Ratio	0.001	-	-	0.016	0.275	0.104	-	-
HCM Control Delay (s)	8	0	-	32.1	32.1	9.7	0	-
HCM Lane LOS	A	A	-	D	D	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.1	1.1	0.3	-	-

HCM Signalized Intersection Capacity Analysis

13: SW 35th Street & SW Western Boulevard

10/08/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	309	724	102	50	232	93	49	312	114	81	189	116
Future Volume (vph)	309	724	102	50	232	93	49	312	114	81	189	116
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.98		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.94	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1467	1516		1467	1544	1312	1467	1544	1312	1467	1456	
Flt Permitted	0.51	1.00		0.18	1.00	1.00	0.31	1.00	1.00	0.30	1.00	
Satd. Flow (perm)	780	1516		277	1544	1312	477	1544	1312	460	1456	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	325	762	107	53	244	98	52	328	120	85	199	122
RTOR Reduction (vph)	0	6	0	0	0	52	0	0	71	0	24	0
Lane Group Flow (vph)	325	863	0	53	244	46	52	328	49	85	297	0
Turn Type	pm+pt	NA		pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA	
Protected Phases	7	4		3	8			2			6	
Permitted Phases	4			8		8	2		2	6		
Actuated Green, G (s)	56.4	50.6		42.6	39.8	39.8	23.2	23.2	23.2	23.2	23.2	
Effective Green, g (s)	56.4	50.6		42.6	39.8	39.8	23.2	23.2	23.2	23.2	23.2	
Actuated g/C Ratio	0.66	0.59		0.50	0.46	0.46	0.27	0.27	0.27	0.27	0.27	
Clearance Time (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	623	896		176	717	610	129	418	355	124	394	
v/s Ratio Prot	c0.08	c0.57		0.01	0.16			c0.21			0.20	
v/s Ratio Perm	0.26			0.14		0.03	0.11		0.04	0.18		
v/c Ratio	0.52	0.96		0.30	0.34	0.07	0.40	0.78	0.14	0.69	0.75	
Uniform Delay, d1	6.9	16.6		13.5	14.6	12.7	25.5	28.9	23.6	27.9	28.6	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.8	21.5		1.0	0.3	0.1	9.1	13.7	0.8	26.6	12.6	
Delay (s)	7.7	38.1		14.5	14.8	12.7	34.6	42.6	24.4	54.6	41.1	
Level of Service	A	D		B	B	B	C	D	C	D	D	
Approach Delay (s)		29.8			14.3			37.4			43.9	
Approach LOS		C			B			D			D	

Intersection Summary

HCM 2000 Control Delay	31.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.90		
Actuated Cycle Length (s)	85.6	Sum of lost time (s)	9.0
Intersection Capacity Utilization	96.2%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

14: SW 35th Street & SW Philomath Boulevard

10/08/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	16	881	20	188	712	131	31	272	225	108	232	15
Future Volume (vph)	16	881	20	188	712	131	31	272	225	108	232	15
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1467	2934	1312	1467	2934	1312	1467	1544	1312	1467	1530	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.46	1.00	1.00	0.42	1.00	
Satd. Flow (perm)	1467	2934	1312	1467	2934	1312	708	1544	1312	655	1530	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	17	927	21	198	749	138	33	286	237	114	244	16
RTOR Reduction (vph)	0	0	13	0	0	63	0	0	158	0	3	0
Lane Group Flow (vph)	17	927	8	198	749	75	33	286	79	114	257	0
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Perm	NA	Perm	Perm	NA	
Protected Phases	7	4		3	8			2			6	
Permitted Phases			4			8	2		2	6		
Actuated Green, G (s)	1.9	32.8	32.8	15.2	46.1	46.1	28.3	28.3	28.3	28.3	28.3	
Effective Green, g (s)	1.9	32.8	32.8	15.2	46.1	46.1	28.3	28.3	28.3	28.3	28.3	
Actuated g/C Ratio	0.02	0.38	0.38	0.18	0.54	0.54	0.33	0.33	0.33	0.33	0.33	
Clearance Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	32	1128	504	261	1585	709	234	512	435	217	507	
v/s Ratio Prot	0.01	c0.32		c0.13	0.26			c0.19			0.17	
v/s Ratio Perm			0.01			0.06	0.05		0.06	0.17		
v/c Ratio	0.53	0.82	0.02	0.76	0.47	0.11	0.14	0.56	0.18	0.53	0.51	
Uniform Delay, d1	41.3	23.6	16.3	33.3	12.1	9.6	20.0	23.4	20.3	23.1	22.9	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	15.9	4.9	0.0	11.9	0.2	0.1	1.3	4.4	0.9	8.8	3.6	
Delay (s)	57.1	28.6	16.3	45.2	12.3	9.6	21.2	27.7	21.2	31.9	26.5	
Level of Service	E	C	B	D	B	A	C	C	C	C	C	
Approach Delay (s)		28.8			18.0			24.5			28.1	
Approach LOS		C			B			C			C	

Intersection Summary

HCM 2000 Control Delay	24.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	85.3	Sum of lost time (s)	9.0
Intersection Capacity Utilization	79.8%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

1: 53rd Street & NW Harrison Boulevard

10/08/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	28	74	39	503	89	22	54	609	308	8	721	71
Future Volume (vph)	28	74	39	503	89	22	54	609	308	8	721	71
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Util. Factor	1.00	1.00		0.97	1.00		1.00	0.95	1.00	1.00	0.95	
Frt	1.00	0.95		1.00	0.97		1.00	1.00	0.85	1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1630	1627		3162	1665		1630	3260	1458	1630	3216	
Flt Permitted	0.68	1.00		0.50	1.00		0.23	1.00	1.00	0.38	1.00	
Satd. Flow (perm)	1170	1627		1658	1665		387	3260	1458	660	3216	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	29	78	41	529	94	23	57	641	324	8	759	75
RTOR Reduction (vph)	0	34	0	0	16	0	0	0	170	0	11	0
Lane Group Flow (vph)	29	85	0	529	101	0	57	641	154	8	823	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2		2	6		
Actuated Green, G (s)	9.0	8.2		16.5	12.7		26.3	23.7	23.7	22.7	21.9	
Effective Green, g (s)	9.0	8.2		16.5	12.7		26.3	23.7	23.7	22.7	21.9	
Actuated g/C Ratio	0.18	0.16		0.33	0.25		0.53	0.47	0.47	0.45	0.44	
Clearance Time (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	217	266		706	422		268	1545	691	315	1408	
v/s Ratio Prot	0.00	0.05		c0.08	0.06		c0.01	0.20		0.00	c0.26	
v/s Ratio Perm	0.02			c0.17			0.10		0.11	0.01		
v/c Ratio	0.13	0.32		0.75	0.24		0.21	0.41	0.22	0.03	0.58	
Uniform Delay, d1	17.1	18.4		14.2	14.8		6.5	8.6	7.7	7.5	10.6	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.3	0.7		4.4	0.3		0.4	0.8	0.7	0.0	1.8	
Delay (s)	17.4	19.1		18.6	15.1		6.9	9.4	8.5	7.5	12.4	
Level of Service	B	B		B	B		A	A	A	A	B	
Approach Delay (s)		18.8			17.9			9.0			12.4	
Approach LOS		B			B			A			B	

Intersection Summary

HCM 2000 Control Delay	12.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	50.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	60.5%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
 2: SW 53rd Street/53rd Street & SW Reservoir Avenue

10/08/2017



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	310	20	11	681	847	434
Future Volume (vph)	310	20	11	681	847	434
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Total Lost time (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Util. Factor	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)	1630	1458	1630	1716	1716	1458
Flt Permitted	0.95	1.00	0.17	1.00	1.00	1.00
Satd. Flow (perm)	1630	1458	296	1716	1716	1458
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	326	21	12	717	892	457
RTOR Reduction (vph)	0	15	0	0	0	167
Lane Group Flow (vph)	326	6	12	717	892	290
Turn Type	Prot	Perm	Perm	NA	NA	Perm
Protected Phases	4			2	6	
Permitted Phases		4	2			6
Actuated Green, G (s)	15.4	15.4	37.3	37.3	37.3	37.3
Effective Green, g (s)	15.4	15.4	37.3	37.3	37.3	37.3
Actuated g/C Ratio	0.26	0.26	0.64	0.64	0.64	0.64
Clearance Time (s)	3.0	3.0	3.0	3.0	3.0	3.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	427	382	188	1090	1090	926
v/s Ratio Prot	c0.20			0.42	c0.52	
v/s Ratio Perm		0.00	0.04			0.20
v/c Ratio	0.76	0.01	0.06	0.66	0.82	0.31
Uniform Delay, d1	20.0	16.0	4.1	6.7	8.1	4.9
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	7.9	0.0	0.7	3.1	6.9	0.9
Delay (s)	27.9	16.0	4.7	9.8	15.0	5.8
Level of Service	C	B	A	A	B	A
Approach Delay (s)	27.2			9.7	11.9	
Approach LOS	C			A	B	

Intersection Summary

HCM 2000 Control Delay	13.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	58.7	Sum of lost time (s)	6.0
Intersection Capacity Utilization	73.7%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

HCM 2010 TWSC
 3: SW 53rd Street & Site Access (West)

10/08/2017

Intersection

Int Delay, s/veh 138.8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↖	↗	↕	↗	↖	↕
Traffic Vol, veh/h	210	210	477	292	292	542
Future Vol, veh/h	210	210	477	292	292	542
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	150	0	-	100	150	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	231	231	524	321	321	596

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	1761	524	0
Stage 1	524	-	-
Stage 2	1237	-	-
Critical Hdwy	6.42	6.22	-
Critical Hdwy Stg 1	5.42	-	-
Critical Hdwy Stg 2	5.42	-	-
Follow-up Hdwy	3.518	3.318	-
Pot Cap-1 Maneuver	~ 93	553	-
Stage 1	594	-	-
Stage 2	274	-	-
Platoon blocked, %			
Mov Cap-1 Maneuver	~ 64	553	-
Mov Cap-2 Maneuver	~ 64	-	-
Stage 1	594	-	-
Stage 2	~ 190	-	-

