



City of Oregon City

625 Center Street
Oregon City, OR 97045
503-657-0891

Staff Report

File Number: PC 18-018

Agenda Date: 2/12/2018

Status: Agenda Ready

To: Planning Commission

Agenda #: 3a.

From: Christina Robertson-Gardiner

File Type: Planning Item

SUBJECT:

Review Staff Report and Request for Continuance to March 12, 2018: AN 17-0004 / ZC 17-0005:
Park Place Annexation and Rezoning of 92 acres

RECOMMENDED ACTION (Motion): Staff recommends the Planning Commission take testimony and continue Planning file AN 17-0004 and ZC 17 -0005 to March 12, 2018.

BACKGROUND:

An Annexation and Zone Change was submitted for 14 tax lots located on the south side of Holcomb Blvd and north of S. Livesay Rd and totaling approximately 92 acres into Oregon City. The subject territory is within the Oregon City Urban Growth Boundary, and has Comprehensive Plan designations of LR - Low-Density Residential, MR - Medium Density Residential and MUC -Mixed Use Corridor, as provided within the Park Place Concept Plan. The applicant requested a Zone Change from County FU-10 to City R-10 Single Family Dwelling District, R-5 Single Family Dwelling District, and NC Neighborhood Commercial District, though has not proposed the development of the property at this time.

A draft staff report is attached, however, in response to a recent concern, the staff has asked that the applicant consider revising the transportation impact study to nominally increase the potential worst-case scenario at buildout of the development. The transportation impact will be analyzed at multiple points throughout the development of this property. The current analysis associated with these applications reviews the transportation impact of a reasonable worst case scenario when the subject site is built out to determine compliance with the Annexation and Zone Change criteria in the Oregon City Municipal Code. The applicant has proposed to create a Master Plan in the future to identify the specific uses for construction and adequacy of the transportation (and other facilities such as utilities) prior to the development of the site. As the development is proposed onside the transportation impact will be analyzed again for compliance with the Oregon City Municipal Code. As the applicant will be providing an additional analysis, staff recommends the Planning Commission accept public testimony and continue the hearing until March 12, 2018

BUDGET IMPACT:

Amount:

FY(s):

Funding Source:



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Amount:

FY(s):

Funding Source:



STAFF REPORT WITH FINDINGS AND RECOMMENDATION

February 5, 2018

FILE NOS.: AN-17-0004 / ZC-17-0005

APPLICATION TYPE: Type IV - Annexation with Zone Change

HEARING DATE: *Planning Commission*
Monday, February 12th, 2018 - 7:00 p.m., Oregon City City Hall
625 Center Street, Oregon City, OR 97045

APPLICANT: Mark Handris, Hidden Falls Development LLC
1980 Willamette Falls Dr., Ste. 200, West Linn, OR 97068

OWNER(s):

| Address: | Tax Lot: | Acres | Owner |
|----------------------|-----------------|-------|------------------------------|
| No Address | 2-2E-27B -01000 | 9.69 | Erickson |
| 15110 S HOLCOMB BLVD | 2-2E-27B -02000 | 1.45 | Erickson |
| No Address | 2-2E-28D -00100 | 14.11 | Hidden Falls Development LLC |
| No Address | 2-2E-28D -00190 | 10.75 | Hidden Falls Development LLC |
| No Address | 2-2E-28D -00302 | 0.16 | Hidden Falls Development LLC |
| 16582 S LIVESAY RD | 2-2E-28D -00400 | 10.43 | Hidden Falls Development LLC |
| 14631 S LIVESAY RD | 2-2E-28D -00500 | 10.73 | Hidden Falls Development LLC |
| 16472 S LIVESAY RD | 2-2E-28D -03700 | 6.86 | Hidden Falls Development LLC |
| 16530 S LIVESAY RD | 2-2E-28D -00200 | 5.17 | Kirk and Michelle Tolstrup |
| 16644 S LIVESAY RD | 2-2E-28D -00300 | 3.1 | George Thomas |
| No Address | 2-2E-28D -00301 | 1.43 | George Thomas |
| No Address | 2-2E-28D -00303 | 1.77 | George Thomas |
| 14631 S LIVESAY RD | 2-2E-28D -00502 | 9.42 | Robert Tershel |
| No Address | 2-2E-28D -03701 | 6.48 | Redland Road LLC |

REPRESENTATIVE: Rick Givens, 18680 Sunblaze Dr, Oregon City, OR 97045

REQUEST: Annexation and Zone Change of 14 tax lots located on the south side of Holcomb Blvd and north of S. Livesay Rd and totaling approximately 92 acres into Oregon City. (See attached map.) The subject territory is within the Oregon City Urban Growth Boundary, and has Comprehensive Plan designations of LR – Low Density Residential, MR – Medium Density Residential and MUC -Mixed Use Corridor. Applicant has requested a Zone Change from County FU-10 to City R-10 Single Family Dwelling District, R-5 Single Family Dwelling District, and NC Neighborhood Commercial District.

LOCATION: See above under “Owners” and attached vicinity map. The annexation territory extends from the south side of Holcomb Blvd to S. Livesay Rd, abutting the UGB to the east.

STAFF REVIEWERS: Pete Walter, AICP, Planner
Christina Robertson-Gardiner, AICP, Senior Planner

COMP. PLAN DESIGNATIONS: LR – Low Density Residential (~9.5 ac)
MR – Medium Density Residential (~77.3 ac)
MUC – Mixed Use Corridor (~4.5 ac)

PROPOSED ZONING: R-10 – Single Family Residential
R-5 - Dwelling District
NC – Neighborhood Commercial

CURRENT ZONING: Clackamas County FU-10 (~57 ac)
Clackamas County RRF-5 (~35 ac)

RECOMMENDATION: Approval with conditions

PROCESS: The applicant and all documents submitted by or on behalf of the applicant are available for inspection at no cost at the Oregon City Planning Division, 221 Molalla Avenue, Oregon City, Oregon 97045, from 8:30am to 3:30pm Monday thru Friday. The staff report, with all the applicable approval criteria, will also be available for inspection 7 days prior to the hearings. Copies of these materials may be obtained for a reasonable cost in advance.

Please be advised that this is a Type IV proceeding. All new evidence must be submitted before the Planning Commission closes the public record. The City Commission’s review will be on the record and limited to evidence that was submitted before the Planning Commission. Any issue that is intended to provide a basis for appeal must be raised before the close of the City Commission hearing, in person or by letter, with sufficient specificity to afford the City Commission and the parties an opportunity to respond to the issue. Failure to raise an issue with sufficient specificity will preclude any appeal on that issue. After considering the recommendation by the Planning Commission, the City Commission will make a determination as to whether the application has or has not complied with the factors set forth in section 14.04.060 of the Oregon City Municipal Code. Since the site has an acknowledged Comprehensive Plan map designation, upon annexation, the site shall be rezoned to implement the comprehensive plan.

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I. INTRODUCTION

GENERAL INFORMATION

This application requests approval to annex approximately 92 acres of land within the Urban Growth Boundary “UGB” to the City of Oregon City. This application also requests that City apply zoning to the annexed area in conformance with the land use designations in the adopted and acknowledged Oregon City Comprehensive Plan. The zoning would change from Clackamas County Future Urbanizable-10 (FU-10) and RRF5 (Rural Farm and Forest 5-Acre) to City of Oregon City R-10 Single-Family Dwelling District, R-5 Dwelling District, and NC – Neighborhood Commercial District pursuant to OCMC 17.68.025A.

The proposed zoning designations, if approved, represent an initial step in implementing the vision for the “North Village” of the adopted Park Place Concept Plan, adopted by the City in 2008. The concept plan is discussed in detail below.

EXISTING CONDITIONS

The annexation territory is located on the south side of Holcomb Blvd west of its intersection with Jada Way. South Livesay Road forms the southerly border of the annexation area. Journey Drive, Shartner Drive, and Cattle Drive are all stubbed into the subject area from existing residential neighborhoods to the north.

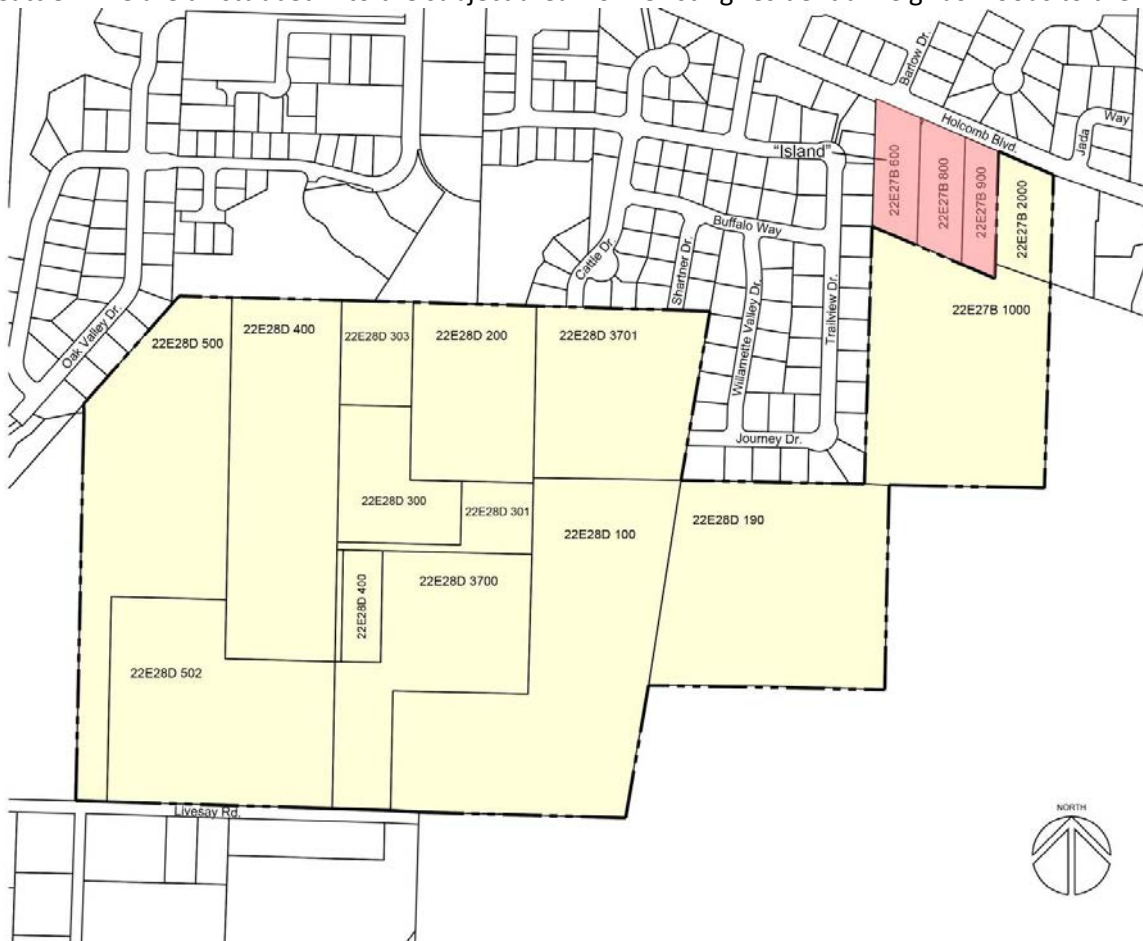


Figure #1: Subject Site Shown in Yellow

The properties included within this annexation proposal (highlighted in yellow above) contain a total of 7 single-family homes developed at rural densities on acreage tracts with various scattered outbuildings. The properties are located in the North Village Neighborhood area identified in the Park Place Concept Plan. As

discussed in the applicant's report, the future development of the subject property will provide for a mixture of residential, park, natural open space areas, and neighborhood commercial development consistent with the Park Place Concept Plan, provided the recommendations of this report are implemented.

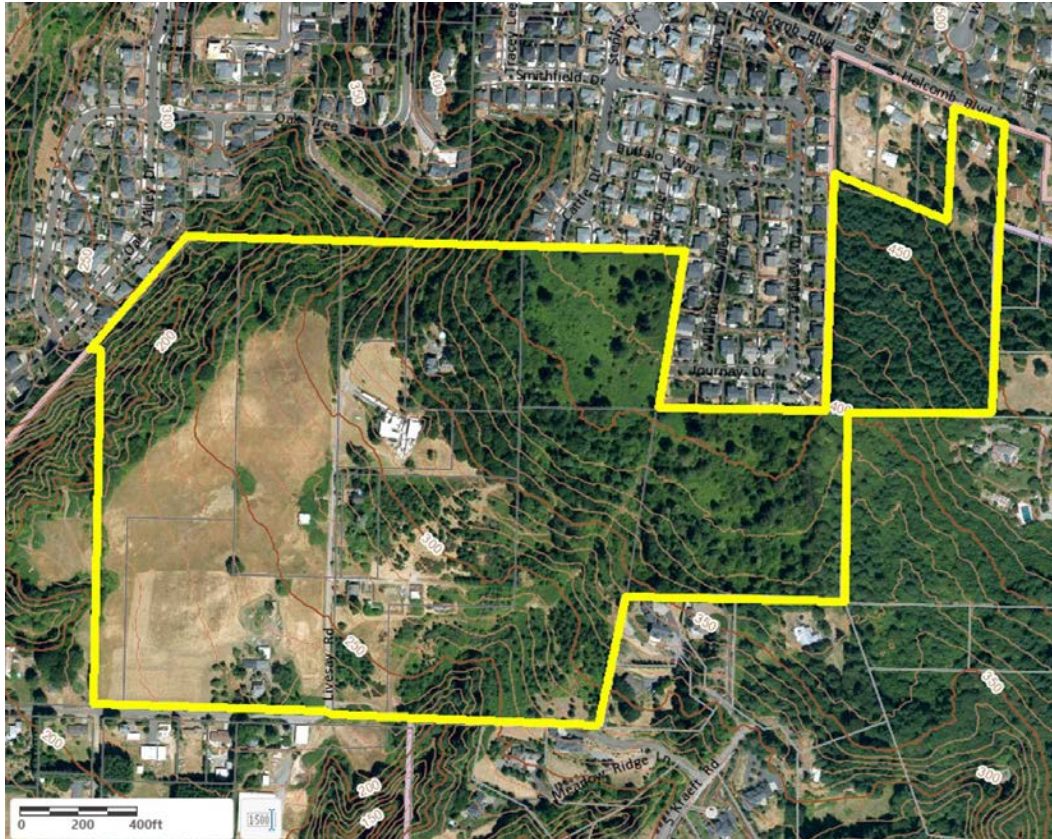


Figure 2: Aerial Photograph

The annexation will also provide a needed step in developing the northern segment of Holly Lane as a collector street extension that will eventually connect from S. Holcomb Blvd. to Redland Rd in accordance with the 2013 Oregon City Transportation System Plan (TSP).

Slopes are varied, with most areas having between zero and 25 percent grade. Slopes adjacent to the drainageway that forms the northwest border of the annexation area exceed 35% grade in certain areas. The property slopes generally to the southwest, downhill from Holcomb Blvd. The drainage of Livesay Creek runs along a northwestern portion of the annexation area for approximately 1000 feet.

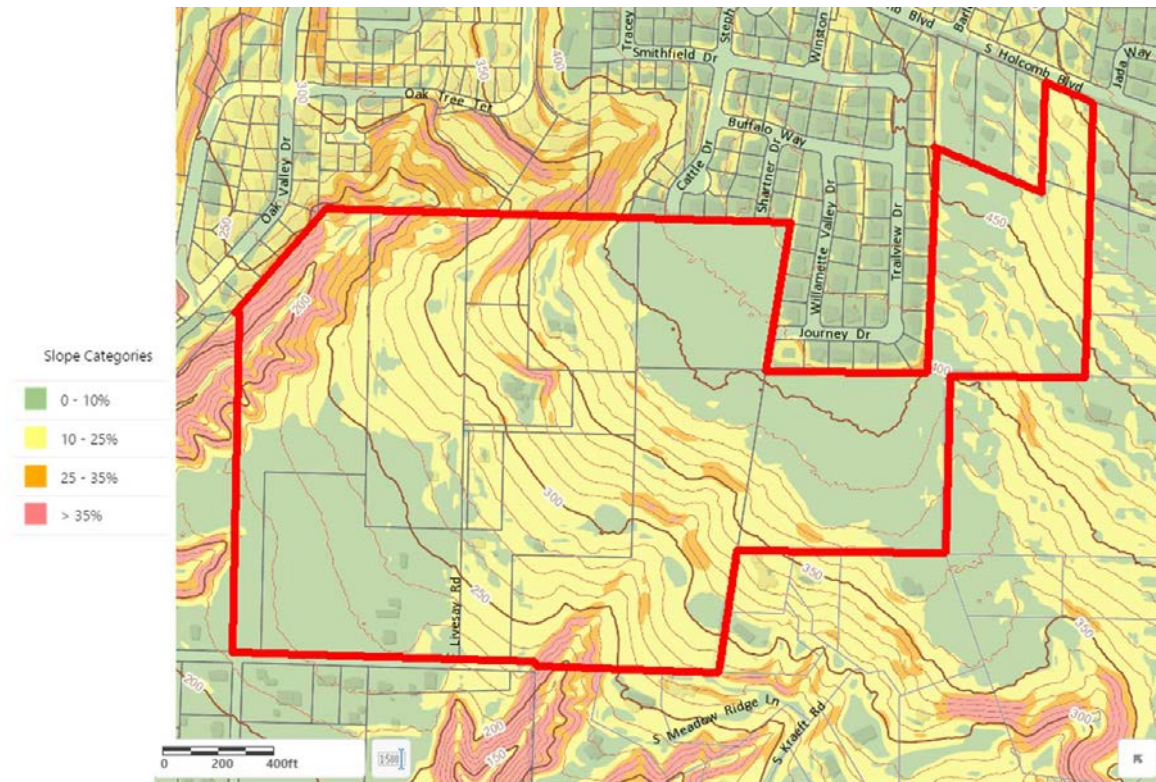


Figure 3: Site Topography

The majority of the property is otherwise undeveloped, but portions have been in use for pasture and hay fields. Tax Lot 2-2E-27B -01000 consists of 9.69 acres which is heavily forested.

The annexation petition is signed by all of the owners of all of the land in the territory. The petition thus meets the requirement for initiation set forth in ORS 222.125.

The following table provides current taxlot information for the properties.

| APN | Address | Taxpayer | Acres | Assessed Value |
|-----------------|----------------------|------------------------------|-------|-----------------|
| 2-2E-27B -01000 | | MICHAEL ERICKSON | 9.69 | \$ 3,709.00 |
| 2-2E-27B -02000 | 15110 S HOLCOMB BLVD | ERICKSON MICHAEL K TRUSTEE | 1.45 | \$ 176,352.00 |
| 2-2E-28D -00100 | | HIDDEN FALLS DEVELOPMENT LLC | 14.11 | \$ 262,203.00 |
| 2-2E-28D -00190 | | HIDDEN FALLS DEVELOPMENT LLC | 10.75 | \$ 106,951.00 |
| 2-2E-28D -00200 | 16530 S LIVESAY RD | KIRK D & MICHELLE D TOLSTRUP | 5.17 | \$ 404,057.00 |
| 2-2E-28D -00300 | 16644 S LIVESAY RD | GEORGE E THOMAS | 3.1 | \$ 292,428.00 |
| 2-2E-28D -00301 | | GEORGE E THOMAS | 1.43 | \$ 24,447.00 |
| 2-2E-28D -00302 | | HIDDEN FALLS DEVELOPMENT LLC | 0.16 | \$ 7,181.00 |
| 2-2E-28D -00303 | | GEORGE E THOMAS | 1.77 | \$ 29,879.00 |
| 2-2E-28D -00400 | 16582 S LIVESAY RD | HIDDEN FALLS DEVELOPMENT LLC | 10.43 | \$ 347,178.00 |
| 2-2E-28D -00500 | 14631 S LIVESAY RD | HIDDEN FALLS DEVELOPMENT LLC | 10.73 | \$ 229,571.00 |
| 2-2E-28D -00502 | 14631 S LIVESAY RD | ROBERT TERSHEL | 9.42 | \$ 374,667.00 |
| 2-2E-28D -03700 | 16472 S LIVESAY RD | HIDDEN FALLS DEVELOPMENT LLC | 6.86 | \$ 268,674.00 |
| 2-2E-28D -03701 | | REDLAND ROAD LLC | 6.48 | \$ 133,972.00 |
| Totals | | | 91.55 | \$ 2,661,269.00 |

*From Clackamas Co. Assessor's Office (2017)

ISLANDS

As discussed in greater detail below, Oregon City Comprehensive Plan Policy 14.4.3 requires that the City “evaluate” and “avoid creating unincorporated islands within the City.” There are three tax lots (3.7 acres), abutting Holcomb Road, at the northern edge of the proposed annexation area that are not included as part of this annexation proposal. See the pink properties in Figure 1. The applicant indicates that they tried unsuccessfully to include these properties in their annexation.

If approved, these three tax lots will be surrounded on all four sides by land included within the city creating an unincorporated island. Policy 14.4.3 provides that “in some instances”, the City may “require that parcels adjacent to the proposed annexation” be included as part of the annexation request. Therefore, the Planning Commission, and ultimately the City Commission, must decide if the circumstances warrant forcing the three properties to become part of this annexation request. The city’s options for finding compliance with Policy 14.4.3 are discussed in greater detail below.

However, should the city require annexation of these three lots, voter approval would be required, since there would no longer be 100% owner consent for the annexation.

PARK PLACE CONCEPT PLAN

The proposed annexation is within the Park Place Concept Plan area, adjacent to Oregon City’s Park Place neighborhood on the northeastern edge of the City. The total land area within the Concept Plan is approximately 480 acres, of which 180 acres are located immediately adjacent to Oregon City limits in the vicinity of Livesay Road. These 180 acres were brought into the UGB in the 1980s, but were not annexed into the City of Oregon City. The remaining 300 acres were brought into the UGB in 2002.

The whole area within the UGB was comprised of 138 individual property owners as of 2008, consisting mainly of single-family homes on large parcels. To date, the largest amount of acreage in the concept plan area under single ownership is approximately 48 acres. Thirty-eight acres are in public ownership, the majority of which comprise Ogden Middle School (Oregon City School District). Nearly half of the parcels in the study area are one acre or less.

The Park Place Concept Plan “PPCP” (Adopted March 12, 2008) will integrate a multi-modal transportation system with a mixed-use development pattern to achieve a highly efficient and sustainable design. The PPCP identifies a network of internal and external pedestrian, bicycle, transit and street connections that serve the study area and connect it to the surrounding community and the broader region. The Concept Plan was developed through an extensive interactive public process, guided by a Project Advisory Committee comprised of neighbors, stakeholders, business owners and City residents. An extensive public hearing process before the Oregon City Planning Commission and City Commission occurred prior to final adoption of the Park Place Concept Plan.

DISCUSSION OF ZONE CHANGE CRITERIA

Concurrent Zoning Map Amendment from FU-10 to R-5, R-10 & NC.

The Site has acknowledged Oregon City Comprehensive Plan Map designations of Medium Density Residential (MR), Low Density Residential (LDR) and Mixed Use-Corridor (MUC). Oregon City Municipal Code (“OCMC”) 17.68.025.A. provides that “notwithstanding any other section of this code”, a concurrent zoning map application under OCMC Chapter 17.50 is required. Further, this section requires that the zoning map designation correlate to the corresponding Comprehensive Plan map designation for the site as shown in OCMC 17.68.025.A. The section is mandatory; it provides that “the property shall be rezoned upon annexation to the corresponding zoning designation as follows...”(emphasis added). In other words, there is no discretion to be applied to the zoning map amendment and not only is a concurrent zoning map amendment required, the outcome is automatic based on the acknowledged OCMC. Further, compliance

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with OCMC Chapter 17.50 requires a zoning map amendment application but does not require compliance with the discretionary zoning map amendment application criteria in OCMC 17.68.020.

In this instance, the zoning districts to be applied per the table in OCMC 17.68.025.A are R-5 for the MR area, R-10 for the LDR area, and Neighborhood Commercial (NC) for the MUC area.

The Planning Commission must determine that the Application satisfies the approval criteria in OCMC 17.68.025.A. and B. in order for the zone change to be approved.

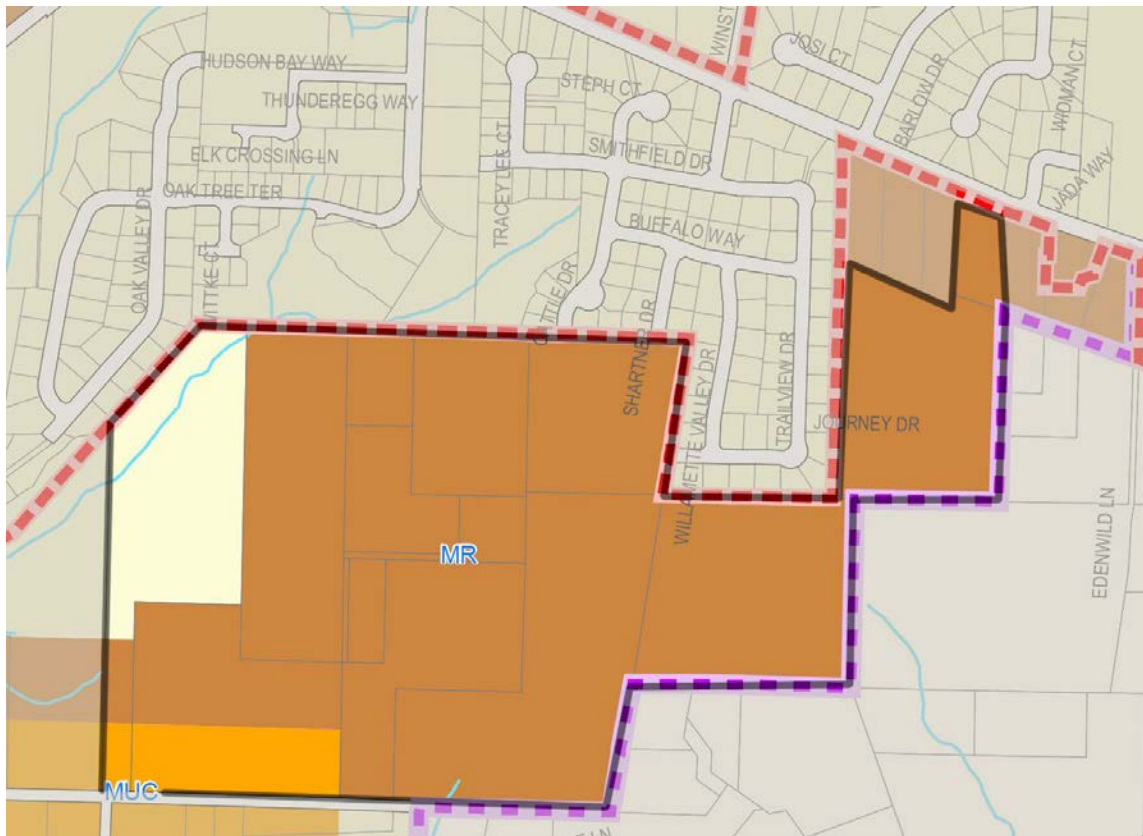


Figure 4: Comprehensive Plan Designations

Additional analysis is provided within this report.

II. APPLICABLE REGULATIONS AND APPROVAL CRITERIA

The remainder of this staff report provides findings to demonstrate that the proposed annexation and zone change is consistent with applicable approval criteria.

Annexations in Oregon City are governed at local (city), regional (Metro), and State levels. Locally, annexations are regulated by Title 14 of the Oregon City Municipal Code, and by goals and policies in the adopted Comprehensive Plan. Regionally, annexations are regulated by Metro's Code Section 3.09, which establishes requirements for local government boundary changes.

Annexations are required to demonstrate a “positive balance of factors” in order to comply with the approval criteria in Chapter 14.04.060. Findings for compliance with the Annexation criteria are provided in section II.A. below.

Zone Changes in Oregon City are governed by the criteria in *OCMC Chapter 17.68 – Zoning Changes and Amendments*, and *OCMC Chapter 17.06 – Zoning District Classifications*. Each of these two chapters includes a specific subsection related to zoning of annexed areas. Findings for compliance with the applicable zone change criteria are provided in section II.B. In the case of annexation areas, the Applicant’s proposal is that staff apply the R-10, R-5 and NC zones to the applicable properties without discretion pursuant to the pursuant to OCMC 17.68.025.A.

Annexation and Zone Changes are both discretionary decisions requiring the Planning Commission make a recommendation to the City Commission regarding the approval or denial of the application and any conditions necessary to assure compliance with the applicable approval criteria.

II A. ANNEXATION CRITERIA

COMPLIANCE WITH METRO CODE 3.09 – LOCAL GOVERNMENT BOUNDARY CHANGES

Metro Code Section 3.09 establishes requirements for local government boundary changes. The criteria for a minor boundary change are found in Section 3.09.050.A-D and are applicable to this annexation request. This annexation is considered an expedited decision pursuant to Metro code. Additional petition and notice requirements are also noted below.

3.09.030 Notice Requirements

B. Within 45 days after a reviewing entity determines that a petition is complete, the entity shall set a time for deliberations on a boundary change. The reviewing entity shall give notice of its proposed deliberations by mailing notice to all necessary parties, by weatherproof posting of the notice in the general vicinity of the affected territory, and by publishing notice in a newspaper of general circulation in the affected territory. Notice shall be mailed and posted at least 20 days prior to the date of deliberations. Notice shall be published as required by state law.

Finding: The proposal is consistent with this requirement. The public notice requirements for the first evidentiary hearing on February 12th, 2018 are met pursuant to OCMC 17.50 and in accordance with Metro Code 3.09.030. The application was deemed complete on December 5th, 2017.

Legally Required

Newspaper: published on January 11, 2018, within 45 days of the public hearing.

300’ mailed notice: January 5th, 2018, more than 20 days prior to the public hearing.

Property Posted with Signs: January 22nd, 2018, 21 days prior to the public hearing.

Affected Agencies (including Metro): Mailed Notice on January 5th, 2018 and Emailed on January 12th, 2018, more than 20 days prior to the public hearing.

Additional Courtesy Notices

Email Transmittal: to Neighborhood Association Chairs, three abutting County Planning Organizations, and affected departments and agencies, January 12th, 2018, more than 20 days prior to the public hearing.

Project Webpage <https://www.orcity.org/planning/project/17-0004-zc-17-0005> created: January 12th, 2018.

Public Comments

The following written public comments were received 10 days prior to the public hearing pursuant to the public notice (by 5:00 pm, Friday, 2nd of February, 2018).

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Christine Kosinski submitted comments (Exhibit 3) identifying concerns regarding development on unstable slopes, poor soil conditions, landslides, sinkholes, and difficulty in obtaining landslide insurance. The comments assert that Oregon City does not regulate slopes less than 25% and includes geologic hazards reports which discuss the slope of the site. A variety of exhibits are provided discussing examples of landslides. Other jurisdiction's regulations are discussed and the comments indicate that the proposal does not comply with Goal 7. In addition, concerns about the traffic impact of the annexation and identified a past project of the developer.

Oregon City Police Chief Jim Band submitted comments (Exhibit 3) indicating that they do not anticipate any problems being able to patrol and serve the annexation area and that response times will be within industry standards.

The comments are incorporated into the analysis of this report. Comments received after this deadline will be forwarded to the Planning Commission at the next public hearing.

3.09.040 Requirements for Petitions

A. A petition for a boundary change must contain the following information:

- 1. The jurisdiction of the reviewing entity to act on the petition;*
- 2. A map and a legal description of the affected territory in the form prescribed by the reviewing entity;*
- 3. For minor boundary changes, the names and mailing addresses of all persons owning property and all electors within the affected territory as shown in the records of the tax assessor and county clerk; and*
- 4. For boundary changes under ORS 198.855(3), 198.857, 222.125 or 222.170, statements of consent to the annexation signed by the requisite number of owners or electors.*

Finding: The proposal is consistent with this requirement. Items 1-4 were submitted.

Consistency with Metro Code 3.09.045(D)(1) for Expedited Decisions

D. To approve a boundary change through an expedited process, the city shall:

- 1. Find that the change is consistent with expressly applicable provisions in*
- a. Any applicable urban service agreement adopted pursuant to ORS 195.065;*

Finding: The proposal is consistent with this requirement. This criterion requires that annexations be consistent with applicable provision of annexation plans and/or agreements that have been adopted pursuant to ORS 195. Urban services are defined as: sanitary sewers, water, fire protection, parks, open space, recreation and streets, roads and mass transit, and have been addressed in the Statements of Availability of Facilities and Services findings of this report as required by under OCMC 14.04 .040 and Metro Code 3.09.

The City has an Intergovernmental cooperative agreement (IGA) with Clackamas River Water (CRW) known as the HOPP Area Water Service Plan (Holcomb-Outlook-Park Place) agreement adopted in 1998 to provide water service for urbanizing areas above the 450' pressure zone from the Barlow Crest Pump Station and the upstream Hunter's Heights Reservoir system. The HOPP agreement is provided as an exhibit. The HOPP agreement generally states that CRW will service homes above the 450 foot elevation within the specified HOPP boundary. Only the upper northeast corner of the annexation area, near Holcomb Boulevard would be within the area to be served by CRW, as shown on the map below and provided in the application.

The proposed boundary change does not conflict and is consistent with the HOPP Agreement.

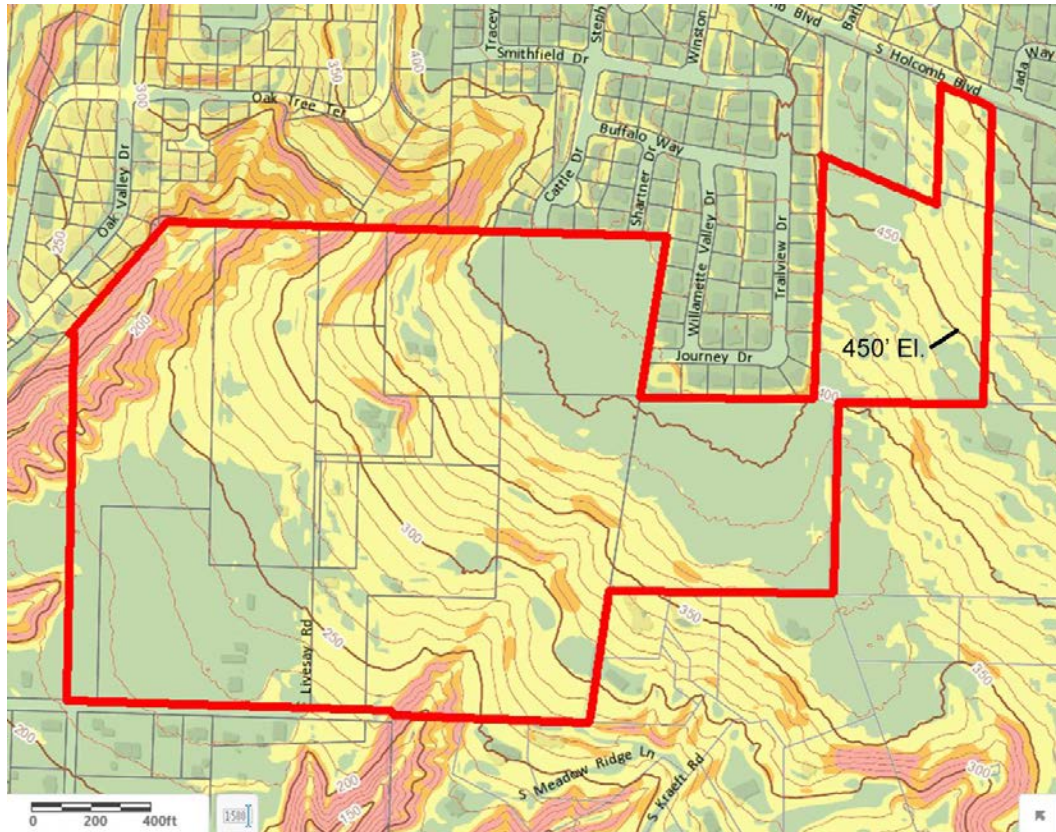


Figure 5: Contour Map

b. Any applicable annexation plan adopted pursuant to ORS 195.205;

Finding: This criteria is not applicable. There is no annexation plan applicable to the subject site. Therefore, this criterion does not apply.

c. Any applicable cooperative planning agreement adopted pursuant to ORS 195.020(2) between the affected entity and a necessary party;

Finding: The proposal is consistent with this requirement. The City and the County have an Urban Growth Management Agreement (UGMA) for the portions of the property, which is a part of their respective Comprehensive Plans.

Urban Growth Management Agreement (UGMA, 1990)

The City and the County have an Urban Growth Management Agreement (UGMA), which is a part of their respective Comprehensive Plans. The territory to be annexed falls within the Urban Growth Management Boundary (UGMB) identified for Oregon City and is subject to the agreement.

The Agreement presumes that all the urban lands within the UGMB will ultimately annex to the City. It specifies that the city is responsible for the public facilities plan required by Oregon Administrative Rule Chapter 660, division 11. The Agreement goes on to say:

- City and County Notice and Coordination

* * *

D. The CITY shall provide notification to the COUNTY, and an opportunity to participate, review and comment, at least 20 days prior to the first public hearing on all proposed annexations . . .

* * *

5. City Annexations

A. *CITY may undertake annexations in the manner provided for by law within the UGMB. CITY annexation proposals shall include adjacent road right-of-way to properties proposed for annexation. COUNTY shall not oppose such annexations.*

B. *Upon annexation, CITY shall assume jurisdiction of COUNTY roads and local access roads that are within the area annexed. As a condition of jurisdiction transfer for roads not built to CITY street standards on the date of the final decision on the annexation, COUNTY agrees to pay to CITY a sum of money equal to the cost of a two-inch asphaltic concrete overlay over the width of the then-existing pavement; however, if the width of pavement is less than 20 feet, the sum shall be calculated for an overlay 20 feet wide. The cost of asphaltic concrete overlay to be used in the calculation shall be the average of the most current asphaltic concrete overlay projects performed by each of CITY and COUNTY. Arterial roads will be considered for transfer on a case- by-case basis. Terms of transfer for arterial roads will be negotiated and agreed to by both jurisdictions.*

Finding: The proposal is consistent with this requirement. The required notice was provided to Clackamas County at least 20 days before the Planning Commission hearing. The UGMA requires that adjacent road rights-of-way be included within annexations. The right-of-way of Holcomb Boulevard adjacent to the subject site have been included in the annexation area legal description. Holcomb Boulevard is a Minor Arterial Road and will be subject to applicable street improvements for a minor arterial road when a development application is submitted to the city. These improvements will be subject to joint review by the City and County if complete jurisdictional transfer to the City of Oregon City has not occurred prior to a development application.

C. *Public sewer and water shall be provided to lands within the UGMB in the manner provided in the public facility plan . . .*

Finding: The proposed annexation site is inside the UGB, contiguous with the city limits, and directly adjacent to developed areas that currently receive public facilities and services. Public facilities (water, sewer and transportation) are available near the proposed annexation site and the city has adopted public facilities plans that provide for extension of those facilities to serve the site to accommodate future development. A future development application will need to be filed and approved by the City of Oregon City prior to any development occurring. Upon approval of a development plan, the developer will provide for the installation of needed public facilities and services.

d. Any applicable public facility plan adopted pursuant to a statewide planning goal on public facilities and services;

Finding: The proposal is consistent with this requirement. The proposed annexation is consistent with the applicable adopted public facility plans. Per statewide planning goal 11 the city's public facility plan describes the water, sewer and transportation facilities which are to support the land uses designated in the appropriate acknowledged comprehensive plan within the urban growth boundary. The public facilities listed below are described in the findings regarding the applicant's Statements of Availability of Public Services under OCMC 14.04.050(E)(7)(a) - (g) NARRATIVE STATEMENTS.

- Water Distribution System Master Plan (WMP (2012)
- Sanitary Sewer Master Plan (2014)
- Transportation System Plan (2013)

Additional applicable Public Facility Plans and service providers include the following:

Metro Regional Transportation Plan (RTP).

Finding: The proposal is consistent with this requirement. The City's Transportation System Plan complies with the Metro Regional Transportation Plan. The 2013 Oregon City Transportation System Plan (TSP) update and the adopted amendments to the Oregon City Municipal Code (OCMC or "code") that implemented the City's TSP complies with the requirements set out in the Metro Regional Transportation Functional Plan (RTFP). As established in the RTFP, demonstrating compliance with the RTFP constitutes compliance with the Regional Transportation Plan (RTP).

South Fork Water Board (SFWB) – Water Master Plan (2016)

Finding: The proposal is consistent with this requirement. SFWB is the water provider for the cities of Oregon City and West Linn and their intake plant is located in Oregon City. SFWB recently updated their master plan to include an updated Capital Improvement Plan updated System Development Charges (SDCs), which are passed through to developers within the city limit as part of the City's SDC schedule. The emphasis of the master plan update is on providing priority upgrades related to system capacity and seismic deficiencies. SFWB's master plan, SDCs analysis and associated capital improvement plan span a 20-year planning period starting in 2016 and ending in 2036.

e. Any applicable comprehensive plan;

Finding: The proposal is consistent with this requirement.

Oregon City Comprehensive Plan

The Oregon City Comprehensive Plan and zoning code will guide future development in the proposed annexation area. Oregon City's Comprehensive Plan Land Use Map within the acknowledged Oregon City Comprehensive Plan designates the subject property Low Density Residential, Medium Density Residential, and Mixed Use Commercial. These designations also implement the land uses envisioned in the Park Place Concept Plan for the annexation area. The proposed zoning amendment would not change the map designation and the R-10, R-5 and NC zoning are implementing zones for those designations.

Specific Findings for consistency with the Goals and Policies of the Oregon City Comprehensive Plan are provided in this report.

Clackamas County Comprehensive Plan

The Clackamas County Comprehensive Plan implements the Oregon City Comprehensive Plan for lands within the Urban Growth Boundary. The plan designation for the proposed annexation properties on the County's Urban Area Land Use Plan the properties as Urban. According to the County's Plan,

"Urban areas include all land inside urban growth boundaries. Urban areas are either developed or planned to be developed with adequate supportive public services provided by cities or by special districts. Urban areas have concentrations of people, jobs, housing, and commercial activity."

The Land Use section of the Clackamas County Comprehensive Plan, Chapter 4, further distinguishes Urban Areas into Immediate Urban Areas and Future Urban Areas.

Immediate Urban Areas: Immediate urban areas are lands that are within urban growth boundaries, are planned and zoned for urban uses, and meet at least one of the following conditions:

1. Served by public facilities, including sanitary sewage treatment, water, storm drainage, and transportation facilities;
2. Included within boundaries of cities or within special districts capable of providing public facilities and planned to be served in the near future; or
3. Substantially developed or surrounded by development at urban densities.

The County's plan and map 4-1 identifies the territory proposed for annexation as a future urban area, which is defined as:

"Future urbanizable areas are lands within the Urban Growth Boundaries but outside Immediate Urban areas. Future Urbanizable areas are planned to be served with public sewer, but are currently lacking a provider of sewer service. Future Urbanizable areas are substantially underdeveloped and will be retained in their current use to insure future availability for urban needs.

Section 4.A of the County's Plan includes several policies that address the conversion of Future Urbanizable lands to Immediate Urban lands to "Provide for an orderly and efficient transition to urban land use." and "Encourage development in areas where adequate public services and facilities can be provided in an orderly and economic way."

Further, County Land Use Policy 4.A.1 requires that the County "Coordinate with Metro in designating urban areas within Metro's jurisdiction. Recognize the statutory role of Metro in maintenance of and amendments to the Portland Metropolitan Urban Growth Boundary."

Finally, 4.C. the County's Future Urban Policy 4.C.1. requires that the County control premature development (before services are available) by:

4.C.1.1. Applying a future urban zone with a 10-acre minimum lot size within the Portland Metropolitan UGB except those lands identified in Subsection 7.1.b.

The subject site is adjacent to the City limits of Oregon City. As demonstrated within this report, public facilities and urban services can be provided in an orderly economically efficient manner to the subject site. Nothing in the County Plan speaks directly to criteria for annexation of property from the County to the City, although the Urban Growth Management Agreement (UGMA) between the City and the County does address these requirements as discussed above.

f. Any applicable concept plan; and

Finding: The proposal is consistent with the Park Place Concept Plan.

With the exception of 1.45 acres that fronts on Holcomb Blvd. (Tax Lot 22E27B 02000), all of the subject property lies within the boundaries of the Park Place Concept Plan. The proposed annexation and concurrent zone change are a first step towards implementing this plan.

The total land area within the Concept Plan is approximately 480 acres, of which 180 acres are located immediately adjacent to Oregon City limits in the vicinity of Livesay Road. These 180 acres were brought into the UGB in the 1980s, but were not annexed into the City of Oregon City. The remaining 300 acres were brought into the UGB in 2002. The whole area within the UGB was comprised of 138 individual property owners as of 2008, consisting mainly of single-family homes on large parcels. To date, the largest amount of acreage in the concept plan area under single ownership is approximately 48 acres. Thirty-eight acres are in public ownership, the majority of which comprise Ogden Middle School (Oregon City School District). Nearly half of the parcels in the study area are one acre or less. The 6.5 acres proposed to be annexed into the city are located within the area included within the UGB in the 1980s. This annexation area includes land identified as the "north village" in the Park Place Concept Plan.

The Park Place Concept Plan "PPCP" (Adopted March 12, 2008) will integrate a multi-modal transportation system with a mixed-use development pattern to achieve a highly efficient and sustainable design. The

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PPCP identifies a network of internal and external pedestrian, bicycle, transit and street connections that serve the study area and connect it to the surrounding community and the broader region. The Concept Plan was developed through an extensive interactive public process, guided by a Project Advisory Committee comprised of neighbors, stakeholders, business owners and City residents. An extensive public hearing process before the Oregon City Planning Commission and City Commission occurred prior to final adoption of the Park Place Concept Plan.

The Park Place Concept Plan's Figure 3-2 "North Village Neighborhood", bears a note stating, "This map is for concept planning purposes only. The specific locations of natural resource boundaries, open space, parks, land uses, roads, trail, infrastructure and related improvements may change and is subject to on-site verification and design at the time of development." The Park Place Concept Plan is an ancillary document to the City's Comprehensive Plan. However, designations depicted on the Oregon City Comprehensive Plan Map, as adopted by Ordinance No. 08-1014, are authoritative for purposes of the requested zone change in conjunction with annexation of this property. It is understood that a future zone change/comprehensive plan map amendment application will be necessary at the time of preparation of the future master plan in order to implement the general conceptual design called for by the North Village Plan.

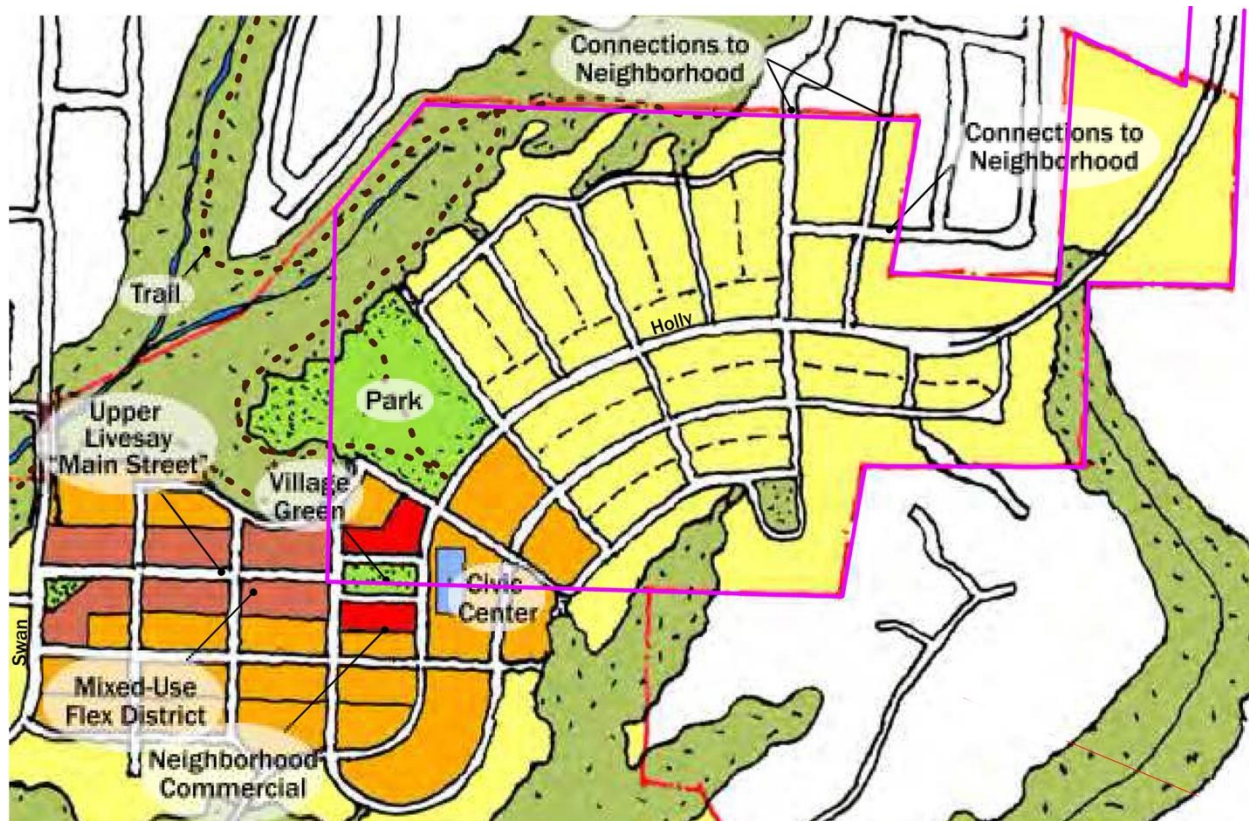


Figure 6: North Village Neighborhood (Annexation Area Outlined in Magenta)

The plan for the North Village area includes commercial development along a new main street along Upper Livesay Road. This area is shown in red on the map above and impacts a small area of the subject property. The orange color depicts Medium/High-Density Residential (R-3.5, minimum 9 units/acre) which would likely be developed with a mix of townhouse and duplex units. The yellow area is planned for Low/Medium-Density Residential (proposed R-5, minimum 6 units/acre) that would be a mix of single-family detached and single-family attached dwellings. A community park is also called for in the Plan. A collector road called the Holly Lane north extension would provide a roadway corridor tying Holcomb Blvd. AN-17-0004 / ZC-17-0005

through to Redland Road, which would be a significant improvement for the Park Place neighborhood that presently is restricted to the Holcomb Blvd. corridor for access.

The key components of the Park Place Concept Plan are listed on page 1 of that document:

- Two primary north-south connections between Holcomb Boulevard and Redland Road (Swan Avenue and Holly Lane)
- Two distinct mixed-use neighborhoods (North Village and South Village) that accommodate 1,459 new dwelling units
- Neighborhood-oriented commercial nodes that integrate commercial land uses, residential land uses, and public open space
- An area for a new civic institution, like a library or community center
- An 8-10 acre community park and a 3-5 acre neighborhood park
- A mix of housing types and ranges of affordability
- An extensive system of off-street and on-street trails and pedestrian/bicycle connections
- Innovative, green on-site stormwater treatment methods
- Protected sensitive areas, including drainages and steep slopes
- Streets and buildings oriented for solar access
- The use of green edges to define neighborhoods and buffer developments
- Integration of parks and open spaces into existing and future neighborhoods

The subject property includes part of the Holly Lane north extension, but is not involved in the Swan Avenue connection. The area of the annexation site along Livesay Road includes neighborhood commercial development, some of the civic institution uses and a major portion of the planned community park. As shown on the North Village Neighborhood plan, there are areas of sensitive land associated with drainageways that will need to be protected as open space. The plan will also include trails that will tie open spaces to residential and commercial components.

The present application involves only the annexation and application of the zoning that is consistent with the adopted Comprehensive Plan Map. *It is not relevant to discuss the goals and policies of the Park Place Community Plan in detail at this early stage.* The future submittal of a phased Master Plan, further zone change and site specific development applications will be reviewed for compliance with all relevant goals and objectives of the Park Place Concept Plan at such time as those applications are submitted.

Consideration under Metro Code 3.09.045(D)(2) for Expedited Decisions

The applicable approval criteria under the Metro Code are:

A. Whether the proposed boundary change will promote the timely, orderly and economic provision of public facilities and services.

Comment: all required public facilities and services will be available at the time of development. No development will occur until such time as the Alternative Mobility standards are adopted and compliance with the Transportation Planning Rule OAR 12-660 can be met. Upon approval of a future development plan, the developer will provide for the installation of needed public facilities and services.

Finding: The proposal is consistent with this requirement. The proposed annexation site is inside the UGB, contiguous with the city limits, and directly adjacent to developed areas that currently receive public facilities and services. Public facilities (water, sewer and transportation) are available near the proposed annexation site and the city has adopted public facilities plans that provide for extension of those facilities to serve the site to accommodate future development. A future development application will need to be filed and approved by the City of Oregon City prior to any development occurring. Upon approval of a

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development plan, the developer will provide for the installation of needed public facilities and services. The City has initiated an engineering study that will add more detailed analysis to the adopted Water Master Plan within the Park Place Concept Plan area. This study will guide preliminary design elements to serve the proposed annexation area and refine the CIP. The study is expected to be completed by Fall of 2018.

b. Whether the proposed boundary change will affect the quality and quantity of urban services

Finding: The proposal is consistent with this requirement, as conditioned. The city has updated its sewer, water and transportation facilities master plans to plan for future extension of those services into the proposed annexation area at the time of development. The City has initiated an engineering study that will add more detailed analysis to the adopted Water Master Plan within the Park Place Concept Plan area. This study will guide preliminary design elements to serve the proposed annexation area and refine the CIP. The study is expected to be completed by Fall of 2018.

The annexation of this property will have no immediate impact upon the quality or quantity of urban services since development of the property will be prohibited until such time as the Alternative Mobility standards are adopted and compliance with Article 12 can be met. At such time as the site is developed in the future, it will be in a manner consistent with the North Village Concept Plan and consistent with the Low Density Residential designation of the property. The City has planned for the provision of necessary public facilities and services in this area in its Public Facilities Plan and Transportation Systems Plan. Since the future development will conform to the anticipated level of development, it will not have a negative impact upon the quality or quantity of urban services.

The future development application will provide for a master plan consistent with the design concept of the North Village Plan. The applicant acknowledges that the future master plan for the annexation area will need to provide for the dedication of a community park and other public facilities consistent with the Park Place Concept Plan. Staff recommends that this annexation area be subject to a Master Plan pursuant to OCMC 17.65 prior to any development of the property at densities greater than that permitted under current County zoning. Master Planning of the annexation area pursuant to OCMC 17.65 would allow for the specific phasing of development over time as well as greater control and predictability regarding the timing of and cost of public improvements, including water, stormwater, sewer, transportation, parks, trails and open space. A master plan also allows development more flexibility to vary from prescriptive standards if approved pursuant to OCMC 17.65. Any master plan, along with a future comprehensive plan amendment and zone change for the subject property cannot proceed until such time as the regional transportation issues are resolved.

In accordance with City, County and State transportation requirements, no development, except that permitted under the County's Future Urban FU-10 zoning designation, in effect as of the date of this application's submittal, shall be allowed until the following occurs, acknowledged and the Applicant demonstrates compliance with these requirements:

- a. A refinement plan for Highway 213 at Beaver Creek Road (Alternative Mobility Targets), including elements such as financially constrained projects and alternative mobility standards, and amendments to OCMC Chapter 12.04 implementing the new Refinement Plan, are be adopted and acknowledged.
- b. Amendments to OCMC 12.04 which allow development affecting the intersection of Highway 213/Beaver Creek are adopted.

- I. Adopt amendments to the City's Transportation System Plan and OCMC Chapter 12.04 to include projects that satisfy the then-applicable performance standards and these standards must be acknowledged; or
- II. Condition the approval of a land division application that satisfies then-applicable OCMC Chapter 12.04 by including proportional mitigation of the application's impacts on that intersection, or such other mitigation measure(s) as may be approved which assure(s) that the intersection will either meet, or perform no worse than, the then-applicable performance standards

c. Eliminate or avoid unnecessary duplication of facilities or services.

Finding: The proposal is consistent with this requirement. The city notified all applicable service providers of this annexation request for their review and comment. Annexation to, or withdrawal from, service provider districts has been addressed in this report as part of the final recommendations, and will be done concurrent or subsequent to this proposed annexation. All services in this area will be provided by the City of Oregon City with the exception of water service to areas served by Clackamas River Water under the existing HOPP Agreement, so there will be no unnecessary duplication of facilities and services.

The Metro Code also contains a second set of 10 factors that are to be considered where: 1) no ORS 195 agreements have been adopted, and 2) a necessary party is contesting the boundary change. Those 10 factors are not applicable at this time to this annexation because no necessary party has contested the proposed annexation.

COMPLIANCE WITH OREGON CITY MUNICIPAL CODE

OCMC Chapter 14.04

14.04.050 - Annexation Procedures

A. Application Filing Deadlines

Finding: The proposal is consistent with this requirement. Annexation of these properties may not be subject to vote provided that the application meets all of the requirements of SB 1573. Should an annexation approval require subsequent approval by the Voters of Oregon City, staff will prepare the necessary ballot title and resolution scheduling an election pursuant to this requirement and in sufficient time for the matter to be submitted to the voters as provided by the election laws of the State of Oregon.

B. Pre-Application Review

Finding: The proposal is consistent with this requirement. The applicant and applicant's representative attended a pre-application review meeting with city staff on November 29, 2016. Pre-application meeting notes are included with the application.

C. Neighborhood Contact

Finding: The proposal is consistent with this requirement. The subject property is within the Park Place Neighborhood Association boundaries. The applicant contacted the Park Place Neighborhood Association, as required by city standards, and a meeting was held on June 7, 2016 at Alliance Charter Academy. A second Neighborhood Meeting on December 6, 2016 was conducted in order to address the need to include a concurrent zone change application.

D. Signatures on Consent Form and Application.

Finding: The proposal is consistent with this requirement. The application submittal package includes the application form and consent form signed by the owners of the subject properties.

E. Contents of Application. An applicant seeking to annex land to the city shall file with the city the appropriate application form approved by the city manager. The application shall include the following:

- 1. Written consent form to the annexation signed by the requisite number of affected property owners, electors or both, provided by ORS 222, if applicable;*
- 2. A legal description of the territory to be annexed, meeting the relevant requirements of the Metro Code and ORS Ch. 308. If such a description is not submitted, a boundary survey may be required. A lot and block description may be substituted for the metes and bounds description if the area is platted. If the legal description contains any deed or book and page references, legible copies of these shall be submitted with the legal description;*
- 3. A list of property owners within three hundred feet of the subject property and, if applicable, those property owners that will be "islanded" by the annexation proposal, on mailing labels acceptable to the city manager;*
- 4. Two full quarter-section county tax assessor's maps, with the subject property(ies) outlined;*
- 5. A site plan, drawn to scale (not greater than one inch = fifty feet), indicating:*
 - a. The location of existing structures (if any);*
 - b. The location of streets, sewer, water, electric and other utilities, on or adjacent to the property to be annexed;*
 - c. The location and direction of all water features on and abutting the subject property. Approximate location of areas subject to inundation, stormwater overflow or standing water. Base flood data showing elevations of all property subject to inundation in the event of one hundred year flood shall be shown;*
 - d. Natural features, such as rock outcroppings, marshes or wetlands (as delineated by the Division of State Lands), wooded areas, identified habitat conservation areas, isolated preservable trees (trees with trunks over six inches in diameter—as measured four feet above ground), and significant areas of vegetation;*
 - e. General land use plan indicating the types and intensities of the proposed, or potential development;*
- 6. If applicable, a double-majority worksheet, certification of ownership and voters. Certification of legal description and map, and boundary change data sheet on forms provided by the city.*

Finding: The proposal is consistent with this requirement. The materials required in items 1 through 6 are included in the application submittal.

AVAILABLE PUBLIC FACILITIES AND SERVICES

OCMC 14.04.050(E)(7)(a) - (g) NARRATIVE STATEMENTS

This code section requires a series of narrative statements explaining how and when public facilities and services will be provided to serve the annexation property when development occurs. These statements and the findings that follow provide additional factual basis for a determination of a “positive balance of factors” required for approval of an annexation petition, as required under OCMC 14.04.060, which section follows this one.

In addition to the narrative submitted at the time of application, the applicant’s planner provided an additional narrative regarding the adequacy and availability of public water, sanitary sewer and storm drainage on February 13, 2017. These responses were reviewed by the Development Services Engineering Division, whose findings are incorporated into this report. As explained by the applicant’s planner,

The property can presently be developed with three homes under County zoning. With the annexation and zone change to City R-10 zoning, the development potential would increase to approximately 124 units. This assumes a deduction of 20 percent of the 35.65 acre site for streets and infrastructure. The proposed re-zoning would, therefore, add potential future development of 121 lots over the existing condition. It should be noted that the actual development of the site cannot occur until some point in the future when the City adopts alternative mobility standards for the transportation system.

The applicant's narrative statements required under this section are summarized below.

7. A narrative statement explaining the conditions surrounding the proposal and addressing the factors contained in the ordinance codified in this chapter, as relevant, including:

a. Statement of availability, capacity and status of existing water, sewer, drainage, transportation, park and school facilities;

b. Statement of increased demand for such facilities to be generated by the proposed development, if any, at this time;

c. Statement of additional facilities, if any, required to meet the increased demand and any proposed phasing of such facilities in accordance with projected demand;

Finding: The proposal is consistent with these requirements as conditioned. There is no proposal to develop the subject property at the present time. Development cannot occur because it is not possible to meet the criteria of Chapter 12.04 of the OCMC until such time as Alternative Mobility Standards are adopted by the City of Oregon City. However, services are available to allow for the future development of this site at such time as the transportation issues are resolved. A condition of approval will be applied to the zone change to prohibit development beyond what is allowed under existing County zoning until such time as it is possible to meet the Alternative Mobility Standards.

Prior to annexation, the property owners or assigns will record a covenant, to be approved by the City Attorney, which limits development of the site until such time that a zone change to a City zoning designation has been approved. The covenant shall acknowledge that development is reviewed for compliance with the Oregon City Municipal Code and Clackamas County Zoning and Development Ordinance. Further, until a zone change is approved the site use shall not change or intensify, or receive approval of a land division or development of the site including, but not limited to: new structures or additions to existing structures or site grading that triggers erosion control permits or overlay district review. In addition the property shall be subject to the City's overlay districts, fence regulations in OCMC 17.54.100 as well as the City's nuisance, business licensing and animal regulations.

The following information describes the existing availability, estimate of increased demand, and notes improvements that may be required to provide these services:

Water

The applicant states that, *"The annexation area is currently partially served by the Clackamas River Water District (CRW). The City and CRW have an urban service agreement (Holcomb-Outlook-Park Place or HOPP agreement) for portions of the annexation area. The HOPP agreement generally states that CRW will service homes above the 450 foot elevation within the specified HOPP boundary. Only the upper northeast corner of the annexation area, near Holcomb Blvd. would be within the area to be served by CRW, as shown on the map below:*

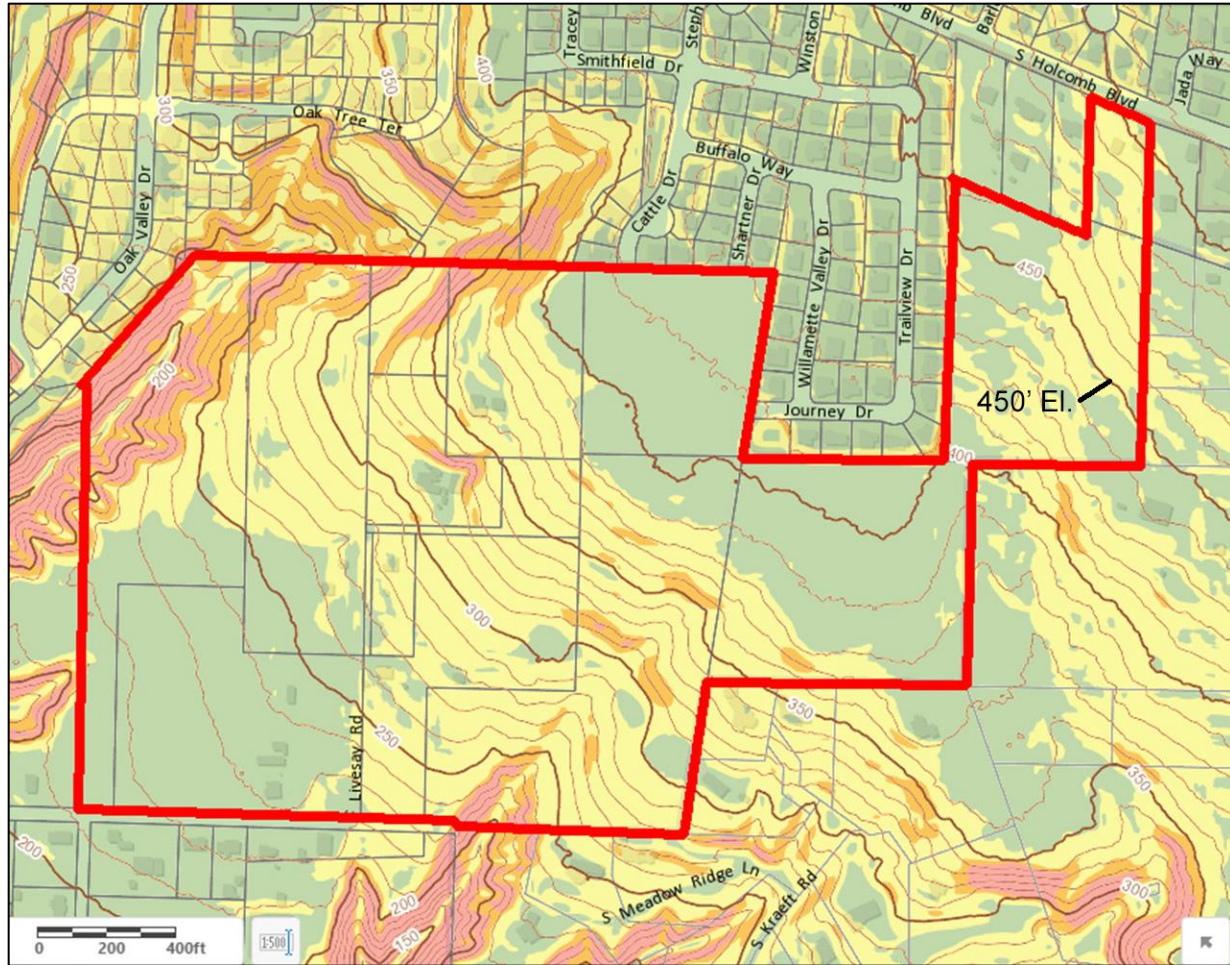


Figure 7: Contour Map

At the most recent pre-application conference (PA-16-40), information was presented by Clackamas River Water District indicating that they have an issue in meeting the required fire flow standard of 1,000 gallons per minute. That issue is expected to be resolved with system upgrades that include replacing approximately 4,000 lineal feet of substandard water main within S Bradley Road with a 12-inch pipe. This improvement would be provided in conjunction with the construction of the Abernethy Landing subdivision (TP 16-0001). Contact with Adam M. Bjornstedt, P.E., Principal Engineer for CRW, on November 6, 2017, indicate that the plans for that project are on schedule. CRW has an existing 12" water line in Holcomb Blvd. that is capable of providing for service to the portion of the subject property that is within the HOPP area. Mr. Bjornstedt indicated that CRW has adequate storage capacity.

The majority of the site will be served with by the City of Oregon City. There is an existing 16-inch City of Oregon City water main in Holcomb Blvd. along the subject property's frontage on that street. A 4-inch water line is located in Livesay Road at the lower end of the subject property. There will be a requirement to construct a 12 inch water main in the future collector street from Holcomb Blvd. to Livesay Road, together with a pressure reducing station and the cost of removing an existing water pump station on Livesay Road. At the present time the additional costs for these improvements are not included in the City's capital improvement program. The applicant will be seeking to have the CIP amended prior to development to include these regional costs.

We estimate that at full build-out the future development of the annexation properties will yield between 400 and 450 residential dwelling units. The City and Clackamas River Water District have adequate water storage capacity to service the proposed annexation area. The details of water service for the subject property will be worked out at the time of future development, but there is an adequate water supply available in the area to service this site.

For the immediate future, until future development occurs, the existing homes within the annexation area will continue to make use of private wells and Clackamas River Water service.”

Pursuant to the City’s request for additional analysis on public water infrastructure needed to serve the proposed annexation area, the applicant submitted an infrastructure analysis worksheet. In summary, the applicant anticipates water system infrastructure improvements to adequately serve the annexation area to include 4000 LF of 12-inch water main; 1 pressure-reducing valve (PRV), and decommissioning of 1 pump station.

Staff has reviewed the submittal and prepared a memorandum in response to the applicant’s analysis worksheet. In summary, Staff anticipates water system infrastructure improvements to adequately serve the annexation area to include 10,700 LF of 8- to 12-inch water main; 1 pressure-reducing valve (PRV), decommissioning of 1 pump station, and replacement of 4 services to existing properties on Livesay Road. Extension of local waterlines within the future street system, typical to all developments, was not included in these figures. The applicant also anticipates the City amending our Capital Improvement Plan (CIP) to include the infrastructure required to serve this development and receive SDC credits. The City does not anticipate SDC credit being available as a funding source for the required water infrastructure. This needs to be considered when the developer evaluates the financial feasibility of future development within the annexation area.

Sanitary Sewer

The applicant states that:

“The existing homes within the annexation area are served with private septic systems and these facilities will remain in place until such time as the area is developed in the future. The Oregon City Sanitary Sewer Master Plan calls for service to this area to be provided in accordance with the figure below:

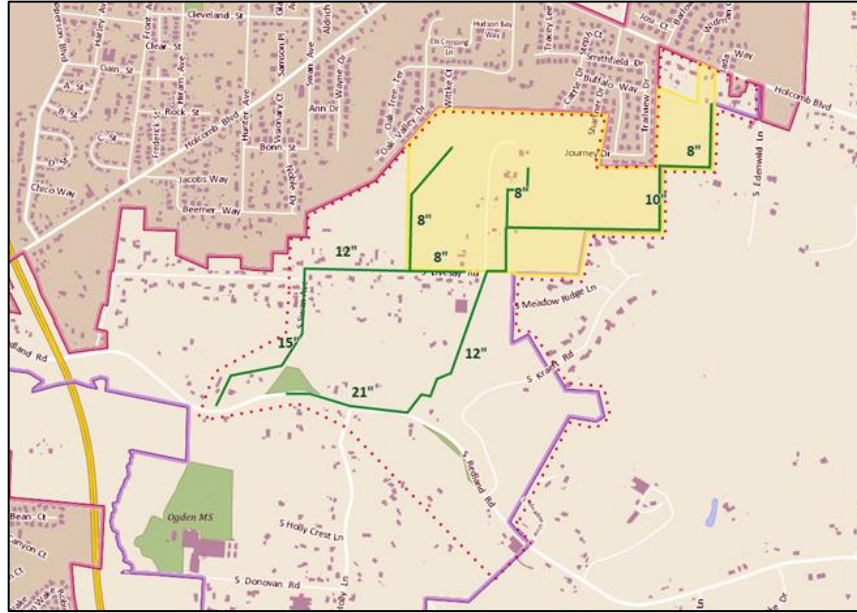


Figure 8: Sewer Master Plan

As a practical matter, the sewer master plan was prepared absent knowledge of the order in which the North Village area would be developed. It is practicable to service all of the proposed annexation area either from the Livesay Road sewer main or from the easterly sewer main. It would not be necessary to construct both of the off-site sewer lines in order to service the annexation area. Since the Livesay Road sewer is largely to be located within existing public road right-of-way, that would be the most likely route to be used in the future development of this area. The cost of this off-site sewer would be borne by the future developer, likely with a pay-back provision for a proportionate contribution for use by others as downhill properties are developed in the future.

The cost of the off-site sewer will be impacted significantly whether the project is done by the City or as a private construction project. We have completed City work sheets on estimated costs based upon information from the City's water and sewer master plans. We estimate that private construction would save at least 25 to 30 percent over public construction costs."

Pursuant to the City's request for additional analysis on public sanitary sewer infrastructure needed to serve the proposed annexation area, the applicant submitted an infrastructure analysis worksheet. In summary, the applicant anticipates Sanitary Sewer system infrastructure improvements to adequately serve the annexation area to include 7000 LF of 8- to 21-inch sanitary main and 30,000 sf of offsite public easement.

Staff has reviewed the submittal and prepared a memorandum in response to the applicant's analysis worksheet. In summary, staff anticipates Sanitary Sewer system infrastructure improvements to adequately serve the annexation area to include 9300 LF of 8- to 21-inch sanitary main and 20,000 sf of offsite public easement. Extension of local sanitary sewer lines within the future street system, typical to all developments, was not included in these figures.

The City's Sanitary Sewer Master Plan of 2014 shows two sanitary trunklines flowing southwesterly to Redland Road to accommodate flows from the proposed annexation area. The applicant's preliminary analysis indicates the property can be served by eliminating the easterly system and utilizing only the

The applicant has indicated a Reimbursement District may be established as a potential source of funding for the required sanitary sewer infrastructure. The City does not anticipate SDC credit being available as a funding source for the required sanitary sewer infrastructure.

The applicant states that

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The future development of the site will require the construction of a storm sewer system that will collect runoff from the development. Storm water treatment and detention facilities will be required in accordance with City standards prior to release of storm water to the natural drainageways. The detention facilities will maintain the rate of runoff at predevelopment rates per City standards.”

Staff concurs that provision of stormwater management facilities and conveyance systems will be contained within the annexation area. It is anticipated that the facilities can be provided in the manner typical of all land development, without unusual or additional requirements.

Transportation

The existing transportation network currently serving the proposed annexation area consists of Holcomb Boulevard and some county gravel roads that abut the site to the north and east.

For a discussion of the transportation impact analysis (TIA) of future development, please refer to the applicant's submitted TIA, and City Transportation Consultant's review of the TIA and the findings on pages 36.

The nearest available public transit (TriMet bus lines) are located along Holcomb Boulevard at the Clackamas Housing Authority View Manor site approximately ¼ mile to the west. Additional transportation findings are provided within this report.

Parks

The applicant provided the following narrative regarding parks and trails.

There is a need for additional parks in the Park Place neighborhood. The closest developed City park to the subject property is Park Place Park, a mile to a mile and half to the northwest of the site at the intersection of Hiram Avenue and Cleveland Street. The Park Place Concept Plan calls for a new community park to be developed between Redland Road and Holcomb Blvd., partially within the proposed annexation area. The map below shows the proposed annexation area overlaid on Figure 32 from the Park Place Concept Plan, which shows the North Village area of the plan. The proposed park site is situated on the western border of the annexation area and continues to the west.

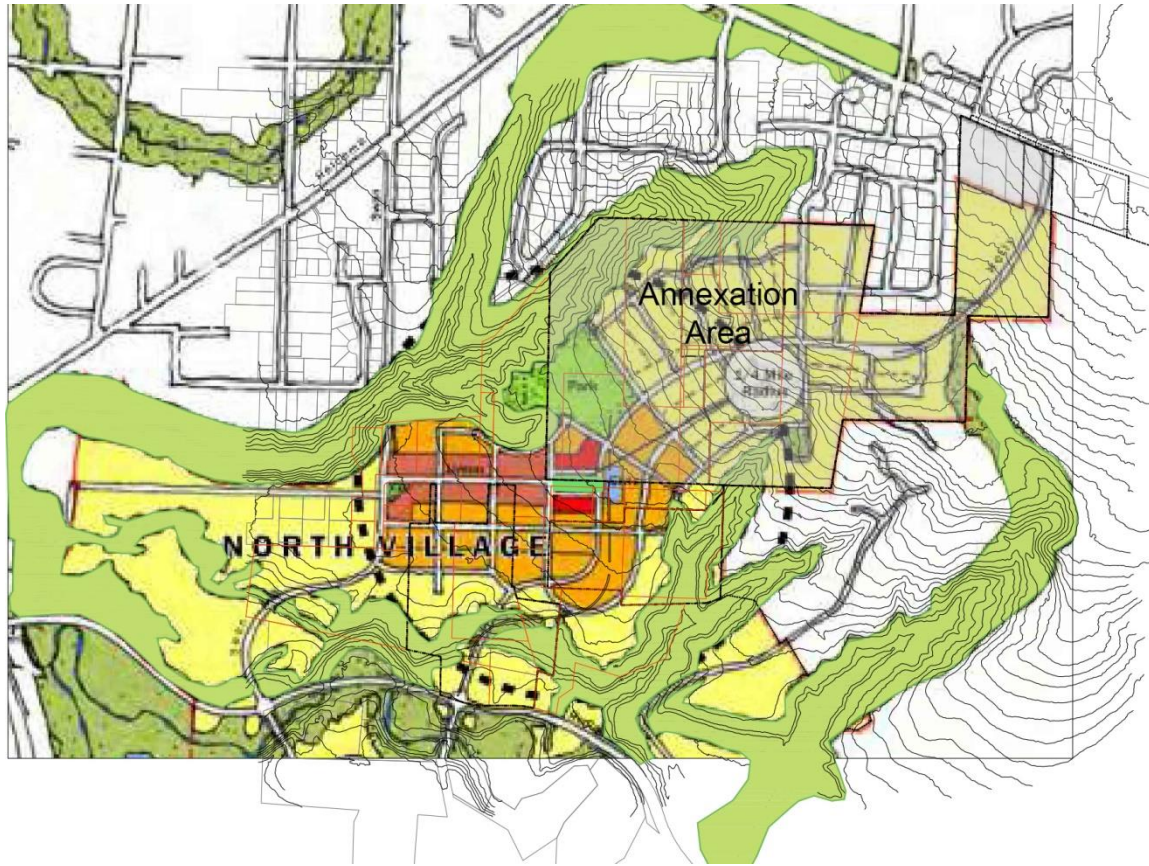


Figure 10: Park Place North Village Plan

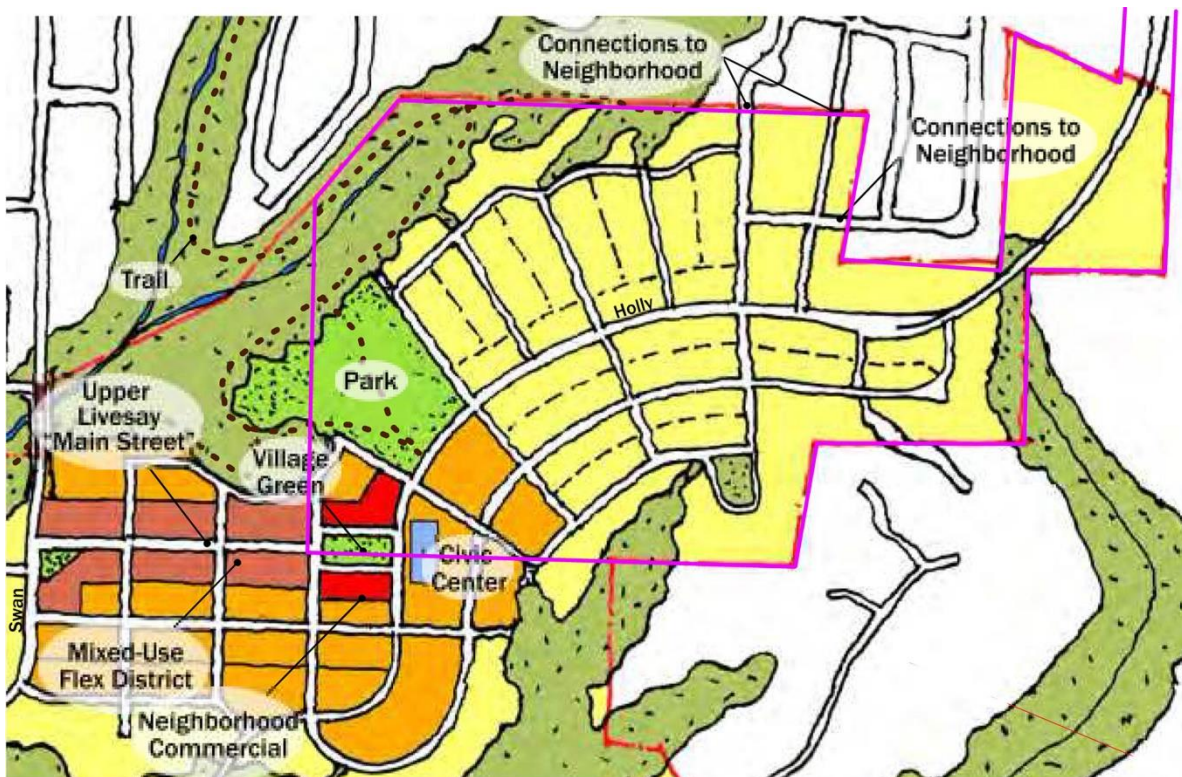


Figure 11: Park Place North Village Detail

The Park Place Concept Plan says the following about the community park in the North Village:
“The parks are intended to provide basic recreational opportunities for residents and may include amenities such as play equipment, athletic fields, picnic tables or shelters, walking trails, and other features. The neighborhood park in the North Village is approximately eight to ten acres and within walking distance of the Livesay Main Street.”
(Final Concept Plan, Page 31)

Comments in the City’s letter of May 12, 2017 from Community Services Director Phil Lewis state that “*we would ideally have a 12-15 acre community park in that location which would allow appropriate sizing for sports fields and parking.*”

There is a need for a larger park in order to provide for soccer and other athletic fields. This comment, while indicative of the Director’s assessment of City park needs, is not consistent with the park size called for by the adopted Park Place Community Plan. Further, topographic constraints associated with a drainageway to the northwest of the proposed park location, as well as the constraint of the proposed alignment of Holly Lane right-of-way, would limit the ability to provide a park of that size at this location with level enough areas for more athletic fields.

The applicant acknowledges that the future master plan for the annexation area will need to provide for the dedication of a community park consistent with the Park Place Concept Plan. The future comprehensive plan amendment and zone change will provide for the designation of the park site with the corresponding Park designation. It is the applicant’s expectation that the City will make any necessary amendments to its Parks and Recreation Master Plan to make the dedication of the community park eligible for systems development charges credits. This will allow for lots in the master plan area to receive SDC credits in exchange for providing compensation to the owners of properties containing proposed park dedication areas.

The 2008 Parks Master Plan update states that focus groups who participated in the update identified the Park Place area as one of several areas of the city that are currently “underserved” by parks and recreation facilities (P. 51), and which also have challenging physical characteristics that serve as a barrier to pedestrian access to existing facilities due to major roads, railroads and natural features (P. 93). Based on the Level-of-Service (LOS) methodology used in the plan, Area 3 – Park Place has an LOS of 28.63 compared to the City’s average LOS of 45, and the plan states that the “Quality and diversity of services in this area should be improved in the future, especially if the area continues to develop and expand to the west” (P. 94). The 2008 update mentions the following Goals, Objectives and Strategies that are pertinent to the area affected by the annexation:

(See P.12, Oregon City, Parks and Recreation Master Plan Update 2008)

Goal 3: Increase access to parks by implementing trails plan.

Objective: Continue to plan for parkland acquisition.

Future park acquisition should be considered on an individual basis for its current or potential recreational value.

Strategies:

- Work to fund Tier 1 local trails as identified in the 2004 Trails Master Plan. Place emphasis on constructing trails that connect parks to other parks, trails, or neighborhoods. For example: Park Place Development Trails (L4), Barclay Park Connection (L11), Parks Trail (L21), and Wesley Lynn – Chapin Trail (L23).
- Continue to fund planning and construction for Tier 1 Regional Trails as identified in the 2004 Trails Master Plan. Use the Trails Master Plan for priorities and specifics about implementation costs.

- As funding permits, determine the existing condition and location of the Oregon Trail-Barlow Road Historic Corridor and review the existing standards within the Oregon City Municipal Code to determine if modifications to the development standards and/or City master plans are necessary to protect the corridor. If modifications to the existing code language are proposed, they should include methods to encourage property owners to preserve the historic corridor in the original condition while allowing the property to be used in an economically viable manner. This strategy recommendation shall utilize/reference the Barlow Road Historic Corridor Westernmost Segment of the Oregon Trail Background Report & Management Plan (Clackamas County, 1993), or most current adopted report.

The Park Place Concept Plan identifies a large 8-10 acre park on the South side of Holcomb Boulevard, in addition to protected natural areas within stream buffers and areas which would remain undeveloped due to slopes and geologic hazards. This park would serve existing and future developed areas within a half mile both north and south of Holcomb Boulevard, provided adequate pedestrian and bicycle access via path, sidewalks and trails is provided.

Currently, there are no specific code requirements that require developers to dedicate land for trails and open space as exactions. Typically the process for obtaining park land requires several additional steps by the Community Services Department, which is responsible for City parks, involving identification of property, appraisal, negotiation and purchase. Due to extremely limited resources the Parks Department has been challenged with maintaining the current park system without further expansions. The most recent capital improvement master planning for parks was for the regional park west of Oregon City High School and south of Clackamas Community College off Glen Oak Road and long awaited improvements to the Filbert Run park site to serve the South End / Hazel Grove - Westling Farms neighborhoods.

In light of this uncertainty and lack of resources, in order to demonstrate adequacy of parks facilities, the City has relied on the long-standing policy that future development must pay Parks System Development Charges in accordance with OCMC 13.20 with building permits. The current 2017 Parks SDC for a Single Family Home is \$4,881. It should be noted that the Parks SDC fee, as with other city SDCs, is increased annually based on the Engineering News Record Construction Cost Index and, in the case of the parks SDCs only, is also tied to the Average Market Value Growth Rate for Clackamas County. The typical SDC increase varies on average annually between 2-4%, while the Average Market Value Growth Rate for Clackamas County was 26% in 2017¹. The actual Parks SDC increases for the last four years are as follows:

| Effective Date | Fee |
|----------------|---------|
| 1/1/2017 | \$4,881 |
| 1/1/2016 | \$4,279 |
| 1/1/2015 | \$4,034 |
| 1/1/2014 | \$3,835 |

The Park's SDC methodology may need to be updated to include needed park facilities in the three concept plan areas (Park Place, South End and Beaver Creek Road). Other sources of funding that the City has relied upon in the past to support park and trail improvements include grants from Metro and funding organizations and donations.

This approach is consistent with the City's policy of charging SDS's, along with development exactions and dedications permitted by code, for adequacy of public facilities when the exact location and impact of

¹ Communication with Oregon City Finance Department staff.
AN-17-0004 / ZC-17-0005

development is unknown at the time of annexation and zoning, and staff recommends that the City continue to find that this approach is suitable for the subject annexation proposal.

Based on the above facts, it is feasible and likely that adequate park facilities can be made available to serve the annexation area at the time of development.

Trails

The North Village Concept Plan also calls for a system of trails and paths to be included in the master plan for this area, as shown on the map below:

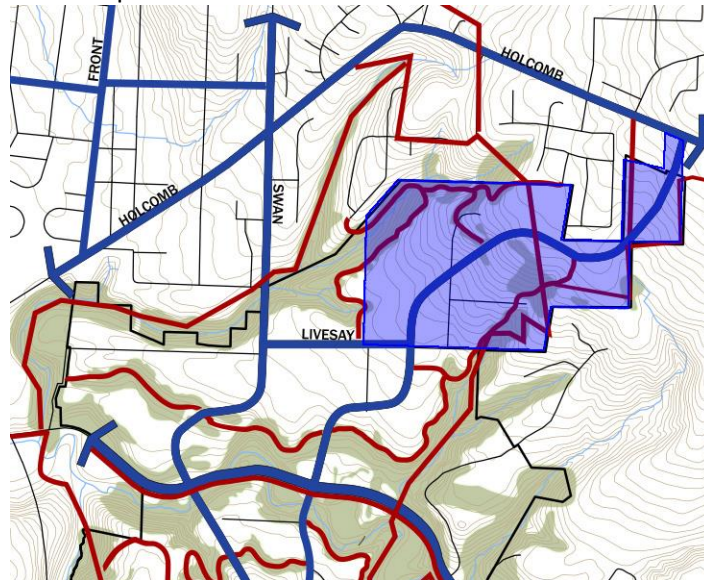


Figure 12: North Village Trails and Paths

It is understood by the applicants that the future master plan for the annexation area will need to incorporate park area and trails consistent with the Park Place Concept Plan. The most likely scenario for the funding of the dedications would be through Systems Development Credits (SDCs). The Plan states the following regarding funding mechanisms.

“Once the Park Place Concept Plan is adopted, Oregon City and the regional agencies that fund or own elements of the services will have to amend their master plans and systems development charges.”

(Final Concept Plan, Page 6)

The two parks identified in the Concept Plan have to be integrated into Oregon City’s parks master plan and at that time decide how to fund the proposed parks. It may be funded entirely from system development charges or as an integral part of the master plan’s financing strategies.

(Final Concept Plan, Page 6)

The trails shown are largely conceptual. Most need to be further studied and designed. The location of the trails may change as a result.

With regard to implementation, the trails master plan clearly states in Chapter IV. Recommended Trail Network and Implementation Measures on Page 50:

“many of the trails shown on the Conceptual Trails Map, particularly local trails located along roadways or intended as accessways, will be developed over time by Oregon City property owners and new development, much like the sidewalk system and the current accessway system has been

developed. In some cases, the City will be able to require the property owner to construct the trail as part of the development review process. In other cases, the City will work with the property owner to ensure the City can develop the trail itself in the future.”

It is feasible that an appropriate mechanism for construction of the needed trail system can be determined at the time of development review, including, as the applicant notes, amending the Parks SDC to include the Park Place neighborhood so that future homes built on this property and other properties in this neighborhood contribute to the costs of park acquisitions. Based on the above facts, it is feasible and likely that adequate trail facilities can be made available to serve the annexation area at the time of development. It is understood by the applicants that the future master plan (General Development Plan pursuant to OCMC 17.65) for the annexation area will need to incorporate park area and trails consistent with the Park Place Concept Plan. The most likely scenario for the funding of the dedications would be through Systems Development Credits (SDCs). The Park Place Concept Plan states the following regarding funding mechanisms.

“Once the Park Place Concept Plan is adopted, Oregon City and the regional agencies that fund or own elements of the services will have to amend their master plans and systems development charges.”

(Final Concept Plan, Page 6)

The two parks identified in the Concept Plan have to be integrated into Oregon City’s parks master plan and at that time decide how to fund the proposed parks. It may be funded entirely from system development charges or as an integral part of the master plan’s financing strategies.

(Final Concept Plan, Page 6)

Based on the above facts and recommended conditions, it is feasible and likely that adequate parks and trail facilities can be made available to serve the annexation area at the time of development.

Schools

Oregon City School District received notice of the application and did not comment as of the date of this Staff Report.

The subject property is served by Oregon City Public Schools. The schools serving this site are Redland Elementary School, Ogden Middle School, and Oregon City High School. Although there will be no immediate development of this site that would impact the school system, discussions with School District staff indicate that there are no immediate capacity problems with these schools.

A letter dated March 13, 2017 from Mr. Wes Rogers, Director of Operations for Oregon City Public Schools, regarding school capacity associated with the Serres property annexation (File AN-16-0004, ZC 16-0001) makes the following comments regarding the subject annexation of approximately 92 acres:

“As to the larger 92 acre Park Place/Holcomb annexation mentioned by Mr. Givens but is not a direct part of this file, the District has always known that as the Park Place Concept Plan was significantly developed, additional elementary and middle school capacity would have to be constructed. Currently the elementary school of attendance for this area would be Redland Elementary.

Forecasted enrollment growth is not new to the District and the Oregon City School Board and administration have been studying facility needs for the past several years. Although well maintained, District facilities do not support current educational practice and all District facilities

are in need of serious renovation or replacement and in some cases minor expansion. Preliminary plans to ask for a school construction bond have not been finalized but the current draft scenario shows that the District (with voter support) would have additional middle school capacity within 5 years and additional elementary school capacity within 5-10 years. In the meantime the District has several other tools to help with over capacities by installing semi-permanent buildings and/or redrawing attendance boundaries.”

Staff coordinates with the Oregon City School District ways during the development review process in accordance with adopted Comprehensive Plan Goals and Policies. Standard procedures for the Planning Division includes notice of all land use actions, both long range and current proposals, to the School District, the School District actively participates at pre-application conferences in anticipation of development. The School District, not the City, is responsible for long range planning of needed school facilities.

The applicant states that the anticipated time frame to begin construction within the annexation area, dependent upon resolution of the alternative mobility standards issue, would be in approximately two to three years. Full build-out is expected to be in the range of five to ten years. This schedule is consistent with the School District’s stated timeline to provide additional school capacity.

Police, Emergency and Fire Protection:

Finding: The proposal is consistent with this requirement. The area to be annexed lies within the Clackamas County Service District for Enhanced Law Enforcement, which provides additional police protection to the area. The combination of the county-wide service and the service provided through the Enhanced Law Enforcement CSD results in a total level of service of approximately 1 officer per 1000 population. According to ORS 222.120 (5) the City may provide in its approval ordinance for the automatic withdrawal of the territory from the District upon annexation to the City. If the territory were withdrawn from the District, the District's levy would no longer apply to the property.

Upon annexation, the Oregon City Police Department will serve the subject site. Oregon City currently fields approximately 1.25 officers per 1,000 people. The Oregon City Police Department has a goal of four-minute emergency response, 7 to 9 minute actual, and twenty-minute non-emergency response times. As no development is proposed as part of this annexation application, this annexation will have a minimal impact on police services.

The Oregon City Police Department has submitted a letter indicating that they have the resources to service this annexation area.

The proposed annexation area is currently, and will remain, within the Clackamas Fire District #1. The Clackamas Fire District provides all fire protection for Oregon City since the entire city was annexed into their district in 2007. The closest station is located at 300 Longview Way, within the Clackamas County View Manor housing development off of Holcomb Blvd. Clackamas Fire District #1 was provided notice of the proposed annexation and did not comment. Oregon Revised Statute 222.120 (5) allows the City to specify that the territory be automatically withdrawn from the District upon approval of the annexation; however, based on the November 2007 fire district annexation approval, staff recommends that the properties remain within the fire district.

Emergency Medical Services to the area are provided through American Medical Response (AMR) through a contract with Clackamas County. Oregon City and the unincorporated areas surrounding Oregon City are all part of the AMR contract service area. Clackamas Fire District#1 provides EMS service to all areas they serve include ALS (advanced life support) staffing. This means all fire apparatus are staffing with a minimum

of one firefighter/paramedic; usually there are more than one. Additionally, Clackamas Fire does provide ambulance transport when an AMR unit is not readily available. Therefore EMS services are provided from Clackamas Fire #1 with AMR being dispatched as well.

The above item applies to development being proposed at this time and anticipates that no development may be proposed as part of an annexation application. No development is being proposed as part of this annexation application.

As discussed elsewhere in this report, all applicable public facilities and services to serve future development of the site have been or will be made available pursuant to the adopted Public Facilities plans that the City has adopted, which take future development within the Urban Growth Boundary into account based on estimates of growth capacity for the area in question. Although not required for approval of the annexation, the City is required by law to assure that System Development Charges commensurate with the projected level of demand for public facilities are applicable and payable by new development.

There are four recent major public facilities master plan updates which are part of the City's Capital Improvement Program; the Water System Master Plan (2012), the Sanitary Sewer Master Plan (2014), the Transportation System Plan (2013), and the Stormwater and Grading Design Standards (2015). These facilities are mainly funded, part of the City's Capital Improvement Program, and the City is collecting System Development Charges to fund these improvements.

d. Statement outlining method and source of financing required to provide additional facilities, if any;

Finding: The proposal is consistent with this requirement. The applicant indicated that the required improvements will be made concurrently with the future development of this property. Each of the City's recently adopted public facilities for Transportation, Sewer, and Water include a discussion of methods and sources of financing required to provide such facilities to the proposed annexation area. Specific funding mechanisms are not required to be identified until the time a development is proposed. Although not required for approval of the annexation, the City is required by law to assure that System Development Charges commensurate with the projected level of demand for public facilities are applicable and payable by new development.

Typical development funded improvements to offset direct impacts of planned development include dedications of right-of-way and land for storm detention, easements, exactions, and construction of sewer, water, stormwater and transportation improvements.

Given the size of the annexation area it is anticipated that the developer will be wholly responsible for the cost of providing and constructing public improvements and that should other methods of financing capital improvements be required, then they will utilize full capital-cost and operating cost recovery methods to avoid unsustainable fiscal impacts to the City's general fund. Hence, existing funding sources, including System Development Charges (SDCs), utility fees, connection charges and rates, and capital improvement programs are in place prior to annexation and development.

Advance financing required for system upsizing and large sewer improvements would likely require some form of developer or city financing, which could include the use of a local improvement district, reimbursement district, grants, bonds and loan, though none of these has been determined to be necessary at this time.

The future development application will provide for a master plan consistent with the design concept of the North Village Plan pursuant to OCMC 17.65. The applicant acknowledges that the future master plan for the annexation area will need to provide for the dedication of a community park and other public facilities consistent with the Park Place Concept Plan. Staff recommends that this annexation area be subject to a Master Plan prior to any development of the property at densities greater than that permitted under current County zoning. Master Planning of the annexation area pursuant to OCMC 17.65 would allow for the specific phasing of development over time as well as greater control and predictability regarding the timing of and cost of public improvements, including water, stormwater, sewer, transportation, parks, trails and open space. A master plan also allows development more flexibility to vary from prescriptive standards if approved pursuant to OCMC 17.65. Any master plan, along with a future comprehensive plan amendment and zone change for the subject property cannot proceed until such time as the regional transportation issues are resolved.

e. Statement of overall development concept and methods by which the physical and related social environment of the site, surrounding area and community will be enhanced;

Finding: The proposal is consistent with this requirement. The adopted City of Oregon City Comprehensive Plan designation is Low Density Residential. The implementing default zones for this plan designation are R-10, R-5 and NC. The applicant has requested the default zoning of R-10, R-5 and NC at this time. The development of this site in a manner consistent with the adopted Comprehensive Plan will serve to provide needed housing to accommodate the projected population growth of the City of Oregon City. The site is well suited from a physical standpoint to be developed in this manner as it is free of any significant development constraints, other than a very small area of moderately steep slopes. Providing for future development of needed housing within walking distance of Holcomb Elementary School for school and recreational services will assist in providing for a beneficial social environment in this neighborhood.

The applicant indicates that the majority of the subject property is within the boundaries of the Park Place Concept Plan, specifically, the North Village Plan, and the eventual development of this site will be subject to the land uses and densities set forth in that document. The future development application will provide for a master plan pursuant to OCMC 17.65 consistent with the design concept of the North Village Plan. The future development application will likely need to include proposals to rezone the property to resolve certain discrepancies between the land use areas in the North Village Plan and the existing designations Oregon City Comprehensive Plan Map. One property, Tax Lot 2000 on Map 22E27B and which fronts on Holcomb Blvd., is located outside of the North Village Plan, is designated MR by the Comprehensive Plan and will be zoned R-5. That property will be developed in conjunction with the rest of the properties included in this annexation and zone change. The future development of this property will provide a mixture of approximately 400 to 450 single-family detached and attached housing units, as well as neighborhood commercial, park and community uses as shown on the North Village Plan. It will also aid in providing a needed collector road connection from the Holcomb Blvd. area down to Redland Road. It is anticipated that the development will occur in several phases over an approximate 10 year development plan, which will be further defined through a General Development Plan pursuant to OCMC 17.65.

f. Statement of potential physical, aesthetic, and related social effects of the proposed, or potential development on the community as a whole and on the small subcommunity or neighborhood of which it will become a part; and proposed actions to mitigate such negative effects, if any;

Finding: The proposal is consistent with this requirement. There will be no immediate physical, aesthetic, or related social effects from the annexation and rezoning of this property because there will be no development until several additional steps are taken, which include the adoption of Alternative Mobility Standards in compliance with the Transportation Planning Rule, approval of a Master Plan, including a phased General Development Plan by the Planning Commission, and the submittal of development

applications through either the subdivision process or the detailed development plan process for the neighborhood commercial zoned areas. Future development of the property will result in typical impacts on traffic, schools, and public infrastructure, but these impacts have been anticipated by the City's Comprehensive Plan. Impacts to public facilities and services have been assessed in the existing public facilities plans adopted by the City for the Urban Growth Boundary, and mitigation measures will be further determined when development is proposed.

In terms of physical effects of potential development, the annexation area will eventually be developed with a mix of housing types and densities. A new street network will be developed. Public facilities will be extended to serve the site. The annexation site will be subject to existing city code requirements related to impacts of new development, including protection of natural resources, street design, and buffering and landscaping.

Socially, the proposed annexation site will ultimately be developed to be part of a complete community, one that integrates a diverse mix of uses, including housing, services, and public spaces. Eventually the North Village concept for the Park Place Concept Plan will develop and provide greater commercial amenities and housing choices. New streets and street improvements will be designed to maximize safety and convenience for all users, including pedestrians and cyclists. Natural resources will be protected and managed for optimum ecological health to help protect watersheds.

Overall, the annexation site will be developed in accordance with the vision identified in the Park Place Concept Plan and Oregon City Comprehensive Plan that was adopted by the city to guide future growth in a way that will contribute to Oregon City as a whole.

g. Statement indicating the type and nature of any comprehensive plan text or map amendments, or zoning text or map amendments that may be required to complete the proposed development;

Finding: The proposal is consistent with this requirement, subject to conditions. No change to the comprehensive plan text or map designations are proposed at this time. The applicant requests that the default zone change from Clackamas County zoning to Oregon City R-10, R-5 and NC per the provisions of OCMC 17.68.025.A. This zone change is in conformance with the acknowledged Low and Medium Density Residential and Mixed Use land use designations for the property pursuant to the adopted Park Place Concept Plan. Please refer to the discussion of the zone change proposal and conditions of approval in this report.

In accordance with City, County and State transportation requirements, no development, except that permitted under the County's Future Urban FU-10 zoning designation, in effect as of the date of this application's submittal, shall be allowed until the following occurs, acknowledged and the Applicant demonstrates compliance with these requirements:

- a. A refinement plan for Highway 213 at Beaver Creek Road (Alternative Mobility Targets), including elements such as financially constrained projects and alternative mobility standards, and amendments to OCMC Chapter 12.04 implementing the new Refinement Plan, are to be adopted and acknowledged.
- b. Amendments to OCMC 12.04 which allow development affecting the intersection of Highway 213/Beaver Creek are adopted.
 - I. Adopt amendments to the City's Transportation System Plan and OCMC Chapter 12.04 to include projects that satisfy the then-applicable performance standards and these standards must be acknowledged; or
 - II. Condition the approval of a land division application that satisfies then-applicable OCMC Chapter 12.04 by including proportional mitigation of the application's impacts on that intersection, or such other mitigation measure(s) as may be approved which assure(s) that the intersection will either meet, or perform no worse than, the then-applicable performance standards

8. The application fee for annexations established by resolution of the city commission and any fees required by metro. In addition to the application fees, the city manager shall require a deposit, which is adequate to cover any and all costs related to the election;

Finding: The proposal is consistent with this requirement. The application fee was paid as part of this application submittal.

9. Paper and electronic copies of the complete application as required by the community development director.

Finding: The proposal is consistent with this requirement. Paper and electronic copies of this narrative and accompanying reports were submitted as part of the complete application. Compliance with OCMC 14.04.060 – Annexation Factors

A. When reviewing a proposed annexation, the commission shall consider the following factors, as relevant:

1. Adequacy of access to the site;

Finding: The proposal is consistent with this requirement. The site has direct access onto Holcomb Blvd., an arterial street. This street would serve as the primary access for the future development of the property. Additional accesses are available from the local streets stubbed to the property: Journey

Drive, Shartner Drive, and Cattle Drive as well as Livesay Road. Future development of the property will provide for the construction of a north extension of Holly Lane from Holcomb Blvd. to Livesay Road. Future development of properties to the south will eventually extend this street to Redland Road, pursuant to the adopted Transportation System Plan.

The specific design of the local street system for the subject site has not been determined at this time, but is subject to additional review by the city at the time a development is proposed. It is expected that the overall design of the local street system will be further refined when a Master Plan, including phased General Development Plan for the subject site is proposed, with subsequent phases of subdivisions providing even greater refinement. These include, but are not limited to, addressing the timing of parkland acquisitions and development, proposed phasing of major roads to ensure a timely connection to Holly Lane and an analysis of utility phasing that can foster redevelopment of the entire concept plan area.

Therefore, prior to issuing any development approval other than as identified in condition of approval #2, the applicant shall obtain General and Detailed Development Plan approval, including the entire 91-acre property, pursuant to OCMC 17.65. The General Development Plan and all phases of development authorized by it, must implement the Park Place Concept Plan and Oregon City's adopted Public Facilities Plans with regard to the provision of open space, park and trails, sewer, water, stormwater and transportation improvements.

2. Conformity of the proposal with the city's comprehensive plan;

Finding: The proposal is consistent with this requirement. The proposed annexation is consistent with the comprehensive plan in that the property is within the UGB, is designated Low Density Residential, and is intended to be served by the City of Oregon City. Compliance with specific plan policies is discussed below in this report.

Goal 1: Citizen Involvement

Goal 1.1 – Citizen Involvement Program

Policy 1.1.1 *Utilize neighborhood associations as the vehicle for neighborhood-based input to meet the requirements of the Land Conservation and Development Commission (LCDC) Statewide Planning Goal 1, Citizen Involvement. The Citizen Involvement Committee (CIC) shall serve as the officially recognized citizen committee needed to meet LCDC Statewide Planning Goal 1.*

Finding: The proposal is consistent with this Goal and Policy. The applicant attended neighborhood meetings with the Park Place Neighborhood Association to present the proposed annexation and zone change applications. The City's procedures for review of the application provided notice to Park Place Neighborhood Association and allow opportunity for public comment on the application.

Goal 1.4 – Community Involvement

Policy 1.4.1 *Notify citizens about community involvement opportunities when they occur.*

Finding: The proposal is consistent with this Goal and Policy. The City's procedures for review of the proposed annexation and zone change provide for notice to owners of affected properties and will provide opportunities for citizen input regarding the applications.

Comprehensive Plan Section 2 Land Use

Goal 2.1 Efficient Use of Land

Ensure that property planned for residential, commercial, office, and industrial uses is used efficiently and that land is developed following principles of sustainable development.

Policy 2.1.3 *Encourage sub-area master planning for larger developments or parcels, including re-development, where it may be feasible to develop more mixed uses, or campus-style industrial parks, with shared parking and landscaping areas. Allow developments to vary from prescriptive standards if planned and approved under this provision.*

Finding: The proposal is consistent with this Goal and Policy. The proposed annexation property is part of the Urban Growth Boundary and is located within the Park Place Concept Plan, which provides sub-area master planning for this area. The future development of this property will provide mixed uses, including various types of residential development, parks, open spaces, commercial and institutional uses consistent with the North Village concept plan.

Goal 2.4 Neighborhood Livability

Provide a sense of place and identity for residents and visitors by protecting and maintaining neighborhoods as the basic unit of community life in Oregon City while implementing the goals and policies of the other sections of the Comprehensive Plan.

Policy 2.4.1 *Develop local neighborhood plans to strengthen and protect residential neighborhoods and historic areas from infill development; such as development along linear commercial corridors.*

Finding: The proposal is consistent with this Goal and Policy. The Park Place Concept Plan provides for a unified neighborhood plan that will serve as a guide to development of a desirable and diverse community in this area of the city.

Policy 2.4.2 *Strive to establish facilities and land uses in every neighborhood that help give vibrancy, a sense of place, and a feeling of uniqueness; such as activity centers and points of interest.*

Finding: The proposal is consistent with this policy. The Park Place Concept Plan includes parks, natural open space areas, trails, neighborhood commercial and institutional uses that will provide vibrancy and a sense of place in the future development of this property.

Policy 2.4.3 *Promote connectivity between neighborhoods and neighborhood commercial centers through a variety of transportation modes.*

Finding: The proposal is consistent with this policy. The Park Place Concept Plan encourages connectivity and diverse modes of transportation. The plan calls for the construction of Holly Lane to provide a much needed connection between Holcomb Blvd. and Redland Road. The plan also encourages an internal circulation system within the future neighborhood that will ensure connectivity and minimize out of direction travel. A trail system is planned that will provide greater opportunity for bicycle and pedestrian modes of transportation.

Policy 2.4.4 *Where environmental constraints reduce the amount of buildable land, and/or where adjacent land differs in uses or density, implement Comprehensive Plan and zoning designations that encourage compatible transitional uses.*

Finding: The proposal is consistent with this policy. The subject property includes environmentally sensitive areas associated with drainageways. The Park Place Concept Plan and City ordinances provide for these water resource areas to be preserved as natural open spaces.

Policy 2.4.5

Ensure a process is developed to prevent barriers in the development of neighborhood schools, senior and childcare facilities, parks, and other uses that serve the needs of the immediate area and the residents of Oregon City.

Finding: The proposal is consistent with this requirement. Development of the subject site will be subject to adopted public facilities plans. Development of this Low Density Residential property will require payment of construction excise taxes for school development. The eventual development of this area will not present a barrier to the development of any of the facilities identified in this policy.

The following excerpt is from the Oregon City Comprehensive Plan Section 11 - Public Facilities - Education, on Page. 83:

K-12. The public education system in Oregon City consists of elementary schools, middle schools, and one high school. The Oregon City School District projects enrollment based on demographic trends and a ratio of 0.94 school children per residential household. A rolling five-year projection is done every fall to ensure that the facilities will accommodate growth. The preferred number of students per classroom is 25, with the maximum considered to be 30.

To the extent possible, future school facilities should be located in, or at least adjacent to, residential areas to reduce traffic impact, maintain convenience for students, provide a focus for the neighborhoods, and promote energy conservation. Neighborhood schools and their athletic facilities should also serve as community centers by being available for community meetings and events in the evenings and on weekends.

Finding: The proposal is consistent with this requirement. No school sites have been identified within the subject property at this time. The site is closest to Holcomb Elementary School and Ogden Middle School and would eventually be connected to these schools through additional road, trail, and sidewalk improvements.

The City continues to coordinate with the school district to review new development and development of this Low Density Residential property will require payment of construction excise taxes for school development. The eventual development of this area close to an existing school could help to achieve many of the benefits discussed above.

As discussed on Page 118 of the Comprehensive Plan under *Partnerships with Other Governments*.

The City does not provide all of the urban services within the city limits. Clackamas County, the Oregon City School District, the Oregon Department of Transportation, the TriCities Sewer District, Clackamas Community College, and many other agencies also provide necessary services to residents and employees. In order to efficiently and effectively use the public dollars available to all of these different agencies, the City should be proactive in forming excellent working relationships with other agencies to address urban service issues.

Goal 2.5 Retail and Neighborhood Commercial

Policy 2.5.1 *Encourage the redevelopment of linear commercial corridors in ways that encourage expansion of existing businesses and infill development, and at the same time reduces conflicting traffic movements, improves the aesthetic character of these commercial areas, and encourages trips by transit, bicycling and walking.*

Finding: Not applicable. The subject property does not contain any linear commercial corridors. The Park Place Concept Plan calls for limited neighborhood commercial development, but there is no existing commercial development within the area.

Policy 2.5.2 *Allow and encourage the development of small retail centers in residential neighborhoods that provide goods and services for local residents and workers. Generally, these centers should be located at the intersections of two or more streets that are classified as neighborhood collectors or higher.*

Finding: The proposal is consistent with this policy. The North Village Concept Plan calls for a small area of neighborhood commercial zoning in the southwest corner of the annexation area. This area is identified in the Park Place Concept Plan as a part of “Livesay Main Street”. The Plan states the following regarding anticipated uses within this area of neighborhood commercial development:

Small-scale commercial businesses, like a coffee shop, bookstore, dry cleaners, or café, are proposed to anchor the intersection of Holly Lane Extension and Livesay Main Street and surround the Village Green.

Policy 2.5.3 *Review design standards and the sign code to ensure compatibility with existing neighborhoods.*

Finding: The proposal is consistent with this Policy. Design standards for single family development in the Park Place Concept Plan area are implemented by OCMC 17.21 and commercial/multi-family design standards are identified in OCMC 17.62 and 17.62. The future development of this area will be reviewed for compliance with these standards prior to construction.

Policy 2.5.4 *Encourage the development of successful commercial areas organized as centers surrounded by higher density housing and office uses, rather than as commercial strips adjacent to low-density housing.*

Finding: The proposal is consistent with this policy. The commercial development in this area is intended to be small in scale and service-oriented. It is seen by the Park Place Concept Plan as helping to provide a neighborhood identity rather than providing for the full range of commercial needs that are available elsewhere in Oregon City, as discussed in the following quote from page 18 of the Concept Plan:

“Commercial development in the planning area is not seen as necessary for the success of the area, which is expected to be developed largely as residential. The commercial needs of the planning area can be met outside of the concept planning area by existing and planned developments. However, commercial development can serve to organize the Park Place Concept Plan by providing a “center” to the community. In addition, commercial development can meet some of the needs of the community, providing a marketable amenity for residential development while reducing trips out of the neighborhood.”

Policy 2.5.5 *Encourage commercial and industrial development that enhances livability of neighborhoods through the design of attractive LEEDTM-certified buildings and environmentally responsible landscaping that uses native vegetation wherever possible, and by ensuring that development is screened and buffered from adjoining residential neighborhoods and access is provided by a variety of transportation modes.*

Finding: The proposal is consistent with this policy. These provisions are implemented by design standards within the OCMC that will be reviewed prior to site development.

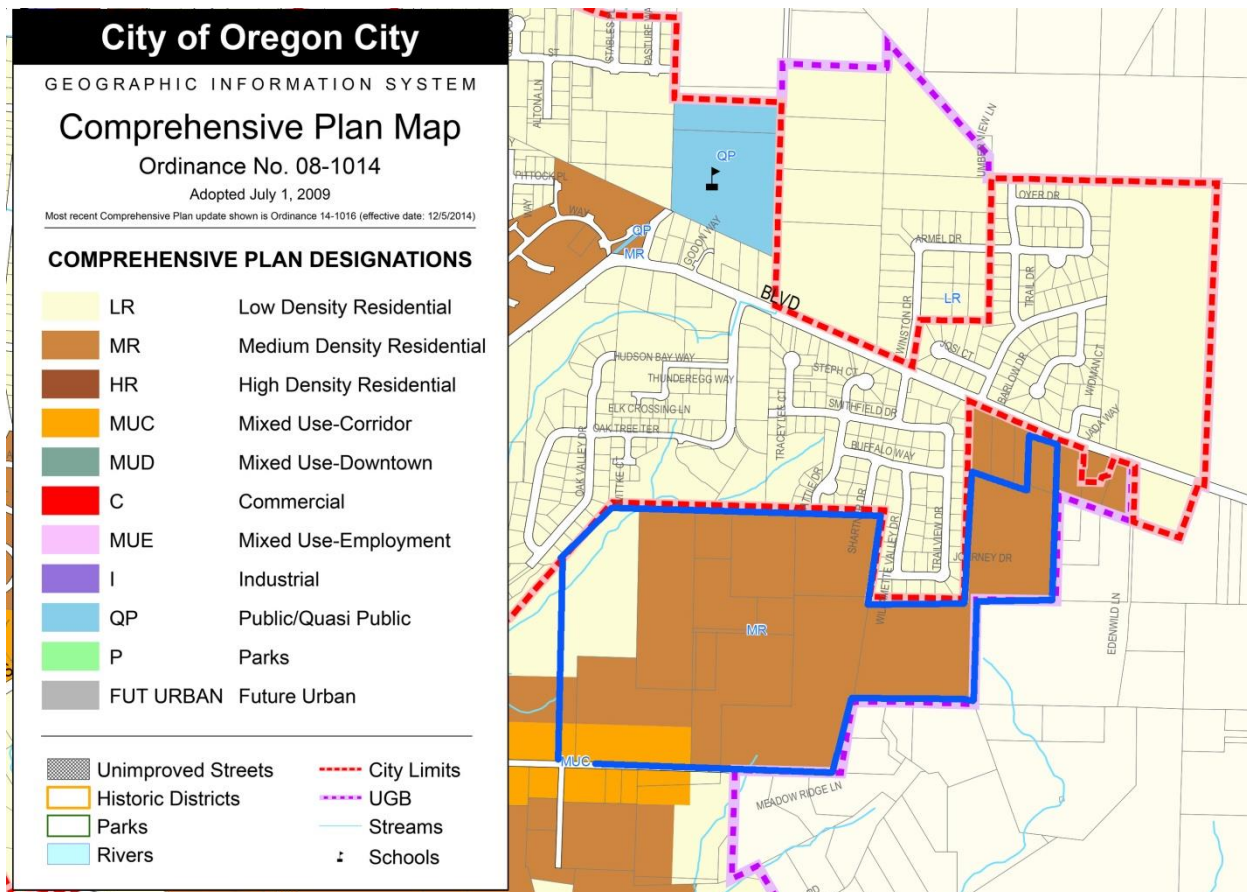
Goal 2.7 Oregon City Comprehensive Plan Land-Use Map

Maintain the Oregon City Comprehensive Plan Land-Use Map as the official long-range planning guide for land-use development of the city by type, density and location.

Policy 2.7.2 Use the following 11 land-use classifications on the Oregon City Comprehensive Plan Land-Use Map to determine the zoning classifications that may be applied to parcels:

- Low Density Residential (LR)
- Medium Density Residential (MR)
- High Density Residential (HR)
- Commercial (C)
- Mixed Use Corridor (MUC)
- Mixed Use Employment (MUE)
- Mixed Use Downtown (MUD)
- Industrial (I)
- Public and Quasi-Public (QP)
- Parks (P)
- Future Urban Holding (FUH)

Finding: The proposal is consistent with this policy. The Oregon City Comprehensive Plan Land-Use Map remains the long-range planning guide for development in the city and applies to this area. Therefore, this annexation application has no impact on this policy. The cropped section from the Oregon City Comprehensive Plan Land Use Map below shows the designations applicable to the subject area (outlined in blue):



The majority of the area is designated Medium Density Residential, which is implemented by the R-5 zone. There is a small area of Low Density Residential designation in the northwest corner of the annexation area. The R-10 through R-6 zones implement this designation, but R-10 is proposed. There is also a portion of the site that is designated Mixed Use-Corridor. The proposed zoning is consistent with the adopted comprehensive land use plan.

Goal 5: Open Spaces, Scenic and Historic Areas, and Natural Resources

Goal 5.1 – Open Space

Policy 5.1.1 Conserve open space along creeks, urban drainage ways, steep hillsides, and throughout Newell Creek Canyon.

Finding: the proposal is consistent with this policy. There is one major drainageway in the northwest corner of the proposed annexation area and the top of a drainageway in the southeast corner. Consistent with this policy, at the time of development these areas will be retained as open space in accordance with the stormwater master plan, OCMC Chapter 17.44 and OCMC Chapter 17.49 which require a restrictive easement or separate tract of land limiting or prohibiting development for the protection of unstable slopes or natural resources.

Policy 5.1.2 Manage open space areas for their value in linking citizens and visitors with the natural environment, providing solace, exercise, scenic views and outdoor education. Built features in open space sites should harmonize with natural surroundings.

Finding: the proposal is consistent with this policy. Future open space areas will be provided at the time of development to assist in meeting this policy.

Goal 5.2 Scenic Views and Scenic Sites

Policy 5.2.1 Identify and protect significant views of local and distant features such as Mt. Hood, the Cascade Mountains, the Clackamas River Valley, the Willamette River, Willamette Falls, the Tualatin Mountains, Newell Creek Canyon, and the skyline of the city of Portland, as viewed from within the city.

Finding: the proposal is consistent with this policy. The site is located on a hillside with some nice vistas. These will be considered in the development of the future master plan for this area.

Policy 5.2.2 Maximize the visual compatibility and minimize the visual distraction of new structures or development within important viewsheds by establishing standards for landscaping, placement, height, mass, color, and window reflectivity.

Finding: the proposal is consistent with this policy. Not applicable to this annexation and zone change application and not directly applicable to the future development of this site. This policy is a guide to city action in developing standards to protect visual compatibility.

Goal 5.3 Historic Resources

Policy 5.3.3 Promote the designation of qualifying properties outside Historic and Conservation Districts as historic.

Finding: the proposal is consistent with this policy. The applicants are not aware of any historic resources within the annexation area and none are identified in the Park Place Concept Plan or Oregon City Comprehensive Plan. The Oregon State Historic Preservation Office and various tribes will be

contacted during the development of the future master plan in order to determine if there are any significant archeological sites within the annexation area.

Policy 5.3.8 Preserve and accentuate historic resources as part of an urban environment that is being reshaped by new development projects.

Finding: the proposal is consistent with this policy. The applicants are not aware of any historic resources within the annexation area.

Goal 5.4 Natural Resources

Policy 5.4.1 *Conserve and restore ecological structure, processes and functions within the city to closely approximate natural ecosystem structure, processes, and functions.*

Finding: the proposal is consistent with this policy. During the development of the future master plan for the annexation area, care will be taken to identify any sensitive ecological areas within the site boundaries.

Policy 5.4.5 *Ensure that riparian corridors along streams and rivers are conserved and restored to provide maximum ecological value to aquatic and terrestrial species. This could include an aggressive tree and vegetation planting program to stabilize slopes, reduce erosion, and mitigate against invasive species and stream impacts where appropriate.*

Finding: the proposal is consistent with this policy. The riparian corridors along the natural drainageways within the annexation boundary will be protected as open space. All development on property within the natural Resource Overlay District will be reviewed upon submittal of a development application for protection of the vegetated corridor/riparian areas through covenants or tracts which restrict or prohibit development and require associated mitigation.

Policy 5.4.9 *Protect and enhance riparian corridors along streams in Oregon City to increase shade, reduce streambank erosion and intrusion of sediments, and provide habitat for a variety of plants, animals, and fish.*

Finding: the proposal is consistent with this policy. All development on property within the natural Resource Overlay District will be reviewed upon submittal of a development application for protection of the vegetated corridor/riparian areas through covenants or tracts which restrict or prohibit development and require associated mitigation.

Policy 5.4.12 *Use a watershed-scale assessment when reviewing and planning for the potential effects from development, whether private or public, on water quality and quantity entering streams.*

Finding: the proposal is consistent with this policy. Consistent with this policy and City standards regarding storm water treatment and detention, during development of the future master plan the project engineer will look at the regional watershed in determining appropriate methods of handling storm drainage.

Policy 5.4.13 *Adopt and/or establish standards for all new development that promote the use of pervious surfaces and prevent negative ecological effects of urban stormwater runoff on streams, creeks and rivers.*

Finding: the proposal is consistent with this policy. This policy is fully implemented by the City's adopted storm water management standards. The project engineer will comply with these standards during preparation of the future master plan for this area.

Policy 5.4.16 *Protect surfacewater quality by:*

- *providing a vegetated corridor to separate protected water features from development*
- *maintaining or reducing stream temperatures with vegetative shading*
- *minimizing erosion and nutrient and pollutant loading into water*
- *providing infiltration and natural water purification by percolation through soil and vegetation*

Finding: the proposal is consistent with this policy. A vegetated corridor will be preserved in the future master plan along drainageways in the annexation area to accomplish the objectives of this policy. In addition, upon the submittal of a development application, the stormwater manual will analyze the impacts of development and specify standards for stormwater.

Policy 5.4.18 *Encourage use of native and hardy plants such as trees, shrubs and groundcovers to maintain ecological function and reduce maintenance costs and chemical use.*

Finding: the proposal is consistent with this policy. Not applicable to this application for annexation and zoning. Landscape plans for future commercial and/or multi-family development will be reviewed in accordance with adopted City standards that implement this policy.

Goal 6: Quality of Air, Water, and Land Resources

Goal 6.1 Air Quality

Policy 6.1.1 *Promote land-use patterns that reduce the need for distance travel by single occupancy vehicles and increase opportunities for walking, biking and/or transit to destinations such as places of employment, shopping and education.*

Finding: the proposal is consistent with this policy. The future master plan will be designed with a system of interconnected streets and pathways that will satisfy this policy.

Goal 6.2 Water Quality

Policy 6.2.1 *Prevent erosion and restrict the discharge of sediments into surface- and groundwater by requiring erosion prevention measures and sediment control practices.*

Finding: the proposal is consistent with this policy. Consistent with this policy and adopted City storm water standards, the future master plan for this project will include plans for erosion and sediment control to mitigate for site grading and other development activities.

Policy 6.2.2 *Where feasible, use open, naturally vegetated drainage ways to reduce stormwater and improve water quality.*

Finding: the proposal is consistent with this policy. The natural drainageways and a vegetated corridor abutting them will be protected as open space in the future master plan for this area.

Goal 6.3 Nightlighting

Policy 6.3.2 *Encourage new developments to provide even and energy-efficient lighting that ensures safety and discourages vandalism. Encourage existing developments to retrofit when feasible.*

Finding: the proposal is consistent with this policy. The future development of this site will employ street lighting consistent with City and PGE standards that satisfy this policy.

Goal 6.4 Noise

Policy 6.4.1 *Provide for noise abatement features such as sound-walls, soil berms, vegetation, and setbacks, to buffer neighborhoods from vehicular noise and industrial uses.*

Finding: the proposal is consistent with this policy. There are no significant noise sources that impact this annexation site.

Goal 7: Natural Hazards

Policy 7.1.1 *Limit loss of life and damage to property from natural hazards by regulating or prohibiting development in areas of known or potential hazards.*

Finding: the proposal is consistent with this policy. Chapter 17.44 of the Oregon City Municipal Code protects unstable slopes including areas of slope 25% or greater and all known landslide areas. City GIS mapping of natural hazards shows a couple of small areas of mapped landslide hazards and other areas with steep slopes. These areas are associated with the drainageways on portions of the property near Livesay Canyon. The majority of this area will be preserved as open spaces (in the form of restrictive easements or tracts) in the future master plan. Where development will occur on or in proximity to geologic hazard areas, appropriate geotechnical studies will be performed to determine site stability during the development review process. Geologic Hazards were reviewed during the Concept Plan process to identify the buildable lands availability onsite. This analysis will be further refined as development is proposed and conditions of approval will be placed upon development proposals to ensure compliance with OCMC 17.44 Geologic Hazards Overlay.