Approach	WB	NB	SB
HCM Control Delay, s	\$ 661.6	0	3.5
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	64	553	1043	-
HCM Lane V/C Ratio	-	-	3.606	0.417	0.308	-
HCM Control Delay (s)	-	\$	1307.1	16.1	10	-
HCM Lane LOS	-	-	F	C	A	-
HCM 95th %tile Q(veh)	-	-	24.4	2	1.3	-

Notes

~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

HCM 2010 Roundabout
4: SW 53rd Street & SW West Hills Road

10/08/2017

Intersection				
Intersection Delay, s/veh	67.9			
Intersection LOS	F			
Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	296	384	861	799
Demand Flow Rate, veh/h	302	392	878	815
Vehicles Circulating, veh/h	751	906	322	429
Vehicles Exiting, veh/h	493	294	731	869
Follow-Up Headway, s	3.186	3.186	3.186	3.186
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	18.3	44.7	75.0	89.7
Approach LOS	C	E	F	F
Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Critical Headway, s	5.193	5.193	5.193	5.193
Entry Flow, veh/h	302	392	878	815
Cap Entry Lane, veh/h	533	457	819	736
Entry HV Adj Factor	0.980	0.980	0.980	0.980
Flow Entry, veh/h	296	384	861	799
Cap Entry, veh/h	523	448	803	721
V/C Ratio	0.566	0.858	1.072	1.108
Control Delay, s/veh	18.3	44.7	75.0	89.7
LOS	C	E	F	F
95th %tile Queue, veh	3	9	22	23

HCM Signalized Intersection Capacity Analysis

5: SW 53rd Street & SW Philomath Boulevard

10/08/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	112	549	44	84	548	360	187	263	87	312	288	160
Future Volume (vph)	112	549	44	84	548	360	187	263	87	312	288	160
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.96		1.00	0.95	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1630	1716	1458	1630	1716	1458	1630	1652		1630	1624	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1630	1716	1458	1630	1716	1458	1630	1652		1630	1624	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	118	578	46	88	577	379	197	277	92	328	303	168
RTOR Reduction (vph)	0	0	29	0	0	100	0	10	0	0	17	0
Lane Group Flow (vph)	118	578	17	88	577	279	197	359	0	328	454	0
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8						
Actuated Green, G (s)	9.0	43.7	43.7	7.0	41.7	41.7	15.8	30.5		25.3	40.0	
Effective Green, g (s)	9.0	43.7	43.7	7.0	41.7	41.7	15.8	30.5		25.3	40.0	
Actuated g/C Ratio	0.08	0.37	0.37	0.06	0.35	0.35	0.13	0.26		0.21	0.34	
Clearance Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	123	632	537	96	603	513	217	425		348	548	
v/s Ratio Prot	c0.07	c0.34		0.05	0.34		0.12	0.22		c0.20	c0.28	
v/s Ratio Perm			0.01			0.19						
v/c Ratio	0.96	0.91	0.03	0.92	0.96	0.54	0.91	0.85		0.94	0.83	
Uniform Delay, d1	54.6	35.6	23.9	55.5	37.5	30.8	50.6	41.8		45.9	36.1	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	67.6	17.8	0.0	64.7	26.0	1.2	36.5	18.3		33.4	13.6	
Delay (s)	122.2	53.5	23.9	120.2	63.6	32.0	87.1	60.1		79.3	49.7	
Level of Service	F	D	C	F	E	C	F	E		E	D	
Approach Delay (s)		62.6			56.9			69.5			61.8	
Approach LOS		E			E			E			E	

Intersection Summary

HCM 2000 Control Delay	61.7	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.92		
Actuated Cycle Length (s)	118.5	Sum of lost time (s)	12.0
Intersection Capacity Utilization	90.9%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

HCM 2010 TWSC
 6: SW West Hills Road & Site Access (SW)

10/08/2017

Intersection

Int Delay, s/veh 6

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↘	↗	↗		↘	↗
Traffic Vol, veh/h	82	185	291	209	151	58
Future Vol, veh/h	82	185	291	209	151	58
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	150	-	-	-	150	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	91	206	323	232	168	64

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	556	0	439
Stage 1	-	-	439
Stage 2	-	-	388
Critical Hdwy	4.12	-	6.22
Critical Hdwy Stg 1	-	-	5.42
Critical Hdwy Stg 2	-	-	5.42
Follow-up Hdwy	2.218	-	3.318
Pot Cap-1 Maneuver	1015	-	618
Stage 1	-	-	650
Stage 2	-	-	686
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	1015	-	618
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	650
Stage 2	-	-	624

Approach	EB	WB	SB
HCM Control Delay, s	2.7	0	24.5
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1015	-	-	-	310	618
HCM Lane V/C Ratio	0.09	-	-	-	0.541	0.104
HCM Control Delay (s)	8.9	-	-	-	29.5	11.5
HCM Lane LOS	A	-	-	-	D	B
HCM 95th %tile Q(veh)	0.3	-	-	-	3	0.3

Intersection

Int Delay, s/veh 11.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	57	275	7	7	450	175	7	55	8	127	40	43
Future Vol, veh/h	57	275	7	7	450	175	7	55	8	127	40	43
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	150	-	-	150	-	100	-	-	-	150	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	63	306	8	8	500	194	8	61	9	141	44	48

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	500	0	0	313	0	0	998	952	309	987	956	500
Stage 1	-	-	-	-	-	-	436	436	-	516	516	-
Stage 2	-	-	-	-	-	-	562	516	-	471	440	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1064	-	-	1247	-	-	223	259	731	226	258	571
Stage 1	-	-	-	-	-	-	599	580	-	542	534	-
Stage 2	-	-	-	-	-	-	512	534	-	573	578	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1064	-	-	1247	-	-	167	242	731	171	241	571
Mov Cap-2 Maneuver	-	-	-	-	-	-	167	242	-	171	241	-
Stage 1	-	-	-	-	-	-	564	546	-	510	531	-
Stage 2	-	-	-	-	-	-	427	531	-	473	544	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1.4	0.1	25.8	58.1
HCM LOS			D	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	250	1064	-	-	1247	-	-	171	344
HCM Lane V/C Ratio	0.311	0.06	-	-	0.006	-	-	0.825	0.268
HCM Control Delay (s)	25.8	8.6	-	-	7.9	-	-	83.5	19.3
HCM Lane LOS	D	A	-	-	A	-	-	F	C
HCM 95th %tile Q(veh)	1.3	0.2	-	-	0	-	-	5.6	1.1

HCM Signalized Intersection Capacity Analysis
 8: SW Technology Loop & SW Philomath Boulevard

10/08/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗			↖	↗		↕	
Traffic Volume (vph)	0	793	56	263	883	1	135	0	406	0	0	0
Future Volume (vph)	0	793	56	263	883	1	135	0	406	0	0	0
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		3.0		3.0	3.0			3.0	3.0			
Lane Util. Factor		1.00		1.00	1.00			1.00	1.00			
Frt		0.99		1.00	1.00			1.00	0.85			
Flt Protected		1.00		0.95	1.00			0.95	1.00			
Satd. Flow (prot)		1699		1630	1715			1630	1458			
Flt Permitted		1.00		0.95	1.00			0.76	1.00			
Satd. Flow (perm)		1699		1630	1715			1299	1458			
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	0	835	59	277	929	1	142	0	427	0	0	0
RTOR Reduction (vph)	0	3	0	0	0	0	0	0	272	0	0	0
Lane Group Flow (vph)	0	891	0	277	930	0	0	142	155	0	0	0
Turn Type	Prot	NA		Prot	NA		Perm	NA	Perm			
Protected Phases	7	4		3	8			2			6	
Permitted Phases							2		2	6		
Actuated Green, G (s)		47.0		16.0	66.0			18.0	18.0			
Effective Green, g (s)		47.0		16.0	66.0			18.0	18.0			
Actuated g/C Ratio		0.52		0.18	0.73			0.20	0.20			
Clearance Time (s)		3.0		3.0	3.0			3.0	3.0			
Vehicle Extension (s)		3.0		3.0	3.0			3.0	3.0			
Lane Grp Cap (vph)		887		289	1257			259	291			
v/s Ratio Prot		c0.52		c0.17	0.54							
v/s Ratio Perm								c0.11	0.11			
v/c Ratio		1.00		0.96	0.74			0.55	0.53			
Uniform Delay, d1		21.5		36.7	7.0			32.3	32.2			
Progression Factor		1.00		1.00	1.00			1.00	1.00			
Incremental Delay, d2		31.4		41.2	2.3			8.1	6.8			
Delay (s)		52.9		77.9	9.3			40.5	39.1			
Level of Service		D		E	A			D	D			
Approach Delay (s)		52.9			25.1			39.4			0.0	
Approach LOS		D			C			D			A	

Intersection Summary

HCM 2000 Control Delay	37.4	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.89		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	83.0%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Intersection

Int Delay, s/veh 7.7

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	30	1100	1246	46	29	21
Future Vol, veh/h	30	1100	1246	46	29	21
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	150	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	32	1158	1312	48	31	22

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	1360	0	1336
Stage 1	-	-	1336
Stage 2	-	-	1221
Critical Hdwy	4.12	-	6.22
Critical Hdwy Stg 1	-	-	5.42
Critical Hdwy Stg 2	-	-	5.42
Follow-up Hdwy	2.218	-	3.318
Pot Cap-1 Maneuver	505	-	~ 29
Stage 1	-	-	245
Stage 2	-	-	279
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	505	-	~ 27
Mov Cap-2 Maneuver	-	-	~ 27
Stage 1	-	-	245
Stage 2	-	-	261

Approach	EB	WB	SB
HCM Control Delay, s	0.3	0	\$ 374.8
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	505	-	-	-	42
HCM Lane V/C Ratio	0.063	-	-	-	1.253
HCM Control Delay (s)	12.6	-	-	-	\$ 374.8
HCM Lane LOS	B	-	-	-	F
HCM 95th %tile Q(veh)	0.2	-	-	-	5.2