Policy 7.1.8 *Provide standards in City Codes for planning, reviewing, and approving development in areas of potential landslides that will prevent or minimize potential landslides while allowing appropriate development.*

Finding: the proposal is consistent with this policy. This policy is implemented in Chapter 17.44 – Geologic Hazards. Chapter 17.44 of the Oregon City Municipal Code protects unstable slopes including areas of slope 25% or greater and all known landslide areas. City GIS mapping of natural hazards shows a couple of small areas of mapped landslide hazards and other areas with steep slopes. At the time development is proposed, the applicant is generally required to conduct a geotechnical study which is reviewed by a City consultant for protection of lands through preservation and restrictions of development (in the form of restrictive easements or tracts).

Policy 7.1.9 *Locate, design, and construct structures in conformance with current building codes and standards for seismic-resistant design.*

Finding: the proposal is consistent with this policy. Not applicable to this application for annexation and zone change. All future structures to be built on this site will obtain required building permits that include provisions to address this policy.

Policy 7.1.11 *Prioritize roadways needed for public service, medical, and emergency vehicles during emergencies.*

Finding: the proposal is consistent with this policy. The future connection of Holly Lane through to Redland Road will provide a much-needed route connecting the Holcomb Blvd. area to medical, emergency and public services. At the present time access is limited to Holcomb Blvd. and, to a lesser degree, Forsythe Road. The future development of this site will aid in meeting this policy.

Goal 8: Parks and Recreation

Policy 8.1.1 *Provide an active neighborhood park-type facility and community park-type facility within a reasonable distance from residences, as defined by the Oregon City Park and Recreation Master Plan, to residents of Oregon City*

Finding: the proposal is consistent with this policy. There are presently no parks within convenient walking distance of the annexation area. The future development of this site will provide for a community park, consistent with this policy and the Park Place Concept Plan.

Policy 8.1.5 *Identify and construct a network of off-street trails throughout the city for walking and jogging.*

Finding: the proposal is consistent with this policy. The Park Place Concept Plan calls for a system of off-street trails through the proposed annexation area. The future master plan for this site will address this requirement.

Policy 8.1.6 *Provide land for specialized facilities such as sports fields and indoor recreational facilities.*

Finding: the proposal is consistent with this policy. It is anticipated that the community park that will be developed on a portion of the annexation area will provide for sports fields.

Policy 8.1.9 *Emphasize retaining natural conditions and the natural environment in proposed passive recreation areas.*

Finding: the proposal is consistent with this policy. The future master plan will provide open spaces associated with the drainageway areas within the annexation area and these will be preserved in their natural condition.

Policy 8.1.12 *Identify and protect land for parks and recreation within the Urban Growth Boundary.*

Finding: the proposal is consistent with this policy. The Park Place Concept Plan calls for a community park that is mostly within the proposed annexation area. The future master plan for this site will address this requirement.

Prior to issuing any development approval other than as identified in condition of approval #2, the applicant shall obtain General and Detailed Development Plan approval, including the entire 91-acre property, pursuant to OCMC 17.65. The General Development Plan and all phases of development authorized by it, must implement the Park Place Concept Plan and Oregon City's adopted Public Facilities Plans with regard to the provision of open space, park and trails, sewer, water, stormwater and transportation improvements. These include, but are not limited to, addressing the timing of parkland acquisitions and development, proposed phasing of major roads to ensure a timely connection to Holly Lane and an analysis of utility phasing that can foster redevelopment of the entire concept plan area.

Policy 8.1.14 *Require or encourage developers to dedicate park sites as part of the subdivision review process. When possible, require or encourage developers to build parks to City standards and give them to the City to operate and maintain.*

Finding: the proposal is consistent with this policy. The future master plan will provide for the dedication of a community park consistent with this policy and other City standards.

Goal 10: Housing

Policy 10.1.1 *Maintain the existing residential housing stock in established older neighborhoods by maintaining existing Comprehensive Plan and zoning designations where appropriate.*

Finding: the proposal is consistent with this policy. Not applicable. The subject property is not located within an established older neighborhood. There are a few homes on large acreage tracts and most of these will be removed to allow for redevelopment. However the proposal would implement existing Comprehensive Plan designations.

Policy 10.1.3 *Designate residential land for a balanced variety of densities and types of housing, such as single-family attached and detached, and a range of multi-family densities and types, including mixed-use development.*

Finding: the proposal is consistent with this policy. The North Village Plan within the Park Place Concept Plan calls for a mixture of housing types and densities, as well as neighborhood commercial and institutional uses within the annexation area. The future master plan will implement these land uses.

Policy 10.1.4 *Aim to reduce the isolation of income groups within communities by encouraging diversity in housing types within neighborhoods consistent with the Clackamas County Consolidated Plan, while ensuring that needed affordable housing is provided.*

Finding: the proposal is consistent with this policy. The Park Place Concept Plan calls for a variety of types of housing that will help in addressing this policy. The Comprehensive Plan designation supports this diversity with a variety of zoning designations.

Policy 10.1.7 *Use a combination of incentives and development standards to promote and encourage well-designed single-family subdivisions and multi-family developments that result in neighborhood livability and stability.*

Finding: the proposal is consistent with this policy. The City has adopted design standards in Chapter 17.21 that implement this policy. The future development will conform to these standards.

Policy 10.2.2 *Allow increases in residential density (density bonuses) for housing development that would be affordable to Oregon City residents earning less than 50 percent of the median income for Oregon City.*

Finding: the proposal is consistent with this policy. The Comprehensive Plan designation supports this diversity with a variety of zoning designations.

Goal 11: Public Facilities

Policy 11.1.1 *Ensure adequate public funding for the following public facilities and services, if feasible: Transportation infrastructure • Wastewater collection • Stormwater management • Police protection • Fire protection • Parks and recreation • Water distribution • Planning, zoning and subdivision regulation • Library services • Aquatic Center • Carnegie Center • Pioneer Community Center • City Hall • Buena Vista House • Ermatinger House*

Finding: the proposal is consistent with this policy. Not applicable to this application for annexation and zone change. Future development will pay for system development charges and taxes.

Policy 11.1.2 *Provide public facilities and services consistent with the goals, policies and implementing measures of the Comprehensive Plan, if feasible.*

Finding: the proposal is consistent with this policy. As discussed above in this application, public facilities and services are available or will be provided concurrently with future development of this site to allow development consistent with this policy.

Policy 11.1.3 *Confine urban public facilities and services to the city limits except where allowed for safety and health reasons in accordance with state land-use planning goals and regulations. Facilities that serve the public will be centrally located and accessible, preferably by multiple modes of transportation.*

Finding: the proposal is consistent with this policy. The proposed future development of this site will occur only after annexation to the City of Oregon City. Although sanitary sewer from Redland Road will have to pass through unincorporated areas, no service connections will be provided to areas outside of the city limits in conjunction with the development of this site.

Policy 11.1.5 *Design the extension or improvement of any major public facility and service to an area to complement other public facilities and services at uniform levels.*

Finding: the proposal is consistent with this policy. Public services will be provided in accordance with adopted plans and standards that conform to this policy.

Policy 11.1.6 *Enhance efficient use of existing public facilities and services by encouraging development at maximum levels permitted in the Comprehensive Plan, implementing minimum residential densities, and adopting an Accessory Dwelling Unit Ordinance to infill vacant land.*

Finding: the proposal is consistent with this policy. The future development of this site will be at densities planned in the Park Place Concept Plan. This development will be dense enough to make efficient use of existing and planned public facilities and services.

Policy 11.2.4 *Seek economical means to reduce inflow and infiltration of surface- and groundwater into the wastewater collection system. As appropriate, plant riparian vegetation to slow stormwater, and to reduce erosion and stream sedimentation.*

Finding: the proposal is consistent with this policy. The sanitary sewer system that will serve the future development of this site will be installed in accordance with City standards and will be pressure tested to ensure that surface and ground waters do not enter the system. Storm water will be collected via a storm sewer system that will drain to storm water treatment and detention facilities that will be designed to City standards that include measures to slow stormwater to reduce erosion and stream sedimentation.

Policy 11.3.3 *Maintain adequate reservoir capacity to provide all equalization, operational, emergency, and fire flow storage required for the City's distribution system.*

Finding: the proposal is consistent with this policy. Information provided at the pre-application conference indicates that the City and Clackamas River Water District have adequate water storage capacity to service the proposed annexation area.

Policy 11.4.1 *Plan, operate, and maintain the stormwater management system for all current and anticipated city residents within Oregon City's existing Urban Growth Boundary and plan strategically for future expansion areas.*

Finding: the proposal is consistent with this policy. The future master plan will provide for a stormwater management system that conforms to City standards.

Policy 11.4.2 *Adopt "green streets" standards to reduce the amount of impervious surface and increase the use of bioswales for stormwater retention where practicable.*

Finding: the proposal is consistent with this policy. The City has adopted standards for Low Impact Development streets that implement this policy. Where appropriate grades exist, the future master plan can employ these standards to provide for stormwater management consistent with this policy.

Policy 11.4.4 *Maintain existing drainageways in a natural state for maximum water quality, water resource preservation, and aesthetic benefits.*

Finding: the proposal is consistent with this policy. The existing drainageway areas within the annexation area will be maintained as natural open spaces in the future master plan, in accordance with this policy.

Policy 11.4.5 *Design stormwater facilities to discharge surface water at pre-development rates and enhance stormwater quality in accordance with criteria in City of Oregon City Public Works Stormwater and Grading Design Standards.*

Finding: the proposal is consistent with this policy. This policy is implemented by the City's stormwater standards. The future master plan will be designed to conform to these standards.

Goal 12: Transportation

Policy 12.1.1 *Maintain and enhance citywide transportation functionality by emphasizing multi-modal travel options for all types of land uses.*

Finding: the proposal is consistent with this policy, as conditioned. The future development of this site will provide for a connected system of roadways and pathways that will provide for multi-modal forms of travel.

In accordance with City, County and State transportation requirements, no development, except that permitted under the County's Future Urban FU-10 zoning designation, in effect as of the date of this application's submittal, shall be allowed until the following occurs, acknowledged and the Applicant demonstrates compliance with these requirements:

- a. A refinement plan for Highway 213 at Beaver Creek Road (Alternative Mobility Targets), including elements such as financially constrained projects and alternative mobility standards, and amendments to OCMC Chapter 12.04 implementing the new Refinement Plan, are to be adopted and acknowledged.
- b. Amendments to OCMC 12.04 which allow development affecting the intersection of Highway 213/Beaver Creek are adopted.
 - I. Adopt amendments to the City's Transportation System Plan and OCMC Chapter 12.04 to include projects that satisfy the then-applicable performance standards and these standards must be acknowledged; or
 - II. Condition the approval of a land division application that satisfies then-applicable OCMC Chapter 12.04 by including proportional mitigation of the application's impacts on that intersection, or such other mitigation measure(s) as may be approved which assure(s) that the intersection will either meet, or perform no worse than, the then-applicable performance standards

Policy 12.1.2 *Continue to develop corridor plans for the major arterials in Oregon City, and provide for appropriate land uses in and adjacent to those corridors to optimize the land use-transportation connection.*

Finding: the proposal is consistent with this policy. The future master plan will provide for the extension of Holly Lane, consistent with the Park Place Concept Plan and this policy.

Policy 12.1.3 Support mixed uses with higher residential densities in transportation corridors and include a consideration of financial and regulatory incentives to upgrade existing buildings and transportation systems.

Finding: the proposal is consistent with this policy. Not applicable. The subject property is not located in a transportation corridor.

Policy 12.1.4 Provide walkable neighborhoods. They are desirable places to live, work, learn and play, and therefore a key component of smart growth.

Finding: the proposal is consistent with this policy. The future master plan will include a network of sidewalks and pathways that will provide for a walkable neighborhood with access to residential, commercial, parks and natural open space areas.

Policy 12.3.1 Provide an interconnected and accessible street system that minimizes vehicle-miles-traveled and inappropriate neighborhood cut-through traffic.

Finding: the proposal is consistent with this policy. The future master plan will be designed with a network of interconnected streets. Primary access through the neighborhood will be via Holly Lane, which will discourage neighborhood cut-through traffic.

Policy 12.3.2 Provide an interconnected and accessible pedestrian system that links residential areas with major pedestrian generators such as employment centers, public facilities, and recreational areas.

Finding: the proposal is consistent with this policy. There are no employment centers in the vicinity of the subject property, but the future master plan will provide for pedestrian connectivity to both parks and open space recreational areas.

Policy 12.3.3 Provide a well-defined and accessible bicycle network that links residential areas, major bicycle generators, employment centers, recreational areas, and the arterial and collector roadway network.

Finding: the proposal is consistent with this policy. The future master plan will include a bicycle lane on Holly Lane, bicycle/pedestrian trails, as well as a network of bicycle-friendly local streets.

Policy 12.3.4 Ensure the adequacy of pedestrian and bicycle connections to local, county, and regional trails.

Finding: the proposal is consistent with this policy. The future master plan will provide for connections to planned trails depicted in the Park Place Concept Plan.

Policy 12.3.5 Promote and encourage a public transit system that ensures efficient accessibility, mobility, and interconnectivity between travel modes for all residents of Oregon City.

Finding: the proposal is consistent with this policy. There is presently no bus service in the vicinity of the subject property. The completion of the Holly Lane north extension may provide for a logical bus route in this area in the future.

Policy 12.3.6 Establish a truck route network that ensures efficient access and mobility to commercial and industrial areas while minimizing adverse residential impacts.

Finding: Not applicable. There are no commercial or industrial areas in the vicinity of the subject property.

Policy 12.6.1 Provide a transportation system that serves existing and projected travel demand.

Finding: the proposal is consistent with this policy. Please refer to the Lancaster Engineering traffic study included with this application.

Policy 12.6.2 *Identify transportation system improvements that mitigate existing and projected areas of congestion.*

Finding: the proposal is consistent with this policy, as conditioned . The future completion of the Holly Lane north extension will provide for another access route from the Holcomb area that will be consistent with this policy.

In accordance with City, County and State transportation requirements, no development, except that permitted under the County's Future Urban FU-10 zoning designation, in effect as of the date of this application's submittal, shall be allowed until the following occurs, acknowledged and the Applicant demonstrates compliance with these requirements:

- a. A refinement plan for Highway 213 at Beaver Creek Road (Alternative Mobility Targets), including elements such as financially constrained projects and alternative mobility standards, and amendments to OCMC Chapter 12.04 implementing the new Refinement Plan, are to be adopted and acknowledged.
- b. Amendments to OCMC 12.04 which allow development affecting the intersection of Highway 213/Beaver Creek are adopted.
 - I. Adopt amendments to the City's Transportation System Plan and OCMC Chapter 12.04 to include projects that satisfy the then-applicable performance standards and these standards must be acknowledged; or
 - II. Condition the approval of a land division application that satisfies then-applicable OCMC Chapter 12.04 by including proportional mitigation of the application's impacts on that intersection, or such other mitigation measure(s) as may be approved which assure(s) that the intersection will either meet, or perform no worse than, the then-applicable performance standards

Policy 12.6.3 *Ensure the adequacy of travel mode options and travel routes (parallel systems) in areas of congestion.*

Finding: the proposal is consistent with this policy. The future completion of the Holly Lane north extension will provide for another access route from the Holcomb area that will be consistent with this policy.

Policy 12.6.4 *Identify and prioritize improved connectivity throughout the city street system.*

Finding: the proposal is consistent with this policy. The future master plan will be designed to provide connectivity consistent with this policy.

Goal 13 – Energy

Policy 13.1.2 *Encourage siting and construction of new development to take advantage of solar energy, minimize energy usage, and maximize opportunities for public transit.*

Finding: the proposal is consistent with this policy. The subject property is located on a south-facing hill that will afford opportunities in the design of the future master plan for taking advantage of solar energy. A network of connected neighborhood streets will also be consistent with this policy.

Policy 13.2.1 *Promote mixed-use development, increased densities near activity centers, and home-based occupations (where appropriate).*

Finding: the proposal is consistent with this policy. The Park Place Concept Plan proposes a mixed-use development pattern for the north village area that will include commercial, recreational and institutional uses, as well as a variety of residential types. The densities proposed in the Park Place Concept Plan are higher than other areas of the City, which is consistent with this policy.

Policy 13.2.2 *Create commercial nodes in neighborhoods that are underserved to reduce vehicle miles traveled.*

Finding: the proposal is consistent with this policy. The Park Place Concept Plan includes the provision of a small amount of neighborhood commercial development near Livesay Road, which is consistent with this policy.

Policy 13.2.3 *Plan for complementary mixed uses when considering annexation of new, under- or undeveloped areas so that new urban residential areas have closer access to jobs and services.*

Finding: the proposal is consistent with this policy. The Park Place Concept Plan includes some neighborhood commercial development that will provide for some commercial services in the neighborhood, consistent with this policy.

Section 14 Urbanization

Goal 14.3 Orderly Provision of Services to Growth Areas

Plan for public services to lands within the Urban Growth Boundary through adoption of a concept plan and related Capital Improvement Program, as amendments to the Comprehensive Plan.

Finding: The proposal is consistent with this requirement. Details regarding planned capital improvements to provide public services to the annexation site were provided earlier in this report.

Policy 14.3.1

Maximize new public facilities and services by encouraging new development within the Urban Growth Boundary at maximum densities allowed by the Comprehensive Plan.

Finding: The proposal is consistent with this requirement. The proposed zoning is consistent with the adopted and acknowledged Oregon City Comprehensive Plan Map. A condition of approval will temporarily prohibit urban-density development due to on-going traffic policy considerations. At such time as the Alternative Mobility standards are adopted and the requirements of Article 12 can be met, development will take place at densities consistent with the Park Place Concept Plan and the City's Comprehensive Plan. The proposed development will be reviewed for compliance with maximum and minimum density standards at the time of application for subdivision approval.

The subject property is designated Low Density Residential, Medium Density Residential and Mixed Use Corridor by the Oregon City Comprehensive Plan. The proposed default zoning districts R-10, R-5 and NC implements the designations applicable to this property. A zone change to a higher density may be included in a future application for development of the property. Any future development of the property will be reviewed for compliance with maximum and minimum density standards at the time of application for subdivision approval.

Policy 14.3.2

Ensure that the extension of new services does not diminish the delivery of those same services to existing areas and residents in the city.

Finding: The proposal is consistent with this requirement. As noted previously, the city has updated its water, sewer and transportation master plans to plan for extension of services to the annexation area. The updated public facility master plans take into account the demand for services from both existing and planned development in the city. Public facility plans identify future capital improvement projects intended to ensure that public services can be maintained and extended as needed to meet demand. The proposed annexation does not affect the ability of the city to deliver services to existing areas, at existing densities, and residents in the city.

Further analysis of the adequacy of the public facilities to serve the site without diminishing service to existing customers is required prior to any subsequent development proposal of the annexed property, including any zone changes, land divisions, or other development approvals required. Future development of the annexed properties will be required to construct or pay fee-in-lieu of construction of all necessary city public facilities to serve the subject site, as well as paying applicable System Development Charges.

Prior to issuing any development approval other than as identified in condition of approval #2, the applicant shall obtain General and Detailed Development Plan approval, including the entire 91-acre property, pursuant to OCMC 17.65. The General Development Plan and all phases of development authorized by it, must implement the Park Place Concept Plan and Oregon City's adopted Public Facilities Plans with regard to the provision of open space, park and trails, sewer, water, stormwater and transportation improvements. These include, but are not limited to, addressing the timing of parkland acquisitions and development, proposed phasing of major roads to ensure a timely connection to Holly Lane and an analysis of utility phasing that can foster redevelopment of the entire concept plan area.

Policy 14.3.3

Oppose the formation of new urban services districts and oppose the formation of new utility districts that may conflict with efficient delivery of city utilities within the Urban Growth Boundary.

Finding: Not applicable. The proposed annexation does not involve formation of any new urban service or utility districts.

Policy 14.3.4

Ensure the cost of providing new public services and improvements to existing public services resulting from new development are borne by the entity responsible for the new development to the maximum extent allowed under state law for Systems Development Charges.

Finding: The proposal is consistent with this requirement. All utilities that will be provided to serve the future development of this site will be the responsibility of the developer. The future homes to be built on this property will pay required Systems Development Charges at the time of application for building permits. As noted previously, the city's water, sewer and transportation master plans have been updated to plan for extension of those services to the proposed annexation area. Capital improvement projects needed to provide those services are identified in the master plans and the city's system development charges (SDCs) have been updated accordingly. The updated SDCs will ensure that new development in the annexation area will fund those public improvements to the maximum extent allowed under state law.

Goal 14.4 Annexation of Lands to the City

Annex lands to the city through a process that considers the effects on public services and the benefits to the city as a whole and ensures that development within the annexed area is consistent with the Oregon City Comprehensive Plan, City ordinances, and the City Charter.

Finding: The proposal is consistent with this requirement. This annexation application will be reviewed through a process that considers the effects on public services and benefits to the city. Consistency with the Comprehensive Plan and applicable city ordinances is required for annexation approval and has been demonstrated in this narrative and in the supporting materials provided with the application package.

The annexation includes a zone change, and the applicant has provided additional narrative to adequately demonstrate that the impacts due to the development that would be authorized by approval of the zone change can be mitigated in accordance with the City's comprehensive plan.

Further, as no additional development is proposed as part of this annexation and rezoning application, the proposal annexation will have no greater effect on public services that it currently does with the lands located outside city boundaries but within the UGB.

By approving this annexation and zoning, the city takes the next step in urbanizing this area, realizing the objectives identified in the Comprehensive Plan. Several significant reviews steps remain to be taken by both the City and the applicant in order to authorize development of the property, further ensuring consistency with this Goal.

Policy 14.4.1 *Promote compact urban form and support efficient delivery of public services by ensuring that lands to be annexed are within the City's Urban Growth Boundary, and contiguous with the city limits. Do not consider long linear extensions, such as cherry stems and flag lots, to be contiguous with the city limits.*

Finding: The proposal is consistent with this requirement. This application supports this policy by proposing annexation of property that is within the city's urban growth boundary and is contiguous with the existing city limits. The subject property is entirely within the City's Urban Growth Boundary and is contiguous with the existing city limits along its entire western border and its frontage on Holcomb Blvd. This application does not propose long linear extensions such as cherry stems or flag lots.

Policy 14.4.2 *Include an assessment of the fiscal impacts of providing public services to unincorporated areas upon annexation, including the costs and benefits to the city as a whole as a requirement for concept plans.*

Finding: The proposal is consistent with this requirement, as conditioned. This policy contains a requirement that the city include a fiscal impact assessment as part of the preparation of concept plans. This annexation area is part of a concept plan which included a fiscal assessment of the cost of public facilities to serve this area, and subsequent public facilities plans and System Development Charge updates have been implemented based on those assessments. The proposed annexation will have no immediate fiscal impacts upon the cost of providing public services because no development will be allowed until such time as transportation planning issues are resolved. The City's Public Facilities Plan and Transportation System Plan anticipate the future development of the subject property at densities consistent with the Comprehensive Plan and provide an analysis of the costs of providing adequate levels of services in this area of the city. The future development of this property will contribute to these costs by providing on-site infrastructure, as well as potential off-site sanitary sewer improvements, at the cost of the developer. Each home will be assessed appropriate System Development Charges to cover the proportionate impact of the future development of this site.

Furthermore, the future development application will provide for a master plan consistent with the design concept of the North Village Plan. The applicant acknowledges that the future master plan for the annexation area will need to provide for the dedication of a community park and other public facilities consistent with the Park Place Concept Plan. Staff recommends that this annexation area be subject to a Master Plan pursuant to OCMC 17.65 prior to any development of the property at densities greater than that permitted under current County zoning. Master Planning of the annexation area pursuant to OCMC 17.65 would allow for the specific phasing of development over time as well as greater control and predictability regarding the timing of and cost of public improvements, including water, stormwater, sewer, transportation, parks, trails and open space. A master plan also allows development more flexibility to vary from prescriptive standards if approved pursuant to OCMC 17.65. Any master plan, along with a future comprehensive plan amendment and zone change for the subject property cannot proceed until such time as the regional transportation issues are resolved.

Prior to issuing any development approval other than as identified in condition of approval #2, the applicant shall obtain General and Detailed Development Plan approval, including the entire 91-acre property, pursuant to OCMC 17.65. The General Development Plan and all phases of development authorized by it, must implement the Park Place Concept Plan and Oregon City's adopted Public Facilities Plans with regard to the provision of open space, park and trails, sewer, water, stormwater and transportation improvements. These include, but are not limited to, addressing the timing of parkland acquisitions and development, proposed phasing of major roads to ensure a timely connection to Holly Lane and an analysis of utility phasing that can foster redevelopment of the entire concept plan area.

Policy 14.4.3 *Evaluate and in some instances require that parcels adjacent to proposed annexations be included to:*

- *avoid creating unincorporated islands within the city;*
- *enable public services to be efficiently and cost-effectively extended to the entire area; or*
- *implement a concept plan or sub-area master plan that has been approved by the Planning and City Commissions.*

Finding: The proposal is consistent with this requirement. As pointed out above, this proposal would create an "unincorporated island" within the City. Therefore, it is up to the Planning Commission, and ultimately the City Commission to interpret this requirement. Staff has identified three options:

- 1) Find that this policy discourages rather than prohibits the creation of islands as a result of annexation. Use of the term "some instances" in this plan policy gives the city some discretion indicating that the policy is cautionary rather than mandatory, and implies that there are cases in which the evaluation of a potential island may result in a decision to create an island. Staff has analyzed the utility and transportation demands needed to realize the Park Place Concept Plan objectives and concludes that allowing this island to remain in the County will not compromise urbanization of the concept plan areas. Therefore, allowing this island to remain will not compromise any identified planning objective.
- 2) Find that this policy prohibits the creation of an island and amend the application, forcing the three adjacent properties to annex as part of this request. This approach would require a forced annexation and trigger voter approval of the annexation. The city does not have an established precedent for forcing non-consenting property owners to annex.
- 3) Find that forcing annexation from non-consenting property owners should not be initiated by the city and therefore, conclude that this plan policy is not met and deny the application.

This is a question of interpretation for the Planning Commission and ultimately the City Commission to determine. Staff recommends an interpretation that prohibits islands where it can be found that they compromise the efficiency and cost-effectiveness of extending public improvements.

The annexation of these three tax lots at this time is not needed in order to implement the Park Place Concept Plan. In fact, the Park Place Concept Plan boundary does not encompass the three properties that would be “islanded”, although they share the same Comprehensive Plan Designation of MR Medium Density Residential consistent with the properties adjacent and within the Park Place Concept Plan.

The annexation area is contiguous to the existing city limits along its northern boundary. The proposed annexation will create a small unincorporated island within the city. The island area is shown in pink on the map below. The owners of three parcels along Holcomb Blvd., Tax Lots 22E27B 600, 800 & 900, were contacted, but preferred not to join the annexation proposal at this time.

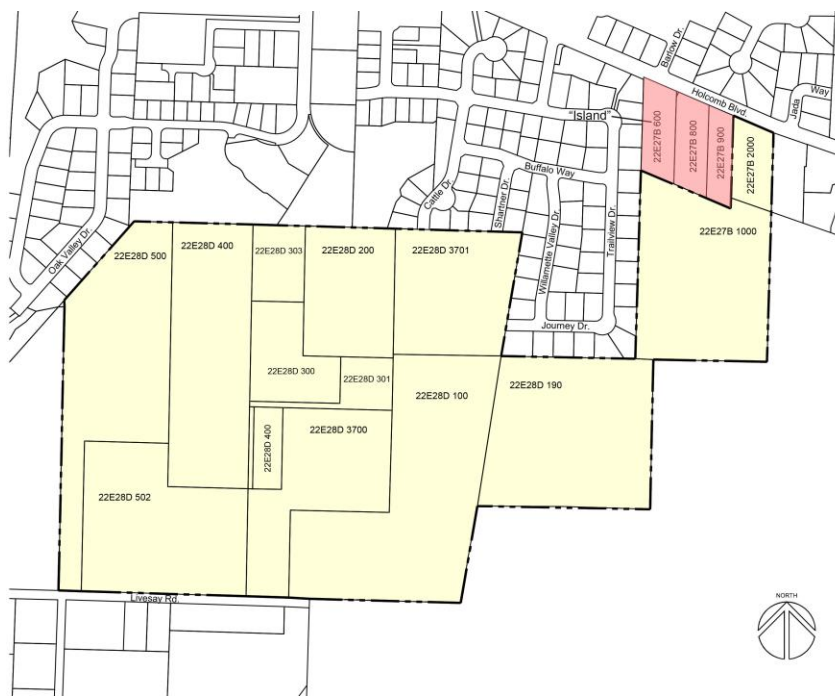


Figure 14: Annexation Area (Yellow) and Island (Pink)

The language of this policy calls for an evaluation of whether the creation of an island, by itself or in conjunction with the other listed factors, would be sufficiently problematic that the annexation proposal must be altered to include the area of the potential island. The island itself is not problematic for the City in any significant way. It is small in size at 3.7 acres, and involves only three properties. All of these properties are developed with single-family homes. The island would only be separated from other unincorporated land by approximately 180 feet along Holcomb Blvd. No further development of these properties, pursuant to city zoning, would be allowed until such time as they are annexed to the City in the future. Rising land values and the provision of urban services available to these properties sometime in the future are likely to bring an incentive for future development that will result in the voluntary annexation of these properties.

The creation of this island will have no impact upon the efficient provision of public services. Storm sewer and sanitary sewer drain to the south, away from the island area, and will be provided with the development of the annexation area. Holcomb Blvd. along the frontage of these properties is entirely within the city limits and access to water service is available in that right-of-way. While there will be a need for additional right-of-way to be dedicated from the islanded properties in order for Holcomb Blvd. to be developed to full City arterial standards. Such dedication and improvement of the road will likely not occur until such time as the owners of these properties choose to annex and develop their land. On the other hand, should the City desire to make these improvements on its own, the creation of an island at this time would have no impact on the City's ability to do so. It has the ability to annex islanded properties on its own motion and to acquire needed right-of-way either by purchase or by condemnation.

The inclusion of the island area in the annexation proposal is not needed to implement a concept plan or sub-area master plan that has been approved by the Planning and City Commissions. The three properties that would be islanded in this proposal are not a part of the Park Place Concept Plan or any other sub-area master plan. In the future, at such time as the island neighbors wish to annex to the City, the future developer of the subject properties will be provide to pay applicable System Development Charges, City taxes, and any additional facility connections.

Policy 14.4.4

Expedite the annexation of property as provided by state law in order to provide sewer service to adjacent unincorporated properties when a public health hazard is created by a failing septic tank sewage system.

Finding: Not applicable. The subject property is not subject to a public health hazard associated with a failing septic system.

Urbanization

Policy 14.5.2

Coordinate public facilities, services and land-use planning through intergovernmental agreements with the school district, Clackamas Community College, Clackamas County Fire District #1, Tri-Cities Services District and other public entities as appropriate.

Finding: The proposal is consistent with this requirement. The City continues to coordinate with the school district to conduct long range planning within the UGB through the adoption of concept plans and other planning efforts, and to review current development proposals. Development of this Low Density Residential property will require payment of construction excise taxes for school development. At this time, the school district has not indicated that an intergovernmental agreement is necessary to assure adequacy of school facilities to serve the proposed annexation property, which is already within the school district.

Compliance with OCMC 14.04.060 – Annexation Factors – Continued

3. Adequacy and availability of public facilities and services to service potential development;

Finding: The proposal is consistent with this requirement. The adequacy and availability of public facilities and services to service the potential development of the property was discussed earlier under the applicant's statements section.

4. Compliance with applicable sections of ORS Ch. 222, and Metro Code Section 3.09;

Finding: The proposal is consistent with this requirement. See findings earlier in this report for Metro 3.09. ORS 222 requires the proposed annexation property be contiguous with the city and provides several options for annexing land into a city. As noted in 14.04.050(E)(1), this annexation relies on ORS 222.125, annexation by consent of all land owners and a majority of electors. ORS Ch. 222 was amended in 2016 with the adoption of Senate Bill 1573 with respect to voter approval. Those requirements are addressed later in this report. The requirements of ORS 222, then, are met.

Metro Section 3.09 is addressed separately in earlier in this report.

Compliance with OCMC 14.04.060 – Annexation Factors – Continued

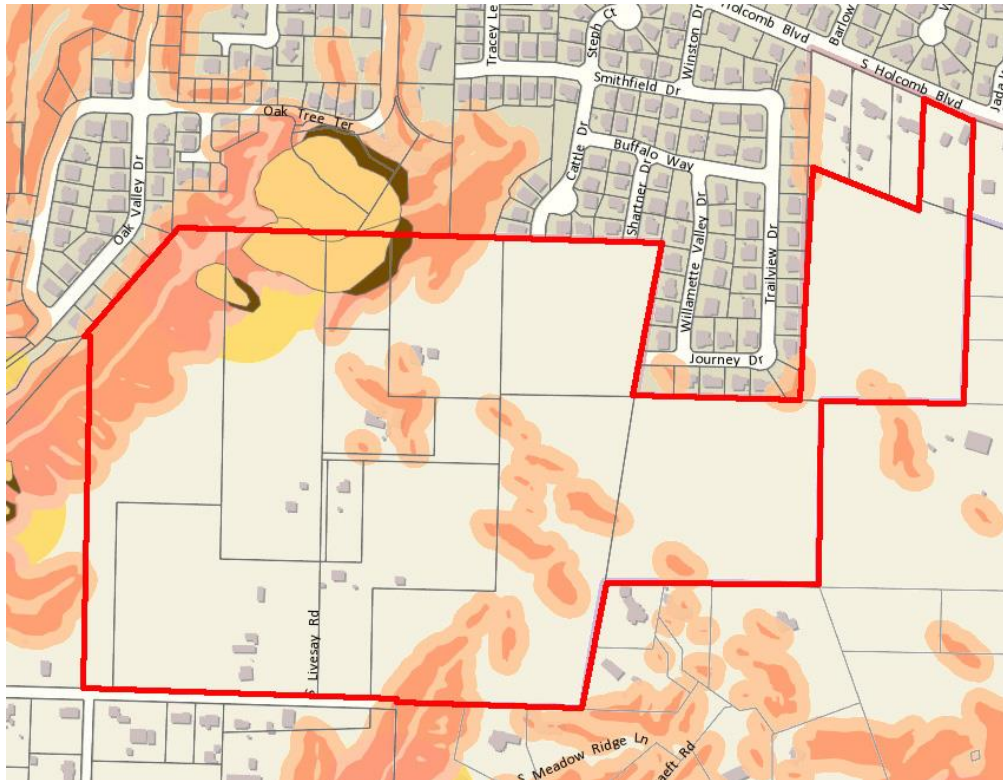
5. Natural hazards identified by the city, such as wetlands, floodplains and steep slopes;

Finding: The proposal is consistent with this requirement. The City Comprehensive Plan identifies water resource and steep slope areas that will require further investigation at time of development to demonstrate compliance with Oregon City's overlay district zoning; OCMC Chapter 17.49 regulating water resource and habitat protection and OCMC Chapter 17.44 regulating development in and near geologic hazards and steep slopes. Future development of the site will be required to meet all applicable city, state and federal requirements, which will be addressed through the land development processes (site plan and design review, land divisions, etc.). As no development is proposed as part of this annexation and rezoning application, this annexation will have no impact on identified natural hazards to any greater degree than development that is currently permitted.

Oregon City's NROD standards are in substantial compliance with Metro Title 3 and Title 13 and Statewide Goal 5. Oregon City's adopted Geologic Hazard Overlay District OCMC 17.44 complies with Statewide Goal 7 – Natural Hazards. The Geologic Hazard Overlay District code requirements were significantly amended during and following the adoption process for the Park Place Concept Plan and several changes were made to the previous code to include, among other pertinent requirements:

- Peer third-party review of an applicant's geotechnical and geologic reports, and construction plans by an expert geologic engineer working for the City;
- Requirements that the geologic engineer of record for the applicant review and sign-off on final construction plans to ensure that initial recommendations are following during construction;
- Addition of a 200' foot review buffer from known landslide areas;
- Requirement for literature review of current scholarly reports and DOGAMI mapping information related to slide prone areas within the City limits relevant to the subject area.

The subject property does have areas of potential natural hazards associated with steep slopes, primarily along ravines associated with drainageways and areas of steeper hillside grades. The map below from the City's GIS system shows these areas.



When the property is developed in the future, the natural drainageways will remain undeveloped as open space. A geotechnical report will be prepared at the time of future development application to assess the safety of other potential hazard areas and the recommendations of that report will be followed in designing the future development plan.

6. Any significant adverse effects on specially designated open space, scenic, historic or natural resource areas by urbanization of the subject property at time of annexation;

Finding: The proposal is consistent with this requirement. The above mentioned resources are Goal 5 resources that were addressed in detail in the Natural Resource and cultural and historic inventories as part of the existing conditions analysis required during the last Comprehensive Plan update. OCMC 17.44 and 17.49 code require that further on-site analysis be conducted to determine the current extent of any protected resources or hazards which initially was done with the comprehensive plan. More detailed, site specific delineations of the resources and the required associated vegetated corridors next to any wetlands or streams is required prior to development, along with impact analysis and mitigation for impacts. These existing restrictions will adequately protect natural resource areas and to the extent necessary serve as a natural resource protection plan.

No additional historic or cultural resources have been identified at this that are not regulated under existing city codes or state law.

7. Lack of any significant adverse effects on the economic, social and physical environment of the community by the overall impact of the annexation.

Finding: The proposal is consistent with this requirement. The adopted City of Oregon City Comprehensive Plan designation is Low Density Residential. The implementing default zones for this plan designation are R-10, R-5 and NC. The applicant has requested the default zoning of R-10, R-5 and

NC at this time. The development of this site in a manner consistent with the adopted Comprehensive Plan will serve to provide needed housing to accommodate the projected population growth of the City of Oregon City. The site is well suited from a physical standpoint to be developed in this manner as it is free of any significant development constraints, other than a very small area of moderately steep slopes. Providing for future development of needed housing within walking distance of Holcomb Elementary School for school and recreational services will assist in providing for a beneficial social environment in this neighborhood.

The applicant indicates that the majority of the subject property is within the boundaries of the Park Place Concept Plan, specifically, the North Village Plan, and the eventual development of this site will be subject to the land uses and densities set forth in that document. The future development application will provide for a master plan pursuant to OCMC 17.65 consistent with the design concept of the North Village Plan. The future development application will likely need to include proposals to rezone the property to resolve certain discrepancies between the land use areas in the North Village Plan and the existing designations Oregon City Comprehensive Plan Map. One property, Tax Lot 2000 on Map 22E27B and which fronts on Holcomb Blvd., is located outside of the North Village Plan, is designated MR by the Comprehensive Plan and will be zoned R-5. That property will be developed in conjunction with the rest of the properties included in this annexation and zone change. The future development of this property will provide a mixture of approximately 400 to 450 single-family detached and attached housing units, as well as neighborhood commercial, park and community uses as shown on the North Village Plan. It will also aid in providing a needed collector road connection from the Holcomb Blvd. area down to Redland Road. It is anticipated that the development will occur in several phases over an approximate 10 year development plan, which will be further defined through a General Development Plan pursuant to OCMC 17.65. As such, the future development of the property will not have any significant impact upon the economic, social and physical environment of the community.

COMPLIANCE WITH APPLICABLE PROVISIONS OF ORS 222

Finding: The proposal is consistent with this requirement. ORS 222 requires the proposed annexation property be contiguous with the city and provides several options for annexing land into a city. As noted in 14.04.050(E)(1), this annexation relies on ORS 222.125, annexation by consent of all land owners and a majority of electors.

SB 1573

If the City Commission determines that the proposed annexation should be approved, the City Commission is required by the Charter to submit the annexation to the electors of the City. However, the passage of SB 1573 has modified ORS 222 and now requires that the City annex the territory without submitting the proposal to the electors pursuant to the following provisions.

SECTION 1. Section 2 of this 2016 Act is added to and made a part of ORS 222.111 to 222.180.

SECTION 2. (1) This section applies to a city whose laws require a petition proposing annexation of territory to be submitted to the electors of the city.

(2) Notwithstanding a contrary provision of the city charter or a city ordinance, upon receipt of a petition proposing annexation of territory submitted by all owners of land in the territory, the legislative body of the city shall annex the territory without submitting the proposal to the electors of the city if:

(a) The territory is included within an urban growth boundary adopted by the city or Metro, as defined in ORS 197.015;

(b) The territory is, or upon annexation of the territory into the city will be, subject to the acknowledged comprehensive plan of the city;

(c) At least one lot or parcel within the territory is contiguous to the city limits or is separated from the city limits only by a public right of way or a body of water; and

(d) The proposal conforms to all other requirements of the city's ordinances.

Finding: The Oregon City Municipal Code and City Charter requires annexations to be referred to the voters for final approval through an election. However, in this instance, the proposed annexation meets the requirements of the new State law in that it includes a petition that is signed by all owners of land in the territory, the area is within the adopted urban growth boundary, is within an area subject to the adopted and acknowledged Oregon City Comprehensive Plan, and the property is contiguous to the existing city limits. As demonstrated in this narrative, this proposal conforms to all other requirements of the city's ordinances, so long as the city does not decide to force the island properties to be included with this request. Thus, the proposal meets items (a) through (d).

(3) The territory to be annexed under this section includes any additional territory described in ORS 222.111 (1) that must be annexed in order to locate infrastructure and right of way access for services necessary for development of the territory described in subsection (2) of this section at a density equal to the average residential density within the annexing city.

Finding: No such additional territory is required in order to locate infrastructure and right-of-way access for services necessary for development of the annexing territory.

(4) When the legislative body of the city determines that the criteria described in subsection (2) of this section apply to territory proposed for annexation, the legislative body may declare that the territory described in subsections (2) and (3) of this section is annexed to the city by an ordinance that contains a description of the territory annexed.

Finding: The required ordinance will be adopted by the City Commission upon approval of this annexation proposal.

II B. ZONE CHANGE CRITERIA

CONCURRENT ZONING MAP AMENDMENT FROM FU-10 TO R-5, R-10 & NC.

Finding: The Site has acknowledged Oregon City Comprehensive Plan Map designations of Medium Density Residential (MR), Low Density Residential (LDR) and Mixed Use-Corridor (MUC). Oregon City Municipal Code ("OCMC") 17.68.025.A. provides that "notwithstanding any other section of this code", a concurrent zoning map application under OCMC Chapter 17.50 is required. Further, this section requires that the zoning map designation correlate to the corresponding Comprehensive Plan map designation for the site as shown in OCMC 17.68.025.A. The section is mandatory; it provides that "the property shall be rezoned upon annexation to the corresponding zoning designation as follows..."(emphasis added). In other words, there is no discretion to be applied to the zoning map amendment and not only is a concurrent zoning map amendment required, the outcome is automatic based on the acknowledged OCMC. Further, compliance with OCMC Chapter 17.50 requires a zoning map amendment application but does not require compliance with the discretionary zoning map amendment application criteria in OCMC 17.68.020.

In this instance, the zoning districts to be applied per the table in OCMC 17.68.025.A are R-5 for the MR area, R-10 for the LDR area, and Neighborhood Commercial (NC) for the MUC area.

The Planning Commission can find that the Application satisfies the approval criteria in OCMC 17.68.025.A. and B. and the zoning map amendment shall be approved.

Please note that neither the process of annexation or zoning is not considered “Development” under the City’s zoning code definition.²

In accordance with City, County and State transportation requirements, no development, except that permitted under the County’s Future Urban FU-10 zoning designation, in effect as of the date of this application’s submittal, shall be allowed until the following occurs, acknowledged and the Applicant demonstrates compliance with these requirements:

- a. A refinement plan for Highway 213 at Beaver Creek Road (Alternative Mobility Targets), including elements such as financially constrained projects and alternative mobility standards, and amendments to OCMC Chapter 12.04 implementing the new Refinement Plan, are to be adopted and acknowledged.
- b. Amendments to OCMC 12.04 which allow development affecting the intersection of Highway 213/Beaver Creek are adopted.
 - I. Adopt amendments to the City’s Transportation System Plan and OCMC Chapter 12.04 to include projects that satisfy the then-applicable performance standards and these standards must be acknowledged; or
 - II. Condition the approval of a land division application that satisfies then-applicable OCMC Chapter 12.04 by including proportional mitigation of the application’s impacts on that intersection, or such other mitigation measure(s) as may be approved which assure(s) that the intersection will either meet, or perform no worse than, the then-applicable performance standards

The applicant further asserts that compliance with OCMC Chapter 17.50 requires a zoning map amendment application but does not require compliance with the discretionary zoning map amendment application in OCMC 17.68.020. See also 17.68.025B.

For this reason, the applicant did not respond to the criteria for a zone change which are typically applied when a development seeks a discretionary zone change decision, which are provided below:

17.68.020 - Criteria.

The criteria for a zone change are set forth as follows:

- A. The proposal shall be consistent with the goals and policies of the comprehensive plan.*
- B. That public facilities and services (water, sewer, storm drainage, transportation, schools, police and fire protection) are presently capable of supporting the uses allowed by the zone, or can be made available prior to issuing a certificate of occupancy. Service shall be sufficient to support the range of uses and development allowed by the zone.*
- C. The land uses authorized by the proposal are consistent with the existing or planned function, capacity and level of service of the transportation system serving the proposed zoning district.*
- D. Statewide planning goals shall be addressed if the comprehensive plan does not contain specific policies or provisions which control the amendment.*

² OCMC 17.04.300 - *Development*. "Development" means a building or grading operation, making a material change in the use or appearance of a structure or land, dividing land into two or more parcels, partitioning or subdividing of land as provided in ORS 92.010 to 92.285 or the creation or termination of an access right.

The applicant requests that the Planning Commission find that the application satisfies the approval criteria in OCMC 17.68.025.A. and B. and the zoning map amendment be approved.

Finding: The criteria are addressed within this report. Staff agrees that OCMC 17.68.025.A requires a concurrent zone change when the lands subject to annexation are designated by an acknowledged City Comprehensive Plan. Use of the term “shall” suggests that re-zoning is mandatory and cannot be subject to the highly discretionary criteria contained within OCMC 17.68.020. Such an approach makes sense because R-10 development was fully contemplated and planned for in the City’s Comprehensive Plan and utility master plans. This makes the act of re-zoning largely ministerial. Although staff believes that these criteria are not applicable, as a practical matter, staff notes that they mirror the annexation factors and as a result, would be satisfied, with the exception of the transportation impacts which are dealt with through a condition of approval.

In accordance with City, County and State transportation requirements, no development, except that permitted under the County’s Future Urban FU-10 zoning designation, in effect as of the date of this application’s submittal, shall be allowed until the following occurs, acknowledged and the Applicant demonstrates compliance with these requirements:

- a. A refinement plan for Highway 213 at Beaver Creek Road (Alternative Mobility Targets), including elements such as financially constrained projects and alternative mobility standards, and amendments to OCMC Chapter 12.04 implementing the new Refinement Plan, are to be adopted and acknowledged.
- b. Amendments to OCMC 12.04 which allow development affecting the intersection of Highway 213/Beaver Creek are adopted.
 - I. Adopt amendments to the City’s Transportation System Plan and OCMC Chapter 12.04 to include projects that satisfy the then-applicable performance standards and these standards must be acknowledged; or
 - II. Condition the approval of a land division application that satisfies then-applicable OCMC Chapter 12.04 by including proportional mitigation of the application’s impacts on that intersection, or such other mitigation measure(s) as may be approved which assure(s) that the intersection will either meet, or perform no worse than, the then-applicable performance standards

17.06.030 - Zoning of annexed areas.

All lands within the urban growth boundary of Oregon City have been classified according to the appropriate city land use designation as noted on the comprehensive plan map (per the city/county urban growth management area agreement). The planning department shall complete a review of the final zoning classification within sixty days after annexation. The zoning classification shall reflect the city land use classification as illustrated in Table 17.06.

Table 17.06.030

| CITY LAND USE CLASSIFICATIONS | |
|---------------------------------|----------------|
| Residential Plan Classification | City Zone |
| Low-Density Residential | R-10, R-8, R-6 |
| Medium-Density Residential | R-3.5, R-5 |
| High-Density Residential | R-2 |

| <i>CITY LAND USE CLASSIFICATIONS</i> | |
|---------------------------------------|-----------------------------|
| <i>Commercial Plan Classification</i> | <i>City Zone</i> |
| <i>General Commercial</i> | <i>C</i> |
| <i>Mixed-Use Downtown</i> | <i>MUD, WFDD</i> |
| <i>Mixed-Use Corridor</i> | <i>MUC I, MUC 2, NC, HC</i> |
| <i>Mixed-Use Employment</i> | <i>MUE</i> |
| <i>Industrial Plan Classification</i> | <i>City Zone</i> |
| <i>Industrial</i> | <i>CI, GI</i> |

In those cases where only a single city zoning designation corresponds to the comprehensive plan designation and thus the rezoning decision does not require the exercise of legal or policy judgment on the part of the community development director, Chapter 17.68 shall control. The decision in these cases shall be a ministerial decision of the community development director made without notice or any opportunity for a hearing.

A. A public hearing shall be held by both the planning commission and city commission in accordance with the procedures outlined in Chapter 17.68 (except for the provisions of Section 17.68.025) for those instances in which more than one zoning designation carries out a city plan classification.

Finding: The proposal is consistent with this requirement, as conditioned.

The applicant states that compliance with OCMC Chapter 17.50 requires a zoning map amendment application but does not require compliance with the discretionary zoning map amendment application in OCMC 17.68.020. Since the applicant has requested the lowest density zone applicable to the LR – Low Density Residential land use category, R-10, the rezoning decision does not require the exercise of legal or policy judgment on the part of the community development director, and Chapter 17.68 controls.

Plan Designation

Low-Density Residential

Medium-Density Residential

Mixed-Use Commercial

Zone

R-10 - Single Family Dwelling

R-5 - Single Family Dwelling

NC - Neighborhood Commercial

Based on the additional analysis provided by the applicant as documented in this report regarding impacts to the public transportation system, sewer, water and stormwater, and police and emergency services, staff supports the default zone change to R-10 with the findings and conditions attached to the staff report. Note that with the condition of approval proposed by the applicant, no development beyond that permitted under the County's FU-10 zoning may occur until compliance with specific transportation system requirements met, as discussed below.

No change to the comprehensive plan text or map designation is proposed for this site. The zone change application that has been filed with the annexation proposal is a mandatory and non-discretionary rezoning required pursuant to OCMC 17.68.025.A. This zone change is required concurrently with the annexation in order to replace Clackamas County RRFF-5 zoning and apply the appropriate City zones that implement the City's Comprehensive Plan Map designations for the site. In this instance, Neighborhood Commercial is proposed for the MUC area and R-10 would be applied to the LDR

designation. It is understood that a future application will be required at the time that a master plan for the development of the property is proposed in order to amend the Comprehensive Plan and zoning for the site comply with the Park Place Concept Plan's conceptual plan for the North Village area. The master plan and the future comprehensive plan amendment and zone change for the subject property cannot proceed until such time as the regional transportation issues are resolved.

In accordance with City, County and State transportation requirements, no development, except that permitted under the County's Future Urban FU-10 zoning designation, in effect as of the date of this application's submittal, shall be allowed until the following occurs, acknowledged and the Applicant demonstrates compliance with these requirements:

- a. A refinement plan for Highway 213 at Beaver Creek Road (Alternative Mobility Targets), including elements such as financially constrained projects and alternative mobility standards, and amendments to OCMC Chapter 12.04 implementing the new Refinement Plan, are to be adopted and acknowledged.
- b. Amendments to OCMC 12.04 which allow development affecting the intersection of Highway 213/Beaver Creek are adopted.
 - I. Adopt amendments to the City's Transportation System Plan and OCMC Chapter 12.04 to include projects that satisfy the then-applicable performance standards and these standards must be acknowledged; or
 - II. Condition the approval of a land division application that satisfies then-applicable OCMC Chapter 12.04 by including proportional mitigation of the application's impacts on that intersection, or such other mitigation measure(s) as may be approved which assure(s) that the intersection will either meet, or perform no worse than, the then-applicable performance standards

2. TRANSPORTATION PLANNING RULE ("TPR") COMPLIANCE (OAR 660-012-0060)

OAR 660-012-0060(1) and (2) require land use regulation amendments, including amendments to zoning maps, to determine if the amendment will have a "significant affect" on transportation facilities and, if so, can it be mitigated. However, OAR 660-012-0060(9) provides that a zoning map amendment does not need to include this analysis, and the City can make a finding of no "significant affect", if:

- a. A zoning map amendment is consistent with the existing comprehensive plan designation and does not change the map designation;
- b. The City has an acknowledged Transportation System Plan ("TSP"); and
- c. The area of the zoning map amendment was not exempted from the TPR at the time of the UGB amendment. OAR 660-012-0060(9)(a)-(c).

Finding: The proposal is consistent with the Transportation Planning Rule.

The subject property complies with these criteria as follows:

- a. Oregon City's Comprehensive Plan Land Use Map within the acknowledged Oregon City Comprehensive Plan designates the subject property Low Density Residential, Medium

Density Residential, and Mixed Use Commercial. The proposed zoning amendment would not change the map designation and the R-10, R-5 and NC zoning are implementing zones for those designations.

- b. An updated Transportation System Plan (TSP) and associated amendments to the Oregon City Municipal Code (OCMC) was approved by the City Commission and became effective August 16, 2013. The TSP was acknowledged by DLCD on August 9, 2013 (DLCD File Number 001-13).
- c. The subject property has been in the City's UGB since the time of the adoption of the Comprehensive Plan and was not exempted from the Transportation Planning Rule.

The City can find that all three (3) of these requirements are met. Therefore, the City can find that the zoning map amendment does not "significantly affect" a transportation facility.

Finally, OCMC Title 12 does not apply to the concurrent annexation and zoning map amendments as they do not constitute "development" as that term is defined in the OCMC and ORS 227.160(2). The City will apply OCMC Title 12 when "development" is proposed for this site. A condition of approval will be applied to the zone change application to ensure that development does not occur until such time as the requirements of Title 12 can be met.

Alternatively, the applicant would expect to propose that the City adopt a condition of approval based on OAR 660-012-0060(2)(e).

Prior to annexation, the property owners or assigns will record a covenant, to be approved by the City Attorney, which limits development of the site until such time that a zone change to a City zoning designation has been approved. The covenant shall acknowledge that development is reviewed for compliance with the Oregon City Municipal Code and Clackamas County Zoning and Development Ordinance. Further, until a zone change is approved the site use shall not change or intensify, or receive approval of a land division or development of the site including, but not limited to: no new structures or additions to existing structures or site grading that triggers erosion control permits or overlay district review. In addition the property shall be subject to the City's overlay districts, fence regulations in OCMC 17.54.100 as well as the City's nuisance, business licensing and animal regulations.

The applicant submitted a Transportation Impact Analysis (TIA), prepared by Lancaster Engineering, which includes an analysis of future trip generation and distribution, safety analysis, operational analysis and a discussion of compliance with the State Transportation Planning Rule OAR in support of the requested rezoning to R-10.

The TIA was prepared in consultation with City and Oregon Department of Transportation (ODOT) staff and analyses the performance of three off-site intersections that would be impacted by future development of the annexation area.

The City's transportation consultant, Replinger and Associates, reviewed the applicant's TIA and TPR analysis and provided findings with recommended conditions of approval for the annexation and rezoning.

OAR 660-012-0060(1) and (2) requires land use regulation amendments, including amendments to zoning maps, to determine if the amendment will have a "significant affect" on transportation facilities and, if so, mitigation is required.

In this instance, the proposed zone change would be expected to degrade the performance of several study area intersections that are otherwise not projected to meet the relevant performance standards of Oregon City and ODOT.

Having determined that the proposed annexation and zone change may result in a significant effect on operation of several study area intersections, the TPR also includes the following language:

(9) 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.*

In this instance, the proposed zoning is consistent with the Comprehensive Plan map designation, Oregon City has an acknowledged TSP that accounted for future development under the proposed zoning, and the area was not exempted from the rule at the time of the urban growth boundary amendment. Accordingly, the city may find that the proposed annexation and zone change is consistent with the city's adopted plans and does not significantly effect an existing or planned transportation facility.

Alternatively, if it is determined that mitigation may be required for the proposed annexation and zone change, the requirements of the TPR are as follows:

(2) If a local government determines that there would be a significant effect, then the local government must ensure that allowed land uses are consistent with the identified function, capacity, and performance standards of the facility measured at the end of the planning period identified in the adopted TSP through one or a combination of the remedies listed in (a) through (e) below, unless the amendment meets the balancing test in subsection (2)(e) of this section or qualifies for partial mitigation in section (11) of this rule. A local government using subsection (2)(e), section (3), section (10) or section (11) to approve an amendment recognizes that additional motor vehicle traffic congestion may result and that other facility providers would not be expected to provide additional capacity for motor vehicles in response to this congestion.

- (a) Adopting measures that demonstrate allowed land uses are consistent with the planned function, capacity, and performance standards of the transportation facility.*
- (b) Amending the TSP or comprehensive plan to provide transportation facilities, improvements or services adequate to support the proposed land uses consistent with the requirements of this division; such amendments shall include a funding plan or mechanism consistent with section (4) or include an amendment to the transportation*

finance plan so that the facility, improvement, or service will be provided by the end of the planning period.

(c) Amending the TSP to modify the planned function, capacity or performance standards of the transportation facility.

(d) Providing other measures as a condition of development or through a development agreement or similar funding method, including, but not limited to, transportation system management measures or minor transportation improvements. Local governments shall, as part of the amendment, specify when measures or improvements provided pursuant to this subsection will be provided.

(e) Providing improvements that would benefit modes other than the significantly affected mode, improvements to facilities other than the significantly affected facility, or improvements at other locations, if:

(A) The provider of the significantly affected facility provides a written statement that the system-wide benefits are sufficient to balance the significant effect, even though the improvements would not result in consistency for all performance standards;

(B) The providers of facilities being improved at other locations provide written statements of approval; and

(C) The local jurisdictions where facilities are being improved provide written statements of approval.

The required transportation improvements identified by the City's 2013 Transportation System Plan to serve the area were discussed earlier in this report. Additionally the applicant submitted a Transportation Impact Analysis (TIA) to support the requested Zone Change to R-10, R-5 and NC. The TIA was prepared by Daniel Stumpf, EI and Mike Ard, P.E. of Lancaster Engineering, and reviewed by the City's Transportation Consultant, John Replinger, P.E. The TIA was prepared in consultation with the City and ODOT engineering staff and analyzed various intersections that would be impacted by the eventual development of the annexation property.

Because the proposed annexation also involves rezoning of the property, a TPR analysis is also included. The analysis is predicated on the development of the land at a density that would allow 522 additional dwellings and up to 49,000 square feet of commercial retail land use.

The applicant's engineer states that the proposed zone change will not necessitate changes to the functional classification of existing or planned transportation facilities.

Mr. Replinger's conclusion regarding the TIA and TPR analysis follows:

Because the proposed annexation also involves rezoning of the property to R-10, a TPR analysis is also included. The analysis is predicated on the development of the land at a density that would allow 533 single-family dwellings and 4.5 acres of neighborhood commercial establishments. The engineer states that the proposal does not change the functional classification of any existing or planned transportation facility and does not alter the standards for implementing the functional classification system.

....the annexation and development of the subject property is predicted to degrade the performance at key intersections such that these intersections would not meet applicable

performance standards. The applicant's participation in the funding of projects identified in the TSP or from other analyses area proposed to mitigate for these impacts.

The Oregon Department of Transportation has raised concerns that the amount and type of development analyzed for the neighborhood commercial area does not represent the reasonable worst case development scenario. Further analysis of a more intense development scenario for the 4.5 acres of neighborhood commercial land will be necessary to fully assess compliance with the Transportation Planning Rule.

A new analysis of a more intense development scenario will be needed to adjust the applicant's share for funding of projects. A more intense development scenario can be expected to slightly increase the applicant's share of projects needed to serve the development.

I find that the TIS provides an adequate basis upon which to assess the impacts of the proposed annexation and rezoning. I agree that the proposal does not cause the need for change in the functional classification of any existing or planned facility. I concur with the engineer's analysis concluding that key intersections will fail to meet adopted performance standards at the following intersections:

- *I-205/99E Northbound Ramp Terminal*
- *I-205/99E Southbound Ramp Terminal*
- *Highway 213/Redland Road*
- *Highway 99E/14th Street*
- *14th Street/Washington Street*
- *Beavercreek/Highway 213*

Two intersections critical to the development of the subject property will need to be created or significantly modified to serve their role in the city's transportation network: Holcomb Boulevard/Holly Lane and Redland Road/Holly Lane.

In addition, poor operating performance is predicted at the intersection of Redland Road/Holcomb Boulevard/Abernethy Road. The engineer's analysis indicates that the addition of an eastbound right-turn lane would significantly improve the performance of the intersection.

Planning staff concurs with Mr. Replinger and recommends that the annexation and zoning decision, if approved, include the conditions included with the findings attached to this report.

II. STAFF RECOMMENDATION

Based on the study and the Proposed Findings and Reasons for Decision for this annexation, the staff recommends that the Planning Commission:

Make a recommendation on Proposal No. AN-16-0007 / ZC-16-0005 to the City Commission regarding how the proposal has or has not complied with the factors set forth in Section 14.04.060. Staff has prepared draft Findings and stands ready to adjust them as needed.

If the Planning Commission sends forward a positive recommendation, then the staff further recommends that the Planning Commission forward the following proposed findings and reasons for decision for adoption by the City Commission.

IV. PROPOSED FINDINGS AND REASONS FOR DECISION

Based on the Findings provided above, the Commission determines:

1. The Metro Code calls for consistency of the annexation with the Regional Framework Plan or any functional plan. The Commission concludes the annexation is not inconsistent with this criterion because there were no directly applicable criteria for boundary changes found in the Regional Framework Plan, the Urban Growth Management Function Plan, or the Regional Transportation Plan.
2. Metro Code 3.09.050(d)(1) requires the Commission's findings to address consistency with applicable provisions of urban service agreements or annexation plans adopted pursuant to ORS 195. As noted in the Findings, there are no such plans or agreements in place. Therefore the Commission finds that there are no inconsistencies between these plans/agreements and this annexation.
3. The Metro Code, at 3.09.050(d)(3), requires the City's decision to be consistent with any "directly applicable standards or criteria for boundary changes contained in comprehensive land use plans and public facilities plans." The County Plan also states that conversion of future urban lands to immediate urban lands "Provide for an orderly and efficient transition to urban land use" and "encourage development in areas where adequate public services and facilities can be provided in an orderly and economic way." The applicant has demonstrated that the City can provide all necessary urban services. Nothing in the County Plan speaks directly to criteria for annexation. Therefore the Commission finds this proposal is consistent with the applicable plan as required Metro Code 3.09.050 (d)(3).
4. The Commission concludes that the annexation is consistent with the City Comprehensive Plan that calls for a full range of urban services to be available to accommodate new development as noted in the Findings above. The City operates and provides a full range of urban services. Specifically with regard to water and sewer service, the City has both of these services available to serve some of the area from existing improvements in Holcomb Boulevard.
5. Water service is available in large water mains in Holcomb Boulevard; the existing homes will continue to be serviced by Clackamas River Water (CRW) pursuant to the existing HOPP Intergovernmental Agreement.
6. With regard to storm drainage, the City has the service available in the form of regulations to protect and control stormwater management. The specifics of applying these will be a part of the development review process.
7. The Commission notes that the Metro Code also calls for consistency of the annexation with urban planning area agreements. As stated in the Findings, the Oregon City-Clackamas County Urban Growth Management Agreement specifically provides for annexations by the City.
8. Metro Code 3.09.050(d)(5) states that another criterion to be addressed is "Whether the proposed change will promote or not interfere with the timely, orderly, and economic provision

of public facilities and services." Based on the evidence in the Findings, the Commission concludes that the annexation will not interfere with the timely, orderly, and economic provision of services.

9. The Oregon City Code Chapters 14 and 17 contains provisions on annexation processing. Section 6 of the ordinance requires that the City Commission consider seven factors if they are relevant. These factors are covered in the Findings and on balance the Commission believes they are adequately addressed to justify approval of this annexation.
10. The City Commission concurs with Tri-City Service District's annexation of the subject property in the enacting City ordinance.
11. The Commission determines that the property should be withdrawn from the Clackamas County Service District for Enhanced Law Enforcement as allowed by statute since the City will provide police services upon annexation.
12. The Commission determines that the property should not be withdrawn from the Clackamas Fire District #1 as allowed by statute.
13. The Commission determines that the property should be not be withdrawn from the Clackamas River Water District at this time and remain in the District pursuant to the existing HOPP IGA with CRW.
14. In accordance with City, County and State transportation requirements, no development, except that permitted under the County's Future Urban FU-10 zoning designation, in effect as of the date of this application's submittal, shall be allowed until the following occurs and the Applicant demonstrates compliance with these requirements:
 - a. Highway 213 at Redland Road intersection (an Oregon Highway intersection) is forecasted to fall below adopted performance standards prior to year 2035. As a result, a new Refinement Plan, including elements such as financially constrained projects and alternative mobility standards, and amendments to OCMC Chapter 12.04 implementing the new Refinement Plan, shall be adopted and acknowledged.
 - b. Redland Road at Holcomb Boulevard/Abernethy Road (a non-Oregon Highway intersection) is forecasted to fall below adopted performance standards prior to year 2035. As a result, the City must do one of the following:
 - i. Adopt amendments to the City's Transportation System Plan and OCMC Chapter 12.04 to include projects that satisfy the then-applicable performance standards and these standards must be acknowledged; or
 - ii. Condition the approval of a land division application that satisfies then-applicable OCMC Chapter 12.04 by including proportional mitigation of the application's impacts on that intersection, or such other mitigation measure(s) as may be approved which assure(s) that the intersection will either meet, or perform no worse than, the then-applicable performance standards.
15. The City Commission concur with the applicant's proposal that a future master plan (General Development Plan pursuant to OCMC 17.65) for the annexation area shall be submitted and that the General Development Plan and all subsequent phases will need to incorporate open space,

park areas, trails, sewer, water, stormwater and transportation improvements consistent with the Park Place Concept Plan and Oregon City's adopted Public Facilities Plans. Prior to any development of the subject site above and beyond that permitted under the existing Clackamas County zoning designations for subject properties, the applicant shall apply for a General Development Plan pursuant to OCMC 17.65. All subsequent subdivision of land or site plan and design review applications shall be in conformance with the submitted Master Plan, although the normal provisions for Amendments to Master Plans apply.

16. The Commission agrees with the applicant's proposal that a future master plan approval, General and Detailed Development Plan pursuant to OCMC 17.65, including the entire 91-acre annexation area shall be obtained submitted prior to any development approval authorized by this zone change. The General Development Plan and all phases of development authorized by it, must implement the Park Place Concept Plan and Oregon City's adopted Public Facilities Plans with regard to the provision of open space, park and trails, sewer, water, stormwater and transportation improvements.
17. The City Commission acknowledges that further refinement and studies of the annexation area are needed prior to development and that a Master Plan application will provide further refinements regarding the costs of public facilities to serve the development of the site.
18. Prior to issuing any development approval authorized by this zone change, the applicant shall obtain General and Detailed Development Plan approval, including the entire 91-acre property, pursuant to OCMC 17.65. All land division and site plan and design review applications shall be in conformance with the approved Master Plan, although the normal provisions for Amendments to Master Plans apply.
19. At such time as a detailed development plan is prepared or in connection with development of a master plan, the applicant will need to submit additional materials to address specific requirements outlined in the city's *Guidelines for Transportation Impact Analyses*. These include, but are not limited to requirements associated with intersection spacing and sight distance. The applicant will also need to address trip generation associated with the specific uses proposed in such developments, especially as it relates to the 4.5-acre community commercial property, which for this TIS was evaluated using the generic "shopping center" category.
20. At the time that a General Development Plan or Detailed Development Plan for the subject property is approved the following conditions shall apply: Note that the applicant's final share may be modified as necessary when a Master Plan is approved to reflect any modifications of the development's trip generation based on a refined proposal or when there is a change in project costs resulting from revisions to project costs associated with an update to the City's Transportation System Plan or Capital Improvement program:
 - a. The developer shall participate in the funding of improvements for the I-205/OR-99E ramp terminal projects (TSP Projects D75 and D76) in proportion to the development's traffic volumes as a percentage of total year 2035 intersection volumes from the TSP. The project cost for D75 is \$3,000,000. Based on this methodology and the preliminary PM peak hour trip generation from the proposed development, the development accounts for 0.76 percent of the 2035 volume and the development's share of the project is

\$22,800. The project cost of D76 is \$3,000,000. The development accounts for 0.70 percent of the 2035 volume and the development's share is \$21,000.

- b. The developer shall participate in the funding of improvements for the Main Street/14th Street improvements (TSP Projects D7 and D8) in proportion to the development's traffic volume as a percentage of the predicted 2035 traffic volume at the intersection calculated in the TSP. The higher cost option in the TSP is listed at \$670,000. Based on this methodology and the preliminary PM peak hour trip generation from the proposed development, the development accounts for 2.98 percent of the 2035 volume and the development's share of the project is \$19,966.
- c. The developer shall participate in the funding of improvements for the Abernethy/Holcomb/Redland intersection in proportion to the development's traffic volume as a percentage of the predicted 2035 traffic volume. No project is currently identified in the TSP. The project concept is to provide an additional lane on the eastbound approach; it may involve restriping or widening and signal modifications. No project cost is available at this time. Based on this methodology and the preliminary PM peak hour trip generation from the proposed development, the development accounts for 13.34 percent of the 2035 volume.
- d. The developer shall participate in the funding of improvements for the intersection of OR213/Redland Road (TSP Project D79) in proportion to the development's traffic volume as a percentage of the predicted 2035 traffic volume at the intersection calculated in the TSP. The TSP project cost is listed at \$10,060,000. Based on this methodology and the preliminary PM peak hour trip generation from the proposed development, the development accounts for 3.58 percent of the 2035 volume and the development's share of the project is \$360,148.
- e. The developer shall participate in the funding of improvements for the Holly Lane/Holcomb Boulevard intersection (TSP Project D43) in proportion to the development's traffic volume as a percentage of the predicted 2035 traffic volume. Project D43 is a roundabout with an estimated project cost in the TSP of \$505,000. Based on this methodology and the preliminary PM peak hour trip generation from the proposed development, the development accounts for 22.67 percent of the 2035 volume and the development's share of the project is \$114,484.
- f. The developer shall participate in the funding of improvements for the Holly Lane/Redland Road intersection (TSP Project D36) in proportion to the development's traffic volume as a percentage of the predicted 2035 traffic volume. Project D36 is a roundabout with an estimated project cost in the TSP of \$515,000. Based on this methodology and the preliminary PM peak hour trip generation from the proposed development, the development accounts for 21.33 percent of the 2035 volume and the development's share of the project is \$109,850.
- g. The developer shall participate in the funding of improvements for the Highway 213/Beavercreek Road intersection in proportion to the development's traffic volume as a percentage of the predicted 2035 traffic volume. A project to add a right-turn lane on westbound Beavercreek Road and a merge lane on northbound Highway 213 was

identified in the July 2017 Highway 213 Corridor Alternative Mobility Study. The project's cost was estimated at \$1.5 million. Inclusion of this project in the TSP is anticipated by an amendment planned during 2018. Based on this methodology and the preliminary PM peak hour trip generation from the proposed development, the development accounts for 0.30 percent of the 2035 volume and the development's share of the project is \$4,500.

The applicant's preliminary proportionate share for project listed above as conditions of approval are based on the assumption that the 4.5 acre commercial development is developed as a shopping center. A more intense development is likely to increase the applicant's share of projects as calculated above.

V. RECOMMENDED CONDITIONS OF APPROVAL

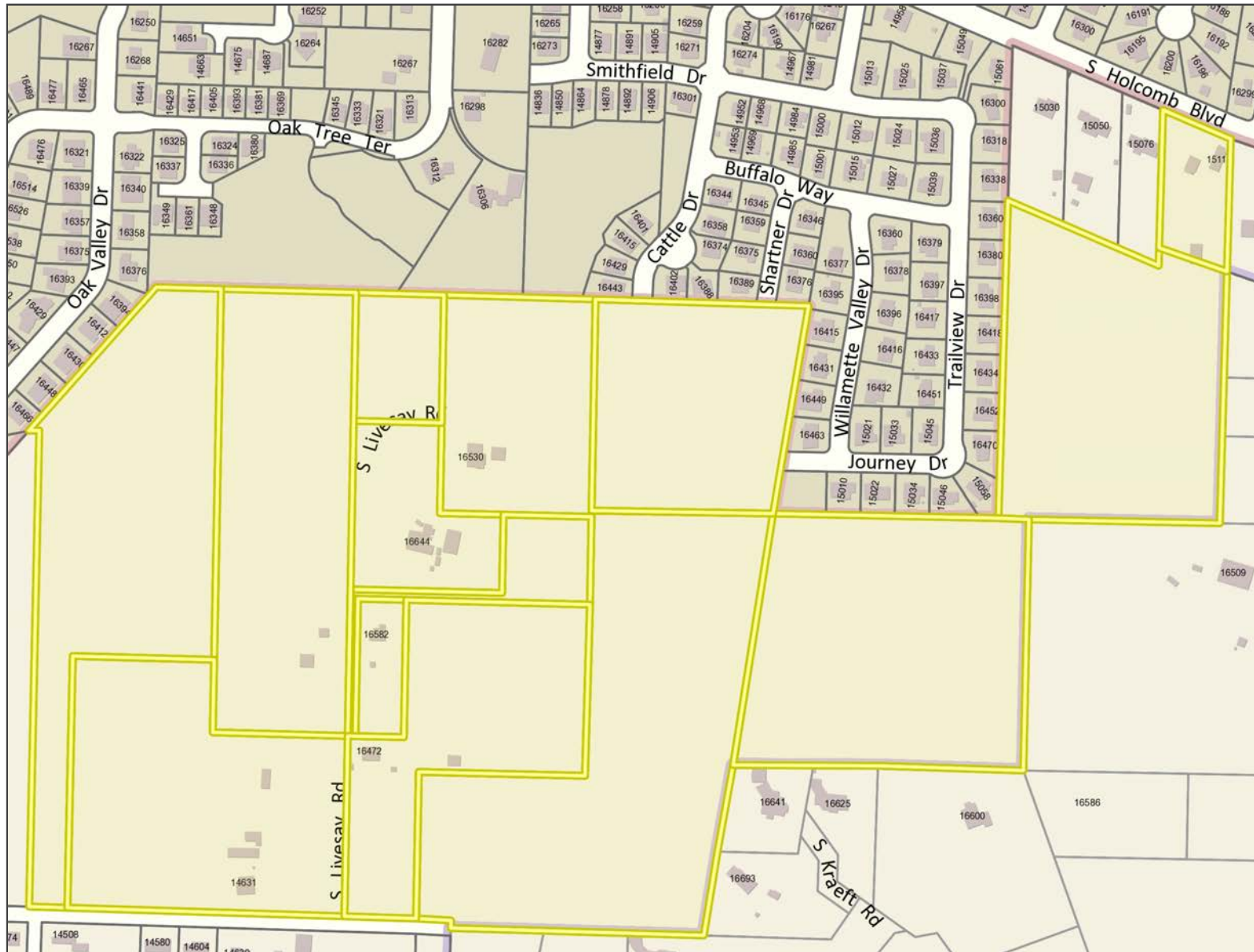
1. The application of the proposing Oregon City zoning designation shall not occur until the following are effective and acknowledged:
 - a. A refinement plan for Highway 213 at Beaver Creek Road (Alternative Mobility Targets), including elements such as financially constrained projects and alternative mobility standards, and amendments to OCMC Chapter 12.04 implementing the new Refinement Plan, are adopted and acknowledged.
 - b. Amendments to OCMC 12.04 which allow development affecting the intersection of Highway 213/Beaver Creek are adopted.
 - I. Adopt amendments to the City's Transportation System Plan and OCMC Chapter 12.04 to include projects that satisfy the then-applicable performance standards and these standards must be acknowledged; or
 - II. Condition the approval of a land division application that satisfies then-applicable OCMC Chapter 12.04 by including proportional mitigation of the application's impacts on that intersection, or such other mitigation measure(s) as may be approved which assure(s) that the intersection will either meet, or perform no worse than, the then-applicable performance standards
2. Prior to annexation, the property owners or assigns will record a covenant, to be approved by the City Attorney, which limits development of the site until such time that a zone change to a City zoning designation has been approved. The covenant shall acknowledge that development is reviewed for compliance with the Oregon City Municipal Code and Clackamas County Zoning and Development Ordinance. Further, until a zone change is approved the site use shall not change or intensify, or receive approval of a land division or development of the site including, but not limited to: no new structures or additions to existing structures or site grading that triggers erosion control permits or overlay district review. In addition the property shall be subject to the City's overlay districts, fence regulations in OCMC 17.54.100 as well as the City's nuisance, business licensing and animal regulations.
3. Prior to issuing any development approval other than as identified in condition of approval #2, the applicant shall obtain General and Detailed Development Plan approval, including the entire 91-acre property, pursuant to OCMC 17.65. The General Development Plan and all phases of development authorized by it, must implement the Park Place Concept Plan and Oregon City's adopted Public Facilities Plans with regard to the provision of open space, park and trails, sewer, water, stormwater and transportation improvements. These include, but are not limited to, addressing the timing of parkland acquisitions and development, proposed phasing of major roads to ensure a timely connection to Holly Lane and an analysis of utility phasing that can foster redevelopment of the entire concept plan area.

4. At such time as a Master Plan is reviewed, the applicant shall submit additional materials to address specific requirements outlined in the city's Guidelines for Transportation Impact Analyses and calculate the proportionate share of transportation impacts of the proposed development including proportional mitigation of the application's impacts on that intersection, or such other mitigation measure(s) as may be approved which assure(s) that the intersection will either meet, or perform no worse than, the then-applicable performance standards. More intense development than identified in this report is likely to increase the applicant's share of projects as calculated above. The applicant's final share may be modified as necessary when a Master Plan is approved to reflect any a modification of the development's trip generation or a change in project costs resulting from revisions to project costs associated with an updates to the City's Transportation System Plan or Capital Improvement program.
5. The subject property is within the Park Place Neighborhood Association boundaries. The applicant contacted the Park Place Neighborhood Association, as required by city standards, and a meeting was held on June 7, 2016 at Alliance Charter Academy. A second Neighborhood Meeting on December 6, 2016 was conducted in order to address the need to include a concurrent zone change application. Prior to approval of this application, the applicant shall provide staff with meeting agends or sign-in sheets for these to meetings.

EXHIBITS

1. Vicinity Map
2. Applicant's Submittal
3. Comments Received
 - a. March 13, 2017 letter from Mr. Wes Rogers, Director of Operations for Oregon City Public Schools
 - b. Oregon City Police Department comments
 - c. Christine Kosinski
4. Replinger and Associates Comments
5. Staff Memorandum in response to the applicant's analysis worksheet
6. Tri City Service District (TCSD) Annexation Packet

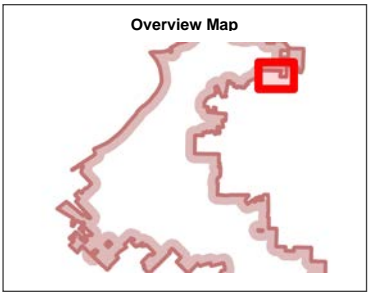
Oregon City GIS Map



Legend

- Taxlots
- Taxlots (Outside UGB)
- Unimproved ROW
- City Limits
- UGB
- Basemap

Notes



0 400 800 Feet

1: 4,800



The City of Oregon City makes no representations, express or implied, as to the accuracy, completeness and timeliness of the information displayed. This map is not suitable for legal, engineering, surveying or navigation purposes. Notification of any errors is appreciated.

Map created 12/19/2017

City of Oregon City
PO Box 3040
625 Center St
Oregon City
OR 97045
(503) 657-0891
www.orecity.org





LAND USE APPLICATION FORM

Type I (OCMC 17.50.030.A)

- ☐ Compatibility Review
- ☐ Lot Line Adjustment
- ☐ Non-Conforming Use Review
- ☐ Natural Resource (NROD) Verification
- ☐ Site Plan and Design Review

Type II (OCMC 17.50.030.B)

- ☐ Extension
- ☐ Detailed Development Review
- ☐ Geotechnical Hazards
- ☐ Minor Partition (<4 lots)
- ☐ Minor Site Plan & Design Review
- ☐ Non-Conforming Use Review
- ☐ Site Plan and Design Review
- ☐ Subdivision (4+ lots)
- ☐ Minor Variance
- ☐ Natural Resource (NROD) Review

Type III / IV (OCMC 17.50.030.C)

- ☐ Annexation
- ☐ Code Interpretation / Similar Use
- ☐ Concept Development Plan
- ☐ Conditional Use
- ☐ Comprehensive Plan Amendment (Text/Map)
- ☐ Detailed Development Plan
- ☐ Historic Review
- ☐ Municipal Code Amendment
- ☐ Variance
- ☒ Zone Change

File Number(s): ZC 17-05 AN 17-04

Proposed Land Use or Activity: Zone Change in conjunction with annexation of property to Oregon City, from County FU-10 to Oregon City R-5 and Neighborhood Commercial.

Project Name: N/A **Number of Lots Proposed (If Applicable):** N/A

Physical Address of Site: Multiple properties. See attached list.

Clackamas County Map and Tax Lot Number(s): 100, 190, 200, 300, 301, 302, 303, 400, 500, 502, 3700, and 3701 (Map # 2-2E-28D)

Applicant(s): 1000 and 2000 (Map # 2-2E-27B)

Applicant(s) Signature: [Signature]

Applicant(s) Name Printed: Mark Handris, Hidden Falls Development LLC **Date:** 11/28/17

Mailing Address: 1980 Willamette Falls Drive, Suite 200, West Linn, OR 97068

Phone: (503) 657-0406 **Fax:** (503) 655-5991 **Email:** handris@aol.com

Property Owner(s): Please see attached list. & signatures

Property Owner(s) Signature: _____

Property Owner(s) Name Printed: _____ **Date:** _____

Mailing Address: _____

Phone: _____ **Fax:** _____ **Email:** _____

Representative(s): _____

Representative(s) Signature: _____

Representative (s) Name Printed: Rick Givens, Planning Consultant **Date:** _____

Mailing Address: 18680 Sunblaze Drive, Oregon City, OR 97045

Phone: (503) 479-0097 **Fax:** _____ **Email:** rickgivens@gmail.com

All signatures represented must have the full legal capacity and hereby authorize the filing of this application and certify that the information and exhibits herewith are correct and indicate the parties willingness to comply with all code requirements.

Annexation and Zone Change Authorization

Redland Road, LLC is the owner of the property described below and hereby authorizes that it be included in the zone change and annexation application indicated on the attached Oregon City land use application form.

| | |
|------------------|-------------------|
| Property Address | Legal Description |
| No Situs Address | 2-2E-28D -03701 |

| | |
|-----------------|----------------------------------------|
| Owner | Redland Road, LLC |
| Mailing Address | 1980 Willamette Falls Drive, Suite 200 |
| | West Linn, OR 97068 |



Redland Road, LLC, By: Mark Handris

1/10/18

Date

Annexation and Zone Change Authorization

I, Michael Erickson, am the owner of the properties described below and I hereby authorize that they be included in the zone change and annexation application indicated on the attached Oregon City land use application form.

| Property Address | Legal Description |
|----------------------|-------------------|
| NO SITUS ADDRESS | 2-2E-27B -01000 |
| 15110 S HOLCOMB BLVD | 2-2E-27B -02000 |

| | |
|-----------------|------------------------------|
| Owner | Michael Erickson |
| Mailing Address | 10260 SW Greenburg Rd. #1020 |
| | Tigard, OR 97223 |



Michael Erickson

12-6-17

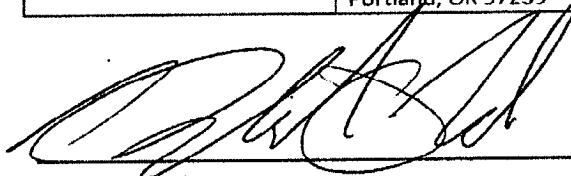
Date

Annexation and Zone Change Authorization

I, Robert Tershel, am the owner of the property described below and I hereby authorize that it be included in the zone change and annexation application indicated on the attached Oregon City land use application form.

| | |
|--------------------|-------------------|
| Property Address | Legal Description |
| 14631 S Livesay Rd | 2-2E-28D -00502 |

| | |
|-----------------|---------------------|
| Owner | Robert Tershel |
| Mailing Address | 5933 SW Ralston Dr. |
| | Portland, OR 97239 |


Robert Tershel

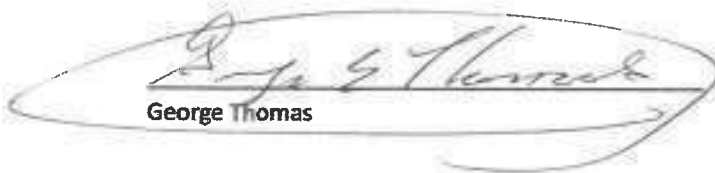
Date 1/7/2018

Annexation and Zone Change Authorization

I, George Thomas, am the owner of the properties described below and I hereby authorize that they be included in the zone change and annexation application indicated on the attached Oregon City land use application form.

| | |
|--------------------|-------------------|
| Property Address | Legal Description |
| 16644 S Livesay Rd | 2-2E-28D -00300 |
| No Situs Address | 2-2E-28D -00301 |
| No Situs Address | 2-2E-28D -00303 |

| | |
|-----------------|-----------------------|
| Owner | George Thomas |
| Mailing Address | 16644 S Livesay Rd |
| | Oregon City, OR 97045 |



George Thomas

11-28-2017
Date

Annexation and Zone Change Authorization


We, Kirk and Michelle Tolstrup, are the owners of the property described below. We hereby authorize that it be included in the zone change and annexation application indicated on the attached Oregon City land use application form.

| Property Address | Legal Description |
|--------------------|-------------------|
| 16530 S LIVESAY RD | 2-2E-28D -00200 |

| Owners | Kirk and Michelle Tolstrup |
|-----------------|----------------------------|
| Mailing Address | 16530 S Livesay Rd |
| | Oregon City, OR 97045 |


Kirk Tolstrup

11/30/2017
Date


Michelle Tolstrup

11-30-17
Date

Annexation and Zone Change Authorization

I, Michael Erickson, am the owner of the properties described below and I hereby authorize that they be included in the zone change and annexation application indicated on the attached Oregon City land use application form.

| Property Address | Legal Description |
|----------------------|-------------------|
| NO SITUS ADDRESS | 2-2E-27B -01000 |
| 15110 S HOLCOMB BLVD | 2-2E-27B -02000 |

| | |
|-----------------|------------------------------|
| Owner | Michael Erickson |
| Mailing Address | 10260 SW Greenburg Rd. #1020 |
| | Tigard, OR 97223 |



Michael Erickson

12-6-17

Date



LAND USE APPLICATION FORM

| Type I (OCMC 17.50.030.A) | Type II (OCMC 17.50.030.B) | Type III / IV (OCMC 17.50.030.C) |
|---------------------------------------------------------------|----------------------------------------------------------|------------------------------------------------------------------|
| <input type="checkbox"/> Compatibility Review | <input type="checkbox"/> Extension | <input type="checkbox"/> Annexation |
| <input type="checkbox"/> Lot Line Adjustment | <input type="checkbox"/> Detailed Development Review | <input type="checkbox"/> Code Interpretation / Similar Use |
| <input type="checkbox"/> Non-Conforming Use Review | <input type="checkbox"/> Geotechnical Hazards | <input type="checkbox"/> Concept Development Plan |
| <input type="checkbox"/> Natural Resource (NROD) Verification | <input type="checkbox"/> Minor Partition (<4 lots) | <input type="checkbox"/> Conditional Use |
| <input type="checkbox"/> Site Plan and Design Review | <input type="checkbox"/> Minor Site Plan & Design Review | <input type="checkbox"/> Comprehensive Plan Amendment (Text/Map) |
| | <input type="checkbox"/> Non-Conforming Use Review | <input type="checkbox"/> Detailed Development Plan |
| | <input type="checkbox"/> Site Plan and Design Review | <input type="checkbox"/> Historic Review |
| | <input type="checkbox"/> Subdivision (4+ lots) | <input type="checkbox"/> Municipal Code Amendment |
| | <input type="checkbox"/> Minor Variance | <input type="checkbox"/> Variance |
| | <input type="checkbox"/> Natural Resource (NROD) Review | <input checked="" type="checkbox"/> Zone Change |

File Number(s): _____

Proposed Land Use or Activity: Zone Change in conjunction with annexation of property to Oregon City, from County FU-10 to Oregon City R-5 and Neighborhood Commercial.

Project Name: N/A **Number of Lots Proposed (If Applicable):** N/A

Physical Address of Site: Multiple properties. See attached list.

Clackamas County Map and Tax Lot Number(s): 100, 190, 200, 300, 301, 302, 303, 400, 500, 502, 3700, and 3701 (Map # 2-2E-28D)
1000 and 2000 (Map # 2-2E-27B)

Applicant(s):

Applicant(s) Signature: _____

Applicant(s) Name Printed: Mark Handris, Hidden Falls Development LLC **Date:** _____

Mailing Address: 1980 Willamette Falls Drive, Suite 200, West Linn, OR 97068

Phone: (503) 657-0406 **Fax:** (503) 655-5991 **Email:** handris@aol.com

Property Owner(s):

Property Owner(s) Signature: Please see attached list. & signatures

Property Owner(s) Name Printed: _____ **Date:** _____

Mailing Address: _____

Phone: _____ **Fax:** _____ **Email:** _____

Representative(s):

Representative(s) Signature: _____

Representative (s) Name Printed: Rick Givens, Planning Consultant **Date:** _____

Mailing Address: 18680 Sunblaze Drive, Oregon City, OR 97045

Phone: (503) 479-0097 **Fax:** _____ **Email:** rickgivens@gmail.com


All signatures represented must have the full legal capacity and hereby authorize the filing of this application and certify that the information and exhibits herewith are correct and indicate the parties willingness to comply with all code requirements.

Annexation and Zone Change Authorization

I, George Thomas, am the owner of the properties described below and I hereby authorize that they be included in the zone change and annexation application indicated on the attached Oregon City land use application form.

| Property Address | Legal Description |
|--------------------|-------------------|
| 16644 S Livesay Rd | 2-2E-28D -00300 |
| No Situs Address | 2-2E-28D -00301 |
| No Situs Address | 2-2E-28D -00303 |

| | |
|-----------------|-----------------------|
| Owner | George Thomas |
| Mailing Address | 16644 S Livesay Rd |
| | Oregon City, OR 97045 |


George Thomas

11-28-2017
Date

List of Properties Included in Annexation/Zone Change

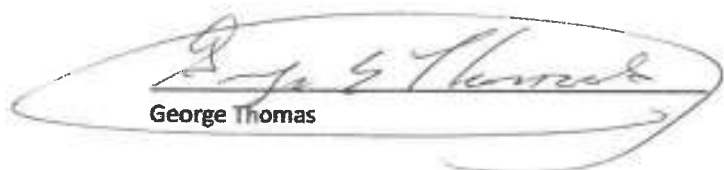
| Address | Legal Description | Acreage |
|-----------------------------|--------------------------|----------------|
| NO SITUS ADDRESS | 2-2E-27B -01000 | 9.69 |
| 15110 S Holcomb Blvd | 2-2E-27B -02000 | 1.45 |
| No Situs Address | 2-2E-28D -00100 | 14.11 |
| No Situs Address | 2-2E-28D -00190 | 10.75 |
| 16530 S Livesay Rd | 2-2E-28D -00200 | 5.17 |
| 16644 S Livesay Rd | 2-2E-28D -00300 | 3.1 |
| No Situs Address | 2-2E-28D -00301 | 1.43 |
| No Situs Address | 2-2E-28D -00302 | 0.16 |
| No Situs Address | 2-2E-28D -00303 | 1.77 |
| 16582 S Livesay Rd | 2-2E-28D -00400 | 10.43 |
| 14631 S Livesay Rd | 2-2E-28D -00500 | 10.73 |
| 14631 S Livesay Rd | 2-2E-28D -00502 | 9.42 |
| 16472 S Livesay Rd | 2-2E-28D -03700 | 6.86 |
| No Situs Address | 2-2E-28D -03701 | 6.48 |

Annexation and Zone Change Authorization

I, George Thomas, am the owner of the properties described below and I hereby authorize that they be included in the zone change and annexation application indicated on the attached Oregon City land use application form.

| Property Address | Legal Description |
|--------------------|-------------------|
| 16644 S Livesay Rd | 2-2E-28D -00300 |
| No Situs Address | 2-2E-28D -00301 |
| No Situs Address | 2-2E-28D -00303 |

| Owner | George Thomas |
|-----------------|-----------------------|
| Mailing Address | 16644 S Livesay Rd |
| | Oregon City, OR 97045 |


George Thomas

11-28-2017
Date

Annexation and Zone Change Authorization

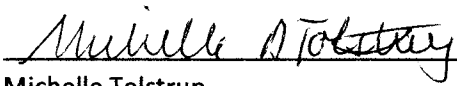
We, Kirk and Michelle Tolstrup, are the owners of the property described below. We hereby authorize that it be included in the zone change and annexation application indicated on the attached Oregon City land use application form.

| Property Address | Legal Description |
|--------------------|-------------------|
| 16530 S LIVESAY RD | 2-2E-28D -00200 |

| Owners | Kirk and Michelle Tolstrup |
|-----------------|----------------------------|
| Mailing Address | 16530 S Livesay Rd |
| | Oregon City, OR 97045 |


Kirk Tolstrup

11/30/2017
Date


Michelle Tolstrup

11-30-17
Date

Annexation & Zone Change Narrative

91 Acres, Holcomb Blvd./Livesay Rd.

Introduction:

This application requests approval of the annexation of approximately 91 acres of land within the Portland Metropolitan Urban Growth Boundary (“UGB”) to the City of Oregon City. This application also requests that City apply zoning to the annexed area in conformance with the land use designations in the adopted and acknowledged Oregon City Comprehensive Plan. The subject property is located on the south side of Holcomb Blvd. west of its intersection with Jada Way. Livesay Road forms the southerly border of the annexation area. Journey Drive, Shartner Drive, and Cattle Drive are all stubbed into the subject area from existing residential neighborhoods to the north.

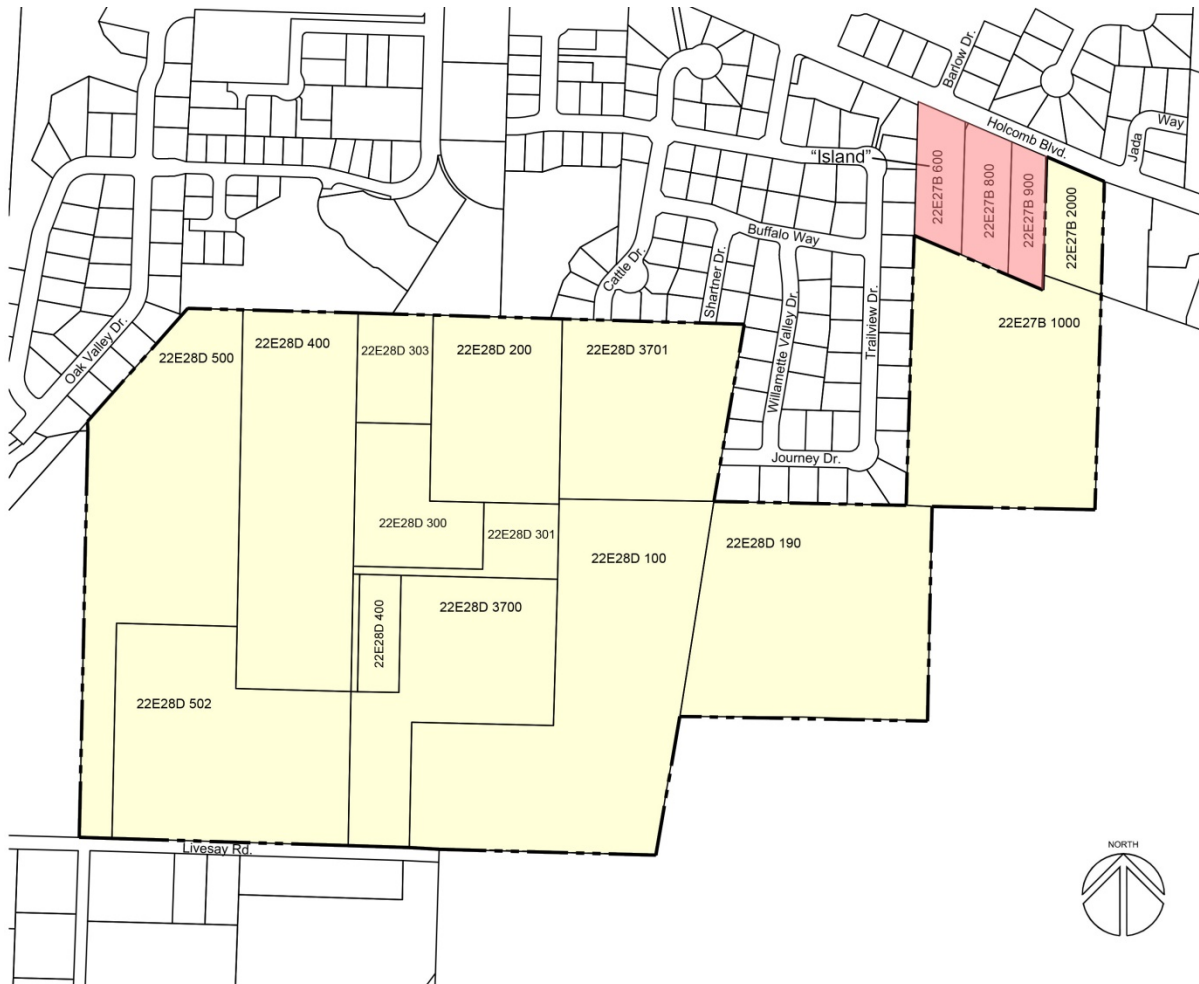


Figure 1: Vicinity Map

The subject property is comprised of the following parcels: Tax Lots 1000 and 2000 of Clackamas County Assessor's Map 22E27B, and Tax Lots 100, 190, 300, 301, 302, 303, 400, 500, 502, 3700 & 3701 of Assessor's Map 22E 28D.

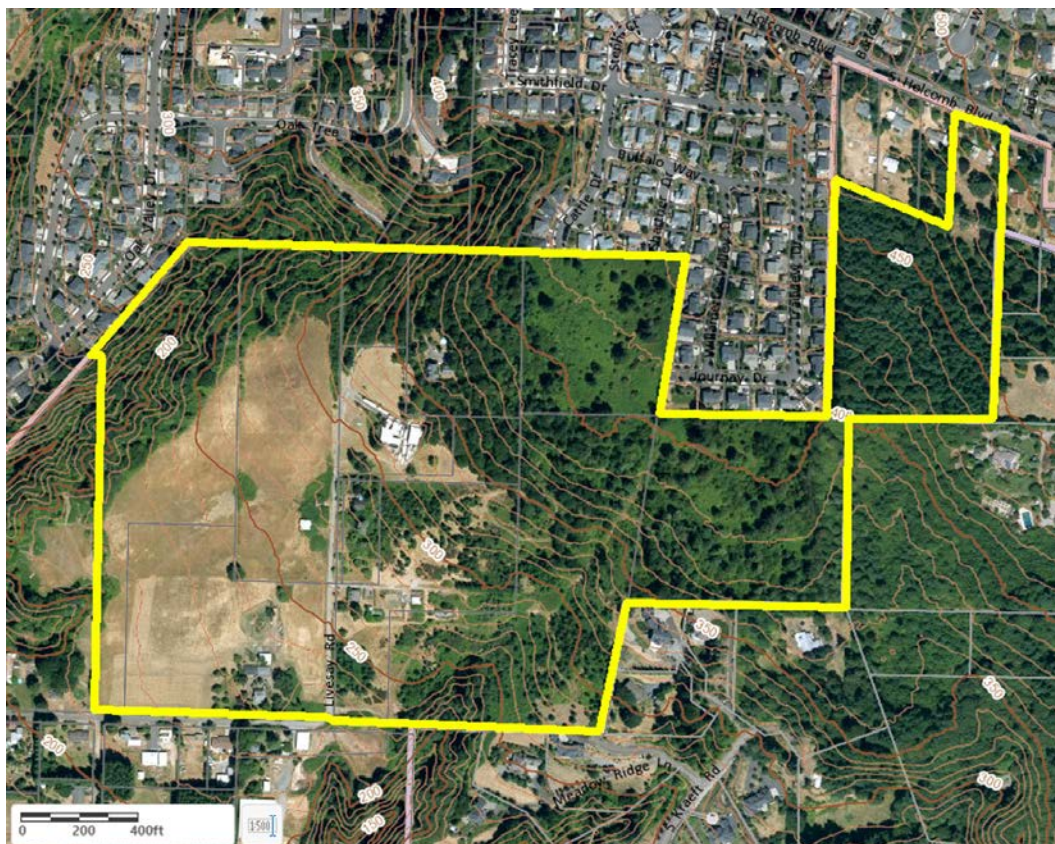
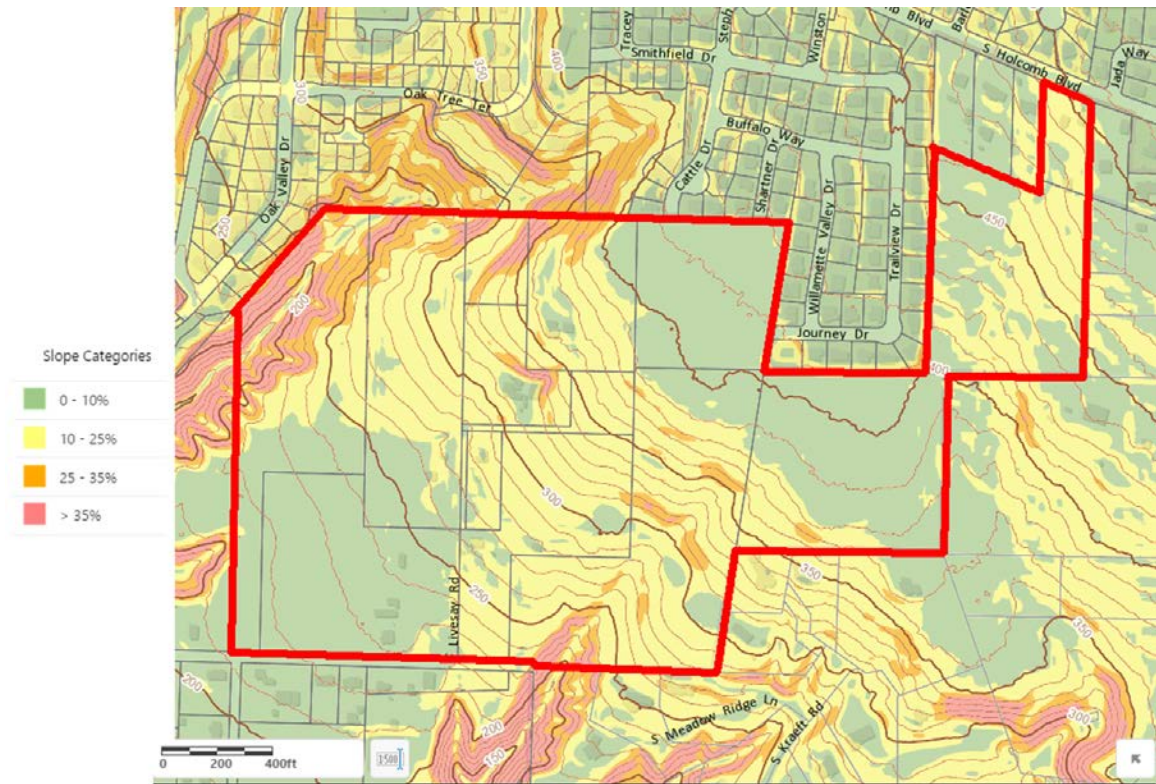
There is no proposal to develop this site at the present time. Rather, the property is proposed to be annexed and re-zoned in accordance with the land use designations shown on the adopted Oregon City Comprehensive Plan Map.

The annexation area is located in a portion of the Oregon City planning area that relies upon streets that intersect with the Highway 213 corridor. In 2012, during the Transportation System Plan (TSP) update, it was determined that the intersection of Hwy 213 & Beavercreek Road would not meet Oregon Highway Plan mobility standards through the TSP planning horizon year of 2035. The TSP recommended that the City move forward with a project to address the need for a refinement plan at this intersection. The City is presently working with citizen groups and ODOT to consider options to improve traffic function at this intersection, as well as the Hwy. 213, Redland Rd. intersection. Ultimately, this process will lead to a refinement plan and the adoption of alternative mobility targets. Until issues regarding transportation planning impacting the Hwy. 213 corridor are resolved, it would not be possible for any development in this area to conform to the standards of Chapter 12 of the Oregon City Municipal Code. Therefore, the City is unable to approve any development that would allow for increased traffic in this area. As a result, a condition of approval will be applied to the zone change that would preclude further development until such time as the refinement plan and alternative mobility targets are adopted. At such time as the traffic issues are resolved, a separate application for land use approvals needed to adopt a master plan consistent with the Park Place Concept Plan will be filed.

Site Characteristics:

The properties included within this annexation proposal contain a total of 7 single-family homes developed at rural densities on acreage tracts. The properties are located in the North Village Neighborhood area identified in the Park Place Concept Plan. As discussed later in this report, the future development of the subject property will provide for a mixture of residential, park, natural open space areas, and neighborhood commercial development consistent with the Park Place Concept Plan. It will also provide a needed step in developing Holly Lane as a collector street extension that will eventually connect from S. Holcomb Blvd. to Redland Rd.

Slopes are varied, with most areas having between zero and 25 percent grade. Slopes adjacent to the drainageway that forms the northwest border of the annexation area exceed 35% grade in certain areas. The property slopes generally to the southwest, downhill from Holcomb Blvd.



As shown Figure 2, an aerial photograph from the City's GIS, the annexation area has mixed vegetation cover. The drainageway in the northwest corner of the area is wooded, as are some of the steeper grades, as well as Tax Lot 1000, on the eastern border of the annexation area. Open fields are found north of Livesay Road.

Compliance with Approval Criteria:

1. Concurrent Zoning Map Amendment from FU-10 to R-5, R-10 & NC.

The Site has acknowledged Oregon City Comprehensive Plan Map designations of Medium Density Residential (MR), Low Density Residential (LDR) and Mixed Use-Corridor (MUC). Oregon City Municipal Code ("OCMC") 17.68.025.A. provides that "notwithstanding any other section of this code", a concurrent zoning map application under OCMC Chapter 17.50 is required. Further, this section requires that the zoning map designation correlate to the corresponding Comprehensive Plan map designation for the site as shown in OCMC 17.68.025.A. The section is mandatory; it provides that "the property *shall* be rezoned upon annexation to the corresponding zoning designation as follows..."(emphasis added). In other words, there is no discretion to be applied to the zoning map amendment and not only is a concurrent zoning map amendment required, the outcome is automatic based on the acknowledged OCMC. Further, compliance with OCMC Chapter 17.50 requires a zoning map amendment application but does not require compliance with the discretionary zoning map amendment application criteria in OCMC 17.68.020.

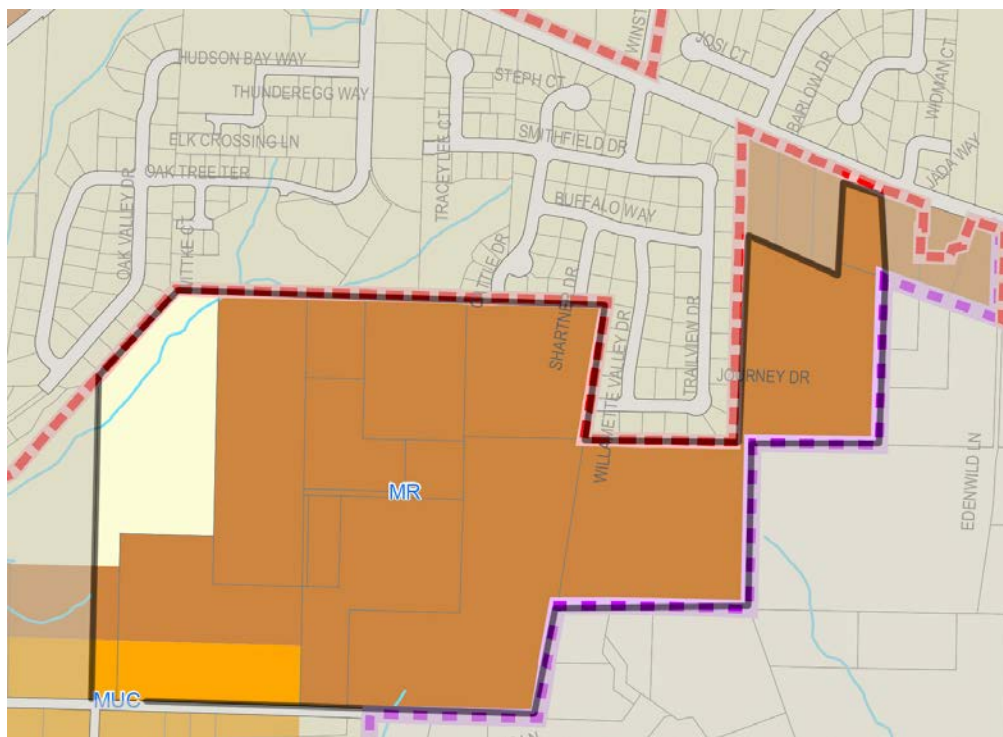


Figure 4: Comprehensive Plan Designations

In this instance, the zoning districts to be applied per the table in OCMC 17.68.025.A are R-5 for the MR area, R-10 for the LDR area, and Neighborhood Commercial (NC) for the MUC area. The Planning Commission can find that the Application satisfies the approval criteria in OCMC 17.68.025.A. and B. and the zoning map amendment shall be approved.

2. Transportation a Planning Rule ("TPR") Compliance.

OAR 660-012-0060(1) and (2) require land use regulation amendments, including amendments to zoning maps, to determine if the amendment will have a "significant affect" on transportation facilities and, if so, can it be mitigated. However, OAR 660-012-0060(9) provides that a zoning map amendment does not need to include this analysis, and the City can make a finding of no "significant affect", if:

- a. A zoning map amendment is consistent with the existing comprehensive plan designation and does not change the map designation;
- b. The City has an acknowledged Transportation System Plan ("TSP"); and
- c. The area of the zoning map amendment was not exempted from the TPR at the time of the UGB amendment. OAR 660-012-0060(9)(a)-(c).

The subject property complies with these criteria as follows:

- a. Oregon City's Comprehensive Plan Land Use Map within the acknowledged Oregon City Comprehensive Plan designates the subject property Low Density Residential, Medium Density Residential, and Mixed Use Commercial. The proposed zoning amendment would not change the map designation and the R-10, R-5 and NC zoning are implementing zones for those designations.
- b. An updated Transportation System Plan (TSP) and associated amendments to the Oregon City Municipal Code (OCMC) was approved by the City Commission and became effective August 16, 2013. Information provided by City staff at the pre-application conference on November 29, 2016 indicate that this TSP is based upon the application of the default zoning consistent with the adopted Comprehensive Plan designations for this area.
- c. The subject property has been in the City's UGB since the time of the adoption of the Comprehensive Plan and was not exempted from the Transportation Planning Rule.

The City can find that all three (3) of these requirements are met. Therefore, the City can find that the zoning map amendment does not "significantly affect" a transportation facility.

Finally, OCMC Title 12 does not apply to the concurrent annexation and zoning map amendments as they do not constitute "development" as that term is defined in the OCMC and ORS 227.160(2). The City will apply OCMC Title 12 when "development" is proposed for this

site. A condition of approval will be applied to the zone change application to ensure that development does not occur until such time as the requirements of Title 12 can be met.

Alternatively, the applicant would expect to propose that the City adopt a condition of approval based on OAR 660-012-0060(2)(e) similar to that in the Serres Farm annexation application.

Compliance with Title 14 – Annexations:

OCMC 14.04.050 Annexation Procedures

This section lists the submittal requirements and procedures to be followed in annexing property to the City of Oregon City.

- A. Application Filing Deadlines. Annexation elections shall be scheduled for March, May, September and November of each year. Each application shall first be approved by the city commission, which shall provide a valid ballot title in sufficient time for the matter to be submitted to the voters as provided by the election laws of the state of Oregon.*

Comment: SB 1573 is a validly enacted law. SB 1573 provides that, assuming certain conditions are met, charter and municipal code provisions requiring voter approval of annexations may not be applied. The requirements are that a site to be annexed must be within an Urban Growth Boundary (“UGB”), is subject to and complies with the acknowledged Comprehensive Plan and is contiguous to the City to which the real property is proposed to be annexed. In the case of this application, all of these conditions are met. The City has an acknowledged Comprehensive Plan. This application satisfies Plan Policies relevant to annexation and the concurrent Comprehensive Plan map and zoning map applications. Finally, the property to be annexed is contiguous to the City’s current boundaries.

- B. Preapplication Review. Prior to submitting an annexation application, the applicant shall confer in the manner provided by Section 17.50.050(A) with the representative of the planning division appointed by the city manager.*

Comment: The initial pre-application conference to discuss the annexation of the subject property was held on November 17, 2015 (PA 15-35). Because the application was not submitted within six months of the pre-app date, and because the size of the annexation area increased, a second pre-application conference was held on October 3, 2016 (PA 16-40). The notes from this second pre-application conference were included in the initial submittal package for the annexation application. An additional pre-application conference was held on November 29, 2016 to discuss a zone change in conjunction with annexation.

- C. Neighborhood Contact. Prior to filing an annexation application, the applicant is encouraged to meet with the city-recognized neighborhood association or associations within which the property proposed to be annexed is located. If the city manager deems*

that more than one such association is affected, the applicant is encouraged to meet with each such association, as identified by the city manager. Unwillingness or unreasonable unavailability of a neighborhood association to meet shall not be deemed a negative factor in the evaluation of the annexation application.

Comment: The subject property is within the Park Place Neighborhood Association boundaries. The applicant contacted the Park Place Neighborhood Association, as required by city standards, and a meeting was held on June 7, 2016 at Alliance Charter Academy. A second neighborhood meeting was held on December 6, 2016 at 7:00pm at Alliance Charter Academy to discuss the application of city zoning to the annexation area.

- D. Signatures on Consent Form and Application. The applicant shall sign the consent form and the application for annexation. If the applicant is not the owner of the property proposed for annexation, the owner shall sign the consent form and application in writing before the city manager may accept the same for review.*

Comment: The consent form and the application for annexation are signed by the owners of record for the subject property.

- E. Contents of Application. An applicant seeking to annex land to the city shall file with the city the appropriate application form approved by the city manager. The application shall include the following:*

- 1. Written consent form to the annexation signed by the requisite number of affected property owners, electors or both, provided by ORS 222, if applicable;*
- 2. A legal description of the territory to be annexed, meeting the relevant requirements of the Metro Code and ORS Ch. 308. If such a description is not submitted, a boundary survey may be required. A lot and block description may be substituted for the metes and bounds description if the area is platted. If the legal description contains any deed or book and page references, legible copies of these shall be submitted with the legal description;*
- 3. A list of property owners within three hundred feet of the subject property and, if applicable, those property owners that will be "islanded" by the annexation proposal, on mailing labels acceptable to the city manager;*
- 4. Two full quarter-section county tax assessor's maps, with the subject property(ies) outlined;*
- 5. A site plan, drawn to scale (not greater than one inch = fifty feet), indicating:*
- 6. If applicable, a double-majority worksheet, certification of ownership and voters. Certification of legal description and map, and boundary change data sheet on forms provided by the city.*

Comment: The materials required in items 1 through 6 are included in our application submittal. Note that the applicant has paid the required fee for the City of Oregon City to provide the list and mailing labels for properties within three hundred feet of the subject

property and that this will include those property owners who will be “islanded” by the annexation proposal. The owners of the three islanded properties are as follows:

22E27B 00600: John & Joanne Miller, Kevin R. & Linda S. Miller
15030 S Holcomb Blvd.
Oregon City, OR 97045

22E27B 00800: Tod R. & Deanna L. Townsend
15050 S. Holcomb Blvd.
Oregon City, OR 97045

22E27B 00900: Mickey & Barbara Clift
15076 S. Holcomb Blvd.
Oregon City, OR 97045

7. *A narrative statement explaining the conditions surrounding the proposal and addressing the factors contained in the ordinance codified in this chapter, as relevant, including:*
- a. *Statement of availability, capacity and status of existing water, sewer, drainage, transportation, park and school facilities;*
 - b. *Statement of increased demand for such facilities to be generated by the proposed development, if any, at this time;*
 - c. *Statement of additional facilities, if any, required to meet the increased demand and any proposed phasing of such facilities in accordance with projected demand;*

Comment: There is no proposal to develop the subject property at the present time. Development cannot occur because it is not possible to meet the criteria of Chapter 12 of the OCMC until such time as Alternative Mobility Standards are adopted by the City of Oregon City. However, services are available to allow for the future development of this site at such time as the transportation issues are resolved. A condition of approval will be applied to the zone change to prohibit development beyond what is allowed under existing County zoning until such time as it is possible to meet the Alternative Mobility Standards.

The following information describes the existing availability, estimate of increased demand, and notes improvements that may be required to provide these services:

Water: The annexation area is currently partially served by the Clackamas River Water District (CRW). The City and CRW have an urban service agreement (Holcomb-Outlook-Park Place or HOPP agreement) for portions of the annexation area. The HOPP agreement generally states that CRW will service homes above the 450 foot elevation within the specified HOPP boundary. Only the upper northeast corner of the annexation area, near Holcomb Blvd. would be within the area to be served by CRW, as shown on the map below.

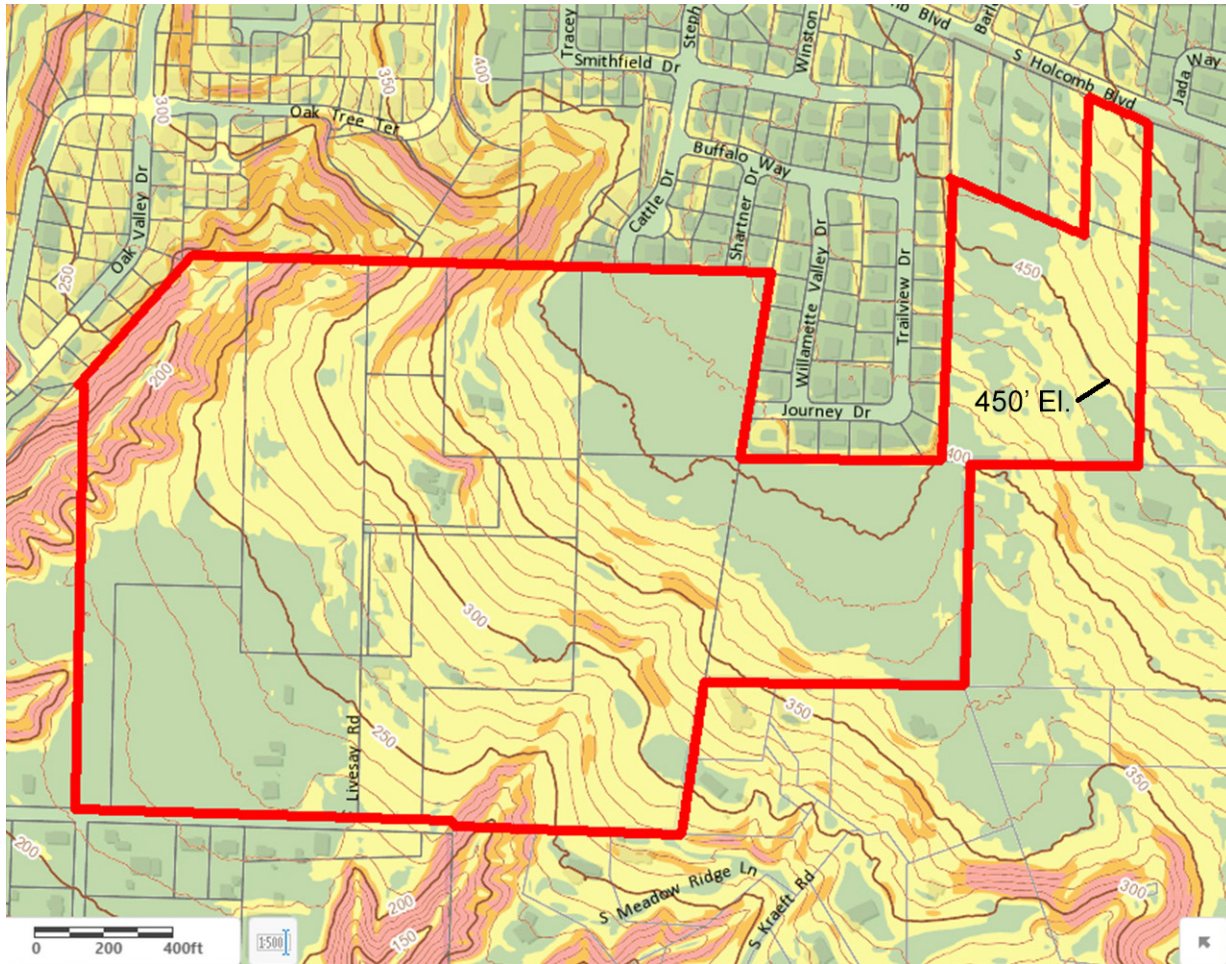


Figure 5: HOPP Service Area (Above 450' Elevation)

At the most recent pre-application conference (PA-16-40), information was presented by Clackamas River Water District indicating that there they have an issue in meeting the required fire flow standard of 1,000 gallons per minute. That issue is expected to be resolved with system upgrades that include replacing approximately 4,000 lineal feet of substandard water main within S Bradley Road with a 12-inch pipe. This improvement would be provided in conjunction with the construction of the Abernethy Landing subdivision (TP 16-0001). Contact with Adam M. Bjornstedt, P.E., Principal Engineer for CRW, on November 6, 2017, indicate that the plans for that project are on schedule. CRW has an existing 12" water line in Holcomb Blvd. that is capable of providing for service to the portion of the subject property that is within the HOPP area. Mr. Bjornstedt indicated that CRW has adequate storage capacity.

The majority of the site will be served with by the City of Oregon City. There is an existing 16-inch City of Oregon City water main in Holcomb Blvd. along the subject property's frontage on that street. A 4-inch water line is located in Livesay Road at the lower end of the subject property. There will be a requirement to construct a 12 inch water main in the future collector street from Holcomb Blvd. to Livesay Road, together with a pressure reducing station and the cost of removing an existing water pump station on Livesay Road. At the present time the additional costs for these improvements are not included in the City's capital improvement

program. The applicant will be seeking to have the CIP amended prior to development to include these regional costs.

We estimate that at full build-out the future development of the annexation properties will yield between 400 and 450 residential dwelling units. The City and Clackamas River Water District have adequate water storage capacity to service the proposed annexation area. The details of water service for the subject property will be worked out at the time of future development, but there is an adequate water supply available in the area to service this site. For the immediate future, until future development occurs, the existing homes within the annexation area will continue to make use of private wells and Clackamas River Water service.

Sanitary Sewer: The existing homes within the annexation area are served with private septic systems and these facilities will remain in place until such time as the area is developed in the future. The Oregon City Sanitary Sewer Master Plan calls for service to this area to be provided in accordance with the figure below:

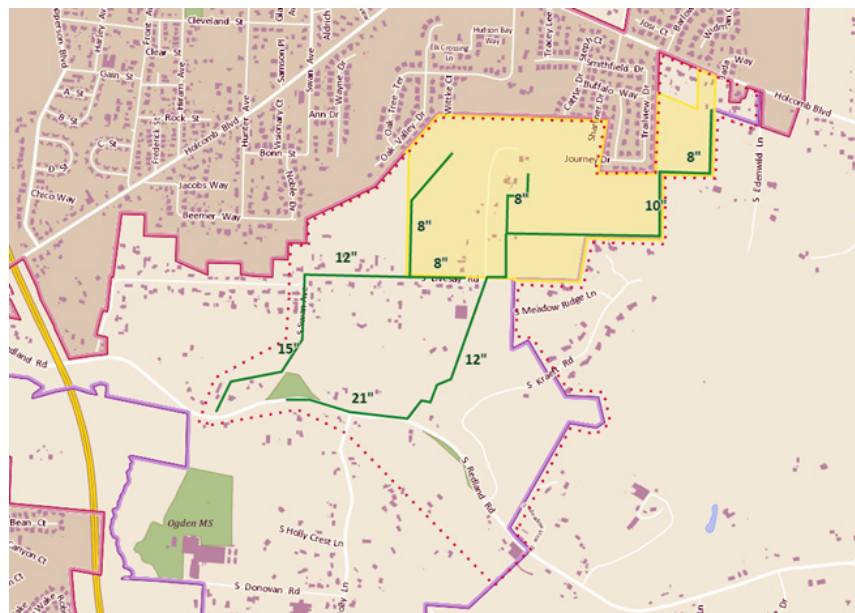


Figure 6: Sewer Master Plan

As a practical matter, the sewer master plan was prepared absent knowledge of the order in which the North Village area would be developed. It is practicable to service all of the proposed annexation area either from the Livesay Road sewer main or from the easterly sewer main. It would not be necessary to construct both of the off-site sewer lines in order to service the annexation area. Since the Livesay Road sewer is largely to be located within existing public road right-of-way, that would be the most likely route to be used in the future development of this area. The cost of this off-site sewer would be borne by the future developer, likely with a pay-back provision for a proportionate contribution for use by others as downhill properties are developed in the future.