Notes

~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Intersection

Int Delay, s/veh 23.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↔			↔				
Traffic Vol, veh/h	0	0	0	0	969	15	1	257	0	0	0	0
Future Vol, veh/h	0	0	0	0	969	15	1	257	0	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	-	-	-	0	-	-	0	-	-	-	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	0	1020	16	1	271	0	0	0	0

Major/Minor	Major2	Minor1
Conflicting Flow All	- - 0	1028 1036 -
Stage 1	- - -	0 0 -
Stage 2	- - -	1028 1036 -
Critical Hdwy	- - -	6.42 6.52 -
Critical Hdwy Stg 1	- - -	- - -
Critical Hdwy Stg 2	- - -	5.42 5.52 -
Follow-up Hdwy	- - -	3.518 4.018 -
Pot Cap-1 Maneuver	0 - -	259 ~ 232 0
Stage 1	0 - -	- - 0
Stage 2	0 - -	345 309 0
Platoon blocked, %	- - -	- - -
Mov Cap-1 Maneuver	- - -	259 0 -
Mov Cap-2 Maneuver	- - -	259 0 -
Stage 1	- - -	- 0 -
Stage 2	- - -	345 0 -

Approach	WB	NB
HCM Control Delay, s	0	111.5
HCM LOS		F

Minor Lane/Major Mvmt	NBLn1	WBT	WBR
Capacity (veh/h)	259	-	-
HCM Lane V/C Ratio	1.049	-	-
HCM Control Delay (s)	111.5	-	-
HCM Lane LOS	F	-	-
HCM 95th %tile Q(veh)	10.9	-	-

Notes
 ~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Intersection

Int Delay, s/veh 45

Movement	EBL	EBT	WBT	WBR	SEL	SER
Lane Configurations		↖	↗		↘	
Traffic Vol, veh/h	8	273	444	0	392	9
Future Vol, veh/h	8	273	444	0	392	9
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	8	287	467	0	413	9

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	467	0	467
Stage 1	-	-	467
Stage 2	-	-	304
Critical Hdwy	4.12	-	6.22
Critical Hdwy Stg 1	-	-	5.42
Critical Hdwy Stg 2	-	-	5.42
Follow-up Hdwy	2.218	-	3.318
Pot Cap-1 Maneuver	1094	-	~ 368
Stage 1	-	-	631
Stage 2	-	-	748
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	1094	-	~ 365
Mov Cap-2 Maneuver	-	-	~ 365
Stage 1	-	-	631
Stage 2	-	-	741

Approach	EB	WB	SE
HCM Control Delay, s	0.2	0	126.2
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SELn1
Capacity (veh/h)	1094	-	-	-	368
HCM Lane V/C Ratio	0.008	-	-	-	1.147
HCM Control Delay (s)	8.3	0	-	-	126.2
HCM Lane LOS	A	A	-	-	F
HCM 95th %tile Q(veh)	0	-	-	-	16.4

Notes

~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

HCM 2010 TWSC
 12: SW 35th Street & SW Washington Way

10/08/2017

Intersection												
Int Delay, s/veh	14											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	3	1	92	3	51	1	535	26	37	587	0
Future Vol, veh/h	0	3	1	92	3	51	1	535	26	37	587	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	3	1	102	3	57	1	594	29	41	652	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1375	1360	652	1348	1345	609	652	0	0	623	0	0
Stage 1	734	734	-	611	611	-	-	-	-	-	-	-
Stage 2	641	626	-	737	734	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	123	148	468	128	151	495	935	-	-	958	-	-
Stage 1	412	426	-	481	484	-	-	-	-	-	-	-
Stage 2	463	477	-	410	426	-	-	-	-	-	-	-
Platoon blocked, %												
Mov Cap-1 Maneuver	101	138	468	119	141	495	935	-	-	958	-	-
Mov Cap-2 Maneuver	101	138	-	119	141	-	-	-	-	-	-	-
Stage 1	411	397	-	480	483	-	-	-	-	-	-	-
Stage 2	406	476	-	378	397	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	27	125.5	0	0.5
HCM LOS	D	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	935	-	-	168	163	958	-	-
HCM Lane V/C Ratio	0.001	-	-	0.026	0.995	0.043	-	-
HCM Control Delay (s)	8.9	0	-	27	125.5	8.9	0	-
HCM Lane LOS	A	A	-	D	F	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.1	7.8	0.1	-	-

HCM Signalized Intersection Capacity Analysis

13: SW 35th Street & SW Western Boulevard

10/08/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	192	429	69	120	775	128	73	120	51	128	264	312
Future Volume (vph)	192	429	69	120	775	128	73	120	51	128	264	312
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.98		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.92	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1467	1512		1467	1544	1312	1467	1544	1312	1467	1419	
Flt Permitted	0.14	1.00		0.30	1.00	1.00	0.20	1.00	1.00	0.67	1.00	
Satd. Flow (perm)	224	1512		463	1544	1312	309	1544	1312	1041	1419	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	202	452	73	126	816	135	77	126	54	135	278	328
RTOR Reduction (vph)	0	9	0	0	0	49	0	0	36	0	71	0
Lane Group Flow (vph)	202	516	0	126	816	86	77	126	18	135	535	0
Turn Type	pm+pt	NA		pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA	
Protected Phases	7	4		3	8			2			6	
Permitted Phases	4			8		8	2		2	6		
Actuated Green, G (s)	32.6	27.6		30.6	26.6	26.6	20.0	20.0	20.0	20.0	20.0	
Effective Green, g (s)	32.6	27.6		30.6	26.6	26.6	20.0	20.0	20.0	20.0	20.0	
Actuated g/C Ratio	0.54	0.46		0.50	0.44	0.44	0.33	0.33	0.33	0.33	0.33	
Clearance Time (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	223	688		300	677	575	101	509	433	343	468	
v/s Ratio Prot	c0.07	0.34		0.03	c0.53			0.08			c0.38	
v/s Ratio Perm	0.41			0.18		0.07	0.25		0.01	0.13		
v/c Ratio	0.91	0.75		0.42	1.21	0.15	0.76	0.25	0.04	0.39	1.14	
Uniform Delay, d1	12.8	13.6		9.0	17.0	10.2	18.2	14.8	13.8	15.6	20.3	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	35.5	4.5		1.0	106.0	0.1	41.3	1.2	0.2	3.4	87.1	
Delay (s)	48.3	18.1		10.0	123.0	10.3	59.4	16.0	14.0	19.0	107.4	
Level of Service	D	B		A	F	B	E	B	B	B	F	
Approach Delay (s)		26.5			95.7			28.6			91.3	
Approach LOS		C			F			C			F	

Intersection Summary

HCM 2000 Control Delay	70.4	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.15		
Actuated Cycle Length (s)	60.6	Sum of lost time (s)	9.0
Intersection Capacity Utilization	120.1%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
 14: SW 35th Street & SW Philomath Boulevard

10/08/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↗↗	↘	↘	↗↗	↘	↘	↗	↘	↘	↗	↗
Traffic Volume (vph)	40	812	13	132	878	111	19	141	202	170	241	36
Future Volume (vph)	40	812	13	132	878	111	19	141	202	170	241	36
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.98	0.98
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1467	2934	1312	1467	2934	1312	1467	1544	1312	1467	1514	1514
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.44	1.00	1.00	0.63	1.00	1.00
Satd. Flow (perm)	1467	2934	1312	1467	2934	1312	685	1544	1312	967	1514	1514
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	42	855	14	139	924	117	20	148	213	179	254	38
RTOR Reduction (vph)	0	0	9	0	0	61	0	0	135	0	6	0
Lane Group Flow (vph)	42	855	5	139	924	56	20	148	78	179	286	0
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Perm	NA	Perm	Perm	NA	NA
Protected Phases	7	4		3	8			2				6
Permitted Phases			4			8	2		2	6		
Actuated Green, G (s)	3.9	30.2	30.2	12.3	38.6	38.6	29.5	29.5	29.5	29.5	29.5	29.5
Effective Green, g (s)	3.9	30.2	30.2	12.3	38.6	38.6	29.5	29.5	29.5	29.5	29.5	29.5
Actuated g/C Ratio	0.05	0.37	0.37	0.15	0.48	0.48	0.36	0.36	0.36	0.36	0.36	0.36
Clearance Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	70	1093	489	222	1398	625	249	562	477	352	551	551
v/s Ratio Prot	0.03	c0.29		c0.09	0.31			0.10				c0.19
v/s Ratio Perm			0.00			0.04	0.03		0.06	0.19		
v/c Ratio	0.60	0.78	0.01	0.63	0.66	0.09	0.08	0.26	0.16	0.51	0.52	0.52
Uniform Delay, d1	37.8	22.5	16.0	32.2	16.2	11.6	16.9	18.1	17.4	20.1	20.2	20.2
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	13.1	3.7	0.0	5.4	1.2	0.1	0.6	1.1	0.7	5.2	3.5	3.5
Delay (s)	50.9	26.2	16.0	37.6	17.4	11.7	17.5	19.2	18.1	25.3	23.7	23.7
Level of Service	D	C	B	D	B	B	B	B	B	C	C	C
Approach Delay (s)		27.2			19.2			18.5			24.3	
Approach LOS		C			B			B			C	

Intersection Summary

HCM 2000 Control Delay	22.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	81.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	71.3%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