The cost of the off-site sewer will be impacted significantly whether the project is done by the City or as a private construction project. We have completed City work sheets on estimated

costs based upon information from the City's water and sewer master plans. We estimate that private construction would save at least 25 to 30 percent over public construction costs.

Storm Drainage: An existing storm sewer system drains across a portion of the subject property serving the Trail Ridge subdivision to the north of this site. Based upon natural topography, storm water run-off generated from future development will generally flow in a southerly direction from Holcomb Blvd. and will need to be conveyed to natural drainage channels as shown on the map below.

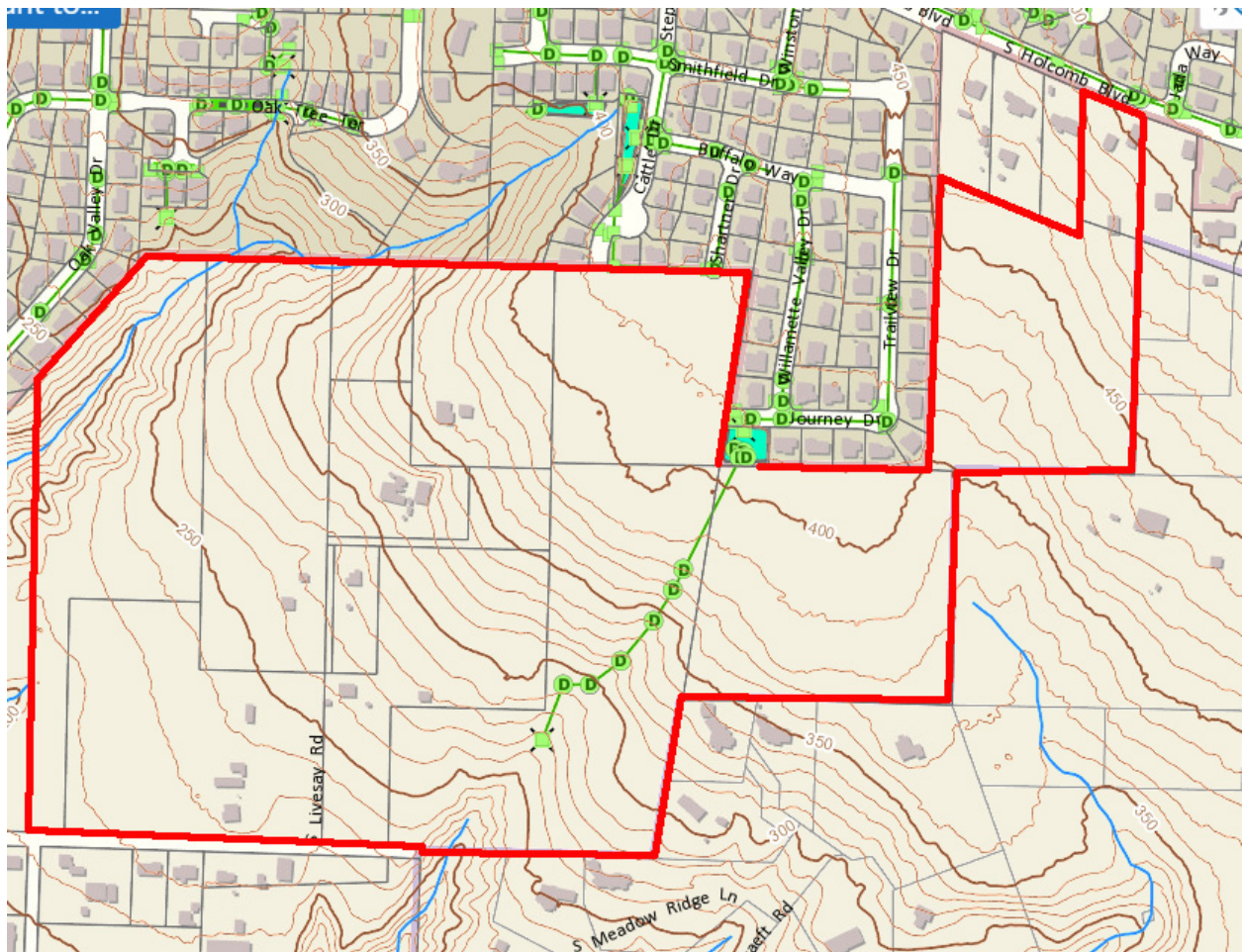


Figure 7: Storm Drainage

The future development of the site will require the construction of a storm sewer system that will collect runoff from the development. Storm water treatment and detention facilities will be required in accordance with City standards prior to release of storm water to the natural drainageways. The detention facilities will maintain the rate of runoff at predevelopment rates per City standards.

Transportation: No development of this property is being proposed at this time. No development may occur until such time as the requirements of OCMC Title 12 can be met.

This will not be feasible until Alternative Mobility standards are adopted by the City and approved by the ODOT. It is understood by the applicant that there are on-going regional transportation discussions between the City, Metro and ODOT affecting the larger Park Place Neighborhood area that will need to be resolved before development may be approved. Because no development will occur as a direct result of this annexation, the transportation analysis will be deferred until the time of a future development application. A condition of approval is proposed to be added to the zone change that would prohibit development until the transportation issues are resolved. Please see the discussion under the zone change portion of this application.

The primary access to the subject property will be from Holcomb Blvd., an arterial street. The Park Place Concept Plan calls for the future extension of Holly Lane as a collector street through the annexation area from Redland Road through to Holcomb Blvd. Local streets are stubbed to the annexation area from adjacent single-family neighborhoods at Journey Drive, Shartner Drive, and Cattle Drive and in the future development of this site, connections to these streets will be made. Livesay Road forms the lower border of the subject property and will be tied into the future development plan. Please refer to the Transportation Impact Analysis prepared by Lancaster Engineering, Inc. for more details on the transportation system.

The City has requested that we address the potential impacts of the future development of the proposed annexation area upon projects identified in the TSP for the area in proximity to the annexation. The applicable TSP projects are listed in the table below:

| Proj. Number | Project Description | Project Extent | Project Elements | Phase | Likely to be funded ? |
|--------------|----------------------------------------------------------------------|---------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|-----------------------|
| D15 | Holcomb Boulevard Curve Warning System | Holcomb Boulevard just to the west of the OR 213 overcrossing | Install a curve warning system on Holcomb Boulevard that activates when a motorist approaches the curve at a high speed. | Long-term Phase 3 | No |
| D16 | Holcomb Boulevard Speed Warning System | Holcomb Boulevard east of Jada Way | Install a speed warning system that activates when a motorist approaches at high speed. | Long-Term Phase 4 | No |
| D35 | Redland Road/Anchor Way Operational Enhancement | Redland Road/Anchor Way | Install a traffic signal | Long-Term Phase 4 | No |
| D36 | Redland Road/Holly Lane Operational Enhancement | Redland Road/Holly Lane | Install a single-lane roundabout | Long-term Phase 4 | No |
| D43 | Holcomb Boulevard/Holly Lane North Extension Operational Enhancement | Holcomb Boulevard/Holly Lane North Extension | Install a single-lane roundabout | Long-term | Yes |
| D48 | Holly Lane North extension | Redland Road to Holcomb Blvd | Extend Holly Lane from Redland Road to Holcomb Boulevard as a Residential Minor Arterial. Create local street connections to Cattle Drive and Journey Drive. | Long-term | Yes |
| D49 | Swan Avenue extension | Livesay Road to Redland Road | Extend Swan Avenue from Livesay Road to Redland Road as an Residential Collector | Long-term | Yes |
| D50 | Swan Avenue extension | Redland Road to Morton Road | Extend Swan Avenue from Redland Road to Morton Road as an Residential Collector | Long-term | Yes |
| D86 | Livesay Road Upgrade | Redland Road to Swan Avenue | Improve to Residential Collector cross-section. | Long-term Phase 3 | No |
| D87 | Livesay Road Upgrade | Swan Avenue to Holly Lane extension | Improve to Mixed-Use Collector cross-section. | Long-term Phase 3 | No |
| D91 | Redland Road Upgrade | Holcomb Boulevard to Holly Lane | Improve to Minor Arterial cross-section, as a constrained street | Long-term Phase 2 | No |

Figure 8: TSP Projects in Vicinity

Comment: The future development of the subject property will increase traffic on S. Holcomb Blvd. Projects D15 and D16 would provide safety improvements on this roadway. These improvements are not required from a capacity standpoint, but would improve the safety of this roadway. Transportation SDCs from the future development of the property should reasonably be applied to the provision of these improvements.

Project D35 involves the Redland Rd/Anchor Way intersection. Traffic from the future development of the subject property would not be expected to contribute significantly to the need for these improvements due to distance from the site.

Project D43 calls for a future roundabout at the intersection of Holly Lane and Redland Rd. This improvement will not be needed until such time as Holly Lane is completed down to Redland Rd. from the subject property. That improvement will not occur until there is future development of intervening properties.

Project D48 calls for the extension of Holly Lane from Redland Rd. north to Holcomb Blvd. A significant portion of this project will be provided with the future development of the subject property.

Projects D49 and D50 relate to the future extension of Swan Avenue south from Livesay Rd. to the south, across Redland Road, to Morton Rd. This future planned extension is west of the subject property. Given that the majority of site-generated traffic will eventually make use of the Holly Lane connection to Redland Rd., the impact of future site traffic on the need for these improvements is negligible.

Projects D86 and D87 call for future upgrades to Livesay Road. The future development of the subject property will bring about frontage improvements on Livesay Road for a significant stretch of this roadway.

Project D91 relates to planned future upgrades to Redland Road from Holcomb Blvd. to Holly Lane. The need for these improvements will not be impacted by the future development of the subject property until such time as Holly Lane is connected from the subject property to the south to Redland Road. This will not happen until additional properties are annexed and developed.

Parks:

There is a need for additional parks in the Park Place neighborhood. The closest developed City park to the subject property is Park Place Park, a mile to a mile and half to the northwest of the site at the intersection of Hiram Avenue and Cleveland Street. The Park Place Concept Plan calls for a new community park to be developed between Redland Road and Holcomb Blvd., partially within the proposed annexation area. The map below shows the proposed annexation area overlaid on Figure 32 from the Park Place Concept Plan, which shows the North Village area of the plan. The proposed park site is situated on the western border of the annexation area and continues to the west.

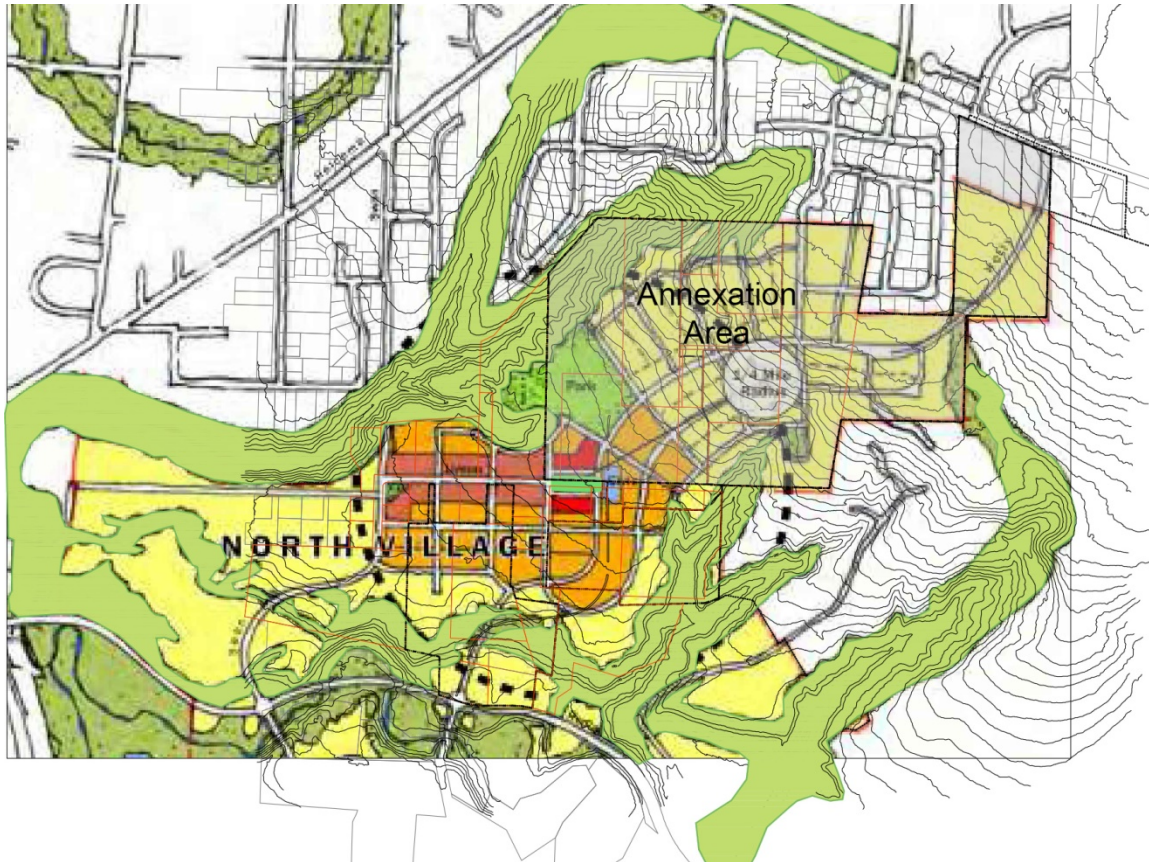


Figure 9: Park Place North Village Plan

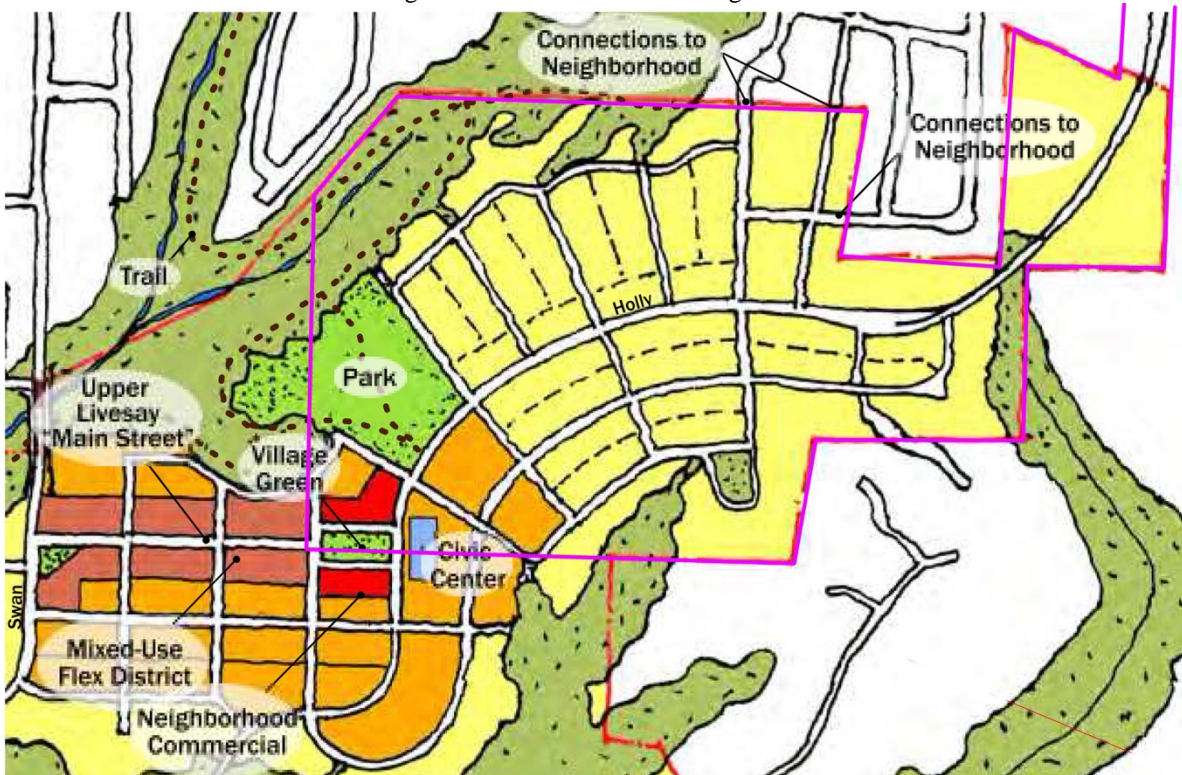


Figure 10: Park Place North Village Detail

The Park Place Concept Plan says the following about the community park in the North Village:

“The parks are intended to provide basic recreational opportunities for residents and may include amenities such as play equipment, athletic fields, picnic tables or shelters, walking trails, and other features. The neighborhood park in the North Village is approximately eight to ten acres and within walking distance of the Livesay Main Street.”

(Final Concept Plan, Page 31)

Comments in the City’s letter of May 12, 2017 from Community Services Director Phil Lewis state that *“we would ideally have a 12-15 acre community park in that location which would allow appropriate sizing for sports fields and parking.”* In a phone call with Mr. Lewis, he indicated his opinion that there is a need for a larger park in order to provide for soccer and other athletic fields. This comment, while indicative of the Director’s assessment of City park needs, is not consistent with the park size called for by the adopted Park Place Community Plan. Further, topographic constraints associated with a drainageway to the northwest of the proposed park location, as well as the constraint of the proposed alignment of Holly Lane right-of-way, would limit the ability to provide a park of that size at this location with level enough areas for more athletic fields.

The applicant acknowledges that the future master plan for the annexation area will need to provide for the dedication of a community park consistent with the Park Place Concept Plan. The future comprehensive plan amendment and zone change will provide for the designation of the park site with the corresponding Park designation. It is the applicant’s expectation that the City will make any necessary amendments to its Parks and Recreation Master Plan to make the dedication of the community park eligible for systems development charges credits. This will allow for lots in the master plan area to receive SDC credits in exchange for providing compensation to the owners of properties containing proposed park dedication areas.

The North Village Concept Plan also calls for a system of trails and paths to be included in the master plan for this area, as shown on the map below:

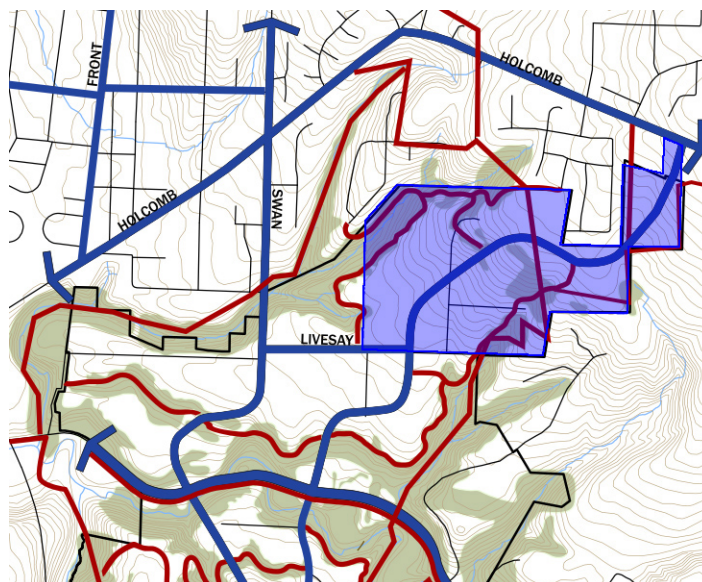


Figure 11: North Village Trails and Paths

It is understood by the applicants that the future master plan for the annexation area will need to incorporate park area and trails consistent with the Park Place Concept Plan. The most likely scenario for the funding of the dedications would be through Systems Development Credits (SDCs). The Plan states the following regarding funding mechanisms.

“Once the Park Place Concept Plan is adopted, Oregon City and the regional agencies that fund or own elements of the services will have to amend their master plans and systems development charges.”
(Final Concept Plan, Page 6)

Parks: The two parks identified in the Concept Plan have to be integrated into Oregon City’s parks master plan and at that time decide how to fund the proposed parks. It may be funded entirely from system development charges or as an integral part of the master plan’s financing strategies.
(Final Concept Plan, Page 6)

Schools:

The subject property is served by Oregon City Public Schools. The schools serving this site are Redland Elementary School, Ogden Middle School, and Oregon City High School. Although there will be no immediate development of this site that would impact the school system, discussions with School District staff indicate that there are no immediate capacity problems with these schools.

A letter dated March 13, 2017 from Mr. Wes Rogers, Director of Operations for Oregon City Public Schools, regarding school capacity associated with the Serres property annexation (File AN-16-0004, ZC 16-0001) makes the following comments regarding the subject annexation of approximately 92 acres:

“As to the larger 92 acre Park Place/Holcomb annexation mentioned by Mr. Givens but is not a direct part of this file, the District has always known that as the Park Place Concept Plan was significantly developed, additional elementary and middle school capacity would have to be constructed. Currently the elementary school of attendance for this area would be Redland Elementary.

Forecasted enrollment growth is not new to the District and the Oregon City School Board and administration have been studying facility needs for the past several years. Although well maintained, District facilities do not support current educational practice and all District facilities are in need of serious renovation or replacement and in some cases minor expansion. Preliminary plans to ask for a school construction bond have not been finalized but the current draft scenario shows that the District (with voter support) would have additional middle school capacity within 5 years and additional elementary school capacity within 5-10 years. In the meantime the District has several other tools to help with over capacities by installing semi-permanent buildings and/or redrawing attendance boundaries.”

The anticipated time frame to begin construction within the annexation area, dependent upon resolution of the alternative mobility standards issue, would be in approximately two to three years. Full build-out is expected to be in the range of five to ten years. This schedule is consistent with the School District’s stated timeline to provide additional school capacity.

Fire Protection: Fire protection services will be provided by Clackamas Fire District #1. The closest station is located at 300 Longview Way, off of Holcomb Blvd.

Police Protection: Police protection will be provided by the Oregon City Police Dept.

- d. Statement outlining method and source of financing required to provide additional facilities, if any;*

Comment: The required improvements to public services will be made by the developer concurrently with the future development of this property.

- e. Statement of overall development concept and methods by which the physical and related social environment of the site, surrounding area and community will be enhanced;*

Comment: The majority of the subject property is within the boundaries of the Park Place Concept Plan, specifically, the North Village Plan, and the eventual development of this site will be subject to the land uses and densities set forth in that document. The future development application will provide for a master plan consistent with the design concept of the North Village Plan. The future development application will likely need to include proposals to rezone the property to resolve apparent conflicts between the North Village Plan and the existing Oregon City Comprehensive Plan Map. One property, Tax Lot 2000 on Map 22E27B and which fronts on Holcomb Blvd., is located outside of the North Village Plan, is designated MR by the Comprehensive Plan and will be zoned R-5. That property will be developed in conjunction with the rest of the properties included in this annexation and zone change. The future development of this property will provide a mixture of approximately 400 to 450 single-family detached and attached housing units, as well as neighborhood commercial, park and community uses as shown on the North Village Plan. It will also aid in providing a needed collector road connection from the Holcomb Blvd. area down to Redland Road. It is anticipated that the development will occur in several phases over an approximate 10 year development plan.

- f. Statement of potential physical, aesthetic, and related social effects of the proposed, or potential development on the community as a whole and on the small subcommunity or neighborhood of which it will become a part; and proposed actions to mitigate such negative effects, if any;*

Comment: There will be no immediate physical, aesthetic, or related social effects from the annexation of this property because there will be no development at this time. Future development of the property will result in typical residential development impacts on traffic, schools, and public infrastructure, but these impacts have been anticipated by the City's Comprehensive Plan. No mitigation measures are anticipated to be needed.

- g. Statement indicating the type and nature of any comprehensive plan text or map amendments, or zoning text or map amendments that may be required to complete the proposed development;*

Comment: No change to the comprehensive plan text or map designation is proposed for this site. The zone change application that has been filed with the annexation proposal is a mandatory and non-discretionary re-zoning required pursuant to OCMC 17.68.025.A. This zone change is required concurrently with the annexation in order to replace Clackamas County RRFF-5 zoning and apply the appropriate City zones that implement the City's Comprehensive Plan Map designations for the site. In this instance, Neighborhood Commercial is proposed for the MUC area and R-10 would be applied to the LDR designation. It is understood that a future application will be required at the time that a master plan for the development of the property is proposed in order to amend the Comprehensive Plan and zoning for the site comply with the Park Place Concept Plan's conceptual plan for the North Village area. The master plan and the future comprehensive plan amendment and zone change for the subject property cannot proceed until such time as the regional transportation issues are resolved.

- 8. The application fee for annexations established by resolution of the city commission and any fees required by metro. In addition to the application fees, the city manager shall require a deposit, which is adequate to cover any and all costs related to the election;*
- 9. Paper and electronic copies of the complete application as required by the community development director.*

Comment: The required application fee and paper and digital copies of the application are included in the application submittal.

OCMC 14.04.060 - Annexation factors.

- A. When reviewing a proposed annexation, the commission shall consider the following factors, as relevant:*

- 1. Adequacy of access to the site;*

Comment: The site has direct access onto Holcomb Blvd., an arterial street. This street would serve as the primary access for the future development of the property. Additional accesses are available from the local streets stubbed to the property: Journey Drive, Shartner Drive, and Cattle Drive as well as Livesay Road. Future development of the property will provide for the construction of a north extension of Holly Lane from Holcomb Blvd. to Livesay Road. Future development of properties to the south will eventually extend this street to Redland Road.

- 2. Conformity of the proposal with the city's comprehensive plan;*

Comment: The proposed annexation is consistent with the comprehensive plan in that the property is within the UGB, is designated for residential and mixed use development, and is intended to be served by the City of Oregon City. Compliance with specific plan policies is discussed below in this report.

3. Adequacy and availability of public facilities and services to service potential development;

Comment: The adequacy and availability of public facilities and services is discussed in the preceding section of this report. Please refer to our comments there.

4. Compliance with applicable sections of ORS Ch. 222, and Metro Code Section 3.09;

ORS Ch. 222 was amended in 2016 with the adoption of Senate Bill 1573 as follows:

SECTION 1. Section 2 of this 2016 Act is added to and made a part of ORS 222.111 to 222.180.

SECTION 2. (1) This section applies to a city whose laws require a petition proposing annexation of territory to be submitted to the electors of the city.

(2) Notwithstanding a contrary provision of the city charter or a city ordinance, upon receipt of a petition proposing annexation of territory submitted by all owners of land in the territory, the legislative body of the city shall annex the territory without submitting the proposal to the electors of the city if:

(a) The territory is included within an urban growth boundary adopted by the city or Metro, as defined in ORS 197.015;

(b) The territory is, or upon annexation of the territory into the city will be, subject to the acknowledged comprehensive plan of the city;

(c) At least one lot or parcel within the territory is contiguous to the city limits or is separated from the city limits only by a public right of way or a body of water; and

(d) The proposal conforms to all other requirements of the city's ordinances.

Comment: The Oregon City Municipal Code requires annexations to be approved through an election. However, in this instance, the proposed annexation meets the requirements of the new State law in that it includes a petition that is signed by all owners of land in the territory, the area is within the adopted urban growth boundary, is within an area subject to the adopted and acknowledged Oregon City Comprehensive Plan, and the property is contiguous to the existing city limits. As demonstrated in this narrative, this proposal conforms to all other requirements of the city's ordinances.

(3) The territory to be annexed under this section includes any additional territory described in ORS 222.111 (1) that must be annexed in order to locate infrastructure and right of way access for services necessary for development of the territory described in subsection (2) of this section at a density equal to the average residential density within the annexing city.

Comment: No such additional territory is required for this property.

(4) When the legislative body of the city determines that the criteria described in subsection (2) of this section apply to territory proposed for annexation, the legislative body may declare that the territory described in subsections (2) and (3) of this section is annexed to the city by an ordinance that contains a description of the territory annexed.

Comment: The required ordinance will be adopted by the City upon approval of this annexation proposal.

5. Natural hazards identified by the city, such as wetlands, floodplains and steep slopes;

Comment: The subject property does have areas of potential natural hazards associated with steep slopes, primarily along ravines associated with drainageways and areas of steeper hillside grades. The map below from the City's GIS system shows these areas:

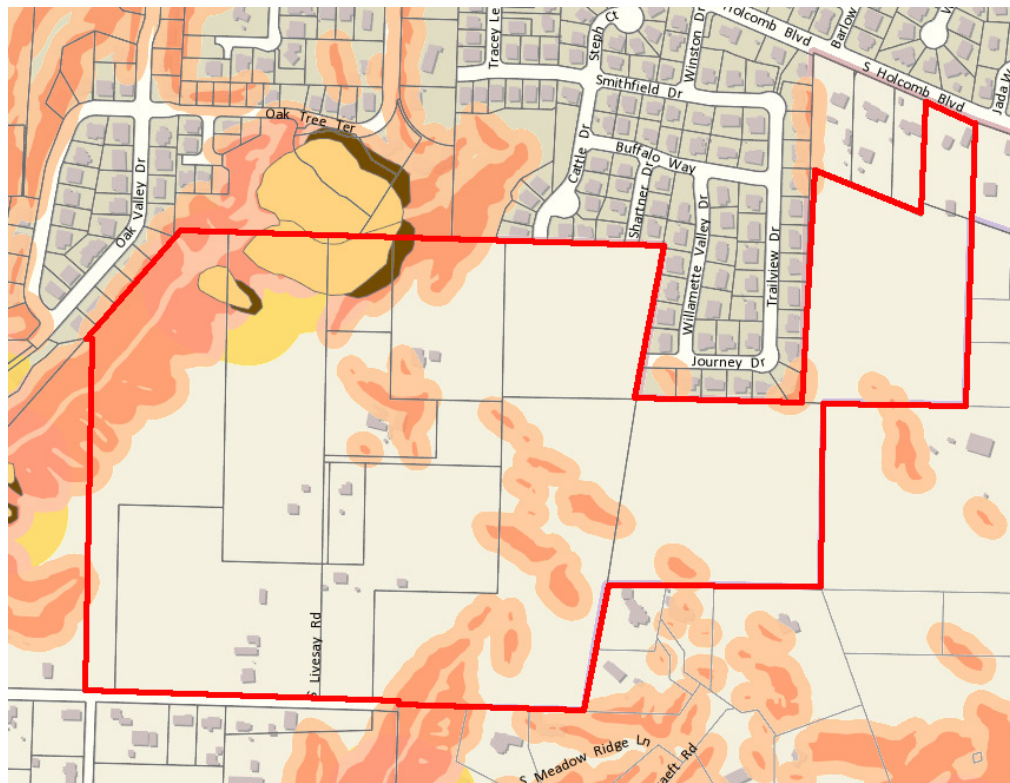


Figure 12: Potential Natural Hazards

When the property is developed in the future, the natural drainageways will remain undeveloped as open space. A geotechnical report will be prepared at the time of future development application to assess the safety of other potential hazard areas and the recommendations of that report will be followed in designing the future development plan.

6. *Any significant adverse effects on specially designated open space, scenic, historic or natural resource areas by urbanization of the subject property at time of annexation;*

Comment: No development will occur at this time and a condition of approval will preclude development until such time as the Alternative Mobility standards are adopted. Thus, there will be no impacts upon resource areas associated with this annexation. Assessment of impacts upon resource and hazard areas will be examined in detail at the time that the development plan is prepared for compliance with the standards set forth in the Oregon City Municipal Code.

7. *Lack of any significant adverse effects on the economic, social and physical environment of the community by the overall impact of the annexation.*

Comment: Because there will be no development on this site until off-site transportation issues are resolved, there will be no immediate impact upon the economic, social and physical environment of the community by the annexation. At such time as the site is developed, it will be in a manner consistent with the planned residential designation set for the property in the Park Place Concept Plan. This land use has been determined by the City, through the adoption of the Park Place Concept Plan, to be consistent with the surrounding land use pattern. Required public utilities and services are available or will be made available concurrently with the development of the site. The future development application for this property will provide a geotechnical report and the site plan will be designed to comply with the recommendations of that report so that the safety of future residents is assured. As such, the future development of the property will not have any significant impact upon the economic, social and physical environment of the community.

14.04.110 - Setting of boundaries and proclamation of annexation.

Upon approval by the voters of the proposed annexation, the city commission, by ordinance, shall set the boundaries of the area to be annexed by a legal description, adopt findings, and proclaim the results of the election.

Comment: SB 1573, adopted by the last legislative session, provides that, assuming certain conditions are met, charter and municipal code provisions requiring voter approval of annexations may not be applied. The requirements are that a site to be annexed must be within an Urban Growth Boundary (“UGB”), is subject to and complies with the acknowledged Comprehensive Plan and is contiguous to the City to which the real property is proposed to be annexed. In the case of this application, all of these conditions are met.

14.04.120 - Exceptions.

The city commission may authorize an exception to any of the requirements of this chapter. An exception shall require a statement of findings that indicates the basis for the exception. Exceptions may be granted for identified health hazards and for those matters which the city commission determines that the public interest would not be served by undertaking the entire annexation process. All annexations, however, shall be referred to the voters of the

city except those exempted by state law. An exception referring to an annexation application that meets the approval criteria to an election cannot be granted except as provided for in the Oregon Revised Statutes.

Comment: As discussed under OCMC 14.04.110, the annexation of properties consistent with SB 1573 is exempted from local requirements for voter approval. The subject property meets the requirements of SB 1573, as discussed above in comments on OCMC 14.04.050A.

Metro Code 3.09.045.A-D (Boundary Change Criteria)

The applicable approval criteria under the Metro Code are:

- *Whether the proposed boundary change will promote the timely, orderly and economic provision of public facilities and services.*

Comment: As discussed above, all required public facilities and services will be available at the time of development. No development will occur until such time as the Alternative Mobility standards are adopted and compliance with Article 12 can be met. Upon approval of a future development plan, the developer will provide for the installation of needed public facilities and services.

- *Whether the proposed boundary change will affect the quality and quantity of urban services*

Comment: The annexation of this property will have no immediate impact upon the quality or quantity of urban services since development of the property will be prohibited until such time as the Alternative Mobility standards are adopted and compliance with Article 12 can be met. At such time as the site is developed in the future, it will be in a manner consistent with the North Village Concept Plan. The City has planned for the provision of necessary public facilities and services in this area in its Public Facilities Plan and Transportation Systems Plan. Since the future development will conform to the anticipated level of development, it will not have a negative impact upon the quality or quantity of urban services.

- *Whether the proposed boundary change would eliminate or avoid unnecessary duplication of facilities or services.*

Comment: With the exception of water, all services in this area will be provided by the City of Oregon City so there will be no unnecessary duplication of facilities and services. Water services in this area are provided by the City and Clackamas River Water District. These agencies have a plan and agreement that governs the provision of water services so as to avoid unnecessary duplication of facilities and services.

Oregon City Comprehensive Plan – Applicable Goals and Policies

Goal 1: Citizen Involvement

Goal 1.1 – Citizen Involvement Program

Policy 1.1.1 Utilize neighborhood associations as the vehicle for neighborhood-based input to meet the requirements of the Land Conservation and Development Commission (LCDC) Statewide Planning Goal 1, Citizen Involvement. The Citizen Involvement Committee (CIC) shall serve as the officially recognized citizen committee needed to meet LCDC Statewide Planning Goal 1.

Comment: The applicant attended neighborhood meetings with the Park Place Neighborhood Association to present the proposed annexation and zone change applications. The City's procedures for review of the application provided notice to Park Place Neighborhood Association and allow opportunity for public comment on the application.

Goal 1.4 – Community Involvement

Policy 1.4.1 Notify citizens about community involvement opportunities when they occur.

Comment: The City's procedures for review of the proposed annexation and zone change provide for notice to owners of affected properties and will provide opportunities for citizen input regarding the applications.

Goal 2: Land Use

Goal 2.1 – Efficient Use of Land

Policy 2.1.3 Encourage sub-area master planning for larger developments or parcels, including re-development, where it may be feasible to develop more mixed uses, or campus-style industrial parks, with shared parking and landscaping areas. Allow developments to vary from prescriptive standards if planned and approved under this provision.

Comment: The subject property is located within the Park Place Concept Plan, which provides sub-area master planning for this area. The future development of this property will provide mixed uses, including various types of residential development, parks, open spaces, commercial and institutional uses consistent with the North Village concept plan.

Goal 2.4 Neighborhood Livability

Policy 2.4.1 Develop local neighborhood plans to strengthen and protect residential neighborhoods and historic areas from infill development; such as development along linear commercial corridors.

Comment: The Park Place Concept Plan provides for a unified neighborhood plan that will serve as a guide to development of a desirable and diverse community in this area of the city.

Policy 2.4.2 *Strive to establish facilities and land uses in every neighborhood that help give vibrancy, a sense of place, and a feeling of uniqueness; such as activity centers and points of interest.*

Comment: The Park Place Concept Plan includes parks, natural open space areas, trails, neighborhood commercial and institutional uses that will provide vibrancy and a sense of place in the future development of this property.

Policy 2.4.3 *Promote connectivity between neighborhoods and neighborhood commercial centers through a variety of transportation modes.*

Comment: The Park Place Concept Plan encourages connectivity and diverse modes of transportation. The plan calls for the construction of Holly Lane to provide a much needed connection between Holcomb Blvd. and Redland Road. The plan also encourages an internal circulation system within the future neighborhood that will ensure connectivity and minimize out of direction travel. A trail system is planned that will provide greater opportunity for bicycle and pedestrian modes of transportation.

Policy 2.4.4 *Where environmental constraints reduce the amount of buildable land, and/or where adjacent land differs in uses or density, implement Comprehensive Plan and zoning designations that encourage compatible transitional uses.*

Comment: The subject property includes environmentally sensitive areas associated with drainageways. The Park Place Concept Plan and City ordinances provide for these water resource areas to be preserved as natural open spaces.

Goal 2.5 Retail and Neighborhood Commercial

Policy 2.5.1 *Encourage the redevelopment of linear commercial corridors in ways that encourage expansion of existing businesses and infill development, and at the same time reduces conflicting traffic movements, improves the aesthetic character of these commercial areas, and encourages trips by transit, bicycling and walking.*

Comment: Not applicable. The subject property does not contain any linear commercial corridors. The Park Place Concept Plan calls for limited neighborhood commercial development, but there is no existing commercial development within the area.

Policy 2.5.2 *Allow and encourage the development of small retail centers in residential neighborhoods that provide goods and services for local residents and workers. Generally, these centers should be located at the intersections of two or more streets that are classified as neighborhood collectors or higher.*

Comment: As shown on Figure 10 on page 12 of this report, the North Village Concept Plan calls for a small area of neighborhood commercial zoning in the southwest corner of the annexation area. This area is identified in the Park Place Concept Plan as a part of “Livesay Main Street”. The Plan (page 25) states the following regarding anticipated uses within this area of neighborhood commercial development:

Small-scale commercial businesses, like a coffee shop, bookstore, dry cleaners, or café, are proposed to anchor the intersection of Holly Lane Extension and Livesay Main Street and surround the Village Green.

Policy 2.5.3 Review design standards and the sign code to ensure compatibility with existing neighborhoods.

Comment: Design standards for single family development in the Park Place Concept Plan area are implemented by OCMC 17.21. The future development of this area will be reviewed for compliance with these standards prior to construction.

Policy 2.5.4 Encourage the development of successful commercial areas organized as centers surrounded by higher density housing and office uses, rather than as commercial strips adjacent to low-density housing.

Comment: The commercial development in this area is intended to be small in scale and service-oriented. It is seen by the Park Place Concept Plan as helping to provide a neighborhood identity rather than providing for the full range of commercial needs that are available elsewhere in Oregon City, as discussed in the following quote from page 18 of the Concept Plan:

“Commercial development in the planning area is not seen as necessary for the success of the area, which is expected to be developed largely as residential. The commercial needs of the planning area can be met outside of the concept planning area by existing and planned developments. However, commercial development can serve to organize the Park Place Concept Plan by providing a “center” to the community. In addition, commercial development can meet some of the needs of the community, providing a marketable amenity for residential development while reducing trips out of the neighborhood.”

Policy 2.5.5 Encourage commercial and industrial development that enhances livability of neighborhoods through the design of attractive LEEDTM-certified buildings and environmentally responsible landscaping that uses native vegetation wherever possible, and by ensuring that development is screened and buffered from adjoining residential neighborhoods and access is provided by a variety of transportation modes.

Comment: These provisions are implemented by design standards within the OCMC that will be reviewed prior to site development.

Goal 2.7 Oregon City Comprehensive Plan Land-Use Map

Policy 2.7.2 Use the following 11 land-use classifications on the Oregon City Comprehensive Plan Land-Use Map to determine the zoning classifications that may be applied to parcels:

- Low Density Residential (LR)
- Medium Density Residential (MR)
- High Density Residential (HR)
- Commercial (C)
- Mixed Use Corridor (MUC)
- Mixed Use Employment (MUE)
- Mixed Use Downtown (MUD)
- Industrial (I)
- Public and Quasi-Public (QP)
- Parks (P)
- Future Urban Holding (FUH)

Comment: The cropped section from the Oregon City Comprehensive Plan Land Use Map below shows the designations applicable to the subject area (outlined in blue):

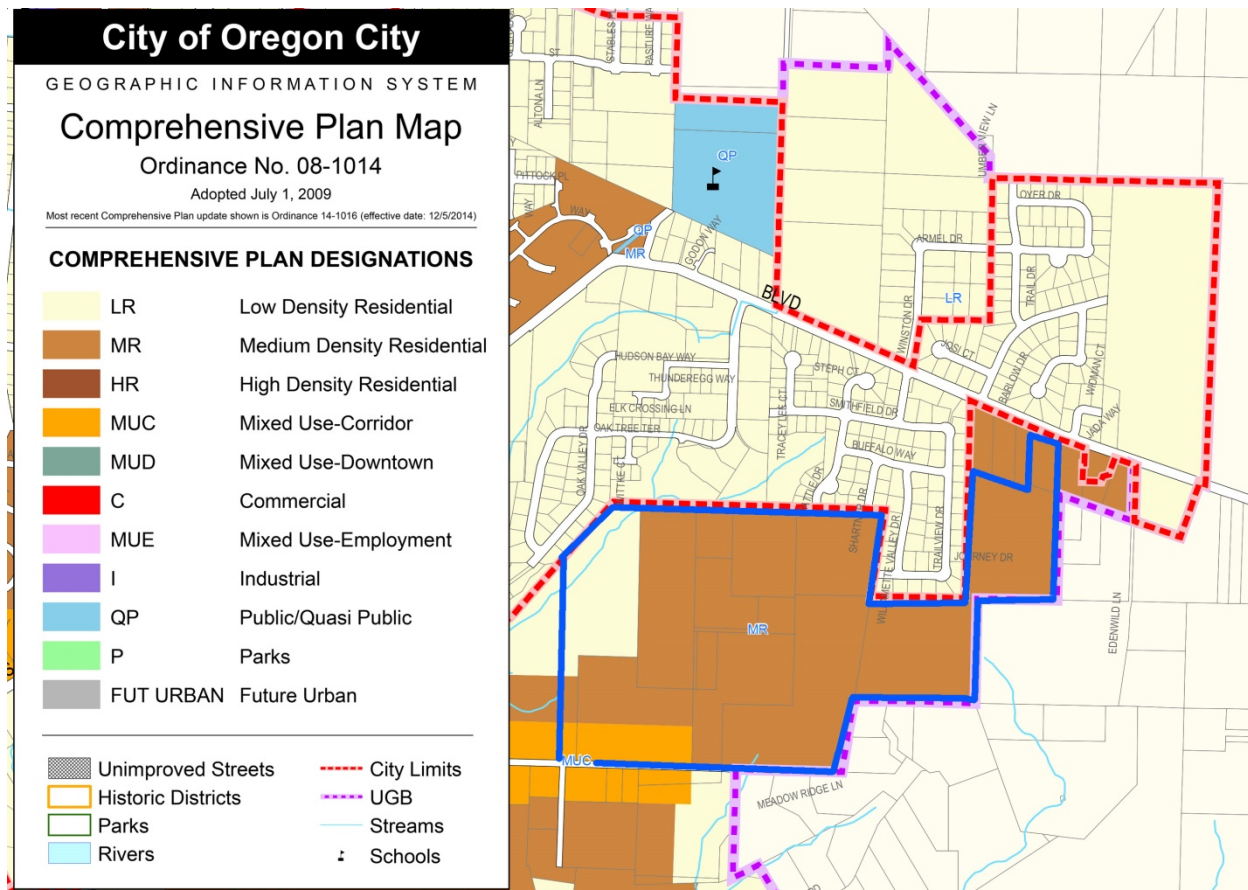


Figure 13: Comprehensive Plan Designations

The majority of the area is designated Medium Density Residential, which is implemented by the R-5 zone. There is a small area of Low Density Residential designation in the northwest corner of the annexation area. The R-10 through R-6 zones implement this designation, but R-10 is proposed. There is also a portion of the site that is designated Mixed Use-Corridor. The proposed zoning is consistent with the adopted comprehensive land use plan.

Goal 5: Open Spaces, Scenic and Historic Areas, and Natural Resources

Goal 5.1 – Open Space

Policy 5.1.1 Conserve open space along creeks, urban drainage ways, steep hillsides, and throughout Newell Creek Canyon.

Comment: There is one major drainageway in the northwest corner of the proposed annexation area and the top of a drainageway in the southeast corner. Consistent with this policy, at the time of development these areas will be retained as open space.

Policy 5.1.2 Manage open space areas for their value in linking citizens and visitors with the natural environment, providing solace, exercise, scenic views and outdoor education. Built features in open space sites should harmonize with natural surroundings.

Comment: Future open space areas will be provided at the time of development to assist in meeting this policy.

Goal 5.2 Scenic Views and Scenic Sites

Policy 5.2.1 Identify and protect significant views of local and distant features such as Mt. Hood, the Cascade Mountains, the Clackamas River Valley, the Willamette River, Willamette Falls, the Tualatin Mountains, Newell Creek Canyon, and the skyline of the city of Portland, as viewed from within the city.

Comment: The site is located on a hillside with some nice vistas. These will be considered in the development of the future master plan for this area.

Policy 5.2.2 Maximize the visual compatibility and minimize the visual distraction of new structures or development within important viewsheds by establishing standards for landscaping, placement, height, mass, color, and window reflectivity.

Comment: Not applicable to this annexation and zone change application and not directly applicable to the future development of this site. This policy is a guide to city action in developing standards to protect visual compatibility.

Goal 5.3 Historic Resources

Policy 5.3.3 Promote the designation of qualifying properties outside Historic and Conservation Districts as historic.

Comment: The applicants are not aware of any historic resources within the annexation area and none are identified in the Park Place Concept Plan or Oregon City Comprehensive Plan. The Oregon State Historic Preservation Office will be contacted during the development of the future master plan in order to determine if there are any significant archeological sites within the annexation area.

Policy 5.3.8 Preserve and accentuate historic resources as part of an urban environment that is being reshaped by new development projects.

Comment: The applicants are not aware of any historic resources within the annexation area.

Goal 5.4 Natural Resources

Policy 5.4.1 Conserve and restore ecological structure, processes and functions within the city to closely approximate natural ecosystem structure, processes, and functions.

Comment: During the development of the future master plan for the annexation area, care will be taken to identify any sensitive ecological areas within the site boundaries.

Policy 5.4.5 Ensure that riparian corridors along streams and rivers are conserved and restored to provide maximum ecological value to aquatic and terrestrial species. This could include an aggressive tree and vegetation planting program to stabilize slopes, reduce erosion, and mitigate against invasive species and stream impacts where appropriate.

Comment: The riparian corridors along the natural drainageways within the annexation boundary will be protected as open space.

Policy 5.4.9 Protect and enhance riparian corridors along streams in Oregon City to increase shade, reduce streambank erosion and intrusion of sediments, and provide habitat for a variety of plants, animals, and fish.

Comment: There are no streams within the annexation area, but there are seasonal drainageways with areas of sensitive steep slopes. These areas will be protected as open space in the future master plan.

Policy 5.4.12 Use a watershed-scale assessment when reviewing and planning for the potential effects from development, whether private or public, on water quality and quantity entering streams.

Comment: Consistent with this policy and City standards regarding storm water treatment and detention, during development of the future master plan the project engineer will look at the regional watershed in determining appropriate methods of handling storm drainage.

Policy 5.4.13 Adopt and/or establish standards for all new development that promote the use of pervious surfaces and prevent negative ecological effects of urban stormwater runoff on streams, creeks and rivers.

Comment: This policy is fully implemented by the City's adopted storm water management standards. The project engineer will comply with these standards during preparation of the future master plan for this area.

Policy 5.4.16 Protect surfacewater quality by:

- providing a vegetated corridor to separate protected water features from development
- maintaining or reducing stream temperatures with vegetative shading
- minimizing erosion and nutrient and pollutant loading into water
- providing infiltration and natural water purification by percolation through soil and vegetation

Comment: A vegetated corridor will be preserved in the future master plan along drainageways in the annexation area to accomplish the objectives of this policy.

Policy 5.4.18 Encourage use of native and hardy plants such as trees, shrubs and groundcovers to maintain ecological function and reduce maintenance costs and chemical use.

Comment: Not applicable to this application for annexation and zoning. Landscape plans for future commercial and/or multi-family development will be reviewed in accordance with adopted City standards that implement this policy.

Goal 6: Quality of Air, Water, and Land Resources

Goal 6.1 Air Quality

Policy 6.1.1 Promote land-use patterns that reduce the need for distance travel by single occupancy vehicles and increase opportunities for walking, biking and/or transit to destinations such as places of employment, shopping and education.

Comment: The future master plan will be designed with a system of interconnected streets and pathways that will satisfy this policy.

Goal 6.2 Water Quality

Policy 6.2.1 Prevent erosion and restrict the discharge of sediments into surface- and groundwater by requiring erosion prevention measures and sediment control practices.

Comment: Consistent with this policy and adopted City storm water standards, the future master plan for this project will include plans for erosion and sediment control to mitigate for site grading and other development activities.

Policy 6.2.2 Where feasible, use open, naturally vegetated drainage ways to reduce stormwater and improve water quality.

Comment: The natural drainageways and a vegetated corridor abutting them will be protected as open space in the future master plan for this area.

Goal 6.3 Nightlighting

Policy 6.3.2 Encourage new developments to provide even and energy-efficient lighting that ensures safety and discourages vandalism. Encourage existing developments to retrofit when feasible.

Comment: The future development of this site will employ street lighting consistent with City and PGE standards that satisfy this policy.

Goal 6.4 Noise

Policy 6.4.1 Provide for noise abatement features such as sound-walls, soil berms, vegetation, and setbacks, to buffer neighborhoods from vehicular noise and industrial uses.

Comment: There are no significant noise sources that impact this annexation site.

Goal 7: Natural Hazards

Policy 7.1.1 Limit loss of life and damage to property from natural hazards by regulating or prohibiting development in areas of known or potential hazards.

Comment: City GIS mapping of natural hazards shows a couple of small areas of mapped landslide hazards and other areas with steep slopes. These areas are associated with the drainageways on portions of the property. The majority of this area will be preserved as open spaces in the future master plan. Where development will occur in proximity to these areas, appropriate geotechnical studies will be performed to determine site stability.

Policy 7.1.8 Provide standards in City Codes for planning, reviewing, and approving development in areas of potential landslides that will prevent or minimize potential landslides while allowing appropriate development.

Comment: This policy is implemented in Chapter 17.44 – Geologic Hazards. The future master plan will address the standards of this chapter.

Policy 7.1.9 Locate, design, and construct structures in conformance with current building codes and standards for seismic-resistant design.

Comment: Not applicable to this application for annexation and zone change. All future structures to be built on this site will obtain required building permits that include provisions to address this policy.

Policy 7.1.11 Prioritize roadways needed for public service, medical, and emergency vehicles during emergencies.

Comment: The future connection of Holly Lane through to Redland Road will be provide a much-needed route connecting the Holcomb Blvd. area to medical, emergency and public services. At the present time access is limited to Holcomb Blvd. and, to a lesser degree, Forsythe Road. The future development of this site will aid in meeting this policy.

Goal 8: Parks and Recreation

Policy 8.1.1 Provide an active neighborhood park-type facility and community park-type facility within a reasonable distance from residences, as defined by the Oregon City Park and Recreation Master Plan, to residents of Oregon City

Comment: There are presently no parks within convenient walking distance of the annexation area. The future development of this site will provide for a community park, consistent with this policy and the Park Place Concept Plan.

Policy 8.1.5 Identify and construct a network of off-street trails throughout the city for walking and jogging.

Comment: The Park Place Concept Plan calls for a system of off-street trails through the proposed annexation area. The future master plan for this site will address this requirement.

Policy 8.1.6 Provide land for specialized facilities such as sports fields and indoor recreational facilities.

Comment: It is anticipated that the community park that will be developed on a portion of the annexation area will provide for sports fields.

Policy 8.1.9 Emphasize retaining natural conditions and the natural environment in proposed passive recreation areas.

Comment: The future master plan will provide open spaces associated with the drainageway areas within the annexation area and these will be preserved in their natural condition.

Policy 8.1.12 Identify and protect land for parks and recreation within the Urban Growth Boundary.

Comment: The Park Place Concept Plan calls for a community park that is mostly within the proposed annexation area. The future master plan for this site will address this requirement.

Policy 8.1.14 Require or encourage developers to dedicate park sites as part of the subdivision review process. When possible, require or encourage developers to build parks to City standards and give them to the City to operate and maintain.

Comment: The future master plan will provide for the dedication of a community park consistent with this policy and other City standards.

Goal 10: Housing

Policy 10.1.1 Maintain the existing residential housing stock in established older neighborhoods by maintaining existing Comprehensive Plan and zoning designations where appropriate.

Comment: Not applicable. The subject property is not located within an established older neighborhood. There are a few homes on large acreage tracts and most of these will be removed to allow for redevelopment.

Policy 10.1.3 Designate residential land for a balanced variety of densities and types of housing, such as single-family attached and detached, and a range of multi-family densities and types, including mixed-use development.

Comment: The North Village Plan within the Park Place Concept Plan calls for a mixture of housing types and densities, as well as neighborhood commercial and institutional uses within the annexation area. The future master plan will implement these land uses.

Policy 10.1.4 Aim to reduce the isolation of income groups within communities by encouraging diversity in housing types within neighborhoods consistent with the Clackamas County Consolidated Plan, while ensuring that needed affordable housing is provided.

Comment: The Park Place Concept Plan calls for a variety of types of housing that will help in addressing this policy.

Policy 10.1.7 Use a combination of incentives and development standards to promote and encourage well-designed single-family subdivisions and multi-family developments that result in neighborhood livability and stability.

Comment: The City has adopted design standards in Chapter 17.21 that implement this policy. The future development will conform to these standards.

Policy 10.2.2 Allow increases in residential density (density bonuses) for housing development that would be affordable to Oregon City residents earning less than 50 percent of the median income for Oregon City.

Comment: Not directly applicable to this application or the future master plan.

Goal 11: Public Facilities

Policy 11.1.1 Ensure adequate public funding for the following public facilities and services, if feasible: Transportation infrastructure • Wastewater collection • Stormwater management • Police protection • Fire protection • Parks and recreation • Water distribution • Planning, zoning and subdivision regulation • Library services • Aquatic Center • Carnegie Center • Pioneer Community Center • City Hall • Buena Vista House • Ermatinger House

Comment: Not applicable to this application for annexation and zone change.

Policy 11.1.2 Provide public facilities and services consistent with the goals, policies and implementing measures of the Comprehensive Plan, if feasible.

Comment: As discussed above in this application, public facilities and services are available or will be provided concurrently with future development of this site to allow development consistent with this policy.

Policy 11.1.3 Confine urban public facilities and services to the city limits except where allowed for safety and health reasons in accordance with state land-use planning goals and regulations. Facilities that serve the public will be centrally located and accessible, preferably by multiple modes of transportation.

Comment: The proposed future development of this site will occur only after annexation to the City of Oregon City. Although sanitary sewer from Redland Road will have to pass through unincorporated areas, no service connections will be provided to areas outside of the city limits in conjunction with the development of this site.

Policy 11.1.5 Design the extension or improvement of any major public facility and service to an area to complement other public facilities and services at uniform levels.

Comment: Public services will be provided in accordance with adopted plans and standards that conform to this policy.

Policy 11.1.6 Enhance efficient use of existing public facilities and services by encouraging development at maximum levels permitted in the Comprehensive Plan, implementing minimum residential densities, and adopting an Accessory Dwelling Unit Ordinance to infill vacant land.

Comment: The future development of this site will be at densities planned in the Park Place Concept Plan. This development will be dense enough to make efficient use of existing and planned public facilities and services.

Policy 11.2.4 Seek economical means to reduce inflow and infiltration of surface- and groundwater into the wastewater collection system. As appropriate, plant riparian vegetation to slow stormwater, and to reduce erosion and stream sedimentation.

Comment: The sanitary sewer system that will serve the future development of this site will be installed in accordance with City standards and will be pressure tested to ensure that surface and ground waters do not enter the system. Storm water will be collected via a storm sewer system that will drain to storm water treatment and detention facilities that will be designed to City standards that include measures to slow stormwater to reduce erosion and stream sedimentation.

Policy 11.3.3 Maintain adequate reservoir capacity to provide all equalization, operational, emergency, and fire flow storage required for the City's distribution system.

Comment: Information provided at the pre-application conference indicates that the City and Clackamas River Water District have adequate water storage capacity to service the proposed annexation area.

Policy 11.4.1 Plan, operate, and maintain the stormwater management system for all current and anticipated city residents within Oregon City's existing Urban Growth Boundary and plan strategically for future expansion areas.

Comment: The future master plan will provide for a stormwater management system that conforms to City standards.

Policy 11.4.2 Adopt "green streets" standards to reduce the amount of impervious surface and increase the use of bioswales for stormwater retention where practicable.

Comment: The City has adopted standards for Low Impact Development streets that implement this policy. Where appropriate grades exist, the future master plan can employ these standards to provide for stormwater management consistent with this policy.

Policy 11.4.4 Maintain existing drainageways in a natural state for maximum water quality, water resource preservation, and aesthetic benefits.

Comment: The existing drainageway areas within the annexation area will be maintained as natural open spaces in the future master plan, in accordance with this policy.

Policy 11.4.5 Design stormwater facilities to discharge surface water at pre-development rates and enhance stormwater quality in accordance with criteria in City of Oregon City Public Works Stormwater and Grading Design Standards.

Comment: This policy is implemented by the City's stormwater standards. The future master plan will be designed to conform to these standards.

Goal 12: Transportation

Policy 12.1.1 Maintain and enhance citywide transportation functionality by emphasizing multi-modal travel options for all types of land uses.

Comment: The future development of this site will provide for a connected system of roadways and pathways that will provide for multi-modal forms of travel.

Policy 12.1.2 Continue to develop corridor plans for the major arterials in Oregon City, and provide for appropriate land uses in and adjacent to those corridors to optimize the land use-transportation connection.

Comment: The future master plan will provide for the extension of Holly Lane, consistent with the Park Place Concept Plan and this policy.

Policy 12.1.3 Support mixed uses with higher residential densities in transportation corridors and include a consideration of financial and regulatory incentives to upgrade existing buildings and transportation systems.

Comment: Not applicable. The subject property is not located in a transportation corridor.

Policy 12.1.4 Provide walkable neighborhoods. They are desirable places to live, work, learn and play, and therefore a key component of smart growth.

Comment: The future master plan will include a network of sidewalks and pathways that will provide for a walkable neighborhood with access to residential, commercial, parks and natural open space areas.

Policy 12.3.1 Provide an interconnected and accessible street system that minimizes vehicle-miles-traveled and inappropriate neighborhood cut-through traffic.

Comment: The future master plan will be designed with a network of interconnected streets. Primary access through the neighborhood will be via Holly Lane, which will discourage neighborhood cut-through traffic.

Policy 12.3.2 Provide an interconnected and accessible pedestrian system that links residential areas with major pedestrian generators such as employment centers, public facilities, and recreational areas.

Comment: There are no employment centers in the vicinity of the subject property, but the future master plan will provide for pedestrian connectivity to both parks and open space recreational areas.

Policy 12.3.3 Provide a well-defined and accessible bicycle network that links residential areas, major bicycle generators, employment centers, recreational areas, and the arterial and collector roadway network.

Comment: The future master plan will include a bicycle lane on Holly Lane, bicycle/pedestrian trails, as well as a network of bicycle-friendly local streets.

Policy 12.3.4 Ensure the adequacy of pedestrian and bicycle connections to local, county, and regional trails.

Comment: The future master plan will provide for connections to planned trails depicted in the Park Place Concept Plan.

Policy 12.3.5 Promote and encourage a public transit system that ensures efficient accessibility, mobility, and interconnectivity between travel modes for all residents of Oregon City.

Comment: There is presently no bus service in the vicinity of the subject property. The completion of the Holly Lane north extension may provide for a logical bus route in this area in the future.

Policy 12.3.6 Establish a truck route network that ensures efficient access and mobility to commercial and industrial areas while minimizing adverse residential impacts.

Comment: Not applicable. There are no commercial or industrial areas in the vicinity of the subject property.

Policy 12.6.1 Provide a transportation system that serves existing and projected travel demand.

Comment: Please refer to the Lancaster Engineering traffic study included with this application.

Policy 12.6.2 Identify transportation system improvements that mitigate existing and projected areas of congestion.

Comment: The future completion of the Holly Lane north extension will provide for another access route from the Holcomb area that will be consistent with this policy.

Policy 12.6.3 Ensure the adequacy of travel mode options and travel routes (parallel systems) in areas of congestion.

Comment: The future completion of the Holly Lane north extension will provide for another access route from the Holcomb area that will be consistent with this policy.

Policy 12.6.4 Identify and prioritize improved connectivity throughout the city street system.

Comment: The future master plan will be designed to provide connectivity consistent with this policy.

Goal 13 – Energy

Policy 13.1.2 Encourage siting and construction of new development to take advantage of solar energy, minimize energy usage, and maximize opportunities for public transit.

Comment: The subject property is located on a south-facing hill that will afford opportunities in the design of the future master plan for taking advantage of solar energy. A network of connected neighborhood streets will also be consistent with this policy.

Policy 13.2.1 Promote mixed-use development, increased densities near activity centers, and home-based occupations (where appropriate).

Comment: The Park Place Concept Plan proposes a mixed-use development pattern for the north village area that will include commercial, recreational and institutional uses, as well as a variety of residential types. The densities proposed in the Park Place Concept Plan are higher than other areas of the City, which is consistent with this policy.

Policy 13.2.2 Create commercial nodes in neighborhoods that are underserved to reduce vehicle miles traveled.

Comment: The Park Place Concept Plan includes the provision of a small amount of neighborhood commercial development near Livesay Road, which is consistent with this policy.

Policy 13.2.3 Plan for complementary mixed uses when considering annexation of new, under- or undeveloped areas so that new urban residential areas have closer access to jobs and services.

Comment: The Park Place Concept Plan includes some neighborhood commercial development that will provide for some commercial services in the neighborhood, consistent with this policy.

Goal 14.3 Orderly Provision of Services to Growth Areas

Plan for public services to lands within the Urban Growth Boundary through adoption of a concept plan and related Capital Improvement Program, as amendments to the Comprehensive Plan.

Policy 14.3.1

Maximize new public facilities and services by encouraging new development within the Urban Growth Boundary at maximum densities allowed by the Comprehensive Plan.

Comment: The proposed zoning is consistent with the adopted and acknowledged Oregon City Comprehensive Plan Map. A condition of approval will temporarily prohibit urban-density development due to on-going traffic policy considerations. At such time as the Alternative

Mobility standards are adopted and the requirements of Article 12 can be met, development will take place at densities consistent with the Park Place Concept Plan and the City's Comprehensive Plan. The proposed development will be reviewed for compliance with maximum and minimum density standards at the time of application for subdivision approval.

Policy 14.3.2

Ensure that the extension of new services does not diminish the delivery of those same services to existing areas and residents in the city.

Comment: As discussed above in this report, all required urban services will be available to serve this property concurrently with its future development. The City's Public Facilities Plan and Transportation Systems Plan will ensure that there are adequate supplies of services so that services to existing areas and residents in the city are not diminished.

Policy 14.3.3

Oppose the formation of new urban services districts and oppose the formation of new utility districts that may conflict with efficient delivery of city utilities within the Urban Growth Boundary.

Comment: Not applicable. No new urban services or utility districts are proposed. Services will be provided by the City of Oregon City, with the exception of any water services that may be appropriate to be provided by Clackamas River Water District pursuant to an agreement between the City and Water District.

Policy 14.3.4

Ensure the cost of providing new public services and improvements to existing public services resulting from new development are borne by the entity responsible for the new development to the maximum extent allowed under state law for Systems Development Charges.

Comment: All utilities that will be provided to serve the future development of this site will be the responsibility of the developer. The future homes to be built on this property will pay required Systems Development Charges at the time of application for building permits.

Goal 14.4 – Annexation of Lands to the city

Annex lands to the city through a process that considers the effects on public services and the benefits to the city as a whole and ensures that development within the annexed area is consistent with the Oregon City Comprehensive Plan, City ordinances, and the City Charter.

Policy 14.4.1

Promote compact urban form and support efficient delivery of public services by ensuring that lands to be annexed are within the City's Urban Growth Boundary, and contiguous with the city limits. Do not consider long linear extensions, such as cherry stems and flag lots, to be contiguous with the city limits.

Comment: The subject property is entirely within the City's Urban Growth Boundary and is contiguous with the existing city limits along its entire northern border and its frontage on Holcomb Blvd.

Policy 14.4.2

Include an assessment of the fiscal impacts of providing public services to unincorporated areas upon annexation, including the costs and benefits to the city as a whole as a requirement for concept plans.

Comment: The proposed annexation will have no immediate fiscal impacts upon the cost of providing public services because no development will be allowed until such time as transportation planning issues are resolved. The City's Public Facilities Plan and Transportation System Plan anticipate the future development of the subject property at densities consistent with the Comprehensive Plan and provide an analysis of the costs of providing adequate levels of services in this area of the city. The future development of this property will contribute to these costs by providing on-site infrastructure, as well as potential off-site sanitary sewer improvements, at the cost of the developer. Each home will be assessed appropriate System Development Charges to cover the proportionate impact of the future development of this site.

Policy 14.4.3

Comment: Creation of an island does not violate an applicable, mandatory Oregon City Comprehensive Plan policy. Oregon City Comprehensive Plan Policy 14.4.3 provides in its entirety:

“Evaluate and in some instances require that parcels adjacent to proposed annexations be included to:

- avoid creating unincorporated islands within the city;**
- enable public services to be efficiently and cost-effectively extended to the entire area; or**
- implement a concept plan or sub-area master plan that has been approved by the Planning and City Commissions.”**

Comprehensive Plan Policy 14.4.3 is an aspirational policy and not a mandatory policy. *Spiering v. Yamhill County*, 25 Or LUBA 695 (1993) (Aspirational comprehensive plan goals are not mandatory approval criteria). Had the City Commission wanted to prohibit the creation of islands, it would have used the word “shall”, which is mandatory. *See Terra v. City of Newport*, 36 Or LUBA 582 (1999) (the word “shall in a comprehensive plan policy makes the policy a mandatory approval criteria). Moreover, nothing in ORS Chapter 222, or Metro Chapter 3.09 governing annexations, prohibits creation of an island. The Planning Commission can find that the creation of an island is not relevant to a mandatory approval standard.

The annexation area is contiguous to the existing city limits along its northern boundary. The proposed annexation will create a small unincorporated island within the city. The island area is

shown in pink on the map below. The owners of three parcels along Holcomb Blvd., Tax Lots 22E27B 600, 800 & 900, were contacted, but preferred not to join the annexation proposal at this time.

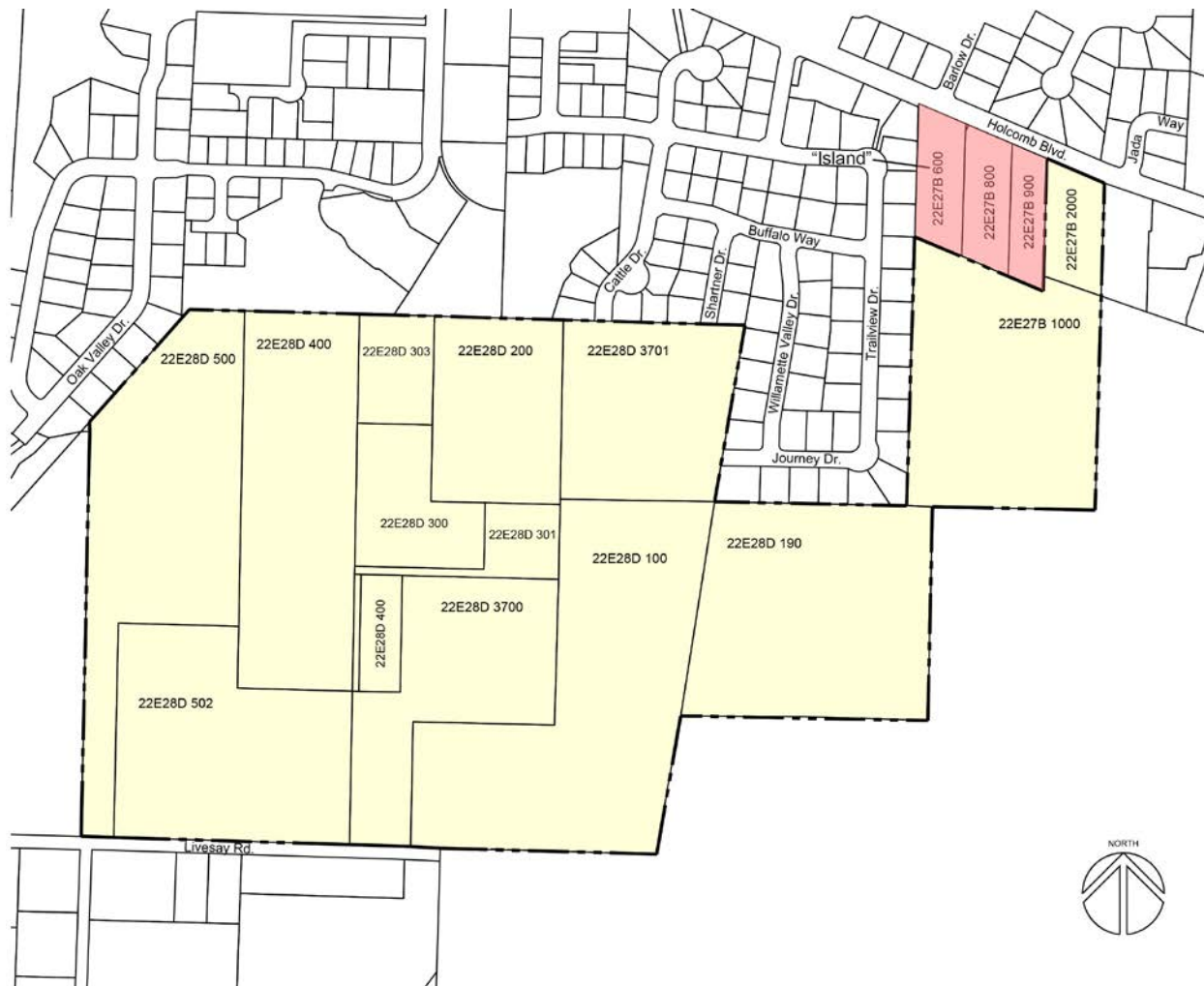


Figure 14: Annexation Area and Island

It is important to note that although this policy discourages island formation, it does not preclude them and they may be allowed when it is otherwise reasonable to do so. In fact implementing submittal language listed in OCMC 14.050.C3 clearly envisions that proposals may create islands in that it requires that public notification mailing labels include those property owners that will be "islanded" by the annexation proposal.

The language of this policy calls for an evaluation of whether the creation of an island, by itself or in conjunction with the other listed factors, would be sufficiently problematic that the annexation proposal must be altered to include the area of the potential island. The island itself is not problematic for the City in any significant way. It is small in size at 3.7 acres, and involves only three properties. All of these properties are developed with single-family homes. The island would only be separated from other unincorporated land by approximately 180 feet along Holcomb Blvd. No further development of these properties would be allowed until such time as

they are annexed to the City in the future. Rising land values and the provision of urban services to these properties are likely to bring an incentive for future development that will result in the voluntary annexation of these properties.

The creation of this island will have no impact upon the efficient provision of public services. Storm sewer and sanitary sewer drain to the south, away from the island area, and will be provided with the development of the annexation area. Holcomb Blvd. along the frontage of these properties is entirely within the city limits and access to water service is available in that right-of-way. While there will be a need for additional right-of-way to be dedicated from the islanded properties in order for Holcomb Blvd. to be developed to full City arterial standards. Such dedication and improvement of the road will likely not occur until such time as the owners of these properties choose to annex and develop their land. On the other hand, should the City desire to make these improvements on its own, the creation of an island at this time would have no impact on the City's ability to do so. It has the ability to annex islanded properties on its own motion and to acquire needed right-of-way either by purchase or by condemnation.

The inclusion of the island area in the annexation proposal is not needed to implement a concept plan or sub-area master plan that has been approved by the Planning and City Commissions. The three properties that would be islanded in this proposal are not a part of the Park Place Concept Plan or any other sub-area master plan.

Policy 14.4.4

Expedite the annexation of property as provided by state law in order to provide sewer service to adjacent unincorporated properties when a public health hazard is created by a failing septic tank sewage system.

Comment: Not applicable. The subject property is not subject to a public health hazard associated with a failing septic system.

Park Place Concept Plan

With the exception of 1.45 acres that fronts on Holcomb Blvd. (Tax Lot 22E27B 02000), all of the subject property lies within the boundaries of the Park Place Concept Plan. The proposed annexation and concurrent zone change are a first step towards implementing this plan.

The Park Place Concept Plan's Figure 3-2 "North Village Neighborhood", bears a note stating, "This map is for concept planning purposes only. The specific locations of natural resource boundaries, open space, parks, land uses, roads, trail, infrastructure and related improvements may change and is subject to on-site verification and design at the time of development." The Park Place Concept Plan is an ancillary document to the City's Comprehensive Plan. However, designations depicted on the Oregon City Comprehensive Plan Map, as adopted by Ordinance No. 08-1014, are authoritative for purposes of the requested zone change in conjunction with annexation of this property. It is understood that a future zone change/comprehensive plan map amendment application will be necessary at the time of preparation of the future master plan in order to implement the general conceptual design called for by the North Village Plan.

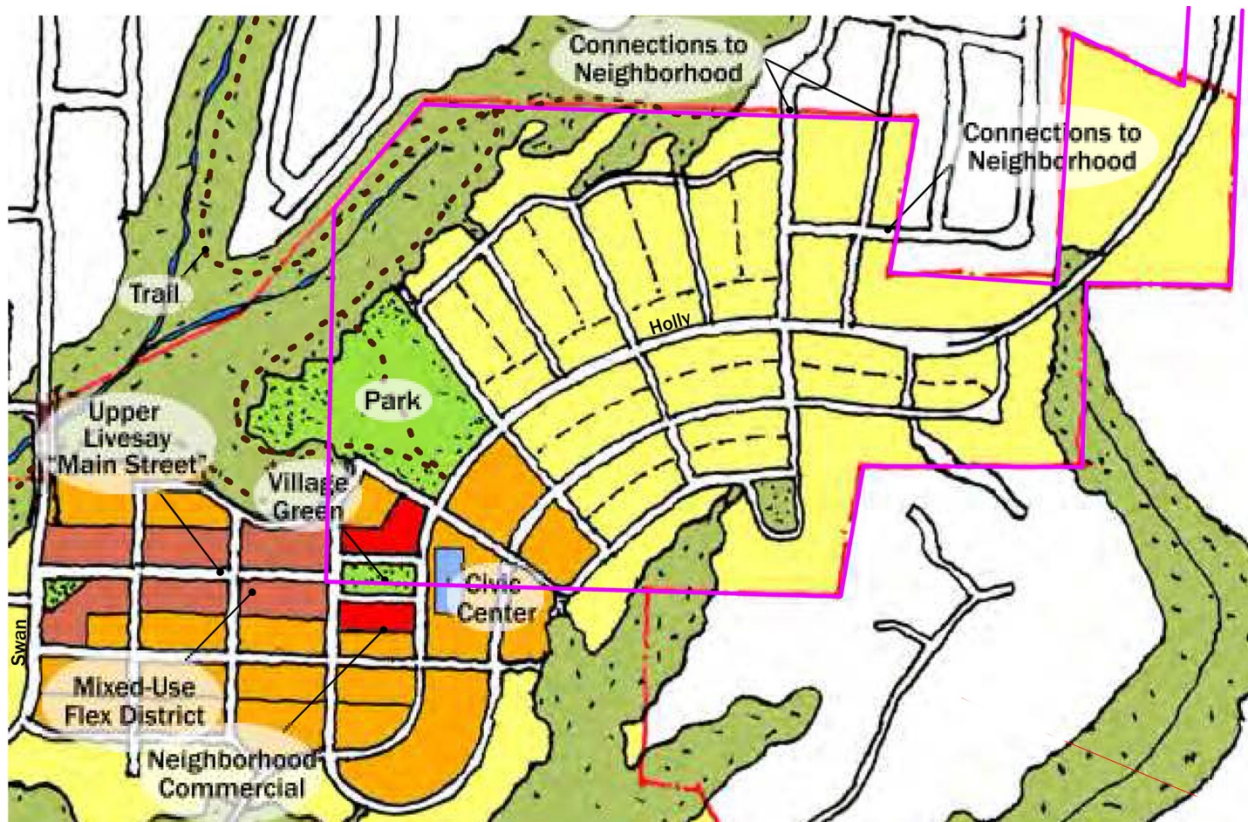


Figure 15: North Village Neighborhood (Annexation Area Outlined in Magenta)

The plan for the North Village area includes commercial development along a new main street along Upper Livesay Road. This area is shown in red on the map above and impacts a small area of the subject property. The orange color depicts Medium/High-Density Residential (R-3.5, minimum 9 units/acre) which would likely be developed with a mix of townhouse and duplex units. The yellow area is planned for Low/Medium-Density Residential (proposed R-5, minimum 6 units/acre) that would be a mix of single-family detached and single-family attached dwellings. A community park is also called for in the Plan. A collector road called the Holly Lane north extension would provide a roadway corridor tying Holcomb Blvd. through to Redland Road, which would be a significant improvement for the Park Place neighborhood that presently is restricted to the Holcomb Blvd. corridor for access.

The key components of the Park Place Concept Plan are listed on page 1 of that document:

- Two primary north-south connections between Holcomb Boulevard and Redland Road (Swan Avenue and Holly Lane)
- Two distinct mixed-use neighborhoods (North Village and South Village) that accommodate 1,459 new dwelling units
- Neighborhood-oriented commercial nodes that integrate commercial land uses, residential land uses, and public open space
- An area for a new civic institution, like a library or community center
- An 8-10 acre community park and a 3-5 acre neighborhood park
- A mix of housing types and ranges of affordability
- An extensive system of off-street and on-street trails and pedestrian/bicycle connections

- Innovative, green on-site stormwater treatment methods
- Protected sensitive areas, including drainages and steep slopes
- Streets and buildings oriented for solar access
- The use of green edges to define neighborhoods and buffer developments
- Integration of parks and open spaces into existing and future neighborhoods

The subject property includes part of the Holly Lane north extension, but is not involved in the Swan Avenue connection. The area of the annexation site along Livesay Road includes neighborhood commercial development, some of the civic institution uses and a major portion of the planned community park. As shown on the North Village Neighborhood plan, there are areas of sensitive land associated with drainageways that will need to be protected as open space. The plan will also include trails that will tie open spaces to residential and commercial components.

The present application involves only the annexation and application of the zoning that is consistent with the adopted Comprehensive Plan Map. It is not appropriate to discuss the goals and policies of the Park Place Community Plan in detail at this early stage. The future zone change and development applications will be reviewed for compliance with all relevant goals and objectives of the Park Place Concept Plan at such time as those applications are submitted.

CERTIFICATION OF LEGAL DESCRIPTION AND MAP

I hereby certify that the description of the property included within the attached petition (located on Assessor's Map 22E28D, 22E27B) has been checked by me and it is a true and exact description of the property under consideration, and the description corresponds to the attached map indicating the property under consideration.



NAME Amber Staley
TITLE Cartographer II
DEPARTMENT Assessment & Taxation
COUNTY OF Clackamas
DATE 9/8/16



Exhibit "A"
Annexation
Legal Description (Page 1 of 3)



A Tract of land being all of the Tracts of land described in the following Document Numbers: 2013-045391, 84-04898, 2008-082067, 2015-013359, 2015-063896, 2014-020739, 2015-065124, 94-049182, 86-50150, 2003-086776, 2014-013360, and 89-38723 Clackamas County Deed Records, located in the Northwest one-quarter of Section 27 and the Southeast one-quarter and the Northeast one-quarter of Section 28, Township 2 South, Range 2 East of the Willamette Meridian, County of Clackamas, State of Oregon, being more particularly described as follows:

BEGINNING at the Southwest corner of the Plat of "Trailview", Clackamas County Plat Record, being coincident with the Northwest corner of that Tract of land described in Deed Document Number 2013-045391, Clackamas County Deed Records; thence along the North line of said Document Number 2013-045391, being coincident with the South line of said "Trailview", N90°00'00"E, 589.00 feet more or less to the Southwest corner of that Tract of land described in Deed Document Number 2014-013360, Clackamas County Deed Records; thence along the West line of said Document Number 2014-013360, being coincident with the East line of said "Trailview", N00°02'00"E, 832.00 feet to the Northwest corner of said Document Number 2014-013360; thence along the North line of said Document Number 2014-013360, being coincident with the South line of those Tract of land described in Deed Document Numbers 94-049182, 86-50150, and 2003-086776, Clackamas County Deed Records, S68°15'00"E, 430.77 feet to the Southeast corner of said Document Number 2003-086776; thence along the East line of said Document Number 2003-086776, being coincident with the West line of that Tract of land described in Deed Document Number 2014-020739, Clackamas County Deed Records, N00°02'00"E, 435.00 feet to the centerline of Holcomb Boulevard; thence along the centerline of said Holcomb Boulevard, S68°15'00"E, 192.68 feet to the East line of said Document Number 2014-020739; thence along said East line, and continuing along the East line of said Document Number 2014-013360, S00°02'00"W, 1030.30 feet to the South line of said Document Number 2014-013360, being coincident with the East and West centerline of Section 27; thence along said South line, being coincident with said East and West Section line, N90°00'00"W, 508.20 feet more or less to the Quarter Section corner between Sections 27 and 28; thence along the East line of that Tract of land described in Deed Document Number 2013-045391, Clackamas County Deed Records, being coincident with the Section line between said Section 27 and 28, S00°00'00"E, 659.60 feet more or less to the Southeast corner of said Document Number 2013-045391; thence along the South line of said Document Number 2013-045391, S90°00'00"W,



Exhibit "A"
Annexation
Legal Description (Page 2 of 3)

751.91 feet more or less to the East line of that Tract of land described in Deed Document Number 2013-045391, Clackamas County Deed Records, being coincident with the East line of the George Abernethy Donation Land Claim Number 58; thence along the East line of said Deed Document Number 2013-045391, being coincident with the East line of the George Abernethy Donation Land Claim Number 58, S08°00'00"W, 462.00 feet more or less to the South line of said Document Number 2013-045391; thence along said South line, and the South line of the Tracts of land described in Deed Document Numbers 2015-063896, 2011-063635 and 2015-013359, Clackamas County Deed Records, being coincident with the North line of "Meadow Ridge Estates", Clackamas County Plat Records, and the North right of way line of Livesay Road, being 20.00 feet North of centerline when measure at right angles, N90°00'00"W, 1946.57 feet more or less to the Southwest corner of that Tract of land described in Deed Document Number 2015-013359, Clackamas County Deed Records; thence along the West line of said Document Number 2015-013359, N00°00'00"E, 1350.12 feet more or less to the Northeast corner of that Tract of land described in Deed Document Number 2013-005499, Clackamas County Deed Records; thence along the North line of said Document Number 2013-005499, S90°00'00"W, 27.06 feet to the most Easterly corner of said Document Number 2015-013359, being coincident with the Southeasterly line of "Holcomb Ridge Estates No. 2", Clackamas County Plat Records; thence along the Northwesterly line of said Document Number 2015-013359, and the Southeasterly line of said "Holcomb Ridge Estates No. 2", N58°00'00"E, 590.45 feet to the North line of said Document Number 2015-013359, being coincident with the South line of "Wittke Estates", Clackamas County Plat Records; thence along the North line of said Document Number 2015-013359, and the North line of the Tracts of land described in Deed Document Numbers 2008-2067, 84-04898, 89-38723, and 2015-065124, Clackamas County Deed Records, being coincident with the South line of said "Wittke Estates", and the South line of "Tracey Heights" and "Wasko Acres", Clackamas County Plat Records, N90°00'00"E, 1706.62 feet more or less to the East line of said Document Number 2015-065124, being coincident with

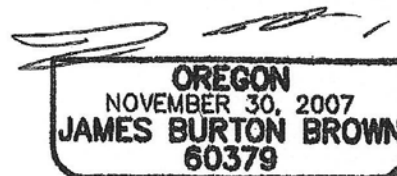
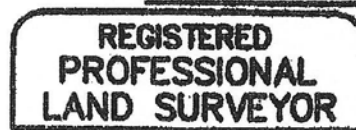


Exhibit "A"
Annexation
Legal Description (Page 3 of 3)

the East line of the George Abernethy Donation Land Claim Number 58, and the West line of said "Trail View"; thence along the East line of said Document Number 2015-065124, being coincident with a the East line of the George Abernethy Donation Land Claim Number 58, and the West line of said "Trail View", S08°00'00"W, 557.00 feet more or less to the **POINT OF BEGINNING**.

Contains 99 acres more or less.

SIGNED ON: 9-7-2016

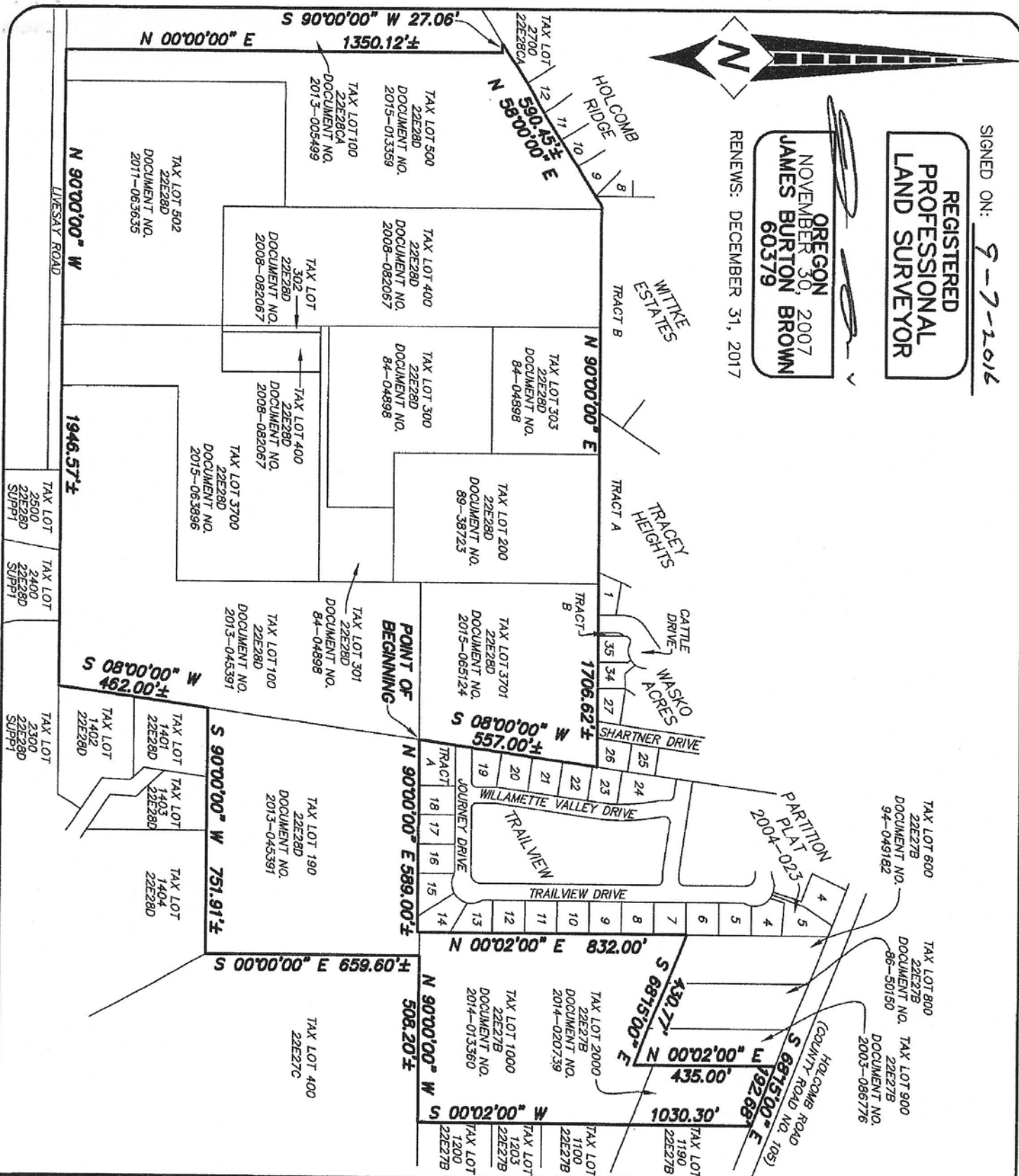
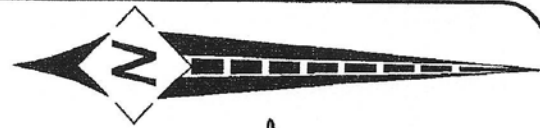


VALID THROUGH DECEMBER 31, 2017

**REGISTERED
PROFESSIONAL
LAND SURVEYOR**

OREGON
NOVEMBER 30, 2007
JAMES BURTON BROWN
60379

RENEWALS: DECEMBER 31, 2017



CLIENT: *ICON*
ORIG. DATE: *SEPTEMBER 7, 2016*
DRAWN BY: *JL*
SHEET No. *1 OF 1*

EXHIBIT "B"
ANNEXATION
CLACKAMAS COUNTY, OREGON
SCALE: 1"=400'



CENTERLINE CONCEPTS
LAND SURVEYING, INC.
19376 MOLALLA AVE., SUITE 120
OREGON CITY, OREGON 97045
PHONE 503.650.0188 FAX 503.650.0189

CERTIFICATION OF LEGAL DESCRIPTION AND MAP

I hereby certify that the description of the property included within the attached petition (located on Assessor's Map 22E28D, 22E27B) has been checked by me and it is a true and exact description of the property under consideration, and the description corresponds to the attached map indicating the property under consideration.



NAME Amber Staley
TITLE Cartographer II
DEPARTMENT Assessment & Taxation
COUNTY OF Clackamas
DATE 9/8/16



Exhibit "A"
Annexation
Legal Description (Page 1 of 3)



A Tract of land being all of the Tracts of land described in the following Document Numbers: 2013-045391, 84-04898, 2008-082067, 2015-013359, 2015-063896, 2014-020739, 2015-065124, 94-049182, 86-50150, 2003-086776, 2014-013360, and 89-38723 Clackamas County Deed Records, located in the Northwest one-quarter of Section 27 and the Southeast one-quarter and the Northeast one-quarter of Section 28, Township 2 South, Range 2 East of the Willamette Meridian, County of Clackamas, State of Oregon, being more particularly described as follows:

BEGINNING at the Southwest corner of the Plat of "Trailview", Clackamas County Plat Record, being coincident with the Northwest corner of that Tract of land described in Deed Document Number 2013-045391, Clackamas County Deed Records; thence along the North line of said Document Number 2013-045391, being coincident with the South line of said "Trailview", N90°00'00"E, 589.00 feet more or less to the Southwest corner of that Tract of land described in Deed Document Number 2014-013360, Clackamas County Deed Records; thence along the West line of said Document Number 2014-013360, being coincident with the East line of said "Trailview", N00°02'00"E, 832.00 feet to the Northwest corner of said Document Number 2014-013360; thence along the North line of said Document Number 2014-013360, being coincident with the South line of those Tract of land described in Deed Document Numbers 94-049182, 86-50150, and 2003-086776, Clackamas County Deed Records, S68°15'00"E, 430.77 feet to the Southeast corner of said Document Number 2003-086776; thence along the East line of said Document Number 2003-086776, being coincident with the West line of that Tract of land described in Deed Document Number 2014-020739, Clackamas County Deed Records, N00°02'00"E, 435.00 feet to the centerline of Holcomb Boulevard; thence along the centerline of said Holcomb Boulevard, S68°15'00"E, 192.68 feet to the East line of said Document Number 2014-020739; thence along said East line, and continuing along the East line of said Document Number 2014-013360, S00°02'00"W, 1030.30 feet to the South line of said Document Number 2014-013360, being coincident with the East and West centerline of Section 27; thence along said South line, being coincident with said East and West Section line, N90°00'00"W, 508.20 feet more or less to the Quarter Section corner between Sections 27 and 28; thence along the East line of that Tract of land described in Deed Document Number 2013-045391, Clackamas County Deed Records, being coincident with the Section line between said Section 27 and 28, S00°00'00"E, 659.60 feet more or less to the Southeast corner of said Document Number 2013-045391; thence along the South line of said Document Number 2013-045391, S90°00'00"W,



Exhibit "A"
Annexation
Legal Description (Page 2 of 3)

751.91 feet more or less to the East line of that Tract of land described in Deed Document Number 2013-045391, Clackamas County Deed Records, being coincident with the East line of the George Abernethy Donation Land Claim Number 58; thence along the East line of said Deed Document Number 2013-045391, being coincident with the East line of the George Abernethy Donation Land Claim Number 58, S08°00'00"W, 462.00 feet more or less to the South line of said Document Number 2013-045391; thence along said South line, and the South line of the Tracts of land described in Deed Document Numbers 2015-063896, 2011-063635 and 2015-013359, Clackamas County Deed Records, being coincident with the North line of "Meadow Ridge Estates", Clackamas County Plat Records, and the North right of way line of Livesay Road, being 20.00 feet North of centerline when measure at right angles, N90°00'00"W, 1946.57 feet more or less to the Southwest corner of that Tract of land described in Deed Document Number 2015-013359, Clackamas County Deed Records; thence along the West line of said Document Number 2015-013359, N00°00'00"E, 1350.12 feet more or less to the Northeast corner of that Tract of land described in Deed Document Number 2013-005499, Clackamas County Deed Records; thence along the North line of said Document Number 2013-005499, S90°00'00"W, 27.06 feet to the most Easterly corner of said Document Number 2015-013359, being coincident with the Southeasterly line of "Holcomb Ridge Estates No. 2", Clackamas County Plat Records; thence along the Northwesterly line of said Document Number 2015-013359, and the Southeasterly line of said "Holcomb Ridge Estates No. 2", N58°00'00"E, 590.45 feet to the North line of said Document Number 2015-013359, being coincident with the South line of "Wittke Estates", Clackamas County Plat Records; thence along the North line of said Document Number 2015-013359, and the North line of the Tracts of land described in Deed Document Numbers 2008-2067, 84-04898, 89-38723, and 2015-065124, Clackamas County Deed Records, being coincident with the South line of said "Wittke Estates", and the South line of "Tracey Heights" and "Wasko Acres", Clackamas County Plat Records, N90°00'00"E, 1706.62 feet more or less to the East line of said Document Number 2015-065124, being coincident with

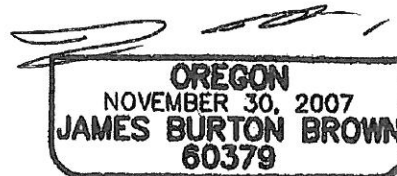
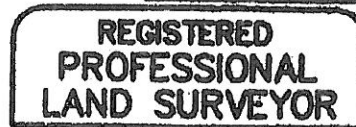


Exhibit "A"
Annexation
Legal Description (Page 3 of 3)

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Contains 99 acres more or less.

SIGNED ON: 9-7-2016

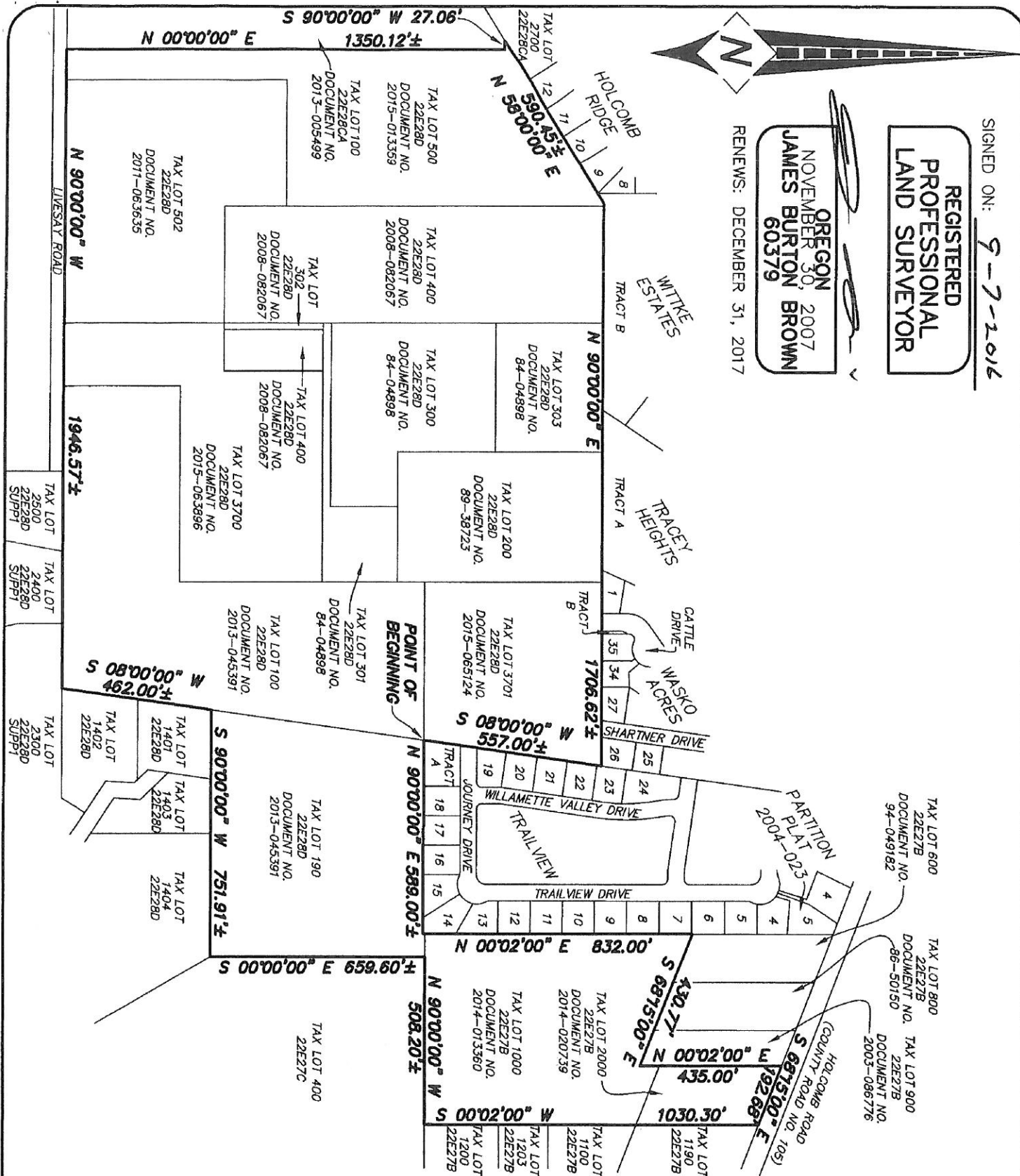
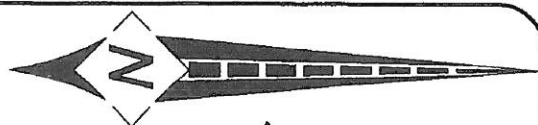


VALID THROUGH DECEMBER 31, 2017

**REGISTERED
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LAND SURVEYOR**

OREGON
NOVEMBER 30, 2007
JAMES BURTON BROWN
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RENEWALS: DECEMBER 31, 2017



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EXHIBIT "B"
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CLACKAMAS COUNTY, OREGON
SCALE: 1"=400'



CENTERLINE CONCEPTS
LAND SURVEYING, INC.
19376 MOLALLA AVE., SUITE 120
OREGON CITY, OREGON 97045
PHONE 503.650.0188 FAX 503.650.0189

CERTIFICATION OF PROPERTY OWNERSHIP OF

100% OF LAND AREA

(City 100% Ownership Method)

I hereby certify that the attached petition for a proposed boundary change involving the territory described in the petition contains the names of the owners * of 100% of the land area within the annexation area described in the petition, as shown on the last available complete assessment roll.



NAME Mary Neigel
TITLE GIS Cartographer II
DEPARTMENT Assessment & Tax
COUNTY OF Clackamas
DATE 12-19-17

- * "Owner" means the legal owner of record or, where there is a recorded land contract which is in force, the purchaser thereunder. If there is a multiple ownership in a parcel of land each consenting owner shall be counted as a fraction to the same extent as the interest of the owner in the land bears in relation to the interest of the other owners and the same fraction shall be applied to the parcel's land mass and assessed value for purposes of the consent petition. If a corporation owns land in territory proposed to be annexed, the corporation shall be considered the individual owner of that land.

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100% OF LAND AREA

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NAME Amber Staley
TITLE Cartographer II
DEPARTMENT Assessment & Taxation
COUNTY OF Clackamas
DATE 9/8/16

- * "Owner" means the legal owner of record or, where there is a recorded land contract which is in force, the purchaser thereunder. If there is a multiple ownership in a parcel of land each consenting owner shall be counted as a fraction to the same extent as the interest of the owner in the land bears in relation to the interest of the other owners and the same fraction shall be applied to the parcel's land mass and assessed value for purposes of the consent petition. If a corporation owns land in territory proposed to be annexed, the corporation shall be considered the individual owner of that land.

ANNEXATION PETITION

NOTE: This petition may be signed by qualified persons even though they may not know their property description or precinct number.

| SIGNATURE | PRINTED NAME | I AM A * | | | ADDRESS | PROPERTY DESCRIPTION | | | | PRECINCT # | DATE |
|------------------------------------------------------------------------------------|-------------------|----------|----|----|--------------------------------------------|----------------------|---------|---------|-------|------------|--------|
| | | PO | RV | OV | | LOT # | 1/4 SEC | TWNSHIP | RANGE | | |
|  | Emily Tolstrup | | X | | 16530 Livesay Rd. Oregon City, OR 97045 | 200 | 28D | 2S | 2E | 519 | 9/8/16 |
|  | Sarah Tolstrup | | X | | 16530 Livesay Rd. Oregon City, OR 97045 | 200 | 28D | 2S | 2E | 519 | 9-8-16 |
|  | Daniel Tolstrup | | X | | 16530 Livesay Rd. Oregon City, OR 97045 | 200 | 28D | 2S | 2E | 519 | 9/8/16 |
| | Colin StClair | | X | | 16644 Livesay Rd. Oregon City, OR 97045 | 300 | 28D | 2S | 2E | 519 | |
| | Allen Yoder | | X | | 16644 Livesay Rd. Oregon City, OR 97045 | 300 | 28D | 2S | 2E | 519 | |
| | Linda Thomas | | X | | 16644 Livesay Rd. Oregon City, OR 97045 | 300 | 28D | 2S | 2E | 519 | |
|  | Brandi StClair | | X | | 16644 Livesay Rd. Oregon City, OR 97045 | 300 | 28D | 2S | 2E | 519 | 9-9-16 |
| | Candice Covington | | X | | 16472 Livesay Rd. Oregon City, OR 97045 | 3700 | 28D | 2S | 2E | 519 | |

Page 7

ANNEXATION PETITION

NOTE: This petition may be signed by qualified persons even though they may not know their property description or precinct number.

[illegible]

Page 7

ANNEXATION PETITION

NOTE: This petition may be signed by qualified persons even though they may not know their property description or precinct number.

[illegible]

Page 7

By signing below I indicate my consent to and support of being annexed into the City of Oregon City, and my consent for having my signature (below) used for any application form required for the annexation, including but not limited to the City of Oregon City's Land Use Application Form.

[illegible]

Page 7

CITY OF OREGON CITY

ANNEXATION PETITION

By signing below I indicate my consent to and support of being annexed into the City of Oregon City, and my consent for having my signature (below) used for any application form required for the annexation, including but not limited to the City of Oregon City's Land Use Application Form.

[E: This petition may be signed by qualified persons even though they may not know their property description or precinct number.

| SIGNATURE | PRINTED NAME | I AM A * | | | ADDRESS | PROPERTY DESCRIPTION | | | | PRECINCT # | DATE |
|-------------------------|------------------------------|----------|----|----|----------------------------------------------------|----------------------|---------|----------|-------|------------|---------------|
| | | PO | RV | OV | | LOT # | 1/4 SEC | TOWNSHIP | RANGE | | |
| | Hidden Falls Development LLC | X | | | 1880 Williams Falls Dr #200 West Linn, OR 97068 | 100 | 28D | 2S | 2E | NA | |
| | Hidden Falls Development LLC | X | | | 1880 Williams Falls Dr #200 West Linn, OR 97068 | 190 | 28D | 2S | 2E | NA | |
| | Hidden Falls Development LLC | X | | | 1880 Williams Falls Dr #200 West Linn, OR 97068 | 3700 | 28D | 2S | 2E | NA | |
| | Michael Erickson | X | | | 1880 Williams Falls Dr #200 West Linn, OR 97068 | 3701 | 28D | 2S | 2E | NA | |
| <i>Not a signature</i> | Kirk Tolstrup | | | X | 16550 Lacey Rd Oregon City, OR 97045 | 200 | 28D | 2S | 2E | 519 | |
| <i>Michael Tolstrup</i> | Michelle Tolstrup | | | X | 16550 Lacey Rd Oregon City, OR 97045 | 200 | 28D | 2S | 2E | 519 | Apr 1 23 2016 |
| <i>George E Thomas</i> | George Thomas | X | | | 18804 Lacey Rd Oregon City, OR 97045 | 300 | 28D | 2S | 2E | NA | |
| <i>George E Thomas</i> | George Thomas | | | X | 18804 Lacey Rd Oregon City, OR 97045 | 301 | 28D | 2S | 2E | 519 | 4-22-16 |
| <i>George E Thomas</i> | George Thomas | X | | | 26020 Valley View Rd West Linn, OR 97068 | 302 | 28D | 2S | 2E | NA | 4-22-16 |
| <i>George E Thomas</i> | George Thomas | X | | | 16644 Lacey Rd Oregon City, OR 97045 | 303 | 28D | 2S | 2E | NA | |
| | Park Place Enterprises LLC | X | | | 26020 Valley View Rd West Linn, OR 97068 | 400 | 28D | 2S | 2E | NA | 4-22-16 |
| | Nel Investors LLC | X | | | 13504 NE 84th St #103-513 Vancouver, WA 98682 | 500 | 28D | 2S | 2E | NA | |

PO = Property Owner
RV = Registered Voter
OV = Owner and Registered Voter


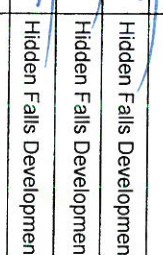
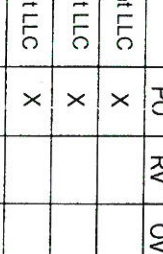



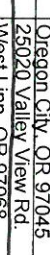
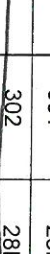
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AUG 08 2016

CITY OF OREGON CITY

ANNEXATION PETITION

By signing below I indicate my consent to and support of being annexed into the City of Oregon City, and my consent for having my signature (below) used for any application form required for the annexation, including but not limited to the City of Oregon City's Land Use Application Form.

NOTE: This petition may be signed by qualified persons even though they may not know their property description or precinct number.

| SIGNATURE | PRINTED NAME | I AM A * | | | ADDRESS | PROPERTY DESCRIPTION | | | | PRECINCT # | DATE |
|-------------------------------------------------------------------------------------|------------------------------|----------|----|----|-------------------------------------------------------|----------------------|---------|--------|-------|------------|--------|
| | | PO | RV | OV | | LOT # | 1/4 SEC | TWNSHP | RANGE | | |
|  | Hidden Falls Development LLC | X | | | 1980 Willamette Falls Dr. #200 West Linn, OR 97068 | 100 | 28D | 2S | 2E | NA | 9-8-16 |
|  | Hidden Falls Development LLC | X | | | 1980 Willamette Falls Dr. #200 West Linn, OR 97068 | 190 | 28D | 2S | 2E | NA | 9-8-16 |
|  | Hidden Falls Development LLC | X | | | 1980 Willamette Falls Dr. #200 West Linn, OR 97068 | 3700 | 28D | 2S | 2E | NA | 9-8-16 |
| | Michael Erickson | X | | | 1980 Willamette Falls Dr. #200 West Linn, OR 97068 | 3701 | 28D | 2S | 2E | NA | |
| | Kirk Tolstrup | | | X | 16530 Livesay Rd. Oregon City, OR 97045 | 200 | 28D | 2S | 2E | 519 | |
| | Michelle Tolstrup | | | X | 16530 Livesay Rd. Oregon City, OR 97045 | 200 | 28D | 2S | 2E | 519 | |
| | George Thomas | X | | | 16644 Livesay Rd. Oregon City, OR 97045 | 300 | 28D | 2S | 2E | NA | |
|  | George Thomas | | | X | 16644 Livesay Rd. Oregon City, OR 97045 | 301 | 28D | 2S | 2E | 519 | |
|  | Park Place Enterprises LLC | X | | | 25020 Valley View Rd. West Linn, OR 97068 | 302 | 28D | 2S | 2E | NA | 9/8/16 |
|  | George Thomas | X | | | 16644 Livesay Rd. Oregon City, OR 97045 | 303 | 28D | 2S | 2E | NA | |
|  | Park Place Enterprises LLC | X | | | 25020 Valley View Rd. West Linn, OR 97068 | 400 | 28D | 2S | 2E | NA | 9/8/16 |
|  | Netinvesters LLC | X | | | 13504 NE 84th St. #103-313 Vancouver, WA 98682 | 500 | 28D | 2S | 2E | NA | 8/4/16 |
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* PO = Property Owner
RV = Registered Voter
OV = Owner and Registered Voter

CERTIFICATION OF REGISTERED VOTERS

I hereby certify that the attached petition for annexation of territory described herein to the City of Oregon City contains the names of at least a majority of the electors registered in the territory to be annexed.

NAME PAUL HANES
TITLE DEPUTY CLERK
DEPARTMENT CLERK / ELECTIONS
COUNTY OF CLACKAMAS
DATE 9/9/16



CLACKAMAS COUNTY ELECTIONS
SHERRY HALL, COUNTY CLERK
1710 RED SOILS CT, SUITE 100
OREGON CITY, OR 97045

AN 16-05 Fiscal impact to provide public services, over typical project cost

Note: The easterly off-site sewer mains shown on the map below (12" & 21") are NOT needed to serve the annexation area. Those costs would be borne by the future annexation of property south of Livesay Road.

SANITARY SEWER:

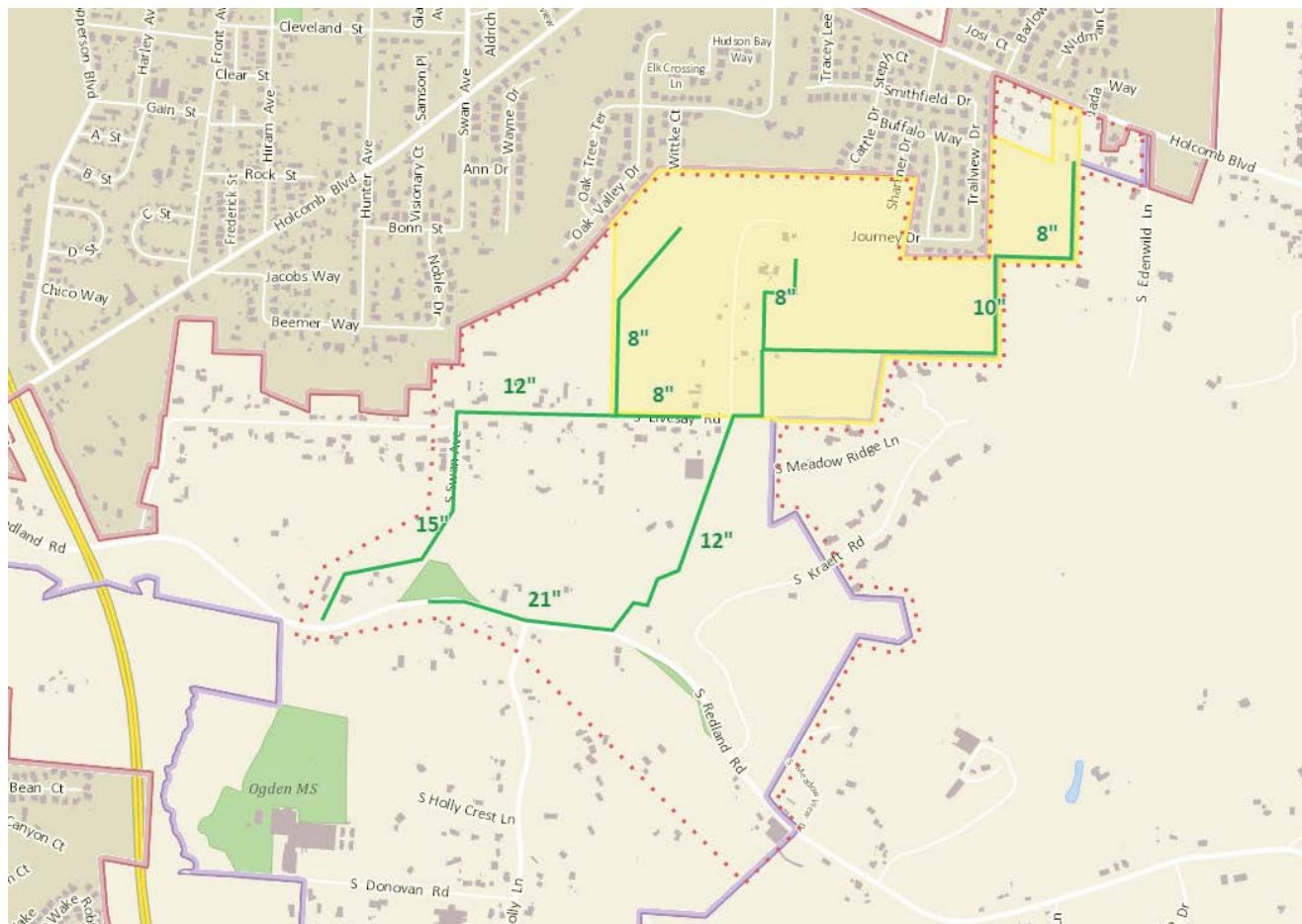
Oregon City Sanitary Master Plan 2014 and Park Place Concept Plan

Green = mains to be constructed per master plan

Yellow = AN 16-05

Red dotted line = approximate total boundary of basin to lower convergence point on Redland Road

1. Within Site Boundary: In yellow area, AN 16-05 derives 100% of benefit from sanitary mains lying within boundaries. These mains are the minimum size needed to serve the development, and should not be included in the fiscal impact figure.
2. Offsite Improvements: Outside yellow area, within red dotted line, AN 16-05 derives a portion of the benefit from sanitary mains lying between site boundary and total basin boundary, or 91 acres/265 acres = 34%
3,000 LF x \$225 /LF x 34% = \$ 229,500
3. Offsite easement or right-of-way: 30,000 SF x \$ 2.50 /SF land acquisition cost = \$ 75,000
4. No SDC Credits anticipated at this time.
5. **Approximate fiscal impact of providing public sanitary service, over typical project cost = \$ 304,500**



WATER:

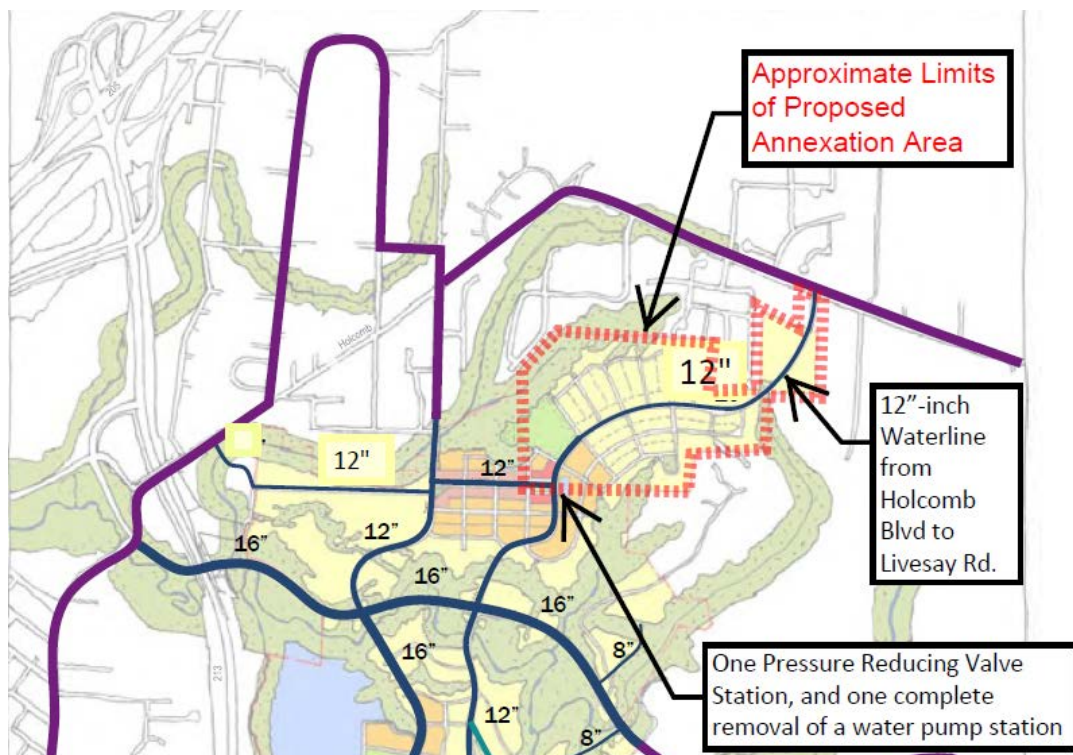
Oregon City Water Master Plan 2012 and Park Place Concept Plan

Red dashed area = approximate limits of AN 16-05

- Proposed annexation area appears to be located within the Park Place Intermediate pressure zone, Park Place Upper pressure zone, and Park Place Livesay Road pressure zone.
 - Upper Zone is served by Clackamas River Water (CRW) through HOPP Agreement.
 - Intermediate zone is served by Oregon City.
 - Livesay Road Zone is a sub-zone that will be rezoned with the development of the annexation area.
- Water Infrastructure required:
 - 12"-inch waterline required through annexation area providing transmission/distribution main from Holcomb Boulevard to Livesay Road.
 - One pressure reducing valve station between Park Place Intermediate zone and Park Place Lower zone.
 - Removal of one water pump station at Livesay Road when Livesay Road zone is rezoned to Intermediate zone.

Within limits of annexation Site Boundary: AN 16-05 needs 100% of 12" water main from Holcomb Boulevard to Livesay Road, one pressure reducing valve station, and removal of one water pump station.

1. (4,000 LF of 12-inch waterline and all appurtenances) x \$ 170 /LF x 100% = \$ 680,000
2. (one pressure reducing valve station) x \$20,000 Lump Sum x 100% = \$20,000
3. (one complete removal of water pump station) x \$15,000 Lump Sum x 100% = \$15,000
4. No SDC Credits anticipated at this time.
5. **Approximate fiscal impact of providing public water service, over typical project cost = \$715,000**



Park Place Annexation

Transportation Impact Study Oregon City, Oregon

Date:

August 2, 2017

Prepared for:

Mark Handris

Prepared by:

Daniel Stumpf, EI

Michael Ard, PE



EXPIRES: 12/31/17



LANCASTER
ENGINEERING



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Executive Summary

- A 92-acre property north and west of S Livesay Road and south of S Holcomb Boulevard is proposed for annexation into the Oregon City. Upon annexation, 87.5 acres of the property will be rezoned to R-5 zoning and 4.5 acres of the property will be rezoned to Neighborhood Commercial, in conformance with the city's Comprehensive Plan.
- Based on a comparison of the allowed uses under the existing and proposed zoning of the subject property, the proposed annexation could result in up to 385 additional trips during the morning peak hour, with 100 entering and 285 exiting the site. During the evening peak hour, 531 additional site trips are projected, with 322 entering and 209 exiting the site.
- Based on the operational analysis, several study intersections are not projected to meet the relevant operational standards of Oregon City and ODOT under year 2035 traffic conditions either with or without the addition of site trips from the proposed annexation and zone change. Although the intersection of Beavercreek Road at OR-213 is not projected to experience a significant change in operation as a result of the proposed annexation and zone change, several other study intersections are projected to experience further degradation in performance upon development within the subject property.
- Based on the Transportation Planning Rule analysis, the city may find that the proposed annexation and zone change will not significantly effect an existing or planned transportation facility since the city's acknowledged Transportation System Plan already accounted for development under the proposed zoning. Alternatively, conditions of development or a development agreement may be implemented to ensure that no development can occur except as permitted under the existing zoning until appropriate refinement plans are prepared to address future capacity concerns, or proportionate mitigation is provided concurrent with development to offset the actual traffic impacts of the development.
- Based on the detailed review of crash history at the study area intersections, the intersection of Beavercreek Road at OR-213 was found to be among the top ten percent of high-crash intersections in the State of Oregon, with the vast majority of the reported crashes being rear-end collisions. One potential safety mitigation would be installing flashing warning signs that alert drivers to the potential for stopped queues ahead. These warning signs are most appropriate for the high-speed approaches on OR-213, and particularly the southbound approach which has uninterrupted flow for 2.5 miles. This project is already included as a "likely to be funded" project for near-term implementation in the city's Transportation System Plan.
- The intersection of 14th Street at Main Street was also identified as having a high crash rate. Per Oregon City's Transportation System Plan, project D13, the intersection could be converted to all-way stop control to be consistent with the traffic countrols at surrouding intersections along Main Street. Additionally, by implementing project D7 and restriping 14th Street to allow one-way eastbound travel, it is expected that the potential for crashes at the intersection will be reduced. Both projects are listed as "likely to be funded" in the city's TSP.
- All other study intersections are currently operating acceptably with respect to safety.



- Left-turn lane warrants are projected to be met for the following three intersection approaches:
 - o Northwest-bound approach at the intersection of 14th Street at Main Street under existing conditions during the morning and evening peak hours;
 - o Eastbound approach at the intersection of Holly Lane at S Redland Road under the 2035 planning horizon year, with the proposed annexation, during the morning and evening peak hours; and
 - o Westbound approach at the intersection of Holly Lane at S Redland Road under existing conditions during the morning peak hour.

14th Street may be planned for conversion to one-way eastbound travel in the near-term. If the one-way street conversion is implemented, the left-turn lane warrant will no longer be applicable.

- Traffic signal warrants are projected to be met for the intersection of Holly Lane at S Redland Road under the 2035 planning year with site trips from the proposed annexation per Condition B – *Interruption of Continuous Traffic*, and a *Combination Warrant*. Alternatively, a roundabout could be installed at the intersection in conformance with the city's TSP. Traffic signal warrants are not projected to be met for any of the other unsignalized intersections under any of the analysis scenarios.



Project Description and Location

Introduction

A 92-acre property north and west of S Livesay Road and south of S Holcomb Boulevard is proposed for annexation into Oregon City. The proposed annexation will also result in a zone change from the existing Clackamas County zoning to 87.5 acres of R-5 zoning and 4.5 acres of Neighborhood Commercial zoning, in conformance with Oregon City's Comprehensive Plan.

Base on the scope of work conforming to Oregon City and ODOT standards and approved by Oregon City's transportation engineering consultant, John Replinger, this report addresses the impact of the proposed development on the nearby street system and includes safety and operational analyses of the following intersections:

1. Interstate 205 (I-205) southbound ramps at McLoughlin Boulevard (OR-99E);
2. I-205 northbound ramps at OR-99E;
3. 15th Street at OR-99E;
4. 14th Street at OR-99E;
5. Abernethy Road/S Holcomb Boulevard at Redland Road;
6. Abernethy Road at Washington Street;
7. 15th Street at Washington Street;
8. 14th Street at Washington Street;
9. 14th Street at Main Street;
10. I-205 southbound ramps at Trails End Highway (OR-213);
11. I-205 northbound ramps at OR-213;
12. Prairie Schooner Way/Clackamas River Drive at OR-213;
13. Redland Road at OR-213;
14. Beavercreek Road at OR-213;
15. Holly Lane at S Holcomb Boulevard (future intersection); and
16. Holly Lane at S Redland Road.

The purpose of this study is to assess the potential impacts of the proposed annexation and address the transportation analysis requirements of Oregon City, the Oregon Department of Transportation (ODOT), and Oregon's Transportation Planning Rule. The report will identify the potential net increase in traffic and examine the transportation impacts of the added trips at the planning horizon. The report will also include level-of-service calculations and volume-to-capacity calculations for existing conditions as well as year 2035



traffic conditions both with and without the proposed annexation and zone change. Additionally, a review and assessment of crash history at the study intersections was conducted.

Detailed information on traffic counts, crash data, and level-of-service calculations are included in the appendix to this report.

Location Description

The subject site is located south of S Holcomb Boulevard and north of S Redland Road in a predominately residential area, and has frontage along S Holcomb Boulevard and S Livesay Road. The site includes multiple properties which are either currently undeveloped or are occupied by a single-family house.

Vicinity Streets

OR-99E is classified by ODOT as a Regional Highway south and a District Highway north of I-205 and by Oregon City as a Major Arterial. The roadway has a varying cross-section of four to eight travel lanes and has a posted speed of 40 mph north and 30 mph south of 14th Street. On-street parking is permitted along both sides of the roadway at marked locations south of 14th Street. Curbs, sidewalks, and bicycle lanes are intermittently provided along both sides of the roadway.

Main Street is classified by Oregon City as a Collector. The roadway has a two-lane cross-section with on-street parking permitted along both sides of the roadway south of 15th Street where either adequate roadway width is provided or spaces are marked. Bicycle lanes are provided along both sides of the roadway north while sharrows are marked within vehicle travel lanes south of 15th Street. Curbs and sidewalks are provided along both sides of the roadway south of 15th Street while only partially provided to the north.

Washington Street is classified by Oregon City as a Minor Arterial north and a Local Street south of 5th Street. The roadway has a varying cross-section between two to six travel lanes and has a posted speed which varies between 25 mph and 35 mph within the study area. On-street parking is permitted along both sides of the roadway south of 11th Street while bicycle lanes are provided along both sides to the north. Curbs and sidewalks are provided along both sides of the roadway south and intermittently provided north of Abernethy Road.

OR-213 is classified by ODOT as a District Highway and by Oregon City as an Expressway. The roadway has a varying cross-section between four to seven travel lanes and has a posted speed of 45 mph north and 55 mph south of Prairie Schooner Way. Bicycle lanes or shoulders are provided along both sides of the roadway. Curbs and sidewalks are intermittently provided along both sides of the roadway.

Holly Lane is classified by Oregon City as a Minor Arterial. The roadway has a two-lane cross-section and has a posted speed of 40 mph. Curbs, sidewalks, and bicycle lanes are not provided along either side of the roadway. The Oregon City Transportation System Plan (TSP) includes a planned project to extend Holly Lane from S Redland Road to S Holcomb Boulevard. The planned extension is listed as a “Likely To Be Funded” project.



Prairie Schooner Way is classified by Oregon City as a Minor Arterial. The roadway has a three to five-lane cross-section, with two eastbound and one to three westbound travel lanes. Curbs and bicycle lanes are provided along both sides of the roadway.

Clackamas River Drive is classified by Oregon City as a Minor Arterial. The roadway has a two-lane cross-section north of the roundabout at Washington Street, and a four-lane cross-section to the south with two southbound travel lanes, a two-way left-turn lane, and a northbound travel lane. It has a posted speed of 40 mph north and 30 mph south of S Melinda Street. Bicycle lanes are provided along both sides of the roadway while curbs and sidewalks are intermittently provided.

Redland Road is classified by Oregon City as a Minor Arterial. The roadway has a five-lane cross-section between OR-213 and Abernethy Road/S Holcomb Boulevard and a two-lane cross-section south of S Holcomb Boulevard. It has a posted speed of 45 mph. Bicycle lanes are provided along both sides of the roadway while curbs and sidewalks are only available for approximately 450 feet south of Abernethy Road/S Holcomb Boulevard.

Abernethy Road is classified by Oregon City as a Minor Arterial. The roadway has a three-lane cross-section, with one travel lane and a center two-way left-turn lane, and has a posted speed of 35 mph. Bicycle lanes are provided along both sides of the roadway while curbs and sidewalks are intermittently provided along both sides.

S Holcomb Boulevard is classified by Oregon City as a Minor Arterial. The roadway has a two-lane cross-section and has a posted speed of 40 mph. Curbs, sidewalks, and bicycle lanes are intermittently provided along both sides of the roadway.

15th Street is classified by Oregon City as a Collector. The roadway has a two-lane cross-section and has a posted speed of 25 mph. On-street parking is permitted along both sides of the roadway east of Washington Street where adequate roadway width is available. Curbs and sidewalks are intermittently provided along both sides of the roadway.

14th Street is classified by Oregon City as a Collector west and Local Street east of Washington Street. The roadway has a four-lane cross-section between OR-99E and Main Street, with two travel lanes in each direction, and a two-lane cross-section east of Main Street. On-street parking is permitted along both sides of the roadway east of Washington Street. Curbs and sidewalks are provided along both sides of the roadway.

Beavercreek Road is classified by Oregon City as a Major Arterial east of Molalla Avenue. The roadway has a five-lane cross-section, with two travel lanes in each direction and either a center two-way left-turn lane or raised median. It has a posted speed is 35 mph. Curbs, sidewalks, and bicycle lanes are provided along both sides of the roadway.

Study Intersections

The I-205 southbound ramps intersection at OR-99E is a three-legged intersection that is controlled by a traffic signal. The northbound approach has three through lanes and one channelized right-turn lane that



operates under yield control. The southbound approach has three through lanes and one left-turn lane served by protected phasing. The westbound approach has two left-turn lanes and one right-turn lane served by permitted/overlapping phasing. One crosswalk is marked across the eastern intersection leg.

The I-205 northbound ramps intersection at OR-99E is a three-legged intersection that is controlled by a traffic signal. The northbound approach has three through lanes and one right-turn lane served by permitted/overlapping phasing. The southbound approach has three through lanes and one left-turn lane served by protected phasing. The westbound approach has one left-turn lane and one channelized right-turn lane that operates under yield control. One crosswalk is marked across the eastern intersection leg.

The intersection of 15th Street at OR-99E is a three-legged intersection that is stop-controlled for the westbound approach of 15th Street. The northeast-bound approach has one through lane and one shared through/right-turn lane. The southwest-bound approach has three through lanes. The northwest-bound approach has one right-turn lane. One crosswalk is marked across the southeastern intersection leg.

The intersection of 14th Street at OR-99E is a three-legged intersection that is controlled by a traffic signal. The northeast-bound approach has one through lane and one shared through/right-turn lane. The southwest-bound approach has two through lanes and a left-turn lane served by flashing-yellow-arrow phasing. The northwest-bound approach of 14th Street has one left-turn lane and one right-turn lane served by permitted/overlapping phasing. Crosswalks are marked across all intersection legs.

The intersection of 14th Street at Main Street is a four-legged intersection that is two-way stop-controlled for the northeast-bound and southwest-bound approaches of Main Street. The northeast-bound approach has one shared left-turn/through lane and one right-turn lane. The southwest-bound and northwest-bound approaches each have one shared lane for all turning movements. The southeast-bound approach has one left-turn lane and one shared through/right-turn lane. Crosswalks are marked across all intersection legs.

The intersection of 14th Street at Washington Street is a four-legged intersection that is controlled by a traffic signal. The northeast-bound and southwest-bound approaches of Washington Street each have one left-turn lane served by flashing-yellow-arrow phasing, one shared through/right-turn lane, and a bicycle lane to the right of the outermost standard travel lane. The northwest-bound approach has one shared lane for all turning movements. The southeast-bound approach has one shared left-turn/through lane and one right-turn lane. Crosswalks are marked across all intersection legs.

The intersection of 15th Street at Washington Street is a four-legged intersection that is controlled by a traffic signal. The northeast-bound and southwest-bound approaches of Washington Street each have one left-turn lane served by flashing-yellow-arrow phasing, one shared through/right-turn lane, and a bicycle lane to the right of the outermost standard travel lane. The northwest-bound and southeast-bound approaches each have one shared lane for all turning movements. Crosswalks are marked across all intersection legs.

The intersection of Abernethy Road at Washington Street is a four-legged intersection that is controlled by a traffic signal. The northeast-bound approach has one left-turn lane served by permitted phasing, one through lane, one right-turn lane, and a bicycle lane situated between the through and right-turn lanes. The southwest-bound approach has one left-turn lane served by permitted phasing, one shared through/right-turn lane, and a bicycle lane to the right of the outermost standard travel lane. The northwest-bound approach has one



left-turn lane served by permitted phasing and one shared through/right-turn lane. The southeast-bound approach has one shared lane for all turning movements. Crosswalks are marked across all intersection legs.

The I-205 southbound ramps intersection at OR-213 is a three-legged intersection that is stop-controlled for the eastbound approach's left-turn movement and the southbound approach's through movement. The northbound approach has one left-turn lane, one through lane, and a bicycle lane to the right of the outermost standard travel lane. The southbound approach has one channelized right-turn lane that yields to other vehicles entering the freeway on-ramp, one through lane, and a bicycle lane situated in between the right-turn and through lanes. The eastbound approach has one left-turn lane and two free-flowing channelized right-turn lanes. Crosswalks are unmarked across all three intersection legs.

The I-205 northbound ramps intersection at OR-213 is a four-legged intersection with continuous flow for all approach lanes. The northbound approach has one through lane, one shared through/right-turn lane, one right-turn lane, and a bicycle lane to the right of the outermost standard travel lane. The southbound approach has two through lanes and a bicycle lane to the right of the outermost standard travel lane. The eastbound approach has one right-turn lane. Crosswalks are unmarked across all four intersection legs.

The intersection of Prairie Schooner Way/Clackamas River Drive at OR-213 is a four-legged intersection that is controlled by a traffic signal. The northbound and southbound approaches of OR-213 each have three through lanes, one channelized right-turn lane that operates without stop/yield/signal controls, and a bicycle lane to the right of the outermost standard travel lane. The eastbound and westbound approaches of Prairie Schooner Way and Clackamas River Drive, respectively, each have two right-turn lanes that prohibit turns during the red indication and a bicycle lane to the right of the outermost standard travel lane. Crosswalks are marked across the eastern and western intersection legs.

The intersection of Redland Road at OR-213 is a three-legged intersection that is controlled by a traffic signal. The northbound approach has one left-turn lane served with protected phasing, two through lanes, and a bicycle lane to the right of the outermost standard travel lane. The southbound approach has two through lanes, one right-turn lane served with permitted/overlap phasing, and a bicycle lane to the right of the outermost standard travel lane. The eastbound approach has two left-turn lanes served with protected phasing, one right-turn lane served with permitted/overlap phasing, and a bicycle lane to the right of the outermost standard travel lane. Crosswalks are marked across the southern and western intersection legs.

The intersection of Beavercreek Road at OR-213 is a four-legged intersection that is controlled by a traffic signal. The northbound approach has one left-turn lane served with protected phasing, two through lanes, one channelized right-turn lane that operates under yield control, and a bicycle lane to the right of the outermost standard travel lane. The southbound approach has two left-turn lanes served with protected phasing, two through lanes, and one channelized right-turn lane that operates under yield control. The eastbound approach has two left-turn lanes served with protected phasing, one through lane, one shared through/right-turn lane, and a bicycle lane to the right of the outermost standard travel lane. The westbound approach has two left-turn lanes served with protected phasing, two through lanes, one channelized right-turn lane that operates under yield control, and a bicycle lane situated in between the outermost through and right-turn lanes. Crosswalks are marked across all four intersection legs.



The intersection of Holly Lane at S Redland Road is a three-legged intersection that is stop-controlled for the northbound approach of Holly Lane. The northbound approach has one shared lane for all turning movements. The eastbound and westbound approaches of S Redland Road each have one shared lane for all turning movements and a bicycle lane to the right of the standard travel lane. Crosswalks are unmarked across all three intersection legs.

A vicinity map displaying the project site, vicinity streets, and the study intersections with their associated lane configurations is shown in Figure 1 on page 9.

Traffic Counts

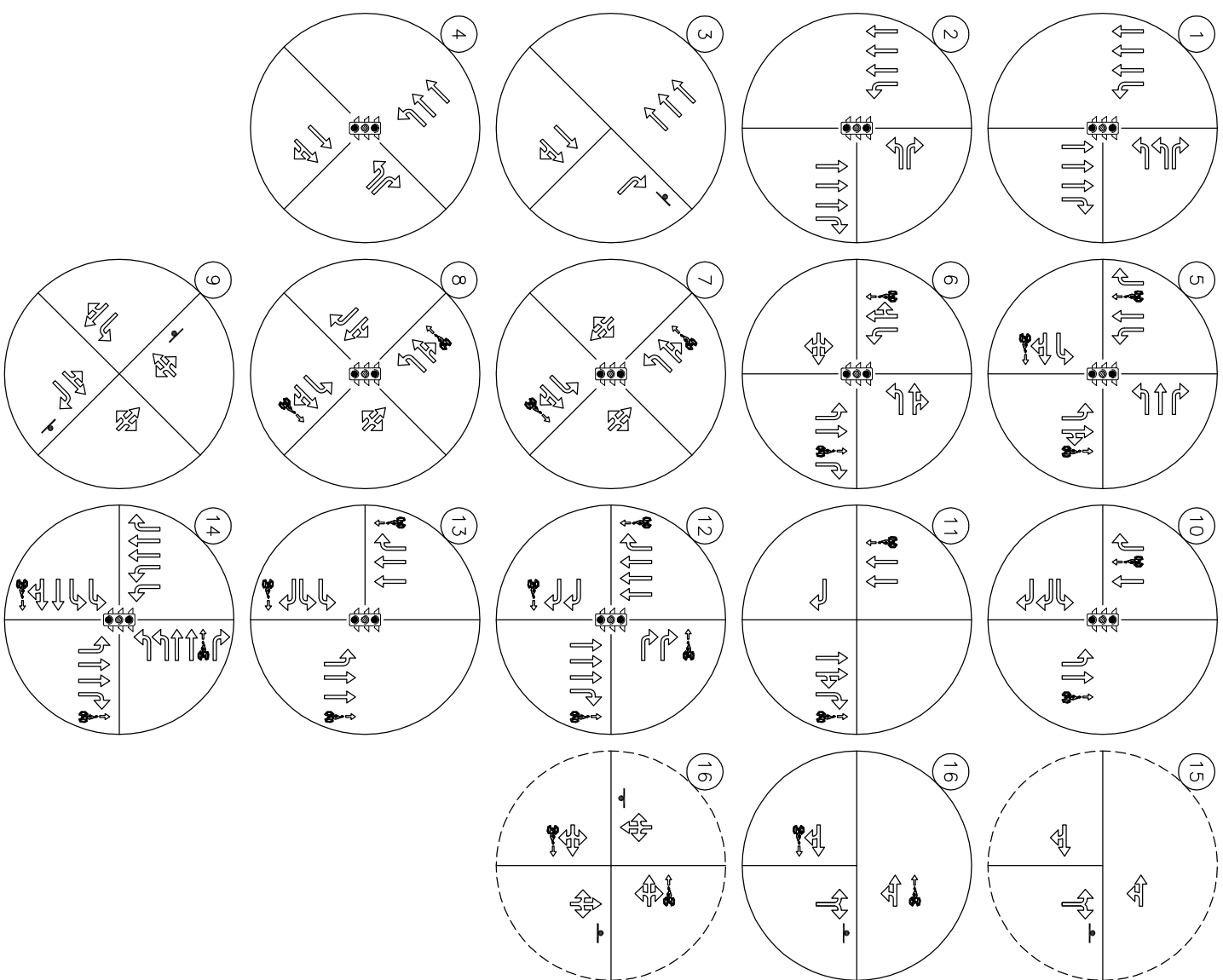
Manual turning movement counts were conducted at the study intersections on the following dates, during which school was in session and no adverse weather nor abnormal travel conditions were present:

- Tuesday, January 24th, 2017 from 4:00 PM to 6:00 PM;
- Wednesday, January 25th, 2017 from 4:00 PM to 6:00 PM;
- Thursday, January 26th, 2017 from 7:00 AM to 9:00 AM;
- Tuesday, May 2nd, 2017 from 4:00 PM to 6:00 PM; and
- Wednesday, May 3rd, 2017 from 7:00 AM to 9:00 AM.

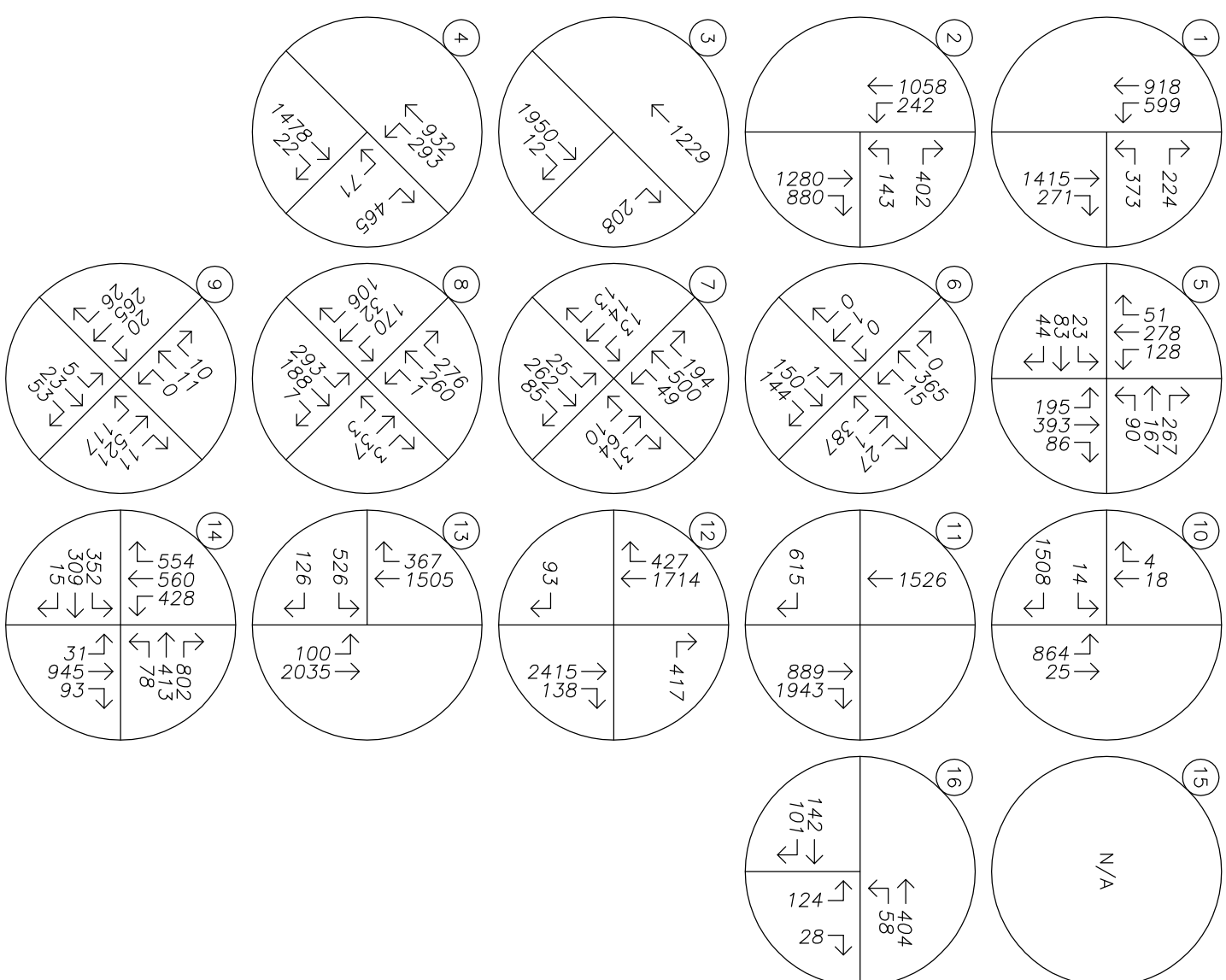
Data was used from each intersection's respective morning and evening peak hours.

Count data for the intersection of Holly Lane at S Redland Road was collected on March 17th, 2015 and adjusted based on the increase in traffic volumes collected between March 17th, 2015 and January 24th/25th, 2017 on the south leg of the intersection of Abernethy Road/S Holcomb Boulevard at Redland Road. The measured growth rate on S Redland Road during this time period was 2.69 percent per year, which was applied over a period of two years. For the segment of S Holcomb Boulevard anticipated to accommodate the future Holly Lane extension, through traffic volumes on S Holcomb Boulevard were determined based on traffic counts collected on June 21st, 2016 at the intersection of S Holcomb Boulevard at Jada Lane, located immediately east of the anticipated Holly Lane extension location. The 2016 counts were adjusted to account for one year of growth at a rate of 3.85 percent per year based on the observed historical growth in traffic volumes on Holcomb Boulevard, as measured at the east leg of the intersection of Redland Road at Holcomb Boulevard.

Figure 2 on page 10 and Figure 3 on page 11 show the existing morning and evening peak hour traffic volumes at the study intersections, respectively. Detailed traffic count data is included in the appendix to this report.



*Matches the alignment in the City's TSP



*Matches the alignment in the City's TSP



Site Trips

Trip Generation

The subject site consists of 34.57 acres currently zoned RRFF-5 and 57.43 acres currently zoned Future-Use 10-acre minimum (FU-10) by Clackamas County. Upon annexation of the property into the City of Oregon City, the property will be rezoned for 87.5 acres of residential use under R-5 zoning with a minimum lot size of 5,000 sf and 4.5 acres of Neighborhood Commercial zoning.

Under the existing Clackamas County zoning, the property can be developed with up to 11 lots with properties zoned RRFF-5 requiring a minimum lot size of 5 acres and properties zoned FU-10 having a minimum lot size of 10 acres. Each lot may be developed with a single-family home.

Under the proposed zoning, the property can be developed with up to 533 lots in the area zoned R-5, as well as the 4.5 acres of Neighborhood Commercial property. The lots zoned R-5 could each hold a single-family dwelling, and the property zoned Neighborhood Commercial can accommodate up to 49,000 square feet of gross floor area for neighborhood commercial uses.

Based on the comparison between the “reasonable worst-case” development scenarios for the existing and proposed zonings, annexation of the subject property could result in a net increase of up to 522 new homes within the subject property, as well as 49,000 square feet of retail uses.

To estimate the number of trips that could be generated under the existing and proposed zonings, trip generation data from the *TRIP GENERATION MANUAL*, 9th Edition, published by the Institute of Transportation Engineers was used. The trip projections for the residential uses was drawn from land use 210, *Single-Family Detached Housing*, and is based on the number of dwelling units. The trip data for the NC zoning was drawn from land use 820, *Shopping Center*.

The calculations indicate that the proposed annexation and zone change could result in up to 385 additional trips during the morning peak hour, with 100 entering and 285 exiting the site. During the evening peak hour, 531 additional trips could be expected, with 329 entering and 209 exiting the site. A daily increase of 5,608 trips is projected, with half entering and half exiting the site.

A summary of the potential trip generation under the proposed zoning is provided in Table 1 on the following page. Table 2 provides a comparison between the trip generation potential under the existing and proposed zones. Detailed trip generation worksheets are included in the attached technical appendix.



Table 1 - Trip Generation Summary (Proposed Zoning)

| | ITE Code | Size | Morning Peak Hour | | | Evening Peak Hour | | | Weekday Total |
|-----------------------|----------|-----------|-------------------|------------|------------|-------------------|------------|------------|---------------|
| | | | Enter | Exit | Total | Enter | Exit | Total | |
| Single-Family Homes | 210 | 533 units | 100 | 300 | 400 | 299 | 175 | 474 | 4,896 |
| Internalization (9%) | | | -18 | -18 | -36 | -21 | -21 | -42 | -440 |
| Shopping Center | 820 | 49 ksf | 29 | 18 | 47 | 87 | 95 | 182 | 2,092 |
| Internalization (9%) | | | -2 | -2 | -4 | -8 | -8 | -16 | -188 |
| Pass-by Trips (34%) | | | -7 | -7 | -14 | -28 | -28 | -56 | -648 |
| Total Driveway Trips | | | 129 | 318 | 447 | 386 | 270 | 656 | 6,988 |
| Total Internal Trips | | | -20 | -20 | -40 | -29 | -29 | -58 | -628 |
| Total Pass-by Trips | | | -7 | -7 | -14 | -28 | -28 | -56 | -648 |
| Net Site Trips | | | 102 | 291 | 393 | 329 | 213 | 542 | 5,712 |

Table 2 - Trip Generation Comparison (Existing and Proposed Zoning)

| | Morning Peak Hour | | | Evening Peak Hour | | | Weekday Total |
|-----------------------------------|-------------------|------------|------------|-------------------|------------|------------|---------------|
| | Enter | Exit | Total | Enter | Exit | Total | |
| Existing Zoning Trips | 2 | 6 | 8 | 7 | 4 | 11 | 104 |
| Proposed Zoning Trips | 102 | 291 | 393 | 329 | 213 | 542 | 5,712 |
| Net Increase in Site Trips | 100 | 285 | 385 | 322 | 209 | 531 | 5,608 |



Trip Distribution

The distribution of site trips was determined based on the locations of likely trip destinations as well as the locations of major transportation facilities in the site vicinity. Since the subject property has frontage on both S Holcomb Boulevard and S Livesay Road, it is anticipated that upon development of the subject property a new connection through the property will be available between S Holcomb Boulevard and S Redland Road. At the planning horizon, it is anticipated that this connection will take the form of the North Holly Lane Extension, which is included within the financially constrained project list of the city's TSP. With completion of this new street connection, it is anticipated that site trips will access the site via both S Holcomb Boulevard and S Redland Road.

The following distribution was estimated and used for analysis:

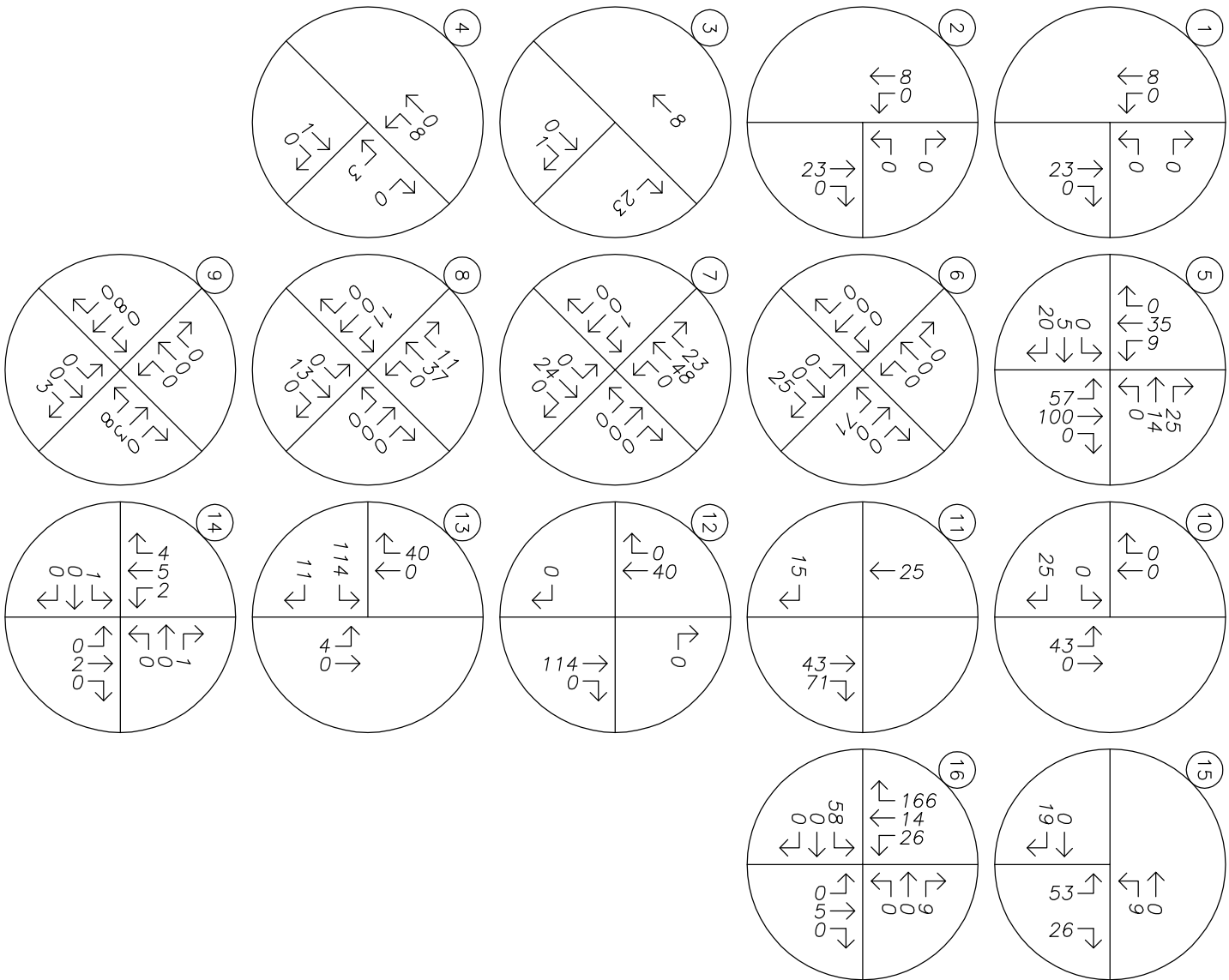
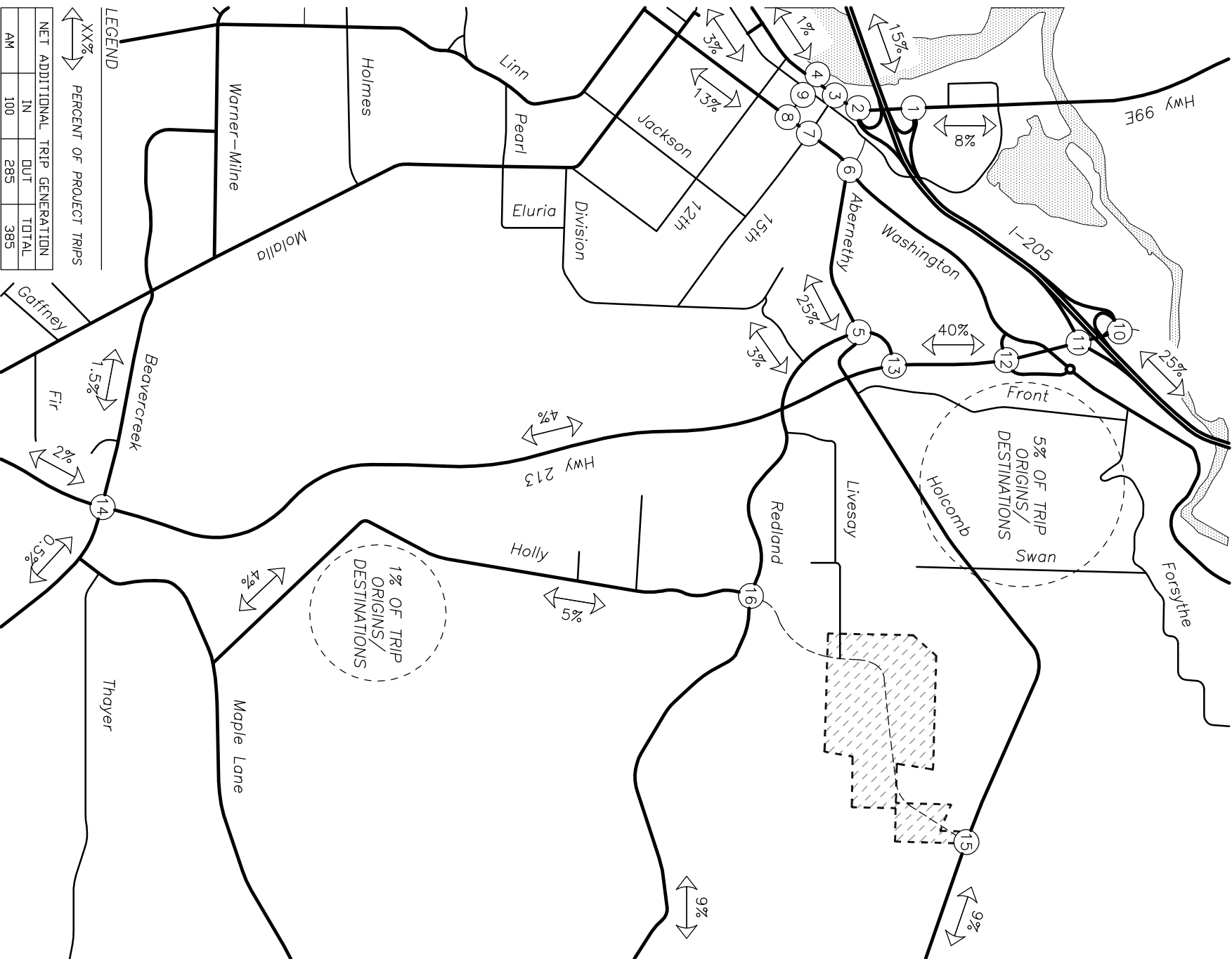
- Approximately 25 percent of site trips will travel to/from the northeast along I-205;
- Approximately 15 percent of site trips will travel to/from the southwest along I-205;
- Approximately 13 percent of site trips will travel to/from the southwest along Washington Street;
- Approximately 9 percent of site trips will travel to/from the east along S Holcomb Boulevard;
- Approximately 9 percent of site trips will travel to/from the east along S Redland Road;
- Approximately 8 percent of site trips will travel to/from the north along OR-99E;
- Approximately 4 percent of site trips will travel to/from the south along S Holly Lane;
- Approximately 3 percent of site trips will travel to/from the southwest along Main Street;
- Approximately 3 percent of site trips will travel to/from the southwest along S Anchor Way;
- Approximately 2 percent of site trips will travel to/from the south along OR-213;
- Approximately 1.5 percent of site trips will travel to/from the west along Beavercreek Road;
- Approximately 1 percent of site trips will travel to/from the southwest along OR-99E;
- Approximately 0.5 percent of site trips will travel to/from the east along Beavercreek Road; and
- Approximately 6 percent of site trips will travel to/from locales within the immediate vicinity, including surrounding residential areas, Holcomb Elementary School, and other land-uses such as Steve's Marketplace and the Quick Stop Market.

Since the majority of the subject property is located west of the anticipated future intersection of S Holcomb Boulevard at the Holly Lane north extension, most residents would be expected to prefer the more direct travel path available on S Redland Road rather than S Holcomb Boulevard for trips to and from the west. Accordingly, site trips from origins within the proposed development were assumed to be four times more likely to utilize S Redland Road for such trips than to utilize S Holcomb Boulevard. This distribution reflects the fact that only residents in the northeastern-most portion of the site would be expected to experience



similar travel times regardless of whether they utilize S Holcomb Boulevard or S Redland Road to travel to and from the west.

The trip distribution percentages utilized for the site trips generated by the proposed development are shown in Figure 4 on page 16 at each of the study intersections. The trip assignment for the site trips generated by the proposed development during the morning and evening peak hours are shown in Figure 5 on page 17 and Figure 6 on page 18, respectively.

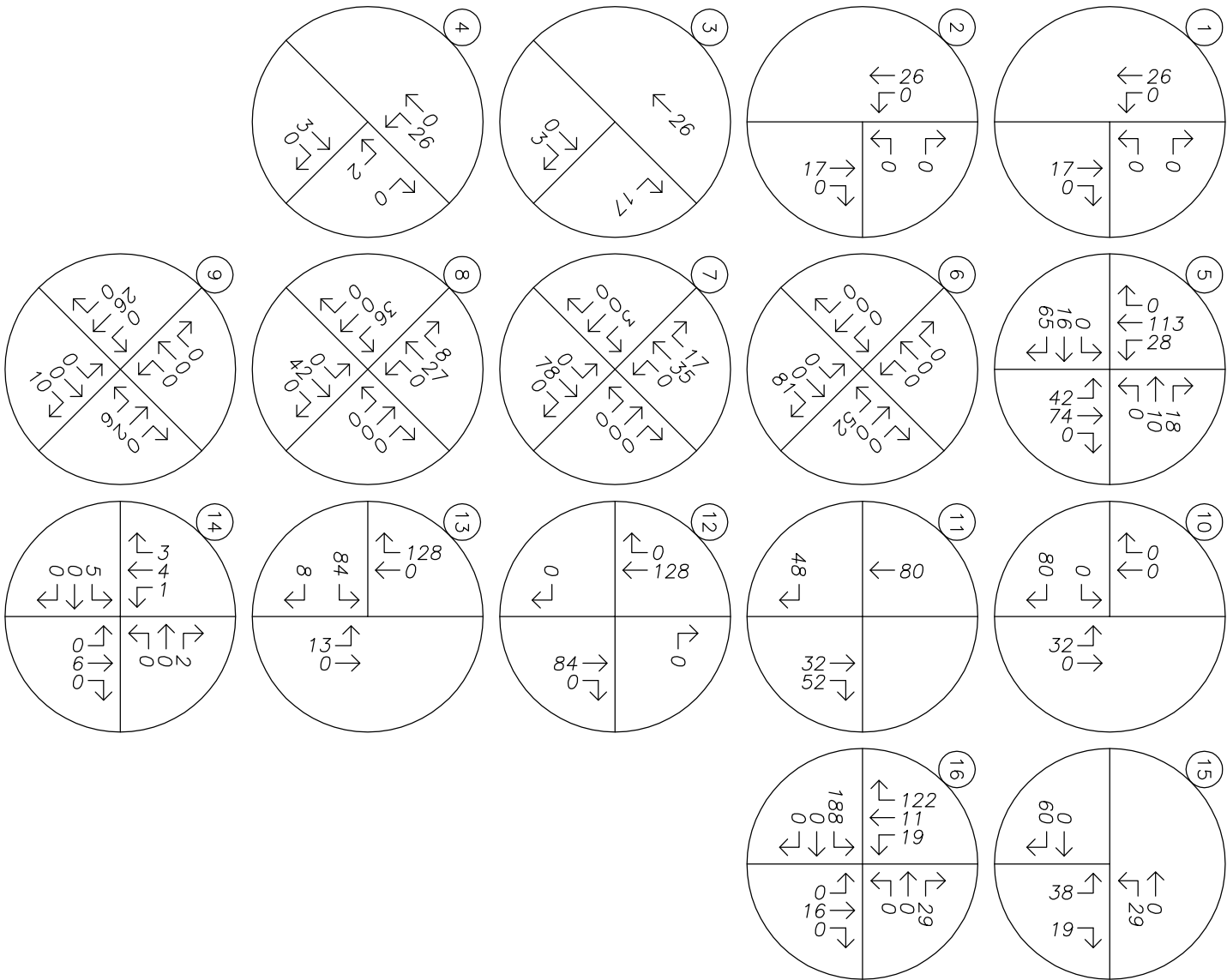
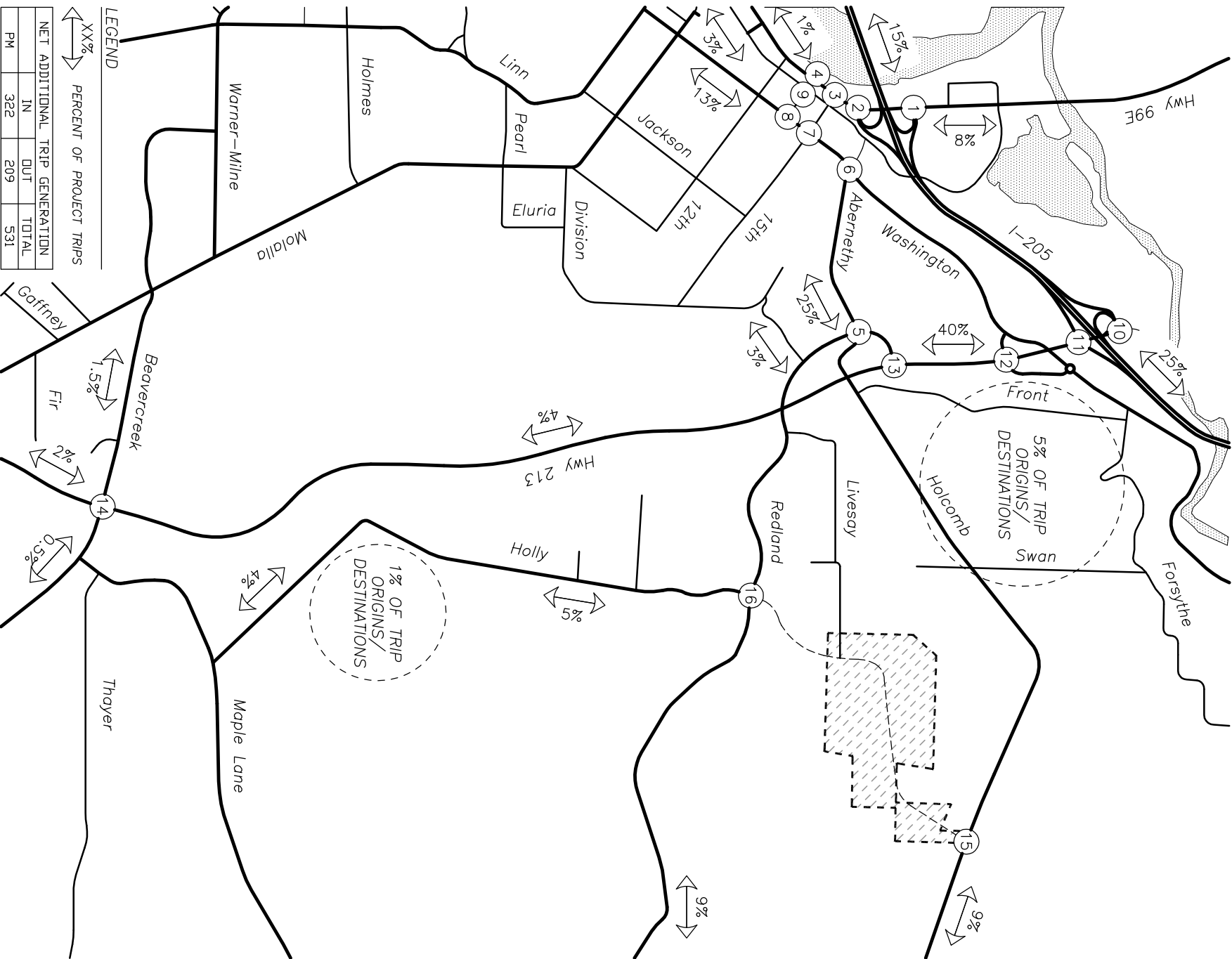


*Matches the alignment in the City's TSP



No Scale

SITE TRIP ASSIGNMENT
Proposed Zone Change – Net Additional Site Trips
AM Peak Hour



*Matches the alignment in the City's TSP



No Scale

SITE TRIP ASSIGNMENT
Proposed Zone Change – Net Additional Site Trips
PM Peak Hour



Operational Analysis

Background Volumes

In order to assess the impacts of the proposed annexation on traffic conditions at the planning horizon, the existing traffic volumes at the study area intersections were increased to account for anticipated growth through year 2035. Growth for most facilities within Oregon City was estimated based on conformance with growth data from the 2013 TSP, which shows an overall growth from 33,012 trips during the evening peak hour in 2010 to 54,461 trips during the evening peak hour in 2035. This equates to an exponential growth rate of 2.02 percent per year, which was applied to all intersection movements except the through movements along OR-99E and OR-213. Traffic volume growth along OR-99E and OR-213 was estimated using data from ODOT's Future Volume Tables, which show projected linear growth rates of 0.81 percent per year and 0.73 percent per year, respectively.

For the intersections of Beavercreek Road at OR-213; the I-205 southbound ramps at OR-99E; and the I-205 northbound ramps at OR-99E, Oregon City's 2013 TSP included projected year 2035 volumes for the evening peak hour. In order to ensure consistency with the city's TSP, these volumes were used for this intersection's evening peak hour analysis scenario. Additionally, traffic volumes for other intersections along OR-99E and OR-213 were balanced along each respective highway to ensure that the analysis of all intersections along these facilities remains consistent with the TSP. ODOT Ramp Interchange Volume Diagrams were also referenced to accurately determine turning-movement volumes at the intersections of OR-213 with the I-205 northbound on/off ramps.

In addition to the increase in traffic volumes within the site vicinity, completion of the North Holly Lane Extension is expected to result in some re-distribution of existing traffic volumes in the site vicinity. Specifically, it is anticipated that approximately two thirds of the trips between S Holcomb Boulevard and S Redland Road south of S Holcomb Boulevard will utilize the new Holly Lane extension, since this route will provide a more direct connection between these roadways. It is also anticipated that some site trips between S Holcomb Boulevard and OR-213 south of Redland Road will utilize the new North Holly Lane extension, since this route will provide a good connection between S Holcomb Boulevard and destinations such as Oregon City High School and the Berry Hill Shopping Center.

The background conditions analysis volumes include all city-identified projected development through the 2035 planning horizon, with the exception of the Park Place property. Omission of this property from the background conditions allows for a meaningful comparison between future background conditions without approval of the proposed annexation and zone change and the 2035 "annexation and zone change" conditions, which include the addition of site trips from the Park Place property.

Figure 7 on page 21 and Figure 8 on page 22 show the projected year 2035 background traffic volumes at the study intersections during the morning and evening peak hours, respectively.



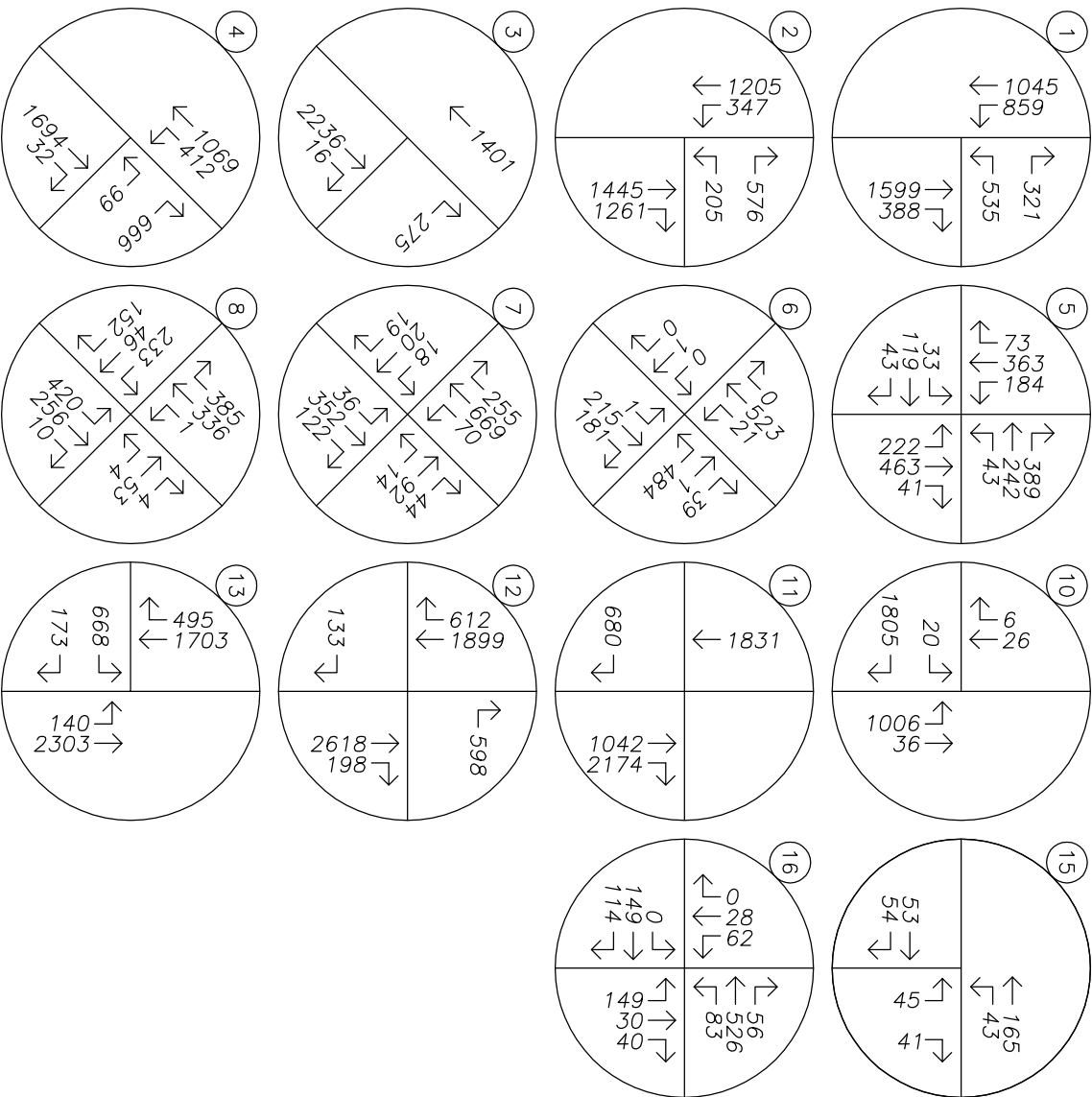
Background Volumes plus Site Trips

Peak hour trips calculated to be generated by the proposed development, as described earlier within the *Site Trips* section, were added to the projected year 2035 background traffic volumes to obtain the expected 2035 background volumes plus site trips.

Figure 9 on page 23 and Figure 10 on 24 show the projected year 2035 peak hour background traffic volumes plus the addition of site trips at the study intersections during the morning and evening peak hours, respectively.



OR-99E FACILITY GROWTH RATE: 0.81 PERCENT PER YEAR LINEAR
 OR-213 FACILITY GROWTH RATE: 0.73 PERCENT PER YEAR LINEAR
 LOCAL FACILITY GROWTH RATE: 2.02 PERCENT PER YEAR COMPOUNDED



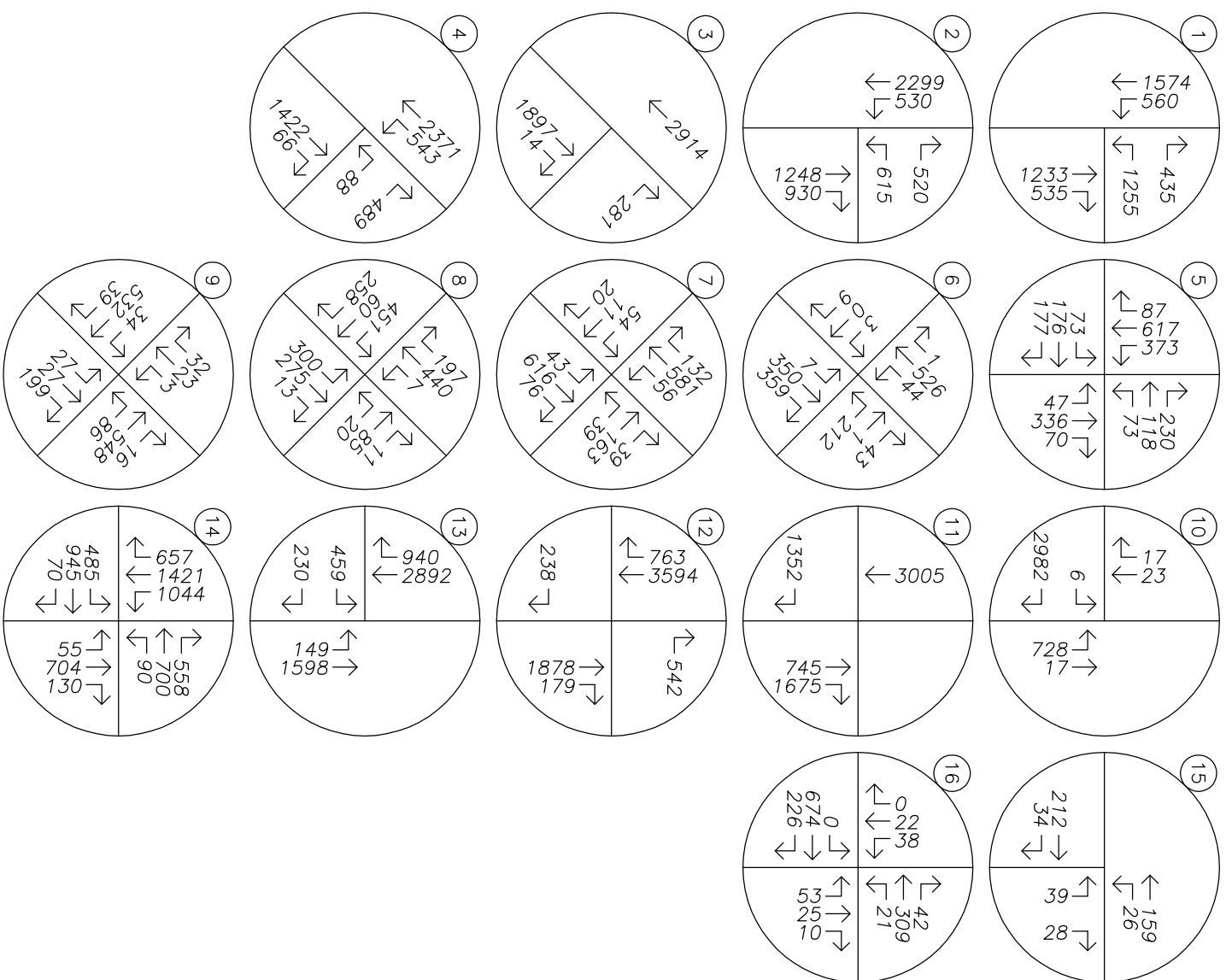
*Matches the alignment in the City's TSP



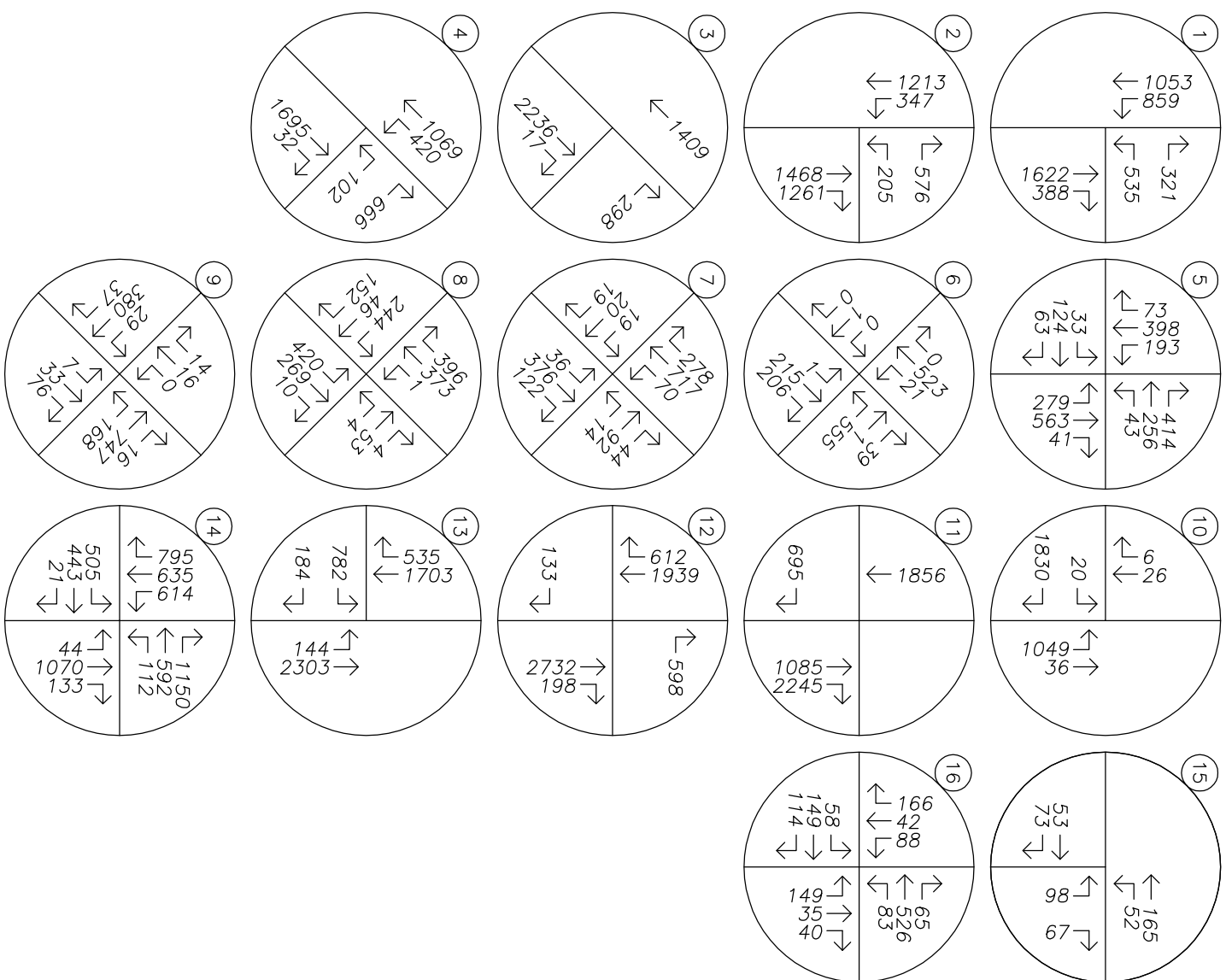
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TRAFFIC VOLUMES
 Year 2035 Planning Horizon – w/ Holly Extension
 AM Peak Hour



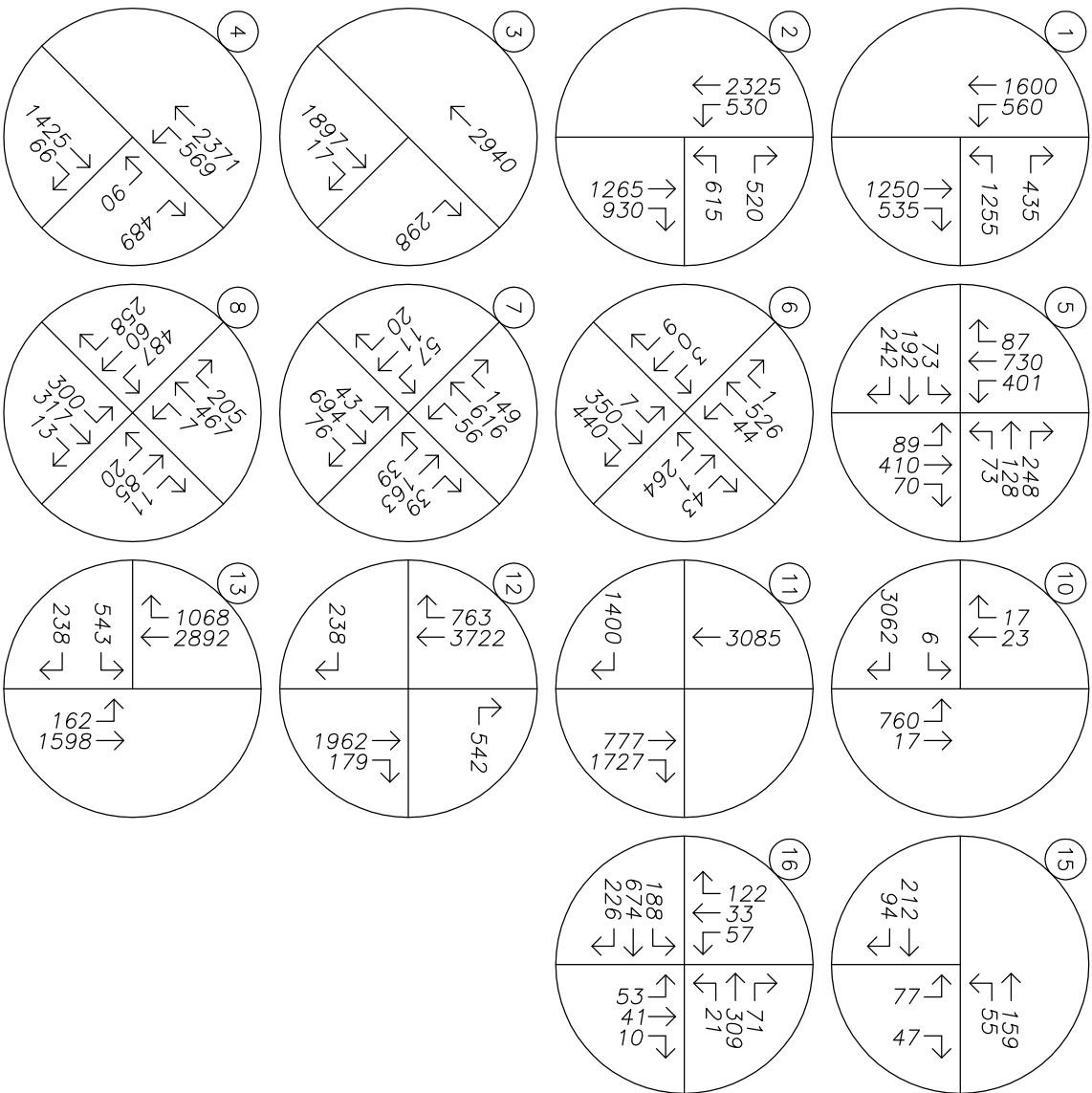


*Matches the alignment in the City's TSP





OR-99E FACILITY GROWTH RATE: 0.81 PERCENT PER YEAR LINEAR
 OR-213 FACILITY GROWTH RATE: 0.73 PERCENT PER YEAR LINEAR
 LOCAL FACILITY GROWTH RATE: 2.02 PERCENT PER YEAR COMPOUNDED



*Matches the alignment in the City's TSP



TRAFFIC VOLUMES
 Year 2035 Planning Horizon plus Annexation
 PM Peak Hour

FIGURE 10
 Page 24





Capacity Analysis

A capacity and delay analysis was conducted for each of the study intersections per the signalized and unsignalized intersection analysis methodologies in the *HIGHWAY CAPACITY MANUAL* (HCM)¹. The level-of-service (LOS) of an intersection can range from LOS A, which indicates very little or no delay experienced by vehicles, to LOS F, which indicates a high degree of congestion and delay. The volume-to-capacity (v/c) ratio is a measure that compares the traffic volumes (demand) against the available capacity of an intersection.

Per Section 12.04.205 of the *Oregon City Municipal Code*, the following minimum acceptable operation standards apply when evaluating traffic impacts associated with the proposed annexation.

- For intersections within the Regional Center (Downtown Community Plan), a maximum v/c ratio of 1.10 is permissible during the peak hour, provided that during the second hour the v/c ratio is 0.99 or less. For signalized intersections, these standards apply to the intersection as a whole. For unsignalized intersections, these standards apply to the major-street approaches only. There is no performance standard for unsignalized minor-street approaches.
- For intersections outside the Regional Center but designated on the Arterial and Throughway Network, a maximum v/c ratio of 0.99 shall be maintained. This standard applies to signalized intersections as a whole, and to the major-street approaches at unsignalized intersections. There is no performance standard for unsignalized minor-street approaches.
- Signalized intersections located outside the Regional Center boundaries and not designated on the Arterial and Throughway Network shall operate at LOS D or better for the intersection as a whole, no approach shall operate worse than LOS E, and the intersection shall operate with a v/c ratio no higher than 1.0 for the sum of critical movements.
- Unsignalized intersections located outside the Regional Center boundaries and not designated on the Arterial and Throughway Network shall operate at LOS E or better for all approaches serving more than 20 peak hour vehicles. LOS F will be tolerated at movements serving no more than 20 vehicles during the peak hour.
- Until the city adopts new performance measures that identify alternative mobility targets, the city exempts proposed developments that are permitted, either conditionally, outright, or through a detailed development master plan approval from compliance with the above mobility standards for identified intersections, including the intersections of OR-99E at the I-205 northbound and southbound ramp terminals, and the intersection of Beaver Creek Road at OR-213.

According to Oregon City's Downtown Community Plan, the Regional Center encompasses all of the study intersections except Beaver Creek Road at OR-213, the future Holly Lane at S Holcomb Boulevard, and Holly Lane at S Redland Road.

¹ Transportation Research Board, *HIGHWAY CAPACITY MANUAL 2000* and *HIGHWAY CAPACITY MANUAL 2010*.



The future intersection of Holly Lane at S Holcomb Boulevard will be an unsignalized intersection currently not designated on the Arterial and Throughway Network whereas Holly Lane at S Redland Road is designated on the Arterial and Throughway Network.

The I-205 southbound ramps intersection at OR-213 was analyzed as two separate intersections due to its unique configuration that includes two distinct stop bars for southbound vehicles. Based on the capacity analysis, the highest average control delay experienced for any intersection approach was determined to be for the eastbound left-turn from the I-205 off-ramp. The highest projected v/c ratio was for the northbound approach.

The I-205 southbound ramps intersection at OR-99E currently operates with v/c ratios of 0.95 during the morning peak hour and 0.91 during the evening peak hour. Under planning year 2035 conditions, regardless the addition of site trips from the proposed annexation and zone change, the intersection is projected to operate with v/c ratios in excess of 1.10 during both the morning and evening peak hours.

The I-205 northbound ramps intersection at OR-99E currently operates with v/c ratios of 0.78 during the morning peak hour and 0.71 during the evening peak hour. Under year 2035 conditions, regardless of the addition of site trips from the proposed annexation and zone change, the intersection is projected to operate with v/c ratios in excess of 1.10 during both the morning and evening peak hours.

The intersection of 15th Street at OR-99E operates with v/c ratios of 0.92 or less during the morning peak hour and 0.78 or less during the evening peak hour for all analysis scenarios.

The intersection of 14th Street at OR-99E currently operates with v/c ratios of 0.90 during the morning peak hour and 0.80 during the evening peak hour. Under planning year 2035 conditions, regardless of the addition of site trips from the proposed annexation and zone change, the intersection is projected to operate with v/c ratios in excess of 1.10 during the morning peak hour and 0.96 or less during the evening peak hour.

The intersection of Abernethy Road/S Holcomb Boulevard at Redland Road operates with v/c ratios of 0.88 or less during the morning peak hour and 0.91 or less during the evening peak hour for the existing and background analysis scenarios. Under planning year 2035 conditions with inclusion of site trips from the proposed annexation and zone change, the intersection is projected to operate with a v/c ratio of 0.88 during the morning peak hour and 1.08 during the evening peak hour.

The intersection of Abernethy Road at Washington Street is projected to operate with v/c ratios of 0.91 or less during the morning peak hour and 0.66 or less during the evening peak hour for all analysis scenarios.

The intersection of 15th Street at Washington Street is projected to operate with v/c ratios of 0.87 or less during the morning peak hour and 0.77 or less during the evening peak hour for all analysis scenarios.

The intersection of 14th Street at Washington Street currently operates with v/c ratios of 0.78 during the morning peak hour and 0.80 during the evening peak hour. Under planning year 2035 conditions without inclusion of site trips from the proposed annexation and zone change, the intersection is projected to operate with v/c ratios of 1.06 during the morning peak hour and in excess of 1.10 during the evening peak hour.



With inclusion of site trips from the proposed annexation and zone change, the intersection is projected to operate with v/c ratios in excess of 1.10 during both the morning and evening peak hours.

The intersection of 14th Street at Main Street is projected to operate with v/c ratios of 0.26 or less during the morning peak hour and 0.37 or less during the evening peak hour for all analysis scenarios.

The I-205 southbound ramp intersection at OR-213 is projected to operate with v/c ratios of 0.70 or less during the morning peak hour and 0.95 or less during the evening peak hour for all analysis scenarios.

The intersection of Prairie Schooner Way/Clackamas River Drive at OR-213 is projected to operate with v/c ratios of 0.89 or less during the morning peak hour and 0.95 or less during the evening peak hour under all analysis scenarios.

The intersection of Redland Road at OR-213 currently operates with v/c ratios of 0.87 during the morning peak hour and 1.01 during the evening peak hour. Under planning year 2035 conditions without inclusion of site trips from the proposed annexation and zone change, the intersection is projected to operate with v/c ratios of 1.01 during the morning peak hour and in excess of 1.10 during the evening peak hour. With inclusion of site trips from the proposed annexation and zone change, the intersection is projected to operate with v/c ratios of 1.05 during the morning peak hour and in excess of 1.10 during the evening peak hour.

The intersection of Beavercreek Road at OR-213 currently operates with v/c ratios of 0.79 during the morning peak hour and 0.92 during the evening peak hour. Under planning year 2035 conditions, regardless of the addition of site trips from the proposed annexation and zone change, the intersection is projected to operate with v/c ratios of 1.01 during the morning peak hour and 1.04 during the evening peak hour.

The future intersection of Holly Lane at S Holcomb Boulevard is projected to operate at LOS B with v/c ratios of 0.09 or less during the morning peak hour and 0.20 or less during the evening peak hour for all analysis scenarios.

The intersection of Holly Lane at S Redland Road is projected to operate with v/c ratios of 0.07 or less during the morning peak hour and 0.17 or less during the evening peak hour for all analysis scenarios.

The v/c, delay, and LOS results of the capacity analysis are shown in Table 3 - Table 5 for the morning and evening peak hours. The v/c ratio for two-way stop-controlled intersections represent that highest reported v/c for the major-street approach while LOS and delay are representative of the minor-street approach lane experiencing the highest delay. The reported results are generally based on the analysis methodologies provided in the 2010 HCM; however, for intersections where the 2010 methodology fails to report major-street v/c ratio or does not provide a v/c ratio for a signalized intersection, v/c ratios were evaluated using the HCM 2000 methodologies. Detailed calculations as well as tables showing the relationship between delay and LOS are included in the appendix to this report.



Table 3 - Capacity Analysis Summary (Intersections 1 – 6)

| | Morning Peak Hour | | | Evening Peak Hour | | |
|-----------------------------------------------------|-------------------|-----------|-------------|-------------------|-----------|-------------|
| | LOS | Delay (s) | v/c | LOS | Delay (s) | v/c |
| 1. I-205 SB Ramps at OR-99E | | | | | | |
| 2017 Existing Conditions | D | 40 | 0.95 | C | 28 | 0.91 |
| 2035 Planning Horizon (w/o Annexation Trips) | F | > 80 | 1.21 | E | 71 | 1.13 |
| 2035 Planning Horizon (w/ Annexation Trips) | F | > 80 | 1.21 | E | 71 | 1.13 |
| 2. I-205 NB Ramps at OR-99E | | | | | | |
| 2017 Existing Conditions | C | 21 | 0.78 | B | 17 | 0.71 |
| 2035 Planning Horizon (w/o Annexation Trips) | F | > 80 | 1.33 | E | 57 | 1.17 |
| 2035 Planning Horizon (w/ Annexation Trips) | F | > 80 | 1.33 | E | 57 | 1.17 |
| 3. 15th St at OR-99E | | | | | | |
| 2017 Existing Conditions | C | 24 | 0.82 | C | 21 | 0.68 |
| 2035 Planning Horizon (w/o Annexation Trips) | F | 54 | 0.92 | E | 43 | 0.78 |
| 2035 Planning Horizon (w/ Annexation Trips) | F | 67 | 0.92 | E | 50 | 0.78 |
| 4. 14th St at OR-99E | | | | | | |
| 2017 Existing Conditions | C | 23 | 0.90 | B | 15 | 0.80 |
| 2035 Planning Horizon (w/o Annexation Trips) | E | 62 | 1.14 | C | 27 | 0.94 |
| 2035 Planning Horizon (w/ Annexation Trips) | E | 60 | 1.14 | C | 31 | 0.96 |
| 5. Abernethy Rd/S Holcomb Blvd at Redland Rd | | | | | | |
| 2017 Existing Conditions | C | 27 | 0.75 | C | 29 | 0.78 |
| 2035 Planning Horizon (w/o Annexation Trips) | C | 30 | 0.79 | D | 41 | 0.91 |
| 2035 Planning Horizon (w/ Annexation Trips) | D | 40 | 0.88 | E | 71 | 1.08 |
| 6. Abernethy Rd at Washington St | | | | | | |
| 2017 Existing Conditions | B | 13 | 0.70 | A | 7 | 0.49 |
| 2035 Planning Horizon (w/o Annexation Trips) | C | 21 | 0.85 | A | 9 | 0.61 |
| 2035 Planning Horizon (w/ Annexation Trips) | C | 27 | 0.91 | B | 10 | 0.66 |

BOLDED results exceed Oregon City operational standards.



Table 4 - Capacity Analysis Summary (Intersections 7 - 13)

| | Morning Peak Hour | | | Evening Peak Hour | | |
|----------------------------------------------------------|-------------------|-----------|-------------|-------------------|-----------|-------------|
| | LOS | Delay (s) | v/c | LOS | Delay (s) | v/c |
| 7. 15th St at Washington St | | | | | | |
| 2017 Existing Conditions | B | 11 | 0.66 | B | 11 | 0.58 |
| 2035 Planning Horizon (w/o Annexation Trips) | B | 19 | 0.81 | B | 18 | 0.73 |
| 2035 Planning Horizon (w/ Annexation Trips) | C | 23 | 0.87 | C | 21 | 0.77 |
| 8. 14th St at Washington St | | | | | | |
| 2017 Existing Conditions | C | 25 | 0.78 | C | 26 | 0.80 |
| 2035 Planning Horizon (w/o Annexation Trips) | E | 56 | 1.06 | E | 70 | 1.17 |
| 2035 Planning Horizon (w/ Annexation Trips) | E | 65 | 1.12 | F | > 80 | 1.26 |
| 9. 14th St at Main St | | | | | | |
| 2017 Existing Conditions | D | 35 | 0.18 | D | 30 | 0.26 |
| 2035 Planning Horizon (w/o Annexation Trips) | F | > 80 | 0.25 | F | 106 | 0.35 |
| 2035 Planning Horizon (w/ Annexation Trips) | F | > 80 | 0.26 | F | 128 | 0.37 |
| 10. I-205 SB Ramps at OR-213 | | | | | | |
| 2017 Existing Conditions | F | > 80 | 0.60 | D | 30 | 0.80 |
| 2035 Planning Horizon (w/o Annexation Trips) | F | > 80 | 0.68 | E | 43 | 0.92 |
| 2035 Planning Horizon (w/ Annexation Trips) | F | > 80 | 0.70 | E | 49 | 0.95 |
| 12. Prairie Schooner/Clackamas River Dr at OR-213 | | | | | | |
| 2017 Existing Conditions | A | 9 | 0.78 | A | 9 | 0.83 |
| 2035 Planning Horizon (w/o Annexation Trips) | B | 13 | 0.87 | B | 14 | 0.92 |
| 2035 Planning Horizon (w/ Annexation Trips) | B | 14 | 0.89 | B | 15 | 0.95 |
| 13. Redland Rd at OR-213 | | | | | | |
| 2017 Existing Conditions | C | 22 | 0.87 | D | 38 | 1.01 |
| 2035 Planning Horizon (w/o Annexation Trips) | C | 33 | 1.01 | E | 77 | 1.19 |
| 2035 Planning Horizon (w/ Annexation Trips) | D | 41 | 1.05 | F | > 80 | 1.23 |

BOLDED results exceed Oregon City operational standards.



Table 5 - Capacity Analysis Summary (Intersections 14 - 16)

| | Morning Peak Hour | | | Evening Peak Hour | | |
|------------------------------------------------|-------------------|-----------|------|-------------------|-----------|------|
| | LOS | Delay (s) | v/c | LOS | Delay (s) | v/c |
| 14. Beaver Creek Rd at OR-213 | | | | | | |
| 2017 Existing Conditions | D | 39 | 0.79 | D | 49 | 0.92 |
| 2035 Planning Horizon (w/o Annexation Trips) | E | 61 | 1.01 | E | 64 | 1.04 |
| 2035 Planning Horizon (w/ Annexation Trips) | E | 62 | 1.01 | E | 64 | 1.04 |
| 15. Holly Ln at S Holcomb Blvd (Future) | | | | | | |
| 2035 Planning Horizon (w/o Annexation Trips) | B | 11 | 0.07 | B | 12 | 0.16 |
| 2035 Planning Horizon (w/ Annexation Trips) | B | 13 | 0.09 | B | 14 | 0.20 |
| 16. Holly Ln at S Redland Rd* | | | | | | |
| 2017 Existing Conditions | B | 14 | 0.05 | B | 13 | 0.02 |
| 2035 Planning Horizon (w/o Annexation Trips) | C | 21 | 0.07 | C | 22 | 0.03 |
| 2035 Planning Horizon (w/ Annexation Trips) | F | > 80 | 0.07 | F | > 80 | 0.17 |

* Intersection converted from three-legged to four-legged under year 2035 conditions.

BOLDED results exceed Oregon City operational standards.

Based on the capacity analysis, there are six study intersections that are not projected to meet the minimum Oregon City intersection performance standards:

- I-205 southbound ramps at OR-99E;
- I-205 northbound ramps at OR-99E;
- 14th Street at OR-99E;
- 14th Street at Washington Street;
- Redland Road at OR-213; and
- Beaver Creek Road at OR-213.

Additionally, the intersection of Abernethy Road/S Holcomb Boulevard at Redland Road is projected to operate within Oregon City standards but with a v/c ratio in excess of 1.00.

Further inspection and potential mitigations at the intersections listed above are discussed within the *Mitigation Analysis* section of this report.



All other study intersections are currently and projected to operate acceptably per Oregon City standards and with v/c ratios of 1.00 or less through the 2035 planning horizon. No operational mitigation is necessary or recommended for these intersections.

Queuing Analysis

The I-205 southbound ramps intersection at OR-213 reports high delays and v/c ratios during both the morning and evening peak hours under the 2035 planning horizon conditions either with or without the addition of site trips from the proposed annexation and zone change. To determine whether eastbound left-turn queues may exceed the available lane storage and impede eastbound right-turning traffic flowing off the I-205 freeway, an analysis of projected queuing was conducted for the intersection. The queue length for the eastbound left-turn lane was projected based on the results of a Synchro/SimTraffic simulation, with the reported values based on the 95th-percentile queue length for the year 2035 background plus zone change conditions. This means that 95 percent of the time, the queue lengths will be less than or equal to the reported values.

The projected 95th percentile queue lengths reported by the Synchro/SimTraffic simulation are presented in Table 6 below for the morning and evening peak hours. Available lane storage was measured and rounded to the nearest five feet. Detailed queuing analysis worksheets are included in the technical appendix.

Table 6 – 95th-Percentile Queuing Analysis Summary

| | Available Storage (Feet) | 95th Percentile Queue 2035 w/ Annexation | |
|------------------------------|-----------------------------|---------------------------------------------|----|
| | | AM | PM |
| 10. I-205 SB Ramps at OR-213 | | | |
| EB LT Lane | 125 | 109 | 26 |

Based on the results of the queuing analysis, the eastbound left-turn lane of the I-205 southbound ramps intersection at OR-213 is projected to have adequate vehicle storage space to accommodate the projected queues. Accordingly, no operational or queuing-related mitigation is necessary or recommended for this intersection.

Mitigation Analysis

As determined within the *Capacity Analysis* section, there are six study intersections that are not projected to meet Oregon City standards and one additional intersection that is projected to operate with a v/c ratio in excess of 1.00. The following narrative discusses potential mitigative measures, some of which are described within the city's TSP, that may improve operation of these intersections to acceptable levels. Further analyses of other study intersections that may be significantly impacted by mitigations was also conducted.



Additionally, the two study intersections on Holly Lane were analyzed as roundabouts in accordance with planned projects included within the TSP.

I-205 Southbound Ramps at OR-99E

The I-205 southbound ramps intersection at OR-99E is projected to operate with v/c ratios in excess of 1.10 under the 2035 planning horizon during both the morning and evening peak hours. Per Oregon City's TSP, project number D75, dual left-turn lanes on the southbound approach of OR-99E are planned for installation in the long-term (Phase 3). Upon implementation of mitigative measures, the study intersection is projected to operate with v/c ratios of 0.94 or less during both the morning and evening peak hours under the 2035 planning year.

I-205 Northbound Ramps at OR-99E

The I-205 northbound ramps intersection at OR-99E is projected to operate with v/c ratios in excess of 1.10 under the 2035 planning horizon during both the morning and evening peak hours. Per Oregon City's TSP, project number D76, dual left-turn lanes on the westbound off-ramp approach are planned for installation in the long-term (Phase 3). Additionally, dual right-turn lanes on the northbound OR-99E approach are also necessary to reduce the intersection v/c ratio to acceptable levels per city standards. Upon implementation of these mitigative measures, the study intersection is projected to operate with v/c ratios of 0.88 or less during both the morning and evening peak hours under the 2035 planning year.

15th Street at OR-99E

The intersection of 15th Street at OR-99E is projected to operate acceptably per Oregon City capacity standards; however, the intersection is affected by mitigations proposed at other study intersections, where project numbers D7 and D8 of the city's TSP are planned for implementation in the short-term. Project number D8 includes converting 15th Street to be one-way westbound travel between Washington Street and OR-99E. This segment of roadway will be restriped to include two travel lanes.

Limited information regarding the future design of the intersection is available; therefore, it is assumed the intersection will be converted to provide both northwest-bound left-turn and right-turn movements. In order to meet acceptable operational standards, it is recommended that a traffic signal be installed and the northwest-bound approach be restriped to have one left-turn lane and two right-turn lanes. Upon implementation of these mitigative measures, the study intersection is projected to operate with v/c ratios of 0.96 or less during both the morning and evening peak hours under the 2035 planning year.

14th Street at OR-99E

The intersection of 14th Street at OR-99E is projected to operate with a v/c ratio in excess of 1.10 during the morning peak hour. Per Oregon City's TSP, project number D7, 14th Street may be converted to one-way eastbound travel between OR-99E and John Adams Street. From OR-99E to Main Street, the roadway will be restriped to include two travel lanes. It is recommended that the traffic signal remain at the intersection to reduce forming extended southwest-bound queues. Upon implementation of these mitigative measures, the



study intersection is projected to operate with v/c ratios of 0.96 or less during both the morning and evening peak hours under the 2035 planning year.

Abernethy Road/S Holcomb Boulevard at Redland Road

The intersection of Abernethy Road/S Holcomb Boulevard at Redland Road is projected to operate acceptably per Oregon City standards; however, the intersection is projected to operate over capacity with a v/c ratio of 1.08 during the evening peak hour. No planned project is currently included within the city's TSP, however, a potential mitigative measure to reduce the v/c ratio may include restriping the intersection. Currently, the western intersection leg has two receiving lanes; however, it does not have more than one travel lane from any approach feeding into it. It is recommended that the western intersection leg be restriped to have one eastbound left-turn, one eastbound through, one eastbound right-turn, and one westbound receiving lane. Upon implementation of mitigative measures, the intersection is projected to operate with v/c ratios of 0.93 or less during both the morning and evening peak hours under the 2035 planning year.

15th Street at Washington Street

The intersection of 15th Street at Washington Street is projected to operate acceptably per Oregon City capacity standards; however, the intersection is affected by mitigations proposed at other study intersections, TSP projects D7 and D8. Project D8 proposes the restriping of 15th Street to be one-way westbound travel Washington Street and OR-99E. This segment of roadway will be restriped to include two westbound travel lanes. Upon implementation of mitigative measures, the study intersection is projected to operate with v/c ratios of 0.88 or less during both the morning and evening peak hours under the 2035 planning year.

14th Street at Washington Street

The intersection of 14th Street at Washington Street is projected to operate with v/c ratios in excess of 1.10 during both the morning and evening peak hours. Per Oregon City's TSP, project number D7, 14th Street may be converted to one-way eastbound travel between OR-99E and John Adams Street. From Main Street to Washington Street the roadway will be restriped to include two travel lanes, while from Washington Street to John Adams Street the roadway will be restriped to include one travel lane. Upon implementation of mitigative measures, the intersection is projected to operate with v/c ratios of 0.85 or less during both the morning and evening peak hours under the 2035 planning year.

14th Street at Main Street

For safety concerns rather than operational issues, the intersection of 14th Street at Main Street is proposed for conversion to all-way stop control, per TSP project number D13, to be consistent with traffic controls of surrounding intersections. In addition, project number D7 includes restriping 14th Street to be one-way eastbound travel with two travel lanes between OR-99E and Washington Street. Upon implementation of these mitigative measures, the study intersection is projected to operate with v/c ratios of 0.56 or less during both the morning and evening peak hours under the 2035 planning year.



Redland Road at OR-213

The intersection of Redland Road at OR-213 is projected to operate with a v/c ratio in excess of 1.10 during the evening peak hour. Per Oregon City's TSP, project number D79 (currently unfunded), an additional northbound through lane and an additional southbound through lane are planned for installation in the long-term (Phase 4). Upon implementation of these mitigative measures, the study intersection is projected to operate with v/c ratios of 0.96 or less during both the morning and evening peak hours under the 2035 planning year.

Holly Lane at S Holcomb Boulevard

The intersection of Holly Lane at S Holcomb Boulevard is projected to operate well within capacity of Oregon City standards where no mitigation is recommended. However, project number D43 of the city's TSP includes the construction of a single-lane roundabout in lieu of a one-way stop-controlled intersection, which is planned for installation in the long-term in conjunction with the Holly Lane extension. If constructed, the intersection is projected to operate at LOS A with v/c ratios of 0.33 or less during both the morning and evening peak hours under the 2035 planning year.

Holly Lane at S Redland Road

The intersection of Holly Lane at S Redland Road is also projected to operate with v/c ratios well within Oregon City standards, however, high delays are projected on the Holly Lane minor-street approaches. Although mitigation is not necessary per city standards, project number D36 of the city's TSP includes the construction of a single-lane roundabout in lieu of a two-way stop-controlled intersection, which is planned for installation in the long-term (Phase 4). Based on preliminary analyses of a single-lane roundabout, if project number D36 is implemented it is recommended that an additional right-turn lane be constructed on the eastbound approach to maintain adequate lane capacities within the intersection. If constructed, the intersection is projected to operate with v/c ratios of 0.92 or less.

The v/c, delay, and LOS results of the mitigation analysis are shown in Table 7 and Table 8 for the morning and evening peak hours. Detailed calculations as well as tables showing the relationship between delay and LOS are included in the appendix to this report.

Table 7 - Mitigative Capacity Analysis Summary (Intersections 1 – 9)

| | LOS | Delay (s) | v/c | LOS | Delay (s) | v/c |
|------------------------------------------------------------------|-----|-----------|-------------|-----|-----------|-------------|
| 1. I-205 SB Ramps at OR-99E | | | | | | |
| 2035 Planning Horizon (w/ Annexation Trips) | F | > 80 | 1.21 | E | 71 | 1.13 |
| Mitigated Conditions (2 SB LT Lanes) | C | 29 | 0.92 | D | 41 | 0.94 |
| 2. I-205 NB Ramps at OR-99E | | | | | | |
| 2035 Planning Horizon (w/ Annexation Trips) | F | > 80 | 1.33 | E | 57 | 1.17 |
| Mitigated Conditions (2 WB LT & 2 NB RT Lanes) | C | 22 | 0.82 | C | 23 | 0.88 |
| 3. 15th St at OR-99E | | | | | | |
| 2035 Planning Horizon (w/ Annexation Trips) | F | 67 | 0.92 | E | 50 | 0.78 |
| Mitigated Conditions (One-way Street w/ 2 travel lanes & Signal) | C | 27 | 0.95 | C | 30 | 0.96 |
| 4. 14th St at OR-99E | | | | | | |
| 2035 Planning Horizon (w/ Annexation Trips) | E | 60 | 1.14 | C | 31 | 0.96 |
| Mitigated Conditions (One-way Street & Signal) | B | 11 | 0.93 | A | 9 | 0.96 |
| 5. Abernethy Rd/S Holcomb Blvd at Redland Rd | | | | | | |
| 2035 Planning Horizon (w/ Annexation Trips) | D | 40 | 0.88 | E | 71 | 1.08 |
| Mitigated Conditions (1 WB LT, Th, & RT Lanes) | D | 40 | 0.88 | D | 48 | 0.93 |
| 7. 15th St at Washington St | | | | | | |
| 2035 Planning Horizon (w/ Annexation Trips) | C | 23 | 0.87 | C | 21 | 0.77 |
| Mitigated Conditions (One-way Street) | B | 20 | 0.80 | C | 22 | 0.88 |
| 8. 14th St at Washington St | | | | | | |
| 2035 Planning Horizon (w/ Annexation Trips) | E | 65 | 1.12 | F | > 80 | 1.26 |
| Mitigated Conditions (One-way Street) | B | 16 | 0.79 | C | 23 | 0.85 |
| 9. 14th St at Main St | | | | | | |
| 2035 Planning Horizon (w/ Annexation Trips) | F | > 80 | 0.26 | F | 128 | 0.37 |
| Mitigated Conditions (One-way Street & All-way) | B | 11 | 0.37 | B | 15 | 0.56 |

BOLDED results exceed Oregon City operational standards.

Intersection 6. Abernethy Road at Washington Street was excluded from mitigative analyses since no mitigation or changes in traffic conditions would occur at the intersection.



Table 8 - Mitigative Capacity Analysis Summary (Intersections 13 – 16)

| | Morning Peak Hour | | | Evening Peak Hour | | |
|-----------------------------------------------------------------------------|-------------------|-----------|------|-------------------|-----------|-------------|
| | LOS | Delay (s) | v/c | LOS | Delay (s) | v/c |
| 13. Redland Rd at OR-213 | | | | | | |
| 2035 Planning Horizon (w/ Annexation Trips) | D | 41 | 1.05 | F | 82 | 1.23 |
| Mitigated Conditions (Add 1 NB & SB Th Lane) | C | 24 | 0.81 | C | 28 | 0.96 |
| 15. Holly Ln at S Holcomb Blvd | | | | | | |
| 2035 Planning Horizon (w/ Annexation Trips) | B | 13 | 0.09 | B | 14 | 0.20 |
| Mitigated Conditions (Single Lane Roundabout) | A | 6 | 0.27 | A | 6 | 0.33 |
| 16. Holly Ln at S Redland Rd | | | | | | |
| 2035 Planning Horizon (w/ Annexation Trips) | F | > 80 | 0.07 | F | > 80 | 0.17 |
| Mitigated Conditions (Single Lane Roundabout except w/ EB LT/Th & RT Lanes) | C | 22 | 0.88 | C | 21 | 0.92 |

BOLDED results exceed Oregon City operational standards.

Intersection 14. Beaver Creek Road at OR-213 was excluded from mitigative analyses since no reasonable mitigation is currently available and no significant changes in traffic conditions would occur at the intersection.

Although specific mitigation was identified sufficient to offset the impacts of future development following the proposed annexation and zone change on the subject property, it should be noted that there may be other mitigations that would equally or better serve the needs of the development, Oregon City, and ODOT.

The applicant is not currently proposing to make any physical improvements at any area intersections in conjunction with the proposed zone change. Rather, the improvements listed were included as suggestions of possible mitigation. Actual intersection configurations including lane configurations, traffic control devices and signal phasing as applicable for the intersections of Holly Lane at S Holcomb Boulevard and Holly Lane at S Redland Road should appropriately be determined based on the nature of actual development proposed within the subject property and adjacent properties in order to ensure that appropriate warrants are met, safety is preserved and maximized, and mitigations are both appropriate for and proportionate to the impacts of actual development. Accordingly, the currently-proposed mitigation for the requested annexation and zone change consists of conditions of approval pursuant to OAR 660-012-0060(2)(d), as described in the *Transportation Planning Rule Analysis* section of this report.



Transportation Planning Rule Analysis

The Transportation Planning Rule (TPR) is in place to ensure that the transportation system is capable of supporting the potential increase in traffic intensity that could result from changes to adopted plans and land use regulations. The applicable portions of the TPR are quoted in italics below, with responses directly following.

660-012-0060

- (1) *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);*

The proposed zone change will not necessitate changes to the functional classification of existing or planned transportation facilities. Accordingly, this section is not triggered.

- (b) *Change standards implementing a functional classification system; or*

The proposed zone change will not change any standards implementing the functional classification system. Accordingly, this section is also not triggered.

- (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.*

In this instance, the proposed zone change would be expected to degrade the performance of several study area intersections that are otherwise not projected to meet the relevant performance standards of Oregon City and ODOT.

Having determined that the proposed annexation and zone change may result in a significant effect on operation of several study area intersections, the TPR also includes the following language:



- (9) *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.*

In this instance, the proposed zoning is consistent with the Comprehensive Plan map designation, Oregon City has an acknowledged TSP that accounted for future development under the proposed zoning, and the area was not exempted from the rule at the time of the urban growth boundary amendment. Accordingly, the city may find that the proposed annexation and zone change is consistent with the city's adopted plans and does not significantly effect an existing or planned transportation facility.

Alternatively, if it is determined that mitigation may be required for the proposed annexation and zone change, the requirements of the TPR are as follows:

- (2) *If a local government determines that there would be a significant effect, then the local government must ensure that allowed land uses are consistent with the identified function, capacity, and performance standards of the facility measured at the end of the planning period identified in the adopted TSP through one or a combination of the remedies listed in (a) through (e) below, unless the amendment meets the balancing test in subsection (2)(e) of this section or qualifies for partial mitigation in section (11) of this rule. A local government using subsection (2)(e), section (3), section (10) or section (11) to approve an amendment recognizes that additional motor vehicle traffic congestion may result and that other facility providers would not be expected to provide additional capacity for motor vehicles in response to this congestion.*
- (a) *Adopting measures that demonstrate allowed land uses are consistent with the planned function, capacity, and performance standards of the transportation facility.*
 - (b) *Amending the TSP or comprehensive plan to provide transportation facilities, improvements or services adequate to support the proposed land uses consistent with the requirements of this division; such amendments shall include a funding plan or mechanism consistent with section (4) or include an amendment to the transportation finance plan so that the facility, improvement, or service will be provided by the end of the planning period.*
 - (c) *Amending the TSP to modify the planned function, capacity or performance standards of the transportation facility.*
 - (d) *Providing other measures as a condition of development or through a development agreement or similar funding method, including, but not limited to, transportation system management measures or minor transportation improvements. Local governments shall, as part of the amendment, specify when measures or improvements provided pursuant to this subsection will be provided.*
 - (e) *Providing improvements that would benefit modes other than the significantly affected mode, improvements to facilities other than the significantly affected facility, or improvements at other locations, if:*

- (A) *The provider of the significantly affected facility provides a written statement that the system-wide benefits are sufficient to balance the significant effect, even though the improvements would not result in consistency for all performance standards;*
- (B) *The providers of facilities being improved at other locations provide written statements of approval; and*
- (C) *The local jurisdictions where facilities are being improved provide written statements of approval.*

In this instance, option (d) would allow conditions of development or a development agreement to be adopted for the subject property to mitigate any potential traffic impacts. Appropriate conditions of approval could consist either of requirements to construct mitigation sufficient to offset traffic impacts at the study intersections or to delay development until the city's TSP is amended to specifically address operation of these intersections.

Since site development is not currently proposed and it is anticipated that refinement plans will be developed by Oregon City in conjunction with ODOT, a condition of approval is proposed which will limit development within the subject property to levels permissible under the existing zoning until appropriate refinement plans are prepared to address future capacity concerns.

Subject to further discussion with City and ODOT staff and refinement of the proposed condition, the applicant tentatively proposes the following condition of approval:

In accordance with City, County and State Transportation requirements, no development, except that permitted under the County's Future Urban FU-10 zoning designation, in effect as of the date of this application's submittal, shall be allowed until the following occurs and the Applicant demonstrates compliance with these requirements:

- a. *Highway 213 at Redland Road intersection (an Oregon Highway intersection) is forecasted to fall below adopted performance standards prior to year 2035. As a result, a new Refinement Plan, shall be adopted and acknowledged.*
- b. *Redland Road at Holcomb Boulevard/ Abernethy Road (a non-Oregon Highway intersection) is forecasted to fall below adopted performance standards prior to year 2035. As a result, the City must do one of the following:*
 - i. *Adopt amendments to the City's Transportation System Plan and OCMC Chapter 12.04 to include projects that satisfy the then-applicable performance standards and these standards must be acknowledged; or*
 - ii. *Condition of approval of a land division application that satisfies then-applicable OCMC Chapter 12.04*
Page 5 of 7 by including proportional mitigation of the application's impacts on that intersection, or such other mitigation measure(s) as may be approved which assure(s) that the intersection will either meet, or perform no worse than, the then-applicable performance standards.



Safety Analysis

Crash Data Analysis

Using data obtained from the ODOT's Crash Analysis and Reporting Unit, a review of the most recent available five years of crash history (from January 2011 to December 2015) at the study intersections was performed. The crash data was evaluated based on the number of crashes, the type of collisions, the severity of the collisions, and the resulting crash rate for the intersection. Crash rates provide the ability to compare safety risks at different intersections by accounting for both the number of crashes that have occurred during the study period and the number of vehicles that typically travel through the intersection. Crash rates were calculated using the common assumption that traffic counted during the evening peak period represents 10 percent of average daily traffic (ADT) at the intersection. Crash rates in excess of one to two crashes per million entering vehicles (CMEV) may be indicative of design deficiencies and therefore require a need for further investigation and possible mitigation.

I-205 Southbound Ramps Intersection at OR-99E

The I-205 southbound ramps intersection at OR-99E had 47 reported crashes during the analysis period. The crashes consisted of 25 rear-end collisions, 19 turning-movement collisions, one fixed-object collision, one collision involving a pedestrian, and one collision involving a bicyclist. Of the crashes reported, 20 were classified as "Property Damage Only" (*PDO*), 20 were classified as "Possible Injury – Complaint of Pain" (*Injury C*), six were classified as "Non-Incapacitating Injury" (*Injury B*), and one was classified as "Incapacitating Injury – Bleeding, Broken Bones" (*Injury A*). The crash rate at the intersection was calculated to be 0.55 CMEV.

Three of the reported crashes at the intersection involved a pedestrian or bicyclist, or resulted in an incapacitating injury. The crash involving a pedestrian occurred when the driver of a westbound right-turning passenger car failed to yield right-of-way to a non-motorist in an intersection crosswalk. The driver of the vehicle had turned right after coming to a stop at the intersection. The pedestrian sustained injuries consistent with *Injury B* classification while the driver of the vehicle was uninjured. The crash involving a bicyclist occurred when the driver of a westbound right-turning passenger car struck a southbound bicyclist who was traveling on the roadway shoulder against the flow of traffic. The bicyclist had disregarded the traffic signal and had entered the intersection illegally. The bicyclist sustained injuries consistent with *Injury B* classification while the driver of the vehicle was uninjured. The crash which resulted in incapacitating injuries occurred when the driver of a northbound passenger car disregarded the traffic signal and collided with a westbound left-turning passenger car. The driver of the northbound vehicle sustained injuries while the other driver was uninjured.

I-205 Northbound Ramps Intersection at OR-99E

The I-205 northbound ramps intersection at OR-99E had 42 reported crashes during the analysis period. The crashes consisted of 28 rear-end collisions and 14 turning-movement collisions. Of the crashes reported, 23



were classified as *PDO*, 17 were classified as *Injury C*, one was classified as *Injury B*, and one was classified as *Injury A*. The crash rate at the intersection was calculated to be 0.48 CMEV.

One of the reported crashes at intersection was classified as an *Injury A* collision. The crash occurred when the driver of a westbound right-turning vehicle was following too close and rear-ended another passenger car that had stopped at the intersection. The driver of the vehicle that was rear-ended sustained incapacitating injuries while the other driver was uninjured.

15th Street at OR-99E

The intersection of 15th Street at OR-99E had 20 reported crashes during the analysis period. The crashes consisted of 14 rear-end collisions, five turning-movement collisions, and one collision involving a bicyclist. Of the crashes reported, six were classified as *PDO*, 12 were classified as *Injury C*, one was classified as *Injury B*, and one was classified as *Injury A*. The crash rate at the intersection was calculated to be 0.27 CMEV.

One of the reported crashes at the intersection was classified as an *Injury A* collision. The crash occurred when the driver of a northwest-bound right-turning passenger car failed to yield right-of-way to a bicyclist crossing through the intersection. The driver of the passenger car had proceeded through the intersection after stopping, however had their vision obscured by some roadside obstruction. The bicyclist sustained injuries while the driver of the vehicle was uninjured.

14th Street at OR-99E

The intersection of 14th Street at OR-99E had 49 reported crashes during the analysis period. The crashes consisted of 24 turning-movement collisions, 23 rear-end collisions, and two collisions involving bicyclists. Of the crashes reported, 15 were classified as *PDO*, 25 were classified as *Injury C*, and nine were classified as *Injury B*. The crash rate at the intersection was calculated to be 0.68 CMEV.

Two of the reported crashes at the intersection involved a bicyclist. One of the bicycle-related crashes occurred when the driver of a southwest-bound left-turning passenger car was struck by a bicyclist who disregarded the traffic signal and had entered the intersection illegally. The driver of the vehicle was uninjured while the bicyclist sustained injuries consistent with *Injury B* classification. The second bicycle related crash occurred when the driver of a northeast-bound right-turning passenger car failed to yield right-of-way to a bicyclist. The driver of the vehicle was uninjured while the bicyclist sustained injuries consistent with *Injury B* classification.

Abernethy Road/S Holcomb Boulevard at Redland Road

The intersection of Abernethy Road/S Holcomb Boulevard at Redland Road had 15 reported crashes during the analysis period. The crashes consisted of 9 rear-end collisions, 5 turning-movement collisions, and 1 angle-type collision. Of the crashes reported, 9 were classified as *PDO*, 4 were classified as *Injury C*, and 2 were classified as *Injury B*. the crash rate at the intersection was calculated to be 0.43 CMEV.



Abernethy Road at Washington Street

The intersection of Abernethy Road at Washington Street had no reported crashes during the analysis period.

15th Street at Washington Street

The intersection of 15th Street at Washington Street had 20 reported crashes during the analysis period. The crashes consisted of ten turning-movement collisions, six angle-type collisions, three rear-end collisions, and one collision involving a bicyclist. Of the crashes reported, nine were classified as *PDO*, nine were classified as *Injury C*, and two were classified as *Injury B*. The crash rate at the intersection was calculated to be 0.80 CMEV.

One of the reported crashes at the intersection involved a bicyclist. The crash occurred when the driver of a southeast-bound left-turning passenger car failed to yield right-of-way to a bicyclist. The driver of the passenger car had their vision obscured by some roadside obstruction. The bicyclist sustained injuries consistent with *Injury C* classification while the driver of the vehicle was uninjured.

14th Street at Washington Street

The intersection of 14th at Washington Street had nine reported crashes during the analysis period. The crashes consisted of four turning-movement collisions, three rear-end collisions, one fixed-object collision, and one angle-type collision. Of the crashes reported, four were classified as *PDO* and five were classified as *Injury C*. The crash rate at the intersection was calculated to be 0.32 CMEV.

14th Street at Main Street

The intersection of 14th Street at Main Street had 30 reported crashes during the analysis period. The crashes consisted of 21 angle-type collisions, six turning-movement collisions, two collisions involving bicyclists, and one collision involving a pedestrian. Of the crashes reported, 15 were classified as *PDO*, 11 were classified as *Injury C*, and four were classified as *Injury B*. The crash rate at the intersection was calculated to be 1.46 CMEV.

Based on the calculated crash rate being in excess of one crash per million entering vehicles, additional investigation regarding the safety of the intersection is appropriate. It was noted that Oregon City's TSP includes a recommendation to convert this intersection to all-way stop control and potentially convert 14th Street to one-way travel as mitigation for the high incidence of crashes at the intersection. The intersection crash history shows five or more crashes per year that are susceptible to correction by installation of all-way stop control for each of the three most recent years analyzed (2013, 2014 and 2015). Accordingly, all-way stop control is both warranted and recommended based on the crash history. No other specific safety mitigations are recommended based on the crash history.

I-205 Southbound Ramps at OR-213

The I-205 southbound ramps intersection at OR-213 had no reported crashes during the analysis period.



I-205 Northbound Ramps at OR-213

The I-205 northbound ramps intersection at OR-213 had no reported crashes during the analysis period.

Prairie Schooner Way/Clackamas River Drive at OR-213

The intersection of Prairie Schooner Way/Clackamas River Drive at OR-213 was recently reconstructed near the end of year 2012. Prior to reconstruction, the intersection allowed full turning-movements for all approaches. Currently, the intersection allows only right-in/right-out movements for the minor-street approaches while bi-directional traffic along the major-street is separated by a raised median.

Since significant changes to traffic controls had occurred at the intersection, it's reasonable to assume that crash patterns have also significantly changed. Prior to reconstruction of the intersection, over a duration of two years (between 2011 and 2012) a total of 19 crashes were reported at the intersection. After construction was completed, over a duration of three years (between 2013 and 2015) a total of 15 crashes were reported. Based on this information, on average 9.5 crashes per year had occurred at the intersection prior to reconstruction while 5.0 crashes per year had occurred after construction had ended. In order to more accurately assess safety at the intersection, only the most recent three years of crash data (between years 2013 and 2015) was reviewed.

Based on the three years of crash history, the intersection had 15 reported crashes during the analysis period. The crashes consisted of eight rear-end collisions, two turning-movement collisions, two overturning collisions, one angle-type collision, one fixed-object collision, and one sideswipe collision. Of the crashes reported, four were classified as *PDO*, eight were classified as *Injury C*, and three were classified as *Injury B*. The crash rate at the intersection was calculated to be 0.22 CMEV.

Redland Road at OR-213

The intersection of Redland Road at OR-213 had 36 reported crashes during the analysis period. The crashes consisted of 28 rear-end collisions, 7 turning-movements, and 1 sideswipe collision. Of the crashes reported, 10 were classified as *PDO*, 24 were classified as *Injury C*, 1 was classified as *Injury B*, and 1 was classified as *Injury A*. The crash rate at the intersection was calculated to be 0.35 CMEV.

One of the crashes at the intersection was classified as *Injury A*. The crash occurred when the driver of a southbound through passenger car disregarded the traffic signal and collided with a northbound left-turning passenger car. During the collision, the southbound vehicle overturned and struck a third passenger car after the initial collision. The driver of the southbound vehicle sustained injuries consistent with *Injury A* classification, while the driver of the northbound left-turning vehicle sustained injuries consistent with *Injury C* classification. The driver of the third vehicle was uninjured.

Beavercreek Road at OR-213

The intersection of Beavercreek Road at OR-213 had 143 reported crashes during the analysis period. The crashes consisted of 124 rear-end collisions, 9 turning-movement collisions, 5 angle-type collisions, 5 sideswipe collisions, 1 fixed-object collision, and 1 collision involving a pedestrian. Of the crashes reported,



66 were classified as *PDO*, 64 were classified as *Injury C*, 11 were classified as *Injury B*, 1 was classified as *Injury A*, and 1 resulted in a fatality. The crash rate at the intersection was calculated to be 1.30 CMEV.

Two of the crashes at the intersection either involved a pedestrian or was classified as an *Injury A* collision. The crash that involved a pedestrian occurred when an east/west traveling pedestrian disregarded the traffic signal, entered the intersection illegally, and was struck by a southbound passenger car. The pedestrian sustained injuries consistent with *Injury B* classification while the driver of the passenger car was uninjured. The crash that was classified as *Injury A* occurred when the driver of a northbound passenger car disregarded the traffic signal and collided with a southbound left-turning passenger car. The passenger in the left-turning vehicle sustained injuries consistent with *Injury A* classification while the vehicle's driver sustained injuries consistent with *Injury C* classification. The driver of the northbound vehicle sustained no injuries.

Over the five-year analysis period, one of the crashes at the intersection resulted in a fatality. The crash was classified as an angle-type collision which occurred at 1:00 AM on Sunday, September 18th, 2011. Driving conditions were during night hours with streetlight, rain, and wet roadways present. The crash occurred when the driver of an eastbound passenger car disregarded the traffic signal and collided with southbound passenger car. The driver of the eastbound vehicle sustained fatal injuries while the passenger of the vehicle sustained injuries consistent with *Injury B* classification. The driver of the southbound vehicle sustained injuries consistent with *Injury C* classification. Although not reported within the crash data, Oregon State police had indicated alcohol was a contributing factor in the collision.

Based on the detailed review of crash history at the intersection, the number of crashes occurring at the intersection is higher than would be expected for a typical intersection with similar characteristics. The vast majority of the reported crashes (86.7 percent of total intersection crashes) were rear-end collisions. However, the rear-end collisions were distributed somewhat evenly among each of the intersection approaches, with 31 on the northbound approach, 29 on the southbound approach, 14 on the eastbound approach, 48 on the westbound approach. The two remaining rear-end collisions were noted as "unknown" with respect to travel direction. Since the rear-end collisions are occurring with relatively similar frequency on each of the approaches, it is unlikely that the crashes result from any specific design deficiency.

It is recommended that consideration be given to installing flashing warning signs that alert drivers to the potential for stopped queues ahead. These warning signs are most appropriate for the high-speed approaches on OR-213, and particularly the southbound approach since the nearest traffic signal to the north is approximately 2.5 miles away at Redland Road. It should be noted that such a system is included in the city's TSP (project D14), which will install a queue warning system for southbound drivers on OR-213 which includes a variable message sign. The project is within the "Likely To Be Funded" list and is designated for near-term implementation.

Holly Lane at S Redland Road

The intersection of Holly Lane at S Redland Road had no reported crashes during the analysis period.

Based on the detailed crash data for the study intersections, it is recommended that the intersection of 14th Street at Main Street be converted to all-way stop control and 14th Street be converted to one-way travel. Additionally, for the intersection of Beavercreek Road at OR-213, it is recommended that consideration be



given to installing flashing warning signs that alert drivers to the potential for stopped queues ahead. No other specific mitigations are recommended for the study area intersections based on the crash history.

Warrant Analysis

Left-turn lane and traffic signal warrants were examined for the study intersections where such treatments would be applicable.

A left-turn refuge lane is primarily a safety consideration for the major street, removing left-turning vehicles from the through traffic stream. The left-turn lane warrants used were developed from the National Cooperative Highway Research Project's (NCHRP) Report 457. Turn lane warrants were evaluated based on the number of advancing and opposing vehicles as well as the number of turning vehicles, the travel speed, and the number of through lanes.

Left-turn lane warrants are projected to be met for the following three intersection approaches:

- Northwest-bound approach at the intersection of 14th Street at Main Street under existing conditions during the morning and evening peak hours;
- Eastbound approach at the intersection of Holly Lane at S Redland Road under the 2035 planning horizon year with the proposed annexation, during the morning and evening peak hours; and
- Westbound approach at the intersection of Holly Lane at S Redland Road under existing conditions during the morning peak hour.

The intersection of 14th Street at Main Street is included within Oregon City's TSP and is planned for conversion to all-way stop control in the short-term. Typically, conversion of an intersection to all-way stop control means that the left-turn lane warrants are no longer applicable; however, based on a capacity analysis of the intersection operating under all-way stop control, it is recommended that a northwest-bound left-turn lane be provided at the intersection regardless in order to ensure all approaches will continue to operate within capacity. Additionally, 14th Street may be converted to one-way southeast-bound travel in conjunction with the intersection converting to all-way stop-control. Implementation of a one-way street conversion would eliminate the need for the left-turn lane.

Traffic signal warrants were examined for the unsignalized study intersections to determine whether the installation of any new traffic signal will be warranted at the intersections upon completion of the proposed development. Traffic signal warrants are triggered at the intersection of Holly Lane at S Redland Road under the 2035 planning year with site trips per Condition B – *Interruption of Continuous Traffic*, and a *Combination Warrant*. Traffic signal warrants are not projected to be met for any of the other unsignalized intersections under any of the analysis scenarios. Alternatively, installation of a roundabout in conformance with the city's TSP may be appropriate in lieu of signalization of this intersection.



Conclusions

Based on the operational analysis, several study intersections are not projected to meet the relevant operational standards of Oregon City and ODOT under year 2035 traffic conditions either with or without the addition of site trips from the proposed annexation and zone change. Although the intersection of Beavercreek Road at OR-213 is not projected to experience a significant change in operation as a result of the proposed annexation and zone change, several other study intersections are projected to experience further degradation in performance upon development within the subject property.

Based on the Transportation Planning Rule analysis, the city may find that the proposed annexation and zone change will not significantly effect an existing or planned transportation facility since the city's acknowledged Transportation System Plan already accounted for development under the proposed zoning. Alternatively, conditions of development or a development agreement may be implemented to ensure that no development can occur except as permitted under the existing zoning until appropriate refinement plans are prepared to address future capacity concerns, or proportionate mitigation is provided concurrent with development to offset the actual traffic impacts of the development.

Based on the detailed review of crash history at the study area intersections, the intersection of Beavercreek Road at OR-213 was found to be among the top ten percent of high-crash intersections in the State of Oregon, with the vast majority of the reported crashes being rear-end collisions. One potential safety mitigation would be installing flashing warning signs that alert drivers to the potential for stopped queues ahead. These warning signs are most appropriate for the high-speed approaches on OR-213, and particularly the southbound approach which has uninterrupted flow for 2.5 miles. This project is already included as a "likely to be funded" project for near-term implementation in the city's Transportation System Plan.

The intersection of 14th Street at Main Street was also identified as having a high crash rate. Per Oregon City's Transportation System Plan, project D13, the intersection could be converted to all-way stop control to be consistent with the traffic controls at surrounding intersections along Main Street. Additionally, by implementing project D7 and restriping 14th Street to allow one-way eastbound travel, it is expected that the potential for crashes at the intersection will be reduced. Both projects are listed as "likely to be funded" in the city's TSP.

All other study intersections are currently operating acceptably with respect to safety.

Left-turn lane warrants are projected to be met for the following three intersection approaches:

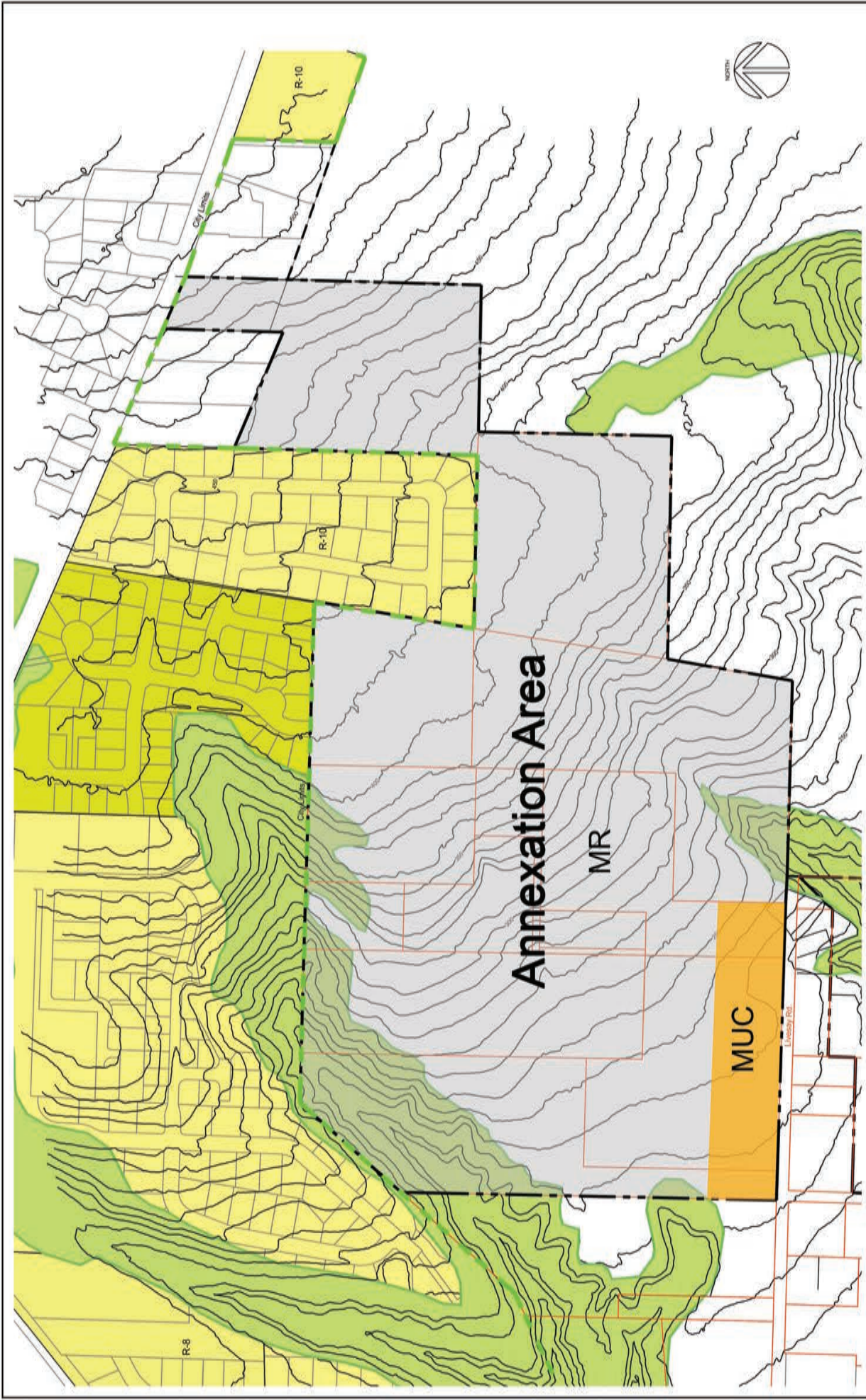
- Northwest-bound approach at the intersection of 14th Street at Main Street under existing conditions during the morning and evening peak hours;
- Eastbound approach at the intersection of Holly Lane at S Redland Road under the 2035 planning horizon year, with the proposed annexation, during the morning and evening peak hours; and
- Westbound approach at the intersection of Holly Lane at S Redland Road under existing conditions during the morning peak hour.

14th Street may be planned for conversion to one-way eastbound travel in the near-term. If the one-way street conversion is implemented, the left-turn lane warrants will no longer be applicable.

Traffic signal warrants are triggered at the intersection of Holly Lane at S Redland Road under the 2035 planning year with site trips from the proposed annexation per Condition B – *Interruption of Continuous Traffic*, and a *Combination Warrant*. Traffic signal warrants are not projected to be met for any of the other unsignalized intersections under any of the analysis scenarios.