1: 53rd Street & NW Harrison Boulevard

10/08/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖↗	↖		↖	↕	↗	↖	↕↗	
Traffic Volume (vph)	39	110	48	248	19	4	36	734	478	26	429	18
Future Volume (vph)	39	110	48	248	19	4	36	734	478	26	429	18
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Util. Factor	1.00	1.00		0.97	1.00		1.00	0.95	1.00	1.00	0.95	
Frt	1.00	0.95		1.00	0.97		1.00	1.00	0.85	1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1630	1637		3162	1673		1630	3260	1458	1630	3240	
Flt Permitted	0.74	1.00		0.43	1.00		0.43	1.00	1.00	0.29	1.00	
Satd. Flow (perm)	1272	1637		1440	1673		741	3260	1458	502	3240	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	41	116	51	261	20	4	38	773	503	27	452	19
RTOR Reduction (vph)	0	31	0	0	3	0	0	0	271	0	4	0
Lane Group Flow (vph)	41	136	0	261	21	0	38	773	232	27	467	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2		2	6		
Actuated Green, G (s)	10.5	9.7		17.9	14.1		25.4	23.7	23.7	23.6	22.8	
Effective Green, g (s)	10.5	9.7		17.9	14.1		25.4	23.7	23.7	23.6	22.8	
Actuated g/C Ratio	0.20	0.19		0.35	0.27		0.49	0.46	0.46	0.46	0.44	
Clearance Time (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	265	308		675	458		395	1503	672	248	1437	
v/s Ratio Prot	0.00	0.08		c0.04	0.01		c0.00	c0.24		0.00	0.14	
v/s Ratio Perm	0.03			c0.10			0.04		0.16	0.05		
v/c Ratio	0.15	0.44		0.39	0.05		0.10	0.51	0.35	0.11	0.33	
Uniform Delay, d1	16.7	18.5		12.1	13.7		6.8	9.8	8.9	7.8	9.3	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.3	1.0		0.4	0.0		0.1	1.3	1.4	0.2	0.6	
Delay (s)	17.0	19.5		12.5	13.7		6.9	11.0	10.3	8.0	9.9	
Level of Service	B	B		B	B		A	B	B	A	A	
Approach Delay (s)		19.0			12.6			10.6			9.8	
Approach LOS		B			B			B			A	

Intersection Summary

HCM 2000 Control Delay	11.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	51.4	Sum of lost time (s)	12.0
Intersection Capacity Utilization	56.7%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

2: SW 53rd Street/53rd Street & SW Reservoir Avenue

10/08/2017



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	403	5	18	823	507	210
Future Volume (vph)	403	5	18	823	507	210
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Total Lost time (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Util. Factor	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)	1630	1458	1630	1716	1716	1458
Flt Permitted	0.95	1.00	0.37	1.00	1.00	1.00
Satd. Flow (perm)	1630	1458	639	1716	1716	1458
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	424	5	19	866	534	221
RTOR Reduction (vph)	0	3	0	0	0	89
Lane Group Flow (vph)	424	2	19	866	534	132
Turn Type	Prot	Perm	Perm	NA	NA	Perm
Protected Phases	4			2	6	
Permitted Phases		4	2			6
Actuated Green, G (s)	17.8	17.8	35.2	35.2	35.2	35.2
Effective Green, g (s)	17.8	17.8	35.2	35.2	35.2	35.2
Actuated g/C Ratio	0.30	0.30	0.60	0.60	0.60	0.60
Clearance Time (s)	3.0	3.0	3.0	3.0	3.0	3.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	491	439	381	1023	1023	869
v/s Ratio Prot	c0.26			c0.50	0.31	
v/s Ratio Perm		0.00	0.03			0.09
v/c Ratio	0.86	0.00	0.05	0.85	0.52	0.15
Uniform Delay, d1	19.5	14.4	4.9	9.7	7.0	5.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	14.6	0.0	0.2	8.6	1.9	0.4
Delay (s)	34.0	14.4	5.2	18.3	8.9	5.6
Level of Service	C	B	A	B	A	A
Approach Delay (s)	33.8			18.0	7.9	
Approach LOS	C			B	A	

Intersection Summary

HCM 2000 Control Delay	17.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	59.0	Sum of lost time (s)	6.0
Intersection Capacity Utilization	77.9%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

HCM 2010 Roundabout
 3: SW 53rd Street & Site Access (West)

10/08/2017

Intersection					
Intersection Delay, s/veh 11.2					
Intersection LOS B					
Approach	WB	NB		SB	
Entry Lanes	1	1		0	
Conflicting Circle Lanes	2	2		2	
Adj Approach Flow, veh/h	640	733		0	
Demand Flow Rate, veh/h	652	747		0	
Vehicles Circulating, veh/h	578	168		326	
Vehicles Exiting, veh/h	168	326		578	
Follow-Up Headway, s	3.186	3.186		3.186	
Ped Vol Crossing Leg, #/h	0	0		0	
Ped Cap Adj	1.000	1.000		1.000	
Approach Delay, s/veh	12.5	10.0		0.0	
Approach LOS	B	B		-	
Lane	Left	Bypass	Left	Bypass	Bypass
Designated Moves	L	R	T	R	R
Assumed Moves	L	R	T	R	R
RT Channelized		Yield		Yield	Yield
Lane Util	1.000		1.000		
Critical Headway, s	4.113		4.113		
Entry Flow, veh/h	326	326	578	169	452
Cap Entry Lane, veh/h	754	634	1005	955	0
Entry HV Adj Factor	0.982	0.980	0.980	0.980	0.980
Flow Entry, veh/h	320	320	567	166	443
Cap Entry, veh/h	740	621	985	936	0
V/C Ratio	0.432	0.515	0.575	0.177	0.000
Control Delay, s/veh	10.7	14.4	11.4	5.6	0.0
LOS	B	B	B	A	-
95th %tile Queue, veh	2	3	4	1	0

HCM 2010 Roundabout
 4: SW 53rd Street & SW West Hills Road

10/08/2017

Intersection								
Intersection Delay, s/veh	14.0							
Intersection LOS	B							
Approach	EB	WB		NB		SB		
Entry Lanes	1	1		1		1		
Conflicting Circle Lanes	2	2		2		2		
Adj Approach Flow, veh/h	518	225		518		810		
Demand Flow Rate, veh/h	528	229		529		826		
Vehicles Circulating, veh/h	800	645		506		158		
Vehicles Exiting, veh/h	91	342		696		611		
Follow-Up Headway, s	3.186	3.186		3.186		3.186		
Ped Vol Crossing Leg, #/h	0	0		0		0		
Ped Cap Adj	1.000	1.000		1.000		1.000		
Approach Delay, s/veh	15.8	7.5		13.7		14.8		
Approach LOS	C	A		B		B		
Lane	Left	Bypass	Left	Bypass	Left	Bypass	Left	Bypass
Designated Moves	LT	R	LT	R	LT	R	LT	R
Assumed Moves	LT	R	LT	R	LT	R	LT	R
RT Channelized		Yield		Yield		Yield		Yield
Lane Util	1.000		1.000		1.000		1.000	
Critical Headway, s	4.113		4.113		4.113		4.113	
Entry Flow, veh/h	402	126	124	105	481	48	733	93
Cap Entry Lane, veh/h	645	563	719	613	793	803	1012	1032
Entry HV Adj Factor	0.981	0.980	0.983	0.980	0.980	0.980	0.980	0.980
Flow Entry, veh/h	394	124	122	103	471	47	719	91
Cap Entry, veh/h	633	552	707	601	777	787	992	1011
V/C Ratio	0.623	0.225	0.172	0.171	0.607	0.060	0.725	0.090
Control Delay, s/veh	17.7	9.5	7.0	8.1	14.5	5.2	16.2	4.4
LOS	C	A	A	A	B	A	C	A
95th %tile Queue, veh	4	1	1	1	4	0	7	0

HCM Signalized Intersection Capacity Analysis
 5: SW 53rd Street & SW Philomath Boulevard

10/08/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	81	653	18	25	371	186	37	201	77	339	260	127
Future Volume (vph)	81	653	18	25	371	186	37	201	77	339	260	127
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00		0.97	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.96		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1630	3260	1458	1630	3260	1458	1630	1645		3162	1716	1458
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1630	3260	1458	1630	3260	1458	1630	1645		3162	1716	1458
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	85	687	19	26	391	196	39	212	81	357	274	134
RTOR Reduction (vph)	0	0	14	0	0	148	0	10	0	0	0	60
Lane Group Flow (vph)	85	687	5	26	391	48	39	283	0	357	274	74
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA		Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8						6
Actuated Green, G (s)	9.0	28.4	28.4	3.2	22.6	22.6	3.8	45.5		16.9	58.6	58.6
Effective Green, g (s)	9.0	28.4	28.4	3.2	22.6	22.6	3.8	45.5		16.9	58.6	58.6
Actuated g/C Ratio	0.08	0.27	0.27	0.03	0.21	0.21	0.04	0.43		0.16	0.55	0.55
Clearance Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	138	873	390	49	695	310	58	706		504	948	806
v/s Ratio Prot	c0.05	c0.21		0.02	0.12		0.02	c0.17		c0.11	0.16	
v/s Ratio Perm			0.00			0.03						0.05
v/c Ratio	0.62	0.79	0.01	0.53	0.56	0.16	0.67	0.40		0.71	0.29	0.09
Uniform Delay, d1	46.8	36.0	28.5	50.7	37.3	33.9	50.5	20.9		42.2	12.6	11.2
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	7.9	4.7	0.0	10.6	1.0	0.2	26.6	1.7		4.5	0.8	0.2
Delay (s)	54.8	40.7	28.5	61.3	38.3	34.2	77.0	22.6		46.7	13.4	11.4
Level of Service	D	D	C	E	D	C	E	C		D	B	B
Approach Delay (s)		41.9			38.0			29.0			28.6	
Approach LOS		D			D			C			C	

Intersection Summary

HCM 2000 Control Delay	35.2	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	106.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	64.2%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM 2010 TWSC
 6: SW West Hills Road & Site Access (SW)

10/08/2017

Intersection

Int Delay, s/veh 6.8

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↘	↗	↗		↘	↗
Traffic Vol, veh/h	42	333	115	109	208	81
Future Vol, veh/h	42	333	115	109	208	81
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	150	-	-	-	150	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	47	370	128	121	231	90

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	249	0	188
Stage 1	-	-	188
Stage 2	-	-	463
Critical Hdwy	4.12	-	6.22
Critical Hdwy Stg 1	-	-	5.42
Critical Hdwy Stg 2	-	-	5.42
Follow-up Hdwy	2.218	-	3.318
Pot Cap-1 Maneuver	1317	-	854
Stage 1	-	-	844
Stage 2	-	-	634
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	1317	-	854
Mov Cap-2 Maneuver	-	-	418
Stage 1	-	-	844
Stage 2	-	-	611