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Appendix



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|------------------------------------------------------------------------------------------------------------|------------|-----|--|---------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------|---------------|
| Richard E. Givens, Planning Consultant 18680 Sunrise Dr. Oregon City, OR 97045 PH: (503) 479-0097 | | | | APPLICANT: Hidden Falls Development, LLC 1980 Willamette Falls Drive, Suite 200 West Linn, OR 97068 PH: (503) 657-0406 | <div>Park Place Annexation</div> <div>Site Plan</div> | SHEET: 1/1 |
| REVISION | DATE | NO. | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| DRAWN | REG. | | | | | |
| SCALE: | 1" = 300' | | | | | |
| DATE | Sept. 2005 | | | | | |
| FILE | 15-22N-04S | | | | | |

Total Vehicle Summary

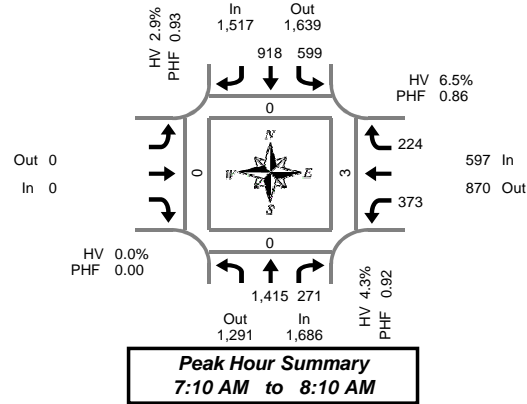


Clay Carney
(503) 833-2740

Hwy 99 & I-205 SB Ramp

Thursday, January 26, 2017

7:00 AM to 9:00 AM



5-Minute Interval Summary

7:00 AM to 9:00 AM

| Interval Start Time | Northbound Hwy 99 | | | Southbound Hwy 99 | | | Eastbound I-205 SB Ramp | | | Westbound I-205 SB Ramp | | | Interval Total | Pedestrians Crosswalk | | | |
|---------------------------|----------------------|-----|-------|----------------------|-------|-------|----------------------------|--|-------|----------------------------|-----|---|-------------------|--------------------------|-------|------|------|
| | T | R | Bikes | L | T | Bikes | | | Bikes | L | | R | Bikes | North | South | East | West |
| 7:00 AM | 101 | 36 | 0 | 47 | 56 | 0 | | | 0 | 37 | 18 | 0 | 295 | 0 | 0 | 2 | 0 |
| 7:05 AM | 95 | 33 | 0 | 44 | 81 | 0 | | | 0 | 19 | 19 | 0 | 291 | 0 | 0 | 0 | 0 |
| 7:10 AM | 89 | 24 | 0 | 55 | 67 | 1 | | | 0 | 23 | 13 | 0 | 271 | 0 | 0 | 0 | 0 |
| 7:15 AM | 106 | 28 | 0 | 46 | 63 | 0 | | | 0 | 37 | 12 | 0 | 292 | 0 | 0 | 1 | 0 |
| 7:20 AM | 107 | 20 | 0 | 51 | 67 | 0 | | | 0 | 30 | 21 | 0 | 296 | 0 | 0 | 0 | 0 |
| 7:25 AM | 92 | 21 | 0 | 61 | 61 | 0 | | | 0 | 29 | 9 | 0 | 273 | 0 | 0 | 0 | 0 |
| 7:30 AM | 128 | 27 | 0 | 45 | 66 | 0 | | | 0 | 34 | 9 | 0 | 309 | 0 | 0 | 0 | 0 |
| 7:35 AM | 145 | 15 | 0 | 50 | 73 | 0 | | | 0 | 26 | 23 | 0 | 332 | 0 | 0 | 2 | 0 |
| 7:40 AM | 112 | 17 | 0 | 56 | 85 | 0 | | | 0 | 30 | 18 | 0 | 318 | 0 | 0 | 0 | 0 |
| 7:45 AM | 136 | 25 | 0 | 44 | 86 | 0 | | | 0 | 43 | 22 | 0 | 356 | 0 | 0 | 0 | 0 |
| 7:50 AM | 145 | 21 | 0 | 52 | 86 | 0 | | | 0 | 20 | 25 | 0 | 349 | 0 | 0 | 0 | 0 |
| 7:55 AM | 115 | 17 | 0 | 48 | 92 | 0 | | | 0 | 30 | 27 | 0 | 329 | 0 | 0 | 0 | 0 |
| 8:00 AM | 128 | 27 | 0 | 42 | 87 | 0 | | | 0 | 47 | 22 | 0 | 353 | 0 | 0 | 0 | 0 |
| 8:05 AM | 112 | 29 | 0 | 49 | 85 | 0 | | | 0 | 24 | 23 | 0 | 322 | 0 | 0 | 0 | 0 |
| 8:10 AM | 88 | 22 | 0 | 46 | 69 | 0 | | | 0 | 23 | 21 | 0 | 269 | 0 | 0 | 1 | 0 |
| 8:15 AM | 102 | 18 | 0 | 32 | 74 | 0 | | | 0 | 33 | 32 | 0 | 291 | 0 | 0 | 0 | 0 |
| 8:20 AM | 87 | 20 | 0 | 31 | 85 | 0 | | | 0 | 22 | 27 | 0 | 272 | 0 | 0 | 0 | 0 |
| 8:25 AM | 76 | 17 | 0 | 35 | 79 | 0 | | | 0 | 21 | 17 | 0 | 245 | 0 | 0 | 1 | 0 |
| 8:30 AM | 97 | 17 | 0 | 44 | 81 | 0 | | | 0 | 45 | 23 | 0 | 307 | 0 | 0 | 0 | 0 |
| 8:35 AM | 77 | 13 | 0 | 48 | 81 | 0 | | | 0 | 33 | 30 | 0 | 282 | 0 | 0 | 0 | 0 |
| 8:40 AM | 79 | 16 | 0 | 44 | 73 | 0 | | | 0 | 31 | 30 | 0 | 273 | 0 | 0 | 0 | 0 |
| 8:45 AM | 105 | 22 | 0 | 41 | 74 | 0 | | | 0 | 46 | 26 | 0 | 314 | 0 | 0 | 0 | 0 |
| 8:50 AM | 97 | 18 | 0 | 35 | 80 | 0 | | | 0 | 31 | 31 | 0 | 292 | 0 | 0 | 1 | 0 |
| 8:55 AM | 79 | 14 | 0 | 36 | 55 | 0 | | | 0 | 25 | 22 | 0 | 231 | 0 | 0 | 0 | 0 |
| Total Survey | 2,498 | 517 | 0 | 1,082 | 1,806 | 1 | | | 0 | 739 | 520 | 0 | 7,162 | 0 | 0 | 8 | 0 |

15-Minute Interval Summary

7:00 AM to 9:00 AM

| Interval Start Time | Northbound Hwy 99 | | | Southbound Hwy 99 | | | Eastbound I-205 SB Ramp | | | Westbound I-205 SB Ramp | | | Interval Total | Pedestrians Crosswalk | | | |
|---------------------------|----------------------|-----|-------|----------------------|-------|-------|----------------------------|--|-------|----------------------------|-----|---|-------------------|--------------------------|-------|------|------|
| | T | R | Bikes | L | T | Bikes | | | Bikes | L | | R | Bikes | North | South | East | West |
| 7:00 AM | 285 | 93 | 0 | 146 | 204 | 1 | | | 0 | 79 | 50 | 0 | 857 | 0 | 0 | 2 | 0 |
| 7:15 AM | 305 | 69 | 0 | 158 | 191 | 0 | | | 0 | 96 | 42 | 0 | 861 | 0 | 0 | 1 | 0 |
| 7:30 AM | 385 | 59 | 0 | 151 | 224 | 0 | | | 0 | 90 | 50 | 0 | 959 | 0 | 0 | 2 | 0 |
| 7:45 AM | 396 | 63 | 0 | 144 | 264 | 0 | | | 0 | 93 | 74 | 0 | 1,034 | 0 | 0 | 0 | 0 |
| 8:00 AM | 328 | 78 | 0 | 137 | 241 | 0 | | | 0 | 94 | 66 | 0 | 944 | 0 | 0 | 1 | 0 |
| 8:15 AM | 265 | 55 | 0 | 98 | 238 | 0 | | | 0 | 76 | 76 | 0 | 808 | 0 | 0 | 1 | 0 |
| 8:30 AM | 253 | 46 | 0 | 136 | 235 | 0 | | | 0 | 109 | 83 | 0 | 862 | 0 | 0 | 0 | 0 |
| 8:45 AM | 281 | 54 | 0 | 112 | 209 | 0 | | | 0 | 102 | 79 | 0 | 837 | 0 | 0 | 1 | 0 |
| Total Survey | 2,498 | 517 | 0 | 1,082 | 1,806 | 1 | | | 0 | 739 | 520 | 0 | 7,162 | 0 | 0 | 8 | 0 |

Peak Hour Summary

7:10 AM to 8:10 AM

| By Approach | Northbound Hwy 99 | | | Southbound Hwy 99 | | | Eastbound I-205 SB Ramp | | | Westbound I-205 SB Ramp | | | Total | Pedestrians Crosswalk | | | |
|----------------|----------------------|-------|-------|----------------------|-------|-------|----------------------------|-----|-------|----------------------------|-----|-------|-------|--------------------------|-------|-------|------|
| | In | Out | Total | In | Out | Total | In | Out | Total | In | Out | Total | | North | South | East | West |
| Volume | 1,686 | 1,291 | 2,977 | 0 | 1,517 | 1,639 | 3,156 | 1 | 0 | 0 | 0 | 597 | 870 | 1,467 | 0 | 3,800 | |
| %HV | 4.3% | | | | 2.9% | | | | 0.0% | | | 6.5% | | 4.1% | | | |
| PHF | 0.92 | | | | 0.93 | | | | 0.00 | | | 0.86 | | 0.92 | | | |

| By Movement | Northbound Hwy 99 | | | Southbound Hwy 99 | | | Eastbound I-205 SB Ramp | | | Westbound I-205 SB Ramp | | | Total |
|----------------|----------------------|------|-------|----------------------|------|-------|----------------------------|------|-------|----------------------------|----|------|-------|
| | T | R | Total | L | T | Total | | | Total | L | | R | Total |
| Volume | 1,415 | 271 | 1,686 | 599 | 918 | 1,517 | | | 0 | 373 | | 224 | 597 |
| %HV | NA | 3.9% | 6.3% | 4.3% | 1.7% | 3.7% | NA | 2.9% | NA | NA | NA | 4.9% | 6.5% |
| PHF | 0.89 | 0.93 | 0.92 | 0.95 | 0.87 | 0.93 | | | 0.00 | 0.92 | | 0.76 | 0.86 |

Rolling Hour Summary

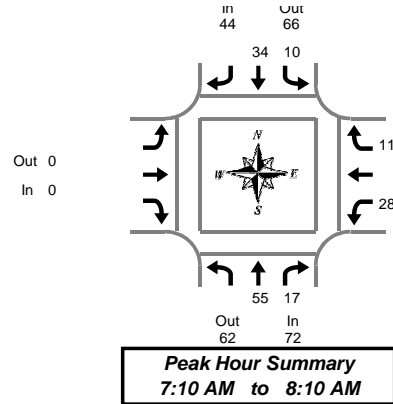
7:00 AM to 9:00 AM

| Interval Start Time | Northbound Hwy 99 | | | Southbound Hwy 99 | | | Eastbound I-205 SB Ramp | | | Westbound I-205 SB Ramp | | | Interval Total | Pedestrians Crosswalk | | | |
|---------------------------|----------------------|-----|-------|----------------------|-----|-------|----------------------------|--|-------|----------------------------|-----|---|-------------------|--------------------------|-------|------|------|
| | T | R | Bikes | L | T | Bikes | | | Bikes | L | | R | Bikes | North | South | East | West |
| 7:00 AM | 1,371 | 284 | 0 | 599 | 883 | 1 | | | 0 | 358 | 216 | 0 | 3,711 | 0 | 0 | 5 | 0 |
| 7:15 AM | 1,414 | 269 | 0 | 590 | 920 | 0 | | | 0 | 373 | 232 | 0 | 3,798 | 0 | 0 | 4 | 0 |
| 7:30 AM | 1,374 | 255 | 0 | 530 | 967 | 0 | | | 0 | 353 | 266 | 0 | 3,745 | 0 | 0 | 4 | 0 |
| 7:45 AM | 1,242 | 242 | 0 | 515 | 978 | 0 | | | 0 | 372 | 299 | 0 | 3,648 | 0 | 0 | 2 | 0 |
| 8:00 AM | 1,127 | 233 | 0 | 483 | 923 | 0 | | | 0 | 381 | 304 | 0 | 3,451 | 0 | 0 | 3 | 0 |

Heavy Vehicle Summary



Clay Carney
(503) 833-2740



Hwy 99 & I-205 SB Ramp

Thursday, January 26, 2017

7:00 AM to 9:00 AM

Heavy Vehicle 5-Minute Interval Summary 7:00 AM to 9:00 AM

| Interval Start Time | Northbound Hwy 99 | | | Southbound Hwy 99 | | | Eastbound I-205 SB Ramp | | | Westbound I-205 SB Ramp | | | Interval Total |
|---------------------------|----------------------|----|-------|----------------------|----|-------|----------------------------|--|-------|----------------------------|----|-------|-------------------|
| | T | R | Total | L | T | Total | | | Total | L | R | Total | |
| 7:00 AM | 3 | 2 | 5 | 0 | 3 | 3 | | | 0 | 2 | 3 | 5 | 13 |
| 7:05 AM | 1 | 1 | 2 | 2 | 3 | 5 | | | 0 | 1 | 0 | 1 | 8 |
| 7:10 AM | 1 | 2 | 3 | 1 | 2 | 3 | | | 0 | 1 | 1 | 2 | 8 |
| 7:15 AM | 6 | 0 | 6 | 0 | 3 | 3 | | | 0 | 1 | 2 | 3 | 12 |
| 7:20 AM | 4 | 2 | 6 | 0 | 6 | 6 | | | 0 | 2 | 0 | 2 | 14 |
| 7:25 AM | 4 | 1 | 5 | 1 | 2 | 3 | | | 0 | 2 | 0 | 2 | 10 |
| 7:30 AM | 5 | 4 | 9 | 1 | 2 | 3 | | | 0 | 3 | 0 | 3 | 15 |
| 7:35 AM | 5 | 1 | 6 | 1 | 1 | 2 | | | 0 | 1 | 3 | 4 | 12 |
| 7:40 AM | 5 | 0 | 5 | 1 | 3 | 4 | | | 0 | 2 | 1 | 3 | 12 |
| 7:45 AM | 4 | 1 | 5 | 0 | 3 | 3 | | | 0 | 2 | 2 | 4 | 12 |
| 7:50 AM | 6 | 2 | 8 | 1 | 2 | 3 | | | 0 | 2 | 0 | 2 | 13 |
| 7:55 AM | 5 | 0 | 5 | 2 | 3 | 5 | | | 0 | 6 | 1 | 7 | 17 |
| 8:00 AM | 6 | 0 | 6 | 0 | 2 | 2 | | | 0 | 3 | 0 | 3 | 11 |
| 8:05 AM | 4 | 4 | 8 | 2 | 5 | 7 | | | 0 | 3 | 1 | 4 | 19 |
| 8:10 AM | 6 | 3 | 9 | 0 | 7 | 7 | | | 0 | 1 | 1 | 2 | 18 |
| 8:15 AM | 9 | 2 | 11 | 0 | 4 | 4 | | | 0 | 3 | 3 | 6 | 21 |
| 8:20 AM | 6 | 2 | 8 | 2 | 5 | 7 | | | 0 | 3 | 3 | 6 | 21 |
| 8:25 AM | 5 | 0 | 5 | 3 | 7 | 10 | | | 0 | 3 | 0 | 3 | 18 |
| 8:30 AM | 5 | 2 | 7 | 0 | 5 | 5 | | | 0 | 3 | 1 | 4 | 16 |
| 8:35 AM | 3 | 0 | 3 | 1 | 1 | 2 | | | 0 | 3 | 1 | 4 | 9 |
| 8:40 AM | 3 | 0 | 3 | 2 | 5 | 7 | | | 0 | 5 | 3 | 8 | 18 |
| 8:45 AM | 5 | 2 | 7 | 4 | 4 | 8 | | | 0 | 3 | 2 | 5 | 20 |
| 8:50 AM | 1 | 2 | 3 | 1 | 7 | 8 | | | 0 | 2 | 0 | 2 | 13 |
| 8:55 AM | 4 | 0 | 4 | 2 | 3 | 5 | | | 0 | 1 | 1 | 2 | 11 |
| Total Survey | 106 | 33 | 139 | 27 | 88 | 115 | | | 0 | 58 | 29 | 87 | 341 |

Heavy Vehicle 15-Minute Interval Summary 7:00 AM to 9:00 AM

| Interval Start Time | Northbound Hwy 99 | | | Southbound Hwy 99 | | | Eastbound I-205 SB Ramp | | | Westbound I-205 SB Ramp | | | Interval Total |
|---------------------------|----------------------|----|-------|----------------------|----|-------|----------------------------|--|-------|----------------------------|----|-------|-------------------|
| | T | R | Total | L | T | Total | | | Total | L | R | Total | |
| 7:00 AM | 5 | 5 | 10 | 3 | 8 | 11 | | | 0 | 4 | 4 | 8 | 29 |
| 7:15 AM | 14 | 3 | 17 | 1 | 11 | 12 | | | 0 | 5 | 2 | 7 | 36 |
| 7:30 AM | 15 | 5 | 20 | 3 | 6 | 9 | | | 0 | 6 | 4 | 10 | 39 |
| 7:45 AM | 15 | 3 | 18 | 3 | 8 | 11 | | | 0 | 10 | 3 | 13 | 42 |
| 8:00 AM | 16 | 7 | 23 | 2 | 14 | 16 | | | 0 | 7 | 2 | 9 | 48 |
| 8:15 AM | 20 | 4 | 24 | 5 | 16 | 21 | | | 0 | 9 | 6 | 15 | 60 |
| 8:30 AM | 11 | 2 | 13 | 3 | 11 | 14 | | | 0 | 11 | 5 | 16 | 43 |
| 8:45 AM | 10 | 4 | 14 | 7 | 14 | 21 | | | 0 | 6 | 3 | 9 | 44 |
| Total Survey | 106 | 33 | 139 | 27 | 88 | 115 | | | 0 | 58 | 29 | 87 | 341 |

Heavy Vehicle Peak Hour Summary 7:10 AM to 8:10 AM

| By Approach | Northbound Hwy 99 | | | Southbound Hwy 99 | | | Eastbound I-205 SB Ramp | | | Westbound I-205 SB Ramp | | | Total |
|----------------|----------------------|-----|-------|----------------------|-----|-------|----------------------------|-----|-------|----------------------------|-----|-------|-------|
| | In | Out | Total | In | Out | Total | In | Out | Total | In | Out | Total | |
| Volume | 72 | 62 | 134 | 44 | 66 | 110 | 0 | 0 | 0 | 39 | 27 | 66 | 155 |
| PHF | 0.90 | | | 0.79 | | | 0.00 | | | 0.70 | | | 0.82 |

| By Movement | Northbound Hwy 99 | | | Southbound Hwy 99 | | | Eastbound I-205 SB Ramp | | | Westbound I-205 SB Ramp | | | Total |
|----------------|----------------------|------|-------|----------------------|------|-------|----------------------------|--|-------|----------------------------|------|-------|-------|
| | T | R | Total | L | T | Total | | | Total | L | R | Total | |
| Volume | 55 | 17 | 72 | 10 | 34 | 44 | | | 0 | 28 | 11 | 39 | 155 |
| PHF | 0.81 | 0.61 | 0.90 | 0.63 | 0.77 | 0.79 | | | 0.00 | 0.58 | 0.46 | 0.70 | 0.82 |

Heavy Vehicle Rolling Hour Summary 7:00 AM to 9:00 AM

| Interval Start Time | Northbound Hwy 99 | | | Southbound Hwy 99 | | | Eastbound I-205 SB Ramp | | | Westbound I-205 SB Ramp | | | Interval Total |
|---------------------------|----------------------|----|-------|----------------------|----|-------|----------------------------|--|-------|----------------------------|----|-------|-------------------|
| | T | R | Total | L | T | Total | | | Total | L | R | Total | |
| 7:00 AM | 49 | 16 | 65 | 10 | 33 | 43 | | | 0 | 25 | 13 | 38 | 146 |
| 7:15 AM | 60 | 18 | 78 | 9 | 39 | 48 | | | 0 | 28 | 11 | 39 | 165 |
| 7:30 AM | 66 | 19 | 85 | 13 | 44 | 57 | | | 0 | 32 | 15 | 47 | 189 |
| 7:45 AM | 62 | 16 | 78 | 13 | 49 | 62 | | | 0 | 37 | 16 | 53 | 193 |
| 8:00 AM | 57 | 17 | 74 | 17 | 55 | 72 | | | 0 | 33 | 16 | 49 | 195 |

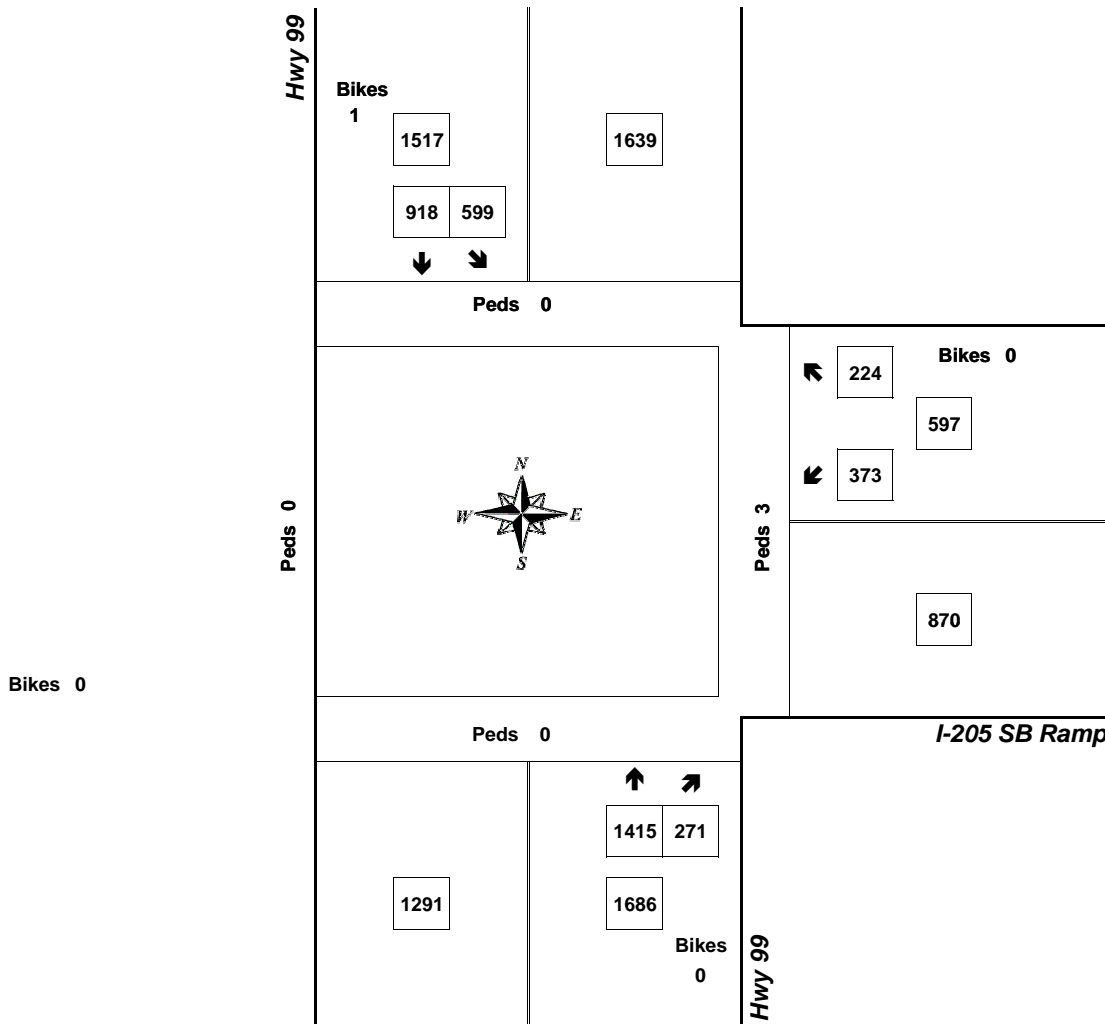
Peak Hour Summary



Clay Carney
(503) 833-2740

Hwy 99 & I-205 SB Ramp

7:10 AM to 8:10 AM
Thursday, January 26, 2017



| Approach | PHF | HV% | Volume |
|---------------------|-------------|-------------|--------------|
| EB | 0.00 | 0.0% | 0 |
| WB | 0.86 | 6.5% | 597 |
| NB | 0.92 | 4.3% | 1,686 |
| SB | 0.93 | 2.9% | 1,517 |
| Intersection | 0.92 | 4.1% | 3,800 |

Count Period: 7:00 AM to 9:00 AM

Total Vehicle Summary



Clay Carney
(503) 833-2740

Hwy 99 & I-205 SB Ramp

Wednesday, January 25, 2017

4:00 PM to 6:00 PM

5-Minute Interval Summary

4:00 PM to 6:00 PM

| Interval Start Time | Northbound Hwy 99 | | | Southbound Hwy 99 | | | Eastbound I-205 SB Ramp | | | Westbound I-205 SB Ramp | | | Interval Total | Pedestrians Crosswalk | | | |
|---------------------------|----------------------|-----|-------|----------------------|-------|-------|----------------------------|--|-------|----------------------------|--|-----|-------------------|--------------------------|-------|------|------|
| | T | R | Bikes | L | T | Bikes | | | Bikes | L | | R | Bikes | North | South | East | West |
| 4:00 PM | 74 | 20 | 0 | 46 | 123 | 0 | | | 0 | 74 | | 33 | 0 | 0 | 0 | 0 | 0 |
| 4:05 PM | 117 | 17 | 0 | 39 | 137 | 0 | | | 0 | 47 | | 27 | 0 | 0 | 0 | 1 | 0 |
| 4:10 PM | 117 | 16 | 0 | 40 | 137 | 0 | | | 0 | 82 | | 21 | 0 | 0 | 0 | 1 | 0 |
| 4:15 PM | 95 | 19 | 0 | 44 | 117 | 0 | | | 0 | 86 | | 16 | 0 | 0 | 0 | 0 | 0 |
| 4:20 PM | 85 | 15 | 0 | 38 | 119 | 0 | | | 0 | 73 | | 28 | 0 | 0 | 0 | 0 | 0 |
| 4:25 PM | 110 | 17 | 0 | 42 | 162 | 0 | | | 0 | 76 | | 32 | 0 | 0 | 0 | 1 | 0 |
| 4:30 PM | 97 | 22 | 0 | 37 | 135 | 0 | | | 0 | 74 | | 23 | 0 | 0 | 0 | 0 | 0 |
| 4:35 PM | 76 | 19 | 0 | 41 | 123 | 0 | | | 0 | 88 | | 36 | 0 | 0 | 0 | 0 | 0 |
| 4:40 PM | 110 | 17 | 0 | 38 | 169 | 0 | | | 0 | 53 | | 22 | 0 | 0 | 0 | 0 | 0 |
| 4:45 PM | 101 | 18 | 0 | 44 | 147 | 0 | | | 0 | 60 | | 21 | 0 | 0 | 0 | 0 | 0 |
| 4:50 PM | 107 | 16 | 0 | 23 | 121 | 0 | | | 0 | 71 | | 16 | 0 | 0 | 0 | 0 | 0 |
| 4:55 PM | 82 | 8 | 1 | 38 | 112 | 0 | | | 0 | 81 | | 24 | 0 | 0 | 0 | 0 | 0 |
| 5:00 PM | 122 | 16 | 0 | 45 | 141 | 0 | | | 0 | 54 | | 26 | 0 | 0 | 0 | 1 | 0 |
| 5:05 PM | 109 | 16 | 0 | 35 | 142 | 0 | | | 0 | 73 | | 25 | 0 | 0 | 0 | 0 | 0 |
| 5:10 PM | 113 | 26 | 0 | 35 | 116 | 0 | | | 0 | 66 | | 22 | 0 | 0 | 0 | 1 | 0 |
| 5:15 PM | 101 | 21 | 0 | 44 | 140 | 0 | | | 0 | 69 | | 25 | 0 | 0 | 0 | 1 | 0 |
| 5:20 PM | 127 | 23 | 0 | 41 | 139 | 0 | | | 0 | 54 | | 25 | 0 | 0 | 0 | 2 | 0 |
| 5:25 PM | 113 | 25 | 0 | 29 | 121 | 0 | | | 0 | 61 | | 20 | 0 | 0 | 0 | 1 | 0 |
| 5:30 PM | 73 | 23 | 0 | 42 | 98 | 0 | | | 0 | 81 | | 26 | 0 | 0 | 0 | 0 | 0 |
| 5:35 PM | 108 | 16 | 0 | 48 | 147 | 0 | | | 0 | 52 | | 19 | 0 | 0 | 0 | 0 | 0 |
| 5:40 PM | 104 | 15 | 0 | 30 | 133 | 0 | | | 0 | 63 | | 18 | 0 | 0 | 0 | 0 | 0 |
| 5:45 PM | 105 | 20 | 0 | 35 | 112 | 0 | | | 0 | 77 | | 23 | 0 | 0 | 0 | 1 | 0 |
| 5:50 PM | 87 | 13 | 0 | 46 | 102 | 0 | | | 0 | 70 | | 24 | 0 | 0 | 0 | 0 | 0 |
| 5:55 PM | 106 | 10 | 0 | 39 | 117 | 0 | | | 0 | 64 | | 18 | 0 | 0 | 0 | 1 | 0 |
| Total Survey | 2,439 | 428 | 1 | 939 | 3,110 | 0 | | | 0 | 1,649 | | 570 | 0 | 0 | 0 | 11 | 0 |

15-Minute Interval Summary

4:00 PM to 6:00 PM

| Interval Start Time | Northbound Hwy 99 | | | Southbound Hwy 99 | | | Eastbound I-205 SB Ramp | | | Westbound I-205 SB Ramp | | | Interval Total | Pedestrians Crosswalk | | | |
|---------------------------|----------------------|-----|-------|----------------------|-------|-------|----------------------------|--|-------|----------------------------|--|-----|-------------------|--------------------------|-------|------|------|
| | T | R | Bikes | L | T | Bikes | | | Bikes | L | | R | Bikes | North | South | East | West |
| 4:00 PM | 308 | 53 | 0 | 125 | 397 | 0 | | | 0 | 203 | | 81 | 0 | 0 | 0 | 2 | 0 |
| 4:15 PM | 290 | 51 | 0 | 124 | 398 | 0 | | | 0 | 235 | | 76 | 0 | 0 | 0 | 1 | 0 |
| 4:30 PM | 283 | 58 | 0 | 116 | 427 | 0 | | | 0 | 215 | | 81 | 0 | 0 | 0 | 0 | 0 |
| 4:45 PM | 290 | 42 | 1 | 105 | 380 | 0 | | | 0 | 212 | | 61 | 0 | 0 | 0 | 0 | 0 |
| 5:00 PM | 344 | 58 | 0 | 115 | 399 | 0 | | | 0 | 193 | | 73 | 0 | 0 | 0 | 2 | 0 |
| 5:15 PM | 341 | 69 | 0 | 114 | 400 | 0 | | | 0 | 184 | | 70 | 0 | 0 | 0 | 4 | 0 |
| 5:30 PM | 285 | 54 | 0 | 120 | 378 | 0 | | | 0 | 196 | | 63 | 0 | 0 | 0 | 0 | 0 |
| 5:45 PM | 298 | 43 | 0 | 120 | 331 | 0 | | | 0 | 211 | | 65 | 0 | 0 | 0 | 2 | 0 |
| Total Survey | 2,439 | 428 | 1 | 939 | 3,110 | 0 | | | 0 | 1,649 | | 570 | 0 | 0 | 0 | 11 | 0 |

Peak Hour Summary

4:25 PM to 5:25 PM

| By Approach | Northbound Hwy 99 | | | | Southbound Hwy 99 | | | | Eastbound I-205 SB Ramp | | | | Westbound I-205 SB Ramp | | | | Total | Pedestrians Crosswalk | | | |
|----------------|----------------------|-------|-------|-------|----------------------|-------|-------|-------|----------------------------|-----|-------|-------|----------------------------|-----|-------|-------|-------|--------------------------|-------|------|------|
| | In | Out | Total | Bikes | In | Out | Total | Bikes | In | Out | Total | Bikes | In | Out | Total | Bikes | | North | South | East | West |
| Volume | 1,474 | 2,466 | 3,940 | 1 | 2,110 | 1,552 | 3,662 | 0 | 0 | 0 | 0 | 0 | 1,116 | 682 | 1,798 | 0 | 4,700 | 0 | 0 | 6 | 0 |
| %HV | 2.4% | | | | 1.8% | | | | 0.0% | | | | 2.8% | | | | 2.3% | | | | |
| PHF | | 0.90 | | | 0.94 | | | | 0.00 | | | | 0.85 | | | | 0.97 | | | | |

| By Movement | Northbound Hwy 99 | | | | Southbound Hwy 99 | | | | Eastbound I-205 SB Ramp | | | | Westbound I-205 SB Ramp | | | | Total |
|----------------|----------------------|------|-------|------|----------------------|-------|----|------|----------------------------|------|----|------|----------------------------|-----|-------|------|-------|
| | T | R | Total | L | T | Total | | | Total | L | | R | Total | | | | |
| Volume | 1,255 | 219 | 1,474 | 463 | 1,647 | 2,110 | | | 0 | 865 | | 299 | 0 | 297 | 1,116 | | 4,700 |
| %HV | NA | 2.2% | 4.1% | 2.4% | 2.4% | 1.7% | NA | 1.8% | NA | NA | NA | 0.0% | 2.9% | NA | 2.4% | 2.8% | 2.3% |
| PHF | 0.91 | 0.78 | 0.90 | 0.94 | 0.94 | 0.94 | | | 0.00 | 0.86 | | 0.82 | 0.85 | | | | 0.97 |

Rolling Hour Summary

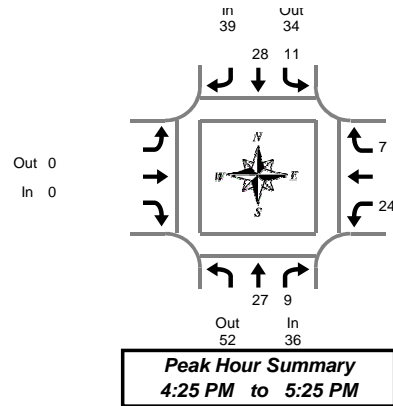
4:00 PM to 6:00 PM

| Interval Start Time | Northbound Hwy 99 | | | Southbound Hwy 99 | | | Eastbound I-205 SB Ramp | | | Westbound I-205 SB Ramp | | | Interval Total | Pedestrians Crosswalk | | | |
|---------------------------|----------------------|-----|-------|----------------------|-------|-------|----------------------------|--|-------|----------------------------|--|-----|-------------------|--------------------------|-------|------|------|
| | T | R | Bikes | L | T | Bikes | | | Bikes | L | | R | Bikes | North | South | East | West |
| 4:00 PM | 1,171 | 204 | 1 | 470 | 1,602 | 0 | | | 0 | 865 | | 299 | 0 | 0 | 0 | 3 | 0 |
| 4:15 PM | 1,207 | 209 | 1 | 460 | 1,604 | 0 | | | 0 | 855 | | 291 | 0 | 0 | 0 | 3 | 0 |
| 4:30 PM | 1,258 | 227 | 1 | 450 | 1,606 | 0 | | | 0 | 804 | | 285 | 0 | 0 | 0 | 6 | 0 |
| 4:45 PM | 1,260 | 223 | 1 | 454 | 1,557 | 0 | | | 0 | 785 | | 267 | 0 | 0 | 0 | 6 | 0 |
| 5:00 PM | 1,268 | 224 | 0 | 469 | 1,508 | 0 | | | 0 | 784 | | 271 | 0 | 0 | 0 | 8 | 0 |

Heavy Vehicle Summary



Clay Carney
(503) 833-2740



Hwy 99 & I-205 SB Ramp

Wednesday, January 25, 2017

4:00 PM to 6:00 PM

Heavy Vehicle 5-Minute Interval Summary

4:00 PM to 6:00 PM

| Interval Start Time | Northbound Hwy 99 | | | Southbound Hwy 99 | | | Eastbound I-205 SB Ramp | | | Westbound I-205 SB Ramp | | | Interval Total |
|---------------------------|----------------------|----|-------|----------------------|----|-------|----------------------------|--|-------|----------------------------|----|-------|-------------------|
| | T | R | Total | L | T | Total | | | Total | L | R | Total | |
| 4:00 PM | 1 | 0 | 1 | 0 | 3 | 3 | | | 0 | 4 | 1 | 5 | 9 |
| 4:05 PM | 2 | 1 | 3 | 2 | 4 | 6 | | | 0 | 3 | 0 | 3 | 12 |
| 4:10 PM | 2 | 2 | 4 | 3 | 4 | 7 | | | 0 | 0 | 0 | 0 | 11 |
| 4:15 PM | 4 | 2 | 6 | 0 | 2 | 2 | | | 0 | 1 | 2 | 3 | 11 |
| 4:20 PM | 0 | 2 | 2 | 1 | 4 | 5 | | | 0 | 3 | 1 | 4 | 11 |
| 4:25 PM | 6 | 1 | 7 | 3 | 2 | 5 | | | 0 | 2 | 1 | 3 | 15 |
| 4:30 PM | 5 | 1 | 6 | 1 | 4 | 5 | | | 0 | 1 | 1 | 2 | 13 |
| 4:35 PM | 1 | 0 | 1 | 2 | 1 | 3 | | | 0 | 3 | 0 | 3 | 7 |
| 4:40 PM | 2 | 0 | 2 | 2 | 1 | 3 | | | 0 | 2 | 1 | 3 | 8 |
| 4:45 PM | 1 | 2 | 3 | 0 | 2 | 2 | | | 0 | 3 | 1 | 4 | 9 |
| 4:50 PM | 1 | 0 | 1 | 0 | 3 | 3 | | | 0 | 1 | 0 | 1 | 5 |
| 4:55 PM | 1 | 0 | 1 | 1 | 3 | 4 | | | 0 | 0 | 0 | 0 | 5 |
| 5:00 PM | 1 | 1 | 2 | 1 | 3 | 4 | | | 0 | 1 | 0 | 1 | 7 |
| 5:05 PM | 1 | 0 | 1 | 0 | 4 | 4 | | | 0 | 2 | 0 | 2 | 7 |
| 5:10 PM | 2 | 0 | 2 | 0 | 1 | 1 | | | 0 | 4 | 0 | 4 | 7 |
| 5:15 PM | 3 | 1 | 4 | 0 | 1 | 1 | | | 0 | 3 | 3 | 6 | 11 |
| 5:20 PM | 3 | 3 | 6 | 1 | 3 | 4 | | | 0 | 2 | 0 | 2 | 12 |
| 5:25 PM | 3 | 0 | 3 | 0 | 3 | 3 | | | 0 | 3 | 0 | 3 | 9 |
| 5:30 PM | 1 | 1 | 2 | 0 | 2 | 2 | | | 0 | 1 | 0 | 1 | 5 |
| 5:35 PM | 1 | 0 | 1 | 0 | 3 | 3 | | | 0 | 1 | 1 | 2 | 6 |
| 5:40 PM | 3 | 0 | 3 | 1 | 2 | 3 | | | 0 | 1 | 0 | 1 | 7 |
| 5:45 PM | 2 | 0 | 2 | 0 | 2 | 2 | | | 0 | 1 | 1 | 2 | 6 |
| 5:50 PM | 0 | 1 | 1 | 1 | 0 | 1 | | | 0 | 2 | 1 | 3 | 5 |
| 5:55 PM | 2 | 0 | 2 | 2 | 2 | 4 | | | 0 | 0 | 0 | 0 | 6 |
| Total Survey | 48 | 18 | 66 | 21 | 59 | 80 | | | 0 | 44 | 14 | 58 | 204 |

Heavy Vehicle 15-Minute Interval Summary

4:00 PM to 6:00 PM

| Interval Start Time | Northbound Hwy 99 | | | Southbound Hwy 99 | | | Eastbound I-205 SB Ramp | | | Westbound I-205 SB Ramp | | | Interval Total |
|---------------------------|----------------------|----|-------|----------------------|----|-------|----------------------------|--|-------|----------------------------|----|-------|-------------------|
| | T | R | Total | L | T | Total | | | Total | L | R | Total | |
| 4:00 PM | 5 | 3 | 8 | 5 | 11 | 16 | | | 0 | 7 | 1 | 8 | 32 |
| 4:15 PM | 10 | 5 | 15 | 4 | 8 | 12 | | | 0 | 6 | 4 | 10 | 37 |
| 4:30 PM | 8 | 1 | 9 | 5 | 6 | 11 | | | 0 | 6 | 2 | 8 | 28 |
| 4:45 PM | 3 | 2 | 5 | 1 | 8 | 9 | | | 0 | 4 | 1 | 5 | 19 |
| 5:00 PM | 4 | 1 | 5 | 1 | 8 | 9 | | | 0 | 7 | 0 | 7 | 21 |
| 5:15 PM | 9 | 4 | 13 | 1 | 7 | 8 | | | 0 | 8 | 3 | 11 | 32 |
| 5:30 PM | 5 | 1 | 6 | 1 | 7 | 8 | | | 0 | 3 | 1 | 4 | 18 |
| 5:45 PM | 4 | 1 | 5 | 3 | 4 | 7 | | | 0 | 3 | 2 | 5 | 17 |
| Total Survey | 48 | 18 | 66 | 21 | 59 | 80 | | | 0 | 44 | 14 | 58 | 204 |

Heavy Vehicle Peak Hour Summary

4:25 PM to 5:25 PM

| By Approach | Northbound Hwy 99 | | | Southbound Hwy 99 | | | Eastbound I-205 SB Ramp | | | Westbound I-205 SB Ramp | | | Total |
|----------------|----------------------|-----|-------|----------------------|-----|-------|----------------------------|-----|-------|----------------------------|-----|-------|-------|
| | In | Out | Total | In | Out | Total | In | Out | Total | In | Out | Total | |
| Volume | 36 | 52 | 88 | 39 | 34 | 73 | 0 | 0 | 0 | 31 | 20 | 51 | 106 |
| PHF | 0.64 | | | 0.75 | | | 0.00 | | | 0.65 | | | 0.76 |

| By Movement | Northbound Hwy 99 | | | Southbound Hwy 99 | | | Eastbound I-205 SB Ramp | | | Westbound I-205 SB Ramp | | | Total |
|----------------|----------------------|------|-------|----------------------|------|-------|----------------------------|--|-------|----------------------------|------|-------|-------|
| | T | R | Total | L | T | Total | | | Total | L | R | Total | |
| Volume | 27 | 9 | 36 | 11 | 28 | 39 | | | 0 | 24 | 7 | 31 | 106 |
| PHF | 0.56 | 0.56 | 0.64 | 0.46 | 0.70 | 0.75 | | | 0.00 | 0.67 | 0.58 | 0.65 | 0.76 |

Heavy Vehicle Rolling Hour Summary

4:00 PM to 6:00 PM

| Interval Start Time | Northbound Hwy 99 | | | Southbound Hwy 99 | | | Eastbound I-205 SB Ramp | | | Westbound I-205 SB Ramp | | | Interval Total |
|---------------------------|----------------------|----|-------|----------------------|----|-------|----------------------------|--|-------|----------------------------|---|-------|-------------------|
| | T | R | Total | L | T | Total | | | Total | L | R | Total | |
| 4:00 PM | 26 | 11 | 37 | 15 | 33 | 48 | | | 0 | 23 | 8 | 31 | 116 |
| 4:15 PM | 25 | 9 | 34 | 11 | 30 | 41 | | | 0 | 23 | 7 | 30 | 105 |
| 4:30 PM | 24 | 8 | 32 | 8 | 29 | 37 | | | 0 | 25 | 6 | 31 | 100 |
| 4:45 PM | 21 | 8 | 29 | 4 | 30 | 34 | | | 0 | 22 | 5 | 27 | 90 |
| 5:00 PM | 22 | 7 | 29 | 6 | 26 | 32 | | | 0 | 21 | 6 | 27 | 88 |

Peak Hour Summary

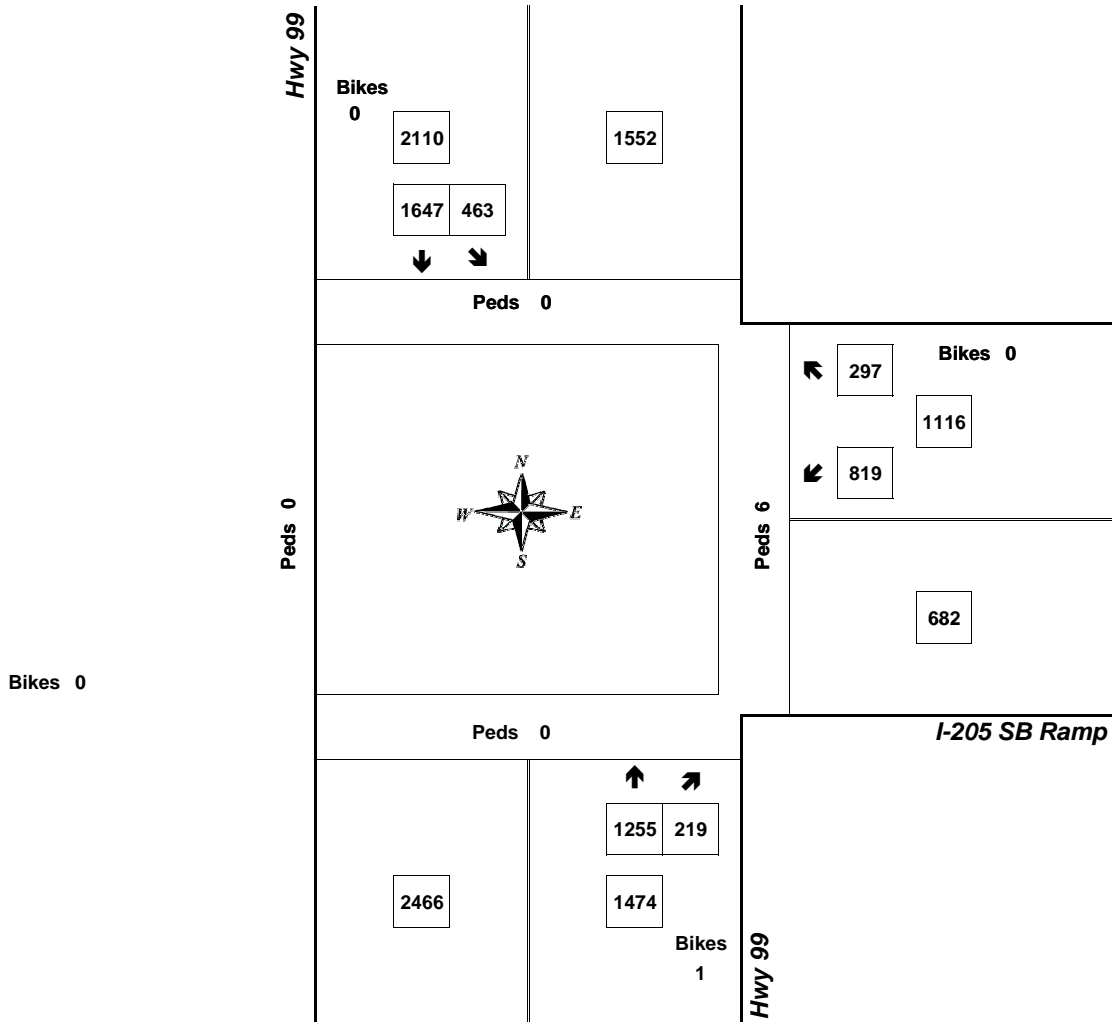


Clay Carney
(503) 833-2740

Hwy 99 & I-205 SB Ramp

4:25 PM to 5:25 PM

Wednesday, January 25, 2017



| Approach | PHF | HV% | Volume |
|---------------------|-------------|-------------|--------------|
| EB | 0.00 | 0.0% | 0 |
| WB | 0.85 | 2.8% | 1,116 |
| NB | 0.90 | 2.4% | 1,474 |
| SB | 0.94 | 1.8% | 2,110 |
| Intersection | 0.97 | 2.3% | 4,700 |

Count Period: 4:00 PM to 6:00 PM

Total Vehicle Summary

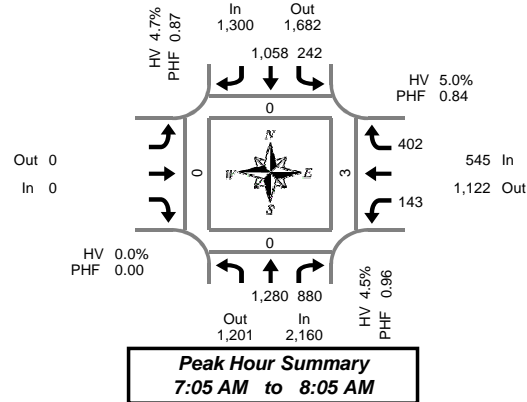


Clay Carney
(503) 833-2740

Hwy 99 & I-205 NB Ramp

Thursday, January 26, 2017

7:00 AM to 9:00 AM



Peak Hour Summary
7:05 AM to 8:05 AM

5-Minute Interval Summary

7:00 AM to 9:00 AM

| Interval Start Time | Northbound Hwy 99 | | | Southbound Hwy 99 | | | Eastbound I-205 NB Ramp | | | Westbound I-205 NB Ramp | | | Interval Total | Pedestrians Crosswalk | | | |
|---------------------------|----------------------|-------|-------|----------------------|-------|-------|----------------------------|--|-------|----------------------------|--|-----|-------------------|--------------------------|-------|------|------|
| | T | R | Bikes | L | T | Bikes | | | Bikes | L | | R | Bikes | North | South | East | West |
| 7:00 AM | 105 | 69 | 0 | 15 | 61 | 0 | | | 0 | 9 | | 27 | 0 | 0 | 0 | 0 | 0 |
| 7:05 AM | 103 | 87 | 0 | 26 | 70 | 0 | | | 0 | 8 | | 26 | 0 | 0 | 0 | 0 | 0 |
| 7:10 AM | 92 | 73 | 0 | 31 | 83 | 0 | | | 0 | 4 | | 24 | 0 | 0 | 1 | 0 | 0 |
| 7:15 AM | 102 | 77 | 0 | 13 | 80 | 1 | | | 0 | 11 | | 25 | 0 | 0 | 0 | 0 | 0 |
| 7:20 AM | 102 | 78 | 0 | 18 | 76 | 0 | | | 0 | 7 | | 32 | 0 | 0 | 0 | 0 | 0 |
| 7:25 AM | 92 | 81 | 0 | 17 | 88 | 0 | | | 0 | 11 | | 32 | 0 | 0 | 0 | 0 | 0 |
| 7:30 AM | 113 | 72 | 0 | 18 | 72 | 0 | | | 0 | 11 | | 42 | 0 | 0 | 0 | 0 | 0 |
| 7:35 AM | 121 | 81 | 0 | 15 | 80 | 0 | | | 0 | 11 | | 42 | 0 | 0 | 0 | 0 | 0 |
| 7:40 AM | 104 | 69 | 0 | 22 | 97 | 0 | | | 0 | 13 | | 38 | 0 | 0 | 2 | 0 | 0 |
| 7:45 AM | 128 | 56 | 0 | 16 | 103 | 0 | | | 0 | 19 | | 39 | 0 | 0 | 0 | 0 | 0 |
| 7:50 AM | 117 | 68 | 0 | 25 | 85 | 0 | | | 0 | 20 | | 31 | 0 | 0 | 0 | 0 | 0 |
| 7:55 AM | 104 | 71 | 0 | 18 | 115 | 0 | | | 0 | 13 | | 31 | 0 | 0 | 0 | 0 | 0 |
| 8:00 AM | 102 | 67 | 0 | 23 | 109 | 0 | | | 0 | 15 | | 40 | 0 | 0 | 0 | 0 | 0 |
| 8:05 AM | 101 | 60 | 0 | 15 | 100 | 0 | | | 0 | 12 | | 31 | 0 | 0 | 0 | 0 | 0 |
| 8:10 AM | 88 | 62 | 0 | 25 | 80 | 0 | | | 0 | 18 | | 28 | 0 | 0 | 0 | 0 | 0 |
| 8:15 AM | 90 | 56 | 0 | 13 | 93 | 0 | | | 0 | 5 | | 31 | 0 | 0 | 0 | 0 | 0 |
| 8:20 AM | 78 | 76 | 0 | 19 | 77 | 0 | | | 0 | 12 | | 38 | 0 | 0 | 0 | 0 | 0 |
| 8:25 AM | 66 | 51 | 0 | 23 | 98 | 0 | | | 0 | 22 | | 37 | 0 | 0 | 0 | 0 | 0 |
| 8:30 AM | 73 | 66 | 0 | 23 | 98 | 0 | | | 0 | 13 | | 27 | 0 | 0 | 1 | 0 | 0 |
| 8:35 AM | 66 | 53 | 0 | 15 | 100 | 0 | | | 0 | 9 | | 30 | 0 | 0 | 0 | 0 | 0 |
| 8:40 AM | 63 | 36 | 0 | 20 | 78 | 0 | | | 0 | 10 | | 40 | 0 | 0 | 0 | 0 | 0 |
| 8:45 AM | 87 | 53 | 0 | 31 | 91 | 0 | | | 0 | 23 | | 31 | 0 | 0 | 0 | 0 | 0 |
| 8:50 AM | 77 | 54 | 0 | 20 | 93 | 0 | | | 0 | 12 | | 35 | 0 | 0 | 1 | 0 | 0 |
| 8:55 AM | 60 | 46 | 0 | 16 | 75 | 0 | | | 0 | 12 | | 39 | 0 | 0 | 0 | 0 | 0 |
| Total Survey | 2,234 | 1,562 | 0 | 477 | 2,102 | 1 | | | 0 | 300 | | 796 | 0 | 0 | 0 | 5 | 0 |

15-Minute Interval Summary

7:00 AM to 9:00 AM

| Interval Start Time | Northbound Hwy 99 | | | Southbound Hwy 99 | | | Eastbound I-205 NB Ramp | | | Westbound I-205 NB Ramp | | | Interval Total | Pedestrians Crosswalk | | | |
|---------------------------|----------------------|-------|-------|----------------------|-------|-------|----------------------------|--|-------|----------------------------|--|-----|-------------------|--------------------------|-------|------|------|
| | T | R | Bikes | L | T | Bikes | | | Bikes | L | | R | Bikes | North | South | East | West |
| 7:00 AM | 300 | 229 | 0 | 72 | 214 | 0 | | | 0 | 21 | | 77 | 0 | 0 | 0 | 1 | 0 |
| 7:15 AM | 296 | 236 | 0 | 48 | 244 | 1 | | | 0 | 29 | | 89 | 0 | 0 | 0 | 0 | 0 |
| 7:30 AM | 338 | 222 | 0 | 55 | 249 | 0 | | | 0 | 35 | | 122 | 0 | 0 | 2 | 0 | 0 |
| 7:45 AM | 349 | 195 | 0 | 59 | 303 | 0 | | | 0 | 52 | | 101 | 0 | 0 | 0 | 0 | 0 |
| 8:00 AM | 291 | 189 | 0 | 63 | 289 | 0 | | | 0 | 45 | | 99 | 0 | 0 | 0 | 0 | 0 |
| 8:15 AM | 234 | 183 | 0 | 55 | 268 | 0 | | | 0 | 39 | | 106 | 0 | 0 | 0 | 0 | 0 |
| 8:30 AM | 202 | 155 | 0 | 58 | 276 | 0 | | | 0 | 32 | | 97 | 0 | 0 | 1 | 0 | 0 |
| 8:45 AM | 224 | 153 | 0 | 67 | 259 | 0 | | | 0 | 47 | | 105 | 0 | 0 | 1 | 0 | 0 |
| Total Survey | 2,234 | 1,562 | 0 | 477 | 2,102 | 1 | | | 0 | 300 | | 796 | 0 | 0 | 0 | 5 | 0 |

Peak Hour Summary

7:05 AM to 8:05 AM

| By Approach | Northbound Hwy 99 | | | | Southbound Hwy 99 | | | | Eastbound I-205 NB Ramp | | | | Westbound I-205 NB Ramp | | | | Total | Pedestrians Crosswalk | | | |
|----------------|----------------------|-------|-------|-------|----------------------|-------|-------|-------|----------------------------|-----|-------|-------|----------------------------|-------|-------|-------|-------|--------------------------|-------|------|------|
| | In | Out | Total | Bikes | In | Out | Total | Bikes | In | Out | Total | Bikes | In | Out | Total | Bikes | | North | South | East | West |
| Volume | 2,160 | 1,201 | 3,361 | 0 | 1,300 | 1,682 | 2,982 | 1 | 0 | 0 | 0 | 0 | 545 | 1,122 | 1,667 | 0 | 4,005 | 0 | 0 | 3 | 0 |
| %HV | 4.5% | | | | 4.7% | | | | 0.0% | | | | 5.0% | | | | 4.6% | | | | |
| PHF | 0.96 | | | | 0.87 | | | | 0.00 | | | | 0.84 | | | | 0.95 | | | | |

| By Movement | Northbound Hwy 99 | | | | Southbound Hwy 99 | | | | Eastbound I-205 NB Ramp | | | | Westbound I-205 NB Ramp | | | | Total |
|----------------|----------------------|------|-------|------|----------------------|-------|----|------|----------------------------|------|----|------|----------------------------|-----|------|------|-------|
| | T | R | Total | L | T | Total | | | Total | L | | R | Total | | | | |
| Volume | 1,280 | 880 | 2,160 | 242 | 1,010 | 1,300 | | | 0 | 137 | | 389 | 0 | 402 | 545 | | 4,005 |
| %HV | NA | 4.1% | 5.1% | 4.5% | 3.3% | 5.0% | NA | 4.7% | NA | NA | NA | 0.0% | 9.8% | NA | 3.2% | 5.0% | 4.6% |
| PHF | 0.91 | 0.93 | 0.96 | 0.86 | 0.86 | 0.87 | | | 0.00 | 0.69 | | 0.82 | 0.84 | | | | 0.95 |

Rolling Hour Summary

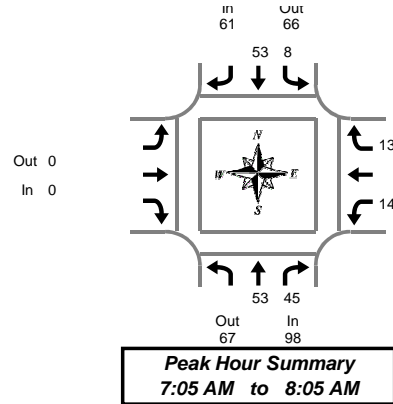
7:00 AM to 9:00 AM

| Interval Start Time | Northbound Hwy 99 | | | Southbound Hwy 99 | | | Eastbound I-205 NB Ramp | | | Westbound I-205 NB Ramp | | | Interval Total | Pedestrians Crosswalk | | | |
|---------------------------|----------------------|-----|-------|----------------------|-------|-------|----------------------------|--|-------|----------------------------|--|-----|-------------------|--------------------------|-------|------|------|
| | T | R | Bikes | L | T | Bikes | | | Bikes | L | | R | Bikes | North | South | East | West |
| 7:00 AM | 1,283 | 882 | 0 | 234 | 1,010 | 1 | | | 0 | 137 | | 389 | 0 | 0 | 0 | 3 | 0 |
| 7:15 AM | 1,274 | 842 | 0 | 225 | 1,085 | 1 | | | 0 | 161 | | 411 | 0 | 0 | 0 | 2 | 0 |
| 7:30 AM | 1,212 | 789 | 0 | 232 | 1,109 | 0 | | | 0 | 171 | | 428 | 0 | 0 | 0 | 2 | 0 |
| 7:45 AM | 1,076 | 722 | 0 | 235 | 1,136 | 0 | | | 0 | 168 | | 403 | 0 | 0 | 0 | 1 | 0 |
| 8:00 AM | 951 | 680 | 0 | 243 | 1,092 | 0 | | | 0 | 163 | | 407 | 0 | 0 | 0 | 2 | 0 |

Heavy Vehicle Summary



Clay Carney
(503) 833-2740



Hwy 99 & I-205 NB Ramp

Thursday, January 26, 2017

7:00 AM to 9:00 AM

Heavy Vehicle 5-Minute Interval Summary

7:00 AM to 9:00 AM

| Interval Start Time | Northbound Hwy 99 | | | Southbound Hwy 99 | | | Eastbound I-205 NB Ramp | | | Westbound I-205 NB Ramp | | | Interval Total |
|---------------------------|----------------------|----|-------|----------------------|-----|-------|----------------------------|--|-------|----------------------------|----|-------|-------------------|
| | T | R | Total | L | T | Total | | | Total | L | R | Total | |
| 7:00 AM | 3 | 3 | 6 | 1 | 3 | 4 | | | 0 | 0 | 1 | 1 | 11 |
| 7:05 AM | 2 | 1 | 3 | 1 | 3 | 4 | | | 0 | 1 | 1 | 2 | 9 |
| 7:10 AM | 3 | 1 | 4 | 0 | 4 | 4 | | | 0 | 0 | 0 | 0 | 8 |
| 7:15 AM | 3 | 5 | 8 | 1 | 3 | 4 | | | 0 | 2 | 1 | 3 | 15 |
| 7:20 AM | 6 | 3 | 9 | 0 | 10 | 10 | | | 0 | 0 | 1 | 1 | 20 |
| 7:25 AM | 1 | 4 | 5 | 1 | 3 | 4 | | | 0 | 1 | 3 | 4 | 13 |
| 7:30 AM | 9 | 1 | 10 | 0 | 4 | 4 | | | 0 | 1 | 0 | 1 | 15 |
| 7:35 AM | 5 | 3 | 8 | 0 | 2 | 2 | | | 0 | 1 | 1 | 2 | 12 |
| 7:40 AM | 4 | 5 | 9 | 2 | 3 | 5 | | | 0 | 1 | 2 | 3 | 17 |
| 7:45 AM | 4 | 3 | 7 | 0 | 3 | 3 | | | 0 | 3 | 0 | 3 | 13 |
| 7:50 AM | 7 | 4 | 11 | 2 | 2 | 4 | | | 0 | 1 | 2 | 3 | 18 |
| 7:55 AM | 3 | 8 | 11 | 1 | 10 | 11 | | | 0 | 2 | 0 | 2 | 24 |
| 8:00 AM | 6 | 7 | 13 | 0 | 6 | 6 | | | 0 | 1 | 2 | 3 | 22 |
| 8:05 AM | 7 | 8 | 15 | 3 | 3 | 6 | | | 0 | 2 | 1 | 3 | 24 |
| 8:10 AM | 7 | 1 | 8 | 3 | 7 | 10 | | | 0 | 2 | 3 | 5 | 23 |
| 8:15 AM | 8 | 3 | 11 | 0 | 7 | 7 | | | 0 | 0 | 3 | 3 | 21 |
| 8:20 AM | 5 | 4 | 9 | 1 | 4 | 5 | | | 0 | 1 | 4 | 5 | 19 |
| 8:25 AM | 2 | 5 | 7 | 1 | 9 | 10 | | | 0 | 3 | 5 | 8 | 25 |
| 8:30 AM | 3 | 5 | 8 | 1 | 7 | 8 | | | 0 | 1 | 1 | 2 | 18 |
| 8:35 AM | 2 | 5 | 7 | 1 | 5 | 6 | | | 0 | 2 | 1 | 3 | 16 |
| 8:40 AM | 1 | 2 | 3 | 0 | 8 | 8 | | | 0 | 0 | 2 | 2 | 13 |
| 8:45 AM | 5 | 4 | 9 | 0 | 5 | 5 | | | 0 | 3 | 1 | 4 | 18 |
| 8:50 AM | 3 | 6 | 9 | 0 | 9 | 9 | | | 0 | 1 | 1 | 2 | 20 |
| 8:55 AM | 2 | 6 | 8 | 1 | 4 | 5 | | | 0 | 1 | 2 | 3 | 16 |
| Total Survey | 101 | 97 | 198 | 20 | 124 | 144 | | | 0 | 30 | 38 | 68 | 410 |

Heavy Vehicle 15-Minute Interval Summary

7:00 AM to 9:00 AM

| Interval Start Time | Northbound Hwy 99 | | | Southbound Hwy 99 | | | Eastbound I-205 NB Ramp | | | Westbound I-205 NB Ramp | | | Interval Total |
|---------------------------|----------------------|----|-------|----------------------|-----|-------|----------------------------|--|-------|----------------------------|----|-------|-------------------|
| | T | R | Total | L | T | Total | | | Total | L | R | Total | |
| 7:00 AM | 8 | 5 | 13 | 2 | 10 | 12 | | | 0 | 1 | 2 | 3 | 28 |
| 7:15 AM | 10 | 12 | 22 | 2 | 16 | 18 | | | 0 | 3 | 5 | 8 | 48 |
| 7:30 AM | 18 | 9 | 27 | 2 | 9 | 11 | | | 0 | 3 | 3 | 6 | 44 |
| 7:45 AM | 14 | 15 | 29 | 3 | 15 | 18 | | | 0 | 6 | 2 | 8 | 55 |
| 8:00 AM | 20 | 16 | 36 | 6 | 16 | 22 | | | 0 | 5 | 6 | 11 | 69 |
| 8:15 AM | 15 | 12 | 27 | 2 | 20 | 22 | | | 0 | 4 | 12 | 16 | 65 |
| 8:30 AM | 6 | 12 | 18 | 2 | 20 | 22 | | | 0 | 3 | 4 | 7 | 47 |
| 8:45 AM | 10 | 16 | 26 | 1 | 18 | 19 | | | 0 | 5 | 4 | 9 | 54 |
| Total Survey | 101 | 97 | 198 | 20 | 124 | 144 | | | 0 | 30 | 38 | 68 | 410 |

Heavy Vehicle Peak Hour Summary

7:05 AM to 8:05 AM

| By Approach | Northbound Hwy 99 | | | Southbound Hwy 99 | | | Eastbound I-205 NB Ramp | | | Westbound I-205 NB Ramp | | | Total |
|----------------|----------------------|-----|-------|----------------------|-----|-------|----------------------------|-----|-------|----------------------------|-----|-------|-------|
| | In | Out | Total | In | Out | Total | In | Out | Total | In | Out | Total | |
| Volume | 98 | 67 | 165 | 61 | 66 | 127 | 0 | 0 | 0 | 27 | 53 | 80 | 186 |
| PHF | 0.70 | | | 0.73 | | | 0.00 | | | 0.75 | | | 0.73 |

| By Movement | Northbound Hwy 99 | | | Southbound Hwy 99 | | | Eastbound I-205 NB Ramp | | | Westbound I-205 NB Ramp | | | Total |
|----------------|----------------------|------|-------|----------------------|------|-------|----------------------------|--|-------|----------------------------|------|-------|-------|
| | T | R | Total | L | T | Total | | | Total | L | R | Total | |
| Volume | 53 | 45 | 98 | 8 | 53 | 61 | | | 0 | 14 | 13 | 27 | 186 |
| PHF | 0.74 | 0.59 | 0.70 | 0.50 | 0.74 | 0.73 | | | 0.00 | 0.58 | 0.65 | 0.75 | 0.73 |

Heavy Vehicle Rolling Hour Summary

7:00 AM to 9:00 AM

| Interval Start Time | Northbound Hwy 99 | | | Southbound Hwy 99 | | | Eastbound I-205 NB Ramp | | | Westbound I-205 NB Ramp | | | Interval Total |
|---------------------------|----------------------|----|-------|----------------------|----|-------|----------------------------|--|-------|----------------------------|----|-------|-------------------|
| | T | R | Total | L | T | Total | | | Total | L | R | Total | |
| 7:00 AM | 50 | 41 | 91 | 9 | 50 | 59 | | | 0 | 13 | 12 | 25 | 175 |
| 7:15 AM | 62 | 52 | 114 | 13 | 56 | 69 | | | 0 | 17 | 16 | 33 | 216 |
| 7:30 AM | 67 | 52 | 119 | 13 | 60 | 73 | | | 0 | 18 | 23 | 41 | 233 |
| 7:45 AM | 55 | 55 | 110 | 13 | 71 | 84 | | | 0 | 18 | 24 | 42 | 236 |
| 8:00 AM | 51 | 56 | 107 | 11 | 74 | 85 | | | 0 | 17 | 26 | 43 | 235 |

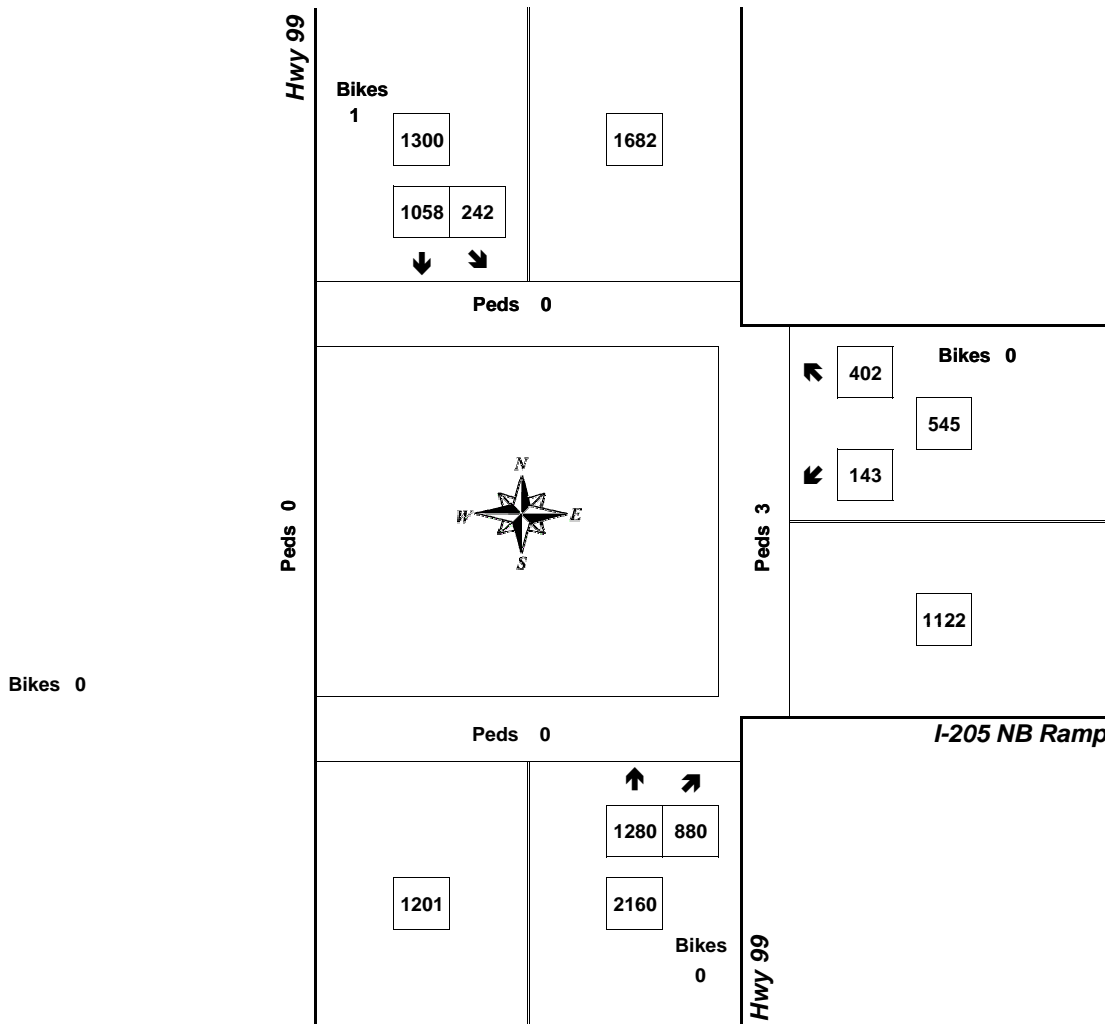
Peak Hour Summary



Clay Carney
(503) 833-2740

Hwy 99 & I-205 NB Ramp

7:05 AM to 8:05 AM
Thursday, January 26, 2017



| Approach | PHF | HV% | Volume |
|---------------------|-------------|-------------|--------------|
| EB | 0.00 | 0.0% | 0 |
| WB | 0.84 | 5.0% | 545 |
| NB | 0.96 | 4.5% | 2,160 |
| SB | 0.87 | 4.7% | 1,300 |
| Intersection | 0.95 | 4.6% | 4,005 |

Count Period: 7:00 AM to 9:00 AM

Total Vehicle Summary



Clay Carney
(503) 833-2740

Hwy 99 & I-205 NB Ramp

Wednesday, January 25, 2017

4:00 PM to 6:00 PM

5-Minute Interval Summary

4:00 PM to 6:00 PM

| Interval Start Time | Northbound Hwy 99 | | | Southbound Hwy 99 | | | Eastbound I-205 NB Ramp | | | Westbound I-205 NB Ramp | | | Interval Total | Pedestrians Crosswalk | | | |
|---------------------------|----------------------|-------|-------|----------------------|-------|-------|----------------------------|--|-------|----------------------------|-----|-------|-------------------|--------------------------|-------|------|------|
| | T | R | Bikes | L | T | Bikes | | | Bikes | L | R | Bikes | | North | South | East | West |
| 4:00 PM | 73 | 59 | 0 | 33 | 175 | 0 | | | 0 | 12 | 38 | 0 | 390 | 0 | 0 | 1 | 0 |
| 4:05 PM | 89 | 64 | 0 | 30 | 150 | 0 | | | 0 | 9 | 47 | 0 | 389 | 0 | 0 | 1 | 0 |
| 4:10 PM | 89 | 67 | 0 | 21 | 171 | 0 | | | 0 | 6 | 36 | 0 | 390 | 0 | 0 | 0 | 0 |
| 4:15 PM | 97 | 56 | 0 | 57 | 168 | 0 | | | 0 | 8 | 35 | 0 | 421 | 0 | 0 | 0 | 0 |
| 4:20 PM | 60 | 75 | 0 | 31 | 175 | 0 | | | 0 | 15 | 44 | 0 | 400 | 0 | 0 | 0 | 0 |
| 4:25 PM | 89 | 61 | 0 | 28 | 185 | 0 | | | 0 | 6 | 36 | 0 | 405 | 0 | 0 | 1 | 0 |
| 4:30 PM | 106 | 60 | 0 | 25 | 163 | 0 | | | 0 | 15 | 31 | 0 | 400 | 0 | 0 | 0 | 0 |
| 4:35 PM | 87 | 68 | 0 | 42 | 172 | 0 | | | 0 | 9 | 35 | 0 | 413 | 0 | 0 | 0 | 0 |
| 4:40 PM | 85 | 57 | 0 | 48 | 185 | 0 | | | 0 | 6 | 39 | 0 | 420 | 0 | 0 | 0 | 0 |
| 4:45 PM | 78 | 69 | 0 | 28 | 153 | 0 | | | 0 | 15 | 40 | 0 | 383 | 0 | 0 | 1 | 0 |
| 4:50 PM | 96 | 53 | 0 | 21 | 155 | 0 | | | 0 | 10 | 29 | 0 | 364 | 0 | 0 | 0 | 0 |
| 4:55 PM | 62 | 62 | 0 | 47 | 167 | 0 | | | 0 | 16 | 35 | 0 | 389 | 0 | 0 | 1 | 0 |
| 5:00 PM | 97 | 57 | 0 | 33 | 181 | 0 | | | 0 | 11 | 45 | 0 | 424 | 0 | 0 | 0 | 0 |
| 5:05 PM | 94 | 76 | 0 | 20 | 161 | 0 | | | 0 | 10 | 28 | 0 | 389 | 0 | 0 | 1 | 0 |
| 5:10 PM | 98 | 57 | 0 | 38 | 164 | 0 | | | 0 | 6 | 45 | 0 | 408 | 0 | 0 | 1 | 0 |
| 5:15 PM | 94 | 59 | 0 | 35 | 182 | 0 | | | 0 | 10 | 30 | 0 | 410 | 0 | 0 | 0 | 0 |
| 5:20 PM | 108 | 76 | 0 | 23 | 177 | 0 | | | 0 | 2 | 27 | 0 | 413 | 0 | 0 | 0 | 0 |
| 5:25 PM | 107 | 69 | 0 | 31 | 170 | 0 | | | 0 | 5 | 28 | 0 | 410 | 0 | 0 | 3 | 0 |
| 5:30 PM | 80 | 61 | 0 | 35 | 162 | 0 | | | 0 | 4 | 39 | 0 | 381 | 0 | 0 | 0 | 0 |
| 5:35 PM | 81 | 68 | 0 | 32 | 175 | 0 | | | 0 | 8 | 30 | 0 | 394 | 0 | 0 | 0 | 0 |
| 5:40 PM | 95 | 70 | 0 | 16 | 174 | 0 | | | 0 | 4 | 36 | 0 | 395 | 0 | 0 | 1 | 0 |
| 5:45 PM | 86 | 47 | 0 | 45 | 155 | 0 | | | 0 | 10 | 28 | 0 | 371 | 0 | 0 | 0 | 0 |
| 5:50 PM | 67 | 48 | 0 | 45 | 156 | 0 | | | 0 | 8 | 33 | 0 | 357 | 0 | 0 | 0 | 0 |
| 5:55 PM | 70 | 50 | 0 | 32 | 159 | 0 | | | 0 | 2 | 32 | 0 | 345 | 0 | 0 | 0 | 0 |
| Total Survey | 2,088 | 1,489 | 0 | 796 | 4,035 | 0 | | | 0 | 207 | 846 | 0 | 9,461 | 0 | 0 | 11 | 0 |

15-Minute Interval Summary

4:00 PM to 6:00 PM

| Interval Start Time | Northbound Hwy 99 | | | Southbound Hwy 99 | | | Eastbound I-205 NB Ramp | | | Westbound I-205 NB Ramp | | | Interval Total | Pedestrians Crosswalk | | | |
|---------------------------|----------------------|-------|-------|----------------------|-------|-------|----------------------------|--|-------|----------------------------|-----|-------|-------------------|--------------------------|-------|------|------|
| | T | R | Bikes | L | T | Bikes | | | Bikes | L | R | Bikes | | North | South | East | West |
| 4:00 PM | 251 | 190 | 0 | 84 | 496 | 0 | | | 0 | 27 | 121 | 0 | 1,169 | 0 | 0 | 2 | 0 |
| 4:15 PM | 246 | 192 | 0 | 116 | 528 | 0 | | | 0 | 29 | 115 | 0 | 1,226 | 0 | 0 | 1 | 0 |
| 4:30 PM | 278 | 185 | 0 | 115 | 520 | 0 | | | 0 | 30 | 105 | 0 | 1,233 | 0 | 0 | 0 | 0 |
| 4:45 PM | 236 | 184 | 0 | 96 | 475 | 0 | | | 0 | 41 | 104 | 0 | 1,136 | 0 | 0 | 2 | 0 |
| 5:00 PM | 289 | 190 | 0 | 91 | 506 | 0 | | | 0 | 27 | 118 | 0 | 1,221 | 0 | 0 | 2 | 0 |
| 5:15 PM | 309 | 204 | 0 | 89 | 529 | 0 | | | 0 | 17 | 85 | 0 | 1,233 | 0 | 0 | 3 | 0 |
| 5:30 PM | 256 | 199 | 0 | 83 | 511 | 0 | | | 0 | 16 | 105 | 0 | 1,170 | 0 | 0 | 1 | 0 |
| 5:45 PM | 223 | 145 | 0 | 122 | 470 | 0 | | | 0 | 20 | 93 | 0 | 1,073 | 0 | 0 | 0 | 0 |
| Total Survey | 2,088 | 1,489 | 0 | 796 | 4,035 | 0 | | | 0 | 207 | 846 | 0 | 9,461 | 0 | 0 | 11 | 0 |

Peak Hour Summary

4:30 PM to 5:30 PM

| By Approach | Northbound Hwy 99 | | | | Southbound Hwy 99 | | | | Eastbound I-205 NB Ramp | | | | Westbound I-205 NB Ramp | | | | Total | Pedestrians Crosswalk | | | |
|----------------|----------------------|-------|-------|-------|----------------------|-------|-------|-------|----------------------------|-----|-------|-------|----------------------------|-------|-------|-------|-------|--------------------------|-------|------|------|
| | In | Out | Total | Bikes | In | Out | Total | Bikes | In | Out | Total | Bikes | In | Out | Total | Bikes | | North | South | East | West |
| Volume | 1,875 | 2,145 | 4,020 | 0 | 2,421 | 1,524 | 3,945 | 0 | 0 | 0 | 0 | 0 | 527 | 1,154 | 1,681 | 0 | 4,823 | 0 | 0 | 7 | 0 |
| %HV | 3.0% | | | | 2.3% | | | | 0.0% | | | | 1.9% | | | | 2.6% | | | | |
| PHF | 0.91 | | | | 0.95 | | | | 0.00 | | | | 0.90 | | | | 0.98 | | | | |

| By Movement | Northbound Hwy 99 | | | | Southbound Hwy 99 | | | | Eastbound I-205 NB Ramp | | | | Westbound I-205 NB Ramp | | | | Total |
|----------------|----------------------|------|-------|-------|----------------------|-------|-------|-------|----------------------------|------|------|-------|----------------------------|-----|-------|-------|-------|
| | T | R | Total | Bikes | L | T | Total | Bikes | Total | L | R | Total | L | R | Total | Bikes | |
| Volume | 1,112 | 763 | 1,875 | 0 | 391 | 2,030 | 2,421 | 0 | 0 | 127 | 445 | 0 | 115 | 412 | 527 | 0 | 4,823 |
| %HV | NA | 2.5% | 3.8% | 3.0% | 1.3% | 2.5% | NA | 2.3% | NA | NA | NA | 0.0% | 6.1% | NA | 0.7% | 1.9% | 2.6% |
| PHF | 0.90 | 0.94 | 0.91 | 0.83 | 0.96 | 0.95 | | | 0.00 | 0.70 | 0.87 | 0.90 | | | | | 0.98 |

Rolling Hour Summary

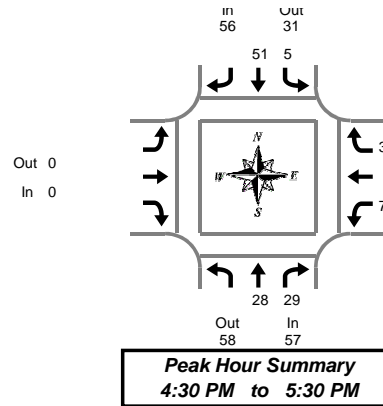
4:00 PM to 6:00 PM

| Interval Start Time | Northbound Hwy 99 | | | Southbound Hwy 99 | | | Eastbound I-205 NB Ramp | | | Westbound I-205 NB Ramp | | | Interval Total | Pedestrians Crosswalk | | | |
|---------------------------|----------------------|-----|-------|----------------------|-------|-------|----------------------------|--|-------|----------------------------|-----|-------|-------------------|--------------------------|-------|------|------|
| | T | R | Bikes | L | T | Bikes | | | Bikes | L | R | Bikes | | North | South | East | West |
| 4:00 PM | 1,011 | 751 | 0 | 411 | 2,019 | 0 | | | 0 | 127 | 445 | 0 | 4,764 | 0 | 0 | 5 | 0 |
| 4:15 PM | 1,049 | 751 | 0 | 418 | 2,029 | 0 | | | 0 | 127 | 442 | 0 | 4,816 | 0 | 0 | 5 | 0 |
| 4:30 PM | 1,112 | 763 | 0 | 391 | 2,030 | 0 | | | 0 | 115 | 412 | 0 | 4,823 | 0 | 0 | 7 | 0 |
| 4:45 PM | 1,090 | 777 | 0 | 359 | 2,021 | 0 | | | 0 | 101 | 412 | 0 | 4,760 | 0 | 0 | 8 | 0 |
| 5:00 PM | 1,077 | 738 | 0 | 385 | 2,016 | 0 | | | 0 | 80 | 401 | 0 | 4,697 | 0 | 0 | 6 | 0 |

Heavy Vehicle Summary



Clay Carney
(503) 833-2740



Hwy 99 & I-205 NB Ramp

Wednesday, January 25, 2017

4:00 PM to 6:00 PM

Heavy Vehicle 5-Minute Interval Summary

4:00 PM to 6:00 PM

| Interval Start Time | Northbound Hwy 99 | | | Southbound Hwy 99 | | | Eastbound I-205 NB Ramp | | | Westbound I-205 NB Ramp | | | Interval Total |
|---------------------------|----------------------|----|-------|----------------------|----|-------|----------------------------|--|-------|----------------------------|---|-------|-------------------|
| | T | R | Total | L | T | Total | | | Total | L | R | Total | |
| 4:00 PM | 1 | 3 | 4 | 1 | 7 | 8 | | | 0 | 2 | 0 | 2 | 14 |
| 4:05 PM | 3 | 4 | 7 | 2 | 7 | 9 | | | 0 | 1 | 0 | 1 | 17 |
| 4:10 PM | 4 | 2 | 6 | 1 | 1 | 2 | | | 0 | 0 | 0 | 0 | 8 |
| 4:15 PM | 4 | 3 | 7 | 1 | 4 | 5 | | | 0 | 1 | 0 | 1 | 13 |
| 4:20 PM | 2 | 2 | 4 | 0 | 5 | 5 | | | 0 | 2 | 1 | 3 | 12 |
| 4:25 PM | 5 | 4 | 9 | 2 | 5 | 7 | | | 0 | 0 | 1 | 1 | 17 |
| 4:30 PM | 4 | 1 | 5 | 0 | 4 | 4 | | | 0 | 2 | 1 | 3 | 12 |
| 4:35 PM | 3 | 5 | 8 | 1 | 5 | 6 | | | 0 | 1 | 0 | 1 | 15 |
| 4:40 PM | 1 | 2 | 3 | 1 | 2 | 3 | | | 0 | 0 | 0 | 0 | 6 |
| 4:45 PM | 3 | 1 | 4 | 0 | 4 | 4 | | | 0 | 1 | 0 | 1 | 9 |
| 4:50 PM | 1 | 1 | 2 | 0 | 3 | 3 | | | 0 | 0 | 0 | 0 | 5 |
| 4:55 PM | 1 | 4 | 5 | 1 | 4 | 5 | | | 0 | 1 | 0 | 1 | 11 |
| 5:00 PM | 1 | 3 | 4 | 0 | 5 | 5 | | | 0 | 0 | 0 | 0 | 9 |
| 5:05 PM | 2 | 2 | 4 | 0 | 6 | 6 | | | 0 | 0 | 0 | 0 | 10 |
| 5:10 PM | 1 | 1 | 2 | 0 | 4 | 4 | | | 0 | 0 | 1 | 1 | 7 |
| 5:15 PM | 4 | 3 | 7 | 0 | 2 | 2 | | | 0 | 1 | 0 | 1 | 10 |
| 5:20 PM | 5 | 3 | 8 | 1 | 5 | 6 | | | 0 | 1 | 0 | 1 | 15 |
| 5:25 PM | 2 | 3 | 5 | 1 | 7 | 8 | | | 0 | 0 | 1 | 1 | 14 |
| 5:30 PM | 2 | 2 | 4 | 0 | 3 | 3 | | | 0 | 0 | 0 | 0 | 7 |
| 5:35 PM | 1 | 2 | 3 | 0 | 4 | 4 | | | 0 | 0 | 0 | 0 | 7 |
| 5:40 PM | 4 | 1 | 5 | 0 | 3 | 3 | | | 0 | 0 | 0 | 0 | 8 |
| 5:45 PM | 1 | 2 | 3 | 0 | 2 | 2 | | | 0 | 2 | 0 | 2 | 7 |
| 5:50 PM | 2 | 2 | 4 | 0 | 3 | 3 | | | 0 | 0 | 1 | 1 | 8 |
| 5:55 PM | 0 | 1 | 1 | 0 | 3 | 3 | | | 0 | 0 | 0 | 0 | 4 |
| Total Survey | 57 | 57 | 114 | 12 | 98 | 110 | | | 0 | 15 | 6 | 21 | 245 |

Heavy Vehicle 15-Minute Interval Summary

4:00 PM to 6:00 PM

| Interval Start Time | Northbound Hwy 99 | | | Southbound Hwy 99 | | | Eastbound I-205 NB Ramp | | | Westbound I-205 NB Ramp | | | Interval Total |
|---------------------------|----------------------|----|-------|----------------------|----|-------|----------------------------|--|-------|----------------------------|---|-------|-------------------|
| | T | R | Total | L | T | Total | | | Total | L | R | Total | |
| 4:00 PM | 8 | 9 | 17 | 4 | 15 | 19 | | | 0 | 3 | 0 | 3 | 39 |
| 4:15 PM | 11 | 9 | 20 | 3 | 14 | 17 | | | 0 | 3 | 2 | 5 | 42 |
| 4:30 PM | 8 | 8 | 16 | 2 | 11 | 13 | | | 0 | 3 | 1 | 4 | 33 |
| 4:45 PM | 5 | 6 | 11 | 1 | 11 | 12 | | | 0 | 2 | 0 | 2 | 25 |
| 5:00 PM | 4 | 6 | 10 | 0 | 15 | 15 | | | 0 | 0 | 1 | 1 | 26 |
| 5:15 PM | 11 | 9 | 20 | 2 | 14 | 16 | | | 0 | 2 | 1 | 3 | 39 |
| 5:30 PM | 7 | 5 | 12 | 0 | 10 | 10 | | | 0 | 0 | 0 | 0 | 22 |
| 5:45 PM | 3 | 5 | 8 | 0 | 8 | 8 | | | 0 | 2 | 1 | 3 | 19 |
| Total Survey | 57 | 57 | 114 | 12 | 98 | 110 | | | 0 | 15 | 6 | 21 | 245 |

Heavy Vehicle Peak Hour Summary

4:30 PM to 5:30 PM

| By Approach | Northbound Hwy 99 | | | Southbound Hwy 99 | | | Eastbound I-205 NB Ramp | | | Westbound I-205 NB Ramp | | | Total |
|----------------|----------------------|-----|-------|----------------------|-----|-------|----------------------------|-----|-------|----------------------------|-----|-------|-------|
| | In | Out | Total | In | Out | Total | In | Out | Total | In | Out | Total | |
| Volume | 57 | 58 | 115 | 56 | 31 | 87 | 0 | 0 | 0 | 10 | 34 | 44 | 123 |
| PHF | 0.71 | | | 0.88 | | | 0.00 | | | 0.63 | | | 0.79 |

| By Movement | Northbound Hwy 99 | | | Southbound Hwy 99 | | | Eastbound I-205 NB Ramp | | | Westbound I-205 NB Ramp | | | Total |
|----------------|----------------------|------|-------|----------------------|------|-------|----------------------------|--|-------|----------------------------|------|-------|-------|
| | T | R | Total | L | T | Total | | | Total | L | R | Total | |
| Volume | 28 | 29 | 57 | 5 | 51 | 56 | | | 0 | 7 | 3 | 10 | 123 |
| PHF | 0.64 | 0.81 | 0.71 | 0.63 | 0.85 | 0.88 | | | 0.00 | 0.58 | 0.75 | 0.63 | 0.79 |

Heavy Vehicle Rolling Hour Summary

4:00 PM to 6:00 PM

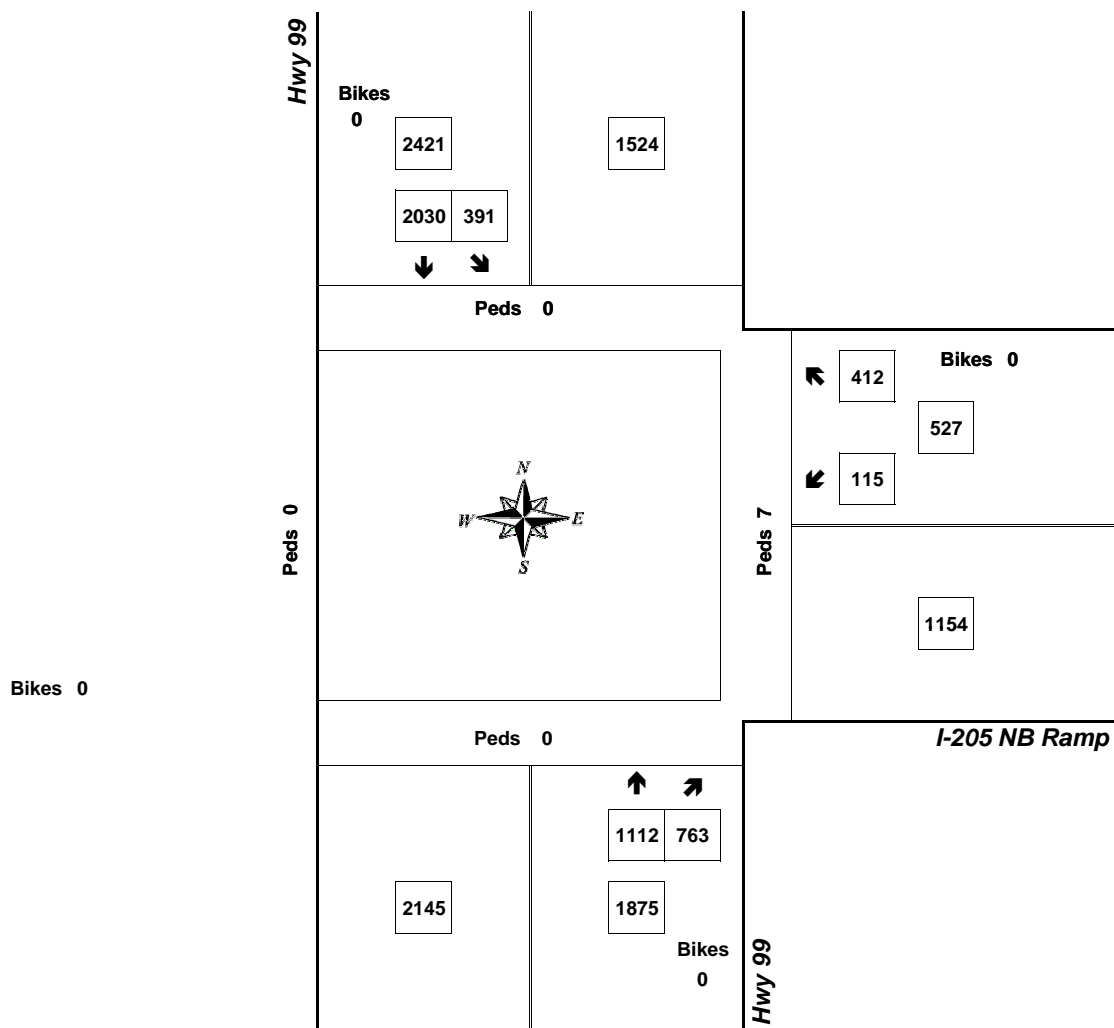
| Interval Start Time | Northbound Hwy 99 | | | Southbound Hwy 99 | | | Eastbound I-205 NB Ramp | | | Westbound I-205 NB Ramp | | | Interval Total |
|---------------------------|----------------------|----|-------|----------------------|----|-------|----------------------------|--|-------|----------------------------|---|-------|-------------------|
| | T | R | Total | L | T | Total | | | Total | L | R | Total | |
| 4:00 PM | 32 | 32 | 64 | 10 | 51 | 61 | | | 0 | 11 | 3 | 14 | 139 |
| 4:15 PM | 28 | 29 | 57 | 6 | 51 | 57 | | | 0 | 8 | 4 | 12 | 126 |
| 4:30 PM | 28 | 29 | 57 | 5 | 51 | 56 | | | 0 | 7 | 3 | 10 | 123 |
| 4:45 PM | 27 | 26 | 53 | 3 | 50 | 53 | | | 0 | 4 | 2 | 6 | 112 |
| 5:00 PM | 25 | 25 | 50 | 2 | 47 | 49 | | | 0 | 4 | 3 | 7 | 106 |

All Traffic Data
Services Inc.

Clay Carney
(503) 833-2740

4:30 PM to 5:30 PM

Wednesday, January 25, 2017



| Approach | PHF | HV% | Volume |
|--------------|------|------|--------|
| EB | 0.00 | 0.0% | 0 |
| WB | 0.90 | 1.9% | 527 |
| NB | 0.91 | 3.0% | 1,875 |
| SB | 0.95 | 2.3% | 2,421 |
| Intersection | 0.98 | 2.6% | 4,823 |

Count Period: 4:00 PM to 6:00 PM

Total Vehicle Summary

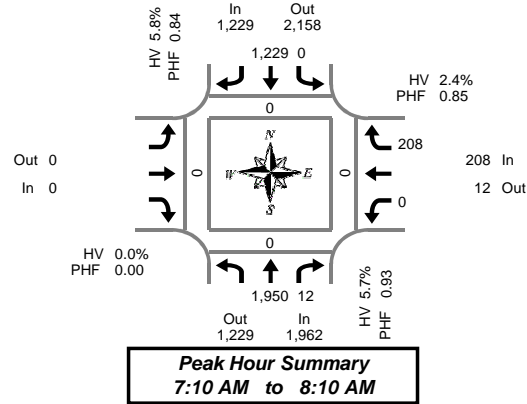


Clay Carney
(503) 833-2740

Hwy 99 & 15th St

Thursday, January 26, 2017

7:00 AM to 9:00 AM



5-Minute Interval Summary

7:00 AM to 9:00 AM

| Interval Start Time | Northbound Hwy 99 | | | Southbound Hwy 99 | | | Eastbound | | | Westbound 15th St | | | Interval Total | Pedestrians Crosswalk | | | |
|---------------------------|----------------------|----|-------|----------------------|-------|-------|-----------|--|-------|----------------------|-----|---|-------------------|--------------------------|-------|------|------|
| | T | R | Bikes | L | T | Bikes | | | Bikes | L | | R | Bikes | North | South | East | West |
| 7:00 AM | 153 | 1 | 0 | 0 | 69 | 0 | | | 0 | 17 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 7:05 AM | 165 | 0 | 0 | 0 | 80 | 0 | | | 0 | 18 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 7:10 AM | 149 | 1 | 0 | 0 | 89 | 0 | | | 0 | 22 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 7:15 AM | 166 | 2 | 0 | 0 | 91 | 1 | | | 0 | 14 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 7:20 AM | 161 | 1 | 0 | 0 | 81 | 0 | | | 0 | 12 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 7:25 AM | 164 | 2 | 0 | 0 | 99 | 0 | | | 0 | 13 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 7:30 AM | 173 | 1 | 0 | 0 | 82 | 0 | | | 0 | 14 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 7:35 AM | 185 | 0 | 0 | 0 | 89 | 0 | | | 0 | 14 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 7:40 AM | 159 | 0 | 0 | 0 | 110 | 0 | | | 0 | 23 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 7:45 AM | 164 | 1 | 0 | 0 | 118 | 0 | | | 0 | 20 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 7:50 AM | 165 | 1 | 0 | 0 | 103 | 0 | | | 0 | 18 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 7:55 AM | 162 | 2 | 0 | 0 | 134 | 0 | | | 0 | 21 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 8:00 AM | 160 | 0 | 0 | 0 | 120 | 0 | | | 0 | 20 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 8:05 AM | 142 | 1 | 0 | 0 | 113 | 0 | | | 0 | 17 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 8:10 AM | 131 | 1 | 0 | 0 | 99 | 0 | | | 0 | 21 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 8:15 AM | 124 | 1 | 0 | 0 | 100 | 0 | | | 0 | 20 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 8:20 AM | 127 | 0 | 0 | 0 | 89 | 0 | | | 0 | 20 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 8:25 AM | 97 | 3 | 0 | 0 | 121 | 0 | | | 0 | 27 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 8:30 AM | 122 | 0 | 0 | 0 | 115 | 0 | | | 0 | 21 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 8:35 AM | 96 | 2 | 0 | 0 | 105 | 0 | | | 0 | 17 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 8:40 AM | 75 | 2 | 0 | 0 | 92 | 0 | | | 0 | 25 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 8:45 AM | 135 | 2 | 0 | 0 | 113 | 0 | | | 0 | 19 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 8:50 AM | 97 | 1 | 0 | 0 | 104 | 0 | | | 0 | 22 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 8:55 AM | 93 | 2 | 0 | 0 | 90 | 0 | | | 0 | 19 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Survey | 3,365 | 27 | 0 | 0 | 2,406 | 1 | | | 0 | 0 | 454 | 0 | 6,252 | 0 | 0 | 0 | 0 |

15-Minute Interval Summary

7:00 AM to 9:00 AM

| Interval Start Time | Northbound Hwy 99 | | | Southbound Hwy 99 | | | Eastbound | | | Westbound 15th St | | | Interval Total | Pedestrians Crosswalk | | | |
|---------------------------|----------------------|----|-------|----------------------|-------|-------|-----------|--|-------|----------------------|-----|---|-------------------|--------------------------|-------|------|------|
| | T | R | Bikes | L | T | Bikes | | | Bikes | L | | R | Bikes | North | South | East | West |
| 7:00 AM | 467 | 2 | 0 | 0 | 238 | 0 | | | 0 | 57 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 7:15 AM | 491 | 5 | 0 | 0 | 271 | 1 | | | 0 | 39 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 7:30 AM | 517 | 1 | 0 | 0 | 281 | 0 | | | 0 | 51 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 7:45 AM | 491 | 4 | 0 | 0 | 355 | 0 | | | 0 | 59 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 8:00 AM | 433 | 2 | 0 | 0 | 332 | 0 | | | 0 | 58 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 8:15 AM | 348 | 4 | 0 | 0 | 310 | 0 | | | 0 | 67 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 8:30 AM | 293 | 4 | 0 | 0 | 312 | 0 | | | 0 | 63 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 8:45 AM | 325 | 5 | 0 | 0 | 307 | 0 | | | 0 | 60 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Survey | 3,365 | 27 | 0 | 0 | 2,406 | 1 | | | 0 | 0 | 454 | 0 | 6,252 | 0 | 0 | 0 | 0 |

Peak Hour Summary

7:10 AM to 8:10 AM

| By Approach | Northbound Hwy 99 | | | | Southbound Hwy 99 | | | | Eastbound | | | | Westbound 15th St | | | | Total | Pedestrians Crosswalk | | | |
|----------------|----------------------|-------|-------|-------|----------------------|-------|-------|-------|-----------|-----|-------|-------|----------------------|-----|-------|-------|-------|--------------------------|-------|------|------|
| | In | Out | Total | Bikes | In | Out | Total | Bikes | In | Out | Total | Bikes | In | Out | Total | Bikes | | North | South | East | West |
| Volume | 1,962 | 1,229 | 3,191 | 0 | 1,229 | 2,158 | 3,387 | 1 | 0 | 0 | 0 | 0 | 208 | 12 | 220 | 0 | 3,399 | 0 | 0 | 0 | 0 |
| %HV | 5.7% | | | | 5.8% | | | | 0.0% | | | | 2.4% | | | | 5.5% | | | | |
| PHF | 0.93 | | | | 0.84 | | | | 0.00 | | | | 0.85 | | | | 0.93 | | | | |

| By Movement | Northbound Hwy 99 | | | | Southbound Hwy 99 | | | | Eastbound | | | | Westbound 15th St | | | | Total |
|----------------|----------------------|------|-------|-------|----------------------|-------|-------|-------|-----------|------|-------|-------|----------------------|------|-------|-------|-------|
| | T | R | Total | Bikes | L | T | Total | Bikes | | | Total | Bikes | L | R | Total | Bikes | |
| Volume | 1,950 | 12 | 1,962 | 0 | 1,229 | 1,145 | 2,374 | 1 | | | 0 | 0 | 206 | 208 | 414 | 0 | 3,399 |
| %HV | NA | 5.7% | 0.0% | 5.7% | 0.0% | 5.8% | NA | 5.8% | NA | NA | 0.0% | 0.0% | NA | 2.4% | 2.4% | 5.5% | |
| PHF | 0.93 | 0.60 | 0.93 | 0.00 | 0.84 | 0.84 | 0.84 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.85 | 0.85 | 0.85 | 0.93 | |

Rolling Hour Summary

7:00 AM to 9:00 AM

| Interval Start Time | Northbound Hwy 99 | | | Southbound Hwy 99 | | | Eastbound | | | Westbound 15th St | | | Interval Total | Pedestrians Crosswalk | | | |
|---------------------------|----------------------|----|-------|----------------------|-------|-------|-----------|--|-------|----------------------|---|-----|-------------------|--------------------------|-------|------|------|
| | T | R | Bikes | L | T | Bikes | | | Bikes | L | | R | Bikes | North | South | East | West |
| 7:00 AM | 1,966 | 12 | 0 | 0 | 1,145 | 1 | | | 0 | 0 | 0 | 206 | 0 | 0 | 0 | 0 | 0 |
| 7:15 AM | 1,932 | 12 | 0 | 0 | 1,239 | 1 | | | 0 | 0 | 0 | 207 | 0 | 0 | 0 | 0 | 0 |
| 7:30 AM | 1,789 | 11 | 0 | 0 | 1,278 | 0 | | | 0 | 0 | 0 | 235 | 0 | 0 | 0 | 0 | 0 |
| 7:45 AM | 1,565 | 14 | 0 | 0 | 1,309 | 0 | | | 0 | 0 | 0 | 247 | 0 | 0 | 0 | 0 | 0 |
| 8:00 AM | 1,399 | 15 | 0 | 0 | 1,261 | 0 | | | 0 | 0 | 0 | 248 | 0 | 0 | 0 | 0 | 0 |

Heavy Vehicle Summary

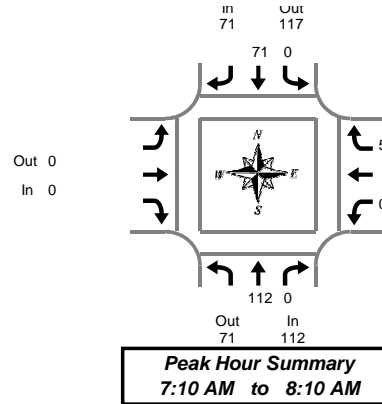


Clay Carney
(503) 833-2740

Hwy 99 & 15th St

Thursday, January 26, 2017

7:00 AM to 9:00 AM



Heavy Vehicle 5-Minute Interval Summary

7:00 AM to 9:00 AM

| Interval Start Time | Northbound Hwy 99 | | | Southbound Hwy 99 | | | Eastbound | | | Westbound 15th St | | | Interval Total |
|---------------------------|----------------------|---|-------|----------------------|-----|-------|-----------|--|-------|----------------------|----|-------|-------------------|
| | T | R | Total | L | T | Total | | | Total | L | R | Total | |
| 7:00 AM | 6 | 0 | 6 | 0 | 3 | 3 | | | 0 | 0 | 1 | 1 | 10 |
| 7:05 AM | 4 | 0 | 4 | 0 | 5 | 5 | | | 0 | 0 | 0 | 0 | 9 |
| 7:10 AM | 3 | 0 | 3 | 0 | 3 | 3 | | | 0 | 0 | 0 | 0 | 6 |
| 7:15 AM | 8 | 0 | 8 | 0 | 5 | 5 | | | 0 | 0 | 1 | 1 | 14 |
| 7:20 AM | 10 | 0 | 10 | 0 | 9 | 9 | | | 0 | 0 | 0 | 0 | 19 |
| 7:25 AM | 5 | 0 | 5 | 0 | 5 | 5 | | | 0 | 0 | 0 | 0 | 10 |
| 7:30 AM | 10 | 0 | 10 | 0 | 6 | 6 | | | 0 | 0 | 1 | 1 | 17 |
| 7:35 AM | 9 | 0 | 9 | 0 | 3 | 3 | | | 0 | 0 | 0 | 0 | 12 |
| 7:40 AM | 8 | 0 | 8 | 0 | 5 | 5 | | | 0 | 0 | 1 | 1 | 14 |
| 7:45 AM | 8 | 0 | 8 | 0 | 6 | 6 | | | 0 | 0 | 0 | 0 | 14 |
| 7:50 AM | 15 | 0 | 15 | 0 | 3 | 3 | | | 0 | 0 | 0 | 0 | 18 |
| 7:55 AM | 9 | 0 | 9 | 0 | 14 | 14 | | | 0 | 0 | 0 | 0 | 23 |
| 8:00 AM | 13 | 0 | 13 | 0 | 7 | 7 | | | 0 | 0 | 1 | 1 | 21 |
| 8:05 AM | 14 | 0 | 14 | 0 | 5 | 5 | | | 0 | 0 | 1 | 1 | 20 |
| 8:10 AM | 8 | 0 | 8 | 0 | 9 | 9 | | | 0 | 0 | 0 | 0 | 17 |
| 8:15 AM | 7 | 0 | 7 | 0 | 7 | 7 | | | 0 | 0 | 3 | 3 | 17 |
| 8:20 AM | 6 | 0 | 6 | 0 | 4 | 4 | | | 0 | 0 | 3 | 3 | 13 |
| 8:25 AM | 5 | 1 | 6 | 0 | 14 | 14 | | | 0 | 0 | 0 | 0 | 20 |
| 8:30 AM | 8 | 0 | 8 | 0 | 8 | 8 | | | 0 | 0 | 0 | 0 | 16 |
| 8:35 AM | 7 | 0 | 7 | 0 | 7 | 7 | | | 0 | 0 | 0 | 0 | 14 |
| 8:40 AM | 1 | 0 | 1 | 0 | 8 | 8 | | | 0 | 0 | 2 | 2 | 11 |
| 8:45 AM | 8 | 0 | 8 | 0 | 8 | 8 | | | 0 | 0 | 1 | 1 | 17 |
| 8:50 AM | 6 | 0 | 6 | 0 | 10 | 10 | | | 0 | 0 | 3 | 3 | 19 |
| 8:55 AM | 7 | 0 | 7 | 0 | 4 | 4 | | | 0 | 0 | 0 | 0 | 11 |
| Total Survey | 185 | 1 | 186 | 0 | 158 | 158 | | | 0 | 0 | 18 | 18 | 362 |

Heavy Vehicle 15-Minute Interval Summary

7:00 AM to 9:00 AM

| Interval Start Time | Northbound Hwy 99 | | | Southbound Hwy 99 | | | Eastbound | | | Westbound 15th St | | | Interval Total |
|---------------------------|----------------------|---|-------|----------------------|-----|-------|-----------|--|-------|----------------------|----|-------|-------------------|
| | T | R | Total | L | T | Total | | | Total | L | R | Total | |
| 7:00 AM | 13 | 0 | 13 | 0 | 11 | 11 | | | 0 | 0 | 1 | 1 | 25 |
| 7:15 AM | 23 | 0 | 23 | 0 | 19 | 19 | | | 0 | 0 | 1 | 1 | 43 |
| 7:30 AM | 27 | 0 | 27 | 0 | 14 | 14 | | | 0 | 0 | 2 | 2 | 43 |
| 7:45 AM | 32 | 0 | 32 | 0 | 23 | 23 | | | 0 | 0 | 0 | 0 | 55 |
| 8:00 AM | 35 | 0 | 35 | 0 | 21 | 21 | | | 0 | 0 | 2 | 2 | 58 |
| 8:15 AM | 18 | 1 | 19 | 0 | 25 | 25 | | | 0 | 0 | 6 | 6 | 50 |
| 8:30 AM | 16 | 0 | 16 | 0 | 23 | 23 | | | 0 | 0 | 2 | 2 | 41 |
| 8:45 AM | 21 | 0 | 21 | 0 | 22 | 22 | | | 0 | 0 | 4 | 4 | 47 |
| Total Survey | 185 | 1 | 186 | 0 | 158 | 158 | | | 0 | 0 | 18 | 18 | 362 |

Heavy Vehicle Peak Hour Summary

7:10 AM to 8:10 AM

| By Approach | Northbound Hwy 99 | | | Southbound Hwy 99 | | | Eastbound | | | Westbound 15th St | | | Total |
|----------------|----------------------|-----|-------|----------------------|-----|-------|-----------|-----|-------|----------------------|-----|-------|-------|
| | In | Out | Total | In | Out | Total | In | Out | Total | In | Out | Total | |
| Volume | 112 | 71 | 183 | 71 | 117 | 188 | 0 | 0 | 0 | 5 | 0 | 5 | 188 |
| PHF | 0.76 | | | 0.68 | | | 0.00 | | | 0.63 | | | 0.73 |

| By Movement | Northbound Hwy 99 | | | Southbound Hwy 99 | | | Eastbound | | | Westbound 15th St | | | Total |
|----------------|----------------------|------|-------|----------------------|------|-------|-----------|--|-------|----------------------|------|-------|-------|
| | T | R | Total | L | T | Total | | | Total | L | R | Total | |
| Volume | 112 | 0 | 112 | 0 | 71 | 71 | | | 0 | 0 | 5 | 5 | 188 |
| PHF | 0.76 | 0.00 | 0.76 | 0.00 | 0.68 | 0.68 | | | 0.00 | 0.00 | 0.63 | 0.63 | 0.73 |

Heavy Vehicle Rolling Hour Summary

7:00 AM to 9:00 AM

| Interval Start Time | Northbound Hwy 99 | | | Southbound Hwy 99 | | | Eastbound | | | Westbound 15th St | | | Interval Total |
|---------------------------|----------------------|---|-------|----------------------|----|-------|-----------|--|-------|----------------------|----|-------|-------------------|
| | T | R | Total | L | T | Total | | | Total | L | R | Total | |
| 7:00 AM | 95 | 0 | 95 | 0 | 67 | 67 | | | 0 | 0 | 4 | 4 | 166 |
| 7:15 AM | 117 | 0 | 117 | 0 | 77 | 77 | | | 0 | 0 | 5 | 5 | 199 |
| 7:30 AM | 112 | 1 | 113 | 0 | 83 | 83 | | | 0 | 0 | 10 | 10 | 206 |
| 7:45 AM | 101 | 1 | 102 | 0 | 92 | 92 | | | 0 | 0 | 10 | 10 | 204 |
| 8:00 AM | 90 | 1 | 91 | 0 | 91 | 91 | | | 0 | 0 | 14 | 14 | 196 |

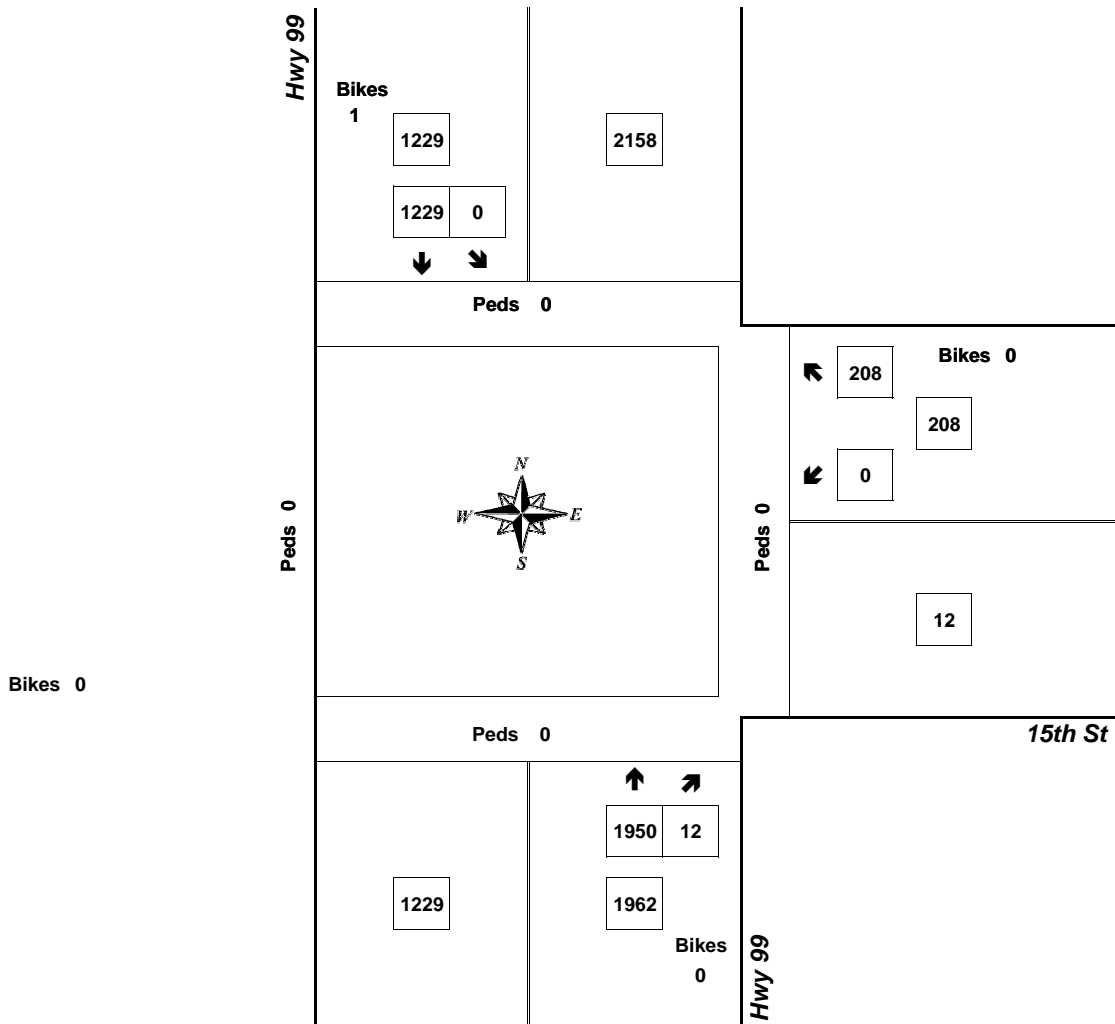
Peak Hour Summary



Clay Carney
(503) 833-2740

Hwy 99 & 15th St

7:10 AM to 8:10 AM
Thursday, January 26, 2017



| Approach | PHF | HV% | Volume |
|---------------------|-------------|-------------|--------------|
| EB | 0.00 | 0.0% | 0 |
| WB | 0.85 | 2.4% | 208 |
| NB | 0.93 | 5.7% | 1,962 |
| SB | 0.84 | 5.8% | 1,229 |
| Intersection | 0.93 | 5.5% | 3,399 |

Count Period: 7:00 AM to 9:00 AM

Total Vehicle Summary



Clay Carney
(503) 833-2740

Hwy 99 & 15th St

Wednesday, January 25, 2017

4:00 PM to 6:00 PM

5-Minute Interval Summary

4:00 PM to 6:00 PM

| Interval Start Time | Northbound Hwy 99 | | | Southbound Hwy 99 | | | Eastbound | | | Westbound 15th St | | | Interval Total | Pedestrians Crosswalk | | | |
|---------------------------|----------------------|----|-------|----------------------|-------|-------|-----------|--|-------|----------------------|-----|-------|-------------------|--------------------------|-------|------|------|
| | T | R | Bikes | L | T | Bikes | | | Bikes | L | R | Bikes | | North | South | East | West |
| 4:00 PM | 121 | 2 | 0 | 0 | 188 | 0 | | | 0 | 0 | 18 | 0 | 329 | 0 | 0 | 0 | 0 |
| 4:05 PM | 122 | 2 | 0 | 0 | 154 | 0 | | | 0 | 0 | 21 | 0 | 299 | 0 | 0 | 1 | 0 |
| 4:10 PM | 133 | 3 | 0 | 0 | 166 | 0 | | | 0 | 0 | 15 | 0 | 317 | 0 | 0 | 0 | 0 |
| 4:15 PM | 143 | 0 | 0 | 0 | 173 | 0 | | | 0 | 0 | 20 | 0 | 336 | 0 | 0 | 0 | 0 |
| 4:20 PM | 134 | 2 | 0 | 0 | 186 | 0 | | | 0 | 0 | 15 | 0 | 337 | 0 | 0 | 0 | 0 |
| 4:25 PM | 116 | 2 | 0 | 0 | 188 | 0 | | | 0 | 0 | 21 | 0 | 327 | 0 | 0 | 1 | 0 |
| 4:30 PM | 144 | 0 | 0 | 0 | 172 | 0 | | | 0 | 0 | 16 | 0 | 332 | 0 | 0 | 0 | 0 |
| 4:35 PM | 140 | 0 | 0 | 0 | 185 | 0 | | | 0 | 0 | 18 | 0 | 343 | 0 | 0 | 0 | 0 |
| 4:40 PM | 116 | 0 | 0 | 0 | 186 | 0 | | | 0 | 0 | 27 | 0 | 329 | 0 | 0 | 1 | 0 |
| 4:45 PM | 125 | 0 | 0 | 0 | 168 | 0 | | | 0 | 0 | 18 | 0 | 311 | 0 | 0 | 0 | 0 |
| 4:50 PM | 127 | 1 | 0 | 0 | 146 | 0 | | | 0 | 0 | 21 | 0 | 295 | 0 | 0 | 1 | 0 |
| 4:55 PM | 125 | 1 | 0 | 0 | 182 | 0 | | | 0 | 0 | 19 | 0 | 327 | 0 | 0 | 0 | 0 |
| 5:00 PM | 136 | 2 | 0 | 0 | 191 | 0 | | | 0 | 0 | 16 | 0 | 345 | 0 | 0 | 0 | 0 |
| 5:05 PM | 153 | 1 | 0 | 0 | 180 | 0 | | | 0 | 0 | 15 | 0 | 349 | 0 | 0 | 1 | 0 |
| 5:10 PM | 132 | 0 | 0 | 0 | 180 | 0 | | | 0 | 0 | 18 | 0 | 330 | 0 | 0 | 0 | 0 |
| 5:15 PM | 133 | 2 | 0 | 0 | 197 | 0 | | | 0 | 0 | 17 | 0 | 349 | 0 | 0 | 0 | 0 |
| 5:20 PM | 165 | 0 | 0 | 0 | 189 | 0 | | | 0 | 0 | 12 | 0 | 366 | 0 | 0 | 0 | 0 |
| 5:25 PM | 143 | 1 | 0 | 0 | 180 | 0 | | | 0 | 0 | 21 | 0 | 345 | 0 | 0 | 0 | 0 |
| 5:30 PM | 133 | 1 | 0 | 0 | 186 | 0 | | | 0 | 0 | 18 | 0 | 338 | 0 | 0 | 0 | 0 |
| 5:35 PM | 134 | 2 | 0 | 0 | 188 | 0 | | | 0 | 0 | 19 | 0 | 343 | 0 | 0 | 0 | 0 |
| 5:40 PM | 148 | 1 | 0 | 0 | 188 | 0 | | | 0 | 0 | 14 | 0 | 351 | 0 | 0 | 1 | 0 |
| 5:45 PM | 117 | 1 | 0 | 0 | 165 | 0 | | | 0 | 0 | 13 | 0 | 296 | 0 | 0 | 0 | 0 |
| 5:50 PM | 109 | 1 | 0 | 0 | 182 | 0 | | | 0 | 0 | 15 | 0 | 307 | 0 | 0 | 0 | 0 |
| 5:55 PM | 90 | 4 | 0 | 0 | 165 | 0 | | | 0 | 0 | 15 | 0 | 274 | 0 | 0 | 0 | 0 |
| Total Survey | 3,139 | 29 | 0 | 0 | 4,285 | 0 | | | 0 | 0 | 422 | 0 | 7,875 | 0 | 0 | 6 | 0 |

15-Minute Interval Summary

4:00 PM to 6:00 PM

| Interval Start Time | Northbound Hwy 99 | | | Southbound Hwy 99 | | | Eastbound | | | Westbound 15th St | | | Interval Total | Pedestrians Crosswalk | | | | |
|---------------------------|----------------------|----|-------|----------------------|-------|-------|-----------|--|-------|----------------------|--|-----|-------------------|--------------------------|-------|-------|------|------|
| | T | R | Bikes | L | T | Bikes | | | Bikes | L | | R | | Bikes | North | South | East | West |
| 4:00 PM | 376 | 7 | 0 | 0 | 508 | 0 | | | 0 | 0 | | 54 | 0 | 945 | 0 | 0 | 1 | 0 |
| 4:15 PM | 393 | 4 | 0 | 0 | 547 | 0 | | | 0 | 0 | | 56 | 0 | 1,000 | 0 | 0 | 1 | 0 |
| 4:30 PM | 400 | 0 | 0 | 0 | 543 | 0 | | | 0 | 0 | | 61 | 0 | 1,004 | 0 | 0 | 1 | 0 |
| 4:45 PM | 377 | 2 | 0 | 0 | 496 | 0 | | | 0 | 0 | | 58 | 0 | 933 | 0 | 0 | 1 | 0 |
| 5:00 PM | 421 | 3 | 0 | 0 | 551 | 0 | | | 0 | 0 | | 49 | 0 | 1,024 | 0 | 0 | 1 | 0 |
| 5:15 PM | 441 | 3 | 0 | 0 | 566 | 0 | | | 0 | 0 | | 50 | 0 | 1,060 | 0 | 0 | 0 | 0 |
| 5:30 PM | 415 | 4 | 0 | 0 | 562 | 0 | | | 0 | 0 | | 51 | 0 | 1,032 | 0 | 0 | 1 | 0 |
| 5:45 PM | 316 | 6 | 0 | 0 | 512 | 0 | | | 0 | 0 | | 43 | 0 | 877 | 0 | 0 | 0 | 0 |
| Total Survey | 3,139 | 29 | 0 | 0 | 4,285 | 0 | | | 0 | 0 | | 422 | 0 | 7,875 | 0 | 0 | 6 | 0 |

Peak Hour Summary

4:45 PM to 5:45 PM

| By Approach | Northbound Hwy 99 | | | | Southbound Hwy 99 | | | | Eastbound | | | | Westbound 15th St | | | | Total | Pedestrians Crosswalk | | | |
|----------------|----------------------|-------|-------|-------|----------------------|-------|-------|-------|-----------|-----|-------|-------|----------------------|-----|-------|-------|-------|--------------------------|-------|------|------|
| | In | Out | Total | Bikes | In | Out | Total | Bikes | In | Out | Total | Bikes | In | Out | Total | Bikes | | North | South | East | West |
| Volume | 1,666 | 2,175 | 3,841 | 0 | 2,175 | 1,862 | 4,037 | 0 | 0 | 0 | 0 | 0 | 208 | 12 | 220 | 0 | 4,049 | 0 | 0 | 3 | 0 |
| %HV | 3.0% | | | | 2.7% | | | | 0.0% | | | | 2.4% | | | | 2.8% | | | | |
| PHF | 0.94 | | | | 0.96 | | | | 0.00 | | | | 0.90 | | | | 0.95 | | | | |

| By Movement | Northbound Hwy 99 | | | | Southbound Hwy 99 | | | | Eastbound | | | | Westbound 15th St | | | | Total |
|----------------|----------------------|------|-------|-------|----------------------|-------|-------|-------|-----------|----|-------|-------|----------------------|------|------|-------|-------|
| | T | R | Total | Bikes | L | T | Total | Bikes | | | Total | Bikes | L | | R | Total | |
| Volume | 1,654 | 12 | 1,666 | 0 | 2,175 | 2,175 | | 0 | | | 0 | 0 | 208 | 208 | | | 4,049 |
| %HV | NA | 3.0% | 0.0% | 3.0% | 0.0% | 2.7% | NA | 2.7% | NA | NA | NA | 0.0% | 0.0% | NA | 2.4% | 2.4% | 2.8% |
| PHF | 0.94 | 0.75 | 0.94 | 0.00 | 0.96 | 0.96 | | 0.00 | 0.00 | | 0.00 | 0.00 | 0.90 | 0.90 | | | 0.95 |

Rolling Hour Summary

4:00 PM to 6:00 PM

| Interval Start Time | Northbound Hwy 99 | | | Southbound Hwy 99 | | | Eastbound | | | Westbound 15th St | | | Interval Total | Pedestrians Crosswalk | | | | |
|---------------------------|----------------------|----|-------|----------------------|-------|-------|-----------|--|-------|----------------------|---|-----|-------------------|--------------------------|-------|-------|------|------|
| | T | R | Bikes | L | T | Bikes | | | Bikes | L | | R | | Bikes | North | South | East | West |
| 4:00 PM | 1,546 | 13 | 0 | 0 | 2,094 | 0 | | | 0 | 0 | 0 | 229 | 0 | 3,882 | 0 | 0 | 4 | 0 |
| 4:15 PM | 1,591 | 9 | 0 | 0 | 2,137 | 0 | | | 0 | 0 | 0 | 224 | 0 | 3,961 | 0 | 0 | 4 | 0 |
| 4:30 PM | 1,639 | 8 | 0 | 0 | 2,156 | 0 | | | 0 | 0 | 0 | 218 | 0 | 4,021 | 0 | 0 | 3 | 0 |
| 4:45 PM | 1,654 | 12 | 0 | 0 | 2,175 | 0 | | | 0 | 0 | 0 | 208 | 0 | 4,049 | 0 | 0 | 3 | 0 |
| 5:00 PM | 1,593 | 16 | 0 | 0 | 2,191 | 0 | | | 0 | 0 | 0 | 193 | 0 | 3,993 | 0 | 0 | 2 | 0 |

Heavy Vehicle Summary



Clay Carney
(503) 833-2740

Hwy 99 & 15th St

Wednesday, January 25, 2017

4:00 PM to 6:00 PM

Heavy Vehicle 5-Minute Interval Summary

4:00 PM to 6:00 PM

| Interval Start Time | Northbound Hwy 99 | | | Southbound Hwy 99 | | | Eastbound | | | Westbound 15th St | | | Interval Total |
|---------------------------|----------------------|---|-------|----------------------|-----|-------|-----------|--|-------|----------------------|----|-------|-------------------|
| | T | R | Total | L | T | Total | | | Total | L | R | Total | |
| 4:00 PM | 4 | 0 | 4 | 0 | 10 | 10 | | | 0 | 0 | 0 | 0 | 14 |
| 4:05 PM | 7 | 1 | 8 | 0 | 8 | 8 | | | 0 | 0 | 0 | 0 | 16 |
| 4:10 PM | 6 | 0 | 6 | 0 | 1 | 1 | | | 0 | 0 | 0 | 0 | 7 |
| 4:15 PM | 8 | 0 | 8 | 0 | 4 | 4 | | | 0 | 0 | 1 | 1 | 13 |
| 4:20 PM | 3 | 0 | 3 | 0 | 7 | 7 | | | 0 | 0 | 2 | 2 | 12 |
| 4:25 PM | 8 | 0 | 8 | 0 | 5 | 5 | | | 0 | 0 | 1 | 1 | 14 |
| 4:30 PM | 5 | 0 | 5 | 0 | 6 | 6 | | | 0 | 0 | 0 | 0 | 11 |
| 4:35 PM | 7 | 0 | 7 | 0 | 6 | 6 | | | 0 | 0 | 1 | 1 | 14 |
| 4:40 PM | 3 | 0 | 3 | 0 | 2 | 2 | | | 0 | 0 | 0 | 0 | 5 |
| 4:45 PM | 3 | 0 | 3 | 0 | 7 | 7 | | | 0 | 0 | 1 | 1 | 11 |
| 4:50 PM | 2 | 0 | 2 | 0 | 3 | 3 | | | 0 | 0 | 1 | 1 | 6 |
| 4:55 PM | 4 | 0 | 4 | 0 | 6 | 6 | | | 0 | 0 | 1 | 1 | 11 |
| 5:00 PM | 3 | 0 | 3 | 0 | 5 | 5 | | | 0 | 0 | 0 | 0 | 8 |
| 5:05 PM | 5 | 0 | 5 | 0 | 5 | 5 | | | 0 | 0 | 0 | 0 | 10 |
| 5:10 PM | 2 | 0 | 2 | 0 | 4 | 4 | | | 0 | 0 | 0 | 0 | 6 |
| 5:15 PM | 6 | 0 | 6 | 0 | 3 | 3 | | | 0 | 0 | 0 | 0 | 9 |
| 5:20 PM | 9 | 0 | 9 | 0 | 6 | 6 | | | 0 | 0 | 1 | 1 | 16 |
| 5:25 PM | 5 | 0 | 5 | 0 | 7 | 7 | | | 0 | 0 | 0 | 0 | 12 |
| 5:30 PM | 5 | 0 | 5 | 0 | 4 | 4 | | | 0 | 0 | 0 | 0 | 9 |
| 5:35 PM | 2 | 0 | 2 | 0 | 5 | 5 | | | 0 | 0 | 0 | 0 | 7 |
| 5:40 PM | 4 | 0 | 4 | 0 | 3 | 3 | | | 0 | 0 | 1 | 1 | 8 |
| 5:45 PM | 3 | 0 | 3 | 0 | 4 | 4 | | | 0 | 0 | 0 | 0 | 7 |
| 5:50 PM | 4 | 0 | 4 | 0 | 2 | 2 | | | 0 | 0 | 0 | 0 | 6 |
| 5:55 PM | 1 | 0 | 1 | 0 | 2 | 2 | | | 0 | 0 | 0 | 0 | 3 |
| Total Survey | 109 | 1 | 110 | 0 | 115 | 115 | | | 0 | 0 | 10 | 10 | 235 |

Heavy Vehicle 15-Minute Interval Summary

4:00 PM to 6:00 PM

| Interval Start Time | Northbound Hwy 99 | | | Southbound Hwy 99 | | | Eastbound | | | Westbound 15th St | | | Interval Total |
|---------------------------|----------------------|---|-------|----------------------|-----|-------|-----------|--|-------|----------------------|----|-------|-------------------|
| | T | R | Total | L | T | Total | | | Total | L | R | Total | |
| 4:00 PM | 17 | 1 | 18 | 0 | 19 | 19 | | | 0 | 0 | 0 | 0 | 37 |
| 4:15 PM | 19 | 0 | 19 | 0 | 16 | 16 | | | 0 | 0 | 4 | 4 | 39 |
| 4:30 PM | 15 | 0 | 15 | 0 | 14 | 14 | | | 0 | 0 | 1 | 1 | 30 |
| 4:45 PM | 9 | 0 | 9 | 0 | 16 | 16 | | | 0 | 0 | 3 | 3 | 28 |
| 5:00 PM | 10 | 0 | 10 | 0 | 14 | 14 | | | 0 | 0 | 0 | 0 | 24 |
| 5:15 PM | 20 | 0 | 20 | 0 | 16 | 16 | | | 0 | 0 | 1 | 1 | 37 |
| 5:30 PM | 11 | 0 | 11 | 0 | 12 | 12 | | | 0 | 0 | 1 | 1 | 24 |
| 5:45 PM | 8 | 0 | 8 | 0 | 8 | 8 | | | 0 | 0 | 0 | 0 | 16 |
| Total Survey | 109 | 1 | 110 | 0 | 115 | 115 | | | 0 | 0 | 10 | 10 | 235 |

Heavy Vehicle Peak Hour Summary

4:45 PM to 5:45 PM

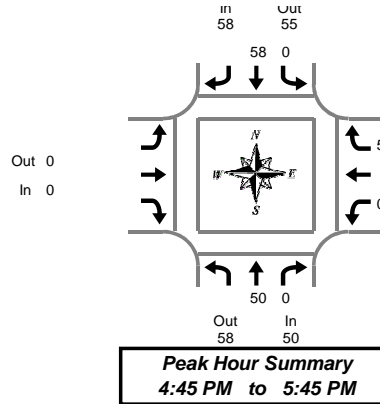
| By Approach | Northbound Hwy 99 | | | Southbound Hwy 99 | | | Eastbound | | | Westbound 15th St | | | Total |
|-------------|----------------------|-----|-------|----------------------|-----|-------|-----------|-----|-------|----------------------|-----|-------|-------|
| | In | Out | Total | In | Out | Total | In | Out | Total | In | Out | Total | |
| Volume | 50 | 58 | 108 | 58 | 55 | 113 | 0 | 0 | 0 | 5 | 0 | 5 | 113 |
| PHF | 0.63 | | | 0.85 | | | 0.00 | | | 0.42 | | | 0.76 |

| By Movement | Northbound Hwy 99 | | | Southbound Hwy 99 | | | Eastbound | | | Westbound 15th St | | | Total |
|-------------|----------------------|------|-------|----------------------|------|-------|-----------|--|-------|----------------------|------|-------|-------|
| | T | R | Total | L | T | Total | | | Total | L | R | Total | |
| Volume | 50 | 0 | 50 | 0 | 58 | 58 | | | 0 | 0 | 5 | 5 | 113 |
| PHF | 0.63 | 0.00 | 0.63 | 0.00 | 0.85 | 0.85 | | | 0.00 | 0.00 | 0.42 | 0.42 | 0.76 |

Heavy Vehicle Rolling Hour Summary

4:00 PM to 6:00 PM

| Interval Start Time | Northbound Hwy 99 | | | Southbound Hwy 99 | | | Eastbound | | | Westbound 15th St | | | Interval Total |
|---------------------------|----------------------|---|-------|----------------------|----|-------|-----------|--|-------|----------------------|---|-------|-------------------|
| | T | R | Total | L | T | Total | | | Total | L | R | Total | |
| 4:00 PM | 60 | 1 | 61 | 0 | 65 | 65 | | | 0 | 0 | 8 | 8 | 134 |
| 4:15 PM | 53 | 0 | 53 | 0 | 60 | 60 | | | 0 | 0 | 8 | 8 | 121 |
| 4:30 PM | 54 | 0 | 54 | 0 | 60 | 60 | | | 0 | 0 | 5 | 5 | 119 |
| 4:45 PM | 50 | 0 | 50 | 0 | 58 | 58 | | | 0 | 0 | 5 | 5 | 113 |
| 5:00 PM | 49 | 0 | 49 | 0 | 50 | 50 | | | 0 | 0 | 2 | 2 | 101 |



Peak Hour Summary

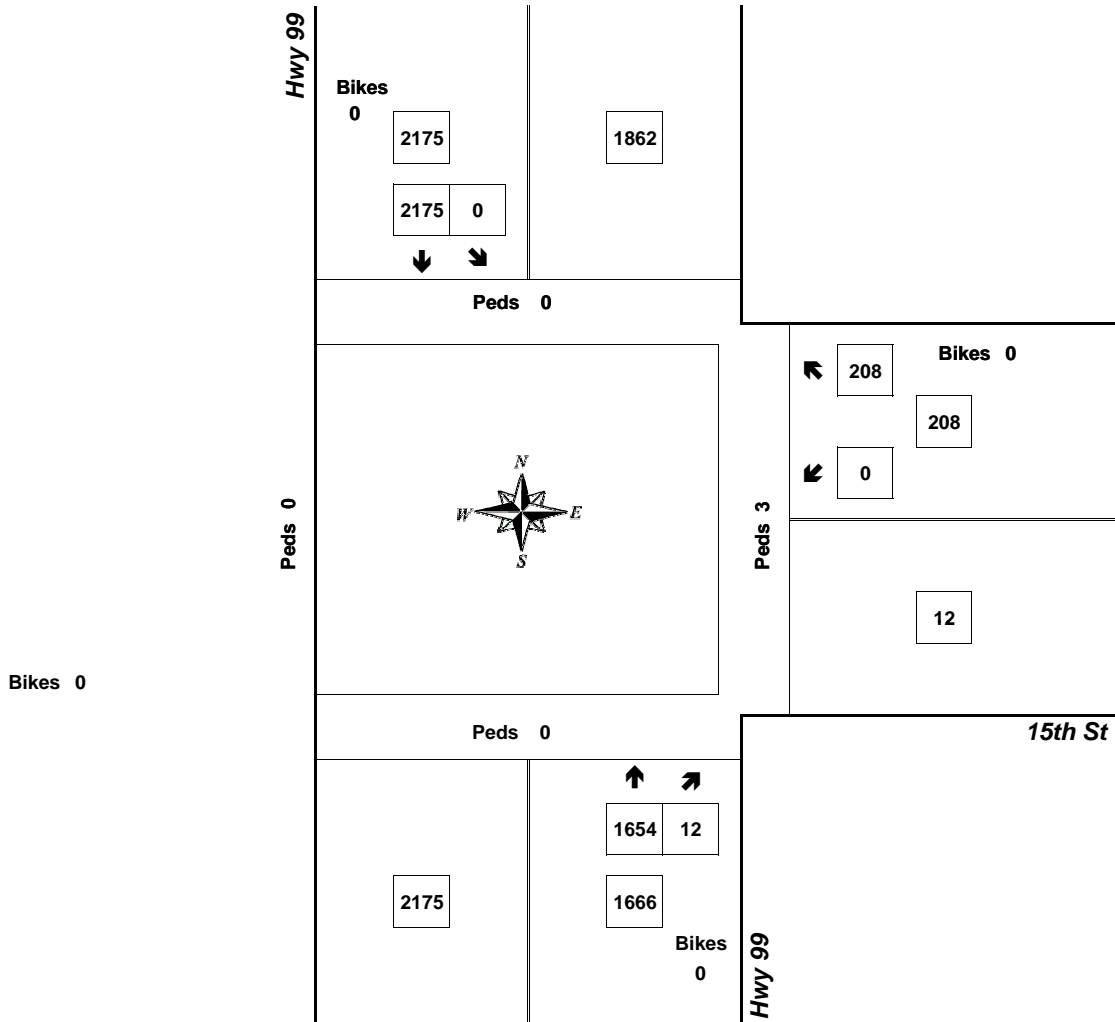


Clay Carney
(503) 833-2740

Hwy 99 & 15th St

4:45 PM to 5:45 PM

Wednesday, January 25, 2017



| Approach | PHF | HV% | Volume |
|--------------|------|------|--------|
| EB | 0.00 | 0.0% | 0 |
| WB | 0.90 | 2.4% | 208 |
| NB | 0.94 | 3.0% | 1,666 |
| SB | 0.96 | 2.7% | 2,175 |
| Intersection | 0.95 | 2.8% | 4,049 |

Count Period: 4:00 PM to 6:00 PM

Total Vehicle Summary

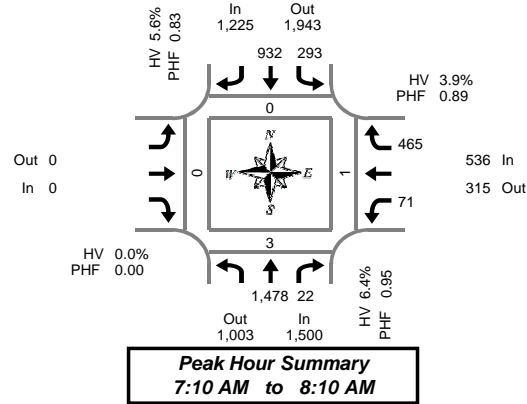


Clay Carney
(503) 833-2740

Hwy 99 & 14th St

Thursday, January 26, 2017

7:00 AM to 9:00 AM



5-Minute Interval Summary

7:00 AM to 9:00 AM

| Interval Start Time | Northbound Hwy 99 | | | Southbound Hwy 99 | | | Eastbound 14th St | | | Westbound 14th St | | | Interval Total | Pedestrians Crosswalk | | | |
|---------------------------|----------------------|----|-------|----------------------|-------|-------|----------------------|--|-------|----------------------|--|-----|-------------------|--------------------------|-------|------|------|
| | T | R | Bikes | L | T | Bikes | | | Bikes | L | | R | Bikes | North | South | East | West |
| 7:00 AM | 121 | 5 | 0 | 17 | 55 | 0 | | | 0 | 5 | | 37 | 0 | 0 | 0 | 0 | 0 |
| 7:05 AM | 141 | 1 | 0 | 19 | 58 | 0 | | | 0 | 2 | | 25 | 0 | 0 | 0 | 0 | 0 |
| 7:10 AM | 115 | 0 | 0 | 23 | 58 | 0 | | | 0 | 10 | | 33 | 0 | 0 | 0 | 0 | 0 |
| 7:15 AM | 123 | 3 | 0 | 19 | 79 | 0 | | | 0 | 6 | | 39 | 0 | 0 | 0 | 0 | 0 |
| 7:20 AM | 126 | 6 | 0 | 24 | 58 | 0 | | | 0 | 2 | | 38 | 0 | 0 | 0 | 0 | 0 |
| 7:25 AM | 116 | 1 | 0 | 25 | 72 | 0 | | | 0 | 8 | | 50 | 0 | 0 | 0 | 0 | 0 |
| 7:30 AM | 128 | 2 | 0 | 14 | 70 | 0 | | | 0 | 6 | | 41 | 0 | 0 | 0 | 0 | 0 |
| 7:35 AM | 146 | 1 | 0 | 21 | 67 | 0 | | | 0 | 3 | | 41 | 0 | 0 | 0 | 0 | 0 |
| 7:40 AM | 111 | 2 | 0 | 27 | 73 | 0 | | | 0 | 11 | | 49 | 0 | 0 | 0 | 0 | 0 |
| 7:45 AM | 127 | 1 | 0 | 29 | 95 | 0 | | | 0 | 6 | | 38 | 0 | 0 | 0 | 0 | 0 |
| 7:50 AM | 130 | 0 | 0 | 22 | 81 | 0 | | | 0 | 6 | | 31 | 0 | 0 | 0 | 0 | 0 |
| 7:55 AM | 115 | 2 | 0 | 42 | 93 | 0 | | | 0 | 5 | | 44 | 0 | 0 | 0 | 0 | 0 |
| 8:00 AM | 133 | 4 | 0 | 20 | 106 | 0 | | | 0 | 5 | | 27 | 0 | 0 | 0 | 0 | 0 |
| 8:05 AM | 108 | 0 | 0 | 27 | 80 | 0 | | | 0 | 3 | | 34 | 0 | 0 | 1 | 1 | 0 |
| 8:10 AM | 103 | 2 | 0 | 34 | 67 | 0 | | | 0 | 2 | | 31 | 0 | 0 | 0 | 0 | 0 |
| 8:15 AM | 96 | 9 | 0 | 25 | 74 | 0 | | | 0 | 5 | | 25 | 0 | 0 | 1 | 0 | 0 |
| 8:20 AM | 110 | 5 | 0 | 26 | 63 | 0 | | | 0 | 6 | | 18 | 0 | 0 | 0 | 0 | 0 |
| 8:25 AM | 73 | 1 | 0 | 38 | 87 | 0 | | | 0 | 6 | | 26 | 0 | 0 | 0 | 0 | 0 |
| 8:30 AM | 97 | 7 | 0 | 25 | 85 | 0 | | | 0 | 3 | | 20 | 0 | 0 | 0 | 0 | 0 |
| 8:35 AM | 83 | 4 | 0 | 27 | 78 | 0 | | | 0 | 7 | | 18 | 0 | 0 | 0 | 0 | 0 |
| 8:40 AM | 65 | 3 | 0 | 32 | 68 | 0 | | | 0 | 10 | | 14 | 0 | 0 | 0 | 0 | 0 |
| 8:45 AM | 111 | 7 | 0 | 24 | 94 | 0 | | | 0 | 4 | | 26 | 0 | 0 | 0 | 0 | 0 |
| 8:50 AM | 82 | 5 | 0 | 26 | 71 | 0 | | | 0 | 1 | | 21 | 0 | 0 | 0 | 0 | 0 |
| 8:55 AM | 73 | 3 | 0 | 34 | 64 | 0 | | | 0 | 6 | | 21 | 0 | 0 | 0 | 0 | 0 |
| Total Survey | 2,633 | 74 | 0 | 620 | 1,796 | 0 | | | 0 | 128 | | 747 | 0 | 0 | 4 | 1 | 0 |

15-Minute Interval Summary

7:00 AM to 9:00 AM

| Interval Start Time | Northbound Hwy 99 | | | Southbound Hwy 99 | | | Eastbound 14th St | | | Westbound 14th St | | | Interval Total | Pedestrians Crosswalk | | | |
|---------------------------|----------------------|----|-------|----------------------|-------|-------|----------------------|--|-------|----------------------|--|-----|-------------------|--------------------------|-------|------|------|
| | T | R | Bikes | L | T | Bikes | | | Bikes | L | | R | Bikes | North | South | East | West |
| 7:00 AM | 377 | 6 | 0 | 59 | 171 | 0 | | | 0 | 17 | | 95 | 0 | 0 | 0 | 0 | 0 |
| 7:15 AM | 365 | 10 | 0 | 68 | 209 | 0 | | | 0 | 16 | | 127 | 0 | 0 | 0 | 0 | 0 |
| 7:30 AM | 385 | 5 | 0 | 62 | 210 | 0 | | | 0 | 20 | | 131 | 0 | 0 | 0 | 0 | 0 |
| 7:45 AM | 372 | 3 | 0 | 93 | 269 | 0 | | | 0 | 17 | | 113 | 0 | 0 | 2 | 0 | 0 |
| 8:00 AM | 344 | 6 | 0 | 81 | 253 | 0 | | | 0 | 10 | | 92 | 0 | 0 | 1 | 1 | 0 |
| 8:15 AM | 279 | 15 | 0 | 89 | 224 | 0 | | | 0 | 17 | | 69 | 0 | 0 | 1 | 0 | 0 |
| 8:30 AM | 245 | 14 | 0 | 84 | 231 | 0 | | | 0 | 20 | | 52 | 0 | 0 | 0 | 0 | 0 |
| 8:45 AM | 266 | 15 | 0 | 84 | 229 | 0 | | | 0 | 11 | | 68 | 0 | 0 | 0 | 0 | 0 |
| Total Survey | 2,633 | 74 | 0 | 620 | 1,796 | 0 | | | 0 | 128 | | 747 | 0 | 0 | 4 | 1 | 0 |

Peak Hour Summary

7:10 AM to 8:10 AM

| By Approach | Northbound Hwy 99 | | | | Southbound Hwy 99 | | | | Eastbound 14th St | | | | Westbound 14th St | | | | Total | Pedestrians Crosswalk | | | |
|-------------|----------------------|-------|-------|-------|----------------------|-------|-------|-------|----------------------|-----|-------|-------|----------------------|-----|-------|-------|-------|--------------------------|-------|------|------|
| | In | Out | Total | Bikes | In | Out | Total | Bikes | In | Out | Total | Bikes | In | Out | Total | Bikes | | North | South | East | West |
| Volume | 1,500 | 1,003 | 2,503 | 0 | 1,225 | 1,943 | 3,168 | 0 | 0 | 0 | 0 | 0 | 536 | 315 | 851 | 0 | 3,261 | 0 | 3 | 1 | 0 |
| %HV | 6.4% | | | | 5.6% | | | | 0.0% | | | | 3.9% | | | | 5.7% | | | | |
| PHF | 0.95 | | | | 0.83 | | | | 0.00 | | | | 0.89 | | | | 0.94 | | | | |

| By Movement | Northbound Hwy 99 | | | | Southbound Hwy 99 | | | | Eastbound 14th St | | | | Westbound 14th St | | | | Total |
|-------------|----------------------|------|-------|------|----------------------|-------|----|------|----------------------|------|----|------|----------------------|----|------|------|-------|
| | T | R | Total | L | T | Total | | | Total | L | | R | Total | | | | |
| Volume | 1,478 | 22 | 1,500 | 293 | 932 | 1,225 | | | 0 | 71 | | 465 | 536 | | | | 3,261 |
| %HV | NA | 6.4% | 4.5% | 6.4% | 3.1% | 6.4% | NA | 5.6% | NA | NA | NA | 0.0% | 2.8% | NA | 4.1% | 3.9% | 5.7% |
| PHF | 0.95 | 0.55 | 0.95 | 0.79 | 0.83 | 0.83 | | | 0.00 | 0.77 | | 0.88 | 0.89 | | | | 0.94 |

Rolling Hour Summary

7:00 AM to 9:00 AM

| Interval Start Time | Northbound Hwy 99 | | | Southbound Hwy 99 | | | Eastbound 14th St | | | Westbound 14th St | | | Interval Total | Pedestrians Crosswalk | | | |
|---------------------------|----------------------|----|-------|----------------------|-----|-------|----------------------|--|-------|----------------------|--|-----|-------------------|--------------------------|-------|------|------|
| | T | R | Bikes | L | T | Bikes | | | Bikes | L | | R | Bikes | North | South | East | West |
| 7:00 AM | 1,499 | 24 | 0 | 282 | 859 | 0 | | | 0 | 70 | | 466 | 0 | 0 | 2 | 0 | 0 |
| 7:15 AM | 1,466 | 24 | 0 | 304 | 941 | 0 | | | 0 | 63 | | 463 | 0 | 0 | 3 | 1 | 0 |
| 7:30 AM | 1,380 | 29 | 0 | 325 | 956 | 0 | | | 0 | 64 | | 405 | 0 | 0 | 4 | 1 | 0 |
| 7:45 AM | 1,240 | 38 | 0 | 347 | 977 | 0 | | | 0 | 64 | | 326 | 0 | 0 | 4 | 1 | 0 |
| 8:00 AM | 1,134 | 50 | 0 | 338 | 937 | 0 | | | 0 | 58 | | 281 | 0 | 0 | 2 | 1 | 0 |

Heavy Vehicle Summary



Clay Carney
(503) 833-2740

Hwy 99 & 14th St

Thursday, January 26, 2017

7:00 AM to 9:00 AM

Heavy Vehicle 5-Minute Interval Summary

7:00 AM to 9:00 AM

| Interval Start Time | Northbound Hwy 99 | | | Southbound Hwy 99 | | | Eastbound 14th St | | | Westbound 14th St | | | Interval Total |
|---------------------------|----------------------|---|-------|----------------------|-----|-------|----------------------|--|-------|----------------------|----|-------|-------------------|
| | T | R | Total | L | T | Total | | | Total | L | R | Total | |
| 7:00 AM | 7 | 2 | 9 | 1 | 4 | 5 | | | 0 | 0 | 0 | 0 | 14 |
| 7:05 AM | 3 | 0 | 3 | 0 | 5 | 5 | | | 0 | 0 | 0 | 0 | 8 |
| 7:10 AM | 2 | 0 | 2 | 0 | 2 | 2 | | | 0 | 0 | 1 | 1 | 5 |
| 7:15 AM | 8 | 0 | 8 | 0 | 6 | 6 | | | 0 | 0 | 0 | 0 | 14 |
| 7:20 AM | 8 | 1 | 9 | 3 | 5 | 8 | | | 0 | 0 | 2 | 2 | 19 |
| 7:25 AM | 2 | 0 | 2 | 1 | 5 | 6 | | | 0 | 1 | 3 | 4 | 12 |
| 7:30 AM | 9 | 0 | 9 | 0 | 5 | 5 | | | 0 | 0 | 2 | 2 | 16 |
| 7:35 AM | 6 | 0 | 6 | 0 | 3 | 3 | | | 0 | 0 | 2 | 2 | 11 |
| 7:40 AM | 8 | 0 | 8 | 0 | 3 | 3 | | | 0 | 0 | 2 | 2 | 13 |
| 7:45 AM | 7 | 0 | 7 | 2 | 6 | 8 | | | 0 | 0 | 1 | 1 | 16 |
| 7:50 AM | 13 | 0 | 13 | 1 | 2 | 3 | | | 0 | 0 | 2 | 2 | 18 |
| 7:55 AM | 10 | 0 | 10 | 0 | 12 | 12 | | | 0 | 1 | 1 | 2 | 24 |
| 8:00 AM | 10 | 0 | 10 | 2 | 5 | 7 | | | 0 | 0 | 1 | 1 | 18 |
| 8:05 AM | 12 | 0 | 12 | 0 | 6 | 6 | | | 0 | 0 | 2 | 2 | 20 |
| 8:10 AM | 7 | 0 | 7 | 4 | 5 | 9 | | | 0 | 0 | 1 | 1 | 17 |
| 8:15 AM | 7 | 0 | 7 | 1 | 4 | 5 | | | 0 | 0 | 0 | 0 | 12 |
| 8:20 AM | 4 | 2 | 6 | 3 | 3 | 6 | | | 0 | 0 | 0 | 0 | 12 |
| 8:25 AM | 6 | 0 | 6 | 3 | 10 | 13 | | | 0 | 0 | 0 | 0 | 19 |
| 8:30 AM | 5 | 0 | 5 | 3 | 6 | 9 | | | 0 | 0 | 1 | 1 | 15 |
| 8:35 AM | 6 | 0 | 6 | 0 | 6 | 6 | | | 0 | 1 | 1 | 2 | 14 |
| 8:40 AM | 1 | 0 | 1 | 3 | 6 | 9 | | | 0 | 0 | 0 | 0 | 10 |
| 8:45 AM | 4 | 0 | 4 | 1 | 7 | 8 | | | 0 | 0 | 3 | 3 | 15 |
| 8:50 AM | 7 | 0 | 7 | 1 | 8 | 9 | | | 0 | 0 | 1 | 1 | 17 |
| 8:55 AM | 6 | 0 | 6 | 2 | 4 | 6 | | | 0 | 1 | 0 | 1 | 13 |
| Total Survey | 158 | 5 | 163 | 31 | 128 | 159 | | | 0 | 4 | 26 | 30 | 352 |

Heavy Vehicle 15-Minute Interval Summary

7:00 AM to 9:00 AM

| Interval Start Time | Northbound Hwy 99 | | | | Southbound Hwy 99 | | | Eastbound 14th St | | | Westbound 14th St | | | Interval Total | |
|---------------------------|----------------------|-----|-------|-----|----------------------|-------|--|----------------------|-------|---|----------------------|---|-------|-------------------|-----|
| | T | R | Total | L | T | Total | | | Total | L | | R | Total | | |
| 7:00 AM | 12 | 2 | 14 | 1 | 11 | 12 | | | 0 | 0 | | 1 | 1 | 27 | |
| 7:15 AM | 18 | 1 | 19 | 4 | 16 | 20 | | | 0 | 1 | | 5 | 6 | 45 | |
| 7:30 AM | 23 | 0 | 23 | 0 | 11 | 11 | | | 0 | 0 | | 6 | 6 | 40 | |
| 7:45 AM | 30 | 0 | 30 | 3 | 20 | 23 | | | 0 | 1 | | 4 | 5 | 58 | |
| 8:00 AM | 29 | 0 | 29 | 6 | 16 | 22 | | | 0 | 0 | | 4 | 4 | 55 | |
| 8:15 AM | 17 | 2 | 19 | 7 | 17 | 24 | | | 0 | 0 | | 0 | 0 | 43 | |
| 8:30 AM | 12 | 0 | 12 | 6 | 18 | 24 | | | 0 | 1 | | 2 | 3 | 39 | |
| 8:45 AM | 17 | 0 | 17 | 4 | 19 | 23 | | | 0 | 1 | | 4 | 5 | 45 | |
| Total Survey | | 158 | 5 | 163 | 31 | 128 | | 159 | | 0 | 4 | | 26 | 30 | 352 |

Heavy Vehicle Peak Hour Summary

7:10 AM to 8:10 AM

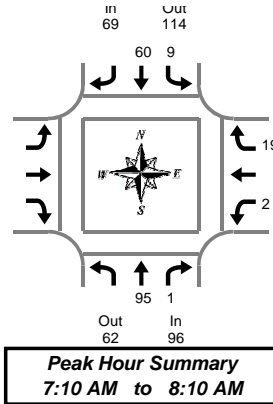
| By Approach | Northbound Hwy 99 | | | Southbound Hwy 99 | | | Eastbound 14th St | | | Westbound 14th St | | | Total |
|----------------|----------------------|-----|-------|----------------------|-----|-------|----------------------|-----|-------|----------------------|-----|-------|-------|
| | In | Out | Total | In | Out | Total | In | Out | Total | In | Out | Total | |
| Volume | 96 | 62 | 158 | 69 | 114 | 183 | 0 | 0 | 0 | 21 | 10 | 31 | 186 |
| PHF | 0.73 | | | 0.69 | | | 0.00 | | | 0.66 | | | 0.75 |

| By Movement | Northbound Hwy 99 | | | Southbound Hwy 99 | | | Eastbound 14th St | | | Westbound 14th St | | | Total |
|----------------|----------------------|------|-------|----------------------|------|-------|----------------------|--|-------|----------------------|------|-------|-------|
| | T | R | Total | L | T | Total | | | Total | L | R | Total | |
| Volume | 95 | 1 | 96 | 9 | 60 | 69 | | | 0 | 2 | 19 | 21 | 186 |
| PHF | 0.72 | 0.25 | 0.73 | 0.56 | 0.65 | 0.69 | | | 0.00 | 0.50 | 0.68 | 0.66 | 0.75 |

Heavy Vehicle Rolling Hour Summary

7:00 AM to 9:00 AM

| Interval Start Time | Northbound Hwy 99 | | | Southbound Hwy 99 | | | Eastbound 14th St | | | Westbound 14th St | | | Interval Total | |
|---------------------------|----------------------|---|-------|----------------------|----|-------|----------------------|--|-------|----------------------|--|----|-------------------|-------|
| | T | R | Total | L | T | Total | | | Total | L | | R | | Total |
| 7:00 AM | 83 | 3 | 86 | 8 | 58 | 66 | | | 0 | 2 | | 16 | 18 | 170 |
| 7:15 AM | 100 | 1 | 101 | 13 | 63 | 76 | | | 0 | 2 | | 19 | 21 | 198 |
| 7:30 AM | 99 | 2 | 101 | 16 | 64 | 80 | | | 0 | 1 | | 14 | 15 | 196 |
| 7:45 AM | 88 | 2 | 90 | 22 | 71 | 93 | | | 0 | 2 | | 10 | 12 | 195 |
| 8:00 AM | 75 | 2 | 77 | 23 | 70 | 93 | | | 0 | 2 | | 10 | 12 | 182 |



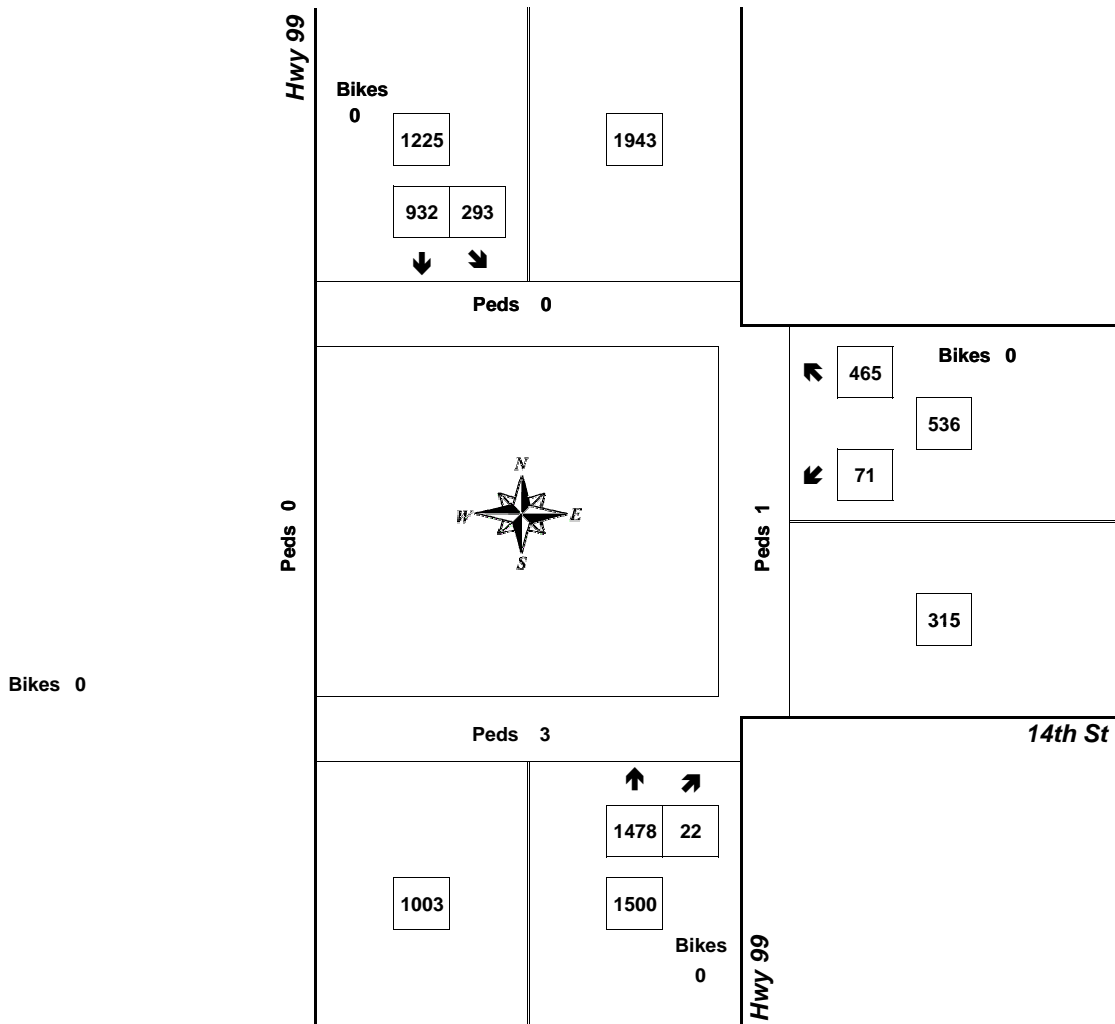
Peak Hour Summary



Clay Carney
(503) 833-2740

Hwy 99 & 14th St

7:10 AM to 8:10 AM
Thursday, January 26, 2017



| Approach | PHF | HV% | Volume |
|--------------|------|------|--------|
| EB | 0.00 | 0.0% | 0 |
| WB | 0.89 | 3.9% | 536 |
| NB | 0.95 | 6.4% | 1,500 |
| SB | 0.83 | 5.6% | 1,225 |
| Intersection | 0.94 | 5.7% | 3,261 |

Count Period: 7:00 AM to 9:00 AM

Total Vehicle Summary

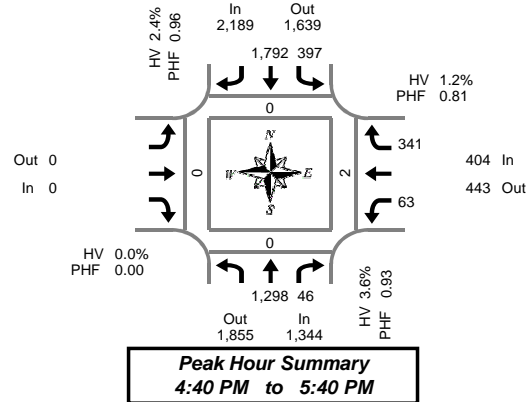


Clay Carney
(503) 833-2740

Hwy 99 & 14th St

Wednesday, January 25, 2017

4:00 PM to 6:00 PM



5-Minute Interval Summary 4:00 PM to 6:00 PM

| Interval Start Time | Northbound Hwy 99 | | | Southbound Hwy 99 | | | Eastbound 14th St | | | Westbound 14th St | | | Interval Total | Pedestrians Crosswalk | | | | |
|---------------------------|----------------------|----|-------|----------------------|-------|-------|----------------------|--|-------|----------------------|--|-----|-------------------|--------------------------|-------|-------|------|------|
| | T | R | Bikes | L | T | Bikes | | | Bikes | L | | R | | Bikes | North | South | East | West |
| 4:00 PM | 95 | 2 | 0 | 40 | 156 | 0 | | | 0 | 4 | | 25 | 0 | 322 | 0 | 0 | 0 | 0 |
| 4:05 PM | 95 | 4 | 0 | 34 | 131 | 0 | | | 0 | 5 | | 33 | 0 | 302 | 0 | 0 | 1 | 0 |
| 4:10 PM | 117 | 5 | 0 | 21 | 128 | 0 | | | 0 | 7 | | 21 | 0 | 299 | 1 | 0 | 0 | 0 |
| 4:15 PM | 106 | 3 | 0 | 35 | 154 | 0 | | | 0 | 7 | | 32 | 0 | 337 | 0 | 0 | 0 | 0 |
| 4:20 PM | 111 | 5 | 0 | 39 | 164 | 0 | | | 0 | 3 | | 26 | 0 | 348 | 0 | 0 | 0 | 0 |
| 4:25 PM | 103 | 3 | 0 | 32 | 143 | 0 | | | 0 | 5 | | 17 | 0 | 303 | 0 | 0 | 0 | 0 |
| 4:30 PM | 118 | 4 | 0 | 31 | 149 | 0 | | | 0 | 5 | | 27 | 0 | 334 | 0 | 0 | 0 | 0 |
| 4:35 PM | 99 | 1 | 0 | 36 | 153 | 0 | | | 0 | 5 | | 37 | 0 | 331 | 0 | 0 | 0 | 0 |
| 4:40 PM | 92 | 7 | 0 | 39 | 153 | 0 | | | 0 | 7 | | 26 | 0 | 324 | 0 | 0 | 0 | 0 |
| 4:45 PM | 104 | 2 | 0 | 32 | 144 | 0 | | | 0 | 5 | | 23 | 0 | 310 | 0 | 0 | 0 | 0 |
| 4:50 PM | 109 | 6 | 0 | 25 | 130 | 0 | | | 0 | 3 | | 17 | 0 | 290 | 0 | 0 | 1 | 0 |
| 4:55 PM | 96 | 5 | 0 | 38 | 154 | 0 | | | 0 | 8 | | 31 | 0 | 332 | 0 | 0 | 0 | 0 |
| 5:00 PM | 105 | 4 | 0 | 33 | 155 | 0 | | | 0 | 1 | | 33 | 0 | 331 | 0 | 0 | 0 | 0 |
| 5:05 PM | 126 | 5 | 0 | 22 | 149 | 0 | | | 0 | 6 | | 31 | 0 | 339 | 0 | 0 | 1 | 0 |
| 5:10 PM | 90 | 3 | 0 | 37 | 154 | 0 | | | 0 | 3 | | 38 | 0 | 325 | 0 | 0 | 0 | 0 |
| 5:15 PM | 107 | 3 | 0 | 30 | 160 | 0 | | | 0 | 7 | | 32 | 0 | 339 | 0 | 0 | 0 | 0 |
| 5:20 PM | 120 | 2 | 0 | 29 | 135 | 0 | | | 0 | 5 | | 39 | 0 | 330 | 0 | 0 | 0 | 0 |
| 5:25 PM | 120 | 4 | 0 | 33 | 153 | 0 | | | 0 | 2 | | 27 | 0 | 339 | 0 | 0 | 0 | 0 |
| 5:30 PM | 113 | 4 | 0 | 40 | 147 | 0 | | | 0 | 9 | | 19 | 0 | 332 | 0 | 0 | 0 | 0 |
| 5:35 PM | 116 | 1 | 0 | 39 | 158 | 0 | | | 0 | 7 | | 25 | 0 | 346 | 0 | 0 | 0 | 0 |
| 5:40 PM | 126 | 5 | 0 | 27 | 137 | 0 | | | 0 | 5 | | 21 | 0 | 321 | 0 | 0 | 1 | 0 |
| 5:45 PM | 98 | 3 | 0 | 38 | 139 | 0 | | | 0 | 2 | | 21 | 0 | 301 | 0 | 0 | 0 | 0 |
| 5:50 PM | 92 | 2 | 0 | 33 | 135 | 0 | | | 0 | 5 | | 21 | 0 | 288 | 0 | 0 | 0 | 0 |
| 5:55 PM | 75 | 6 | 0 | 37 | 125 | 0 | | | 0 | 5 | | 16 | 0 | 264 | 0 | 0 | 0 | 0 |
| Total Survey | 2,533 | 89 | 0 | 800 | 3,506 | 0 | | | 0 | 121 | | 638 | 0 | 7,687 | 1 | 0 | 4 | 0 |

15-Minute Interval Summary 4:00 PM to 6:00 PM

| Interval Start Time | Northbound Hwy 99 | | | Southbound Hwy 99 | | | Eastbound 14th St | | | Westbound 14th St | | | Interval Total | Pedestrians Crosswalk | | | | |
|---------------------------|----------------------|----|-------|----------------------|-------|-------|----------------------|--|-------|----------------------|--|-----|-------------------|--------------------------|-------|-------|------|------|
| | T | R | Bikes | L | T | Bikes | | | Bikes | L | | R | | Bikes | North | South | East | West |
| 4:00 PM | 307 | 11 | 0 | 95 | 415 | 0 | | | 0 | 16 | | 79 | 0 | 923 | 1 | 0 | 1 | 0 |
| 4:15 PM | 320 | 11 | 0 | 106 | 461 | 0 | | | 0 | 15 | | 75 | 0 | 988 | 0 | 0 | 0 | 0 |
| 4:30 PM | 309 | 12 | 0 | 106 | 455 | 0 | | | 0 | 17 | | 90 | 0 | 989 | 0 | 0 | 0 | 0 |
| 4:45 PM | 309 | 13 | 0 | 95 | 428 | 0 | | | 0 | 16 | | 71 | 0 | 932 | 0 | 0 | 1 | 0 |
| 5:00 PM | 321 | 12 | 0 | 92 | 458 | 0 | | | 0 | 10 | | 102 | 0 | 995 | 0 | 0 | 1 | 0 |
| 5:15 PM | 347 | 9 | 0 | 92 | 448 | 0 | | | 0 | 14 | | 98 | 0 | 1,008 | 0 | 0 | 0 | 0 |
| 5:30 PM | 355 | 10 | 0 | 106 | 442 | 0 | | | 0 | 21 | | 65 | 0 | 999 | 0 | 0 | 1 | 0 |
| 5:45 PM | 265 | 11 | 0 | 108 | 399 | 0 | | | 0 | 12 | | 58 | 0 | 853 | 0 | 0 | 0 | 0 |
| Total Survey | 2,533 | 89 | 0 | 800 | 3,506 | 0 | | | 0 | 121 | | 638 | 0 | 7,687 | 1 | 0 | 4 | 0 |

Peak Hour Summary 4:40 PM to 5:40 PM

| By Approach | Northbound Hwy 99 | | | | Southbound Hwy 99 | | | | Eastbound 14th St | | | | Westbound 14th St | | | | Total | Pedestrians Crosswalk | | | |
|----------------|----------------------|-------|-------|-------|----------------------|-------|-------|-------|----------------------|-----|-------|-------|----------------------|-----|-------|-------|-------|--------------------------|-------|------|------|
| | In | Out | Total | Bikes | In | Out | Total | Bikes | In | Out | Total | Bikes | In | Out | Total | Bikes | | North | South | East | West |
| Volume | 1,344 | 1,855 | 3,199 | 0 | 2,189 | 1,639 | 3,828 | 0 | 0 | 0 | 0 | 0 | 404 | 443 | 847 | 0 | 3,937 | 0 | 0 | 2 | 0 |
| %HV | 3.6% | | | | 2.4% | | | | 0.0% | | | | 1.2% | | | | 2.7% | | | | |
| PHF | 0.93 | | | | 0.96 | | | | 0.00 | | | | 0.81 | | | | 0.97 | | | | |

| By Movement | Northbound Hwy 99 | | | | Southbound Hwy 99 | | | | Eastbound 14th St | | | | Westbound 14th St | | | | Total |
|----------------|----------------------|------|-------|------|----------------------|-------|----|------|----------------------|------|----|------|----------------------|----|------|------|-------|
| | T | R | Total | L | T | Total | | | Total | L | | R | Total | | | | |
| Volume | 1,298 | 46 | 1,344 | 397 | 1,792 | 2,189 | | | 0 | 63 | | 341 | 404 | | | | 3,937 |
| %HV | NA | 3.6% | 2.2% | 3.6% | 1.3% | 2.7% | NA | 2.4% | NA | NA | NA | 0.0% | 1.6% | NA | 1.2% | 1.2% | 2.7% |
| PHF | 0.92 | 0.77 | 0.93 | 0.89 | 0.97 | 0.96 | | | 0.00 | 0.88 | | 0.78 | 0.81 | | | | 0.97 |

Rolling Hour Summary 4:00 PM to 6:00 PM

| Interval Start Time | Northbound Hwy 99 | | | Southbound Hwy 99 | | | Eastbound 14th St | | | Westbound 14th St | | | Interval Total | Pedestrians Crosswalk | | | | |
|---------------------------|----------------------|----|-------|----------------------|-------|-------|----------------------|--|-------|----------------------|--|-----|-------------------|--------------------------|-------|-------|------|------|
| | T | R | Bikes | L | T | Bikes | | | Bikes | L | | R | | Bikes | North | South | East | West |
| 4:00 PM | 1,245 | 47 | 0 | 402 | 1,759 | 0 | | | 0 | 64 | | 315 | 0 | 3,832 | 1 | 0 | 2 | 0 |
| 4:15 PM | 1,259 | 48 | 0 | 399 | 1,802 | 0 | | | 0 | 58 | | 338 | 0 | 3,904 | 0 | 0 | 2 | 0 |
| 4:30 PM | 1,286 | 46 | 0 | 385 | 1,789 | 0 | | | 0 | 57 | | 361 | 0 | 3,924 | 0 | 0 | 2 | 0 |
| 4:45 PM | 1,332 | 44 | 0 | 385 | 1,776 | 0 | | | 0 | 61 | | 336 | 0 | 3,934 | 0 | 0 | 3 | 0 |
| 5:00 PM | 1,288 | 42 | 0 | 398 | 1,747 | 0 | | | 0 | 57 | | 323 | 0 | 3,855 | 0 | 0 | 2 | 0 |

Heavy Vehicle Summary



Clay Carney
(503) 833-2740

Hwy 99 & 14th St

Wednesday, January 25, 2017

4:00 PM to 6:00 PM

Heavy Vehicle 5-Minute Interval Summary

4:00 PM to 6:00 PM

| Interval Start Time | Northbound Hwy 99 | | | Southbound Hwy 99 | | | Eastbound 14th St | | | Westbound 14th St | | | Interval Total |
|---------------------------|----------------------|---|-------|----------------------|-----|-------|----------------------|--|-------|----------------------|---|-------|-------------------|
| | T | R | Total | L | T | Total | | | Total | L | R | Total | |
| 4:00 PM | 4 | 0 | 4 | 1 | 8 | 9 | | | 0 | 0 | 0 | 0 | 13 |
| 4:05 PM | 8 | 0 | 8 | 0 | 8 | 8 | | | 0 | 1 | 0 | 1 | 17 |
| 4:10 PM | 6 | 0 | 6 | 0 | 3 | 3 | | | 0 | 1 | 0 | 1 | 10 |
| 4:15 PM | 7 | 0 | 7 | 3 | 2 | 5 | | | 0 | 0 | 0 | 0 | 12 |
| 4:20 PM | 3 | 0 | 3 | 0 | 6 | 6 | | | 0 | 0 | 0 | 0 | 9 |
| 4:25 PM | 7 | 0 | 7 | 1 | 3 | 4 | | | 0 | 0 | 1 | 1 | 12 |
| 4:30 PM | 3 | 0 | 3 | 1 | 7 | 8 | | | 0 | 0 | 2 | 2 | 13 |
| 4:35 PM | 7 | 0 | 7 | 1 | 6 | 7 | | | 0 | 0 | 0 | 0 | 14 |
| 4:40 PM | 3 | 0 | 3 | 0 | 2 | 2 | | | 0 | 0 | 0 | 0 | 5 |
| 4:45 PM | 4 | 0 | 4 | 0 | 4 | 4 | | | 0 | 0 | 0 | 0 | 8 |
| 4:50 PM | 2 | 0 | 2 | 1 | 4 | 5 | | | 0 | 0 | 0 | 0 | 7 |
| 4:55 PM | 3 | 1 | 4 | 1 | 3 | 4 | | | 0 | 1 | 0 | 1 | 9 |
| 5:00 PM | 4 | 0 | 4 | 1 | 5 | 6 | | | 0 | 0 | 0 | 0 | 10 |
| 5:05 PM | 4 | 0 | 4 | 0 | 5 | 5 | | | 0 | 0 | 0 | 0 | 9 |
| 5:10 PM | 2 | 0 | 2 | 0 | 4 | 4 | | | 0 | 0 | 0 | 0 | 6 |
| 5:15 PM | 7 | 0 | 7 | 0 | 3 | 3 | | | 0 | 0 | 0 | 0 | 10 |
| 5:20 PM | 5 | 0 | 5 | 1 | 4 | 5 | | | 0 | 0 | 4 | 4 | 14 |
| 5:25 PM | 5 | 0 | 5 | 1 | 4 | 5 | | | 0 | 0 | 0 | 0 | 10 |
| 5:30 PM | 5 | 0 | 5 | 0 | 5 | 5 | | | 0 | 0 | 0 | 0 | 10 |
| 5:35 PM | 3 | 0 | 3 | 0 | 5 | 5 | | | 0 | 0 | 0 | 0 | 8 |
| 5:40 PM | 4 | 0 | 4 | 1 | 2 | 3 | | | 0 | 0 | 0 | 0 | 7 |
| 5:45 PM | 3 | 0 | 3 | 0 | 4 | 4 | | | 0 | 0 | 0 | 0 | 7 |
| 5:50 PM | 3 | 0 | 3 | 0 | 2 | 2 | | | 0 | 0 | 1 | 1 | 6 |
| 5:55 PM | 1 | 0 | 1 | 0 | 1 | 1 | | | 0 | 1 | 0 | 1 | 3 |
| Total Survey | 103 | 1 | 104 | 13 | 100 | 113 | | | 0 | 4 | 8 | 12 | 229 |

Heavy Vehicle 15-Minute Interval Summary

4:00 PM to 6:00 PM

| Interval Start Time | Northbound Hwy 99 | | | | Southbound Hwy 99 | | | Eastbound 14th St | | | Westbound 14th St | | | Interval Total | |
|---------------------------|----------------------|-----|-------|-----|----------------------|-------|--|----------------------|-------|---|----------------------|-------|----|-------------------|-----|
| | T | R | Total | L | T | Total | | | Total | L | R | Total | | | |
| 4:00 PM | 18 | 0 | 18 | 1 | 19 | 20 | | | 0 | 2 | 0 | 2 | 40 | | |
| 4:15 PM | 17 | 0 | 17 | 4 | 11 | 15 | | | 0 | 0 | 1 | 1 | 33 | | |
| 4:30 PM | 13 | 0 | 13 | 2 | 15 | 17 | | | 0 | 0 | 2 | 2 | 32 | | |
| 4:45 PM | 9 | 1 | 10 | 2 | 11 | 13 | | | 0 | 1 | 0 | 1 | 24 | | |
| 5:00 PM | 10 | 0 | 10 | 1 | 14 | 15 | | | 0 | 0 | 0 | 0 | 25 | | |
| 5:15 PM | 17 | 0 | 17 | 2 | 11 | 13 | | | 0 | 0 | 4 | 4 | 34 | | |
| 5:30 PM | 12 | 0 | 12 | 1 | 12 | 13 | | | 0 | 0 | 0 | 0 | 25 | | |
| 5:45 PM | 7 | 0 | 7 | 0 | 7 | 7 | | | 0 | 1 | 1 | 2 | 16 | | |
| Total Survey | | 103 | 1 | 104 | 13 | 100 | | 113 | | 0 | 4 | | 8 | 12 | 229 |

Heavy Vehicle Peak Hour Summary

4:40 PM to 5:40 PM

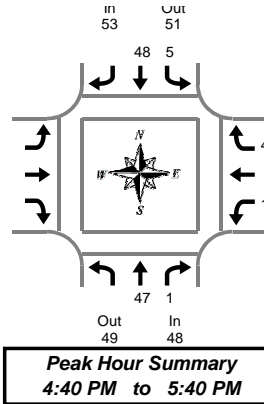
| By Approach | Northbound Hwy 99 | | | Southbound Hwy 99 | | | Eastbound 14th St | | | Westbound 14th St | | | Total |
|----------------|----------------------|-----|-------|----------------------|-----|-------|----------------------|-----|-------|----------------------|-----|-------|-------|
| | In | Out | Total | In | Out | Total | In | Out | Total | In | Out | Total | |
| Volume | 48 | 49 | 97 | 53 | 51 | 104 | 0 | 0 | 0 | 5 | 6 | 11 | 106 |
| PHF | 0.71 | | | 0.88 | | | 0.00 | | | 0.31 | | | 0.78 |

| By Movement | Northbound Hwy 99 | | | Southbound Hwy 99 | | | Eastbound 14th St | | | Westbound 14th St | | | Total |
|----------------|----------------------|------|-------|----------------------|------|-------|----------------------|--|-------|----------------------|------|-------|-------|
| | T | R | Total | L | T | Total | | | Total | L | R | Total | |
| Volume | 47 | 1 | 48 | 5 | 48 | 53 | | | 0 | 1 | 4 | 5 | 106 |
| PHF | 0.69 | 0.25 | 0.71 | 0.42 | 0.86 | 0.88 | | | 0.00 | 0.25 | 0.25 | 0.31 | 0.78 |

Heavy Vehicle Rolling Hour Summary

4:00 PM to 6:00 PM

| Interval Start Time | Northbound Hwy 99 | | | Southbound Hwy 99 | | | Eastbound 14th St | | | Westbound 14th St | | | Interval Total | |
|---------------------------|----------------------|---|-------|----------------------|----|-------|----------------------|--|-------|----------------------|--|---|-------------------|-------|
| | T | R | Total | L | T | Total | | | Total | L | | R | | Total |
| 4:00 PM | 57 | 1 | 58 | 9 | 56 | 65 | | | 0 | 3 | | 3 | 6 | 129 |
| 4:15 PM | 49 | 1 | 50 | 9 | 51 | 60 | | | 0 | 1 | | 3 | 4 | 114 |
| 4:30 PM | 49 | 1 | 50 | 7 | 51 | 58 | | | 0 | 1 | | 6 | 7 | 115 |
| 4:45 PM | 48 | 1 | 49 | 6 | 48 | 54 | | | 0 | 1 | | 4 | 5 | 108 |
| 5:00 PM | 46 | 0 | 46 | 4 | 44 | 48 | | | 0 | 1 | | 5 | 6 | 100 |



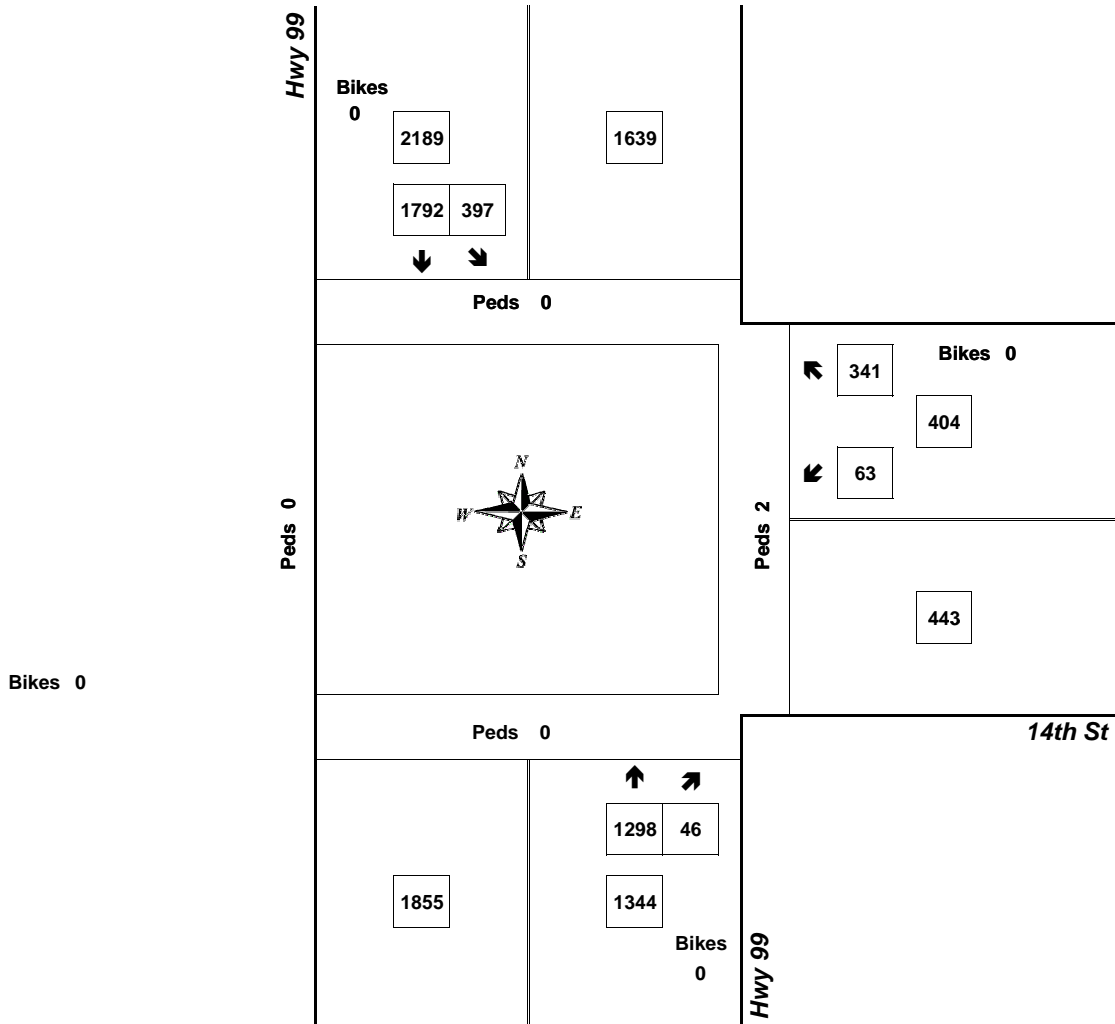
Peak Hour Summary



Clay Carney
(503) 833-2740

Hwy 99 & 14th St

4:40 PM to 5:40 PM
Wednesday, January 25, 2017

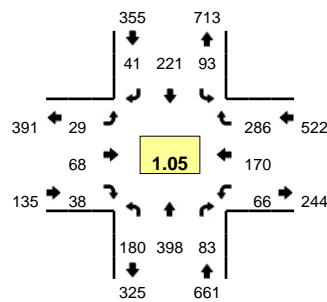


| Approach | PHF | HV% | Volume |
|--------------|------|------|--------|
| EB | 0.00 | 0.0% | 0 |
| WB | 0.81 | 1.2% | 404 |
| NB | 0.93 | 3.6% | 1,344 |
| SB | 0.96 | 2.4% | 2,189 |
| Intersection | 0.97 | 2.7% | 3,937 |

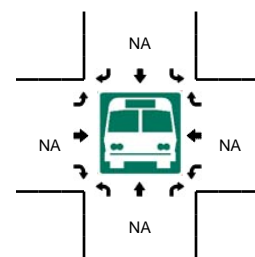
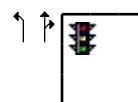
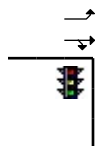
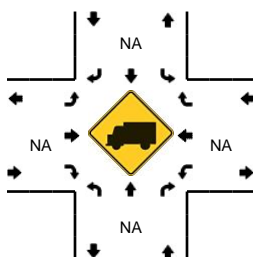
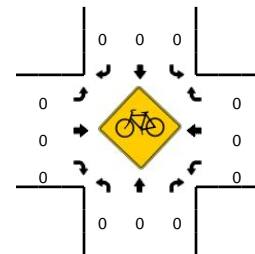
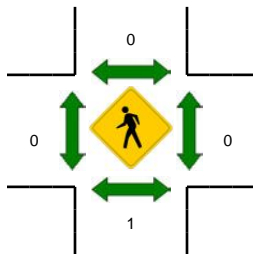
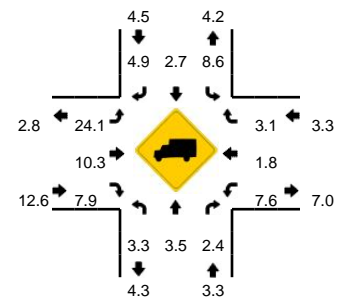
Count Period: 4:00 PM to 6:00 PM

LOCATION: S Redland Rd -- S Holcomb Blvd/Abernethy Rd
CITY/STATE: Oregon City, OR

QC JOB #: 13332119
DATE: Tue, Mar 17 2015



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

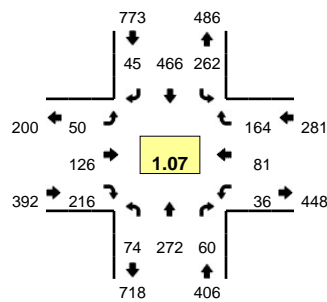


| 5-Min Count Period Beginning At | S Redland Rd (Northbound) | | | | S Redland Rd (Southbound) | | | | S Holcomb Blvd/Abernethy Rd (Eastbound) | | | | S Holcomb Blvd/Abernethy Rd (Westbound) | | | | Total | Hourly Totals |
|---------------------------------|---------------------------|------|-------|---|---------------------------|------|-------|---|-----------------------------------------|------|-------|---|-----------------------------------------|------|-------|---|--------------|---------------|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | | |
| 7:00 AM | 10 | 29 | 3 | 0 | 6 | 11 | 9 | 0 | 0 | 4 | 1 | 0 | 3 | 10 | 25 | 0 | 111 | |
| 7:05 AM | 23 | 34 | 4 | 0 | 6 | 11 | 0 | 0 | 1 | 2 | 0 | 0 | 5 | 16 | 20 | 0 | 122 | |
| 7:10 AM | 15 | 39 | 4 | 0 | 3 | 16 | 3 | 0 | 1 | 5 | 2 | 0 | 3 | 12 | 19 | 0 | 122 | |
| 7:15 AM | 10 | 40 | 5 | 0 | 8 | 18 | 2 | 0 | 0 | 6 | 3 | 0 | 2 | 12 | 34 | 0 | 140 | |
| 7:20 AM | 17 | 30 | 2 | 0 | 6 | 29 | 1 | 0 | 2 | 3 | 1 | 0 | 2 | 8 | 19 | 0 | 120 | |
| 7:25 AM | 14 | 29 | 1 | 0 | 11 | 12 | 5 | 0 | 2 | 8 | 7 | 0 | 3 | 15 | 32 | 0 | 139 | |
| 7:30 AM | 11 | 35 | 10 | 0 | 10 | 21 | 3 | 0 | 2 | 2 | 2 | 0 | 5 | 12 | 21 | 0 | 134 | |
| 7:35 AM | 17 | 35 | 7 | 0 | 3 | 14 | 6 | 0 | 4 | 4 | 2 | 0 | 3 | 16 | 23 | 0 | 134 | |
| 7:40 AM | 18 | 37 | 13 | 0 | 9 | 23 | 4 | 0 | 6 | 4 | 4 | 0 | 2 | 13 | 20 | 0 | 153 | |
| 7:45 AM | 14 | 32 | 13 | 0 | 11 | 10 | 3 | 0 | 2 | 9 | 6 | 0 | 8 | 20 | 20 | 0 | 148 | |
| 7:50 AM | 17 | 31 | 10 | 0 | 12 | 24 | 3 | 0 | 3 | 8 | 4 | 0 | 10 | 14 | 19 | 0 | 155 | |
| 7:55 AM | 11 | 35 | 8 | 0 | 12 | 21 | 3 | 0 | 4 | 11 | 4 | 0 | 9 | 16 | 28 | 0 | 162 | 1640 |
| 8:00 AM | 13 | 21 | 6 | 0 | 2 | 22 | 8 | 0 | 2 | 6 | 3 | 0 | 14 | 16 | 31 | 0 | 144 | 1673 |
| 8:05 AM | 8 | 30 | 10 | 0 | 10 | 13 | 2 | 0 | 1 | 5 | 2 | 0 | 10 | 9 | 21 | 0 | 121 | 1672 |
| 8:10 AM | 12 | 26 | 4 | 0 | 11 | 16 | 6 | 0 | 3 | 5 | 7 | 0 | 5 | 6 | 13 | 0 | 114 | 1664 |
| 8:15 AM | 11 | 34 | 2 | 0 | 9 | 19 | 4 | 0 | 1 | 5 | 7 | 0 | 5 | 5 | 13 | 0 | 115 | 1639 |
| 8:20 AM | 11 | 19 | 8 | 0 | 8 | 14 | 3 | 0 | 0 | 6 | 6 | 0 | 13 | 14 | 12 | 0 | 114 | 1633 |
| 8:25 AM | 8 | 29 | 6 | 0 | 8 | 29 | 2 | 0 | 0 | 9 | 7 | 0 | 7 | 1 | 13 | 0 | 119 | 1613 |
| 8:30 AM | 12 | 36 | 2 | 0 | 11 | 18 | 6 | 0 | 2 | 0 | 4 | 0 | 9 | 10 | 9 | 0 | 119 | 1598 |
| 8:35 AM | 16 | 33 | 6 | 0 | 9 | 24 | 1 | 0 | 0 | 4 | 3 | 0 | 4 | 7 | 13 | 0 | 120 | 1584 |
| 8:40 AM | 9 | 25 | 0 | 0 | 7 | 19 | 1 | 1 | 5 | 6 | 4 | 0 | 15 | 14 | 14 | 0 | 120 | 1551 |
| 8:45 AM | 18 | 30 | 12 | 0 | 4 | 17 | 4 | 0 | 2 | 4 | 5 | 0 | 7 | 7 | 15 | 0 | 125 | 1528 |
| 8:50 AM | 10 | 22 | 12 | 0 | 7 | 19 | 3 | 0 | 3 | 6 | 3 | 0 | 6 | 6 | 12 | 0 | 109 | 1482 |
| 8:55 AM | 14 | 17 | 7 | 0 | 14 | 17 | 5 | 0 | 2 | 5 | 1 | 0 | 6 | 6 | 15 | 0 | 109 | 1429 |
| Peak 15-Min Flowrates | Northbound | | | | Southbound | | | | Eastbound | | | | Westbound | | | | Total | |
| All Vehicles | 164 | 396 | 32 | 0 | 100 | 236 | 32 | 0 | 16 | 68 | 44 | 0 | 28 | 140 | 340 | 0 | 1596 | |
| Heavy Trucks | 4 | 20 | 4 | | 8 | 8 | 0 | | 4 | 4 | 4 | | 0 | 0 | 4 | | 60 | |
| Pedestrians | 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 | |
| Railroad | | | | | | | | | | | | | | | | | | |
| Stopped Buses | | | | | | | | | | | | | | | | | | |

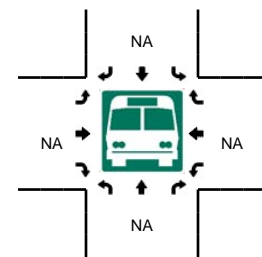
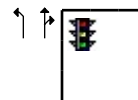
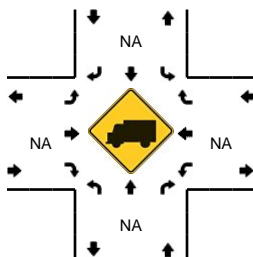
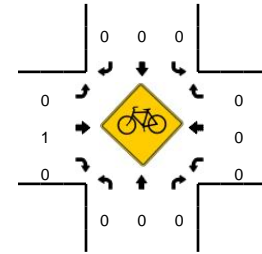
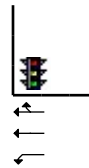
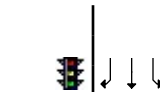
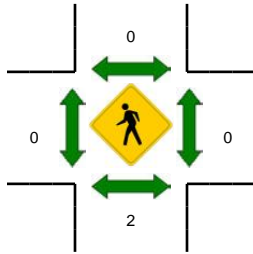
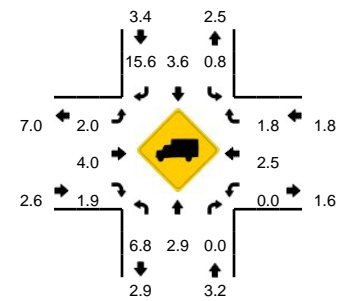
Comments:

LOCATION: S Redland Rd -- S Holcomb Blvd/Abernethy Rd
CITY/STATE: Oregon City, OR

QC JOB #: 13332120
DATE: Tue, Mar 17 2015



Peak-Hour: 4:40 PM -- 5:40 PM
Peak 15-Min: 5:10 PM -- 5:25 PM



| 5-Min Count Period Beginning At | S Redland Rd (Northbound) | | | | S Redland Rd (Southbound) | | | | S Holcomb Blvd/Abernethy Rd (Eastbound) | | | | S Holcomb Blvd/Abernethy Rd (Westbound) | | | | Total | Hourly Totals |
|---------------------------------|---------------------------|------|-------|---|---------------------------|------|-------|---|-----------------------------------------|------|-------|---|-----------------------------------------|------|-------|---|-------|---------------|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | | |
| 4:00 PM | 5 | 24 | 1 | 0 | 19 | 40 | 5 | 0 | 2 | 14 | 14 | 0 | 11 | 8 | 17 | 0 | 160 | |
| 4:05 PM | 6 | 23 | 5 | 0 | 24 | 33 | 2 | 0 | 4 | 11 | 17 | 0 | 9 | 4 | 21 | 0 | 159 | |
| 4:10 PM | 6 | 23 | 4 | 0 | 14 | 34 | 6 | 0 | 4 | 10 | 11 | 0 | 1 | 6 | 10 | 0 | 129 | |
| 4:15 PM | 6 | 17 | 5 | 0 | 23 | 42 | 6 | 0 | 2 | 12 | 21 | 0 | 1 | 5 | 10 | 0 | 150 | |
| 4:20 PM | 4 | 27 | 8 | 0 | 16 | 24 | 3 | 0 | 5 | 15 | 15 | 0 | 5 | 8 | 14 | 0 | 144 | |
| 4:25 PM | 9 | 15 | 1 | 0 | 15 | 37 | 6 | 0 | 5 | 16 | 14 | 0 | 6 | 5 | 10 | 0 | 139 | |
| 4:30 PM | 11 | 24 | 2 | 0 | 20 | 42 | 3 | 0 | 4 | 9 | 13 | 0 | 3 | 9 | 23 | 0 | 163 | |
| 4:35 PM | 4 | 31 | 8 | 0 | 18 | 47 | 5 | 0 | 4 | 17 | 17 | 0 | 3 | 11 | 15 | 0 | 180 | |
| 4:40 PM | 4 | 18 | 4 | 0 | 18 | 24 | 7 | 0 | 5 | 19 | 23 | 0 | 3 | 13 | 23 | 0 | 161 | |
| 4:45 PM | 2 | 31 | 7 | 0 | 21 | 34 | 4 | 0 | 3 | 9 | 19 | 0 | 6 | 1 | 13 | 0 | 150 | |
| 4:50 PM | 8 | 24 | 11 | 0 | 20 | 34 | 6 | 0 | 7 | 13 | 12 | 0 | 2 | 5 | 9 | 0 | 151 | |
| 4:55 PM | 7 | 16 | 3 | 0 | 23 | 36 | 3 | 0 | 1 | 11 | 22 | 0 | 5 | 6 | 18 | 0 | 151 | 1837 |
| 5:00 PM | 3 | 18 | 6 | 0 | 24 | 42 | 6 | 0 | 7 | 8 | 18 | 0 | 3 | 8 | 12 | 0 | 155 | 1832 |
| 5:05 PM | 8 | 22 | 3 | 0 | 29 | 43 | 3 | 0 | 3 | 6 | 18 | 0 | 6 | 7 | 13 | 0 | 161 | 1834 |
| 5:10 PM | 11 | 24 | 5 | 0 | 13 | 36 | 1 | 0 | 5 | 8 | 19 | 0 | 2 | 6 | 13 | 0 | 143 | 1848 |
| 5:15 PM | 4 | 20 | 2 | 0 | 14 | 39 | 3 | 0 | 2 | 13 | 14 | 0 | 3 | 12 | 11 | 0 | 137 | 1835 |
| 5:20 PM | 5 | 25 | 3 | 0 | 21 | 41 | 4 | 0 | 2 | 12 | 13 | 0 | 2 | 8 | 18 | 0 | 154 | 1845 |
| 5:25 PM | 7 | 36 | 6 | 0 | 30 | 47 | 2 | 0 | 1 | 6 | 18 | 0 | 2 | 5 | 9 | 0 | 169 | 1875 |
| 5:30 PM | 9 | 18 | 4 | 0 | 27 | 43 | 3 | 0 | 8 | 10 | 24 | 0 | 0 | 5 | 12 | 0 | 163 | 1875 |
| 5:35 PM | 6 | 20 | 6 | 0 | 22 | 47 | 3 | 0 | 6 | 11 | 16 | 0 | 2 | 5 | 13 | 0 | 157 | 1852 |
| 5:40 PM | 12 | 14 | 4 | 0 | 12 | 40 | 1 | 0 | 6 | 7 | 18 | 0 | 6 | 4 | 14 | 0 | 138 | 1829 |
| 5:45 PM | 6 | 23 | 6 | 0 | 20 | 33 | 2 | 0 | 2 | 15 | 14 | 0 | 5 | 8 | 13 | 0 | 147 | 1826 |
| 5:50 PM | 5 | 20 | 2 | 0 | 14 | 38 | 5 | 0 | 6 | 12 | 14 | 0 | 6 | 10 | 23 | 0 | 155 | 1830 |
| 5:55 PM | 13 | 17 | 5 | 0 | 23 | 38 | 3 | 0 | 3 | 9 | 16 | 0 | 8 | 7 | 12 | 0 | 154 | 1833 |
| Peak 15-Min Flowrates | Northbound | | | | Southbound | | | | Eastbound | | | | Westbound | | | | Total | |
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | | |
| All Vehicles | 80 | 276 | 40 | 0 | 192 | 464 | 32 | 0 | 36 | 132 | 184 | 0 | 28 | 104 | 168 | 0 | 1736 | |
| Heavy Trucks | 0 | 12 | 0 | 0 | 4 | 12 | 12 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 4 | 0 | 48 | |
| Pedestrians | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Bicycles | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Railroad | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Stopped Buses | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |

Comments:

Total Vehicle Summary

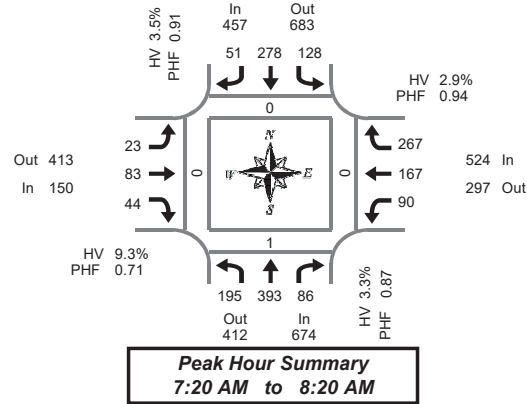


Clay Carney
(503) 833-2740

Redland Rd & Holcomb Blvd

Wednesday, January 25, 2017

7:00 AM to 9:00 AM



Peak Hour Summary
7:20 AM to 8:20 AM

5-Minute Interval Summary

7:00 AM to 9:00 AM

| Interval Start Time | Northbound Redland Rd | | | | Southbound Redland Rd | | | | Eastbound Holcomb Blvd | | | | Westbound Holcomb Blvd | | | | Interval Total | Pedestrians Crosswalk | | | |
|---------------------------|--------------------------|-----|-----|-------|--------------------------|-----|-----|-------|---------------------------|-----|----|-------|---------------------------|-----|-----|-------|-------------------|--------------------------|-------|------|------|
| | L | T | R | Bikes | L | T | R | Bikes | L | T | R | Bikes | L | T | R | Bikes | | North | South | East | West |
| 7:00 AM | 12 | 29 | 1 | 0 | 6 | 13 | 4 | 0 | 0 | 6 | 0 | 0 | 4 | 11 | 27 | 0 | 113 | 0 | 0 | 0 | 0 |
| 7:05 AM | 15 | 37 | 3 | 0 | 8 | 15 | 4 | 0 | 0 | 2 | 2 | 0 | 4 | 5 | 20 | 0 | 115 | 0 | 0 | 0 | 0 |
| 7:10 AM | 12 | 38 | 0 | 0 | 6 | 13 | 4 | 0 | 2 | 3 | 1 | 0 | 4 | 15 | 34 | 0 | 132 | 0 | 0 | 0 | 0 |
| 7:15 AM | 16 | 29 | 1 | 0 | 14 | 17 | 3 | 0 | 2 | 3 | 7 | 0 | 1 | 10 | 30 | 0 | 133 | 0 | 0 | 0 | 0 |
| 7:20 AM | 22 | 28 | 2 | 0 | 12 | 20 | 7 | 0 | 1 | 6 | 3 | 0 | 6 | 11 | 21 | 0 | 139 | 0 | 0 | 0 | 0 |
| 7:25 AM | 16 | 37 | 6 | 0 | 6 | 28 | 3 | 0 | 1 | 7 | 5 | 0 | 8 | 16 | 26 | 0 | 159 | 0 | 0 | 0 | 0 |
| 7:30 AM | 18 | 42 | 4 | 0 | 11 | 28 | 2 | 0 | 4 | 3 | 4 | 0 | 7 | 12 | 25 | 0 | 160 | 0 | 0 | 0 | 0 |
| 7:35 AM | 22 | 35 | 10 | 0 | 11 | 24 | 5 | 0 | 0 | 9 | 2 | 0 | 2 | 14 | 23 | 0 | 157 | 0 | 0 | 0 | 0 |
| 7:40 AM | 16 | 32 | 15 | 0 | 9 | 28 | 5 | 0 | 3 | 12 | 5 | 0 | 4 | 17 | 23 | 0 | 169 | 0 | 0 | 0 | 0 |
| 7:45 AM | 9 | 30 | 13 | 0 | 9 | 25 | 9 | 0 | 7 | 7 | 4 | 0 | 10 | 17 | 19 | 0 | 159 | 0 | 0 | 0 | 0 |
| 7:50 AM | 18 | 26 | 10 | 0 | 17 | 19 | 1 | 0 | 0 | 12 | 3 | 0 | 8 | 17 | 17 | 0 | 148 | 0 | 0 | 0 | 0 |
| 7:55 AM | 12 | 27 | 7 | 0 | 8 | 28 | 2 | 0 | 0 | 10 | 2 | 0 | 8 | 17 | 22 | 0 | 143 | 0 | 0 | 0 | 0 |
| 8:00 AM | 13 | 27 | 2 | 0 | 18 | 14 | 4 | 0 | 1 | 5 | 1 | 0 | 5 | 7 | 23 | 0 | 120 | 0 | 0 | 0 | 0 |
| 8:05 AM | 12 | 28 | 5 | 0 | 12 | 22 | 4 | 0 | 1 | 5 | 5 | 0 | 7 | 17 | 25 | 0 | 143 | 0 | 0 | 0 | 0 |
| 8:10 AM | 18 | 34 | 6 | 0 | 8 | 22 | 5 | 0 | 1 | 4 | 6 | 0 | 16 | 9 | 24 | 0 | 153 | 0 | 1 | 0 | 0 |
| 8:15 AM | 19 | 47 | 6 | 0 | 7 | 20 | 4 | 0 | 4 | 3 | 4 | 0 | 9 | 13 | 19 | 0 | 155 | 0 | 0 | 0 | 0 |
| 8:20 AM | 8 | 25 | 5 | 0 | 8 | 21 | 8 | 0 | 3 | 7 | 4 | 0 | 5 | 8 | 22 | 0 | 124 | 0 | 1 | 0 | 0 |
| 8:25 AM | 21 | 22 | 8 | 0 | 10 | 24 | 1 | 0 | 4 | 4 | 3 | 0 | 7 | 4 | 15 | 0 | 123 | 0 | 0 | 0 | 0 |
| 8:30 AM | 15 | 34 | 2 | 0 | 11 | 18 | 5 | 0 | 3 | 4 | 7 | 0 | 10 | 6 | 27 | 0 | 142 | 0 | 0 | 0 | 0 |
| 8:35 AM | 14 | 27 | 1 | 0 | 8 | 22 | 3 | 0 | 1 | 8 | 3 | 0 | 6 | 6 | 13 | 0 | 112 | 0 | 0 | 0 | 0 |
| 8:40 AM | 14 | 39 | 9 | 0 | 12 | 17 | 5 | 0 | 0 | 5 | 9 | 0 | 6 | 5 | 21 | 0 | 142 | 0 | 0 | 0 | 0 |
| 8:45 AM | 14 | 37 | 6 | 0 | 17 | 14 | 3 | 0 | 0 | 8 | 3 | 0 | 3 | 12 | 20 | 0 | 137 | 0 | 0 | 0 | 0 |
| 8:50 AM | 16 | 34 | 6 | 0 | 13 | 15 | 6 | 0 | 1 | 8 | 4 | 0 | 2 | 13 | 11 | 0 | 129 | 0 | 0 | 0 | 0 |
| 8:55 AM | 5 | 27 | 4 | 0 | 7 | 12 | 10 | 0 | 3 | 9 | 8 | 0 | 8 | 8 | 25 | 0 | 126 | 0 | 0 | 0 | 0 |
| Total Survey | 357 | 771 | 132 | 0 | 248 | 479 | 107 | 0 | 42 | 150 | 95 | 0 | 150 | 270 | 532 | 0 | 3,333 | 0 | 2 | 0 | 0 |

15-Minute Interval Summary

7:00 AM to 9:00 AM

| Interval Start Time | Northbound Redland Rd | | | | Southbound Redland Rd | | | | Eastbound Holcomb Blvd | | | | Westbound Holcomb Blvd | | | | Interval Total | Pedestrians Crosswalk | | | |
|---------------------------|--------------------------|-----|-----|-------|--------------------------|-----|-----|-------|---------------------------|-----|----|-------|---------------------------|-----|-----|-------|-------------------|--------------------------|-------|------|------|
| | L | T | R | Bikes | L | T | R | Bikes | L | T | R | Bikes | L | T | R | Bikes | | North | South | East | West |
| 7:00 AM | 39 | 104 | 4 | 0 | 20 | 41 | 12 | 0 | 2 | 11 | 3 | 0 | 12 | 31 | 81 | 0 | 360 | 0 | 0 | 0 | 0 |
| 7:15 AM | 54 | 94 | 9 | 0 | 32 | 65 | 13 | 0 | 4 | 16 | 15 | 0 | 15 | 37 | 77 | 0 | 431 | 0 | 0 | 0 | 0 |
| 7:30 AM | 56 | 109 | 29 | 0 | 31 | 80 | 12 | 0 | 7 | 24 | 11 | 0 | 13 | 43 | 71 | 0 | 486 | 0 | 0 | 0 | 0 |
| 7:45 AM | 39 | 83 | 30 | 0 | 34 | 72 | 12 | 0 | 7 | 29 | 9 | 0 | 26 | 51 | 58 | 0 | 450 | 0 | 0 | 0 | 0 |
| 8:00 AM | 43 | 89 | 13 | 0 | 38 | 58 | 13 | 0 | 3 | 14 | 12 | 0 | 28 | 33 | 72 | 0 | 416 | 0 | 1 | 0 | 0 |
| 8:15 AM | 48 | 94 | 19 | 0 | 25 | 65 | 13 | 0 | 11 | 14 | 11 | 0 | 21 | 25 | 56 | 0 | 402 | 0 | 1 | 0 | 0 |
| 8:30 AM | 43 | 100 | 12 | 0 | 31 | 57 | 13 | 0 | 4 | 17 | 19 | 0 | 22 | 17 | 61 | 0 | 396 | 0 | 0 | 0 | 0 |
| 8:45 AM | 35 | 98 | 16 | 0 | 37 | 41 | 19 | 0 | 4 | 25 | 15 | 0 | 13 | 33 | 56 | 0 | 392 | 0 | 0 | 0 | 0 |
| Total Survey | 357 | 771 | 132 | 0 | 248 | 479 | 107 | 0 | 42 | 150 | 95 | 0 | 150 | 270 | 532 | 0 | 3,333 | 0 | 2 | 0 | 0 |

Peak Hour Summary

7:20 AM to 8:20 AM

| By Approach | Northbound Redland Rd | | | | Southbound Redland Rd | | | | Eastbound Holcomb Blvd | | | | Westbound Holcomb Blvd | | | | Total | Pedestrians Crosswalk | | | |
|----------------|--------------------------|-----|-------|-------|--------------------------|-----|-------|-------|---------------------------|-----|-------|-------|---------------------------|-----|-------|-------|-------|--------------------------|-------|------|------|
| | In | Out | Total | Bikes | In | Out | Total | Bikes | In | Out | Total | Bikes | In | Out | Total | Bikes | | North | South | East | West |
| Volume | 674 | 412 | 1,086 | 0 | 457 | 683 | 1,140 | 0 | 150 | 413 | 563 | 0 | 524 | 297 | 821 | 0 | 1,805 | 0 | 1 | 0 | 0 |
| %HV | 3.3% | | | | 3.5% | | | | 9.3% | | | | 2.9% | | | | 3.7% | | | | |
| PHF | 0.87 | | | | 0.91 | | | | 0.71 | | | | 0.94 | | | | 0.93 | | | | |

| By Movement | Northbound Redland Rd | | | | Southbound Redland Rd | | | | Eastbound Holcomb Blvd | | | | Westbound Holcomb Blvd | | | | Total |
|----------------|--------------------------|------|------|-------|--------------------------|------|------|-------|---------------------------|------|------|-------|---------------------------|------|------|-------|-------|
| | L | T | R | Total | L | T | R | Total | L | T | R | Total | L | T | R | Total | |
| Volume | 195 | 393 | 86 | 674 | 128 | 278 | 51 | 457 | 23 | 83 | 44 | 150 | 90 | 167 | 267 | 524 | 1,805 |
| %HV | 2.1% | 3.6% | 4.7% | 3.3% | 6.3% | 1.8% | 5.9% | 3.5% | 26.1% | 7.2% | 4.5% | 9.3% | 4.4% | 3.0% | 2.2% | 2.9% | 3.7% |
| PHF | 0.87 | 0.86 | 0.57 | 0.87 | 0.74 | 0.87 | 0.67 | 0.91 | 0.58 | 0.67 | 0.73 | 0.71 | 0.70 | 0.82 | 0.90 | 0.94 | 0.93 |

Rolling Hour Summary

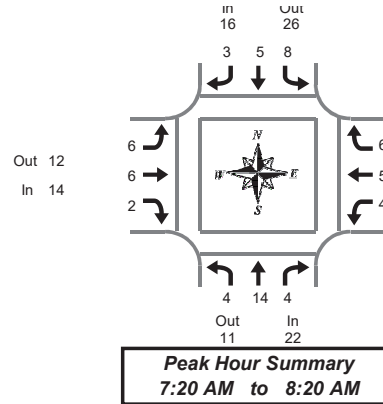
7:00 AM to 9:00 AM

| Interval Start Time | Northbound Redland Rd | | | | Southbound Redland Rd | | | | Eastbound Holcomb Blvd | | | | Westbound Holcomb Blvd | | | | Interval Total | Pedestrians Crosswalk | | | |
|---------------------------|--------------------------|-----|----|-------|--------------------------|-----|----|-------|---------------------------|----|----|-------|---------------------------|-----|-----|-------|-------------------|--------------------------|-------|------|------|
| | L | T | R | Bikes | L | T | R | Bikes | L | T | R | Bikes | L | T | R | Bikes | | North | South | East | West |
| 7:00 AM | 188 | 390 | 72 | 0 | 117 | 258 | 49 | 0 | 20 | 80 | 38 | 0 | 66 | 162 | 287 | 0 | 1,727 | 0 | 0 | 0 | 0 |
| 7:15 AM | 192 | 375 | 81 | 0 | 135 | 275 | 50 | 0 | 21 | 83 | 47 | 0 | 82 | 164 | 278 | 0 | 1,783 | 0 | 1 | 0 | 0 |
| 7:30 AM | 186 | 375 | 91 | 0 | 128 | 275 | 50 | 0 | 28 | 81 | 43 | 0 | 88 | 152 | 257 | 0 | 1,754 | 0 | 2 | 0 | 0 |
| 7:45 AM | 173 | 366 | 74 | 0 | 128 | 252 | 51 | 0 | 25 | 74 | 51 | 0 | 97 | 126 | 247 | 0 | 1,664 | 0 | 2 | 0 | 0 |
| 8:00 AM | 169 | 381 | 60 | 0 | 131 | 221 | 58 | 0 | 22 | 70 | 57 | 0 | 84 | 108 | 245 | 0 | 1,606 | 0 | 2 | 0 | 0 |

Heavy Vehicle Summary



Clay Carney
(503) 833-2740



Redland Rd & Holcomb Blvd

Wednesday, January 25, 2017

7:00 AM to 9:00 AM

Heavy Vehicle 5-Minute Interval Summary

7:00 AM to 9:00 AM

| Interval Start Time | Northbound Redland Rd | | | | Southbound Redland Rd | | | | Eastbound Holcomb Blvd | | | | Westbound Holcomb Blvd | | | | Interval Total |
|---------------------------|--------------------------|----|---|-------|--------------------------|----|---|-------|---------------------------|---|----|-------|---------------------------|----|----|-------|-------------------|
| | L | T | R | Total | L | T | R | Total | L | T | R | Total | L | T | R | Total | |
| 7:00 AM | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| 7:05 AM | 0 | 2 | 0 | 2 | 1 | 1 | 0 | 2 | 0 | 1 | 0 | 1 | 1 | 0 | 3 | 4 | 9 |
| 7:10 AM | 0 | 2 | 0 | 2 | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 1 | 1 | 1 | 3 | 7 |
| 7:15 AM | 1 | 4 | 0 | 5 | 2 | 1 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 10 |
| 7:20 AM | 0 | 2 | 0 | 2 | 0 | 0 | 2 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 |
| 7:25 AM | 0 | 5 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 6 |
| 7:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 1 | 0 | 3 | 0 | 0 | 1 | 1 | 4 |
| 7:35 AM | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 2 | 0 | 2 | 0 | 0 | 0 | 0 | 4 |
| 7:40 AM | 0 | 2 | 1 | 3 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 |
| 7:45 AM | 0 | 0 | 1 | 1 | 2 | 1 | 0 | 3 | 4 | 1 | 0 | 5 | 1 | 0 | 1 | 2 | 11 |
| 7:50 AM | 2 | 1 | 0 | 3 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 |
| 7:55 AM | 2 | 1 | 0 | 3 | 0 | 2 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 2 | 2 | 4 | 9 |
| 8:00 AM | 0 | 1 | 0 | 1 | 2 | 0 | 0 | 2 | 0 | 1 | 0 | 1 | 0 | 1 | 1 | 2 | 6 |
| 8:05 AM | 0 | 0 | 2 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 2 | 0 | 3 | 6 |
| 8:10 AM | 0 | 1 | 0 | 1 | 1 | 0 | 2 | 3 | 0 | 0 | 1 | 1 | 2 | 0 | 0 | 2 | 6 |
| 8:15 AM | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 3 |
| 8:20 AM | 0 | 1 | 0 | 1 | 2 | 0 | 0 | 2 | 2 | 0 | 1 | 3 | 1 | 0 | 1 | 2 | 8 |
| 8:25 AM | 0 | 3 | 0 | 3 | 1 | 0 | 0 | 1 | 1 | 0 | 1 | 2 | 0 | 0 | 0 | 0 | 6 |
| 8:30 AM | 0 | 3 | 1 | 4 | 2 | 2 | 0 | 4 | 0 | 0 | 2 | 2 | 1 | 0 | 2 | 3 | 13 |
| 8:35 AM | 0 | 0 | 0 | 0 | 0 | 4 | 2 | 6 | 0 | 1 | 1 | 2 | 0 | 1 | 0 | 1 | 9 |
| 8:40 AM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 1 | 2 | 0 | 2 | 1 | 3 | 6 |
| 8:45 AM | 0 | 2 | 0 | 2 | 1 | 1 | 0 | 2 | 0 | 0 | 2 | 2 | 0 | 0 | 0 | 0 | 6 |
| 8:50 AM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 2 | 3 |
| 8:55 AM | 0 | 1 | 0 | 1 | 0 | 2 | 2 | 4 | 0 | 0 | 2 | 2 | 0 | 1 | 0 | 1 | 8 |
| Total Survey | 5 | 33 | 5 | 43 | 19 | 18 | 7 | 44 | 10 | 9 | 12 | 31 | 8 | 13 | 15 | 36 | 154 |

Heavy Vehicle 15-Minute Interval Summary

7:00 AM to 9:00 AM

| Interval Start Time | Northbound Redland Rd | | | | Southbound Redland Rd | | | | Eastbound Holcomb Blvd | | | | Westbound Holcomb Blvd | | | | Interval Total |
|---------------------------|--------------------------|----|---|-------|--------------------------|----|---|-------|---------------------------|---|----|-------|---------------------------|----|----|-------|-------------------|
| | L | T | R | Total | L | T | R | Total | L | T | R | Total | L | T | R | Total | |
| 7:00 AM | 0 | 5 | 0 | 5 | 3 | 1 | 0 | 4 | 1 | 1 | 0 | 2 | 2 | 1 | 4 | 7 | 18 |
| 7:15 AM | 1 | 11 | 0 | 12 | 2 | 1 | 2 | 5 | 0 | 1 | 0 | 1 | 0 | 1 | 1 | 2 | 20 |
| 7:30 AM | 0 | 3 | 1 | 4 | 2 | 0 | 0 | 2 | 2 | 3 | 0 | 5 | 0 | 0 | 1 | 1 | 12 |
| 7:45 AM | 4 | 2 | 1 | 7 | 3 | 3 | 0 | 6 | 4 | 1 | 0 | 5 | 1 | 2 | 3 | 6 | 24 |
| 8:00 AM | 0 | 2 | 2 | 4 | 2 | 2 | 0 | 4 | 0 | 1 | 2 | 3 | 3 | 3 | 1 | 7 | 18 |
| 8:15 AM | 0 | 4 | 0 | 4 | 4 | 0 | 1 | 5 | 3 | 0 | 2 | 5 | 1 | 0 | 2 | 3 | 17 |
| 8:30 AM | 0 | 3 | 1 | 4 | 2 | 7 | 2 | 11 | 0 | 2 | 4 | 6 | 1 | 3 | 3 | 7 | 28 |
| 8:45 AM | 0 | 3 | 0 | 3 | 1 | 4 | 2 | 7 | 0 | 0 | 4 | 4 | 0 | 3 | 0 | 3 | 17 |
| Total Survey | 5 | 33 | 5 | 43 | 19 | 18 | 7 | 44 | 10 | 9 | 12 | 31 | 8 | 13 | 15 | 36 | 154 |

Heavy Vehicle Peak Hour Summary

7:20 AM to 8:20 AM

| By Approach | Northbound Redland Rd | | | Southbound Redland Rd | | | Eastbound Holcomb Blvd | | | Westbound Holcomb Blvd | | | Total |
|----------------|--------------------------|-----|-------|--------------------------|-----|-------|---------------------------|-----|-------|---------------------------|-----|-------|-------|
| | In | Out | Total | In | Out | Total | In | Out | Total | In | Out | Total | |
| Volume | 22 | 11 | 33 | 16 | 26 | 42 | 14 | 12 | 26 | 15 | 18 | 33 | 67 |
| PHF | 0.79 | | | 0.67 | | | 0.50 | | | 0.42 | | | 0.70 |

| By Movement | Northbound Redland Rd | | | | Southbound Redland Rd | | | | Eastbound Holcomb Blvd | | | | Westbound Holcomb Blvd | | | | Total |
|----------------|--------------------------|------|------|-------|--------------------------|------|------|-------|---------------------------|------|------|-------|---------------------------|------|------|-------|-------|
| | L | T | R | Total | L | T | R | Total | L | T | R | Total | L | T | R | Total | |
| Volume | 4 | 14 | 4 | 22 | 8 | 5 | 3 | 16 | 6 | 2 | 2 | 14 | 4 | 5 | 6 | 15 | 67 |
| PHF | 0.25 | 0.50 | 0.50 | 0.79 | 0.50 | 0.42 | 0.38 | 0.67 | 0.38 | 0.38 | 0.25 | 0.50 | 0.33 | 0.25 | 0.50 | 0.42 | 0.70 |

Heavy Vehicle Rolling Hour Summary

7:00 AM to 9:00 AM

| Interval Start Time | Northbound Redland Rd | | | | Southbound Redland Rd | | | | Eastbound Holcomb Blvd | | | | Westbound Holcomb Blvd | | | | Interval Total |
|---------------------------|--------------------------|----|---|-------|--------------------------|----|---|-------|---------------------------|---|----|-------|---------------------------|---|---|-------|-------------------|
| | L | T | R | Total | L | T | R | Total | L | T | R | Total | L | T | R | Total | |
| 7:00 AM | 5 | 21 | 2 | 28 | 10 | 5 | 2 | 17 | 7 | 6 | 0 | 13 | 3 | 4 | 9 | 16 | 74 |
| 7:15 AM | 5 | 18 | 4 | 27 | 9 | 6 | 2 | 17 | 6 | 6 | 2 | 14 | 4 | 6 | 6 | 16 | 74 |
| 7:30 AM | 4 | 11 | 4 | 19 | 11 | 5 | 1 | 17 | 9 | 5 | 4 | 18 | 5 | 5 | 7 | 17 | 71 |
| 7:45 AM | 4 | 11 | 4 | 19 | 11 | 12 | 3 | 26 | 7 | 4 | 8 | 19 | 6 | 8 | 9 | 23 | 87 |
| 8:00 AM | 0 | 12 | 3 | 15 | 9 | 13 | 5 | 27 | 3 | 3 | 12 | 18 | 5 | 9 | 6 | 20 | 80 |

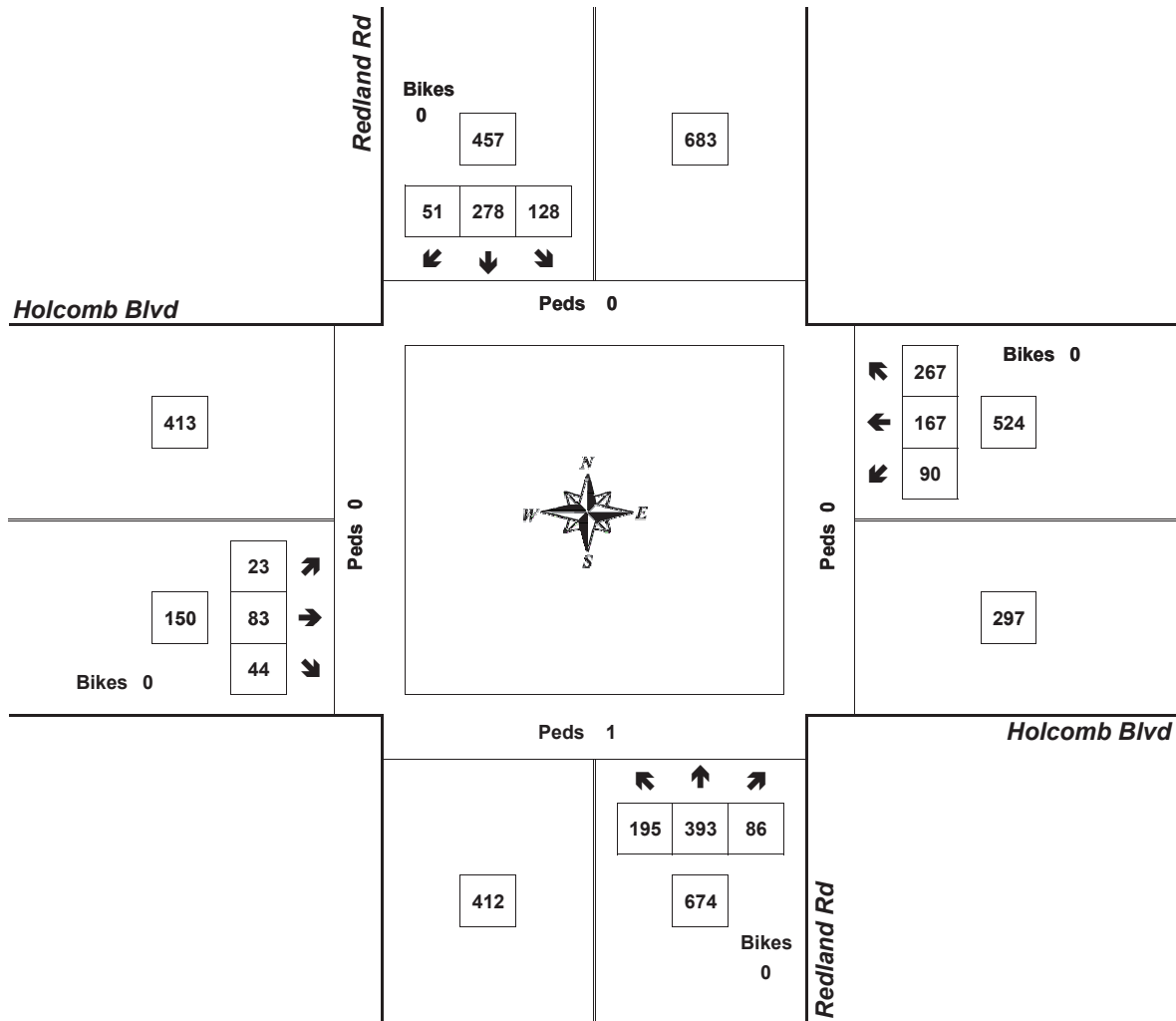
Peak Hour Summary



Clay Carney
(503) 833-2740

Redland Rd & Holcomb Blvd

7:20 AM to 8:20 AM
Wednesday, January 25, 2017



| Approach | PHF | HV% | Volume |
|---------------------|-------------|-------------|--------------|
| EB | 0.71 | 9.3% | 150 |
| WB | 0.94 | 2.9% | 524 |
| NB | 0.87 | 3.3% | 674 |
| SB | 0.91 | 3.5% | 457 |
| Intersection | 0.93 | 3.7% | 1,805 |

Count Period: 7:00 AM to 9:00 AM

Total Vehicle Summary



Clay Carney
(503) 833-2740

Redland Rd & Holcomb Blvd

Tuesday, January 24, 2017

4:00 PM to 6:00 PM

5-Minute Interval Summary

4:00 PM to 6:00 PM

| Interval Start Time | Northbound Redland Rd | | | | Southbound Redland Rd | | | | Eastbound Holcomb Blvd | | | | Westbound Holcomb Blvd | | | | Interval Total | Pedestrians Crosswalk | | | |
|---------------------------|--------------------------|-----|-----|-------|--------------------------|-------|-----|-------|---------------------------|-----|-----|-------|---------------------------|-----|-----|-------|-------------------|--------------------------|-------|------|------|
| | L | T | R | Bikes | L | T | R | Bikes | L | T | R | Bikes | L | T | R | Bikes | | North | South | East | West |
| 4:00 PM | 4 | 24 | 7 | 0 | 28 | 38 | 4 | 0 | 5 | 10 | 3 | 0 | 8 | 6 | 18 | 0 | 155 | 0 | 0 | 0 | 0 |
| 4:05 PM | 4 | 20 | 7 | 0 | 23 | 34 | 3 | 0 | 5 | 13 | 9 | 0 | 1 | 9 | 17 | 0 | 145 | 0 | 0 | 0 | 0 |
| 4:10 PM | 3 | 29 | 4 | 0 | 26 | 40 | 5 | 0 | 1 | 10 | 7 | 0 | 6 | 11 | 21 | 0 | 163 | 0 | 0 | 0 | 0 |
| 4:15 PM | 6 | 19 | 2 | 0 | 27 | 43 | 7 | 0 | 2 | 14 | 10 | 0 | 0 | 10 | 18 | 0 | 158 | 0 | 0 | 0 | 0 |
| 4:20 PM | 9 | 24 | 4 | 0 | 23 | 39 | 4 | 0 | 2 | 10 | 11 | 0 | 4 | 10 | 20 | 0 | 160 | 0 | 0 | 0 | 0 |
| 4:25 PM | 8 | 25 | 2 | 0 | 28 | 40 | 6 | 0 | 0 | 7 | 9 | 0 | 0 | 11 | 11 | 0 | 147 | 0 | 0 | 0 | 0 |
| 4:30 PM | 5 | 22 | 5 | 0 | 15 | 49 | 3 | 0 | 2 | 16 | 14 | 0 | 1 | 9 | 20 | 0 | 161 | 0 | 0 | 0 | 0 |
| 4:35 PM | 4 | 25 | 4 | 0 | 26 | 43 | 7 | 0 | 3 | 11 | 4 | 0 | 5 | 6 | 21 | 0 | 159 | 0 | 0 | 0 | 0 |
| 4:40 PM | 4 | 27 | 2 | 0 | 16 | 39 | 6 | 0 | 5 | 11 | 11 | 0 | 7 | 8 | 18 | 0 | 154 | 0 | 0 | 0 | 0 |
| 4:45 PM | 8 | 27 | 5 | 0 | 30 | 47 | 4 | 0 | 3 | 7 | 11 | 0 | 1 | 5 | 15 | 0 | 163 | 0 | 1 | 0 | 0 |
| 4:50 PM | 2 | 22 | 3 | 0 | 21 | 46 | 5 | 0 | 6 | 11 | 9 | 0 | 2 | 8 | 13 | 0 | 148 | 0 | 0 | 0 | 0 |
| 4:55 PM | 8 | 21 | 4 | 0 | 18 | 45 | 6 | 0 | 1 | 9 | 14 | 0 | 8 | 7 | 18 | 0 | 159 | 0 | 0 | 0 | 0 |
| 5:00 PM | 4 | 25 | 4 | 0 | 29 | 44 | 10 | 0 | 6 | 10 | 9 | 0 | 5 | 5 | 14 | 0 | 165 | 0 | 0 | 0 | 0 |
| 5:05 PM | 9 | 32 | 5 | 0 | 23 | 43 | 0 | 0 | 8 | 12 | 8 | 0 | 4 | 9 | 22 | 0 | 175 | 0 | 1 | 0 | 0 |
| 5:10 PM | 5 | 28 | 7 | 0 | 20 | 42 | 2 | 0 | 5 | 18 | 18 | 0 | 5 | 9 | 17 | 0 | 176 | 0 | 0 | 0 | 0 |
| 5:15 PM | 6 | 26 | 5 | 0 | 22 | 34 | 8 | 0 | 2 | 9 | 21 | 0 | 5 | 9 | 7 | 0 | 154 | 0 | 0 | 0 | 0 |
| 5:20 PM | 4 | 23 | 4 | 0 | 30 | 39 | 6 | 0 | 0 | 6 | 16 | 0 | 4 | 6 | 11 | 0 | 149 | 0 | 0 | 0 | 0 |
| 5:25 PM | 3 | 19 | 8 | 0 | 20 | 44 | 2 | 0 | 3 | 11 | 21 | 0 | 3 | 9 | 9 | 0 | 152 | 0 | 0 | 0 | 0 |
| 5:30 PM | 7 | 17 | 5 | 0 | 19 | 43 | 8 | 0 | 8 | 10 | 18 | 1 | 8 | 9 | 18 | 0 | 170 | 0 | 2 | 0 | 0 |
| 5:35 PM | 2 | 19 | 5 | 0 | 32 | 43 | 4 | 0 | 4 | 20 | 13 | 0 | 4 | 5 | 11 | 0 | 162 | 0 | 0 | 0 | 0 |
| 5:40 PM | 5 | 17 | 5 | 0 | 22 | 54 | 1 | 0 | 3 | 11 | 16 | 0 | 1 | 7 | 8 | 0 | 150 | 0 | 0 | 0 | 0 |
| 5:45 PM | 5 | 25 | 3 | 0 | 27 | 34 | 3 | 0 | 3 | 14 | 18 | 0 | 3 | 5 | 8 | 0 | 148 | 0 | 0 | 0 | 0 |
| 5:50 PM | 7 | 15 | 2 | 0 | 26 | 45 | 5 | 0 | 2 | 4 | 14 | 0 | 2 | 4 | 8 | 0 | 134 | 0 | 0 | 0 | 0 |
| 5:55 PM | 5 | 18 | 2 | 0 | 21 | 32 | 1 | 0 | 2 | 18 | 16 | 0 | 2 | 8 | 10 | 0 | 135 | 0 | 0 | 0 | 0 |
| Total Survey | 127 | 549 | 104 | 0 | 572 | 1,000 | 110 | 0 | 81 | 272 | 300 | 1 | 89 | 185 | 353 | 0 | 3,742 | 0 | 4 | 0 | 0 |

15-Minute Interval Summary

4:00 PM to 6:00 PM

| Interval Start Time | Northbound Redland Rd | | | | Southbound Redland Rd | | | | Eastbound Holcomb Blvd | | | | Westbound Holcomb Blvd | | | | Interval Total | Pedestrians Crosswalk | | | |
|---------------------------|--------------------------|-----|-----|-------|--------------------------|-------|-----|-------|---------------------------|-----|-----|-------|---------------------------|-----|-----|-------|-------------------|--------------------------|-------|------|------|
| | L | T | R | Bikes | L | T | R | Bikes | L | T | R | Bikes | L | T | R | Bikes | | North | South | East | West |
| 4:00 PM | 11 | 73 | 18 | 0 | 77 | 112 | 12 | 0 | 11 | 33 | 19 | 0 | 15 | 26 | 56 | 0 | 463 | 0 | 0 | 0 | 0 |
| 4:15 PM | 23 | 68 | 8 | 0 | 78 | 122 | 17 | 0 | 4 | 31 | 30 | 0 | 4 | 31 | 49 | 0 | 465 | 0 | 0 | 0 | 0 |
| 4:30 PM | 13 | 74 | 11 | 0 | 57 | 131 | 16 | 0 | 10 | 38 | 29 | 0 | 13 | 23 | 59 | 0 | 474 | 0 | 0 | 0 | 0 |
| 4:45 PM | 18 | 70 | 12 | 0 | 69 | 138 | 15 | 0 | 10 | 27 | 34 | 0 | 11 | 20 | 46 | 0 | 470 | 0 | 1 | 0 | 0 |
| 5:00 PM | 18 | 85 | 16 | 0 | 72 | 129 | 12 | 0 | 19 | 40 | 35 | 0 | 14 | 23 | 53 | 0 | 516 | 0 | 1 | 0 | 0 |
| 5:15 PM | 13 | 68 | 17 | 0 | 72 | 117 | 16 | 0 | 5 | 26 | 58 | 0 | 12 | 24 | 27 | 0 | 455 | 0 | 0 | 0 | 0 |
| 5:30 PM | 14 | 53 | 15 | 0 | 73 | 140 | 13 | 0 | 15 | 41 | 47 | 1 | 13 | 21 | 37 | 0 | 482 | 0 | 2 | 0 | 0 |
| 5:45 PM | 17 | 58 | 7 | 0 | 74 | 111 | 9 | 0 | 7 | 36 | 48 | 0 | 7 | 17 | 26 | 0 | 417 | 0 | 0 | 0 | 0 |
| Total Survey | 127 | 549 | 104 | 0 | 572 | 1,000 | 110 | 0 | 81 | 272 | 300 | 1 | 89 | 185 | 353 | 0 | 3,742 | 0 | 4 | 0 | 0 |

Peak Hour Summary

4:40 PM to 5:40 PM

| By Approach | Northbound Redland Rd | | | | Southbound Redland Rd | | | | Eastbound Holcomb Blvd | | | | Westbound Holcomb Blvd | | | | Total | Pedestrians Crosswalk | | | |
|----------------|--------------------------|-----|-------|-------|--------------------------|-----|-------|-------|---------------------------|-----|-------|-------|---------------------------|-----|-------|-------|-------|--------------------------|-------|------|------|
| | In | Out | Total | Bikes | In | Out | Total | Bikes | In | Out | Total | Bikes | In | Out | Total | Bikes | | North | South | East | West |
| Volume | 405 | 734 | 1,139 | 0 | 850 | 510 | 1,360 | 0 | 354 | 212 | 566 | 1 | 318 | 471 | 789 | 0 | 1,927 | 0 | 4 | 0 | 0 |
| %HV | 1.7% | | | | 1.6% | | | | 1.7% | | | | 0.9% | | | | 1.6% | | | | |
| PHF | 0.82 | | | | 0.95 | | | | 0.82 | | | | 0.86 | | | | 0.93 | | | | |

| By Movement | Northbound Redland Rd | | | | Southbound Redland Rd | | | | Eastbound Holcomb Blvd | | | | Westbound Holcomb Blvd | | | | Total |
|----------------|--------------------------|------|------|-------|--------------------------|------|-------|-------|---------------------------|------|------|-------|---------------------------|------|------|-------|-------|
| | L | T | R | Total | L | T | R | Total | L | T | R | Total | L | T | R | Total | |
| Volume | 62 | 286 | 57 | 405 | 280 | 509 | 61 | 850 | 51 | 134 | 169 | 354 | 56 | 89 | 173 | 318 | 1,927 |
| %HV | 1.6% | 2.1% | 0.0% | 1.7% | 0.4% | 1.2% | 11.5% | 1.6% | 0.0% | 2.2% | 1.8% | 1.7% | 0.0% | 1.1% | 1.2% | 0.9% | 1.6% |
| PHF | 0.74 | 0.83 | 0.79 | 0.82 | 0.97 | 0.92 | 0.73 | 0.95 | 0.67 | 0.82 | 0.73 | 0.82 | 0.82 | 0.82 | 0.80 | 0.86 | 0.93 |

Rolling Hour Summary

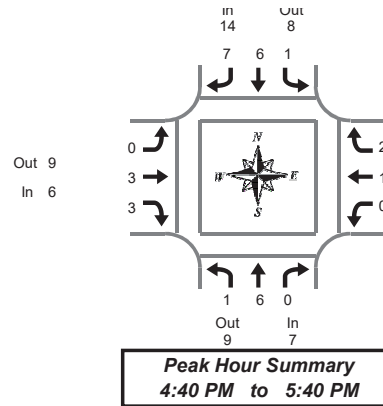
4:00 PM to 6:00 PM

| Interval Start Time | Northbound Redland Rd | | | | Southbound Redland Rd | | | | Eastbound Holcomb Blvd | | | | Westbound Holcomb Blvd | | | | Interval Total | Pedestrians Crosswalk | | | |
|---------------------------|--------------------------|-----|----|-------|--------------------------|-----|----|-------|---------------------------|-----|-----|-------|---------------------------|-----|-----|-------|-------------------|--------------------------|-------|------|------|
| | L | T | R | Bikes | L | T | R | Bikes | L | T | R | Bikes | L | T | R | Bikes | | North | South | East | West |
| 4:00 PM | 65 | 285 | 49 | 0 | 281 | 503 | 60 | 0 | 35 | 129 | 112 | 0 | 43 | 100 | 210 | 0 | 1,872 | 0 | 1 | 0 | 0 |
| 4:15 PM | 72 | 297 | 47 | 0 | 276 | 520 | 60 | 0 | 43 | 136 | 128 | 0 | 42 | 97 | 207 | 0 | 1,925 | 0 | 2 | 0 | 0 |
| 4:30 PM | 62 | 297 | 56 | 0 | 270 | 515 | 59 | 0 | 44 | 131 | 156 | 0 | 50 | 90 | 185 | 0 | 1,915 | 0 | 2 | 0 | 0 |
| 4:45 PM | 63 | 276 | 60 | 0 | 286 | 524 | 56 | 0 | 49 | 134 | 174 | 1 | 50 | 88 | 163 | 0 | 1,923 | 0 | 4 | 0 | 0 |
| 5:00 PM | 62 | 264 | 55 | 0 | 291 | 497 | 50 | 0 | 46 | 143 | 188 | 1 | 46 | 85 | 143 | 0 | 1,870 | 0 | 3 | 0 | 0 |

Heavy Vehicle Summary



Clay Carney
(503) 833-2740



Redland Rd & Holcomb Blvd

Tuesday, January 24, 2017

4:00 PM to 6:00 PM

Heavy Vehicle 5-Minute Interval Summary

4:00 PM to 6:00 PM

| Interval Start Time | Northbound Redland Rd | | | | Southbound Redland Rd | | | | Eastbound Holcomb Blvd | | | | Westbound Holcomb Blvd | | | | Interval Total |
|---------------------------|--------------------------|----|---|-------|--------------------------|----|---|-------|---------------------------|---|---|-------|---------------------------|---|---|-------|-------------------|
| | L | T | R | Total | L | T | R | Total | L | T | R | Total | L | T | R | Total | |
| 4:00 PM | 0 | 1 | 0 | 1 | 0 | 2 | 0 | 2 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 3 | 6 |
| 4:05 PM | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 3 | 0 | 1 | 4 | 0 | 1 | 2 | 3 | 8 |
| 4:10 PM | 1 | 1 | 0 | 2 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 2 | 5 |
| 4:15 PM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 2 | 3 | 0 | 1 | 0 | 1 | 5 |
| 4:20 PM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 4:25 PM | 0 | 1 | 0 | 1 | 2 | 1 | 0 | 3 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 5 |
| 4:30 PM | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 2 | 1 | 3 | 0 | 0 | 0 | 0 | 5 |
| 4:35 PM | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 2 | 4 | 4 |
| 4:40 PM | 0 | 1 | 0 | 1 | 0 | 0 | 2 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 4 |
| 4:45 PM | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| 4:50 PM | 0 | 0 | 0 | 0 | 0 | 3 | 1 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 |
| 4:55 PM | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 1 | 1 | 2 | 0 | 0 | 0 | 0 | 3 |
| 5:00 PM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 2 |
| 5:05 PM | 1 | 1 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 1 | 2 | 5 |
| 5:10 PM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 5:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 5:20 PM | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 5:25 PM | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| 5:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 2 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 3 |
| 5:35 PM | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 3 |
| 5:40 PM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 5:45 PM | 0 | 1 | 0 | 1 | 1 | 1 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 |
| 5:50 PM | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 2 | 3 |
| 5:55 PM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 2 |
| Total Survey | 2 | 12 | 0 | 14 | 5 | 16 | 9 | 30 | 3 | 7 | 8 | 18 | 3 | 4 | 9 | 16 | 78 |

Heavy Vehicle 15-Minute Interval Summary

4:00 PM to 6:00 PM

| Interval Start Time | Northbound Redland Rd | | | | Southbound Redland Rd | | | | Eastbound Holcomb Blvd | | | | Westbound Holcomb Blvd | | | | Interval Total |
|---------------------------|--------------------------|----|---|-------|--------------------------|----|---|-------|---------------------------|---|---|-------|---------------------------|---|---|-------|-------------------|
| | L | T | R | Total | L | T | R | Total | L | T | R | Total | L | T | R | Total | |
| 4:00 PM | 1 | 2 | 0 | 3 | 1 | 2 | 1 | 4 | 3 | 0 | 1 | 4 | 2 | 2 | 4 | 8 | 19 |
| 4:15 PM | 0 | 1 | 0 | 1 | 2 | 3 | 0 | 5 | 0 | 1 | 3 | 4 | 0 | 1 | 0 | 1 | 11 |
| 4:30 PM | 0 | 3 | 0 | 3 | 0 | 2 | 2 | 4 | 0 | 2 | 1 | 3 | 1 | 0 | 2 | 3 | 13 |
| 4:45 PM | 0 | 1 | 0 | 1 | 0 | 4 | 2 | 6 | 0 | 1 | 1 | 2 | 0 | 0 | 0 | 0 | 9 |
| 5:00 PM | 1 | 1 | 0 | 2 | 0 | 2 | 0 | 2 | 0 | 2 | 0 | 2 | 0 | 1 | 1 | 2 | 8 |
| 5:15 PM | 0 | 2 | 0 | 2 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 |
| 5:30 PM | 0 | 1 | 0 | 1 | 1 | 1 | 2 | 4 | 0 | 0 | 2 | 2 | 0 | 0 | 0 | 0 | 7 |
| 5:45 PM | 0 | 1 | 0 | 1 | 1 | 2 | 1 | 4 | 0 | 1 | 0 | 1 | 0 | 0 | 2 | 2 | 8 |
| Total Survey | 2 | 12 | 0 | 14 | 5 | 16 | 9 | 30 | 3 | 7 | 8 | 18 | 3 | 4 | 9 | 16 | 78 |

Heavy Vehicle Peak Hour Summary

4:40 PM to 5:40 PM

| By Approach | Northbound Redland Rd | | | Southbound Redland Rd | | | Eastbound Holcomb Blvd | | | Westbound Holcomb Blvd | | | Total |
|----------------|--------------------------|-----|-------|--------------------------|-----|-------|---------------------------|-----|-------|---------------------------|-----|-------|-------|
| | In | Out | Total | In | Out | Total | In | Out | Total | In | Out | Total | |
| Volume | 7 | 9 | 16 | 14 | 8 | 22 | 6 | 9 | 15 | 3 | 4 | 7 | 30 |
| PHF | 0.88 | | | 0.50 | | | 0.38 | | | 0.38 | | | 0.75 |

| By Movement | Northbound Redland Rd | | | | Southbound Redland Rd | | | | Eastbound Holcomb Blvd | | | | Westbound Holcomb Blvd | | | | Total |
|----------------|--------------------------|------|------|-------|--------------------------|------|------|-------|---------------------------|------|------|-------|---------------------------|------|------|-------|-------|
| | L | T | R | Total | L | T | R | Total | L | T | R | Total | L | T | R | Total | |
| Volume | 1 | 6 | 0 | 7 | 1 | 6 | 7 | 14 | 0 | 3 | 3 | 6 | 0 | 1 | 2 | 3 | 30 |
| PHF | 0.25 | 0.75 | 0.00 | 0.88 | 0.25 | 0.38 | 0.58 | 0.50 | 0.00 | 0.25 | 0.38 | 0.38 | 0.00 | 0.25 | 0.50 | 0.38 | 0.75 |

Heavy Vehicle Rolling Hour Summary

4:00 PM to 6:00 PM

| Interval Start Time | Northbound Redland Rd | | | | Southbound Redland Rd | | | | Eastbound Holcomb Blvd | | | | Westbound Holcomb Blvd | | | | Interval Total |
|---------------------------|--------------------------|---|---|-------|--------------------------|----|---|-------|---------------------------|---|---|-------|---------------------------|---|---|-------|-------------------|
| | L | T | R | Total | L | T | R | Total | L | T | R | Total | L | T | R | Total | |
| 4:00 PM | 1 | 7 | 0 | 8 | 3 | 11 | 5 | 19 | 3 | 4 | 6 | 13 | 3 | 3 | 6 | 12 | 52 |
| 4:15 PM | 1 | 6 | 0 | 7 | 2 | 11 | 4 | 17 | 0 | 6 | 5 | 11 | 1 | 2 | 3 | 6 | 41 |
| 4:30 PM | 1 | 7 | 0 | 8 | 0 | 8 | 5 | 13 | 0 | 5 | 2 | 7 | 1 | 1 | 3 | 5 | 33 |
| 4:45 PM | 1 | 5 | 0 | 6 | 1 | 7 | 5 | 13 | 0 | 3 | 3 | 6 | 0 | 1 | 1 | 2 | 27 |
| 5:00 PM | 1 | 5 | 0 | 6 | 2 | 5 | 4 | 11 | 0 | 3 | 2 | 5 | 0 | 1 | 3 | 4 | 26 |

Peak Hour Summary

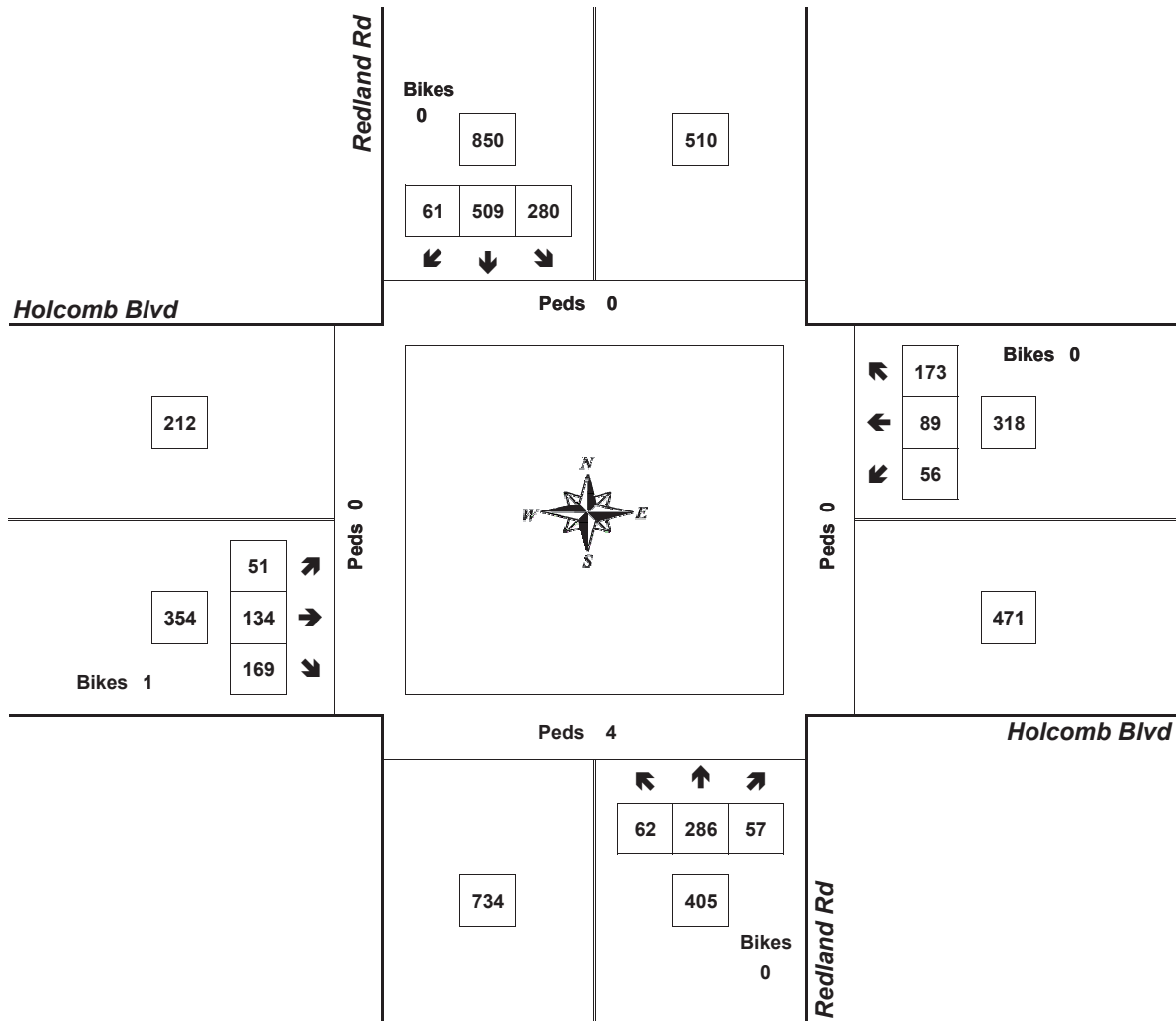


Clay Carney
(503) 833-2740

Redland Rd & Holcomb Blvd

4:40 PM to 5:40 PM

Tuesday, January 24, 2017



| Approach | PHF | HV% | Volume |
|---------------------|-------------|-------------|--------------|
| EB | 0.82 | 1.7% | 354 |
| WB | 0.86 | 0.9% | 318 |
| NB | 0.82 | 1.7% | 405 |
| SB | 0.95 | 1.6% | 850 |
| Intersection | 0.93 | 1.6% | 1,927 |