Approach	EB	WB	SB
HCM Control Delay, s	0.9	0	19.8
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1317	-	-	-	418	854
HCM Lane V/C Ratio	0.035	-	-	-	0.553	0.105
HCM Control Delay (s)	7.8	-	-	-	23.8	9.7
HCM Lane LOS	A	-	-	-	C	A
HCM 95th %tile Q(veh)	0.1	-	-	-	3.3	0.4

Intersection				
Intersection Delay, s/veh	12.1			
Intersection LOS	B			
Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	602	286	56	318
Demand Flow Rate, veh/h	614	292	57	324
Vehicles Circulating, veh/h	267	73	803	198
Vehicles Exiting, veh/h	255	787	78	167
Follow-Up Headway, s	3.186	3.186	3.186	3.186
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	17.5	6.2	8.7	7.8
Approach LOS	C	A	A	A
Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Critical Headway, s	5.193	5.193	5.193	5.193
Entry Flow, veh/h	614	292	57	324
Cap Entry Lane, veh/h	865	1050	506	927
Entry HV Adj Factor	0.980	0.981	0.989	0.981
Flow Entry, veh/h	602	286	56	318
Cap Entry, veh/h	848	1030	501	909
V/C Ratio	0.710	0.278	0.113	0.350
Control Delay, s/veh	17.5	6.2	8.7	7.8
LOS	C	A	A	A
95th %tile Queue, veh	6	1	0	2

HCM Signalized Intersection Capacity Analysis
 8: SW Technology Loop & SW Philomath Boulevard

10/08/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗			↖	↗		↗	↖
Traffic Volume (vph)	0	931	78	244	590	1	62	0	371	1	0	3
Future Volume (vph)	0	931	78	244	590	1	62	0	371	1	0	3
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		3.0		3.0	3.0			3.0	3.0		3.0	
Lane Util. Factor		0.95		1.00	0.95			1.00	1.00		1.00	
Frt		0.99		1.00	1.00			1.00	0.85		0.90	
Flt Protected		1.00		0.95	1.00			0.95	1.00		0.99	
Satd. Flow (prot)		3222		1630	3259			1630	1458		1523	
Flt Permitted		1.00		0.95	1.00			0.76	1.00		0.98	
Satd. Flow (perm)		3222		1630	3259			1296	1458		1509	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	0	980	82	257	621	1	65	0	391	1	0	3
RTOR Reduction (vph)	0	7	0	0	0	0	0	0	275	0	3	0
Lane Group Flow (vph)	0	1055	0	257	622	0	0	65	116	0	1	0
Turn Type	Prot	NA		Prot	NA		Perm	NA	Perm	Perm	NA	
Protected Phases	7	4		3	8			2		6		6
Permitted Phases							2		2		6	
Actuated Green, G (s)		31.9		17.2	52.1			24.3	24.3		24.3	
Effective Green, g (s)		31.9		17.2	52.1			24.3	24.3		24.3	
Actuated g/C Ratio		0.39		0.21	0.63			0.29	0.29		0.29	
Clearance Time (s)		3.0		3.0	3.0			3.0	3.0		3.0	
Vehicle Extension (s)		3.0		3.0	3.0			3.0	3.0		3.0	
Lane Grp Cap (vph)		1247		340	2060			382	429		445	
v/s Ratio Prot		c0.33		c0.16	0.19							
v/s Ratio Perm								0.05	c0.08		0.00	
v/c Ratio		0.85		0.76	0.30			0.17	0.27		0.00	
Uniform Delay, d1		23.0		30.6	6.9			21.6	22.3		20.5	
Progression Factor		1.00		1.00	1.00			1.00	1.00		1.00	
Incremental Delay, d2		5.5		9.2	0.1			1.0	1.5		0.0	
Delay (s)		28.5		39.9	7.0			22.5	23.8		20.5	
Level of Service		C		D	A			C	C		C	
Approach Delay (s)		28.5			16.6			23.6			20.5	
Approach LOS		C			B			C			C	

Intersection Summary		
HCM 2000 Control Delay	23.2	HCM 2000 Level of Service
HCM 2000 Volume to Capacity ratio	0.63	C
Actuated Cycle Length (s)	82.4	Sum of lost time (s)
Intersection Capacity Utilization	69.7%	9.0
Analysis Period (min)	15	ICU Level of Service
		C

c Critical Lane Group

Intersection

Int Delay, s/veh 1.5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↖ ↗	↕	↕		↖ ↗	
Traffic Vol, veh/h	19	1212	802	25	38	31
Future Vol, veh/h	19	1212	802	25	38	31
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	150	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	20	1276	844	26	40	33

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	871	0	435
Stage 1	-	-	857
Stage 2	-	-	678
Critical Hdwy	4.14	-	6.94
Critical Hdwy Stg 1	-	-	5.84
Critical Hdwy Stg 2	-	-	5.84
Follow-up Hdwy	2.22	-	3.32
Pot Cap-1 Maneuver	770	-	569
Stage 1	-	-	376
Stage 2	-	-	466
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	770	-	569
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	376
Stage 2	-	-	454

Approach	EB	WB	SB
HCM Control Delay, s	0.2	0	43.3
HCM LOS			E

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	770	-	-	-	164
HCM Lane V/C Ratio	0.026	-	-	-	0.443
HCM Control Delay (s)	9.8	-	-	-	43.3
HCM Lane LOS	A	-	-	-	E
HCM 95th %tile Q(veh)	0.1	-	-	-	2

Intersection												
Int Delay, s/veh	5.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↑↑			↑				
Traffic Vol, veh/h	0	0	0	0	734	6	1	325	0	0	0	0
Future Vol, veh/h	0	0	0	0	734	6	1	325	0	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	-	-	-	0	-	-	0	-	-	-	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	0	773	6	1	342	0	0	0	0

Major/Minor	Major2			Minor1		
Conflicting Flow All	-	-	0	386	779	-
Stage 1	-	-	-	0	0	-
Stage 2	-	-	-	386	779	-
Critical Hdwy	-	-	-	6.84	6.54	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	5.84	5.54	-
Follow-up Hdwy	-	-	-	3.52	4.02	-
Pot Cap-1 Maneuver	0	-	-	590	~ 326	0
Stage 1	0	-	-	-	-	0
Stage 2	0	-	-	656	404	0
Platoon blocked, %						
Mov Cap-1 Maneuver	-	-	-	590	0	-
Mov Cap-2 Maneuver	-	-	-	590	0	-
Stage 1	-	-	-	-	0	-
Stage 2	-	-	-	656	0	-

Approach	WB	NB
HCM Control Delay, s	0	19.2
HCM LOS		C

Minor Lane/Major Mvmt	NBLn1	WBT	WBR
Capacity (veh/h)	590	-	-
HCM Lane V/C Ratio	0.582	-	-
HCM Control Delay (s)	19.2	-	-
HCM Lane LOS	C	-	-
HCM 95th %tile Q(veh)	3.7	-	-

Notes
 ~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

HCM Signalized Intersection Capacity Analysis

12: SW 35th Street & SW Washington Way

10/08/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	1	1	0	26	3	16	1	598	92	79	307	3
Future Volume (vph)	1	1	0	26	3	16	1	598	92	79	307	3
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		3.0			3.0			3.0			3.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frt		1.00			0.95			0.98			1.00	
Flt Protected		0.98			0.97			1.00			0.99	
Satd. Flow (prot)		1674			1586			1685			1697	
Flt Permitted		1.00			1.00			1.00			0.81	
Satd. Flow (perm)		1716			1632			1685			1382	
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)	1	1	0	29	3	18	1	664	102	88	341	3
RTOR Reduction (vph)	0	0	0	0	17	0	0	5	0	0	0	0
Lane Group Flow (vph)	0	2	0	0	33	0	0	762	0	0	432	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		2.5			2.5			33.4			33.4	
Effective Green, g (s)		2.5			2.5			33.4			33.4	
Actuated g/C Ratio		0.06			0.06			0.80			0.80	
Clearance Time (s)		3.0			3.0			3.0			3.0	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		102			97			1343			1101	
v/s Ratio Prot												
v/s Ratio Perm		0.00			0.02			0.45			0.31	
v/c Ratio		0.02			0.34			0.57			0.39	
Uniform Delay, d1		18.5			18.9			1.6			1.3	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		0.1			2.1			0.6			0.2	
Delay (s)		18.6			21.0			2.1			1.5	
Level of Service		B			C			A			A	
Approach Delay (s)		18.6			21.0			2.1			1.5	
Approach LOS		B			C			A			A	

Intersection Summary

HCM 2000 Control Delay	2.7	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	41.9	Sum of lost time (s)	6.0
Intersection Capacity Utilization	76.9%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

13: SW 35th Street & SW Western Boulevard

10/08/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	309	724	102	50	232	93	49	312	114	81	189	116
Future Volume (vph)	309	724	102	50	232	93	49	312	114	81	189	116
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.98		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1467	1516		1467	1544	1312	1467	1544	1312	1467	1544	1312
Flt Permitted	0.61	1.00		0.13	1.00	1.00	0.56	1.00	1.00	0.38	1.00	1.00
Satd. Flow (perm)	938	1516		199	1544	1312	871	1544	1312	586	1544	1312
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	325	762	107	53	244	98	52	328	120	85	199	122
RTOR Reduction (vph)	0	8	0	0	0	41	0	0	83	0	0	84
Lane Group Flow (vph)	325	861	0	53	244	57	52	328	37	85	199	38
Turn Type	Perm	NA		pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4		3	8			2		6		6
Permitted Phases	4			8		8	2		2	6		6
Actuated Green, G (s)	28.1	28.1		33.9	33.9	33.9	18.1	18.1	18.1	18.1	18.1	18.1
Effective Green, g (s)	28.1	28.1		33.9	33.9	33.9	18.1	18.1	18.1	18.1	18.1	18.1
Actuated g/C Ratio	0.48	0.48		0.58	0.58	0.58	0.31	0.31	0.31	0.31	0.31	0.31
Clearance Time (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	454	734		177	902	766	271	481	409	182	481	409
v/s Ratio Prot		c0.57		0.01	c0.16			c0.21			0.13	
v/s Ratio Perm	0.35			0.16		0.04	0.06		0.03	0.15		0.03
v/c Ratio	0.72	1.17		0.30	0.27	0.07	0.19	0.68	0.09	0.47	0.41	0.09
Uniform Delay, d1	11.8	14.9		11.8	5.9	5.2	14.6	17.4	14.1	16.1	15.8	14.1
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	5.3	91.8		1.0	0.2	0.0	1.6	7.6	0.4	8.4	2.6	0.5
Delay (s)	17.1	106.8		12.7	6.1	5.3	16.2	25.1	14.6	24.4	18.4	14.6
Level of Service	B	F		B	A	A	B	C	B	C	B	B
Approach Delay (s)		82.4			6.8			21.6			18.5	
Approach LOS		F			A			C			B	