Count Period: 4:00 PM to 6:00 PM

Total Vehicle Summary

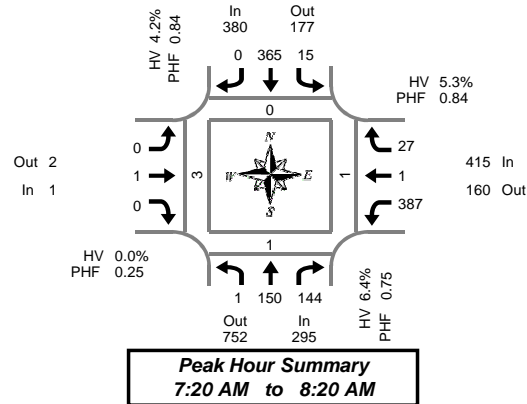


Clay Carney
(503) 833-2740

Washington St & Abernathy Rd

Thursday, January 26, 2017

7:00 AM to 9:00 AM



5-Minute Interval Summary

7:00 AM to 9:00 AM

| Interval Start Time | Northbound Washington St | | | | Southbound Washington St | | | | Eastbound Abernathy Rd | | | | Westbound Abernathy Rd | | | | Interval Total | Pedestrians Crosswalk | | | |
|---------------------------|-----------------------------|-----|-----|-------|-----------------------------|-----|---|-------|---------------------------|---|---|-------|---------------------------|---|----|-------|-------------------|--------------------------|-------|------|------|
| | L | T | R | Bikes | L | T | R | Bikes | L | T | R | Bikes | L | T | R | Bikes | | North | South | East | West |
| 7:00 AM | 0 | 9 | 6 | 0 | 0 | 28 | 0 | 0 | 0 | 0 | 0 | 0 | 18 | 0 | 4 | 0 | 65 | 0 | 0 | 0 | 0 |
| 7:05 AM | 0 | 8 | 6 | 0 | 1 | 19 | 0 | 0 | 0 | 0 | 0 | 0 | 37 | 0 | 4 | 0 | 75 | 0 | 0 | 0 | 0 |
| 7:10 AM | 0 | 9 | 11 | 1 | 2 | 29 | 0 | 0 | 0 | 0 | 0 | 0 | 30 | 0 | 3 | 1 | 84 | 0 | 0 | 0 | 0 |
| 7:15 AM | 0 | 9 | 10 | 0 | 1 | 26 | 0 | 0 | 0 | 0 | 0 | 0 | 28 | 0 | 1 | 0 | 75 | 0 | 0 | 0 | 0 |
| 7:20 AM | 1 | 19 | 7 | 0 | 1 | 26 | 0 | 0 | 0 | 0 | 0 | 0 | 29 | 0 | 1 | 0 | 84 | 0 | 0 | 0 | 0 |
| 7:25 AM | 0 | 6 | 14 | 0 | 2 | 28 | 0 | 0 | 0 | 0 | 0 | 0 | 30 | 0 | 2 | 0 | 82 | 0 | 0 | 0 | 2 |
| 7:30 AM | 0 | 8 | 11 | 0 | 1 | 34 | 0 | 0 | 0 | 0 | 0 | 0 | 34 | 0 | 2 | 0 | 90 | 0 | 1 | 0 | 0 |
| 7:35 AM | 0 | 12 | 9 | 0 | 2 | 26 | 0 | 0 | 0 | 0 | 0 | 0 | 32 | 0 | 0 | 0 | 81 | 0 | 0 | 0 | 0 |
| 7:40 AM | 0 | 13 | 8 | 0 | 0 | 47 | 0 | 0 | 0 | 0 | 0 | 0 | 34 | 0 | 4 | 0 | 106 | 0 | 0 | 1 | 0 |
| 7:45 AM | 0 | 16 | 13 | 0 | 2 | 36 | 0 | 0 | 0 | 0 | 0 | 0 | 35 | 0 | 2 | 0 | 104 | 0 | 0 | 0 | 1 |
| 7:50 AM | 0 | 19 | 16 | 0 | 1 | 24 | 0 | 0 | 0 | 0 | 0 | 0 | 47 | 0 | 1 | 0 | 108 | 0 | 0 | 0 | 0 |
| 7:55 AM | 0 | 17 | 17 | 0 | 2 | 30 | 0 | 0 | 0 | 0 | 0 | 0 | 33 | 0 | 5 | 0 | 104 | 0 | 0 | 0 | 0 |
| 8:00 AM | 0 | 8 | 9 | 0 | 3 | 43 | 0 | 0 | 0 | 0 | 0 | 0 | 25 | 0 | 1 | 0 | 89 | 0 | 0 | 0 | 0 |
| 8:05 AM | 0 | 11 | 13 | 0 | 0 | 23 | 0 | 0 | 0 | 0 | 0 | 0 | 27 | 0 | 2 | 0 | 76 | 0 | 0 | 0 | 0 |
| 8:10 AM | 0 | 10 | 17 | 0 | 1 | 22 | 0 | 0 | 0 | 1 | 0 | 0 | 22 | 0 | 3 | 0 | 76 | 0 | 0 | 0 | 0 |
| 8:15 AM | 0 | 11 | 10 | 0 | 0 | 26 | 0 | 0 | 0 | 0 | 0 | 0 | 39 | 1 | 4 | 0 | 91 | 0 | 0 | 0 | 0 |
| 8:20 AM | 0 | 15 | 10 | 0 | 0 | 31 | 0 | 0 | 0 | 0 | 0 | 0 | 19 | 0 | 4 | 0 | 79 | 0 | 0 | 0 | 0 |
| 8:25 AM | 0 | 12 | 11 | 0 | 3 | 29 | 0 | 1 | 0 | 0 | 0 | 0 | 25 | 1 | 5 | 0 | 86 | 0 | 1 | 0 | 0 |
| 8:30 AM | 0 | 10 | 16 | 0 | 1 | 21 | 0 | 0 | 0 | 0 | 0 | 0 | 20 | 0 | 4 | 0 | 72 | 0 | 0 | 0 | 0 |
| 8:35 AM | 0 | 10 | 11 | 0 | 2 | 33 | 0 | 0 | 0 | 0 | 0 | 0 | 24 | 0 | 2 | 0 | 82 | 0 | 0 | 0 | 0 |
| 8:40 AM | 2 | 13 | 7 | 0 | 3 | 33 | 0 | 0 | 0 | 0 | 1 | 0 | 35 | 0 | 4 | 0 | 98 | 0 | 0 | 0 | 0 |
| 8:45 AM | 1 | 20 | 9 | 0 | 0 | 30 | 0 | 0 | 0 | 0 | 0 | 0 | 19 | 0 | 1 | 0 | 80 | 0 | 0 | 0 | 0 |
| 8:50 AM | 0 | 14 | 9 | 0 | 3 | 16 | 0 | 0 | 0 | 0 | 0 | 0 | 24 | 0 | 3 | 0 | 69 | 0 | 0 | 1 | 0 |
| 8:55 AM | 0 | 12 | 8 | 0 | 3 | 34 | 0 | 0 | 0 | 0 | 0 | 0 | 23 | 0 | 3 | 0 | 83 | 0 | 0 | 0 | 0 |
| Total Survey | 4 | 291 | 258 | 1 | 34 | 694 | 0 | 1 | 0 | 1 | 1 | 0 | 689 | 2 | 65 | 1 | 2,039 | 0 | 2 | 2 | 3 |

15-Minute Interval Summary

7:00 AM to 9:00 AM

| Interval Start Time | Northbound Washington St | | | | Southbound Washington St | | | | Eastbound Abernathy Rd | | | | Westbound Abernathy Rd | | | | Interval Total | Pedestrians Crosswalk | | | |
|---------------------------|-----------------------------|-----|-----|-------|-----------------------------|-----|---|-------|---------------------------|---|---|-------|---------------------------|---|----|-------|-------------------|--------------------------|-------|------|------|
| | L | T | R | Bikes | L | T | R | Bikes | L | T | R | Bikes | L | T | R | Bikes | | North | South | East | West |
| 7:00 AM | 0 | 26 | 23 | 1 | 3 | 76 | 0 | 0 | 0 | 0 | 0 | 0 | 85 | 0 | 11 | 1 | 224 | 0 | 0 | 0 | 0 |
| 7:15 AM | 1 | 34 | 31 | 0 | 4 | 80 | 0 | 0 | 0 | 0 | 0 | 0 | 87 | 0 | 4 | 0 | 241 | 0 | 0 | 0 | 2 |
| 7:30 AM | 0 | 33 | 28 | 0 | 3 | 107 | 0 | 0 | 0 | 0 | 0 | 0 | 100 | 0 | 6 | 0 | 277 | 0 | 1 | 1 | 0 |
| 7:45 AM | 0 | 52 | 46 | 0 | 5 | 90 | 0 | 0 | 0 | 0 | 0 | 0 | 115 | 0 | 8 | 0 | 316 | 0 | 0 | 0 | 1 |
| 8:00 AM | 0 | 29 | 39 | 0 | 4 | 88 | 0 | 0 | 0 | 1 | 0 | 0 | 74 | 0 | 6 | 0 | 241 | 0 | 0 | 0 | 0 |
| 8:15 AM | 0 | 38 | 31 | 0 | 3 | 86 | 0 | 1 | 0 | 0 | 0 | 0 | 83 | 2 | 13 | 0 | 256 | 0 | 1 | 0 | 0 |
| 8:30 AM | 2 | 33 | 34 | 0 | 6 | 87 | 0 | 0 | 0 | 0 | 1 | 0 | 79 | 0 | 10 | 0 | 252 | 0 | 0 | 0 | 0 |
| 8:45 AM | 1 | 46 | 26 | 0 | 6 | 80 | 0 | 0 | 0 | 0 | 0 | 0 | 66 | 0 | 7 | 0 | 232 | 0 | 0 | 1 | 0 |
| Total Survey | 4 | 291 | 258 | 1 | 34 | 694 | 0 | 1 | 0 | 1 | 1 | 0 | 689 | 2 | 65 | 1 | 2,039 | 0 | 2 | 2 | 3 |

Peak Hour Summary

7:20 AM to 8:20 AM

| By Approach | Northbound Washington St | | | | Southbound Washington St | | | | Eastbound Abernathy Rd | | | | Westbound Abernathy Rd | | | | Total | Pedestrians Crosswalk | | | |
|----------------|-----------------------------|-----|-------|-------|-----------------------------|-----|-------|-------|---------------------------|-----|-------|-------|---------------------------|-----|-------|-------|-------|--------------------------|-------|------|------|
| | In | Out | Total | Bikes | In | Out | Total | Bikes | In | Out | Total | Bikes | In | Out | Total | Bikes | | North | South | East | West |
| Volume | 295 | 752 | 1,047 | 0 | 380 | 177 | 557 | 0 | 1 | 2 | 3 | 0 | 415 | 160 | 575 | 0 | 1,091 | 0 | 1 | 1 | 3 |
| %HV | 6.4% | | | | 4.2% | | | | 0.0% | | | | 5.3% | | | | 5.2% | | | | |
| PHF | 0.75 | | | | 0.84 | | | | 0.25 | | | | 0.84 | | | | 0.86 | | | | |

| By Movement | Northbound Washington St | | | | Southbound Washington St | | | | Eastbound Abernathy Rd | | | | Westbound Abernathy Rd | | | | Total |
|----------------|-----------------------------|------|------|-------|-----------------------------|------|------|-------|---------------------------|------|------|-------|---------------------------|------|-------|-------|-------|
| | L | T | R | Total | L | T | R | Total | L | T | R | Total | L | T | R | Total | |
| Volume | 1 | 150 | 144 | 295 | 15 | 365 | 0 | 380 | 0 | 1 | 0 | 1 | 387 | 1 | 27 | 415 | 1,091 |
| %HV | 0.0% | 6.0% | 6.9% | 6.4% | 26.7% | 3.3% | 0.0% | 4.2% | 0.0% | 0.0% | 0.0% | 0.0% | 4.4% | 0.0% | 18.5% | 5.3% | 5.2% |
| PHF | 0.25 | 0.72 | 0.78 | 0.75 | 0.63 | 0.84 | 0.00 | 0.84 | 0.00 | 0.25 | 0.00 | 0.25 | 0.83 | 0.25 | 0.75 | 0.84 | 0.86 |

Rolling Hour Summary

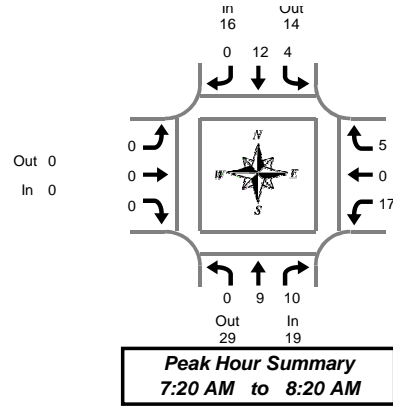
7:00 AM to 9:00 AM

| Interval Start Time | Northbound Washington St | | | | Southbound Washington St | | | | Eastbound Abernathy Rd | | | | Westbound Abernathy Rd | | | | Interval Total | Pedestrians Crosswalk | | | |
|---------------------------|-----------------------------|-----|-----|-------|-----------------------------|-----|---|-------|---------------------------|---|---|-------|---------------------------|---|----|-------|-------------------|--------------------------|-------|------|------|
| | L | T | R | Bikes | L | T | R | Bikes | L | T | R | Bikes | L | T | R | Bikes | | North | South | East | West |
| 7:00 AM | 1 | 145 | 128 | 1 | 15 | 353 | 0 | 0 | 0 | 0 | 0 | 0 | 387 | 0 | 29 | 1 | 1,058 | 0 | 1 | 1 | 3 |
| 7:15 AM | 1 | 148 | 144 | 0 | 16 | 365 | 0 | 0 | 0 | 1 | 0 | 0 | 376 | 0 | 24 | 0 | 1,075 | 0 | 1 | 1 | 3 |
| 7:30 AM | 0 | 152 | 144 | 0 | 15 | 371 | 0 | 1 | 0 | 1 | 0 | 0 | 372 | 2 | 33 | 0 | 1,090 | 0 | 2 | 1 | 1 |
| 7:45 AM | 2 | 152 | 150 | 0 | 18 | 351 | 0 | 1 | 0 | 1 | 1 | 0 | 351 | 2 | 37 | 0 | 1,065 | 0 | 1 | 0 | 1 |
| 8:00 AM | 3 | 146 | 130 | 0 | 19 | 341 | 0 | 1 | 0 | 1 | 1 | 0 | 302 | 2 | 36 | 0 | 981 | 0 | 1 | 1 | 0 |

Heavy Vehicle Summary



Clay Carney
(503) 833-2740



Washington St & Abernathy Rd

Thursday, January 26, 2017

7:00 AM to 9:00 AM

Heavy Vehicle 5-Minute Interval Summary

7:00 AM to 9:00 AM

| Interval Start Time | Northbound Washington St | | | | Southbound Washington St | | | | Eastbound Abernathy Rd | | | | Westbound Abernathy Rd | | | | Interval Total |
|---------------------------|-----------------------------|----|----|-------|-----------------------------|----|---|-------|---------------------------|---|---|-------|---------------------------|---|---|-------|-------------------|
| | L | T | R | Total | L | T | R | Total | L | T | R | Total | L | T | R | Total | |
| 7:00 AM | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| 7:05 AM | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 2 | 3 | 4 |
| 7:10 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 1 |
| 7:15 AM | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| 7:20 AM | 0 | 2 | 1 | 3 | 1 | 1 | 0 | 2 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 2 | 7 |
| 7:25 AM | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 2 |
| 7:30 AM | 0 | 0 | 3 | 3 | 1 | 2 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 7 |
| 7:35 AM | 0 | 1 | 0 | 1 | 1 | 2 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 |
| 7:40 AM | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 3 | 4 |
| 7:45 AM | 0 | 1 | 1 | 2 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 4 |
| 7:50 AM | 0 | 0 | 1 | 1 | 0 | 2 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 |
| 7:55 AM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 3 | 4 |
| 8:00 AM | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 3 | 5 |
| 8:05 AM | 0 | 0 | 2 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 3 |
| 8:10 AM | 0 | 2 | 1 | 3 | 0 | 2 | 0 | 2 | 0 | 0 | 0 | 0 | 3 | 0 | 2 | 5 | 10 |
| 8:15 AM | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 2 | 4 |
| 8:20 AM | 0 | 0 | 3 | 3 | 0 | 2 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 |
| 8:25 AM | 0 | 1 | 4 | 5 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 |
| 8:30 AM | 0 | 1 | 2 | 3 | 0 | 2 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 |
| 8:35 AM | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 2 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 3 | 5 |
| 8:40 AM | 0 | 1 | 1 | 2 | 0 | 2 | 0 | 2 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 5 |
| 8:45 AM | 0 | 2 | 0 | 2 | 0 | 2 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 |
| 8:50 AM | 0 | 2 | 0 | 2 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 4 |
| 8:55 AM | 0 | 1 | 1 | 2 | 0 | 2 | 0 | 2 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 5 |
| Total Survey | 0 | 18 | 22 | 40 | 4 | 29 | 0 | 33 | 0 | 0 | 0 | 0 | 25 | 0 | 7 | 32 | 105 |

Heavy Vehicle 15-Minute Interval Summary

7:00 AM to 9:00 AM

| Interval Start Time | Northbound Washington St | | | | Southbound Washington St | | | | Eastbound Abernathy Rd | | | | Westbound Abernathy Rd | | | | Interval Total |
|---------------------------|-----------------------------|----|----|-------|-----------------------------|----|---|-------|---------------------------|---|---|-------|---------------------------|---|---|-------|-------------------|
| | L | T | R | Total | L | T | R | Total | L | T | R | Total | L | T | R | Total | |
| 7:00 AM | 0 | 1 | 1 | 2 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 2 | 0 | 2 | 4 | 7 |
| 7:15 AM | 0 | 3 | 1 | 4 | 1 | 3 | 0 | 4 | 0 | 0 | 0 | 0 | 2 | 0 | 1 | 3 | 11 |
| 7:30 AM | 0 | 1 | 4 | 5 | 2 | 4 | 0 | 6 | 0 | 0 | 0 | 0 | 3 | 0 | 1 | 4 | 15 |
| 7:45 AM | 0 | 1 | 2 | 3 | 1 | 3 | 0 | 4 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 4 | 11 |
| 8:00 AM | 0 | 3 | 3 | 6 | 0 | 3 | 0 | 3 | 0 | 0 | 0 | 0 | 7 | 0 | 2 | 9 | 18 |
| 8:15 AM | 0 | 2 | 7 | 9 | 0 | 4 | 0 | 4 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 2 | 15 |
| 8:30 AM | 0 | 2 | 3 | 5 | 0 | 6 | 0 | 6 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 4 | 15 |
| 8:45 AM | 0 | 5 | 1 | 6 | 0 | 5 | 0 | 5 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 2 | 13 |
| Total Survey | 0 | 18 | 22 | 40 | 4 | 29 | 0 | 33 | 0 | 0 | 0 | 0 | 25 | 0 | 7 | 32 | 105 |

Heavy Vehicle Peak Hour Summary

7:20 AM to 8:20 AM

| By Approach | Northbound Washington St | | | Southbound Washington St | | | Eastbound Abernathy Rd | | | Westbound Abernathy Rd | | | Total |
|----------------|-----------------------------|-----|-------|-----------------------------|-----|-------|---------------------------|-----|-------|---------------------------|-----|-------|-------|
| | In | Out | Total | In | Out | Total | In | Out | Total | In | Out | Total | |
| Volume | 19 | 29 | 48 | 16 | 14 | 30 | 0 | 0 | 0 | 22 | 14 | 36 | 57 |
| PHF | 0.68 | | | 0.67 | | | 0.00 | | | 0.61 | | | 0.79 |

| By Movement | Northbound Washington St | | | | Southbound Washington St | | | | Eastbound Abernathy Rd | | | | Westbound Abernathy Rd | | | | Total |
|----------------|-----------------------------|------|------|-------|-----------------------------|------|------|-------|---------------------------|------|------|-------|---------------------------|------|------|-------|-------|
| | L | T | R | Total | L | T | R | Total | L | T | R | Total | L | T | R | Total | |
| Volume | 0 | 9 | 10 | 19 | 4 | 12 | 0 | 16 | 0 | 0 | 0 | 0 | 17 | 0 | 5 | 22 | 57 |
| PHF | 0.00 | 0.75 | 0.63 | 0.68 | 0.50 | 0.75 | 0.00 | 0.67 | 0.00 | 0.00 | 0.00 | 0.00 | 0.61 | 0.00 | 0.42 | 0.61 | 0.79 |

Heavy Vehicle Rolling Hour Summary

7:00 AM to 9:00 AM

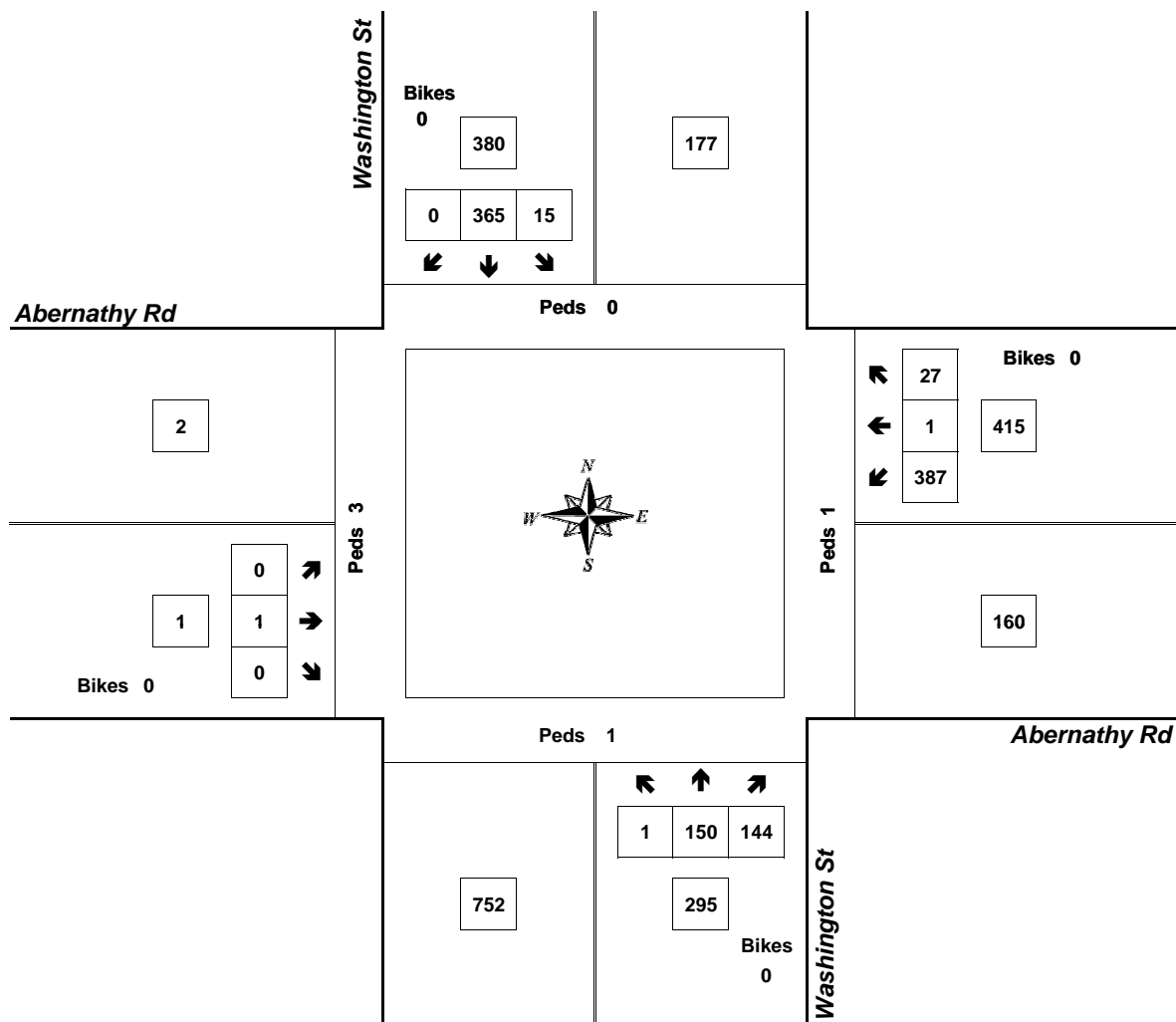
| Interval Start Time | Northbound Washington St | | | | Southbound Washington St | | | | Eastbound Abernathy Rd | | | | Westbound Abernathy Rd | | | | Interval Total |
|---------------------------|-----------------------------|----|----|-------|-----------------------------|----|---|-------|---------------------------|---|---|-------|---------------------------|---|---|-------|-------------------|
| | L | T | R | Total | L | T | R | Total | L | T | R | Total | L | T | R | Total | |
| 7:00 AM | 0 | 6 | 8 | 14 | 4 | 11 | 0 | 15 | 0 | 0 | 0 | 0 | 11 | 0 | 4 | 15 | 44 |
| 7:15 AM | 0 | 8 | 10 | 18 | 4 | 13 | 0 | 17 | 0 | 0 | 0 | 0 | 16 | 0 | 4 | 20 | 55 |
| 7:30 AM | 0 | 7 | 16 | 23 | 3 | 14 | 0 | 17 | 0 | 0 | 0 | 0 | 15 | 0 | 4 | 19 | 59 |
| 7:45 AM | 0 | 8 | 15 | 23 | 1 | 16 | 0 | 17 | 0 | 0 | 0 | 0 | 16 | 0 | 3 | 19 | 59 |
| 8:00 AM | 0 | 12 | 14 | 26 | 0 | 18 | 0 | 18 | 0 | 0 | 0 | 0 | 14 | 0 | 3 | 17 | 61 |

All Traffic Data
Services Inc.

Clay Carney
(503) 833-2740

7:20 AM to 8:20 AM

Thursday, January 26, 2017



| Approach | PHF | HV% | Volume |
|--------------|------|------|--------|
| EB | 0.25 | 0.0% | 1 |
| WB | 0.84 | 5.3% | 415 |
| NB | 0.75 | 6.4% | 295 |
| SB | 0.84 | 4.2% | 380 |
| Intersection | 0.86 | 5.2% | 1,091 |

Count Period: 7:00 AM to 9:00 AM

Total Vehicle Summary



Clay Carney
(503) 833-2740

Washington St & Abernathy Rd

Wednesday, January 25, 2017

4:00 PM to 6:00 PM

5-Minute Interval Summary

4:00 PM to 6:00 PM

| Interval Start Time | Northbound Washington St | | | | Southbound Washington St | | | | Eastbound Abernathy Rd | | | | Westbound Abernathy Rd | | | | Interval Total | Pedestrians Crosswalk | | | |
|---------------------------|-----------------------------|-----|-----|-------|-----------------------------|-----|---|-------|---------------------------|---|---|-------|---------------------------|---|----|-------|-------------------|--------------------------|-------|------|------|
| | L | T | R | Bikes | L | T | R | Bikes | L | T | R | Bikes | L | T | R | Bikes | | North | South | East | West |
| 4:00 PM | 0 | 19 | 20 | 0 | 6 | 27 | 0 | 0 | 0 | 0 | 0 | 0 | 20 | 0 | 0 | 0 | 92 | 0 | 0 | 1 | 0 |
| 4:05 PM | 0 | 26 | 29 | 0 | 2 | 26 | 1 | 0 | 0 | 0 | 0 | 0 | 16 | 0 | 2 | 0 | 102 | 0 | 0 | 1 | 0 |
| 4:10 PM | 0 | 15 | 16 | 0 | 2 | 40 | 0 | 0 | 0 | 0 | 0 | 0 | 14 | 0 | 1 | 0 | 88 | 0 | 0 | 0 | 0 |
| 4:15 PM | 0 | 22 | 21 | 0 | 2 | 25 | 0 | 0 | 0 | 0 | 1 | 0 | 11 | 0 | 0 | 0 | 82 | 0 | 0 | 1 | 0 |
| 4:20 PM | 2 | 18 | 40 | 0 | 2 | 16 | 0 | 0 | 0 | 0 | 0 | 0 | 17 | 0 | 3 | 0 | 98 | 0 | 0 | 0 | 0 |
| 4:25 PM | 2 | 22 | 18 | 0 | 4 | 31 | 0 | 0 | 0 | 0 | 1 | 0 | 15 | 0 | 5 | 0 | 98 | 0 | 0 | 0 | 0 |
| 4:30 PM | 0 | 25 | 26 | 0 | 1 | 39 | 0 | 0 | 0 | 0 | 2 | 0 | 11 | 1 | 1 | 0 | 106 | 1 | 0 | 0 | 1 |
| 4:35 PM | 0 | 20 | 23 | 0 | 6 | 43 | 0 | 0 | 2 | 0 | 1 | 0 | 22 | 0 | 5 | 0 | 122 | 0 | 0 | 0 | 1 |
| 4:40 PM | 0 | 17 | 21 | 0 | 6 | 33 | 0 | 0 | 0 | 0 | 1 | 0 | 14 | 0 | 3 | 0 | 95 | 0 | 0 | 0 | 0 |
| 4:45 PM | 0 | 21 | 35 | 0 | 0 | 27 | 0 | 0 | 0 | 0 | 0 | 0 | 13 | 0 | 3 | 0 | 99 | 0 | 1 | 1 | 1 |
| 4:50 PM | 0 | 15 | 28 | 0 | 1 | 35 | 0 | 0 | 0 | 0 | 0 | 0 | 17 | 0 | 2 | 0 | 98 | 0 | 0 | 0 | 0 |
| 4:55 PM | 1 | 22 | 24 | 0 | 3 | 23 | 0 | 0 | 0 | 0 | 0 | 0 | 18 | 0 | 4 | 0 | 95 | 0 | 0 | 0 | 0 |
| 5:00 PM | 0 | 21 | 26 | 0 | 2 | 29 | 0 | 0 | 0 | 0 | 0 | 0 | 16 | 0 | 1 | 0 | 95 | 0 | 0 | 0 | 0 |
| 5:05 PM | 0 | 14 | 14 | 0 | 1 | 22 | 0 | 0 | 0 | 0 | 0 | 0 | 17 | 0 | 0 | 0 | 68 | 0 | 0 | 0 | 0 |
| 5:10 PM | 0 | 21 | 30 | 0 | 3 | 36 | 0 | 0 | 0 | 0 | 0 | 0 | 16 | 0 | 2 | 0 | 108 | 0 | 0 | 0 | 0 |
| 5:15 PM | 0 | 17 | 26 | 0 | 4 | 28 | 0 | 0 | 0 | 0 | 0 | 0 | 11 | 0 | 3 | 0 | 89 | 0 | 0 | 0 | 0 |
| 5:20 PM | 0 | 8 | 26 | 0 | 2 | 20 | 0 | 0 | 0 | 0 | 0 | 0 | 14 | 0 | 4 | 0 | 74 | 0 | 0 | 0 | 1 |
| 5:25 PM | 0 | 13 | 31 | 0 | 4 | 29 | 0 | 0 | 0 | 0 | 0 | 0 | 14 | 0 | 5 | 0 | 96 | 0 | 0 | 0 | 0 |
| 5:30 PM | 0 | 14 | 31 | 0 | 3 | 30 | 0 | 0 | 0 | 0 | 0 | 0 | 19 | 0 | 1 | 0 | 98 | 0 | 0 | 0 | 1 |
| 5:35 PM | 0 | 16 | 21 | 0 | 1 | 27 | 1 | 0 | 0 | 0 | 0 | 0 | 19 | 0 | 1 | 0 | 86 | 0 | 0 | 0 | 0 |
| 5:40 PM | 0 | 11 | 23 | 0 | 3 | 18 | 0 | 0 | 0 | 0 | 0 | 0 | 19 | 0 | 4 | 0 | 78 | 0 | 0 | 0 | 0 |
| 5:45 PM | 0 | 15 | 31 | 0 | 5 | 28 | 0 | 0 | 0 | 0 | 0 | 0 | 9 | 0 | 2 | 0 | 90 | 0 | 0 | 0 | 1 |
| 5:50 PM | 0 | 17 | 30 | 0 | 2 | 30 | 0 | 0 | 0 | 0 | 0 | 0 | 20 | 0 | 0 | 0 | 99 | 0 | 1 | 0 | 1 |
| 5:55 PM | 0 | 14 | 25 | 0 | 2 | 15 | 0 | 0 | 0 | 0 | 0 | 0 | 15 | 0 | 0 | 0 | 71 | 0 | 0 | 0 | 0 |
| Total Survey | 5 | 423 | 615 | 0 | 67 | 677 | 2 | 0 | 2 | 0 | 6 | 0 | 377 | 1 | 52 | 0 | 2,227 | 1 | 2 | 4 | 7 |

15-Minute Interval Summary

4:00 PM to 6:00 PM

| Interval Start Time | Northbound Washington St | | | | Southbound Washington St | | | | Eastbound Abernathy Rd | | | | Westbound Abernathy Rd | | | | Interval Total | Pedestrians Crosswalk | | | |
|---------------------------|-----------------------------|-----|-----|-------|-----------------------------|-----|---|-------|---------------------------|---|---|-------|---------------------------|---|----|-------|-------------------|--------------------------|-------|------|------|
| | L | T | R | Bikes | L | T | R | Bikes | L | T | R | Bikes | L | T | R | Bikes | | North | South | East | West |
| 4:00 PM | 0 | 60 | 65 | 0 | 10 | 93 | 1 | 0 | 0 | 0 | 0 | 0 | 50 | 0 | 3 | 0 | 282 | 0 | 0 | 2 | 0 |
| 4:15 PM | 4 | 62 | 79 | 0 | 8 | 72 | 0 | 0 | 0 | 0 | 2 | 0 | 43 | 0 | 8 | 0 | 278 | 0 | 0 | 1 | 0 |
| 4:30 PM | 0 | 62 | 70 | 0 | 13 | 115 | 0 | 0 | 2 | 0 | 4 | 0 | 47 | 1 | 9 | 0 | 323 | 1 | 0 | 0 | 2 |
| 4:45 PM | 1 | 58 | 87 | 0 | 4 | 85 | 0 | 0 | 0 | 0 | 0 | 0 | 48 | 0 | 9 | 0 | 292 | 0 | 1 | 1 | 1 |
| 5:00 PM | 0 | 56 | 70 | 0 | 6 | 87 | 0 | 0 | 0 | 0 | 0 | 0 | 49 | 0 | 3 | 0 | 271 | 0 | 0 | 0 | 0 |
| 5:15 PM | 0 | 38 | 83 | 0 | 10 | 77 | 0 | 0 | 0 | 0 | 0 | 0 | 39 | 0 | 12 | 0 | 259 | 0 | 0 | 0 | 1 |
| 5:30 PM | 0 | 41 | 75 | 0 | 7 | 75 | 1 | 0 | 0 | 0 | 0 | 0 | 57 | 0 | 6 | 0 | 262 | 0 | 0 | 0 | 1 |
| 5:45 PM | 0 | 46 | 86 | 0 | 9 | 73 | 0 | 0 | 0 | 0 | 0 | 0 | 44 | 0 | 2 | 0 | 260 | 0 | 1 | 0 | 2 |
| Total Survey | 5 | 423 | 615 | 0 | 67 | 677 | 2 | 0 | 2 | 0 | 6 | 0 | 377 | 1 | 52 | 0 | 2,227 | 1 | 2 | 4 | 7 |

Peak Hour Summary

4:05 PM to 5:05 PM

| By Approach | Northbound Washington St | | | | Southbound Washington St | | | | Eastbound Abernathy Rd | | | | Westbound Abernathy Rd | | | | Total | Pedestrians Crosswalk | | | |
|----------------|-----------------------------|-----|-------|-------|-----------------------------|-----|-------|-------|---------------------------|-----|-------|-------|---------------------------|-----|-------|-------|-------|--------------------------|-------|------|------|
| | In | Out | Total | Bikes | In | Out | Total | Bikes | In | Out | Total | Bikes | In | Out | Total | Bikes | | North | South | East | West |
| Volume | 556 | 557 | 1,113 | 0 | 399 | 276 | 675 | 0 | 8 | 7 | 15 | 0 | 215 | 338 | 553 | 0 | 1,178 | 1 | 1 | 3 | 3 |
| %HV | 1.4% | | | | 3.3% | | | | 0.0% | | | | 3.7% | | | | 2.5% | | | | |
| PHF | 0.91 | | | | 0.78 | | | | 0.33 | | | | 0.90 | | | | 0.90 | | | | |

| By Movement | Northbound Washington St | | | | Southbound Washington St | | | | Eastbound Abernathy Rd | | | | Westbound Abernathy Rd | | | | Total |
|----------------|-----------------------------|------|------|-------|-----------------------------|------|------|-------|---------------------------|------|------|-------|---------------------------|------|------|-------|-------|
| | L | T | R | Total | L | T | R | Total | L | T | R | Total | L | T | R | Total | |
| Volume | 5 | 244 | 307 | 556 | 31 | 367 | 1 | 399 | 2 | 0 | 6 | 8 | 184 | 1 | 30 | 215 | 1,178 |
| %HV | 0.0% | 1.2% | 1.6% | 1.4% | 12.9% | 2.5% | 0.0% | 3.3% | 0.0% | 0.0% | 0.0% | 0.0% | 3.3% | 0.0% | 6.7% | 3.7% | 2.5% |
| PHF | 0.31 | 0.91 | 0.88 | 0.91 | 0.60 | 0.80 | 0.25 | 0.78 | 0.25 | 0.00 | 0.38 | 0.33 | 0.90 | 0.25 | 0.68 | 0.90 | 0.90 |

Rolling Hour Summary

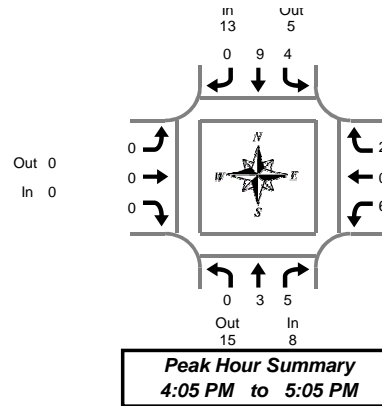
4:00 PM to 6:00 PM

| Interval Start Time | Northbound Washington St | | | | Southbound Washington St | | | | Eastbound Abernathy Rd | | | | Westbound Abernathy Rd | | | | Interval Total | Pedestrians Crosswalk | | | |
|---------------------------|-----------------------------|-----|-----|-------|-----------------------------|-----|---|-------|---------------------------|---|---|-------|---------------------------|---|----|-------|-------------------|--------------------------|-------|------|------|
| | L | T | R | Bikes | L | T | R | Bikes | L | T | R | Bikes | L | T | R | Bikes | | North | South | East | West |
| 4:00 PM | 5 | 242 | 301 | 0 | 35 | 365 | 1 | 0 | 2 | 0 | 6 | 0 | 188 | 1 | 29 | 0 | 1,175 | 1 | 1 | 4 | 3 |
| 4:15 PM | 5 | 238 | 306 | 0 | 31 | 359 | 0 | 0 | 2 | 0 | 6 | 0 | 187 | 1 | 29 | 0 | 1,164 | 1 | 1 | 2 | 3 |
| 4:30 PM | 1 | 214 | 310 | 0 | 33 | 364 | 0 | 0 | 2 | 0 | 4 | 0 | 183 | 1 | 33 | 0 | 1,145 | 1 | 1 | 1 | 4 |
| 4:45 PM | 1 | 193 | 315 | 0 | 27 | 324 | 1 | 0 | 0 | 0 | 0 | 0 | 193 | 0 | 30 | 0 | 1,084 | 0 | 1 | 1 | 3 |
| 5:00 PM | 0 | 181 | 314 | 0 | 32 | 312 | 1 | 0 | 0 | 0 | 0 | 0 | 189 | 0 | 23 | 0 | 1,052 | 0 | 1 | 0 | 4 |

Heavy Vehicle Summary



Clay Carney
(503) 833-2740



Washington St & Abernathy Rd

Wednesday, January 25, 2017

4:00 PM to 6:00 PM

Heavy Vehicle 5-Minute Interval Summary

4:00 PM to 6:00 PM

| Interval Start Time | Northbound Washington St | | | | Southbound Washington St | | | | Eastbound Abernathy Rd | | | | Westbound Abernathy Rd | | | | Interval Total |
|---------------------------|-----------------------------|---|----|-------|-----------------------------|----|---|-------|---------------------------|---|---|-------|---------------------------|---|---|-------|-------------------|
| | L | T | R | Total | L | T | R | Total | L | T | R | Total | L | T | R | Total | |
| 4:00 PM | 0 | 0 | 1 | 1 | 0 | 2 | 0 | 2 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 2 | 5 |
| 4:05 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 1 | 3 | 3 |
| 4:10 PM | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| 4:15 PM | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 4:20 PM | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| 4:25 PM | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 2 |
| 4:30 PM | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 2 |
| 4:35 PM | 0 | 1 | 1 | 2 | 0 | 3 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 |
| 4:40 PM | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 2 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 2 | 4 |
| 4:45 PM | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| 4:50 PM | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| 4:55 PM | 0 | 1 | 1 | 2 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 4 |
| 5:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 5:05 PM | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 2 |
| 5:10 PM | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 5:15 PM | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 5:20 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 1 |
| 5:25 PM | 0 | 0 | 2 | 2 | 1 | 1 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 |
| 5:30 PM | 0 | 2 | 0 | 2 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 |
| 5:35 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 5:40 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 5:45 PM | 0 | 0 | 2 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| 5:50 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 5:55 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 1 |
| Total Survey | 0 | 5 | 11 | 16 | 8 | 12 | 0 | 20 | 0 | 0 | 0 | 0 | 11 | 0 | 2 | 13 | 49 |

Heavy Vehicle 15-Minute Interval Summary

4:00 PM to 6:00 PM

| Interval Start Time | Northbound Washington St | | | | Southbound Washington St | | | | Eastbound Abernathy Rd | | | | Westbound Abernathy Rd | | | | Interval Total |
|---------------------------|-----------------------------|---|----|-------|-----------------------------|----|---|-------|---------------------------|---|---|-------|---------------------------|---|---|-------|-------------------|
| | L | T | R | Total | L | T | R | Total | L | T | R | Total | L | T | R | Total | |
| 4:00 PM | 0 | 0 | 1 | 1 | 0 | 4 | 0 | 4 | 0 | 0 | 0 | 0 | 4 | 0 | 1 | 5 | 10 |
| 4:15 PM | 0 | 0 | 2 | 2 | 2 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 5 |
| 4:30 PM | 0 | 1 | 2 | 3 | 1 | 4 | 0 | 5 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 3 | 11 |
| 4:45 PM | 0 | 2 | 1 | 3 | 1 | 3 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 8 |
| 5:00 PM | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 3 |
| 5:15 PM | 0 | 0 | 2 | 2 | 2 | 1 | 0 | 3 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 6 |
| 5:30 PM | 0 | 2 | 0 | 2 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 |
| 5:45 PM | 0 | 0 | 2 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 3 |
| Total Survey | 0 | 5 | 11 | 16 | 8 | 12 | 0 | 20 | 0 | 0 | 0 | 0 | 11 | 0 | 2 | 13 | 49 |

Heavy Vehicle Peak Hour Summary

4:05 PM to 5:05 PM

| By Approach | Northbound Washington St | | | Southbound Washington St | | | Eastbound Abernathy Rd | | | Westbound Abernathy Rd | | | Total |
|----------------|-----------------------------|-----|-------|-----------------------------|-----|-------|---------------------------|-----|-------|---------------------------|-----|-------|-------|
| | In | Out | Total | In | Out | Total | In | Out | Total | In | Out | Total | |
| Volume | 8 | 15 | 23 | 13 | 5 | 18 | 0 | 0 | 0 | 8 | 9 | 17 | 29 |
| PHF | 0.67 | | | 0.46 | | | 0.00 | | | 0.67 | | | 0.66 |

| By Movement | Northbound Washington St | | | | Southbound Washington St | | | | Eastbound Abernathy Rd | | | | Westbound Abernathy Rd | | | | Total |
|----------------|-----------------------------|------|------|-------|-----------------------------|------|------|-------|---------------------------|------|------|-------|---------------------------|------|------|-------|-------|
| | L | T | R | Total | L | T | R | Total | L | T | R | Total | L | T | R | Total | |
| Volume | 0 | 3 | 5 | 8 | 4 | 9 | 0 | 13 | 0 | 0 | 0 | 0 | 6 | 0 | 2 | 8 | 29 |
| PHF | 0.00 | 0.38 | 0.63 | 0.67 | 0.50 | 0.38 | 0.00 | 0.46 | 0.00 | 0.00 | 0.00 | 0.00 | 0.50 | 0.00 | 0.50 | 0.67 | 0.66 |

Heavy Vehicle Rolling Hour Summary

4:00 PM to 6:00 PM

| Interval Start Time | Northbound Washington St | | | | Southbound Washington St | | | | Eastbound Abernathy Rd | | | | Westbound Abernathy Rd | | | | Interval Total |
|---------------------------|-----------------------------|---|---|-------|-----------------------------|----|---|-------|---------------------------|---|---|-------|---------------------------|---|---|-------|-------------------|
| | L | T | R | Total | L | T | R | Total | L | T | R | Total | L | T | R | Total | |
| 4:00 PM | 0 | 3 | 6 | 9 | 4 | 11 | 0 | 15 | 0 | 0 | 0 | 0 | 8 | 0 | 2 | 10 | 34 |
| 4:15 PM | 0 | 3 | 6 | 9 | 5 | 7 | 0 | 12 | 0 | 0 | 0 | 0 | 5 | 0 | 1 | 6 | 27 |
| 4:30 PM | 0 | 3 | 6 | 9 | 5 | 8 | 0 | 13 | 0 | 0 | 0 | 0 | 5 | 0 | 1 | 6 | 28 |
| 4:45 PM | 0 | 4 | 4 | 8 | 5 | 4 | 0 | 9 | 0 | 0 | 0 | 0 | 2 | 0 | 1 | 3 | 20 |
| 5:00 PM | 0 | 2 | 5 | 7 | 4 | 1 | 0 | 5 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 3 | 15 |

Peak Hour Summary

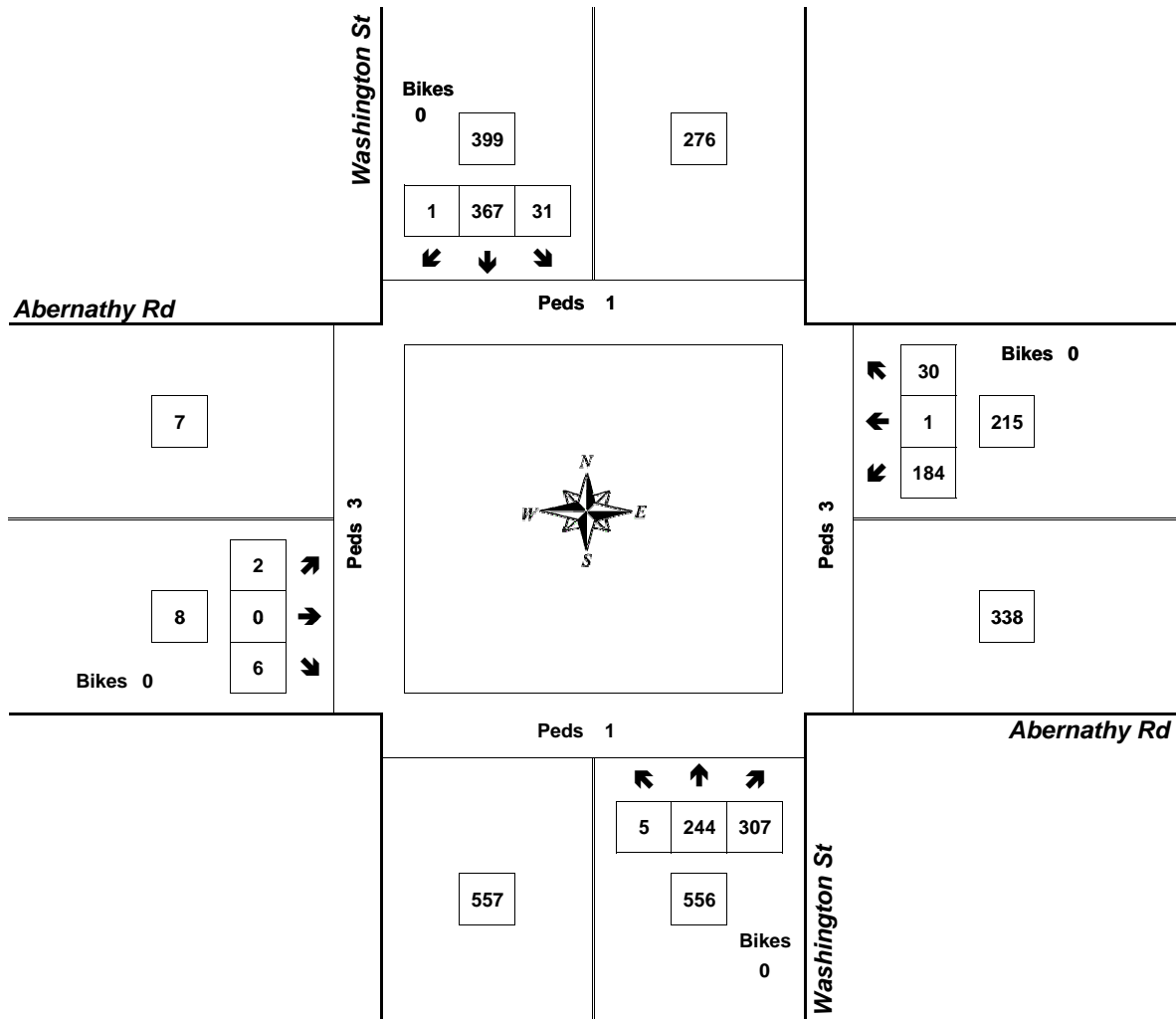


Clay Carney
(503) 833-2740

Washington St & Abernathy Rd

4:05 PM to 5:05 PM

Wednesday, January 25, 2017



| Approach | PHF | HV% | Volume |
|---------------------|------|------|--------|
| EB | 0.33 | 0.0% | 8 |
| WB | 0.90 | 3.7% | 215 |
| NB | 0.91 | 1.4% | 556 |
| SB | 0.78 | 3.3% | 399 |
| Intersection | 0.90 | 2.5% | 1,178 |

Count Period: 4:00 PM to 6:00 PM

Total Vehicle Summary

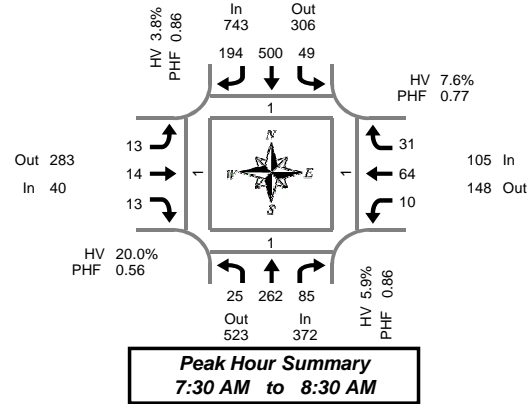


Clay Carney
(503) 833-2740

Washington St & 15th St

Thursday, January 26, 2017

7:00 AM to 9:00 AM



5-Minute Interval Summary

7:00 AM to 9:00 AM

| Interval Start Time | Northbound Washington St | | | | Southbound Washington St | | | | Eastbound 15th St | | | | Westbound 15th St | | | | Interval Total | Pedestrians Crosswalk | | | |
|---------------------------|-----------------------------|-----|-----|-------|-----------------------------|-----|-----|-------|----------------------|----|----|-------|----------------------|-----|----|-------|-------------------|--------------------------|-------|------|------|
| | L | T | R | Bikes | L | T | R | Bikes | L | T | R | Bikes | L | T | R | Bikes | | North | South | East | West |
| 7:00 AM | 1 | 15 | 4 | 0 | 2 | 24 | 11 | 0 | 1 | 0 | 0 | 0 | 0 | 5 | 1 | 0 | 64 | 0 | 0 | 0 | 0 |
| 7:05 AM | 5 | 15 | 2 | 0 | 4 | 28 | 18 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 0 | 78 | 0 | 0 | 1 | 1 |
| 7:10 AM | 7 | 23 | 6 | 1 | 2 | 38 | 18 | 0 | 2 | 1 | 0 | 0 | 2 | 6 | 1 | 0 | 106 | 1 | 0 | 0 | 0 |
| 7:15 AM | 4 | 22 | 4 | 0 | 2 | 39 | 9 | 0 | 1 | 1 | 1 | 1 | 1 | 6 | 0 | 0 | 90 | 0 | 0 | 0 | 0 |
| 7:20 AM | 5 | 25 | 2 | 0 | 2 | 31 | 19 | 0 | 0 | 0 | 0 | 0 | 1 | 5 | 2 | 0 | 92 | 0 | 0 | 0 | 0 |
| 7:25 AM | 4 | 20 | 3 | 0 | 1 | 43 | 7 | 0 | 1 | 2 | 3 | 0 | 3 | 11 | 0 | 0 | 98 | 0 | 0 | 0 | 0 |
| 7:30 AM | 1 | 17 | 1 | 0 | 2 | 52 | 10 | 0 | 1 | 1 | 0 | 0 | 0 | 6 | 2 | 1 | 93 | 1 | 0 | 0 | 0 |
| 7:35 AM | 2 | 17 | 8 | 0 | 6 | 42 | 15 | 0 | 1 | 1 | 1 | 0 | 1 | 7 | 2 | 0 | 103 | 0 | 1 | 0 | 1 |
| 7:40 AM | 2 | 20 | 9 | 0 | 2 | 64 | 14 | 0 | 0 | 0 | 1 | 0 | 0 | 3 | 3 | 0 | 118 | 0 | 0 | 0 | 0 |
| 7:45 AM | 1 | 19 | 6 | 0 | 3 | 50 | 19 | 0 | 2 | 2 | 1 | 0 | 0 | 2 | 7 | 0 | 112 | 0 | 0 | 0 | 0 |
| 7:50 AM | 3 | 32 | 3 | 0 | 5 | 42 | 17 | 0 | 0 | 1 | 1 | 0 | 0 | 8 | 3 | 0 | 115 | 0 | 0 | 1 | 0 |
| 7:55 AM | 2 | 32 | 10 | 0 | 6 | 43 | 20 | 0 | 1 | 2 | 2 | 0 | 3 | 4 | 3 | 0 | 128 | 0 | 0 | 0 | 0 |
| 8:00 AM | 1 | 15 | 9 | 0 | 8 | 38 | 20 | 0 | 1 | 0 | 0 | 0 | 2 | 4 | 0 | 0 | 98 | 0 | 0 | 0 | 0 |
| 8:05 AM | 4 | 22 | 5 | 0 | 5 | 33 | 8 | 0 | 0 | 0 | 1 | 0 | 2 | 7 | 4 | 0 | 91 | 0 | 0 | 0 | 0 |
| 8:10 AM | 1 | 24 | 11 | 0 | 2 | 29 | 16 | 0 | 2 | 0 | 2 | 0 | 0 | 5 | 5 | 0 | 97 | 0 | 0 | 0 | 0 |
| 8:15 AM | 1 | 22 | 9 | 0 | 2 | 42 | 16 | 0 | 1 | 2 | 2 | 0 | 1 | 9 | 1 | 0 | 108 | 0 | 0 | 0 | 0 |
| 8:20 AM | 3 | 17 | 6 | 0 | 5 | 32 | 17 | 0 | 3 | 4 | 2 | 0 | 1 | 5 | 1 | 0 | 96 | 0 | 0 | 0 | 0 |
| 8:25 AM | 4 | 25 | 8 | 0 | 3 | 33 | 22 | 0 | 1 | 1 | 0 | 0 | 0 | 4 | 0 | 0 | 101 | 0 | 0 | 0 | 0 |
| 8:30 AM | 4 | 23 | 7 | 0 | 2 | 24 | 12 | 0 | 2 | 1 | 1 | 0 | 1 | 6 | 0 | 0 | 83 | 0 | 0 | 0 | 0 |
| 8:35 AM | 1 | 19 | 6 | 0 | 4 | 34 | 17 | 0 | 0 | 2 | 1 | 0 | 2 | 5 | 3 | 0 | 94 | 0 | 0 | 0 | 0 |
| 8:40 AM | 4 | 21 | 6 | 0 | 3 | 35 | 21 | 0 | 8 | 3 | 0 | 0 | 2 | 7 | 0 | 0 | 110 | 0 | 1 | 1 | 0 |
| 8:45 AM | 2 | 27 | 13 | 0 | 5 | 37 | 19 | 0 | 1 | 3 | 2 | 0 | 1 | 4 | 1 | 0 | 115 | 2 | 0 | 0 | 0 |
| 8:50 AM | 4 | 22 | 6 | 0 | 3 | 31 | 9 | 0 | 1 | 1 | 1 | 0 | 3 | 5 | 1 | 0 | 87 | 0 | 0 | 0 | 0 |
| 8:55 AM | 2 | 20 | 8 | 0 | 5 | 34 | 19 | 0 | 1 | 2 | 0 | 0 | 1 | 9 | 1 | 0 | 102 | 2 | 0 | 1 | 0 |
| Total Survey | 68 | 514 | 152 | 1 | 84 | 898 | 373 | 0 | 31 | 30 | 22 | 1 | 27 | 139 | 41 | 1 | 2,379 | 6 | 2 | 4 | 2 |

15-Minute Interval Summary

7:00 AM to 9:00 AM

| Interval Start Time | Northbound Washington St | | | | Southbound Washington St | | | | Eastbound 15th St | | | | Westbound 15th St | | | | Interval Total | Pedestrians Crosswalk | | | |
|---------------------------|-----------------------------|-----|-----|-------|-----------------------------|-----|-----|-------|----------------------|----|----|-------|----------------------|-----|----|-------|-------------------|--------------------------|-------|------|------|
| | L | T | R | Bikes | L | T | R | Bikes | L | T | R | Bikes | L | T | R | Bikes | | North | South | East | West |
| 7:00 AM | 13 | 53 | 12 | 1 | 8 | 90 | 47 | 0 | 3 | 1 | 0 | 0 | 2 | 17 | 2 | 0 | 248 | 1 | 0 | 1 | 1 |
| 7:15 AM | 13 | 67 | 9 | 0 | 5 | 113 | 35 | 0 | 2 | 3 | 4 | 1 | 5 | 22 | 2 | 0 | 280 | 0 | 0 | 0 | 0 |
| 7:30 AM | 5 | 54 | 18 | 0 | 10 | 158 | 39 | 0 | 2 | 2 | 2 | 0 | 1 | 16 | 7 | 1 | 314 | 1 | 1 | 0 | 1 |
| 7:45 AM | 6 | 83 | 19 | 0 | 14 | 135 | 56 | 0 | 3 | 5 | 4 | 0 | 3 | 14 | 13 | 0 | 355 | 0 | 0 | 1 | 0 |
| 8:00 AM | 6 | 61 | 25 | 0 | 15 | 100 | 44 | 0 | 3 | 0 | 3 | 0 | 4 | 16 | 9 | 0 | 286 | 0 | 0 | 0 | 0 |
| 8:15 AM | 8 | 64 | 23 | 0 | 10 | 107 | 55 | 0 | 5 | 7 | 4 | 0 | 2 | 18 | 2 | 0 | 305 | 0 | 0 | 0 | 0 |
| 8:30 AM | 9 | 63 | 19 | 0 | 9 | 93 | 50 | 0 | 10 | 6 | 2 | 0 | 5 | 18 | 3 | 0 | 287 | 0 | 1 | 1 | 0 |
| 8:45 AM | 8 | 69 | 27 | 0 | 13 | 102 | 47 | 0 | 3 | 6 | 3 | 0 | 5 | 18 | 3 | 0 | 304 | 4 | 0 | 1 | 0 |
| Total Survey | 68 | 514 | 152 | 1 | 84 | 898 | 373 | 0 | 31 | 30 | 22 | 1 | 27 | 139 | 41 | 1 | 2,379 | 6 | 2 | 4 | 2 |

Peak Hour Summary

7:30 AM to 8:30 AM

| By Approach | Northbound Washington St | | | | Southbound Washington St | | | | Eastbound 15th St | | | | Westbound 15th St | | | | Total | Pedestrians Crosswalk | | | |
|----------------|-----------------------------|-----|-------|-------|-----------------------------|-----|-------|-------|----------------------|-----|-------|-------|----------------------|-----|-------|-------|-------|--------------------------|-------|------|------|
| | In | Out | Total | Bikes | In | Out | Total | Bikes | In | Out | Total | Bikes | In | Out | Total | Bikes | | North | South | East | West |
| Volume | 372 | 523 | 895 | 0 | 743 | 306 | 1,049 | 0 | 40 | 283 | 323 | 0 | 105 | 148 | 253 | 1 | 1,260 | 1 | 1 | 1 | 1 |
| %HV | 5.9% | | | | 3.8% | | | | 20.0% | | | | 7.6% | | | | 5.2% | | | | |
| PHF | 0.86 | | | | 0.86 | | | | 0.56 | | | | 0.77 | | | | 0.89 | | | | |

| By Movement | Northbound Washington St | | | | Southbound Washington St | | | | Eastbound 15th St | | | | Westbound 15th St | | | | Total |
|----------------|-----------------------------|------|------|-------|-----------------------------|------|------|-------|----------------------|------|-------|-------|----------------------|------|-------|-------|-------|
| | L | T | R | Total | L | T | R | Total | L | T | R | Total | L | T | R | Total | |
| Volume | 25 | 262 | 85 | 372 | 49 | 500 | 194 | 743 | 13 | 14 | 13 | 40 | 10 | 64 | 31 | 105 | 1,260 |
| %HV | 0.0% | 7.3% | 3.5% | 5.9% | 4.1% | 4.0% | 3.1% | 3.8% | 7.7% | 7.1% | 46.2% | 20.0% | 10.0% | 3.1% | 16.1% | 7.6% | 5.2% |
| PHF | 0.78 | 0.79 | 0.82 | 0.86 | 0.64 | 0.79 | 0.85 | 0.86 | 0.54 | 0.50 | 0.54 | 0.56 | 0.36 | 0.76 | 0.60 | 0.77 | 0.89 |

Rolling Hour Summary

7:00 AM to 9:00 AM

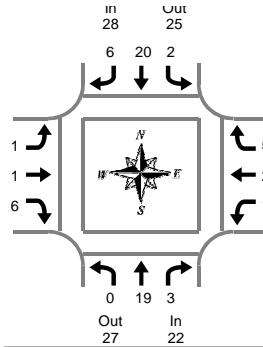
| Interval Start Time | Northbound Washington St | | | | Southbound Washington St | | | | Eastbound 15th St | | | | Westbound 15th St | | | | Interval Total | Pedestrians Crosswalk | | | |
|---------------------------|-----------------------------|-----|----|-------|-----------------------------|-----|-----|-------|----------------------|----|----|-------|----------------------|----|----|-------|-------------------|--------------------------|-------|------|------|
| | L | T | R | Bikes | L | T | R | Bikes | L | T | R | Bikes | L | T | R | Bikes | | North | South | East | West |
| 7:00 AM | 37 | 257 | 58 | 1 | 37 | 496 | 177 | 0 | 10 | 11 | 10 | 1 | 11 | 69 | 24 | 1 | 1,197 | 2 | 1 | 2 | 2 |
| 7:15 AM | 30 | 265 | 71 | 0 | 44 | 506 | 174 | 0 | 10 | 10 | 13 | 1 | 13 | 68 | 31 | 1 | 1,235 | 1 | 1 | 1 | 1 |
| 7:30 AM | 25 | 262 | 85 | 0 | 49 | 500 | 194 | 0 | 13 | 14 | 13 | 0 | 10 | 64 | 31 | 1 | 1,260 | 1 | 1 | 1 | 1 |
| 7:45 AM | 29 | 271 | 86 | 0 | 48 | 435 | 205 | 0 | 21 | 18 | 13 | 0 | 14 | 66 | 27 | 0 | 1,233 | 0 | 1 | 2 | 0 |
| 8:00 AM | 31 | 257 | 94 | 0 | 47 | 402 | 196 | 0 | 21 | 19 | 12 | 0 | 16 | 70 | 17 | 0 | 1,182 | 4 | 1 | 2 | 0 |

Heavy Vehicle Summary



Clay Carney
(503) 833-2740

Out 8
In 8



Washington St & 15th St

Thursday, January 26, 2017

7:00 AM to 9:00 AM

Peak Hour Summary
7:30 AM to 8:30 AM

Heavy Vehicle 5-Minute Interval Summary

7:00 AM to 9:00 AM

| Interval Start Time | Northbound Washington St | | | | Southbound Washington St | | | | Eastbound 15th St | | | | Westbound 15th St | | | | Interval Total |
|---------------------------|-----------------------------|----|---|-------|-----------------------------|----|----|-------|----------------------|---|----|-------|----------------------|---|---|-------|-------------------|
| | L | T | R | Total | L | T | R | Total | L | T | R | Total | L | T | R | Total | |
| 7:00 AM | 0 | 2 | 0 | 2 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 |
| 7:05 AM | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 7:10 AM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 7:15 AM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 2 |
| 7:20 AM | 0 | 2 | 0 | 2 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 4 |
| 7:25 AM | 0 | 2 | 0 | 2 | 0 | 0 | 1 | 1 | 0 | 2 | 2 | 0 | 0 | 0 | 0 | 0 | 5 |
| 7:30 AM | 0 | 2 | 0 | 2 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 4 |
| 7:35 AM | 0 | 2 | 0 | 2 | 0 | 1 | 2 | 3 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 6 |
| 7:40 AM | 0 | 1 | 0 | 1 | 0 | 3 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 |
| 7:45 AM | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 3 |
| 7:50 AM | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 1 | 3 |
| 7:55 AM | 0 | 1 | 0 | 1 | 1 | 0 | 3 | 1 | 4 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 6 |
| 8:00 AM | 0 | 1 | 0 | 1 | 1 | 4 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 |
| 8:05 AM | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 2 | 3 |
| 8:10 AM | 0 | 3 | 1 | 4 | 0 | 3 | 1 | 4 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 9 |
| 8:15 AM | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 3 | 1 | 0 | 1 | 2 | 0 | 1 | 0 | 1 | 6 |
| 8:20 AM | 0 | 2 | 1 | 3 | 0 | 0 | 2 | 2 | 0 | 1 | 1 | 2 | 0 | 1 | 1 | 2 | 9 |
| 8:25 AM | 0 | 5 | 1 | 6 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 |
| 8:30 AM | 0 | 2 | 0 | 2 | 0 | 1 | 1 | 2 | 1 | 1 | 1 | 3 | 0 | 0 | 0 | 0 | 7 |
| 8:35 AM | 0 | 0 | 0 | 0 | 0 | 4 | 1 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 |
| 8:40 AM | 1 | 1 | 0 | 2 | 0 | 1 | 1 | 2 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 5 |
| 8:45 AM | 0 | 2 | 1 | 3 | 0 | 3 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 |
| 8:50 AM | 1 | 2 | 0 | 3 | 0 | 1 | 1 | 2 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 6 |
| 8:55 AM | 0 | 2 | 0 | 2 | 0 | 2 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 |
| Total Survey | 2 | 34 | 4 | 40 | 3 | 35 | 12 | 50 | 2 | 2 | 10 | 14 | 1 | 4 | 6 | 11 | 115 |

Heavy Vehicle 15-Minute Interval Summary

7:00 AM to 9:00 AM

| Interval Start Time | Northbound Washington St | | | | Southbound Washington St | | | | Eastbound 15th St | | | | Westbound 15th St | | | | Interval Total |
|---------------------------|-----------------------------|----|---|-------|-----------------------------|----|----|-------|----------------------|---|----|-------|----------------------|---|---|-------|-------------------|
| | L | T | R | Total | L | T | R | Total | L | T | R | Total | L | T | R | Total | |
| 7:00 AM | 0 | 2 | 0 | 2 | 1 | 1 | 1 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 |
| 7:15 AM | 0 | 4 | 0 | 4 | 0 | 2 | 1 | 3 | 0 | 0 | 2 | 2 | 0 | 1 | 1 | 2 | 11 |
| 7:30 AM | 0 | 5 | 0 | 5 | 0 | 5 | 2 | 7 | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 1 | 14 |
| 7:45 AM | 0 | 2 | 0 | 2 | 1 | 4 | 1 | 6 | 0 | 0 | 2 | 2 | 0 | 0 | 2 | 2 | 12 |
| 8:00 AM | 0 | 5 | 1 | 6 | 1 | 7 | 1 | 9 | 0 | 0 | 1 | 1 | 1 | 0 | 1 | 2 | 18 |
| 8:15 AM | 0 | 7 | 2 | 9 | 0 | 4 | 2 | 6 | 1 | 1 | 2 | 4 | 0 | 2 | 1 | 3 | 22 |
| 8:30 AM | 1 | 3 | 0 | 4 | 0 | 6 | 3 | 9 | 1 | 1 | 1 | 3 | 0 | 1 | 0 | 1 | 17 |
| 8:45 AM | 1 | 6 | 1 | 8 | 0 | 6 | 1 | 7 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 16 |
| Total Survey | 2 | 34 | 4 | 40 | 3 | 35 | 12 | 50 | 2 | 2 | 10 | 14 | 1 | 4 | 6 | 11 | 115 |

Heavy Vehicle Peak Hour Summary

7:30 AM to 8:30 AM

| By Approach | Northbound Washington St | | | Southbound Washington St | | | Eastbound 15th St | | | Westbound 15th St | | | Total |
|----------------|-----------------------------|-----|-------|-----------------------------|-----|-------|----------------------|-----|-------|----------------------|-----|-------|-------|
| | In | Out | Total | In | Out | Total | In | Out | Total | In | Out | Total | |
| Volume | 22 | 27 | 49 | 28 | 25 | 53 | 8 | 8 | 16 | 8 | 6 | 14 | 66 |
| PHF | 0.61 | | | 0.70 | | | 0.40 | | | 0.67 | | | 0.69 |

| By Movement | Northbound Washington St | | | | Southbound Washington St | | | | Eastbound 15th St | | | | Westbound 15th St | | | | Total |
|----------------|-----------------------------|------|------|-------|-----------------------------|------|------|-------|----------------------|------|------|-------|----------------------|------|------|-------|-------|
| | L | T | R | Total | L | T | R | Total | L | T | R | Total | L | T | R | Total | |
| Volume | 0 | 19 | 3 | 22 | 2 | 20 | 6 | 28 | 1 | 1 | 6 | 8 | 1 | 2 | 5 | 8 | 66 |
| PHF | 0.00 | 0.68 | 0.38 | 0.61 | 0.25 | 0.71 | 0.50 | 0.70 | 0.25 | 0.25 | 0.50 | 0.40 | 0.25 | 0.25 | 0.63 | 0.67 | 0.69 |

Heavy Vehicle Rolling Hour Summary

7:00 AM to 9:00 AM

| Interval Start Time | Northbound Washington St | | | | Southbound Washington St | | | | Eastbound 15th St | | | | Westbound 15th St | | | | Interval Total |
|---------------------------|-----------------------------|----|---|-------|-----------------------------|----|---|-------|----------------------|---|---|-------|----------------------|---|---|-------|-------------------|
| | L | T | R | Total | L | T | R | Total | L | T | R | Total | L | T | R | Total | |
| 7:00 AM | 0 | 13 | 0 | 13 | 2 | 12 | 5 | 19 | 0 | 0 | 5 | 5 | 0 | 1 | 4 | 5 | 42 |
| 7:15 AM | 0 | 16 | 1 | 17 | 2 | 18 | 5 | 25 | 0 | 0 | 6 | 6 | 1 | 1 | 5 | 7 | 55 |
| 7:30 AM | 0 | 19 | 3 | 22 | 2 | 20 | 6 | 28 | 1 | 1 | 6 | 8 | 1 | 2 | 5 | 8 | 66 |
| 7:45 AM | 1 | 17 | 3 | 21 | 2 | 21 | 7 | 30 | 2 | 2 | 6 | 10 | 1 | 3 | 4 | 8 | 69 |
| 8:00 AM | 2 | 21 | 4 | 27 | 1 | 23 | 7 | 31 | 2 | 2 | 5 | 9 | 1 | 3 | 2 | 6 | 73 |

Peak Hour Summary

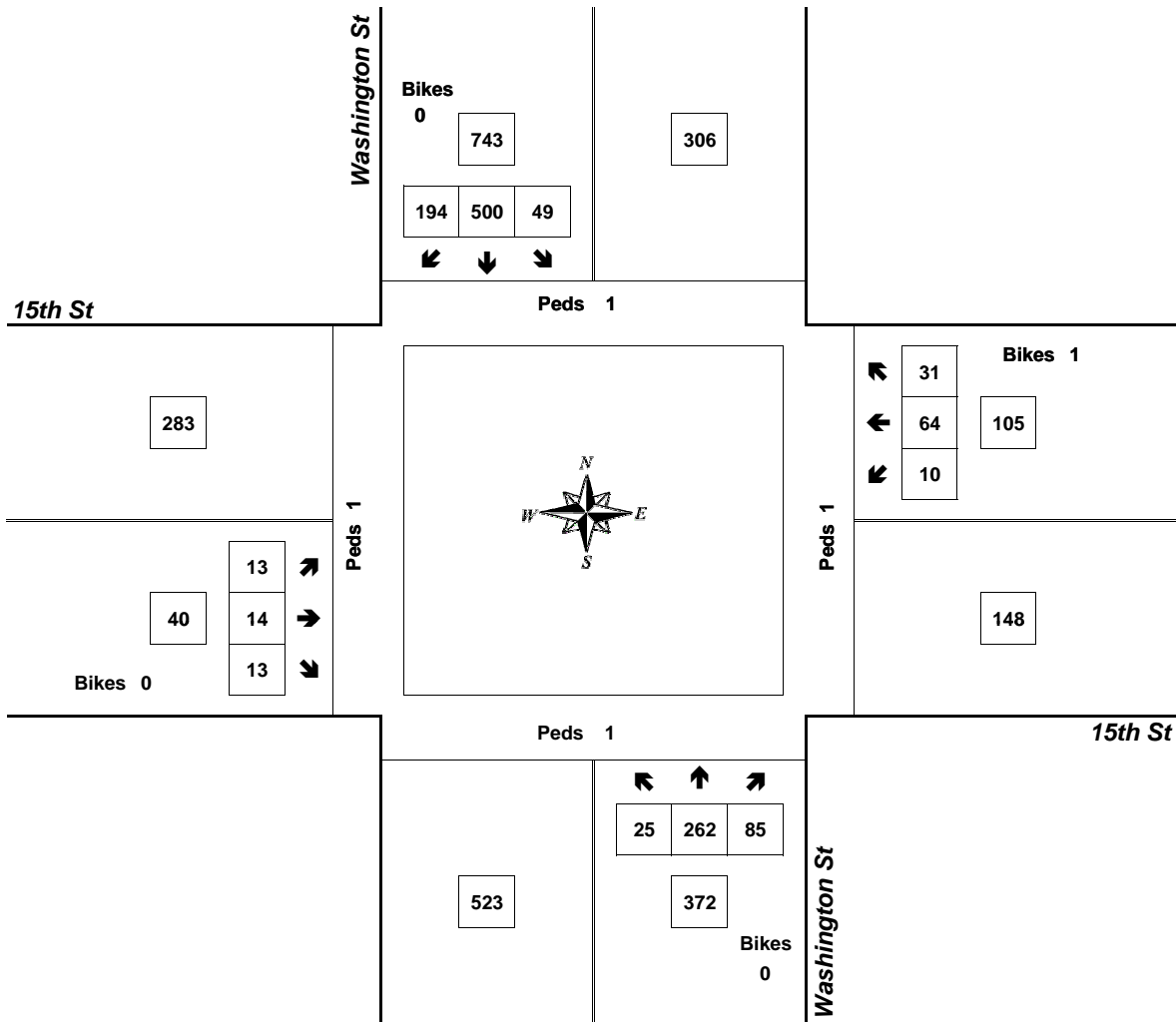


Clay Carney
(503) 833-2740

Washington St & 15th St

7:30 AM to 8:30 AM

Thursday, January 26, 2017



| Approach | PHF | HV% | Volume |
|---------------------|-------------|-------------|--------------|
| EB | 0.56 | 20.0% | 40 |
| WB | 0.77 | 7.6% | 105 |
| NB | 0.86 | 5.9% | 372 |
| SB | 0.86 | 3.8% | 743 |
| Intersection | 0.89 | 5.2% | 1,260 |

Count Period: 7:00 AM to 9:00 AM

Total Vehicle Summary



Clay Carney
(503) 833-2740

Washington St & 15th St

Wednesday, January 25, 2017

4:00 PM to 6:00 PM

5-Minute Interval Summary

4:00 PM to 6:00 PM

| Interval Start Time | Northbound Washington St | | | | Southbound Washington St | | | | Eastbound 15th St | | | | Westbound 15th St | | | | Interval Total | Pedestrians Crosswalk | | | |
|---------------------------|-----------------------------|-----|----|-------|-----------------------------|-----|-----|-------|----------------------|----|----|-------|----------------------|-----|----|-------|-------------------|--------------------------|-------|------|------|
| | L | T | R | Bikes | L | T | R | Bikes | L | T | R | Bikes | L | T | R | Bikes | | North | South | East | West |
| 4:00 PM | 3 | 32 | 4 | 0 | 3 | 34 | 8 | 0 | 4 | 2 | 5 | 0 | 3 | 8 | 5 | 0 | 111 | 0 | 0 | 1 | 1 |
| 4:05 PM | 0 | 46 | 1 | 0 | 4 | 29 | 9 | 0 | 2 | 1 | 2 | 0 | 2 | 7 | 2 | 0 | 105 | 0 | 2 | 2 | 0 |
| 4:10 PM | 2 | 26 | 5 | 0 | 5 | 40 | 4 | 0 | 3 | 3 | 1 | 0 | 1 | 12 | 2 | 0 | 104 | 1 | 0 | 0 | 0 |
| 4:15 PM | 2 | 39 | 1 | 0 | 4 | 34 | 5 | 0 | 1 | 1 | 3 | 0 | 1 | 7 | 3 | 0 | 101 | 0 | 0 | 0 | 1 |
| 4:20 PM | 1 | 51 | 5 | 0 | 2 | 23 | 8 | 0 | 6 | 1 | 1 | 0 | 2 | 7 | 1 | 0 | 108 | 0 | 0 | 0 | 0 |
| 4:25 PM | 0 | 44 | 5 | 0 | 1 | 40 | 10 | 0 | 5 | 0 | 1 | 0 | 2 | 9 | 0 | 0 | 117 | 0 | 1 | 1 | 1 |
| 4:30 PM | 5 | 43 | 6 | 0 | 6 | 37 | 6 | 0 | 2 | 0 | 1 | 0 | 1 | 8 | 5 | 0 | 120 | 0 | 1 | 0 | 1 |
| 4:35 PM | 4 | 32 | 7 | 0 | 1 | 42 | 13 | 0 | 8 | 1 | 4 | 0 | 2 | 14 | 0 | 0 | 128 | 1 | 0 | 0 | 0 |
| 4:40 PM | 6 | 37 | 3 | 0 | 3 | 44 | 8 | 0 | 4 | 1 | 1 | 0 | 1 | 7 | 1 | 0 | 116 | 0 | 0 | 0 | 0 |
| 4:45 PM | 2 | 48 | 4 | 0 | 3 | 39 | 8 | 0 | 3 | 0 | 0 | 0 | 1 | 10 | 3 | 0 | 121 | 1 | 0 | 0 | 1 |
| 4:50 PM | 2 | 38 | 1 | 0 | 5 | 35 | 8 | 0 | 2 | 1 | 1 | 0 | 2 | 10 | 0 | 0 | 105 | 0 | 0 | 1 | 0 |
| 4:55 PM | 1 | 49 | 3 | 0 | 2 | 42 | 7 | 0 | 0 | 1 | 1 | 0 | 2 | 8 | 4 | 0 | 120 | 0 | 0 | 1 | 0 |
| 5:00 PM | 3 | 36 | 6 | 0 | 3 | 33 | 9 | 0 | 4 | 1 | 0 | 0 | 1 | 12 | 3 | 0 | 111 | 0 | 0 | 0 | 1 |
| 5:05 PM | 0 | 20 | 7 | 0 | 5 | 25 | 8 | 0 | 2 | 0 | 1 | 0 | 8 | 8 | 6 | 0 | 90 | 0 | 2 | 0 | 0 |
| 5:10 PM | 1 | 51 | 1 | 0 | 5 | 37 | 10 | 0 | 0 | 0 | 1 | 0 | 2 | 11 | 4 | 0 | 123 | 1 | 0 | 0 | 1 |
| 5:15 PM | 5 | 35 | 5 | 0 | 3 | 33 | 9 | 0 | 4 | 2 | 2 | 0 | 3 | 10 | 0 | 0 | 111 | 0 | 0 | 0 | 1 |
| 5:20 PM | 2 | 27 | 1 | 0 | 2 | 29 | 2 | 0 | 2 | 1 | 1 | 0 | 6 | 8 | 5 | 0 | 86 | 0 | 1 | 0 | 0 |
| 5:25 PM | 0 | 40 | 1 | 0 | 1 | 34 | 8 | 0 | 1 | 2 | 1 | 0 | 3 | 6 | 4 | 0 | 101 | 2 | 0 | 0 | 0 |
| 5:30 PM | 7 | 36 | 7 | 0 | 1 | 42 | 9 | 0 | 1 | 1 | 1 | 0 | 1 | 9 | 2 | 0 | 117 | 0 | 0 | 0 | 1 |
| 5:35 PM | 1 | 36 | 3 | 0 | 1 | 33 | 11 | 0 | 1 | 2 | 0 | 0 | 1 | 11 | 1 | 0 | 101 | 0 | 0 | 0 | 0 |
| 5:40 PM | 0 | 35 | 4 | 0 | 4 | 24 | 11 | 0 | 2 | 1 | 0 | 0 | 2 | 4 | 3 | 0 | 90 | 0 | 0 | 0 | 0 |
| 5:45 PM | 2 | 41 | 2 | 0 | 2 | 33 | 3 | 0 | 0 | 2 | 1 | 0 | 1 | 8 | 0 | 0 | 95 | 0 | 2 | 2 | 1 |
| 5:50 PM | 4 | 43 | 5 | 0 | 2 | 39 | 8 | 0 | 4 | 1 | 1 | 0 | 0 | 8 | 2 | 0 | 117 | 0 | 0 | 0 | 0 |
| 5:55 PM | 2 | 35 | 5 | 0 | 2 | 29 | 4 | 0 | 3 | 2 | 0 | 0 | 0 | 3 | 4 | 0 | 89 | 0 | 1 | 0 | 2 |
| Total Survey | 55 | 920 | 92 | 0 | 70 | 830 | 186 | 0 | 64 | 27 | 30 | 0 | 48 | 205 | 60 | 0 | 2,587 | 6 | 10 | 8 | 12 |

15-Minute Interval Summary

4:00 PM to 6:00 PM

| Interval Start Time | Northbound Washington St | | | | Southbound Washington St | | | | Eastbound 15th St | | | | Westbound 15th St | | | | Interval Total | Pedestrians Crosswalk | | | |
|---------------------------|-----------------------------|-----|----|-------|-----------------------------|-----|-----|-------|----------------------|----|----|-------|----------------------|-----|----|-------|-------------------|--------------------------|-------|------|------|
| | L | T | R | Bikes | L | T | R | Bikes | L | T | R | Bikes | L | T | R | Bikes | | North | South | East | West |
| 4:00 PM | 5 | 104 | 10 | 0 | 12 | 103 | 21 | 0 | 9 | 6 | 8 | 0 | 6 | 27 | 9 | 0 | 320 | 1 | 2 | 3 | 1 |
| 4:15 PM | 3 | 134 | 11 | 0 | 7 | 97 | 23 | 0 | 12 | 2 | 5 | 0 | 5 | 23 | 4 | 0 | 326 | 0 | 1 | 1 | 2 |
| 4:30 PM | 15 | 112 | 16 | 0 | 10 | 123 | 27 | 0 | 14 | 2 | 6 | 0 | 4 | 29 | 6 | 0 | 364 | 1 | 1 | 0 | 1 |
| 4:45 PM | 5 | 135 | 8 | 0 | 10 | 116 | 23 | 0 | 5 | 2 | 2 | 0 | 5 | 28 | 7 | 0 | 346 | 1 | 0 | 2 | 1 |
| 5:00 PM | 4 | 107 | 14 | 0 | 13 | 95 | 27 | 0 | 6 | 1 | 2 | 0 | 11 | 31 | 13 | 0 | 324 | 1 | 2 | 0 | 2 |
| 5:15 PM | 7 | 102 | 7 | 0 | 6 | 96 | 19 | 0 | 7 | 5 | 4 | 0 | 12 | 24 | 9 | 0 | 298 | 2 | 1 | 0 | 1 |
| 5:30 PM | 8 | 107 | 14 | 0 | 6 | 99 | 31 | 0 | 4 | 4 | 1 | 0 | 4 | 24 | 6 | 0 | 308 | 0 | 0 | 0 | 1 |
| 5:45 PM | 8 | 119 | 12 | 0 | 6 | 101 | 15 | 0 | 7 | 5 | 2 | 0 | 1 | 19 | 6 | 0 | 301 | 0 | 3 | 2 | 3 |
| Total Survey | 55 | 920 | 92 | 0 | 70 | 830 | 186 | 0 | 64 | 27 | 30 | 0 | 48 | 205 | 60 | 0 | 2,587 | 6 | 10 | 8 | 12 |

Peak Hour Summary

4:20 PM to 5:20 PM

| By Approach | Northbound Washington St | | | | Southbound Washington St | | | | Eastbound 15th St | | | | Westbound 15th St | | | | Total | Pedestrians Crosswalk | | | |
|----------------|-----------------------------|-----|-------|-------|-----------------------------|-----|-------|-------|----------------------|-----|-------|-------|----------------------|-----|-------|-------|-------|--------------------------|-------|------|------|
| | In | Out | Total | Bikes | In | Out | Total | Bikes | In | Out | Total | Bikes | In | Out | Total | Bikes | | North | South | East | West |
| Volume | 567 | 471 | 1,038 | 0 | 573 | 551 | 1,124 | 0 | 62 | 248 | 310 | 0 | 168 | 100 | 268 | 0 | 1,370 | 3 | 4 | 3 | 6 |
| %HV | 1.2% | | | | 2.1% | | | | 9.7% | | | | 2.4% | | | | 2.1% | | | | |
| PHF | 0.89 | | | | 0.89 | | | | 0.70 | | | | 0.76 | | | | 0.94 | | | | |

| By Movement | Northbound Washington St | | | | Southbound Washington St | | | | Eastbound 15th St | | | | Westbound 15th St | | | | Total |
|----------------|-----------------------------|------|------|-------|-----------------------------|------|------|-------|----------------------|------|-------|-------|----------------------|------|------|-------|-------|
| | L | T | R | Total | L | T | R | Total | L | T | R | Total | L | T | R | Total | |
| Volume | 30 | 484 | 53 | 567 | 39 | 430 | 104 | 573 | 40 | 8 | 14 | 62 | 27 | 114 | 27 | 168 | 1,370 |
| %HV | 0.0% | 1.0% | 3.8% | 1.2% | 5.1% | 2.1% | 1.0% | 2.1% | 2.5% | 0.0% | 35.7% | 9.7% | 0.0% | 1.8% | 7.4% | 2.4% | 2.1% |
| PHF | 0.50 | 0.88 | 0.74 | 0.89 | 0.75 | 0.86 | 0.90 | 0.89 | 0.67 | 0.67 | 0.58 | 0.70 | 0.52 | 0.92 | 0.52 | 0.76 | 0.94 |

Rolling Hour Summary

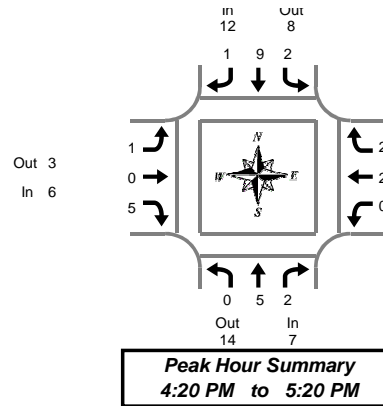
4:00 PM to 6:00 PM

| Interval Start Time | Northbound Washington St | | | | Southbound Washington St | | | | Eastbound 15th St | | | | Westbound 15th St | | | | Interval Total | Pedestrians Crosswalk | | | |
|---------------------------|-----------------------------|-----|----|-------|-----------------------------|-----|-----|-------|----------------------|----|----|-------|----------------------|-----|----|-------|-------------------|--------------------------|-------|------|------|
| | L | T | R | Bikes | L | T | R | Bikes | L | T | R | Bikes | L | T | R | Bikes | | North | South | East | West |
| 4:00 PM | 28 | 485 | 45 | 0 | 39 | 439 | 94 | 0 | 40 | 12 | 21 | 0 | 20 | 107 | 26 | 0 | 1,356 | 3 | 4 | 6 | 5 |
| 4:15 PM | 27 | 488 | 49 | 0 | 40 | 431 | 100 | 0 | 37 | 7 | 15 | 0 | 25 | 111 | 30 | 0 | 1,360 | 3 | 4 | 3 | 6 |
| 4:30 PM | 31 | 456 | 45 | 0 | 39 | 430 | 96 | 0 | 32 | 10 | 14 | 0 | 32 | 112 | 35 | 0 | 1,332 | 5 | 4 | 2 | 5 |
| 4:45 PM | 24 | 451 | 43 | 0 | 35 | 406 | 100 | 0 | 22 | 12 | 9 | 0 | 32 | 107 | 35 | 0 | 1,276 | 4 | 3 | 2 | 5 |
| 5:00 PM | 27 | 435 | 47 | 0 | 31 | 391 | 92 | 0 | 24 | 15 | 9 | 0 | 28 | 98 | 34 | 0 | 1,231 | 3 | 6 | 2 | 7 |

Heavy Vehicle Summary



Clay Carney
(503) 833-2740



Washington St & 15th St

Wednesday, January 25, 2017

4:00 PM to 6:00 PM

Heavy Vehicle 5-Minute Interval Summary

4:00 PM to 6:00 PM

| Interval Start Time | Northbound Washington St | | | | Southbound Washington St | | | | Eastbound 15th St | | | | Westbound 15th St | | | | Interval Total |
|---------------------------|-----------------------------|----|---|-------|-----------------------------|----|---|-------|----------------------|---|---|-------|----------------------|---|---|-------|-------------------|
| | L | T | R | Total | L | T | R | Total | L | T | R | Total | L | T | R | Total | |
| 4:00 PM | 0 | 1 | 0 | 1 | 0 | 3 | 0 | 3 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 5 |
| 4:05 PM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 2 |
| 4:10 PM | 0 | 0 | 0 | 0 | 0 | 2 | 1 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 |
| 4:15 PM | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 4:20 PM | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 3 |
| 4:25 PM | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 4:30 PM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 4:35 PM | 0 | 1 | 1 | 2 | 0 | 2 | 1 | 3 | 0 | 0 | 2 | 2 | 0 | 0 | 0 | 0 | 7 |
| 4:40 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 4:45 PM | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 5 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 6 |
| 4:50 PM | 0 | 1 | 0 | 1 | 2 | 0 | 0 | 2 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 4 |
| 4:55 PM | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 2 |
| 5:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 5:05 PM | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| 5:10 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 1 |
| 5:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 1 | 0 | 1 | 2 |
| 5:20 PM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 5:25 PM | 0 | 2 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| 5:30 PM | 0 | 2 | 0 | 2 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 4 |
| 5:35 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 5:40 PM | 0 | 2 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| 5:45 PM | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 2 |
| 5:50 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 1 |
| 5:55 PM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Total Survey | 0 | 14 | 2 | 16 | 2 | 18 | 2 | 22 | 2 | 0 | 9 | 11 | 0 | 2 | 2 | 4 | 53 |

Heavy Vehicle 15-Minute Interval Summary

4:00 PM to 6:00 PM

| Interval Start Time | Northbound Washington St | | | | Southbound Washington St | | | | Eastbound 15th St | | | | Westbound 15th St | | | | Interval Total |
|---------------------------|-----------------------------|----|---|-------|-----------------------------|----|---|-------|----------------------|---|---|-------|----------------------|---|---|-------|-------------------|
| | L | T | R | Total | L | T | R | Total | L | T | R | Total | L | T | R | Total | |
| 4:00 PM | 0 | 1 | 0 | 1 | 0 | 6 | 1 | 7 | 1 | 0 | 1 | 2 | 0 | 0 | 0 | 0 | 10 |
| 4:15 PM | 0 | 2 | 1 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 5 |
| 4:30 PM | 0 | 1 | 1 | 2 | 0 | 3 | 1 | 4 | 0 | 0 | 2 | 2 | 0 | 0 | 0 | 0 | 8 |
| 4:45 PM | 0 | 2 | 0 | 2 | 2 | 5 | 0 | 7 | 1 | 0 | 1 | 2 | 0 | 0 | 1 | 1 | 12 |
| 5:00 PM | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 3 |
| 5:15 PM | 0 | 2 | 0 | 2 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | 1 | 0 | 1 | 5 |
| 5:30 PM | 0 | 4 | 0 | 4 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 6 |
| 5:45 PM | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 2 | 2 | 0 | 0 | 0 | 0 | 4 |
| Total Survey | 0 | 14 | 2 | 16 | 2 | 18 | 2 | 22 | 2 | 0 | 9 | 11 | 0 | 2 | 2 | 4 | 53 |

Heavy Vehicle Peak Hour Summary

4:20 PM to 5:20 PM

| By Approach | Northbound Washington St | | | Southbound Washington St | | | Eastbound 15th St | | | Westbound 15th St | | | Total |
|----------------|-----------------------------|-----|-------|-----------------------------|-----|-------|----------------------|-----|-------|----------------------|-----|-------|-------|
| | In | Out | Total | In | Out | Total | In | Out | Total | In | Out | Total | |
| Volume | 7 | 14 | 21 | 12 | 8 | 20 | 6 | 3 | 9 | 4 | 4 | 8 | 29 |
| PHF | 0.58 | | | 0.38 | | | 0.50 | | | 0.50 | | | 0.56 |

| By Movement | Northbound Washington St | | | | Southbound Washington St | | | | Eastbound 15th St | | | | Westbound 15th St | | | | Total |
|----------------|-----------------------------|------|------|-------|-----------------------------|------|------|-------|----------------------|------|------|-------|----------------------|------|------|-------|-------|
| | L | T | R | Total | L | T | R | Total | L | T | R | Total | L | T | R | Total | |
| Volume | 0 | 5 | 2 | 7 | 2 | 9 | 1 | 12 | 1 | 0 | 5 | 6 | 0 | 2 | 2 | 4 | 29 |
| PHF | 0.00 | 0.63 | 0.50 | 0.58 | 0.25 | 0.32 | 0.25 | 0.38 | 0.25 | 0.00 | 0.63 | 0.50 | 0.00 | 0.50 | 0.50 | 0.50 | 0.56 |

Heavy Vehicle Rolling Hour Summary

4:00 PM to 6:00 PM

| Interval Start Time | Northbound Washington St | | | | Southbound Washington St | | | | Eastbound 15th St | | | | Westbound 15th St | | | | Interval Total |
|---------------------------|-----------------------------|---|---|-------|-----------------------------|----|---|-------|----------------------|---|---|-------|----------------------|---|---|-------|-------------------|
| | L | T | R | Total | L | T | R | Total | L | T | R | Total | L | T | R | Total | |
| 4:00 PM | 0 | 6 | 2 | 8 | 2 | 14 | 2 | 18 | 2 | 0 | 4 | 6 | 0 | 1 | 2 | 3 | 35 |
| 4:15 PM | 0 | 6 | 2 | 8 | 2 | 9 | 1 | 12 | 1 | 0 | 4 | 5 | 0 | 1 | 2 | 3 | 28 |
| 4:30 PM | 0 | 6 | 1 | 7 | 2 | 10 | 1 | 13 | 1 | 0 | 5 | 6 | 0 | 1 | 1 | 2 | 28 |
| 4:45 PM | 0 | 9 | 0 | 9 | 2 | 8 | 0 | 10 | 1 | 0 | 4 | 5 | 0 | 1 | 1 | 2 | 26 |
| 5:00 PM | 0 | 8 | 0 | 8 | 0 | 4 | 0 | 4 | 0 | 0 | 5 | 5 | 0 | 1 | 0 | 1 | 18 |

Peak Hour Summary

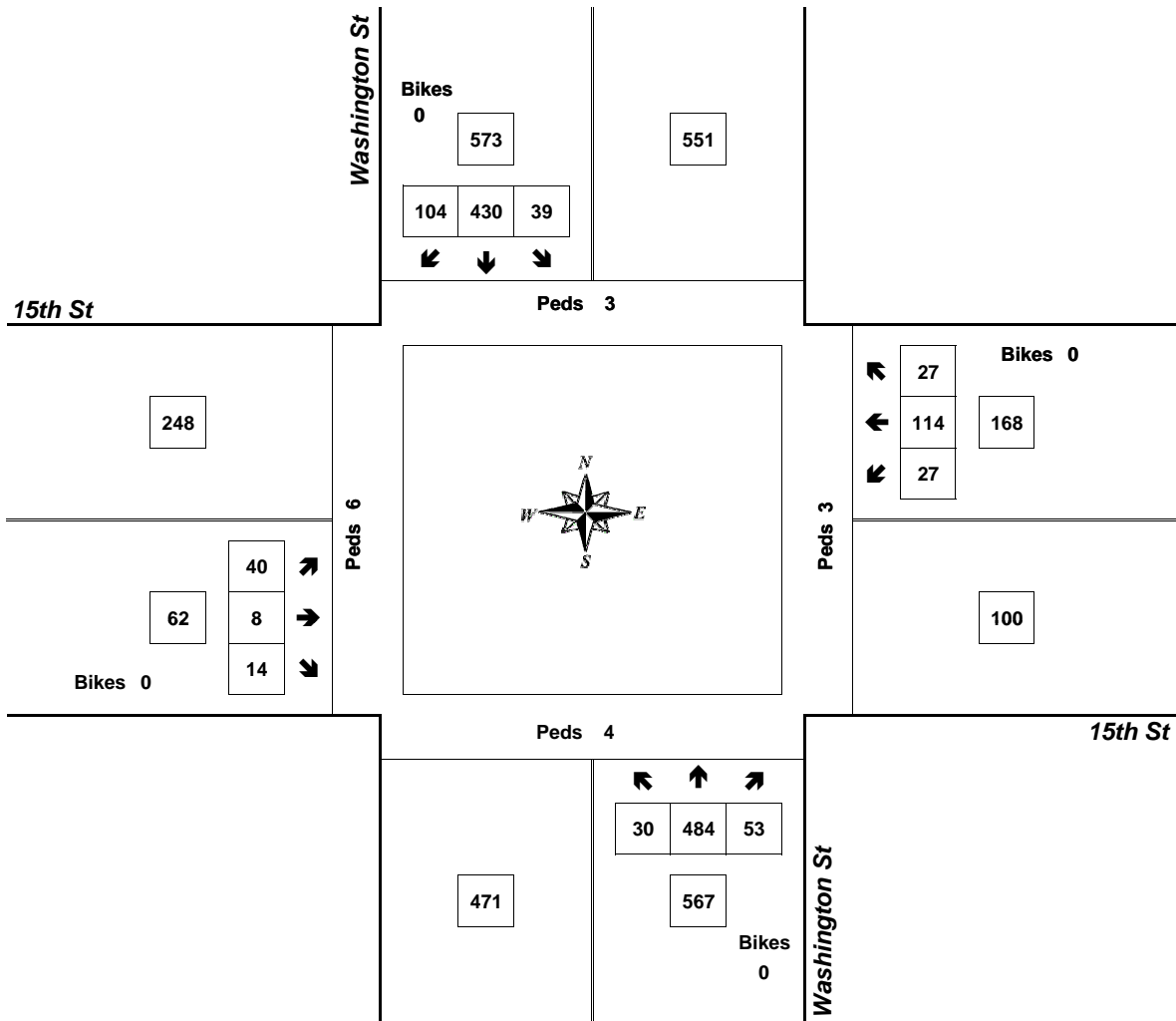


Clay Carney
(503) 833-2740

Washington St & 15th St

4:20 PM to 5:20 PM

Wednesday, January 25, 2017



| Approach | PHF | HV% | Volume |
|--------------|------|------|--------|
| EB | 0.70 | 9.7% | 62 |
| WB | 0.76 | 2.4% | 168 |
| NB | 0.89 | 1.2% | 567 |
| SB | 0.89 | 2.1% | 573 |
| Intersection | 0.94 | 2.1% | 1,370 |

Count Period: 4:00 PM to 6:00 PM

Total Vehicle Summary

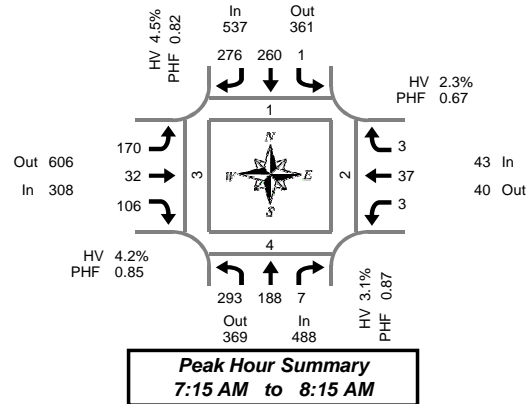


Clay Carney
(503) 833-2740

Washington St & 14th St

Thursday, January 26, 2017

7:00 AM to 9:00 AM



5-Minute Interval Summary

7:00 AM to 9:00 AM

| Interval Start Time | Northbound Washington St | | | | Southbound Washington St | | | | Eastbound 14th St | | | | Westbound 14th St | | | | Interval Total | Pedestrians Crosswalk | | | |
|---------------------------|-----------------------------|-----|----|-------|-----------------------------|-----|-----|-------|----------------------|----|-----|-------|----------------------|----|---|-------|-------------------|--------------------------|-------|------|------|
| | L | T | R | Bikes | L | T | R | Bikes | L | T | R | Bikes | L | T | R | Bikes | | North | South | East | West |
| 7:00 AM | 23 | 6 | 0 | 0 | 0 | 12 | 25 | 0 | 12 | 4 | 9 | 0 | 0 | 5 | 0 | 0 | 96 | 0 | 0 | 0 | 0 |
| 7:05 AM | 20 | 7 | 0 | 0 | 0 | 8 | 15 | 0 | 10 | 0 | 6 | 0 | 0 | 1 | 0 | 0 | 67 | 0 | 0 | 0 | 0 |
| 7:10 AM | 16 | 21 | 1 | 1 | 1 | 8 | 25 | 0 | 16 | 1 | 6 | 0 | 0 | 3 | 0 | 0 | 98 | 0 | 0 | 1 | 0 |
| 7:15 AM | 28 | 11 | 0 | 0 | 0 | 14 | 28 | 1 | 15 | 1 | 4 | 0 | 0 | 5 | 0 | 0 | 106 | 1 | 0 | 1 | 0 |
| 7:20 AM | 24 | 15 | 0 | 0 | 0 | 17 | 20 | 0 | 17 | 3 | 7 | 0 | 0 | 5 | 1 | 0 | 109 | 0 | 0 | 0 | 0 |
| 7:25 AM | 35 | 18 | 0 | 0 | 0 | 12 | 25 | 0 | 15 | 3 | 9 | 0 | 0 | 2 | 0 | 0 | 119 | 0 | 0 | 0 | 0 |
| 7:30 AM | 27 | 5 | 0 | 0 | 0 | 29 | 26 | 0 | 9 | 4 | 10 | 0 | 1 | 6 | 1 | 0 | 118 | 0 | 0 | 0 | 0 |
| 7:35 AM | 27 | 19 | 0 | 0 | 0 | 15 | 28 | 0 | 14 | 0 | 9 | 0 | 0 | 2 | 0 | 0 | 114 | 0 | 1 | 0 | 0 |
| 7:40 AM | 25 | 14 | 0 | 0 | 1 | 31 | 27 | 0 | 5 | 5 | 5 | 0 | 1 | 4 | 0 | 0 | 118 | 0 | 2 | 0 | 1 |
| 7:45 AM | 20 | 14 | 2 | 0 | 0 | 32 | 24 | 0 | 18 | 2 | 11 | 0 | 0 | 3 | 0 | 0 | 126 | 0 | 0 | 0 | 0 |
| 7:50 AM | 21 | 32 | 1 | 0 | 0 | 25 | 24 | 0 | 9 | 1 | 12 | 0 | 1 | 4 | 0 | 0 | 130 | 0 | 0 | 1 | 1 |
| 7:55 AM | 25 | 24 | 2 | 0 | 0 | 23 | 21 | 0 | 19 | 5 | 14 | 0 | 0 | 1 | 0 | 0 | 134 | 0 | 0 | 0 | 0 |
| 8:00 AM | 20 | 8 | 0 | 0 | 0 | 20 | 17 | 0 | 16 | 2 | 10 | 0 | 0 | 3 | 0 | 0 | 96 | 0 | 0 | 0 | 0 |
| 8:05 AM | 22 | 15 | 0 | 0 | 0 | 20 | 21 | 0 | 11 | 4 | 7 | 0 | 0 | 1 | 1 | 0 | 102 | 0 | 1 | 0 | 1 |
| 8:10 AM | 19 | 13 | 2 | 0 | 0 | 22 | 15 | 0 | 22 | 2 | 8 | 0 | 0 | 1 | 0 | 0 | 104 | 0 | 0 | 0 | 0 |
| 8:15 AM | 20 | 11 | 1 | 0 | 0 | 20 | 18 | 0 | 21 | 1 | 11 | 0 | 0 | 1 | 0 | 0 | 104 | 0 | 0 | 0 | 0 |
| 8:20 AM | 15 | 10 | 2 | 0 | 0 | 19 | 20 | 0 | 19 | 2 | 8 | 0 | 0 | 1 | 1 | 0 | 97 | 0 | 1 | 0 | 0 |
| 8:25 AM | 18 | 18 | 0 | 0 | 0 | 18 | 18 | 0 | 15 | 3 | 9 | 0 | 0 | 0 | 0 | 0 | 99 | 0 | 0 | 0 | 0 |
| 8:30 AM | 22 | 17 | 0 | 0 | 0 | 8 | 11 | 0 | 23 | 2 | 11 | 0 | 0 | 0 | 0 | 0 | 94 | 0 | 0 | 0 | 0 |
| 8:35 AM | 13 | 9 | 0 | 0 | 0 | 24 | 16 | 0 | 14 | 3 | 7 | 0 | 1 | 3 | 1 | 0 | 91 | 0 | 0 | 0 | 0 |
| 8:40 AM | 10 | 10 | 0 | 0 | 0 | 20 | 20 | 0 | 12 | 4 | 8 | 0 | 1 | 1 | 0 | 0 | 86 | 0 | 0 | 0 | 0 |
| 8:45 AM | 15 | 22 | 2 | 0 | 0 | 20 | 17 | 0 | 24 | 4 | 8 | 0 | 1 | 1 | 1 | 0 | 115 | 0 | 0 | 0 | 0 |
| 8:50 AM | 17 | 14 | 3 | 0 | 0 | 22 | 11 | 0 | 20 | 4 | 8 | 0 | 0 | 0 | 0 | 0 | 99 | 0 | 1 | 1 | 1 |
| 8:55 AM | 16 | 11 | 4 | 0 | 0 | 20 | 14 | 0 | 18 | 4 | 9 | 0 | 1 | 3 | 0 | 0 | 100 | 0 | 0 | 1 | 0 |
| Total Survey | 498 | 344 | 20 | 1 | 2 | 459 | 486 | 1 | 374 | 64 | 206 | 0 | 7 | 56 | 6 | 0 | 2,522 | 1 | 6 | 5 | 4 |

15-Minute Interval Summary

7:00 AM to 9:00 AM

| Interval Start Time | Northbound Washington St | | | | Southbound Washington St | | | | Eastbound 14th St | | | | Westbound 14th St | | | | Interval Total | Pedestrians Crosswalk | | | |
|---------------------------|-----------------------------|-----|----|-------|-----------------------------|-----|-----|-------|----------------------|----|-----|-------|----------------------|----|---|-------|-------------------|--------------------------|-------|------|------|
| | L | T | R | Bikes | L | T | R | Bikes | L | T | R | Bikes | L | T | R | Bikes | | North | South | East | West |
| 7:00 AM | 59 | 34 | 1 | 1 | 1 | 28 | 65 | 0 | 38 | 5 | 21 | 0 | 0 | 9 | 0 | 0 | 261 | 0 | 0 | 1 | 0 |
| 7:15 AM | 87 | 44 | 0 | 0 | 0 | 43 | 73 | 1 | 47 | 7 | 20 | 0 | 0 | 12 | 1 | 0 | 334 | 1 | 0 | 1 | 0 |
| 7:30 AM | 79 | 38 | 0 | 0 | 1 | 75 | 81 | 0 | 28 | 9 | 24 | 0 | 2 | 12 | 1 | 0 | 350 | 0 | 3 | 0 | 1 |
| 7:45 AM | 66 | 70 | 5 | 0 | 0 | 80 | 69 | 0 | 46 | 8 | 37 | 0 | 1 | 8 | 0 | 0 | 390 | 0 | 0 | 1 | 1 |
| 8:00 AM | 61 | 36 | 2 | 0 | 0 | 62 | 53 | 0 | 49 | 8 | 25 | 0 | 0 | 5 | 1 | 0 | 302 | 0 | 1 | 0 | 1 |
| 8:15 AM | 53 | 39 | 3 | 0 | 0 | 57 | 56 | 0 | 55 | 6 | 28 | 0 | 0 | 2 | 1 | 0 | 300 | 0 | 1 | 0 | 0 |
| 8:30 AM | 45 | 36 | 0 | 0 | 0 | 52 | 47 | 0 | 49 | 9 | 26 | 0 | 2 | 4 | 1 | 0 | 271 | 0 | 0 | 0 | 0 |
| 8:45 AM | 48 | 47 | 9 | 0 | 0 | 62 | 42 | 0 | 62 | 12 | 25 | 0 | 2 | 4 | 1 | 0 | 314 | 0 | 1 | 2 | 1 |
| Total Survey | 498 | 344 | 20 | 1 | 2 | 459 | 486 | 1 | 374 | 64 | 206 | 0 | 7 | 56 | 6 | 0 | 2,522 | 1 | 6 | 5 | 4 |

Peak Hour Summary

7:15 AM to 8:15 AM

| By Approach | Northbound Washington St | | | | Southbound Washington St | | | | Eastbound 14th St | | | | Westbound 14th St | | | | Total | Pedestrians Crosswalk | | | |
|----------------|-----------------------------|-----|-------|-------|-----------------------------|-----|-------|-------|----------------------|-----|-------|-------|----------------------|-----|-------|-------|-------|--------------------------|-------|------|------|
| | In | Out | Total | Bikes | In | Out | Total | Bikes | In | Out | Total | Bikes | In | Out | Total | Bikes | | North | South | East | West |
| Volume | 488 | 369 | 857 | 0 | 537 | 361 | 898 | 1 | 308 | 606 | 914 | 0 | 43 | 40 | 83 | 0 | 1,376 | 1 | 4 | 2 | 3 |
| %HV | 3.1% | | | | 4.5% | | | | 4.2% | | | | 2.3% | | | | 3.9% | | | | |
| PHF | 0.87 | | | | 0.82 | | | | 0.85 | | | | 0.67 | | | | 0.88 | | | | |

| By Movement | Northbound Washington St | | | | Southbound Washington St | | | | Eastbound 14th St | | | | Westbound 14th St | | | | Total | | | | |
|----------------|-----------------------------|------|------|-------|-----------------------------|------|------|-------|----------------------|------|------|-------|----------------------|------|------|-------|-------|--|--|--|--|
| | L | T | R | Total | L | T | R | Total | L | T | R | Total | L | T | R | Total | | | | | |
| Volume | 293 | 188 | 7 | 488 | 1 | 260 | 276 | 537 | 170 | 32 | 106 | 308 | 3 | 37 | 3 | 43 | 1,376 | | | | |
| %HV | 2.7% | 3.7% | 0.0% | 3.1% | 0.0% | 5.4% | 3.6% | 4.5% | 4.7% | 3.1% | 3.8% | 4.2% | 0.0% | 2.7% | 0.0% | 2.3% | 3.9% | | | | |
| PHF | 0.82 | 0.67 | 0.35 | 0.87 | 0.25 | 0.74 | 0.85 | 0.82 | 0.87 | 0.73 | 0.72 | 0.85 | 0.38 | 0.71 | 0.38 | 0.67 | 0.88 | | | | |

Rolling Hour Summary

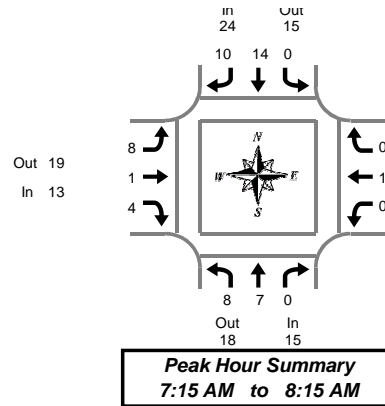
7:00 AM to 9:00 AM

| Interval Start Time | Northbound Washington St | | | | Southbound Washington St | | | | Eastbound 14th St | | | | Westbound 14th St | | | | Interval Total | Pedestrians Crosswalk | | | |
|---------------------------|-----------------------------|-----|----|-------|-----------------------------|-----|-----|-------|----------------------|----|-----|-------|----------------------|----|---|-------|-------------------|--------------------------|-------|------|------|
| | L | T | R | Bikes | L | T | R | Bikes | L | T | R | Bikes | L | T | R | Bikes | | North | South | East | West |
| 7:00 AM | 291 | 186 | 6 | 1 | 2 | 226 | 288 | 1 | 159 | 29 | 102 | 0 | 3 | 41 | 2 | 0 | 1,335 | 1 | 3 | 3 | 2 |
| 7:15 AM | 293 | 188 | 7 | 0 | 1 | 260 | 276 | 1 | 170 | 32 | 106 | 0 | 3 | 37 | 3 | 0 | 1,376 | 1 | 4 | 2 | 3 |
| 7:30 AM | 259 | 183 | 10 | 0 | 1 | 274 | 259 | 0 | 178 | 31 | 114 | 0 | 3 | 27 | 3 | 0 | 1,342 | 0 | 5 | 1 | 3 |
| 7:45 AM | 225 | 181 | 10 | 0 | 0 | 251 | 225 | 0 | 199 | 31 | 116 | 0 | 3 | 19 | 3 | 0 | 1,263 | 0 | 2 | 1 | 2 |
| 8:00 AM | 207 | 158 | 14 | 0 | 0 | 233 | 198 | 0 | 215 | 35 | 104 | 0 | 4 | 15 | 4 | 0 | 1,187 | 0 | 3 | 2 | 2 |

Heavy Vehicle Summary



Clay Carney
(503) 833-2740



Washington St & 14th St

Thursday, January 26, 2017

7:00 AM to 9:00 AM

Heavy Vehicle 5-Minute Interval Summary

7:00 AM to 9:00 AM

| Interval Start Time | Northbound Washington St | | | | Southbound Washington St | | | | Eastbound 14th St | | | | Westbound 14th St | | | | Interval Total |
|---------------------------|-----------------------------|----|---|-------|-----------------------------|----|----|-------|----------------------|---|----|-------|----------------------|---|---|-------|-------------------|
| | L | T | R | Total | L | T | R | Total | L | T | R | Total | L | T | R | Total | |
| 7:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 2 | 0 | 0 | 0 | 0 | 2 |
| 7:05 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| 7:10 AM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 7:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 7:20 AM | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 2 | 2 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 5 |
| 7:25 AM | 2 | 0 | 0 | 2 | 0 | 1 | 0 | 1 | 1 | 0 | 2 | 3 | 0 | 0 | 0 | 0 | 6 |
| 7:30 AM | 2 | 1 | 0 | 3 | 0 | 1 | 1 | 2 | 2 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 7 |
| 7:35 AM | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| 7:40 AM | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 2 |
| 7:45 AM | 1 | 1 | 0 | 2 | 0 | 2 | 1 | 3 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 6 |
| 7:50 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 1 |
| 7:55 AM | 0 | 1 | 0 | 1 | 0 | 1 | 2 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 |
| 8:00 AM | 1 | 0 | 0 | 1 | 0 | 3 | 1 | 4 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 6 |
| 8:05 AM | 1 | 1 | 0 | 2 | 0 | 3 | 0 | 3 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 6 |
| 8:10 AM | 0 | 3 | 0 | 3 | 0 | 2 | 0 | 2 | 1 | 0 | 1 | 2 | 0 | 0 | 0 | 0 | 7 |
| 8:15 AM | 0 | 0 | 0 | 0 | 0 | 3 | 2 | 5 | 1 | 0 | 1 | 2 | 0 | 0 | 0 | 0 | 7 |
| 8:20 AM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 3 | 0 | 2 | 5 | 0 | 0 | 0 | 0 | 6 |
| 8:25 AM | 0 | 3 | 0 | 3 | 0 | 2 | 1 | 3 | 1 | 0 | 1 | 2 | 0 | 0 | 0 | 0 | 8 |
| 8:30 AM | 1 | 3 | 0 | 4 | 0 | 0 | 0 | 0 | 2 | 0 | 2 | 4 | 0 | 0 | 0 | 0 | 8 |
| 8:35 AM | 1 | 0 | 0 | 1 | 0 | 2 | 2 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 |
| 8:40 AM | 0 | 1 | 0 | 1 | 0 | 3 | 0 | 3 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 5 |
| 8:45 AM | 1 | 2 | 1 | 4 | 0 | 2 | 0 | 2 | 2 | 0 | 0 | 2 | 1 | 0 | 0 | 1 | 9 |
| 8:50 AM | 3 | 3 | 0 | 6 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 |
| 8:55 AM | 0 | 0 | 0 | 0 | 0 | 3 | 1 | 4 | 2 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 6 |
| Total Survey | 14 | 19 | 1 | 34 | 0 | 31 | 17 | 48 | 21 | 2 | 11 | 34 | 1 | 1 | 0 | 2 | 118 |

Heavy Vehicle 15-Minute Interval Summary

7:00 AM to 9:00 AM

| Interval Start Time | Northbound Washington St | | | | Southbound Washington St | | | | Eastbound 14th St | | | | Westbound 14th St | | | | Interval Total |
|---------------------------|-----------------------------|----|---|-------|-----------------------------|----|----|-------|----------------------|---|----|-------|----------------------|---|---|-------|-------------------|
| | L | T | R | Total | L | T | R | Total | L | T | R | Total | L | T | R | Total | |
| 7:00 AM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 2 | 0 | 1 | 3 | 0 | 0 | 0 | 0 | 4 |
| 7:15 AM | 3 | 0 | 0 | 3 | 0 | 2 | 2 | 4 | 3 | 0 | 2 | 5 | 0 | 0 | 0 | 0 | 12 |
| 7:30 AM | 2 | 1 | 0 | 3 | 0 | 1 | 4 | 5 | 2 | 0 | 0 | 2 | 0 | 1 | 0 | 1 | 11 |
| 7:45 AM | 1 | 2 | 0 | 3 | 0 | 3 | 3 | 6 | 1 | 0 | 1 | 2 | 0 | 0 | 0 | 0 | 11 |
| 8:00 AM | 2 | 4 | 0 | 6 | 0 | 8 | 1 | 9 | 2 | 1 | 1 | 4 | 0 | 0 | 0 | 0 | 19 |
| 8:15 AM | 0 | 3 | 0 | 3 | 0 | 6 | 3 | 9 | 5 | 0 | 4 | 9 | 0 | 0 | 0 | 0 | 21 |
| 8:30 AM | 2 | 4 | 0 | 6 | 0 | 5 | 2 | 7 | 2 | 1 | 2 | 5 | 0 | 0 | 0 | 0 | 18 |
| 8:45 AM | 4 | 5 | 1 | 10 | 0 | 5 | 2 | 7 | 4 | 0 | 0 | 4 | 1 | 0 | 0 | 1 | 22 |
| Total Survey | 14 | 19 | 1 | 34 | 0 | 31 | 17 | 48 | 21 | 2 | 11 | 34 | 1 | 1 | 0 | 2 | 118 |

Heavy Vehicle Peak Hour Summary

7:15 AM to 8:15 AM

| By Approach | Northbound Washington St | | | Southbound Washington St | | | Eastbound 14th St | | | Westbound 14th St | | | Total |
|----------------|-----------------------------|-----|-------|-----------------------------|-----|-------|----------------------|-----|-------|----------------------|-----|-------|-------|
| | In | Out | Total | In | Out | Total | In | Out | Total | In | Out | Total | |
| Volume | 15 | 18 | 33 | 24 | 15 | 39 | 13 | 19 | 32 | 1 | 1 | 2 | 53 |
| PHF | 0.63 | | | 0.60 | | | 0.46 | | | 0.25 | | | 0.70 |

| By Movement | Northbound Washington St | | | | Southbound Washington St | | | | Eastbound 14th St | | | | Westbound 14th St | | | | Total |
|----------------|-----------------------------|------|------|-------|-----------------------------|------|------|-------|----------------------|------|------|-------|----------------------|------|------|-------|-------|
| | L | T | R | Total | L | T | R | Total | L | T | R | Total | L | T | R | Total | |
| Volume | 8 | 7 | 0 | 15 | 0 | 14 | 10 | 24 | 8 | 1 | 4 | 13 | 0 | 1 | 0 | 1 | 53 |
| PHF | 0.40 | 0.44 | 0.00 | 0.63 | 0.00 | 0.44 | 0.63 | 0.60 | 0.40 | 0.25 | 0.50 | 0.46 | 0.00 | 0.25 | 0.00 | 0.25 | 0.70 |

Heavy Vehicle Rolling Hour Summary

7:00 AM to 9:00 AM

| Interval Start Time | Northbound Washington St | | | | Southbound Washington St | | | | Eastbound 14th St | | | | Westbound 14th St | | | | Interval Total |
|---------------------------|-----------------------------|----|---|-------|-----------------------------|----|----|-------|----------------------|---|---|-------|----------------------|---|---|-------|-------------------|
| | L | T | R | Total | L | T | R | Total | L | T | R | Total | L | T | R | Total | |
| 7:00 AM | 6 | 3 | 0 | 9 | 0 | 7 | 9 | 16 | 8 | 0 | 4 | 12 | 0 | 1 | 0 | 1 | 38 |
| 7:15 AM | 8 | 7 | 0 | 15 | 0 | 14 | 10 | 24 | 8 | 1 | 4 | 13 | 0 | 1 | 0 | 1 | 53 |
| 7:30 AM | 5 | 10 | 0 | 15 | 0 | 18 | 11 | 29 | 10 | 1 | 6 | 17 | 0 | 1 | 0 | 1 | 62 |
| 7:45 AM | 5 | 13 | 0 | 18 | 0 | 22 | 9 | 31 | 10 | 2 | 8 | 20 | 0 | 0 | 0 | 0 | 69 |
| 8:00 AM | 8 | 16 | 1 | 25 | 0 | 24 | 8 | 32 | 13 | 2 | 7 | 22 | 1 | 0 | 0 | 1 | 80 |

Peak Hour Summary

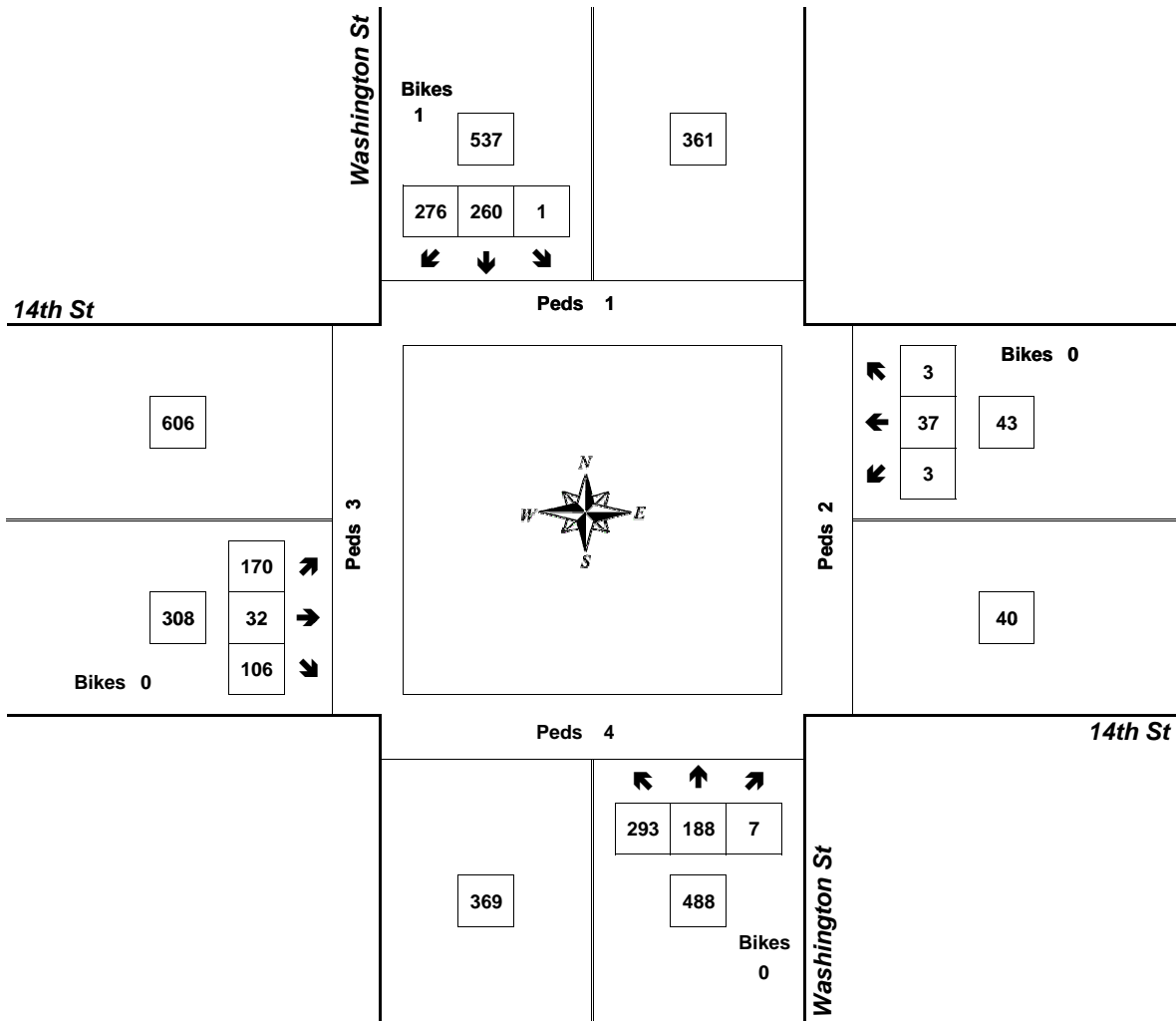


Clay Carney
(503) 833-2740

Washington St & 14th St

7:15 AM to 8:15 AM

Thursday, January 26, 2017



| Approach | PHF | HV% | Volume |
|---------------------|-------------|-------------|--------------|
| EB | 0.85 | 4.2% | 308 |
| WB | 0.67 | 2.3% | 43 |
| NB | 0.87 | 3.1% | 488 |
| SB | 0.82 | 4.5% | 537 |
| Intersection | 0.88 | 3.9% | 1,376 |