Intersection Summary

HCM 2000 Control Delay	47.8	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.94		
Actuated Cycle Length (s)	58.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	96.2%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
 14: SW 35th Street & SW Philomath Boulevard

10/08/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↗↗	↘	↘	↗↗	↘	↘	↗	↘	↘	↗	↗
Traffic Volume (vph)	16	881	20	188	712	131	31	272	225	108	232	15
Future Volume (vph)	16	881	20	188	712	131	31	272	225	108	232	15
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99	0.99
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1467	2934	1312	1467	2934	1312	1467	1544	1312	1467	1530	1530
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.46	1.00	1.00	0.43	1.00	1.00
Satd. Flow (perm)	1467	2934	1312	1467	2934	1312	716	1544	1312	664	1530	1530
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	17	927	21	198	749	138	33	286	237	114	244	16
RTOR Reduction (vph)	0	0	13	0	0	64	0	0	156	0	3	0
Lane Group Flow (vph)	17	927	8	198	749	74	33	286	81	114	257	0
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Perm	NA	Perm	Perm	NA	NA
Protected Phases	7	4		3	8			2				6
Permitted Phases			4			8	2		2	6		
Actuated Green, G (s)	1.9	32.6	32.6	15.2	45.9	45.9	29.3	29.3	29.3	29.3	29.3	29.3
Effective Green, g (s)	1.9	32.6	32.6	15.2	45.9	45.9	29.3	29.3	29.3	29.3	29.3	29.3
Actuated g/C Ratio	0.02	0.38	0.38	0.18	0.53	0.53	0.34	0.34	0.34	0.34	0.34	0.34
Clearance Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	32	1110	496	258	1564	699	243	525	446	225	520	520
v/s Ratio Prot	0.01	c0.32		c0.13	0.26			c0.19				0.17
v/s Ratio Perm			0.01			0.06	0.05		0.06	0.17		
v/c Ratio	0.53	0.84	0.02	0.77	0.48	0.11	0.14	0.54	0.18	0.51	0.49	0.49
Uniform Delay, d1	41.7	24.3	16.7	33.8	12.6	9.9	19.6	23.0	20.0	22.6	22.5	22.5
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	15.9	5.6	0.0	12.8	0.2	0.1	1.2	4.0	0.9	7.9	3.3	3.3
Delay (s)	57.5	29.9	16.7	46.6	12.8	10.0	20.8	27.0	20.9	30.6	25.9	25.9
Level of Service	E	C	B	D	B	B	C	C	C	C	C	C
Approach Delay (s)		30.1			18.6			24.0			27.3	
Approach LOS		C			B			C			C	

Intersection Summary

HCM 2000 Control Delay	24.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	86.1	Sum of lost time (s)	9.0
Intersection Capacity Utilization	79.8%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Intersection			
Intersection Delay, s/veh	12.3		
Intersection LOS	B		
Approach	EB	WB	NB
Entry Lanes	1	0	1
Conflicting Circle Lanes	1	1	1
Adj Approach Flow, veh/h	761	0	509
Demand Flow Rate, veh/h	776	0	519
Vehicles Circulating, veh/h	145	1	764
Vehicles Exiting, veh/h	1	764	157
Follow-Up Headway, s	3.186	3.186	3.186
Ped Vol Crossing Leg, #/h	0	0	0
Ped Cap Adj	1.000	1.000	1.000
Approach Delay, s/veh	20.4	0.0	0.0
Approach LOS	C	-	A
Lane	Left	Left	Bypass
Designated Moves	TR	L	R
Assumed Moves	TR	L	R
RT Channelized			Free
Lane Util	1.000	1.000	
Critical Headway, s	5.193	5.193	
Entry Flow, veh/h	776	1	518
Cap Entry Lane, veh/h	977	526	1785
Entry HV Adj Factor	0.981	1.000	0.980
Flow Entry, veh/h	761	1	508
Cap Entry, veh/h	959	526	1750
V/C Ratio	0.794	0.002	0.290
Control Delay, s/veh	20.4	6.9	0.0
LOS	C	A	A
95th %tile Queue, veh	9	0	1

HCM Signalized Intersection Capacity Analysis

1: 53rd Street & NW Harrison Boulevard

10/08/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	28	74	39	503	89	22	54	609	308	8	721	71
Future Volume (vph)	28	74	39	503	89	22	54	609	308	8	721	71
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Util. Factor	1.00	1.00		0.97	1.00		1.00	0.95	1.00	1.00	0.95	
Frt	1.00	0.95		1.00	0.97		1.00	1.00	0.85	1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1630	1627		3162	1665		1630	3260	1458	1630	3216	
Flt Permitted	0.68	1.00		0.50	1.00		0.23	1.00	1.00	0.38	1.00	
Satd. Flow (perm)	1170	1627		1658	1665		387	3260	1458	660	3216	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	29	78	41	529	94	23	57	641	324	8	759	75
RTOR Reduction (vph)	0	34	0	0	16	0	0	0	170	0	11	0
Lane Group Flow (vph)	29	85	0	529	101	0	57	641	154	8	823	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2		2	6		
Actuated Green, G (s)	9.0	8.2		16.5	12.7		26.3	23.7	23.7	22.7	21.9	
Effective Green, g (s)	9.0	8.2		16.5	12.7		26.3	23.7	23.7	22.7	21.9	
Actuated g/C Ratio	0.18	0.16		0.33	0.25		0.53	0.47	0.47	0.45	0.44	
Clearance Time (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	217	266		706	422		268	1545	691	315	1408	
v/s Ratio Prot	0.00	0.05		c0.08	0.06		c0.01	0.20		0.00	c0.26	
v/s Ratio Perm	0.02			c0.17			0.10		0.11	0.01		
v/c Ratio	0.13	0.32		0.75	0.24		0.21	0.41	0.22	0.03	0.58	
Uniform Delay, d1	17.1	18.4		14.2	14.8		6.5	8.6	7.7	7.5	10.6	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.3	0.7		4.4	0.3		0.4	0.8	0.7	0.0	1.8	
Delay (s)	17.4	19.1		18.6	15.1		6.9	9.4	8.5	7.5	12.4	
Level of Service	B	B		B	B		A	A	A	A	B	
Approach Delay (s)		18.8			17.9			9.0			12.4	
Approach LOS		B			B			A			B	

Intersection Summary

HCM 2000 Control Delay	12.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	50.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	60.5%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

2: SW 53rd Street/53rd Street & SW Reservoir Avenue

10/08/2017



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	310	20	11	681	847	434
Future Volume (vph)	310	20	11	681	847	434
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Total Lost time (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Util. Factor	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)	1630	1458	1630	1716	1716	1458
Flt Permitted	0.95	1.00	0.17	1.00	1.00	1.00
Satd. Flow (perm)	1630	1458	296	1716	1716	1458
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	326	21	12	717	892	457
RTOR Reduction (vph)	0	15	0	0	0	167
Lane Group Flow (vph)	326	6	12	717	892	290
Turn Type	Prot	Perm	Perm	NA	NA	Perm
Protected Phases	4			2	6	
Permitted Phases		4	2			6
Actuated Green, G (s)	15.4	15.4	37.3	37.3	37.3	37.3
Effective Green, g (s)	15.4	15.4	37.3	37.3	37.3	37.3
Actuated g/C Ratio	0.26	0.26	0.64	0.64	0.64	0.64
Clearance Time (s)	3.0	3.0	3.0	3.0	3.0	3.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	427	382	188	1090	1090	926
v/s Ratio Prot	c0.20			0.42	c0.52	
v/s Ratio Perm		0.00	0.04			0.20
v/c Ratio	0.76	0.01	0.06	0.66	0.82	0.31
Uniform Delay, d1	20.0	16.0	4.1	6.7	8.1	4.9
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	7.9	0.0	0.7	3.1	6.9	0.9
Delay (s)	27.9	16.0	4.7	9.8	15.0	5.8
Level of Service	C	B	A	A	B	A
Approach Delay (s)	27.2			9.7	11.9	
Approach LOS	C			A	B	

Intersection Summary

HCM 2000 Control Delay	13.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	58.7	Sum of lost time (s)	6.0
Intersection Capacity Utilization	73.7%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Intersection					
Intersection Delay, s/veh	10.8				
Intersection LOS	B				
Approach	WB	NB		SB	
Entry Lanes	1	1		0	
Conflicting Circle Lanes	2	2		2	
Adj Approach Flow, veh/h	462	845		0	
Demand Flow Rate, veh/h	472	861		0	
Vehicles Circulating, veh/h	534	327		236	
Vehicles Exiting, veh/h	327	236		534	
Follow-Up Headway, s	3.186	3.186		3.186	
Ped Vol Crossing Leg, #/h	0	0		0	
Ped Cap Adj	1.000	1.000		1.000	
Approach Delay, s/veh	9.3	11.6		0.0	
Approach LOS	A	B		-	
Lane	Left	Bypass	Left	Bypass	Bypass
Designated Moves	L	R	T	R	R
Assumed Moves	L	R	T	R	R
RT Channelized		Yield		Yield	Yield
Lane Util	1.000		1.000		
Critical Headway, s	4.113		4.113		
Entry Flow, veh/h	236	236	534	327	608
Cap Entry Lane, veh/h	778	662	899	815	0
Entry HV Adj Factor	0.979	0.980	0.980	0.980	0.980
Flow Entry, veh/h	231	231	524	321	596
Cap Entry, veh/h	761	649	881	799	0
V/C Ratio	0.304	0.356	0.594	0.402	0.000
Control Delay, s/veh	8.3	10.4	12.9	9.5	0.0
LOS	A	B	B	A	-
95th %tile Queue, veh	1	2	4	2	0

HCM 2010 Roundabout
4: SW 53rd Street & SW West Hills Road

10/08/2017

Intersection								
Intersection Delay, s/veh20.9								
Intersection LOS C								
Approach	EB		WB		NB		SB	
Entry Lanes	1		1		1		1	
Conflicting Circle Lanes	2		2		2		2	
Adj Approach Flow, veh/h	296		384		861		799	
Demand Flow Rate, veh/h	302		392		878		815	
Vehicles Circulating, veh/h	751		906		322		429	
Vehicles Exiting, veh/h	359		214		641		740	
Follow-Up Headway, s	3.186		3.186		3.186		3.186	
Ped Vol Crossing Leg, #/h	0		0		0		0	
Ped Cap Adj	1.000		1.000		1.000		1.000	
Approach Delay, s/veh	9.1		12.1		28.1		21.6	
Approach LOS	A		B		D		C	
Lane	Left	Bypass	Left	Bypass	Left	Bypass	Left	Bypass
Designated Moves	LT	R	LT	R	LT	R	LT	R
Assumed Moves	LT	R	LT	R	LT	R	LT	R
RT Channelized	Yield		Yield		Yield		Yield	
Lane Util	1.000		1.000		1.000		1.000	
Critical Headway, s	4.113		4.113		4.113		4.113	
Entry Flow, veh/h	212	90	263	129	798	80	681	134
Cap Entry Lane, veh/h	668	595	599	539	902	912	837	789
Entry HV Adj Factor	0.981	0.980	0.982	0.980	0.981	0.980	0.981	0.980
Flow Entry, veh/h	208	88	258	126	783	78	668	131
Cap Entry, veh/h	655	584	588	529	885	894	821	774
V/C Ratio	0.317	0.151	0.439	0.238	0.885	0.087	0.814	0.169
Control Delay, s/veh	9.6	8.0	13.0	10.1	30.5	4.8	24.5	6.4
LOS	A	A	B	B	D	A	C	A
95th %tile Queue, veh	1	1	2	1	12	0	9	1

HCM Signalized Intersection Capacity Analysis

5: SW 53rd Street & SW Philomath Boulevard

10/08/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	112	549	44	84	548	360	187	263	87	312	288	160
Future Volume (vph)	112	549	44	84	548	360	187	263	87	312	288	160
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00		0.97	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.96		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1630	3260	1458	1630	3260	1458	1630	1652		3162	1716	1458
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1630	3260	1458	1630	3260	1458	1630	1652		3162	1716	1458
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	118	578	46	88	577	379	197	277	92	328	303	168
RTOR Reduction (vph)	0	0	33	0	0	193	0	9	0	0	0	76
Lane Group Flow (vph)	118	578	13	88	577	186	197	360	0	328	303	92
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA		Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8						6
Actuated Green, G (s)	12.6	30.3	30.3	8.9	26.6	26.6	17.9	41.6		15.8	39.5	39.5
Effective Green, g (s)	12.6	30.3	30.3	8.9	26.6	26.6	17.9	41.6		15.8	39.5	39.5
Actuated g/C Ratio	0.12	0.28	0.28	0.08	0.24	0.24	0.16	0.38		0.15	0.36	0.36
Clearance Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	189	909	406	133	798	357	268	632		460	624	530
v/s Ratio Prot	c0.07	0.18		0.05	c0.18		c0.12	c0.22		0.10	0.18	
v/s Ratio Perm			0.01			0.13						0.06
v/c Ratio	0.62	0.64	0.03	0.66	0.72	0.52	0.74	0.57		0.71	0.49	0.17
Uniform Delay, d1	45.7	34.3	28.5	48.4	37.6	35.5	43.1	26.4		44.2	26.7	23.5
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	6.3	1.5	0.0	11.7	3.3	1.4	10.0	3.7		5.2	2.7	0.7
Delay (s)	52.0	35.8	28.5	60.1	40.9	36.9	53.1	30.1		49.4	29.4	24.2
Level of Service	D	D	C	E	D	D	D	C		D	C	C
Approach Delay (s)		37.9			41.0			38.1			36.5	
Approach LOS		D			D			D			D	

Intersection Summary

HCM 2000 Control Delay	38.6	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	108.6	Sum of lost time (s)	12.0
Intersection Capacity Utilization	67.0%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM 2010 TWSC
 6: SW West Hills Road & Site Access (SW)

10/08/2017

Intersection

Int Delay, s/veh 6

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↘	↗	↗		↘	↗
Traffic Vol, veh/h	82	185	291	209	151	58
Future Vol, veh/h	82	185	291	209	151	58
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	150	-	-	-	150	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	91	206	323	232	168	64

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	556	0	827
Stage 1	-	-	439
Stage 2	-	-	388
Critical Hdwy	4.12	-	6.42
Critical Hdwy Stg 1	-	-	5.42
Critical Hdwy Stg 2	-	-	5.42
Follow-up Hdwy	2.218	-	3.518
Pot Cap-1 Maneuver	1015	-	341
Stage 1	-	-	650
Stage 2	-	-	686
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	1015	-	310
Mov Cap-2 Maneuver	-	-	310
Stage 1	-	-	650
Stage 2	-	-	624

Approach	EB	WB	SB
HCM Control Delay, s	2.7	0	24.5
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1015	-	-	-	310	618
HCM Lane V/C Ratio	0.09	-	-	-	0.541	0.104
HCM Control Delay (s)	8.9	-	-	-	29.5	11.5
HCM Lane LOS	A	-	-	-	D	B
HCM 95th %tile Q(veh)	0.3	-	-	-	3	0.3

Intersection				
Intersection Delay, s/veh	12.8			
Intersection LOS	B			
Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	377	702	78	233
Demand Flow Rate, veh/h	384	716	79	238
Vehicles Circulating, veh/h	197	134	520	526
Vehicles Exiting, veh/h	567	465	61	324
Follow-Up Headway, s	3.186	3.186	3.186	3.186
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	8.8	16.4	6.8	10.3
Approach LOS	A	C	A	B
Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Critical Headway, s	5.193	5.193	5.193	5.193
Entry Flow, veh/h	384	716	79	238
Cap Entry Lane, veh/h	928	988	672	668
Entry HV Adj Factor	0.981	0.980	0.985	0.979
Flow Entry, veh/h	377	702	78	233
Cap Entry, veh/h	911	969	661	654
V/C Ratio	0.414	0.725	0.118	0.356
Control Delay, s/veh	8.8	16.4	6.8	10.3
LOS	A	C	A	B
95th %tile Queue, veh	2	7	0	2

HCM Signalized Intersection Capacity Analysis
 8: SW Technology Loop & SW Philomath Boulevard

10/08/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	793	56	263	883	1	135	0	406	0	0	0
Future Volume (vph)	0	793	56	263	883	1	135	0	406	0	0	0
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		3.0		3.0	3.0			3.0	3.0			
Lane Util. Factor		0.95		1.00	0.95			1.00	1.00			
Frt		0.99		1.00	1.00			1.00	0.85			
Flt Protected		1.00		0.95	1.00			0.95	1.00			
Satd. Flow (prot)		3228		1630	3259			1630	1458			
Flt Permitted		1.00		0.95	1.00			0.76	1.00			
Satd. Flow (perm)		3228		1630	3259			1299	1458			
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	0	835	59	277	929	1	142	0	427	0	0	0
RTOR Reduction (vph)	0	6	0	0	0	0	0	0	284	0	0	0
Lane Group Flow (vph)	0	888	0	277	930	0	0	142	143	0	0	0
Turn Type	Prot	NA		Prot	NA		Perm	NA	Perm			
Protected Phases	7	4		3	8			2				6
Permitted Phases							2		2	6		
Actuated Green, G (s)		27.1		18.3	48.4			27.4	27.4			
Effective Green, g (s)		27.1		18.3	48.4			27.4	27.4			
Actuated g/C Ratio		0.33		0.22	0.59			0.33	0.33			
Clearance Time (s)		3.0		3.0	3.0			3.0	3.0			
Vehicle Extension (s)		3.0		3.0	3.0			3.0	3.0			
Lane Grp Cap (vph)		1069		364	1928			435	488			
v/s Ratio Prot		c0.28		c0.17	0.29							
v/s Ratio Perm								c0.11	0.10			
v/c Ratio		0.83		0.76	0.48			0.33	0.29			
Uniform Delay, d1		25.2		29.7	9.5			20.3	20.1			
Progression Factor		1.00		1.00	1.00			1.00	1.00			
Incremental Delay, d2		5.6		9.1	0.2			2.0	1.5			
Delay (s)		30.8		38.8	9.7			22.3	21.6			
Level of Service		C		D	A			C	C			
Approach Delay (s)		30.8			16.4			21.8			0.0	
Approach LOS		C			B			C			A	

Intersection Summary

HCM 2000 Control Delay	22.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	81.8	Sum of lost time (s)	9.0
Intersection Capacity Utilization	59.7%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Intersection

Int Delay, s/veh 2.4

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↖ ↗	↕	↕		↖ ↗	
Traffic Vol, veh/h	30	1100	1246	46	29	21
Future Vol, veh/h	30	1100	1246	46	29	21
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	150	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	32	1158	1312	48	31	22

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	1360	0	680
Stage 1	-	-	1336
Stage 2	-	-	642
Critical Hdwy	4.14	-	6.94
Critical Hdwy Stg 1	-	-	5.84
Critical Hdwy Stg 2	-	-	5.84
Follow-up Hdwy	2.22	-	3.32
Pot Cap-1 Maneuver	501	-	393
Stage 1	-	-	210
Stage 2	-	-	486
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	501	-	393
Mov Cap-2 Maneuver	-	-	51
Stage 1	-	-	210
Stage 2	-	-	455

Approach	EB	WB	SB
HCM Control Delay, s	0.3	0	111.8
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	501	-	-	-	80
HCM Lane V/C Ratio	0.063	-	-	-	0.658
HCM Control Delay (s)	12.7	-	-	-	111.8
HCM Lane LOS	B	-	-	-	F
HCM 95th %tile Q(veh)	0.2	-	-	-	3

Intersection

Int Delay, s/veh 4.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↑↑			↑				
Traffic Vol, veh/h	0	0	0	0	969	15	1	257	0	0	0	0
Future Vol, veh/h	0	0	0	0	969	15	1	257	0	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	-	-	-	0	-	-	0	-	-	-	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	0	1020	16	1	271	0	0	0	0

Major/Minor	Major2			Minor1		
Conflicting Flow All	-	-	0	510	1036	-
Stage 1	-	-	-	0	0	-
Stage 2	-	-	-	510	1036	-
Critical Hdwy	-	-	-	6.84	6.54	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	5.84	5.54	-
Follow-up Hdwy	-	-	-	3.52	4.02	-
Pot Cap-1 Maneuver	0	-	-	493	~ 230	0
Stage 1	0	-	-	-	-	0
Stage 2	0	-	-	568	307	0
Platoon blocked, %						
Mov Cap-1 Maneuver	-	-	-	493	0	-
Mov Cap-2 Maneuver	-	-	-	493	0	-
Stage 1	-	-	-	-	0	-
Stage 2	-	-	-	568	0	-

Approach	WB	NB
HCM Control Delay, s	0	20.9
HCM LOS		C

Minor Lane/Major Mvmt	NBLn1	WBT	WBR
Capacity (veh/h)	493	-	-
HCM Lane V/C Ratio	0.551	-	-
HCM Control Delay (s)	20.9	-	-
HCM Lane LOS	C	-	-
HCM 95th %tile Q(veh)	3.3	-	-

Notes
 ~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

HCM Signalized Intersection Capacity Analysis

12: SW 35th Street & SW Washington Way

10/08/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	0	3	1	92	3	51	1	535	26	37	587	0
Future Volume (vph)	0	3	1	92	3	51	1	535	26	37	587	0
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		3.0			3.0			3.0			3.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frt		0.97			0.95			0.99			1.00	
Flt Protected		1.00			0.97			1.00			1.00	
Satd. Flow (prot)		1658			1584			1705			1711	
Flt Permitted		1.00			0.81			1.00			0.95	
Satd. Flow (perm)		1658			1318			1704			1638	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	3	1	102	3	57	1	594	29	41	652	0
RTOR Reduction (vph)	0	1	0	0	38	0	0	2	0	0	0	0
Lane Group Flow (vph)	0	3	0	0	124	0	0	622	0	0	693	0
Turn Type		NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		7.9			7.9			28.8			28.8	
Effective Green, g (s)		7.9			7.9			28.8			28.8	
Actuated g/C Ratio		0.19			0.19			0.67			0.67	
Clearance Time (s)		3.0			3.0			3.0			3.0	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		306			243			1149			1104	
v/s Ratio Prot		0.00										
v/s Ratio Perm					c0.09			0.36			c0.42	
v/c Ratio		0.01			0.51			0.54			0.63	
Uniform Delay, d1		14.2			15.7			3.6			3.9	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		0.0			1.7			0.5			1.1	
Delay (s)		14.2			17.3			4.1			5.0	
Level of Service		B			B			A			A	
Approach Delay (s)		14.2			17.3			4.1			5.0	
Approach LOS		B			B			A			A	

Intersection Summary

HCM 2000 Control Delay	6.0	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	42.7	Sum of lost time (s)	6.0
Intersection Capacity Utilization	87.3%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

13: SW 35th Street & SW Western Boulevard

10/08/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	192	429	69	120	775	128	73	120	51	128	264	312
Future Volume (vph)	192	429	69	120	775	128	73	120	51	128	264	312
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.98		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1467	1512		1467	1544	1312	1467	1544	1312	1467	1544	1312
Flt Permitted	0.23	1.00		0.28	1.00	1.00	0.44	1.00	1.00	0.67	1.00	1.00
Satd. Flow (perm)	354	1512		427	1544	1312	684	1544	1312	1039	1544	1312
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	202	452	73	126	816	135	77	126	54	135	278	328
RTOR Reduction (vph)	0	9	0	0	0	51	0	0	37	0	0	127
Lane Group Flow (vph)	202	516	0	126	816	84	77	126	17	135	278	201
Turn Type	Perm	NA		pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4		3	8			2			6	
Permitted Phases	4			8		8	2		2	6		6
Actuated Green, G (s)	28.1	28.1		35.0	35.0	35.0	18.1	18.1	18.1	18.1	18.1	18.1
Effective Green, g (s)	28.1	28.1		35.0	35.0	35.0	18.1	18.1	18.1	18.1	18.1	18.1
Actuated g/C Ratio	0.48	0.48		0.59	0.59	0.59	0.31	0.31	0.31	0.31	0.31	0.31
Clearance Time (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	168	718		321	914	776	209	472	401	318	472	401
v/s Ratio Prot		0.34		0.03	c0.53			0.08			c0.18	
v/s Ratio Perm	c0.57			0.21		0.06	0.11		0.01	0.13		0.15
v/c Ratio	1.20	0.72		0.39	0.89	0.11	0.37	0.27	0.04	0.42	0.59	0.50
Uniform Delay, d1	15.5	12.3		7.0	10.4	5.3	16.0	15.5	14.4	16.3	17.4	16.8
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	134.3	3.4		0.8	11.0	0.1	4.9	1.4	0.2	4.1	5.3	4.4
Delay (s)	149.8	15.8		7.8	21.4	5.3	21.0	16.9	14.6	20.5	22.7	21.2
Level of Service	F	B		A	C	A	C	B	B	C	C	C
Approach Delay (s)		53.0			17.8			17.6			21.6	
Approach LOS		D			B			B			C	

Intersection Summary

HCM 2000 Control Delay	27.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.96		
Actuated Cycle Length (s)	59.1	Sum of lost time (s)	9.0
Intersection Capacity Utilization	97.0%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
 14: SW 35th Street & SW Philomath Boulevard

10/08/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↗↗	↘	↘	↗↗	↘	↘	↗	↘	↘	↗	↗
Traffic Volume (vph)	40	812	13	132	878	111	19	141	202	170	241	36
Future Volume (vph)	40	812	13	132	878	111	19	141	202	170	241	36
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.98	0.98
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1467	2934	1312	1467	2934	1312	1467	1544	1312	1467	1514	1514
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.45	1.00	1.00	0.63	1.00	1.00
Satd. Flow (perm)	1467	2934	1312	1467	2934	1312	692	1544	1312	969	1514	1514
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	42	855	14	139	924	117	20	148	213	179	254	38
RTOR Reduction (vph)	0	0	9	0	0	60	0	0	134	0	6	0
Lane Group Flow (vph)	42	855	5	139	924	57	20	148	79	179	286	0
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Perm	NA	Perm	Perm	NA	NA
Protected Phases	7	4		3	8			2				6
Permitted Phases			4			8	2		2	6		
Actuated Green, G (s)	3.9	30.1	30.1	12.4	38.6	38.6	30.4	30.4	30.4	30.4	30.4	30.4
Effective Green, g (s)	3.9	30.1	30.1	12.4	38.6	38.6	30.4	30.4	30.4	30.4	30.4	30.4
Actuated g/C Ratio	0.05	0.37	0.37	0.15	0.47	0.47	0.37	0.37	0.37	0.37	0.37	0.37
Clearance Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	69	1078	482	222	1382	618	256	573	486	359	561	561
v/s Ratio Prot	0.03	c0.29		c0.09	0.31			0.10				c0.19
v/s Ratio Perm			0.00			0.04	0.03		0.06	0.18		
v/c Ratio	0.61	0.79	0.01	0.63	0.67	0.09	0.08	0.26	0.16	0.50	0.51	0.51
Uniform Delay, d1	38.3	23.1	16.4	32.6	16.7	12.0	16.7	17.9	17.2	19.9	20.0	20.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	14.3	4.1	0.0	5.4	1.2	0.1	0.6	1.1	0.7	4.9	3.3	3.3
Delay (s)	52.5	27.2	16.5	38.0	18.0	12.0	17.3	19.0	18.0	24.7	23.3	23.3
Level of Service	D	C	B	D	B	B	B	B	B	C	C	C
Approach Delay (s)		28.2			19.7			18.3			23.8	
Approach LOS		C			B			B			C	

Intersection Summary

HCM 2000 Control Delay	22.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	81.9	Sum of lost time (s)	9.0
Intersection Capacity Utilization	71.3%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Intersection			
Intersection Delay, s/veh 10.5			
Intersection LOS B			
Approach	EB	WB	NB
Entry Lanes	1	0	1
Conflicting Circle Lanes	1	1	1
Adj Approach Flow, veh/h	436	0	306
Demand Flow Rate, veh/h	445	0	312
Vehicles Circulating, veh/h	493	9	435
Vehicles Exiting, veh/h	9	435	503
Follow-Up Headway, s	3.186	3.186	3.186
Ped Vol Crossing Leg, #/h	0	0	0
Ped Cap Adj	1.000	1.000	1.000
Approach Delay, s/veh	17.7	0.0	0.1
Approach LOS	C	-	A
Lane	Left	Left	Bypass
Designated Moves	TR	L	R
Assumed Moves	TR	L	R
RT Channelized			Free
Lane Util	1.000	1.000	
Critical Headway, s	5.193	5.193	
Entry Flow, veh/h	445	9	303
Cap Entry Lane, veh/h	690	731	1785
Entry HV Adj Factor	0.981	1.000	0.980
Flow Entry, veh/h	436	9	297
Cap Entry, veh/h	677	731	1750
V/C Ratio	0.645	0.012	0.170
Control Delay, s/veh	17.7	5.0	0.0
LOS	C	A	A
95th %tile Queue, veh	5	0	1