Count Period: 7:00 AM to 9:00 AM

Total Vehicle Summary

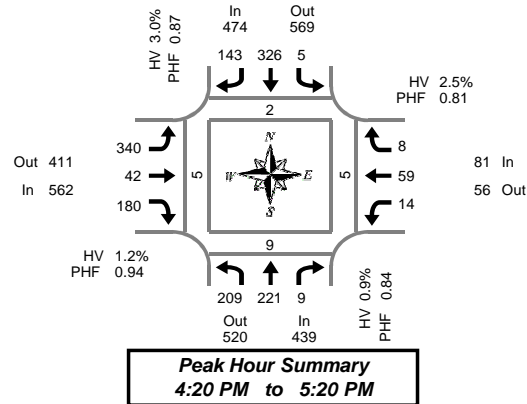


Clay Carney
(503) 833-2740

Washington St & 14th St

Wednesday, January 25, 2017

4:00 PM to 6:00 PM



5-Minute Interval Summary

4:00 PM to 6:00 PM

| Interval Start Time | Northbound Washington St | | | | Southbound Washington St | | | | Eastbound 14th St | | | | Westbound 14th St | | | | Interval Total | Pedestrians Crosswalk | | | |
|---------------------------|-----------------------------|-----|----|-------|-----------------------------|-----|-----|-------|----------------------|----|-----|-------|----------------------|----|----|-------|-------------------|--------------------------|-------|------|------|
| | L | T | R | Bikes | L | T | R | Bikes | L | T | R | Bikes | L | T | R | Bikes | | North | South | East | West |
| 4:00 PM | 11 | 18 | 0 | 0 | 1 | 22 | 13 | 0 | 19 | 2 | 19 | 0 | 0 | 3 | 1 | 0 | 109 | 0 | 0 | 0 | 0 |
| 4:05 PM | 19 | 18 | 2 | 0 | 0 | 31 | 12 | 0 | 35 | 5 | 14 | 0 | 0 | 4 | 2 | 0 | 142 | 0 | 0 | 0 | 0 |
| 4:10 PM | 24 | 14 | 0 | 0 | 0 | 30 | 10 | 0 | 19 | 5 | 19 | 0 | 0 | 1 | 0 | 0 | 122 | 0 | 0 | 0 | 1 |
| 4:15 PM | 19 | 19 | 0 | 0 | 0 | 26 | 13 | 0 | 19 | 5 | 11 | 0 | 0 | 3 | 1 | 0 | 116 | 0 | 0 | 0 | 0 |
| 4:20 PM | 11 | 19 | 0 | 0 | 2 | 23 | 6 | 0 | 33 | 6 | 16 | 0 | 3 | 2 | 3 | 0 | 124 | 0 | 0 | 0 | 1 |
| 4:25 PM | 13 | 18 | 2 | 0 | 0 | 29 | 6 | 0 | 29 | 1 | 15 | 0 | 0 | 2 | 0 | 0 | 115 | 0 | 0 | 0 | 0 |
| 4:30 PM | 26 | 17 | 4 | 0 | 0 | 18 | 16 | 0 | 31 | 3 | 16 | 0 | 2 | 3 | 1 | 0 | 137 | 2 | 1 | 1 | 0 |
| 4:35 PM | 17 | 21 | 0 | 0 | 0 | 34 | 10 | 0 | 28 | 5 | 15 | 0 | 1 | 6 | 2 | 0 | 139 | 0 | 1 | 3 | 0 |
| 4:40 PM | 24 | 22 | 0 | 0 | 1 | 38 | 13 | 0 | 27 | 1 | 14 | 0 | 2 | 3 | 0 | 0 | 145 | 0 | 0 | 0 | 0 |
| 4:45 PM | 13 | 22 | 1 | 0 | 1 | 26 | 13 | 0 | 30 | 4 | 19 | 0 | 0 | 7 | 0 | 0 | 136 | 0 | 2 | 0 | 0 |
| 4:50 PM | 12 | 17 | 0 | 0 | 0 | 31 | 6 | 0 | 33 | 6 | 12 | 0 | 1 | 4 | 0 | 0 | 122 | 0 | 2 | 0 | 0 |
| 4:55 PM | 18 | 18 | 1 | 0 | 1 | 27 | 21 | 0 | 21 | 3 | 14 | 0 | 2 | 3 | 0 | 0 | 129 | 0 | 0 | 1 | 0 |
| 5:00 PM | 18 | 13 | 0 | 0 | 0 | 31 | 8 | 0 | 28 | 2 | 13 | 0 | 2 | 6 | 1 | 0 | 122 | 0 | 0 | 0 | 0 |
| 5:05 PM | 22 | 13 | 1 | 0 | 0 | 22 | 11 | 0 | 30 | 4 | 8 | 0 | 0 | 6 | 0 | 0 | 117 | 0 | 1 | 0 | 0 |
| 5:10 PM | 20 | 17 | 0 | 0 | 0 | 20 | 18 | 0 | 33 | 4 | 17 | 0 | 0 | 6 | 1 | 0 | 136 | 0 | 1 | 0 | 3 |
| 5:15 PM | 15 | 24 | 0 | 0 | 0 | 27 | 15 | 0 | 17 | 3 | 21 | 0 | 1 | 11 | 0 | 0 | 134 | 0 | 1 | 0 | 1 |
| 5:20 PM | 21 | 8 | 0 | 0 | 0 | 23 | 11 | 0 | 31 | 4 | 11 | 0 | 0 | 4 | 1 | 0 | 114 | 0 | 0 | 0 | 0 |
| 5:25 PM | 17 | 17 | 0 | 0 | 0 | 30 | 7 | 0 | 19 | 1 | 15 | 0 | 0 | 3 | 0 | 0 | 109 | 0 | 0 | 0 | 0 |
| 5:30 PM | 9 | 17 | 0 | 0 | 1 | 30 | 13 | 0 | 28 | 3 | 20 | 0 | 1 | 6 | 2 | 0 | 130 | 0 | 0 | 0 | 0 |
| 5:35 PM | 14 | 16 | 0 | 0 | 0 | 22 | 13 | 0 | 31 | 4 | 21 | 0 | 0 | 2 | 0 | 0 | 123 | 0 | 3 | 0 | 1 |
| 5:40 PM | 19 | 11 | 0 | 0 | 0 | 22 | 8 | 0 | 23 | 3 | 13 | 0 | 3 | 2 | 1 | 0 | 105 | 0 | 0 | 0 | 0 |
| 5:45 PM | 18 | 14 | 1 | 0 | 2 | 18 | 12 | 0 | 32 | 1 | 15 | 0 | 0 | 2 | 1 | 0 | 116 | 0 | 1 | 0 | 0 |
| 5:50 PM | 10 | 15 | 2 | 0 | 0 | 23 | 12 | 0 | 37 | 1 | 18 | 0 | 0 | 4 | 0 | 0 | 122 | 0 | 1 | 0 | 0 |
| 5:55 PM | 13 | 20 | 1 | 0 | 0 | 27 | 14 | 0 | 21 | 2 | 11 | 0 | 0 | 2 | 0 | 0 | 111 | 0 | 0 | 0 | 2 |
| Total Survey | 403 | 408 | 15 | 0 | 9 | 630 | 281 | 0 | 654 | 78 | 367 | 0 | 18 | 95 | 17 | 0 | 2,975 | 2 | 14 | 5 | 9 |

15-Minute Interval Summary

4:00 PM to 6:00 PM

| Interval Start Time | Northbound Washington St | | | | Southbound Washington St | | | | Eastbound 14th St | | | | Westbound 14th St | | | | Interval Total | Pedestrians Crosswalk | | | |
|---------------------------|-----------------------------|-----|----|-------|-----------------------------|-----|-----|-------|----------------------|----|-----|-------|----------------------|----|----|-------|-------------------|--------------------------|-------|------|------|
| | L | T | R | Bikes | L | T | R | Bikes | L | T | R | Bikes | L | T | R | Bikes | | North | South | East | West |
| 4:00 PM | 54 | 50 | 2 | 0 | 1 | 83 | 35 | 0 | 73 | 12 | 52 | 0 | 0 | 8 | 3 | 0 | 373 | 0 | 0 | 0 | 1 |
| 4:15 PM | 43 | 56 | 2 | 0 | 2 | 78 | 25 | 0 | 81 | 12 | 42 | 0 | 3 | 7 | 4 | 0 | 355 | 0 | 0 | 0 | 1 |
| 4:30 PM | 67 | 60 | 4 | 0 | 1 | 90 | 39 | 0 | 86 | 9 | 45 | 0 | 5 | 12 | 3 | 0 | 421 | 2 | 2 | 4 | 0 |
| 4:45 PM | 43 | 57 | 2 | 0 | 2 | 84 | 40 | 0 | 84 | 13 | 45 | 0 | 3 | 14 | 0 | 0 | 387 | 0 | 4 | 1 | 0 |
| 5:00 PM | 60 | 43 | 1 | 0 | 0 | 73 | 37 | 0 | 91 | 10 | 38 | 0 | 2 | 18 | 2 | 0 | 375 | 0 | 2 | 0 | 3 |
| 5:15 PM | 53 | 49 | 0 | 0 | 0 | 80 | 33 | 0 | 67 | 8 | 47 | 0 | 1 | 18 | 1 | 0 | 357 | 0 | 1 | 0 | 1 |
| 5:30 PM | 42 | 44 | 0 | 0 | 1 | 74 | 34 | 0 | 82 | 10 | 54 | 0 | 4 | 10 | 3 | 0 | 358 | 0 | 3 | 0 | 1 |
| 5:45 PM | 41 | 49 | 4 | 0 | 2 | 68 | 38 | 0 | 90 | 4 | 44 | 0 | 0 | 8 | 1 | 0 | 349 | 0 | 2 | 0 | 2 |
| Total Survey | 403 | 408 | 15 | 0 | 9 | 630 | 281 | 0 | 654 | 78 | 367 | 0 | 18 | 95 | 17 | 0 | 2,975 | 2 | 14 | 5 | 9 |

Peak Hour Summary

4:20 PM to 5:20 PM

| By Approach | Northbound Washington St | | | | Southbound Washington St | | | | Eastbound 14th St | | | | Westbound 14th St | | | | Total | Pedestrians Crosswalk | | | |
|----------------|-----------------------------|-----|-------|-------|-----------------------------|-----|-------|-------|----------------------|-----|-------|-------|----------------------|-----|-------|-------|-------|--------------------------|-------|------|------|
| | In | Out | Total | Bikes | In | Out | Total | Bikes | In | Out | Total | Bikes | In | Out | Total | Bikes | | North | South | East | West |
| Volume | 439 | 520 | 959 | 0 | 474 | 569 | 1,043 | 0 | 562 | 411 | 973 | 0 | 81 | 56 | 137 | 0 | 1,556 | 2 | 9 | 5 | 5 |
| %HV | 0.9% | | | | 3.0% | | | | 1.2% | | | | 2.5% | | | | 1.7% | | | | |
| PHF | 0.84 | | | | 0.87 | | | | 0.94 | | | | 0.81 | | | | 0.92 | | | | |

| By Movement | Northbound Washington St | | | | Southbound Washington St | | | | Eastbound 14th St | | | | Westbound 14th St | | | | Total |
|----------------|-----------------------------|------|------|-------|-----------------------------|------|------|-------|----------------------|------|------|-------|----------------------|------|------|-------|-------|
| | L | T | R | Total | L | T | R | Total | L | T | R | Total | L | T | R | Total | |
| Volume | 209 | 221 | 9 | 439 | 5 | 326 | 143 | 474 | 340 | 42 | 180 | 562 | 14 | 59 | 8 | 81 | 1,556 |
| %HV | 1.0% | 0.9% | 0.0% | 0.9% | 0.0% | 3.1% | 2.8% | 3.0% | 1.8% | 2.4% | 0.0% | 1.2% | 7.1% | 1.7% | 0.0% | 2.5% | 1.7% |
| PHF | 0.78 | 0.85 | 0.38 | 0.84 | 0.63 | 0.83 | 0.81 | 0.87 | 0.91 | 0.81 | 0.94 | 0.94 | 0.70 | 0.64 | 0.50 | 0.81 | 0.92 |

Rolling Hour Summary

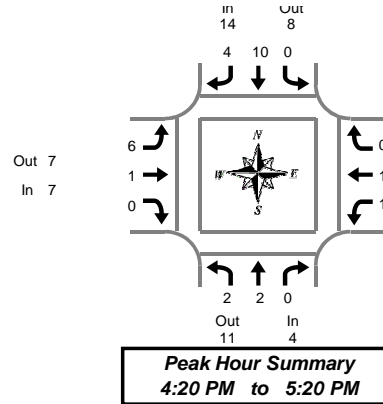
4:00 PM to 6:00 PM

| Interval Start Time | Northbound Washington St | | | | Southbound Washington St | | | | Eastbound 14th St | | | | Westbound 14th St | | | | Interval Total | Pedestrians Crosswalk | | | |
|---------------------------|-----------------------------|-----|----|-------|-----------------------------|-----|-----|-------|----------------------|----|-----|-------|----------------------|----|----|-------|-------------------|--------------------------|-------|------|------|
| | L | T | R | Bikes | L | T | R | Bikes | L | T | R | Bikes | L | T | R | Bikes | | North | South | East | West |
| 4:00 PM | 207 | 223 | 10 | 0 | 6 | 335 | 139 | 0 | 324 | 46 | 184 | 0 | 11 | 41 | 10 | 0 | 1,536 | 2 | 6 | 5 | 2 |
| 4:15 PM | 213 | 216 | 9 | 0 | 5 | 325 | 141 | 0 | 342 | 44 | 170 | 0 | 13 | 51 | 9 | 0 | 1,538 | 2 | 8 | 5 | 4 |
| 4:30 PM | 223 | 209 | 7 | 0 | 3 | 327 | 149 | 0 | 328 | 40 | 175 | 0 | 11 | 62 | 6 | 0 | 1,540 | 2 | 9 | 5 | 4 |
| 4:45 PM | 198 | 193 | 3 | 0 | 3 | 311 | 144 | 0 | 324 | 41 | 184 | 0 | 10 | 60 | 6 | 0 | 1,477 | 0 | 10 | 1 | 5 |
| 5:00 PM | 196 | 185 | 5 | 0 | 3 | 295 | 142 | 0 | 330 | 32 | 183 | 0 | 7 | 54 | 7 | 0 | 1,439 | 0 | 8 | 0 | 7 |

Heavy Vehicle Summary



Clay Carney
(503) 833-2740



Washington St & 14th St

Wednesday, January 25, 2017

4:00 PM to 6:00 PM

Heavy Vehicle 5-Minute Interval Summary

4:00 PM to 6:00 PM

| Interval Start Time | Northbound Washington St | | | | Southbound Washington St | | | | Eastbound 14th St | | | | Westbound 14th St | | | | Interval Total |
|---------------------------|-----------------------------|---|---|-------|-----------------------------|----|----|-------|----------------------|---|---|-------|----------------------|---|---|-------|-------------------|
| | L | T | R | Total | L | T | R | Total | L | T | R | Total | L | T | R | Total | |
| 4:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 2 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 3 |
| 4:05 PM | 0 | 0 | 0 | 0 | 0 | 2 | 1 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 |
| 4:10 PM | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| 4:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 2 | 0 | 0 | 0 | 0 | 2 |
| 4:20 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 2 | 1 | 0 | 0 | 1 | 3 |
| 4:25 PM | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 4:30 PM | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 3 |
| 4:35 PM | 0 | 0 | 0 | 0 | 0 | 2 | 1 | 3 | 2 | 0 | 0 | 2 | 0 | 1 | 0 | 1 | 6 |
| 4:40 PM | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| 4:45 PM | 0 | 0 | 0 | 0 | 0 | 4 | 1 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 |
| 4:50 PM | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| 4:55 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| 5:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 5:05 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| 5:10 PM | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 5:15 PM | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| 5:20 PM | 2 | 0 | 0 | 2 | 0 | 1 | 1 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 |
| 5:25 PM | 1 | 2 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 4 |
| 5:30 PM | 0 | 1 | 0 | 1 | 0 | 2 | 0 | 2 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 4 |
| 5:35 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 5:40 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 5:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| 5:50 PM | 1 | 0 | 0 | 1 | 0 | 2 | 0 | 2 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 4 |
| 5:55 PM | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Total Survey | 6 | 5 | 0 | 11 | 0 | 18 | 10 | 28 | 11 | 1 | 2 | 14 | 1 | 1 | 0 | 2 | 55 |

Heavy Vehicle 15-Minute Interval Summary

4:00 PM to 6:00 PM

| Interval Start Time | Northbound Washington St | | | | Southbound Washington St | | | | Eastbound 14th St | | | | Westbound 14th St | | | | Interval Total |
|---------------------------|-----------------------------|---|---|-------|-----------------------------|----|----|-------|----------------------|---|---|-------|----------------------|---|---|-------|-------------------|
| | L | T | R | Total | L | T | R | Total | L | T | R | Total | L | T | R | Total | |
| 4:00 PM | 0 | 0 | 0 | 0 | 0 | 3 | 4 | 7 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 8 |
| 4:15 PM | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 2 | 1 | 1 | 4 | 1 | 0 | 0 | 1 | 6 |
| 4:30 PM | 1 | 1 | 0 | 2 | 0 | 3 | 2 | 5 | 3 | 0 | 0 | 3 | 0 | 1 | 0 | 1 | 11 |
| 4:45 PM | 0 | 1 | 0 | 1 | 0 | 5 | 1 | 6 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 8 |
| 5:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 2 |
| 5:15 PM | 3 | 2 | 0 | 5 | 0 | 3 | 1 | 4 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 10 |
| 5:30 PM | 0 | 1 | 0 | 1 | 0 | 2 | 0 | 2 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 4 |
| 5:45 PM | 1 | 0 | 0 | 1 | 0 | 2 | 1 | 3 | 2 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 6 |
| Total Survey | 6 | 5 | 0 | 11 | 0 | 18 | 10 | 28 | 11 | 1 | 2 | 14 | 1 | 1 | 0 | 2 | 55 |

Heavy Vehicle Peak Hour Summary

4:20 PM to 5:20 PM

| By Approach | Northbound Washington St | | | Southbound Washington St | | | Eastbound 14th St | | | Westbound 14th St | | | Total |
|----------------|-----------------------------|-----|-------|-----------------------------|-----|-------|----------------------|-----|-------|----------------------|-----|-------|-------|
| | In | Out | Total | In | Out | Total | In | Out | Total | In | Out | Total | |
| Volume | 4 | 11 | 15 | 14 | 8 | 22 | 7 | 7 | 14 | 2 | 1 | 3 | 27 |
| PHF | 0.50 | | | 0.39 | | | 0.58 | | | 0.50 | | | 0.52 |

| By Movement | Northbound Washington St | | | | Southbound Washington St | | | | Eastbound 14th St | | | | Westbound 14th St | | | | Total |
|----------------|-----------------------------|------|------|-------|-----------------------------|------|------|-------|----------------------|------|------|-------|----------------------|------|------|-------|-------|
| | L | T | R | Total | L | T | R | Total | L | T | R | Total | L | T | R | Total | |
| Volume | 2 | 2 | 0 | 4 | 0 | 10 | 4 | 14 | 6 | 1 | 0 | 7 | 1 | 1 | 0 | 2 | 27 |
| PHF | 0.25 | 0.25 | 0.00 | 0.50 | 0.00 | 0.36 | 0.50 | 0.39 | 0.50 | 0.25 | 0.00 | 0.58 | 0.25 | 0.25 | 0.00 | 0.50 | 0.52 |

Heavy Vehicle Rolling Hour Summary

4:00 PM to 6:00 PM

| Interval Start Time | Northbound Washington St | | | | Southbound Washington St | | | | Eastbound 14th St | | | | Westbound 14th St | | | | Interval Total |
|---------------------------|-----------------------------|---|---|-------|-----------------------------|----|---|-------|----------------------|---|---|-------|----------------------|---|---|-------|-------------------|
| | L | T | R | Total | L | T | R | Total | L | T | R | Total | L | T | R | Total | |
| 4:00 PM | 2 | 2 | 0 | 4 | 0 | 11 | 7 | 18 | 7 | 1 | 1 | 9 | 1 | 1 | 0 | 2 | 33 |
| 4:15 PM | 2 | 2 | 0 | 4 | 0 | 8 | 4 | 12 | 7 | 1 | 1 | 9 | 1 | 1 | 0 | 2 | 27 |
| 4:30 PM | 4 | 4 | 0 | 8 | 0 | 11 | 5 | 16 | 5 | 0 | 1 | 6 | 0 | 1 | 0 | 1 | 31 |
| 4:45 PM | 3 | 4 | 0 | 7 | 0 | 10 | 3 | 13 | 3 | 0 | 1 | 4 | 0 | 0 | 0 | 0 | 24 |
| 5:00 PM | 4 | 3 | 0 | 7 | 0 | 7 | 3 | 10 | 4 | 0 | 1 | 5 | 0 | 0 | 0 | 0 | 22 |

Peak Hour Summary

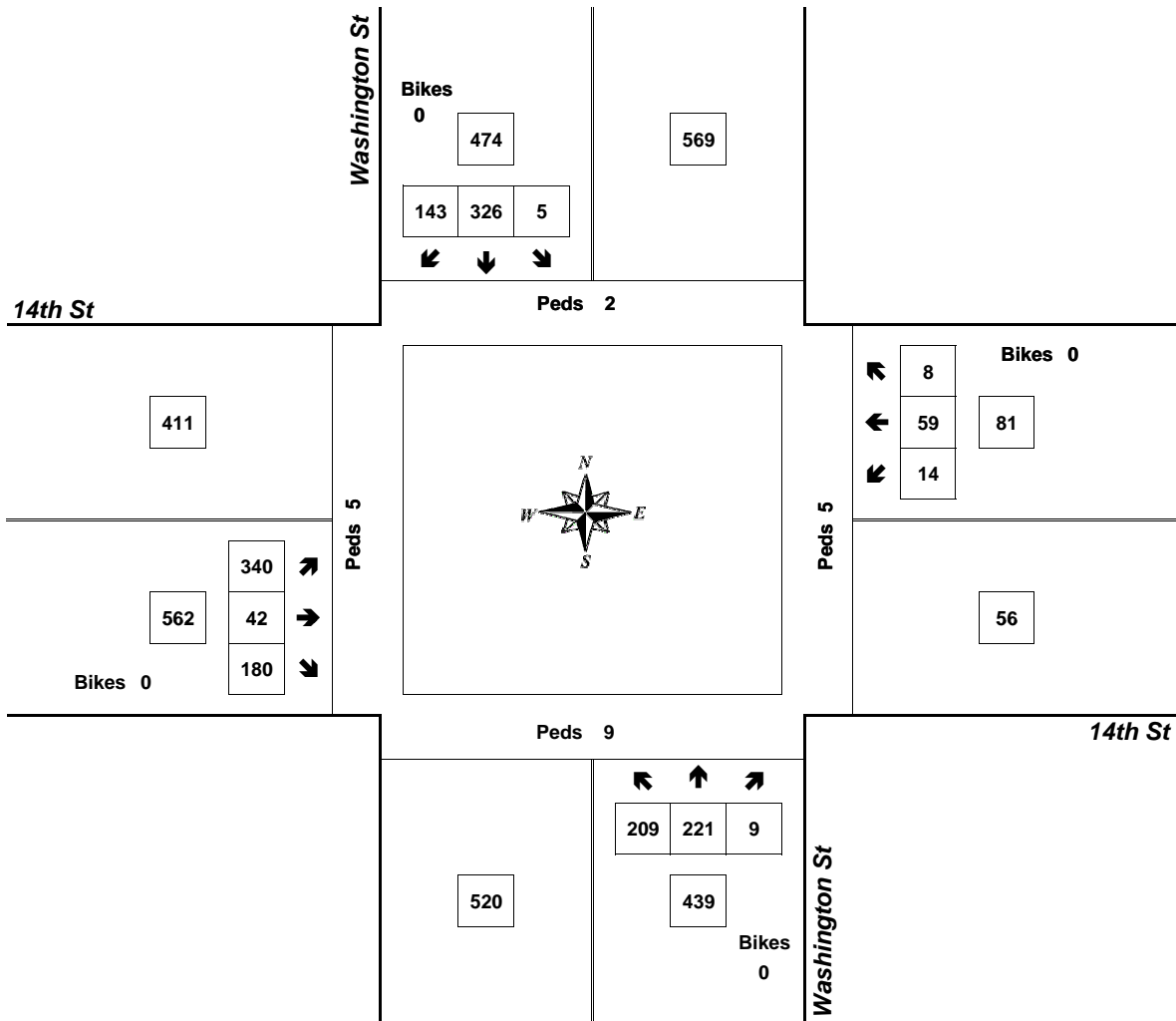


Clay Carney
(503) 833-2740

Washington St & 14th St

4:20 PM to 5:20 PM

Wednesday, January 25, 2017



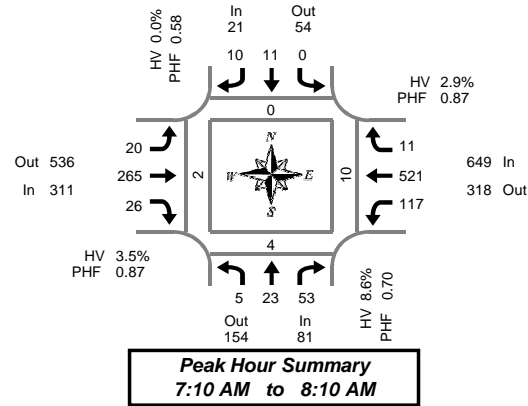
| Approach | PHF | HV% | Volume |
|---------------------|-------------|-------------|--------------|
| EB | 0.94 | 1.2% | 562 |
| WB | 0.81 | 2.5% | 81 |
| NB | 0.84 | 0.9% | 439 |
| SB | 0.87 | 3.0% | 474 |
| Intersection | 0.92 | 1.7% | 1,556 |

Count Period: 4:00 PM to 6:00 PM

Total Vehicle Summary



Clay Carney
(503) 833-2740



Main St & 14th St

Thursday, January 26, 2017

7:00 AM to 9:00 AM

5-Minute Interval Summary

7:00 AM to 9:00 AM

| Interval Start Time | Northbound Main St | | | | Southbound Main St | | | | Eastbound 14th St | | | | Westbound 14th St | | | | Interval Total | Pedestrians Crosswalk | | | |
|---------------------------|-----------------------|----|-----|-------|-----------------------|----|----|-------|----------------------|-----|----|-------|----------------------|-----|----|-------|-------------------|--------------------------|-------|------|------|
| | L | T | R | Bikes | L | T | R | Bikes | L | T | R | Bikes | L | T | R | Bikes | | North | South | East | West |
| 7:00 AM | 0 | 1 | 4 | 0 | 0 | 0 | 2 | 0 | 0 | 19 | 3 | 0 | 9 | 42 | 0 | 0 | 80 | 0 | 1 | 1 | 0 |
| 7:05 AM | 1 | 0 | 4 | 0 | 0 | 1 | 0 | 0 | 3 | 17 | 0 | 0 | 9 | 29 | 1 | 0 | 65 | 0 | 1 | 1 | 0 |
| 7:10 AM | 2 | 4 | 6 | 0 | 0 | 1 | 0 | 0 | 3 | 17 | 4 | 0 | 6 | 40 | 0 | 1 | 83 | 0 | 1 | 1 | 1 |
| 7:15 AM | 0 | 0 | 2 | 0 | 0 | 1 | 0 | 0 | 1 | 21 | 1 | 0 | 14 | 44 | 0 | 0 | 84 | 0 | 0 | 0 | 0 |
| 7:20 AM | 0 | 1 | 4 | 0 | 0 | 0 | 0 | 0 | 1 | 26 | 2 | 0 | 5 | 43 | 0 | 0 | 82 | 0 | 0 | 1 | 0 |
| 7:25 AM | 0 | 3 | 2 | 0 | 0 | 1 | 1 | 0 | 2 | 20 | 2 | 0 | 11 | 57 | 1 | 0 | 100 | 0 | 0 | 0 | 0 |
| 7:30 AM | 0 | 1 | 5 | 0 | 0 | 0 | 0 | 0 | 1 | 18 | 1 | 0 | 11 | 47 | 2 | 0 | 86 | 0 | 0 | 0 | 0 |
| 7:35 AM | 0 | 0 | 3 | 0 | 0 | 1 | 1 | 0 | 1 | 21 | 0 | 0 | 12 | 44 | 1 | 0 | 84 | 0 | 2 | 1 | 0 |
| 7:40 AM | 0 | 4 | 2 | 0 | 0 | 1 | 0 | 0 | 3 | 24 | 2 | 0 | 7 | 54 | 0 | 0 | 97 | 0 | 0 | 2 | 1 |
| 7:45 AM | 0 | 1 | 7 | 0 | 0 | 2 | 1 | 0 | 1 | 23 | 6 | 0 | 6 | 42 | 1 | 0 | 90 | 0 | 0 | 0 | 0 |
| 7:50 AM | 1 | 3 | 6 | 0 | 0 | 2 | 1 | 0 | 3 | 17 | 1 | 0 | 9 | 42 | 0 | 0 | 85 | 0 | 0 | 2 | 0 |
| 7:55 AM | 0 | 4 | 7 | 0 | 0 | 1 | 2 | 0 | 1 | 32 | 5 | 0 | 11 | 43 | 3 | 0 | 109 | 0 | 0 | 1 | 0 |
| 8:00 AM | 0 | 2 | 6 | 0 | 0 | 1 | 2 | 0 | 3 | 22 | 0 | 0 | 10 | 33 | 1 | 0 | 80 | 0 | 1 | 2 | 0 |
| 8:05 AM | 2 | 0 | 3 | 0 | 0 | 0 | 2 | 0 | 0 | 24 | 2 | 0 | 15 | 32 | 2 | 0 | 82 | 0 | 0 | 0 | 0 |
| 8:10 AM | 2 | 1 | 8 | 0 | 0 | 4 | 0 | 0 | 5 | 27 | 4 | 0 | 6 | 24 | 1 | 0 | 82 | 0 | 1 | 2 | 0 |
| 8:15 AM | 0 | 0 | 2 | 0 | 0 | 0 | 1 | 0 | 3 | 30 | 2 | 0 | 6 | 33 | 0 | 0 | 77 | 0 | 1 | 1 | 0 |
| 8:20 AM | 0 | 3 | 2 | 0 | 0 | 1 | 1 | 0 | 3 | 27 | 1 | 0 | 11 | 22 | 1 | 0 | 72 | 0 | 0 | 0 | 0 |
| 8:25 AM | 1 | 1 | 3 | 0 | 0 | 2 | 0 | 1 | 9 | 29 | 1 | 0 | 6 | 30 | 1 | 0 | 83 | 0 | 0 | 0 | 0 |
| 8:30 AM | 0 | 4 | 5 | 0 | 0 | 5 | 1 | 0 | 2 | 26 | 2 | 0 | 9 | 26 | 2 | 0 | 82 | 0 | 0 | 0 | 0 |
| 8:35 AM | 1 | 3 | 5 | 0 | 0 | 3 | 1 | 0 | 5 | 21 | 4 | 0 | 9 | 22 | 2 | 0 | 76 | 0 | 0 | 0 | 1 |
| 8:40 AM | 0 | 1 | 4 | 0 | 0 | 2 | 2 | 0 | 4 | 25 | 2 | 0 | 7 | 19 | 2 | 0 | 68 | 0 | 0 | 0 | 0 |
| 8:45 AM | 4 | 1 | 7 | 0 | 1 | 1 | 0 | 0 | 0 | 28 | 3 | 0 | 13 | 28 | 3 | 0 | 89 | 1 | 0 | 1 | 1 |
| 8:50 AM | 0 | 1 | 6 | 0 | 0 | 1 | 2 | 0 | 0 | 28 | 2 | 0 | 5 | 21 | 0 | 0 | 66 | 0 | 1 | 1 | 0 |
| 8:55 AM | 0 | 1 | 3 | 0 | 0 | 1 | 2 | 1 | 7 | 26 | 5 | 0 | 9 | 25 | 0 | 0 | 79 | 2 | 0 | 0 | 0 |
| Total Survey | 14 | 40 | 106 | 0 | 1 | 32 | 22 | 2 | 61 | 568 | 55 | 0 | 216 | 842 | 24 | 1 | 1,981 | 3 | 9 | 17 | 4 |

15-Minute Interval Summary

7:00 AM to 9:00 AM

| Interval Start Time | Northbound Main St | | | | Southbound Main St | | | | Eastbound 14th St | | | | Westbound 14th St | | | | Interval Total | Pedestrians Crosswalk | | | |
|---------------------------|-----------------------|----|-----|-------|-----------------------|----|----|-------|----------------------|-----|----|-------|----------------------|-----|----|-------|-------------------|--------------------------|-------|------|------|
| | L | T | R | Bikes | L | T | R | Bikes | L | T | R | Bikes | L | T | R | Bikes | | North | South | East | West |
| 7:00 AM | 3 | 5 | 14 | 0 | 0 | 2 | 2 | 0 | 6 | 53 | 7 | 0 | 24 | 111 | 1 | 1 | 228 | 0 | 3 | 3 | 1 |
| 7:15 AM | 0 | 4 | 8 | 0 | 0 | 2 | 1 | 0 | 4 | 67 | 5 | 0 | 30 | 144 | 1 | 0 | 266 | 0 | 0 | 1 | 0 |
| 7:30 AM | 0 | 5 | 10 | 0 | 0 | 2 | 1 | 0 | 5 | 63 | 3 | 0 | 30 | 145 | 3 | 0 | 267 | 0 | 2 | 3 | 1 |
| 7:45 AM | 1 | 8 | 20 | 0 | 0 | 5 | 4 | 0 | 5 | 72 | 12 | 0 | 26 | 127 | 4 | 0 | 284 | 0 | 0 | 3 | 0 |
| 8:00 AM | 4 | 3 | 17 | 0 | 0 | 5 | 4 | 0 | 8 | 73 | 6 | 0 | 31 | 89 | 4 | 0 | 244 | 0 | 2 | 4 | 0 |
| 8:15 AM | 1 | 4 | 7 | 0 | 0 | 3 | 2 | 1 | 15 | 86 | 4 | 0 | 23 | 85 | 2 | 0 | 232 | 0 | 1 | 1 | 0 |
| 8:30 AM | 1 | 8 | 14 | 0 | 0 | 10 | 4 | 0 | 11 | 72 | 8 | 0 | 25 | 67 | 6 | 0 | 226 | 0 | 0 | 0 | 1 |
| 8:45 AM | 4 | 3 | 16 | 0 | 1 | 3 | 4 | 1 | 7 | 82 | 10 | 0 | 27 | 74 | 3 | 0 | 234 | 3 | 1 | 2 | 1 |
| Total Survey | 14 | 40 | 106 | 0 | 1 | 32 | 22 | 2 | 61 | 568 | 55 | 0 | 216 | 842 | 24 | 1 | 1,981 | 3 | 9 | 17 | 4 |

Peak Hour Summary

7:10 AM to 8:10 AM

| By Approach | Northbound Main St | | | | Southbound Main St | | | | Eastbound 14th St | | | | Westbound 14th St | | | | Total | Pedestrians Crosswalk | | | |
|----------------|-----------------------|-----|-------|-------|-----------------------|-----|-------|-------|----------------------|-----|-------|-------|----------------------|-----|-------|-------|-------|--------------------------|-------|------|------|
| | In | Out | Total | Bikes | In | Out | Total | Bikes | In | Out | Total | Bikes | In | Out | Total | Bikes | | North | South | East | West |
| Volume | 81 | 154 | 235 | 0 | 21 | 54 | 75 | 0 | 311 | 536 | 847 | 0 | 649 | 318 | 967 | 1 | 1,062 | 0 | 4 | 10 | 2 |
| %HV | 8.6% | | | | 0.0% | | | | 3.5% | | | | 2.9% | | | | 3.5% | | | | |
| PHF | 0.70 | | | | 0.58 | | | | 0.87 | | | | 0.87 | | | | 0.93 | | | | |

| By Movement | Northbound Main St | | | | Southbound Main St | | | | Eastbound 14th St | | | | Westbound 14th St | | | | Total |
|----------------|-----------------------|-------|------|-------|-----------------------|------|------|-------|----------------------|------|------|-------|----------------------|------|------|-------|-------|
| | L | T | R | Total | L | T | R | Total | L | T | R | Total | L | T | R | Total | |
| Volume | 5 | 23 | 53 | 81 | 0 | 11 | 10 | 21 | 20 | 265 | 26 | 311 | 117 | 521 | 11 | 649 | 1,062 |
| %HV | 0.0% | 26.1% | 1.9% | 8.6% | 0.0% | 0.0% | 0.0% | 0.0% | 5.0% | 3.8% | 0.0% | 3.5% | 1.7% | 3.3% | 0.0% | 2.9% | 3.5% |
| PHF | 0.63 | 0.64 | 0.66 | 0.70 | 0.00 | 0.55 | 0.42 | 0.58 | 0.71 | 0.85 | 0.54 | 0.87 | 0.81 | 0.88 | 0.46 | 0.87 | 0.93 |

Rolling Hour Summary

7:00 AM to 9:00 AM

| Interval Start Time | Northbound Main St | | | | Southbound Main St | | | | Eastbound 14th St | | | | Westbound 14th St | | | | Interval Total | Pedestrians Crosswalk | | | |
|---------------------------|-----------------------|----|----|-------|-----------------------|----|----|-------|----------------------|-----|----|-------|----------------------|-----|----|-------|-------------------|--------------------------|-------|------|------|
| | L | T | R | Bikes | L | T | R | Bikes | L | T | R | Bikes | L | T | R | Bikes | | North | South | East | West |
| 7:00 AM | 4 | 22 | 52 | 0 | 0 | 11 | 8 | 0 | 20 | 255 | 27 | 0 | 110 | 527 | 9 | 1 | 1,045 | 0 | 5 | 10 | 2 |
| 7:15 AM | 5 | 20 | 55 | 0 | 0 | 14 | 10 | 0 | 22 | 275 | 26 | 0 | 117 | 505 | 12 | 0 | 1,061 | 0 | 4 | 11 | 1 |
| 7:30 AM | 6 | 20 | 54 | 0 | 0 | 15 | 11 | 1 | 33 | 294 | 25 | 0 | 110 | 446 | 13 | 0 | 1,027 | 0 | 5 | 11 | 1 |
| 7:45 AM | 7 | 23 | 58 | 0 | 0 | 23 | 14 | 1 | 39 | 303 | 30 | 0 | 105 | 368 | 16 | 0 | 986 | 0 | 3 | 8 | 1 |
| 8:00 AM | 10 | 18 | 54 | 0 | 1 | 21 | 14 | 2 | 41 | 313 | 28 | 0 | 106 | 315 | 15 | 0 | 936 | 3 | 4 | 7 | 2 |

Heavy Vehicle Summary

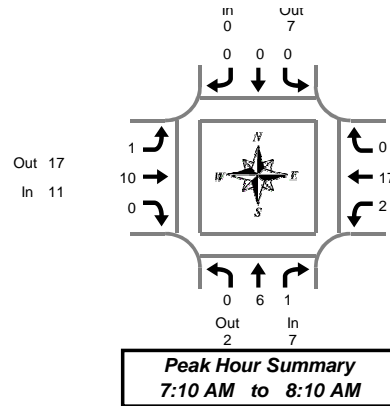


Clay Carney
(503) 833-2740

Main St & 14th St

Thursday, January 26, 2017

7:00 AM to 9:00 AM



Heavy Vehicle 5-Minute Interval Summary 7:00 AM to 9:00 AM

| Interval Start Time | Northbound Main St | | | | Southbound Main St | | | | Eastbound 14th St | | | | Westbound 14th St | | | | Interval Total |
|---------------------------|-----------------------|----|---|-------|-----------------------|---|---|-------|----------------------|----|---|-------|----------------------|----|---|-------|-------------------|
| | L | T | R | Total | L | T | R | Total | L | T | R | Total | L | T | R | Total | |
| 7:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| 7:05 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 1 |
| 7:10 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 1 |
| 7:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 1 |
| 7:20 AM | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 4 | 0 | 2 | 0 | 2 | 7 |
| 7:25 AM | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 3 |
| 7:30 AM | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 2 | 0 | 3 | 5 |
| 7:35 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 2 | 2 | 2 |
| 7:40 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 2 | 2 | 2 |
| 7:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 2 | 0 | 1 | 0 | 1 | 3 |
| 7:50 AM | 0 | 2 | 0 | 2 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 2 | 0 | 2 | 5 |
| 7:55 AM | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 2 | 3 |
| 8:00 AM | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 2 | 0 | 1 | 0 | 1 | 4 |
| 8:05 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 1 |
| 8:10 AM | 0 | 1 | 1 | 2 | 0 | 0 | 0 | 0 | 1 | 3 | 0 | 4 | 0 | 1 | 0 | 1 | 7 |
| 8:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 1 | 2 |
| 8:20 AM | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 5 | 0 | 6 | 0 | 0 | 0 | 0 | 7 |
| 8:25 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 2 | 0 | 3 | 0 | 1 | 0 | 1 | 4 |
| 8:30 AM | 0 | 1 | 1 | 2 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 2 | 0 | 1 | 0 | 1 | 5 |
| 8:35 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 2 | 0 | 3 | 3 |
| 8:40 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 2 | 0 | 0 | 0 | 0 | 2 |
| 8:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 2 | 1 | 3 | 0 | 4 | 6 |
| 8:50 AM | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 4 |
| 8:55 AM | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 1 | 1 | 2 | 1 | 0 | 0 | 1 | 4 |
| Total Survey | 0 | 10 | 3 | 13 | 0 | 1 | 1 | 2 | 6 | 29 | 1 | 36 | 6 | 27 | 0 | 33 | 84 |

Heavy Vehicle 15-Minute Interval Summary 7:00 AM to 9:00 AM

| Interval Start Time | Northbound Main St | | | | Southbound Main St | | | | Eastbound 14th St | | | | Westbound 14th St | | | | Interval Total |
|---------------------------|-----------------------|----|---|-------|-----------------------|---|---|-------|----------------------|----|---|-------|----------------------|----|---|-------|-------------------|
| | L | T | R | Total | L | T | R | Total | L | T | R | Total | L | T | R | Total | |
| 7:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 2 | 0 | 2 | 0 | 2 | 4 |
| 7:15 AM | 0 | 2 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 5 | 0 | 4 | 0 | 4 | 11 |
| 7:30 AM | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 6 | 0 | 7 | 9 |
| 7:45 AM | 0 | 3 | 0 | 3 | 0 | 0 | 0 | 0 | 1 | 2 | 0 | 3 | 1 | 4 | 0 | 5 | 11 |
| 8:00 AM | 0 | 2 | 1 | 3 | 0 | 0 | 0 | 0 | 1 | 5 | 0 | 6 | 0 | 3 | 0 | 3 | 12 |
| 8:15 AM | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 2 | 8 | 0 | 10 | 1 | 1 | 0 | 2 | 13 |
| 8:30 AM | 0 | 1 | 1 | 2 | 0 | 0 | 0 | 0 | 2 | 2 | 0 | 4 | 1 | 3 | 0 | 4 | 10 |
| 8:45 AM | 0 | 1 | 0 | 1 | 0 | 1 | 1 | 2 | 0 | 4 | 1 | 5 | 2 | 4 | 0 | 6 | 14 |
| Total Survey | 0 | 10 | 3 | 13 | 0 | 1 | 1 | 2 | 6 | 29 | 1 | 36 | 6 | 27 | 0 | 33 | 84 |

Heavy Vehicle Peak Hour Summary 7:10 AM to 8:10 AM

| By Approach | Northbound Main St | | | Southbound Main St | | | Eastbound 14th St | | | Westbound 14th St | | | Total |
|----------------|-----------------------|-----|-------|-----------------------|-----|-------|----------------------|-----|-------|----------------------|-----|-------|-------|
| | In | Out | Total | In | Out | Total | In | Out | Total | In | Out | Total | |
| Volume | 7 | 2 | 9 | 0 | 7 | 7 | 11 | 17 | 28 | 19 | 11 | 30 | 37 |
| PHF | 0.44 | | | 0.00 | | | 0.46 | | | 0.68 | | | 0.62 |

| By Movement | Northbound Main St | | | | Southbound Main St | | | | Eastbound 14th St | | | | Westbound 14th St | | | | Total |
|----------------|-----------------------|------|------|-------|-----------------------|------|------|-------|----------------------|------|------|-------|----------------------|------|------|-------|-------|
| | L | T | R | Total | L | T | R | Total | L | T | R | Total | L | T | R | Total | |
| Volume | 0 | 6 | 1 | 7 | 0 | 0 | 0 | 0 | 1 | 10 | 0 | 11 | 2 | 17 | 0 | 19 | 37 |
| PHF | 0.00 | 0.38 | 0.25 | 0.44 | 0.00 | 0.00 | 0.00 | 0.00 | 0.25 | 0.42 | 0.00 | 0.46 | 0.50 | 0.71 | 0.00 | 0.68 | 0.62 |

Heavy Vehicle Rolling Hour Summary 7:00 AM to 9:00 AM

| Interval Start Time | Northbound Main St | | | | Southbound Main St | | | | Eastbound 14th St | | | | Westbound 14th St | | | | Interval Total |
|---------------------------|-----------------------|---|---|-------|-----------------------|---|---|-------|----------------------|----|---|-------|----------------------|----|---|-------|-------------------|
| | L | T | R | Total | L | T | R | Total | L | T | R | Total | L | T | R | Total | |
| 7:00 AM | 0 | 5 | 1 | 6 | 0 | 0 | 0 | 0 | 1 | 10 | 0 | 11 | 2 | 16 | 0 | 18 | 35 |
| 7:15 AM | 0 | 7 | 2 | 9 | 0 | 0 | 0 | 0 | 2 | 13 | 0 | 15 | 2 | 17 | 0 | 19 | 43 |
| 7:30 AM | 0 | 6 | 2 | 8 | 0 | 0 | 0 | 0 | 4 | 16 | 0 | 20 | 3 | 14 | 0 | 17 | 45 |
| 7:45 AM | 0 | 7 | 2 | 9 | 0 | 0 | 0 | 0 | 6 | 17 | 0 | 23 | 3 | 11 | 0 | 14 | 46 |
| 8:00 AM | 0 | 5 | 2 | 7 | 0 | 1 | 1 | 2 | 5 | 19 | 1 | 25 | 4 | 11 | 0 | 15 | 49 |

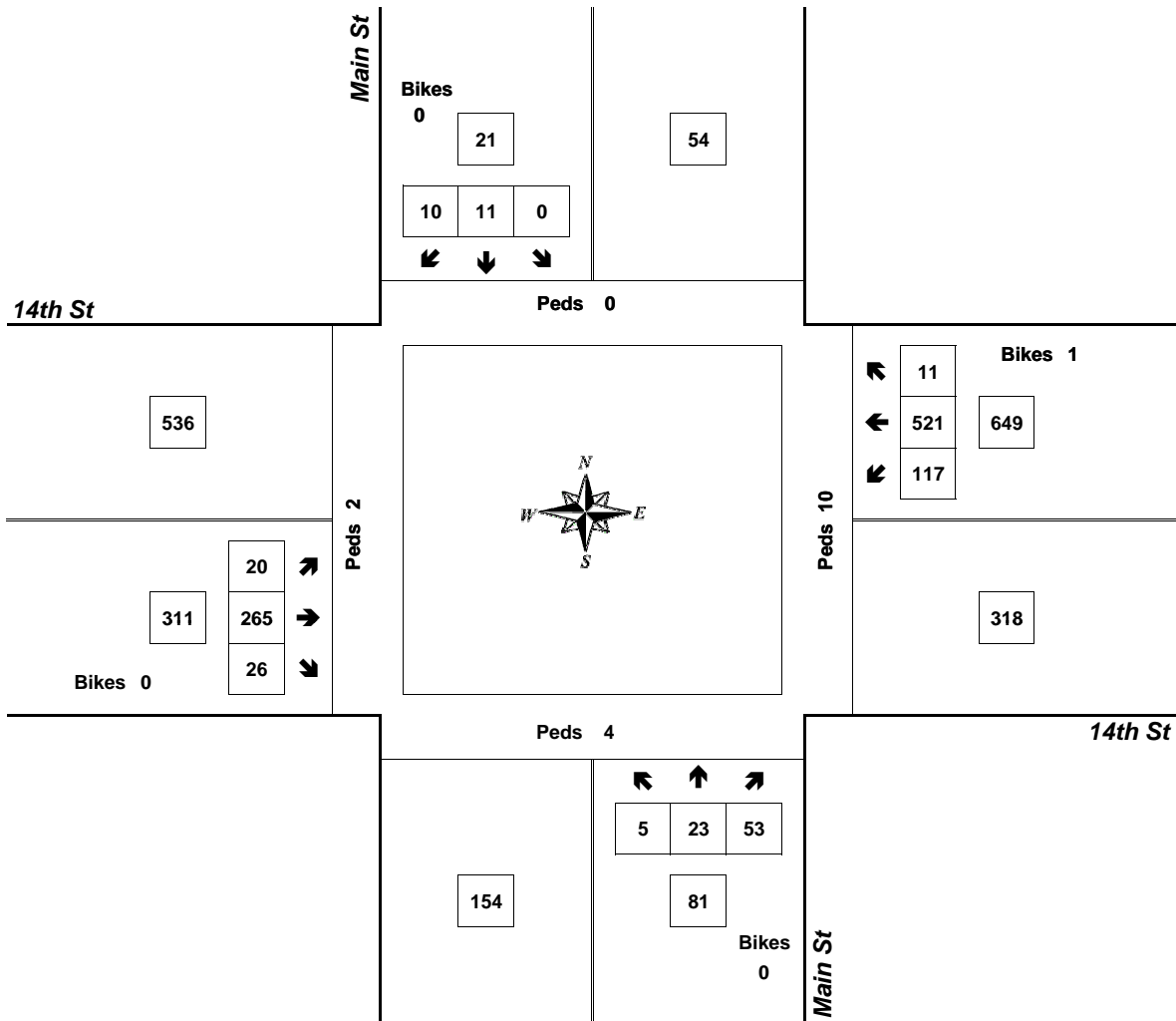
Peak Hour Summary



Clay Carney
(503) 833-2740

Main St & 14th St

7:10 AM to 8:10 AM
Thursday, January 26, 2017



| Approach | PHF | HV% | Volume |
|---------------------|-------------|-------------|--------------|
| EB | 0.87 | 3.5% | 311 |
| WB | 0.87 | 2.9% | 649 |
| NB | 0.70 | 8.6% | 81 |
| SB | 0.58 | 0.0% | 21 |
| Intersection | 0.93 | 3.5% | 1,062 |

Count Period: 7:00 AM to 9:00 AM

Total Vehicle Summary



Clay Carney
(503) 833-2740

Main St & 14th St

Wednesday, January 25, 2017

4:00 PM to 6:00 PM

5-Minute Interval Summary

4:00 PM to 6:00 PM

| Interval Start Time | Northbound Main St | | | | Southbound Main St | | | | Eastbound 14th St | | | | Westbound 14th St | | | | Interval Total | Pedestrians Crosswalk | | | |
|---------------------------|-----------------------|----|-----|-------|-----------------------|----|----|-------|----------------------|-----|----|-------|----------------------|-----|----|-------|-------------------|--------------------------|-------|------|------|
| | L | T | R | Bikes | L | T | R | Bikes | L | T | R | Bikes | L | T | R | Bikes | | North | South | East | West |
| 4:00 PM | 5 | 2 | 8 | 0 | 1 | 3 | 1 | 0 | 1 | 37 | 3 | 0 | 8 | 23 | 4 | 0 | 96 | 0 | 0 | 1 | 1 |
| 4:05 PM | 2 | 2 | 13 | 0 | 0 | 4 | 2 | 0 | 3 | 35 | 0 | 0 | 7 | 32 | 3 | 0 | 103 | 0 | 0 | 0 | 0 |
| 4:10 PM | 2 | 1 | 10 | 0 | 0 | 1 | 1 | 0 | 2 | 25 | 0 | 0 | 4 | 28 | 2 | 0 | 76 | 0 | 1 | 1 | 1 |
| 4:15 PM | 2 | 3 | 10 | 0 | 0 | 0 | 2 | 0 | 4 | 34 | 0 | 0 | 4 | 36 | 0 | 0 | 95 | 0 | 1 | 2 | 0 |
| 4:20 PM | 4 | 1 | 9 | 0 | 1 | 1 | 1 | 0 | 3 | 40 | 2 | 0 | 1 | 19 | 3 | 0 | 85 | 0 | 0 | 2 | 0 |
| 4:25 PM | 1 | 2 | 16 | 0 | 0 | 3 | 3 | 0 | 2 | 32 | 0 | 0 | 3 | 17 | 0 | 0 | 79 | 0 | 0 | 0 | 2 |
| 4:30 PM | 0 | 3 | 18 | 0 | 0 | 1 | 3 | 0 | 2 | 28 | 2 | 0 | 5 | 34 | 0 | 0 | 96 | 1 | 0 | 1 | 0 |
| 4:35 PM | 1 | 3 | 10 | 0 | 0 | 1 | 2 | 0 | 1 | 36 | 2 | 0 | 5 | 36 | 2 | 0 | 99 | 0 | 0 | 0 | 0 |
| 4:40 PM | 0 | 0 | 10 | 0 | 0 | 2 | 2 | 0 | 1 | 42 | 3 | 0 | 4 | 30 | 3 | 0 | 97 | 0 | 1 | 2 | 0 |
| 4:45 PM | 2 | 2 | 14 | 0 | 2 | 1 | 0 | 0 | 5 | 28 | 1 | 0 | 5 | 26 | 1 | 0 | 87 | 0 | 2 | 1 | 0 |
| 4:50 PM | 2 | 3 | 9 | 0 | 0 | 3 | 1 | 0 | 1 | 26 | 2 | 0 | 4 | 24 | 1 | 1 | 76 | 0 | 1 | 0 | 0 |
| 4:55 PM | 2 | 0 | 11 | 0 | 0 | 0 | 0 | 0 | 3 | 39 | 1 | 0 | 9 | 32 | 2 | 0 | 99 | 0 | 0 | 0 | 0 |
| 5:00 PM | 2 | 1 | 14 | 0 | 0 | 1 | 0 | 0 | 2 | 30 | 6 | 2 | 2 | 35 | 0 | 0 | 93 | 0 | 0 | 0 | 0 |
| 5:05 PM | 2 | 1 | 12 | 0 | 0 | 1 | 4 | 0 | 1 | 24 | 2 | 0 | 7 | 33 | 1 | 0 | 88 | 0 | 3 | 0 | 0 |
| 5:10 PM | 3 | 2 | 15 | 0 | 0 | 2 | 3 | 0 | 0 | 36 | 3 | 0 | 6 | 36 | 1 | 0 | 107 | 0 | 2 | 2 | 1 |
| 5:15 PM | 1 | 1 | 13 | 0 | 0 | 4 | 1 | 0 | 1 | 30 | 1 | 0 | 6 | 39 | 0 | 0 | 97 | 0 | 0 | 0 | 0 |
| 5:20 PM | 1 | 2 | 13 | 0 | 0 | 1 | 4 | 0 | 3 | 26 | 1 | 0 | 7 | 36 | 0 | 0 | 94 | 0 | 0 | 0 | 0 |
| 5:25 PM | 2 | 1 | 10 | 0 | 0 | 0 | 5 | 0 | 4 | 32 | 2 | 0 | 4 | 26 | 0 | 0 | 86 | 0 | 0 | 2 | 0 |
| 5:30 PM | 1 | 3 | 15 | 0 | 0 | 0 | 0 | 0 | 2 | 40 | 3 | 0 | 5 | 31 | 0 | 0 | 100 | 0 | 0 | 0 | 0 |
| 5:35 PM | 0 | 1 | 9 | 0 | 1 | 3 | 4 | 0 | 3 | 35 | 2 | 0 | 2 | 22 | 0 | 0 | 82 | 0 | 0 | 0 | 1 |
| 5:40 PM | 2 | 1 | 9 | 0 | 0 | 2 | 2 | 0 | 1 | 30 | 1 | 0 | 6 | 20 | 0 | 0 | 74 | 0 | 0 | 0 | 0 |
| 5:45 PM | 1 | 1 | 11 | 0 | 1 | 2 | 1 | 0 | 2 | 39 | 0 | 0 | 8 | 23 | 0 | 0 | 89 | 0 | 0 | 0 | 0 |
| 5:50 PM | 1 | 2 | 16 | 0 | 0 | 2 | 0 | 0 | 3 | 35 | 2 | 0 | 9 | 24 | 1 | 0 | 95 | 0 | 0 | 1 | 1 |
| 5:55 PM | 1 | 1 | 8 | 0 | 0 | 0 | 0 | 0 | 3 | 35 | 2 | 0 | 7 | 17 | 0 | 0 | 74 | 0 | 1 | 1 | 3 |
| Total Survey | 40 | 39 | 283 | 0 | 6 | 38 | 42 | 0 | 53 | 794 | 41 | 2 | 128 | 679 | 24 | 1 | 2,167 | 1 | 12 | 16 | 10 |

15-Minute Interval Summary

4:00 PM to 6:00 PM

| Interval Start Time | Northbound Main St | | | | Southbound Main St | | | | Eastbound 14th St | | | | Westbound 14th St | | | | Interval Total | Pedestrians Crosswalk | | | |
|---------------------------|-----------------------|----|-----|-------|-----------------------|----|----|-------|----------------------|-----|----|-------|----------------------|-----|----|-------|-------------------|--------------------------|-------|------|------|
| | L | T | R | Bikes | L | T | R | Bikes | L | T | R | Bikes | L | T | R | Bikes | | North | South | East | West |
| 4:00 PM | 9 | 5 | 31 | 0 | 1 | 8 | 4 | 0 | 6 | 97 | 3 | 0 | 19 | 83 | 9 | 0 | 275 | 0 | 1 | 2 | 2 |
| 4:15 PM | 7 | 6 | 35 | 0 | 1 | 4 | 6 | 0 | 9 | 106 | 2 | 0 | 8 | 72 | 3 | 0 | 259 | 0 | 1 | 4 | 2 |
| 4:30 PM | 1 | 6 | 38 | 0 | 0 | 4 | 7 | 0 | 4 | 106 | 7 | 0 | 14 | 100 | 5 | 0 | 292 | 1 | 1 | 3 | 0 |
| 4:45 PM | 6 | 5 | 34 | 0 | 2 | 4 | 1 | 0 | 9 | 93 | 4 | 0 | 18 | 82 | 4 | 1 | 262 | 0 | 3 | 1 | 0 |
| 5:00 PM | 7 | 4 | 41 | 0 | 0 | 4 | 7 | 0 | 3 | 90 | 11 | 2 | 15 | 104 | 2 | 0 | 288 | 0 | 5 | 2 | 1 |
| 5:15 PM | 4 | 4 | 36 | 0 | 0 | 5 | 10 | 0 | 8 | 88 | 4 | 0 | 17 | 101 | 0 | 0 | 277 | 0 | 0 | 2 | 0 |
| 5:30 PM | 3 | 5 | 33 | 0 | 1 | 5 | 6 | 0 | 6 | 105 | 6 | 0 | 13 | 73 | 0 | 0 | 256 | 0 | 0 | 0 | 1 |
| 5:45 PM | 3 | 4 | 35 | 0 | 1 | 4 | 1 | 0 | 8 | 109 | 4 | 0 | 24 | 64 | 1 | 0 | 258 | 0 | 1 | 2 | 4 |
| Total Survey | 40 | 39 | 283 | 0 | 6 | 38 | 42 | 0 | 53 | 794 | 41 | 2 | 128 | 679 | 24 | 1 | 2,167 | 1 | 12 | 16 | 10 |

Peak Hour Summary

4:35 PM to 5:35 PM

| By Approach | Northbound Main St | | | | Southbound Main St | | | | Eastbound 14th St | | | | Westbound 14th St | | | | Total | Pedestrians Crosswalk | | | |
|-------------|-----------------------|-----|-------|-------|-----------------------|-----|-------|-------|----------------------|-----|-------|-------|----------------------|-----|-------|-------|-------|--------------------------|-------|------|------|
| | In | Out | Total | Bikes | In | Out | Total | Bikes | In | Out | Total | Bikes | In | Out | Total | Bikes | | North | South | East | West |
| Volume | 184 | 107 | 291 | 0 | 40 | 54 | 94 | 0 | 440 | 425 | 865 | 2 | 459 | 537 | 996 | 1 | 1,123 | 0 | 9 | 7 | 1 |
| %HV | 4.3% | | | | 0.0% | | | | 1.4% | | | | 1.7% | | | | 2.0% | | | | |
| PHF | 0.88 | | | | 0.67 | | | | 0.92 | | | | 0.88 | | | | 0.94 | | | | |

| By Movement | Northbound Main St | | | | Southbound Main St | | | | Eastbound 14th St | | | | Westbound 14th St | | | | Total |
|-------------|-----------------------|-------|------|-------|-----------------------|------|------|-------|----------------------|------|------|-------|----------------------|------|-------|-------|-------|
| | L | T | R | Total | L | T | R | Total | L | T | R | Total | L | T | R | Total | |
| Volume | 19 | 19 | 146 | 184 | 2 | 16 | 22 | 40 | 24 | 389 | 27 | 440 | 64 | 384 | 11 | 459 | 1,123 |
| %HV | 5.3% | 26.3% | 1.4% | 4.3% | 0.0% | 0.0% | 0.0% | 0.0% | 4.2% | 1.0% | 3.7% | 1.4% | 1.6% | 1.0% | 27.3% | 1.7% | 2.0% |
| PHF | 0.68 | 0.79 | 0.89 | 0.88 | 0.25 | 0.57 | 0.55 | 0.67 | 0.67 | 0.92 | 0.61 | 0.92 | 0.84 | 0.86 | 0.46 | 0.88 | 0.94 |

Rolling Hour Summary

4:00 PM to 6:00 PM

| Interval Start Time | Northbound Main St | | | | Southbound Main St | | | | Eastbound 14th St | | | | Westbound 14th St | | | | Interval Total | Pedestrians Crosswalk | | | |
|---------------------------|-----------------------|----|-----|-------|-----------------------|----|----|-------|----------------------|-----|----|-------|----------------------|-----|----|-------|-------------------|--------------------------|-------|------|------|
| | L | T | R | Bikes | L | T | R | Bikes | L | T | R | Bikes | L | T | R | Bikes | | North | South | East | West |
| 4:00 PM | 23 | 22 | 138 | 0 | 4 | 20 | 18 | 0 | 28 | 402 | 16 | 0 | 59 | 337 | 21 | 1 | 1,088 | 1 | 6 | 10 | 4 |
| 4:15 PM | 21 | 21 | 148 | 0 | 3 | 16 | 21 | 0 | 25 | 395 | 24 | 2 | 55 | 358 | 14 | 1 | 1,101 | 1 | 10 | 10 | 3 |
| 4:30 PM | 18 | 19 | 149 | 0 | 2 | 17 | 25 | 0 | 24 | 377 | 26 | 2 | 64 | 387 | 11 | 1 | 1,119 | 1 | 9 | 8 | 1 |
| 4:45 PM | 20 | 18 | 144 | 0 | 3 | 18 | 24 | 0 | 26 | 376 | 25 | 2 | 63 | 360 | 6 | 1 | 1,083 | 0 | 8 | 5 | 2 |
| 5:00 PM | 17 | 17 | 145 | 0 | 2 | 18 | 24 | 0 | 25 | 392 | 25 | 2 | 69 | 342 | 3 | 0 | 1,079 | 0 | 6 | 6 | 6 |

Heavy Vehicle Summary



Clay Carney
(503) 833-2740

Main St & 14th St

Wednesday, January 25, 2017

4:00 PM to 6:00 PM

Heavy Vehicle 5-Minute Interval Summary

4:00 PM to 6:00 PM

| Interval Start Time | Northbound Main St | | | | Southbound Main St | | | | Eastbound 14th St | | | | Westbound 14th St | | | | Interval Total |
|---------------------------|-----------------------|----|---|-------|-----------------------|---|---|-------|----------------------|---|---|-------|----------------------|----|---|-------|-------------------|
| | L | T | R | Total | L | T | R | Total | L | T | R | Total | L | T | R | Total | |
| 4:00 PM | 0 | 1 | 1 | 2 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 2 | 0 | 0 | 2 | 5 |
| 4:05 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 1 |
| 4:10 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 1 |
| 4:15 PM | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 2 | 0 | 3 | 0 | 0 | 0 | 0 | 4 |
| 4:20 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 4:25 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 2 |
| 4:30 PM | 0 | 2 | 0 | 2 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 2 | 0 | 2 | 5 |
| 4:35 PM | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 2 | 2 | 4 |
| 4:40 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 4:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 |
| 4:50 PM | 1 | 1 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| 4:55 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 2 | 0 | 0 | 0 | 0 | 2 |
| 5:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| 5:05 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 1 |
| 5:10 PM | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 5:15 PM | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 2 |
| 5:20 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 3 | 0 | 3 | 4 |
| 5:25 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 1 |
| 5:30 PM | 0 | 2 | 1 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 |
| 5:35 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 5:40 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| 5:45 PM | 0 | 1 | 1 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| 5:50 PM | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 2 |
| 5:55 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 1 |
| Total Survey | 1 | 10 | 5 | 16 | 0 | 0 | 0 | 0 | 3 | 9 | 1 | 13 | 3 | 11 | 3 | 17 | 46 |

Heavy Vehicle 15-Minute Interval Summary

4:00 PM to 6:00 PM

| Interval Start Time | Northbound Main St | | | | Southbound Main St | | | | Eastbound 14th St | | | | Westbound 14th St | | | | Interval Total |
|---------------------------|-----------------------|----|---|-------|-----------------------|---|---|-------|----------------------|---|---|-------|----------------------|----|---|-------|-------------------|
| | L | T | R | Total | L | T | R | Total | L | T | R | Total | L | T | R | Total | |
| 4:00 PM | 0 | 1 | 1 | 2 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 2 | 2 | 0 | 4 | 7 |
| 4:15 PM | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 3 | 0 | 4 | 0 | 1 | 0 | 1 | 6 |
| 4:30 PM | 0 | 2 | 1 | 3 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 2 | 0 | 2 | 4 | 9 | 9 |
| 4:45 PM | 1 | 1 | 0 | 2 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 2 | 0 | 0 | 1 | 1 | 5 |
| 5:00 PM | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 1 | 3 |
| 5:15 PM | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 0 | 4 | 0 | 4 | 7 |
| 5:30 PM | 0 | 2 | 1 | 3 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 4 |
| 5:45 PM | 0 | 2 | 1 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 2 | 5 |
| Total Survey | 1 | 10 | 5 | 16 | 0 | 0 | 0 | 0 | 3 | 9 | 1 | 13 | 3 | 11 | 3 | 17 | 46 |

Heavy Vehicle Peak Hour Summary

4:35 PM to 5:35 PM

| By Approach | Northbound Main St | | | Southbound Main St | | | Eastbound 14th St | | | Westbound 14th St | | | Total |
|----------------|-----------------------|-----|-------|-----------------------|-----|-------|----------------------|-----|-------|----------------------|-----|-------|-------|
| | In | Out | Total | In | Out | Total | In | Out | Total | In | Out | Total | |
| Volume | 8 | 2 | 10 | 0 | 9 | 9 | 6 | 5 | 11 | 8 | 6 | 14 | 22 |
| PHF | 0.67 | | | 0.00 | | | 0.50 | | | 0.50 | | | 0.69 |

| By Movement | Northbound Main St | | | | Southbound Main St | | | | Eastbound 14th St | | | | Westbound 14th St | | | | Total |
|----------------|-----------------------|------|------|-------|-----------------------|------|------|-------|----------------------|------|------|-------|----------------------|------|------|-------|-------|
| | L | T | R | Total | L | T | R | Total | L | T | R | Total | L | T | R | Total | |
| Volume | 1 | 5 | 2 | 8 | 0 | 0 | 0 | 0 | 1 | 4 | 1 | 6 | 1 | 4 | 3 | 8 | 22 |
| PHF | 0.25 | 0.63 | 0.50 | 0.67 | 0.00 | 0.00 | 0.00 | 0.00 | 0.25 | 0.50 | 0.25 | 0.50 | 0.25 | 0.25 | 0.25 | 0.50 | 0.69 |

Heavy Vehicle Rolling Hour Summary

4:00 PM to 6:00 PM

| Interval Start Time | Northbound Main St | | | | Southbound Main St | | | | Eastbound 14th St | | | | Westbound 14th St | | | | Interval Total |
|---------------------------|-----------------------|---|---|-------|-----------------------|---|---|-------|----------------------|---|---|-------|----------------------|---|---|-------|-------------------|
| | L | T | R | Total | L | T | R | Total | L | T | R | Total | L | T | R | Total | |
| 4:00 PM | 1 | 4 | 3 | 8 | 0 | 0 | 0 | 0 | 3 | 6 | 0 | 9 | 2 | 5 | 3 | 10 | 27 |
| 4:15 PM | 1 | 4 | 2 | 7 | 0 | 0 | 0 | 0 | 3 | 6 | 0 | 9 | 1 | 3 | 3 | 7 | 23 |
| 4:30 PM | 1 | 5 | 1 | 7 | 0 | 0 | 0 | 0 | 2 | 4 | 1 | 7 | 1 | 6 | 3 | 10 | 24 |
| 4:45 PM | 1 | 5 | 1 | 7 | 0 | 0 | 0 | 0 | 1 | 4 | 1 | 6 | 1 | 4 | 1 | 6 | 19 |
| 5:00 PM | 0 | 6 | 2 | 8 | 0 | 0 | 0 | 0 | 0 | 3 | 1 | 4 | 1 | 6 | 0 | 7 | 19 |

Peak Hour Summary

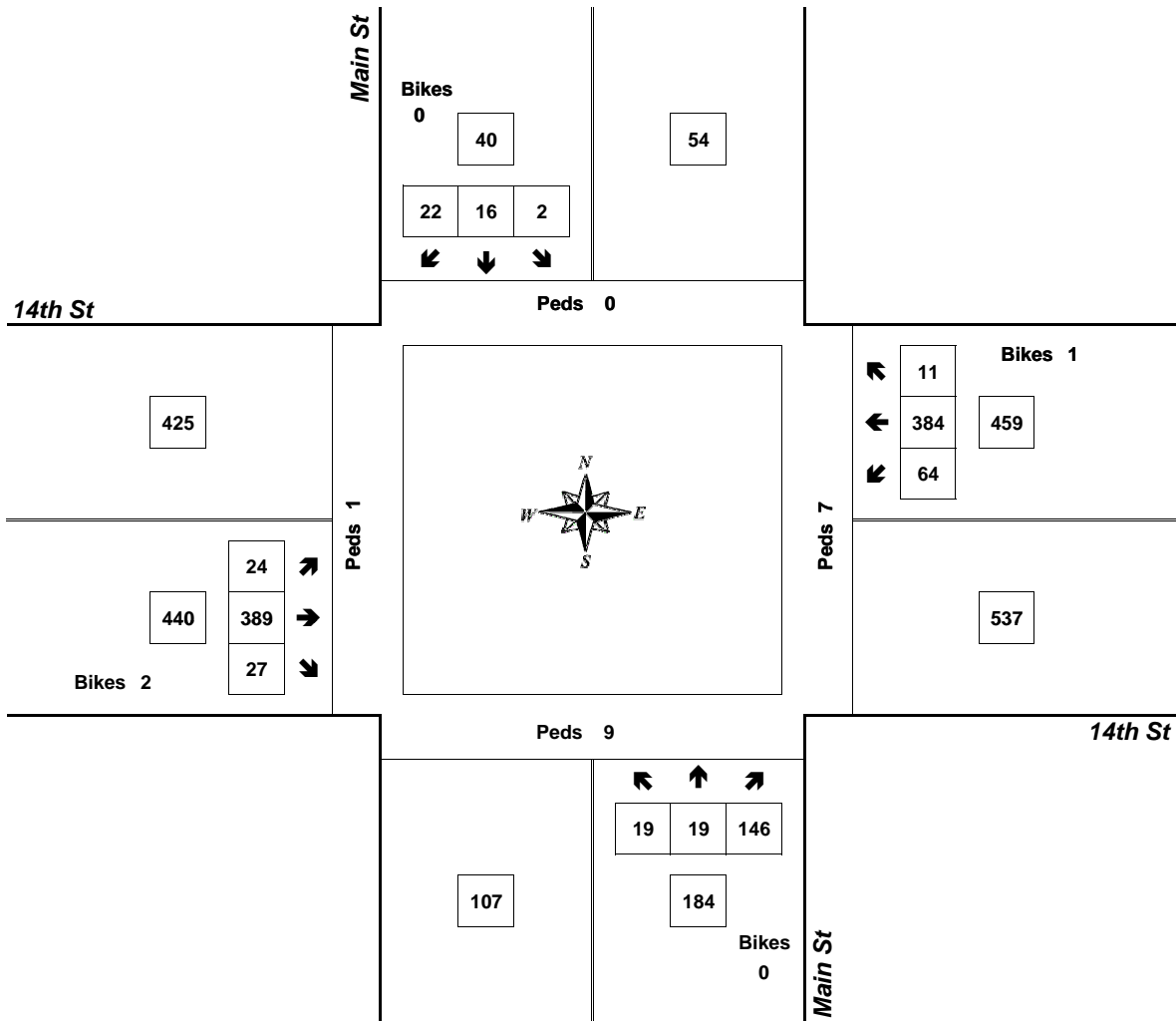


Clay Carney
(503) 833-2740

Main St & 14th St

4:35 PM to 5:35 PM

Wednesday, January 25, 2017



| Approach | PHF | HV% | Volume |
|---------------------|-------------|-------------|--------------|
| EB | 0.92 | 1.4% | 440 |
| WB | 0.88 | 1.7% | 459 |
| NB | 0.88 | 4.3% | 184 |
| SB | 0.67 | 0.0% | 40 |
| Intersection | 0.94 | 2.0% | 1,123 |

Count Period: 4:00 PM to 6:00 PM

Total Vehicle Summary

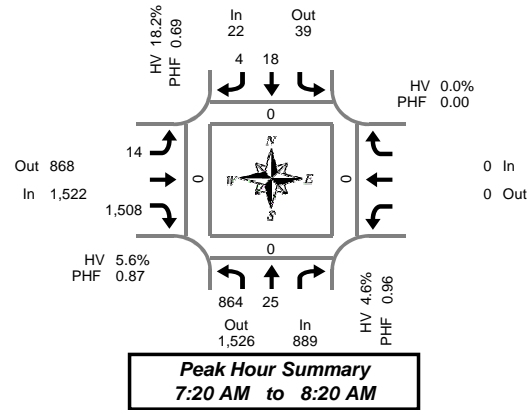


Clay Carney
(503) 833-2740

Hwy 213 & I-205 SB Ramp

Wednesday, May 03, 2017

7:00 AM to 9:00 AM



5-Minute Interval Summary

7:00 AM to 9:00 AM

| Interval Start Time | Northbound Hwy 213 | | | Southbound Hwy 213 | | | Eastbound I-205 SB Ramp | | | Westbound I-205 SB Ramp | | | Interval Total | Pedestrians Crosswalk | | | |
|---------------------------|-----------------------|----|-------|-----------------------|---|-------|----------------------------|-------|-------|----------------------------|--|-------|-------------------|--------------------------|-------|------|------|
| | L | T | Bikes | T | R | Bikes | L | R | Bikes | | | Bikes | | North | South | East | West |
| 7:00 AM | 75 | 1 | 0 | 2 | 0 | 0 | 0 | 93 | 0 | | | 0 | 171 | 0 | 0 | 0 | 0 |
| 7:05 AM | 58 | 3 | 0 | 2 | 0 | 0 | 0 | 117 | 0 | | | 0 | 180 | 0 | 0 | 0 | 0 |
| 7:10 AM | 77 | 0 | 1 | 0 | 0 | 0 | 0 | 110 | 0 | | | 0 | 187 | 0 | 0 | 0 | 0 |
| 7:15 AM | 58 | 2 | 1 | 2 | 0 | 0 | 1 | 99 | 0 | | | 0 | 162 | 0 | 0 | 0 | 0 |
| 7:20 AM | 68 | 0 | 0 | 2 | 0 | 0 | 2 | 102 | 0 | | | 0 | 174 | 0 | 0 | 0 | 0 |
| 7:25 AM | 75 | 2 | 0 | 1 | 0 | 0 | 0 | 116 | 0 | | | 0 | 194 | 0 | 0 | 0 | 0 |
| 7:30 AM | 73 | 0 | 2 | 0 | 2 | 0 | 0 | 121 | 0 | | | 0 | 196 | 0 | 0 | 0 | 0 |
| 7:35 AM | 73 | 3 | 0 | 1 | 1 | 0 | 1 | 106 | 0 | | | 0 | 185 | 0 | 0 | 0 | 0 |
| 7:40 AM | 64 | 0 | 0 | 0 | 1 | 0 | 0 | 120 | 0 | | | 0 | 185 | 0 | 0 | 0 | 0 |
| 7:45 AM | 71 | 2 | 0 | 2 | 0 | 0 | 1 | 146 | 0 | | | 0 | 222 | 0 | 0 | 0 | 0 |
| 7:50 AM | 77 | 1 | 0 | 2 | 0 | 0 | 0 | 134 | 0 | | | 0 | 214 | 0 | 0 | 0 | 0 |
| 7:55 AM | 69 | 2 | 0 | 1 | 0 | 0 | 2 | 142 | 0 | | | 0 | 216 | 0 | 0 | 0 | 0 |
| 8:00 AM | 73 | 5 | 0 | 1 | 0 | 0 | 0 | 158 | 0 | | | 0 | 237 | 0 | 0 | 0 | 0 |
| 8:05 AM | 72 | 1 | 1 | 2 | 0 | 0 | 4 | 109 | 0 | | | 0 | 188 | 0 | 0 | 0 | 0 |
| 8:10 AM | 69 | 6 | 0 | 3 | 0 | 0 | 3 | 134 | 0 | | | 0 | 215 | 0 | 0 | 0 | 0 |
| 8:15 AM | 80 | 3 | 0 | 3 | 0 | 0 | 1 | 120 | 0 | | | 0 | 207 | 0 | 0 | 0 | 0 |
| 8:20 AM | 55 | 2 | 0 | 3 | 1 | 1 | 4 | 103 | 0 | | | 0 | 168 | 0 | 0 | 0 | 0 |
| 8:25 AM | 40 | 3 | 0 | 1 | 0 | 0 | 0 | 115 | 0 | | | 0 | 159 | 0 | 0 | 0 | 0 |
| 8:30 AM | 65 | 2 | 0 | 2 | 0 | 0 | 2 | 145 | 0 | | | 0 | 216 | 0 | 0 | 0 | 0 |
| 8:35 AM | 54 | 5 | 0 | 4 | 0 | 0 | 3 | 118 | 0 | | | 0 | 184 | 0 | 0 | 0 | 0 |
| 8:40 AM | 57 | 0 | 0 | 2 | 0 | 0 | 1 | 108 | 0 | | | 0 | 168 | 0 | 0 | 0 | 0 |
| 8:45 AM | 55 | 2 | 0 | 0 | 0 | 0 | 1 | 144 | 0 | | | 0 | 202 | 0 | 0 | 0 | 0 |
| 8:50 AM | 54 | 3 | 0 | 1 | 0 | 0 | 0 | 127 | 0 | | | 0 | 185 | 0 | 0 | 0 | 0 |
| 8:55 AM | 59 | 6 | 0 | 4 | 1 | 0 | 1 | 128 | 0 | | | 0 | 199 | 0 | 0 | 0 | 0 |
| Total Survey | 1,571 | 54 | 5 | 41 | 6 | 1 | 27 | 2,915 | 0 | | | 0 | 4,614 | 0 | 0 | 0 | 0 |

15-Minute Interval Summary

7:00 AM to 9:00 AM

| Interval Start Time | Northbound Hwy 213 | | | Southbound Hwy 213 | | | Eastbound I-205 SB Ramp | | | Westbound I-205 SB Ramp | | | Interval Total | Pedestrians Crosswalk | | | |
|---------------------------|-----------------------|----|-------|-----------------------|---|-------|----------------------------|-------|-------|----------------------------|--|-------|-------------------|--------------------------|-------|------|------|
| | L | T | Bikes | T | R | Bikes | L | R | Bikes | | | Bikes | | North | South | East | West |
| 7:00 AM | 210 | 4 | 1 | 4 | 0 | 0 | 0 | 320 | 0 | | | 0 | 538 | 0 | 0 | 0 | 0 |
| 7:15 AM | 201 | 4 | 1 | 5 | 0 | 0 | 3 | 317 | 0 | | | 0 | 530 | 0 | 0 | 0 | 0 |
| 7:30 AM | 210 | 3 | 2 | 1 | 4 | 0 | 1 | 347 | 0 | | | 0 | 566 | 0 | 0 | 0 | 0 |
| 7:45 AM | 217 | 5 | 0 | 5 | 0 | 0 | 3 | 422 | 0 | | | 0 | 652 | 0 | 0 | 0 | 0 |
| 8:00 AM | 214 | 12 | 1 | 6 | 0 | 0 | 7 | 401 | 0 | | | 0 | 640 | 0 | 0 | 0 | 0 |
| 8:15 AM | 175 | 8 | 0 | 7 | 1 | 1 | 5 | 338 | 0 | | | 0 | 534 | 0 | 0 | 0 | 0 |
| 8:30 AM | 176 | 7 | 0 | 8 | 0 | 0 | 6 | 371 | 0 | | | 0 | 568 | 0 | 0 | 0 | 0 |
| 8:45 AM | 168 | 11 | 0 | 5 | 1 | 0 | 2 | 399 | 0 | | | 0 | 586 | 0 | 0 | 0 | 0 |
| Total Survey | 1,571 | 54 | 5 | 41 | 6 | 1 | 27 | 2,915 | 0 | | | 0 | 4,614 | 0 | 0 | 0 | 0 |

Peak Hour Summary

7:20 AM to 8:20 AM

| By Approach | Northbound Hwy 213 | | | Southbound Hwy 213 | | | Eastbound I-205 SB Ramp | | | Westbound I-205 SB Ramp | | | Total | Pedestrians Crosswalk | | | |
|----------------|-----------------------|-------|-------|-----------------------|-------|-------|----------------------------|-------|-------|----------------------------|-----|-------|-------|--------------------------|-------|------|------|
| | In | Out | Total | In | Out | Total | In | Out | Total | In | Out | Total | | North | South | East | West |
| Volume | 889 | 1,526 | 2,415 | 22 | 39 | 61 | 0 | 1,522 | 868 | 2,390 | 0 | 0 | 2,433 | 0 | 0 | 0 | 0 |
| %HV | | 4.6% | | | 18.2% | | | | 5.6% | | | | 5.3% | | | | |
| PHF | | 0.96 | | | 0.69 | | | | 0.87 | | | | 0.91 | | | | |

| By Movement | Northbound Hwy 213 | | | Southbound Hwy 213 | | | Eastbound I-205 SB Ramp | | | Westbound I-205 SB Ramp | | | Total |
|----------------|-----------------------|------|-------|-----------------------|-------|-------|----------------------------|-------|-------|----------------------------|------|-------|-------|
| | L | T | Total | T | R | Total | L | R | Total | | | Total | |
| Volume | 864 | 25 | 889 | 18 | 4 | 22 | 14 | 1,508 | 1,522 | | | 0 | 2,433 |
| %HV | 4.6% | 4.0% | NA | NA | 16.7% | 25.0% | 18.2% | 0.0% | NA | 5.6% | 5.6% | NA | 5.3% |
| PHF | 0.98 | 0.52 | 0.96 | 0.56 | 0.25 | 0.69 | 0.44 | 0.87 | 0.87 | | | 0.00 | 0.91 |

Rolling Hour Summary

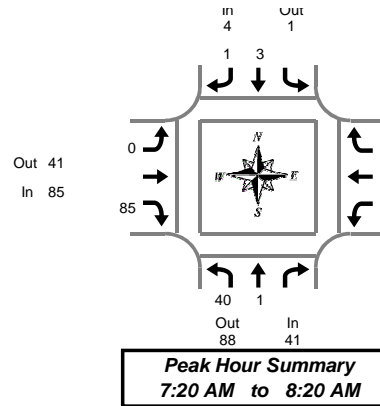
7:00 AM to 9:00 AM

| Interval Start Time | Northbound Hwy 213 | | | Southbound Hwy 213 | | | Eastbound I-205 SB Ramp | | | Westbound I-205 SB Ramp | | | Interval Total | Pedestrians Crosswalk | | | |
|---------------------------|-----------------------|----|-------|-----------------------|---|-------|----------------------------|-------|-------|----------------------------|--|-------|-------------------|--------------------------|-------|------|------|
| | L | T | Bikes | T | R | Bikes | L | R | Bikes | | | Bikes | | North | South | East | West |
| 7:00 AM | 838 | 16 | 4 | 15 | 4 | 0 | 7 | 1,406 | 0 | | | 0 | 2,286 | 0 | 0 | 0 | 0 |
| 7:15 AM | 842 | 24 | 4 | 17 | 4 | 0 | 14 | 1,487 | 0 | | | 0 | 2,388 | 0 | 0 | 0 | 0 |
| 7:30 AM | 816 | 28 | 3 | 19 | 5 | 1 | 16 | 1,508 | 0 | | | 0 | 2,392 | 0 | 0 | 0 | 0 |
| 7:45 AM | 782 | 32 | 1 | 26 | 1 | 1 | 21 | 1,532 | 0 | | | 0 | 2,394 | 0 | 0 | 0 | 0 |
| 8:00 AM | 733 | 38 | 1 | 26 | 2 | 1 | 20 | 1,509 | 0 | | | 0 | 2,328 | 0 | 0 | 0 | 0 |

Heavy Vehicle Summary



Clay Carney
(503) 833-2740



Hwy 213 & I-205 SB Ramp

Wednesday, May 03, 2017

7:00 AM to 9:00 AM

Heavy Vehicle 5-Minute Interval Summary

7:00 AM to 9:00 AM

| Interval Start Time | Northbound Hwy 213 | | | Southbound Hwy 213 | | | Eastbound I-205 SB Ramp | | | Westbound I-205 SB Ramp | | | Interval Total |
|---------------------------|-----------------------|---|-------|-----------------------|---|-------|----------------------------|-----|-------|----------------------------|--|-------|-------------------|
| | L | T | Total | T | R | Total | L | R | Total | | | Total | |
| 7:00 AM | 2 | 0 | 2 | 1 | 0 | 1 | 0 | 5 | 5 | | | 0 | 8 |
| 7:05 AM | 2 | 1 | 3 | 0 | 0 | 0 | 0 | 9 | 9 | | | 0 | 12 |
| 7:10 AM | 8 | 0 | 8 | 0 | 0 | 0 | 0 | 5 | 5 | | | 0 | 13 |
| 7:15 AM | 3 | 0 | 3 | 0 | 0 | 0 | 0 | 6 | 6 | | | 0 | 9 |
| 7:20 AM | 7 | 0 | 7 | 2 | 0 | 2 | 0 | 4 | 4 | | | 0 | 13 |
| 7:25 AM | 3 | 0 | 3 | 0 | 0 | 0 | 0 | 3 | 3 | | | 0 | 6 |
| 7:30 AM | 2 | 0 | 2 | 0 | 0 | 0 | 0 | 6 | 6 | | | 0 | 8 |
| 7:35 AM | 2 | 1 | 3 | 0 | 0 | 0 | 0 | 2 | 2 | | | 0 | 5 |
| 7:40 AM | 5 | 0 | 5 | 0 | 1 | 1 | 0 | 1 | 1 | | | 0 | 7 |
| 7:45 AM | 3 | 0 | 3 | 0 | 0 | 0 | 0 | 8 | 8 | | | 0 | 11 |
| 7:50 AM | 1 | 0 | 1 | 1 | 0 | 1 | 0 | 10 | 10 | | | 0 | 12 |
| 7:55 AM | 5 | 0 | 5 | 0 | 0 | 0 | 0 | 12 | 12 | | | 0 | 17 |
| 8:00 AM | 4 | 0 | 4 | 0 | 0 | 0 | 0 | 3 | 3 | | | 0 | 7 |
| 8:05 AM | 4 | 0 | 4 | 0 | 0 | 0 | 0 | 12 | 12 | | | 0 | 16 |
| 8:10 AM | 2 | 0 | 2 | 0 | 0 | 0 | 0 | 12 | 12 | | | 0 | 14 |
| 8:15 AM | 2 | 0 | 2 | 0 | 0 | 0 | 0 | 12 | 12 | | | 0 | 14 |
| 8:20 AM | 6 | 0 | 6 | 0 | 0 | 0 | 0 | 9 | 9 | | | 0 | 15 |
| 8:25 AM | 2 | 0 | 2 | 0 | 0 | 0 | 0 | 9 | 9 | | | 0 | 11 |
| 8:30 AM | 3 | 0 | 3 | 0 | 0 | 0 | 1 | 14 | 15 | | | 0 | 18 |
| 8:35 AM | 2 | 0 | 2 | 0 | 0 | 0 | 0 | 10 | 10 | | | 0 | 12 |
| 8:40 AM | 5 | 0 | 5 | 0 | 0 | 0 | 0 | 10 | 10 | | | 0 | 15 |
| 8:45 AM | 4 | 0 | 4 | 0 | 0 | 0 | 0 | 9 | 9 | | | 0 | 13 |
| 8:50 AM | 4 | 0 | 4 | 0 | 0 | 0 | 0 | 11 | 11 | | | 0 | 15 |
| 8:55 AM | 4 | 0 | 4 | 0 | 0 | 0 | 0 | 11 | 11 | | | 0 | 15 |
| Total Survey | 85 | 2 | 87 | 4 | 1 | 5 | 1 | 193 | 194 | | | 0 | 286 |

Heavy Vehicle 15-Minute Interval Summary

7:00 AM to 9:00 AM

| Interval Start Time | Northbound Hwy 213 | | | Southbound Hwy 213 | | | Eastbound I-205 SB Ramp | | | Westbound I-205 SB Ramp | | | Interval Total |
|---------------------------|-----------------------|---|-------|-----------------------|---|-------|----------------------------|-----|-------|----------------------------|--|-------|-------------------|
| | L | T | Total | T | R | Total | L | R | Total | | | Total | |
| 7:00 AM | 12 | 1 | 13 | 1 | 0 | 1 | 0 | 19 | 19 | | | 0 | 33 |
| 7:15 AM | 13 | 0 | 13 | 2 | 0 | 2 | 0 | 13 | 13 | | | 0 | 28 |
| 7:30 AM | 9 | 1 | 10 | 0 | 1 | 1 | 0 | 9 | 9 | | | 0 | 20 |
| 7:45 AM | 9 | 0 | 9 | 1 | 0 | 1 | 0 | 30 | 30 | | | 0 | 40 |
| 8:00 AM | 10 | 0 | 10 | 0 | 0 | 0 | 0 | 27 | 27 | | | 0 | 37 |
| 8:15 AM | 10 | 0 | 10 | 0 | 0 | 0 | 0 | 30 | 30 | | | 0 | 40 |
| 8:30 AM | 10 | 0 | 10 | 0 | 0 | 0 | 1 | 34 | 35 | | | 0 | 45 |
| 8:45 AM | 12 | 0 | 12 | 0 | 0 | 0 | 0 | 31 | 31 | | | 0 | 43 |
| Total Survey | 85 | 2 | 87 | 4 | 1 | 5 | 1 | 193 | 194 | | | 0 | 286 |

Heavy Vehicle Peak Hour Summary

7:20 AM to 8:20 AM

| By Approach | Northbound Hwy 213 | | | Southbound Hwy 213 | | | Eastbound I-205 SB Ramp | | | Westbound I-205 SB Ramp | | | Total |
|----------------|-----------------------|-----|-------|-----------------------|-----|-------|----------------------------|-----|-------|----------------------------|-----|-------|-------|
| | In | Out | Total | In | Out | Total | In | Out | Total | In | Out | Total | |
| Volume | 41 | 88 | 129 | 4 | 1 | 5 | 85 | 41 | 126 | 0 | 0 | 0 | 130 |
| PHF | 0.79 | | | 0.50 | | | 0.59 | | | 0.00 | | | 0.74 |

| By Movement | Northbound Hwy 213 | | | Southbound Hwy 213 | | | Eastbound I-205 SB Ramp | | | Westbound I-205 SB Ramp | | | Total |
|----------------|-----------------------|------|-------|-----------------------|------|-------|----------------------------|------|-------|----------------------------|--|-------|-------|
| | L | T | Total | T | R | Total | L | R | Total | | | Total | |
| Volume | 40 | 1 | 41 | 3 | 1 | 4 | 0 | 85 | 85 | | | 0 | 130 |
| PHF | 0.77 | 0.25 | 0.79 | 0.38 | 0.25 | 0.50 | 0.00 | 0.59 | 0.59 | | | 0.00 | 0.74 |

Heavy Vehicle Rolling Hour Summary

7:00 AM to 9:00 AM

| Interval Start Time | Northbound Hwy 213 | | | Southbound Hwy 213 | | | Eastbound I-205 SB Ramp | | | Westbound I-205 SB Ramp | | | Interval Total |
|---------------------------|-----------------------|---|-------|-----------------------|---|-------|----------------------------|-----|-------|----------------------------|--|-------|-------------------|
| | L | T | Total | T | R | Total | L | R | Total | | | Total | |
| 7:00 AM | 43 | 2 | 45 | 4 | 1 | 5 | 0 | 71 | 71 | | | 0 | 121 |
| 7:15 AM | 41 | 1 | 42 | 3 | 1 | 4 | 0 | 79 | 79 | | | 0 | 125 |
| 7:30 AM | 38 | 1 | 39 | 1 | 1 | 2 | 0 | 96 | 96 | | | 0 | 137 |
| 7:45 AM | 39 | 0 | 39 | 1 | 0 | 1 | 1 | 121 | 122 | | | 0 | 162 |
| 8:00 AM | 42 | 0 | 42 | 0 | 0 | 0 | 1 | 122 | 123 | | | 0 | 165 |

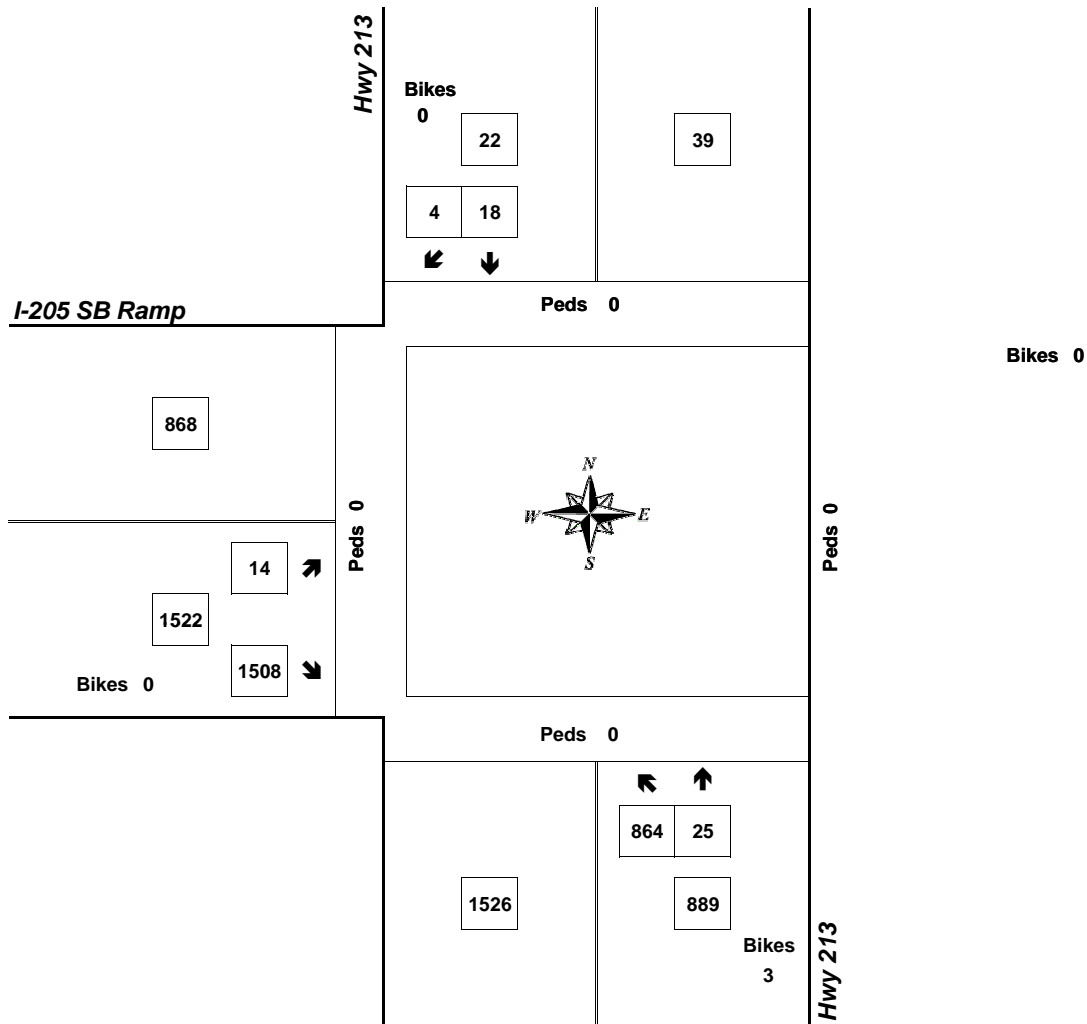
Peak Hour Summary



Clay Carney
(503) 833-2740

Hwy 213 & I-205 SB Ramp

7:20 AM to 8:20 AM
Wednesday, May 03, 2017



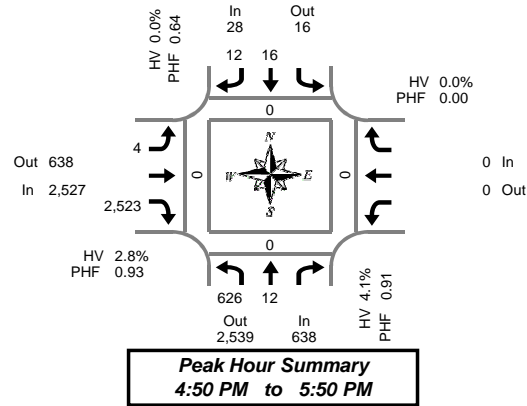
| Approach | PHF | HV% | Volume |
|---------------------|-------------|-------------|--------------|
| EB | 0.87 | 5.6% | 1,522 |
| WB | 0.00 | 0.0% | 0 |
| NB | 0.96 | 4.6% | 889 |
| SB | 0.69 | 18.2% | 22 |
| Intersection | 0.91 | 5.3% | 2,433 |

Count Period: 7:00 AM to 9:00 AM

Total Vehicle Summary



Clay Carney
(503) 833-2740



Hwy 213 & I-205 SB Ramp

Tuesday, May 02, 2017

4:00 PM to 6:00 PM

5-Minute Interval Summary

4:00 PM to 6:00 PM

| Interval Start Time | Northbound Hwy 213 | | | | Southbound Hwy 213 | | | | Eastbound I-205 SB Ramp | | | | Westbound I-205 SB Ramp | | | | Interval Total | Pedestrians Crosswalk | | | |
|---------------------------|-----------------------|----|--|-------|-----------------------|----|---|-------|----------------------------|---|-----|-------|----------------------------|--|---|-------|-------------------|--------------------------|-------|------|------|
| | L | T | | Bikes | T | R | | Bikes | L | | R | Bikes | | | | Bikes | | North | South | East | West |
| 4:00 PM | 58 | 1 | | 0 | 1 | 1 | 0 | 0 | 1 | | 180 | 0 | | | | 0 | 241 | 0 | 0 | 0 | 0 |
| 4:05 PM | 63 | 0 | | 0 | 2 | 1 | 0 | 1 | 1 | | 197 | 0 | | | | 0 | 264 | 0 | 0 | 0 | 0 |
| 4:10 PM | 58 | 1 | | 0 | 0 | 1 | 0 | 0 | 0 | | 191 | 0 | | | | 0 | 251 | 0 | 0 | 0 | 0 |
| 4:15 PM | 52 | 1 | | 0 | 1 | 0 | 0 | 0 | 0 | | 178 | 0 | | | | 0 | 232 | 0 | 0 | 0 | 0 |
| 4:20 PM | 51 | 4 | | 0 | 4 | 3 | 0 | 0 | 0 | | 165 | 0 | | | | 0 | 227 | 0 | 0 | 0 | 0 |
| 4:25 PM | 55 | 0 | | 0 | 2 | 4 | 0 | 1 | 1 | | 171 | 0 | | | | 0 | 233 | 0 | 0 | 0 | 0 |
| 4:30 PM | 43 | 0 | | 0 | 2 | 1 | 0 | 0 | 0 | | 173 | 0 | | | | 0 | 219 | 0 | 0 | 0 | 0 |
| 4:35 PM | 60 | 0 | | 0 | 2 | 1 | 0 | 0 | 0 | | 183 | 0 | | | | 0 | 246 | 0 | 0 | 0 | 0 |
| 4:40 PM | 52 | 1 | | 0 | 2 | 0 | 0 | 0 | 0 | | 201 | 0 | | | | 0 | 256 | 0 | 0 | 0 | 0 |
| 4:45 PM | 49 | 3 | | 0 | 1 | 0 | 0 | 2 | 1 | | 172 | 0 | | | | 0 | 227 | 0 | 0 | 0 | 0 |
| 4:50 PM | 50 | 1 | | 0 | 1 | 3 | 0 | 0 | 0 | | 183 | 0 | | | | 0 | 238 | 0 | 0 | 0 | 0 |
| 4:55 PM | 62 | 1 | | 0 | 1 | 1 | 0 | 0 | 0 | | 202 | 0 | | | | 0 | 267 | 0 | 0 | 0 | 0 |
| 5:00 PM | 61 | 1 | | 0 | 2 | 3 | 0 | 1 | 1 | | 208 | 0 | | | | 0 | 276 | 0 | 0 | 0 | 0 |
| 5:05 PM | 50 | 1 | | 0 | 2 | 0 | 0 | 1 | 1 | | 228 | 0 | | | | 0 | 282 | 0 | 0 | 0 | 0 |
| 5:10 PM | 58 | 3 | | 0 | 3 | 0 | 0 | 0 | 0 | | 225 | 0 | | | | 0 | 289 | 0 | 0 | 0 | 0 |
| 5:15 PM | 51 | 2 | | 0 | 2 | 1 | 0 | 0 | 0 | | 216 | 0 | | | | 0 | 272 | 0 | 0 | 0 | 0 |
| 5:20 PM | 57 | 1 | | 0 | 3 | 1 | 0 | 0 | 0 | | 235 | 0 | | | | 0 | 297 | 0 | 0 | 0 | 0 |
| 5:25 PM | 51 | 0 | | 0 | 1 | 0 | 0 | 0 | 0 | | 197 | 0 | | | | 0 | 249 | 0 | 0 | 0 | 0 |
| 5:30 PM | 48 | 1 | | 0 | 0 | 1 | 0 | 2 | 2 | | 206 | 0 | | | | 0 | 258 | 0 | 0 | 0 | 0 |
| 5:35 PM | 39 | 1 | | 0 | 1 | 1 | 0 | 0 | 0 | | 215 | 0 | | | | 0 | 257 | 0 | 0 | 0 | 0 |
| 5:40 PM | 48 | 0 | | 0 | 0 | 1 | 0 | 0 | 0 | | 214 | 0 | | | | 0 | 263 | 0 | 0 | 0 | 0 |
| 5:45 PM | 51 | 0 | | 0 | 0 | 0 | 0 | 0 | 0 | | 194 | 0 | | | | 0 | 245 | 0 | 0 | 0 | 0 |
| 5:50 PM | 42 | 0 | | 0 | 1 | 1 | 0 | 0 | 0 | | 183 | 0 | | | | 0 | 227 | 0 | 0 | 0 | 0 |
| 5:55 PM | 39 | 2 | | 0 | 2 | 0 | 0 | 0 | 0 | | 181 | 0 | | | | 0 | 224 | 0 | 0 | 0 | 0 |
| Total Survey | 1,248 | 25 | | 0 | 36 | 25 | 0 | 8 | 4,698 | 0 | | 0 | | | 0 | 6,040 | | 0 | 0 | 0 | 0 |

15-Minute Interval Summary

4:00 PM to 6:00 PM

| Interval Start Time | Northbound Hwy 213 | | | | Southbound Hwy 213 | | | | Eastbound I-205 SB Ramp | | | | Westbound I-205 SB Ramp | | | | Interval Total | Pedestrians Crosswalk | | | |
|---------------------------|-----------------------|----|--|-------|-----------------------|----|---|-------|----------------------------|---|-----|-------|----------------------------|--|---|-------|-------------------|--------------------------|-------|------|------|
| | L | T | | Bikes | T | R | | Bikes | L | | R | Bikes | | | | Bikes | | North | South | East | West |
| 4:00 PM | 179 | 2 | | 0 | 3 | 3 | 0 | 1 | 1 | | 568 | 0 | | | | 0 | 756 | 0 | 0 | 0 | 0 |
| 4:15 PM | 158 | 5 | | 0 | 7 | 7 | 0 | 1 | 1 | | 514 | 0 | | | | 0 | 692 | 0 | 0 | 0 | 0 |
| 4:30 PM | 155 | 1 | | 0 | 6 | 2 | 0 | 0 | 0 | | 557 | 0 | | | | 0 | 721 | 0 | 0 | 0 | 0 |
| 4:45 PM | 161 | 5 | | 0 | 3 | 4 | 0 | 2 | 2 | | 557 | 0 | | | | 0 | 732 | 0 | 0 | 0 | 0 |
| 5:00 PM | 169 | 5 | | 0 | 7 | 3 | 0 | 2 | 2 | | 661 | 0 | | | | 0 | 847 | 0 | 0 | 0 | 0 |
| 5:15 PM | 159 | 3 | | 0 | 6 | 2 | 0 | 0 | 0 | | 648 | 0 | | | | 0 | 818 | 0 | 0 | 0 | 0 |
| 5:30 PM | 135 | 2 | | 0 | 1 | 3 | 0 | 2 | 2 | | 635 | 0 | | | | 0 | 778 | 0 | 0 | 0 | 0 |
| 5:45 PM | 132 | 2 | | 0 | 3 | 1 | 0 | 0 | 0 | | 558 | 0 | | | | 0 | 696 | 0 | 0 | 0 | 0 |
| Total Survey | 1,248 | 25 | | 0 | 36 | 25 | 0 | 8 | 4,698 | 0 | | 0 | | | 0 | 6,040 | | 0 | 0 | 0 | 0 |

Peak Hour Summary

4:50 PM to 5:50 PM

| By Approach | Northbound Hwy 213 | | | | Southbound Hwy 213 | | | | Eastbound I-205 SB Ramp | | | | Westbound I-205 SB Ramp | | | | Total | Pedestrians Crosswalk | | | |
|----------------|-----------------------|-------|-------|-------|-----------------------|------|-------|-------|----------------------------|------|-------|-------|----------------------------|------|-------|-------|-------|--------------------------|-------|------|------|
| | In | Out | Total | Bikes | In | Out | Total | Bikes | In | Out | Total | Bikes | In | Out | Total | Bikes | | North | South | East | West |
| Volume | 638 | 2,539 | 3,177 | 0 | 28 | 16 | 44 | 0 | 2,527 | 638 | 3,165 | 0 | 0 | 0 | 0 | 0 | 3,193 | 0 | 0 | 0 | 0 |
| %HV | | 4.1% | | | | 0.0% | | | | 2.8% | | | | 0.0% | | | 3.0% | | | | |
| PHF | | 0.91 | | | | 0.64 | | | | 0.93 | | | | 0.00 | | | 0.93 | | | | |

| By Movement | Northbound Hwy 213 | | | | Southbound Hwy 213 | | | | Eastbound I-205 SB Ramp | | | | Westbound I-205 SB Ramp | | | | Total |
|----------------|-----------------------|------|----|-------|-----------------------|------|------|-------|----------------------------|----|-------|-------|----------------------------|----|----|-------|-------|
| | L | T | | Total | T | R | | Total | L | | R | Total | | | | Total | |
| Volume | 626 | 12 | | 638 | 16 | 12 | 28 | 4 | 4 | | 2,523 | 2,527 | | | | 0 | 3,193 |
| %HV | 4.2% | 0.0% | NA | 4.1% | NA | 0.0% | 0.0% | 0.0% | 0.0% | NA | 2.8% | 2.8% | NA | NA | NA | 0.0% | 3.0% |
| PHF | 0.90 | 0.50 | | 0.91 | 0.50 | 0.43 | 0.64 | 0.50 | 0.50 | | 0.93 | 0.93 | | | | 0.00 | 0.93 |

Rolling Hour Summary

4:00 PM to 6:00 PM

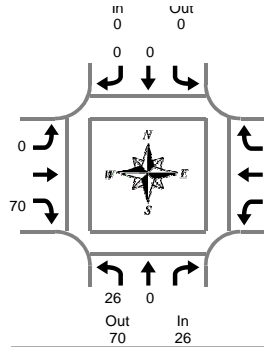
| Interval Start Time | Northbound Hwy 213 | | | | Southbound Hwy 213 | | | | Eastbound I-205 SB Ramp | | | | Westbound I-205 SB Ramp | | | | Interval Total | Pedestrians Crosswalk | | | |
|---------------------------|-----------------------|----|--|-------|-----------------------|----|---|-------|----------------------------|--|-------|-------|----------------------------|--|--|-------|-------------------|--------------------------|-------|------|------|
| | L | T | | Bikes | T | R | | Bikes | L | | R | Bikes | | | | Bikes | | North | South | East | West |
| 4:00 PM | 653 | 13 | | 0 | 19 | 16 | 0 | 4 | 4 | | 2,196 | 0 | | | | 0 | 2,901 | 0 | 0 | 0 | 0 |
| 4:15 PM | 643 | 16 | | 0 | 23 | 16 | 0 | 5 | 5 | | 2,289 | 0 | | | | 0 | 2,992 | 0 | 0 | 0 | 0 |
| 4:30 PM | 644 | 14 | | 0 | 22 | 11 | 0 | 4 | 4 | | 2,423 | 0 | | | | 0 | 3,118 | 0 | 0 | 0 | 0 |
| 4:45 PM | 624 | 15 | | 0 | 17 | 12 | 0 | 6 | 6 | | 2,501 | 0 | | | | 0 | 3,175 | 0 | 0 | 0 | 0 |
| 5:00 PM | 595 | 12 | | 0 | 17 | 9 | 0 | 4 | 4 | | 2,502 | 0 | | | | 0 | 3,139 | 0 | 0 | 0 | 0 |

Heavy Vehicle Summary



Clay Carney
(503) 833-2740

Out 26
In 70



Peak Hour Summary
4:50 PM to 5:50 PM

Hwy 213 & I-205 SB Ramp

Tuesday, May 02, 2017

4:00 PM to 6:00 PM

Heavy Vehicle 5-Minute Interval Summary

4:00 PM to 6:00 PM

| Interval Start Time | Northbound Hwy 213 | | | Southbound Hwy 213 | | | Eastbound I-205 SB Ramp | | | Westbound I-205 SB Ramp | | | Interval Total |
|---------------------------|-----------------------|---|-------|-----------------------|---|-------|----------------------------|-----|-------|----------------------------|--|-------|-------------------|
| | L | T | Total | T | R | Total | L | R | Total | | | Total | |
| 4:00 PM | 2 | 0 | 2 | 0 | 0 | 0 | 0 | 6 | 6 | | | 0 | 8 |
| 4:05 PM | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 7 | 7 | | | 0 | 8 |
| 4:10 PM | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 6 | 6 | | | 0 | 7 |
| 4:15 PM | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 7 | 7 | | | 0 | 8 |
| 4:20 PM | 1 | 1 | 2 | 0 | 0 | 0 | 0 | 1 | 1 | | | 0 | 3 |
| 4:25 PM | 2 | 0 | 2 | 1 | 0 | 1 | 0 | 2 | 2 | | | 0 | 5 |
| 4:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 7 | | | 0 | 7 |
| 4:35 PM | 2 | 0 | 2 | 0 | 0 | 0 | 0 | 6 | 6 | | | 0 | 8 |
| 4:40 PM | 2 | 0 | 2 | 0 | 0 | 0 | 0 | 3 | 3 | | | 0 | 5 |
| 4:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 3 | | | 0 | 3 |
| 4:50 PM | 2 | 0 | 2 | 0 | 0 | 0 | 0 | 5 | 5 | | | 0 | 7 |
| 4:55 PM | 3 | 0 | 3 | 0 | 0 | 0 | 0 | 2 | 2 | | | 0 | 5 |
| 5:00 PM | 2 | 0 | 2 | 0 | 0 | 0 | 0 | 7 | 7 | | | 0 | 9 |
| 5:05 PM | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 5 | 5 | | | 0 | 6 |
| 5:10 PM | 2 | 0 | 2 | 0 | 0 | 0 | 0 | 8 | 8 | | | 0 | 10 |
| 5:15 PM | 4 | 0 | 4 | 0 | 0 | 0 | 0 | 8 | 8 | | | 0 | 12 |
| 5:20 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 7 | | | 0 | 7 |
| 5:25 PM | 2 | 0 | 2 | 0 | 0 | 0 | 0 | 8 | 8 | | | 0 | 10 |
| 5:30 PM | 5 | 0 | 5 | 0 | 0 | 0 | 0 | 5 | 5 | | | 0 | 10 |
| 5:35 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 4 | | | 0 | 4 |
| 5:40 PM | 2 | 0 | 2 | 0 | 0 | 0 | 0 | 4 | 4 | | | 0 | 6 |
| 5:45 PM | 3 | 0 | 3 | 0 | 0 | 0 | 0 | 7 | 7 | | | 0 | 10 |
| 5:50 PM | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 6 | 6 | | | 0 | 7 |
| 5:55 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 5 | | | 0 | 5 |
| Total Survey | 39 | 1 | 40 | 1 | 0 | 1 | 0 | 129 | 129 | | | 0 | 170 |

Heavy Vehicle 15-Minute Interval Summary

4:00 PM to 6:00 PM

| Interval Start Time | Northbound Hwy 213 | | | Southbound Hwy 213 | | | Eastbound I-205 SB Ramp | | | Westbound I-205 SB Ramp | | | Interval Total |
|---------------------------|-----------------------|---|-------|-----------------------|---|-------|----------------------------|-----|-------|----------------------------|--|-------|-------------------|
| | L | T | Total | T | R | Total | L | R | Total | | | Total | |
| 4:00 PM | 4 | 0 | 4 | 0 | 0 | 0 | 0 | 19 | 19 | | | 0 | 23 |
| 4:15 PM | 4 | 1 | 5 | 1 | 0 | 1 | 0 | 10 | 10 | | | 0 | 16 |
| 4:30 PM | 4 | 0 | 4 | 0 | 0 | 0 | 0 | 16 | 16 | | | 0 | 20 |
| 4:45 PM | 5 | 0 | 5 | 0 | 0 | 0 | 0 | 10 | 10 | | | 0 | 15 |
| 5:00 PM | 5 | 0 | 5 | 0 | 0 | 0 | 0 | 20 | 20 | | | 0 | 25 |
| 5:15 PM | 6 | 0 | 6 | 0 | 0 | 0 | 0 | 23 | 23 | | | 0 | 29 |
| 5:30 PM | 7 | 0 | 7 | 0 | 0 | 0 | 0 | 13 | 13 | | | 0 | 20 |
| 5:45 PM | 4 | 0 | 4 | 0 | 0 | 0 | 0 | 18 | 18 | | | 0 | 22 |
| Total Survey | 39 | 1 | 40 | 1 | 0 | 1 | 0 | 129 | 129 | | | 0 | 170 |

Heavy Vehicle Peak Hour Summary

4:50 PM to 5:50 PM

| By Approach | Northbound Hwy 213 | | | Southbound Hwy 213 | | | Eastbound I-205 SB Ramp | | | Westbound I-205 SB Ramp | | | Total |
|----------------|-----------------------|-----|-------|-----------------------|-----|-------|----------------------------|-----|-------|----------------------------|-----|-------|-------|
| | In | Out | Total | In | Out | Total | In | Out | Total | In | Out | Total | |
| Volume | 26 | 70 | 96 | 0 | 0 | 0 | 70 | 26 | 96 | 0 | 0 | 0 | 96 |
| PHF | 0.93 | | | 0.00 | | | 0.76 | | | 0.00 | | | 0.83 |

| By Movement | Northbound Hwy 213 | | | Southbound Hwy 213 | | | Eastbound I-205 SB Ramp | | | Westbound I-205 SB Ramp | | | Total |
|----------------|-----------------------|------|-------|-----------------------|------|-------|----------------------------|------|-------|----------------------------|--|-------|-------|
| | L | T | Total | T | R | Total | L | R | Total | | | Total | |
| Volume | 26 | 0 | 26 | 0 | 0 | 0 | 0 | 70 | 70 | | | 0 | 96 |
| PHF | 0.93 | 0.00 | 0.93 | 0.00 | 0.00 | 0.00 | 0.00 | 0.76 | 0.76 | | | 0.00 | 0.83 |

Heavy Vehicle Rolling Hour Summary

4:00 PM to 6:00 PM

| Interval Start Time | Northbound Hwy 213 | | | Southbound Hwy 213 | | | Eastbound I-205 SB Ramp | | | Westbound I-205 SB Ramp | | | Interval Total |
|---------------------------|-----------------------|---|-------|-----------------------|---|-------|----------------------------|----|-------|----------------------------|--|-------|-------------------|
| | L | T | Total | T | R | Total | L | R | Total | | | Total | |
| 4:00 PM | 17 | 1 | 18 | 1 | 0 | 1 | 0 | 55 | 55 | | | 0 | 74 |
| 4:15 PM | 18 | 1 | 19 | 1 | 0 | 1 | 0 | 56 | 56 | | | 0 | 76 |
| 4:30 PM | 20 | 0 | 20 | 0 | 0 | 0 | 0 | 69 | 69 | | | 0 | 89 |
| 4:45 PM | 23 | 0 | 23 | 0 | 0 | 0 | 0 | 66 | 66 | | | 0 | 89 |
| 5:00 PM | 22 | 0 | 22 | 0 | 0 | 0 | 0 | 74 | 74 | | | 0 | 96 |

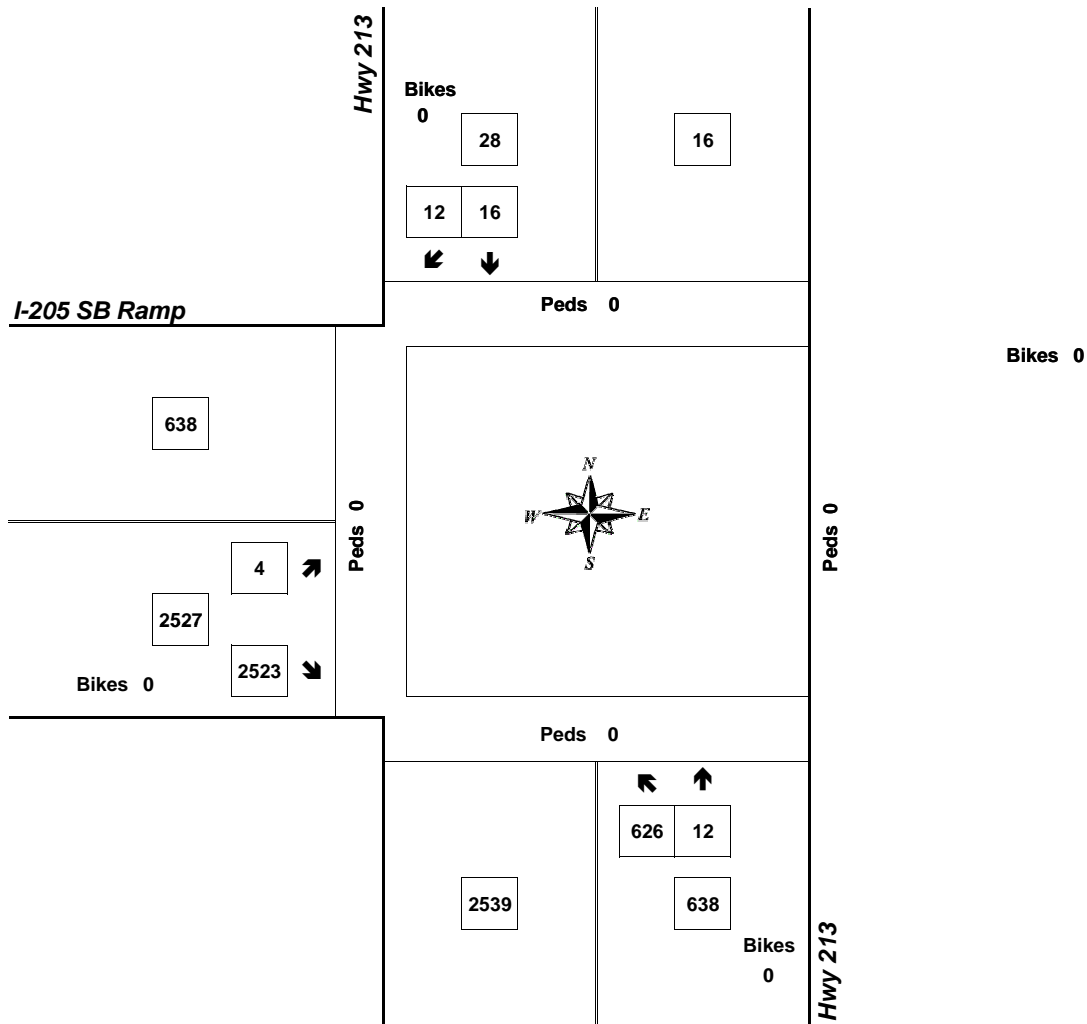
Peak Hour Summary



Clay Carney
(503) 833-2740

Hwy 213 & I-205 SB Ramp

4:50 PM to 5:50 PM
Tuesday, May 02, 2017



| Approach | PHF | HV% | Volume |
|--------------|------|------|--------|
| EB | 0.93 | 2.8% | 2,527 |
| WB | 0.00 | 0.0% | 0 |
| NB | 0.91 | 4.1% | 638 |
| SB | 0.64 | 0.0% | 28 |
| Intersection | 0.93 | 3.0% | 3,193 |

Count Period: 4:00 PM to 6:00 PM

Total Vehicle Summary

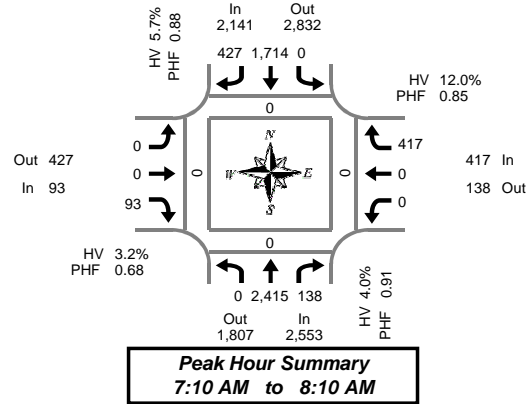


Clay Carney
(503) 833-2740

Hwy 213 & Clackamas River Dr

Thursday, January 26, 2017

7:00 AM to 9:00 AM



5-Minute Interval Summary

7:00 AM to 9:00 AM

| Interval Start Time | Northbound Hwy 213 | | | | Southbound Hwy 213 | | | | Eastbound Clackamas River Dr | | | | Westbound Clackamas River Dr | | | | Interval Total | Pedestrians Crosswalk | | | |
|---------------------------|-----------------------|-------|-----|-------|-----------------------|-------|-----|-------|---------------------------------|---|-----|-------|---------------------------------|---|-----|-------|-------------------|--------------------------|-------|------|------|
| | L | T | R | Bikes | L | T | R | Bikes | L | T | R | Bikes | L | T | R | Bikes | | North | South | East | West |
| 7:00 AM | 0 | 215 | 7 | 0 | 0 | 103 | 17 | 0 | 0 | 0 | 5 | 0 | 0 | 0 | 31 | 0 | 378 | 0 | 0 | 0 | 0 |
| 7:05 AM | 0 | 237 | 8 | 0 | 0 | 95 | 24 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 33 | 0 | 401 | 0 | 0 | 0 | 0 |
| 7:10 AM | 0 | 199 | 8 | 0 | 0 | 134 | 21 | 0 | 0 | 0 | 7 | 0 | 0 | 0 | 34 | 0 | 403 | 0 | 0 | 0 | 0 |
| 7:15 AM | 0 | 239 | 7 | 0 | 0 | 118 | 39 | 0 | 0 | 0 | 6 | 0 | 0 | 0 | 31 | 0 | 440 | 0 | 0 | 0 | 0 |
| 7:20 AM | 0 | 231 | 12 | 0 | 0 | 147 | 37 | 0 | 0 | 0 | 6 | 0 | 0 | 0 | 36 | 0 | 469 | 0 | 0 | 0 | 0 |
| 7:25 AM | 0 | 201 | 8 | 1 | 0 | 117 | 40 | 0 | 0 | 0 | 9 | 0 | 0 | 0 | 52 | 0 | 427 | 0 | 0 | 0 | 0 |
| 7:30 AM | 0 | 220 | 12 | 0 | 0 | 128 | 38 | 0 | 0 | 0 | 9 | 0 | 0 | 0 | 34 | 0 | 441 | 0 | 0 | 0 | 0 |
| 7:35 AM | 0 | 188 | 13 | 0 | 0 | 146 | 30 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 32 | 0 | 412 | 0 | 0 | 0 | 0 |
| 7:40 AM | 0 | 176 | 6 | 0 | 0 | 126 | 35 | 0 | 0 | 0 | 7 | 0 | 0 | 0 | 34 | 0 | 384 | 0 | 0 | 0 | 0 |
| 7:45 AM | 0 | 158 | 12 | 0 | 0 | 173 | 40 | 0 | 0 | 0 | 10 | 0 | 0 | 0 | 44 | 0 | 437 | 0 | 0 | 0 | 0 |
| 7:50 AM | 0 | 210 | 12 | 0 | 0 | 159 | 39 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 22 | 0 | 444 | 0 | 0 | 0 | 0 |
| 7:55 AM | 0 | 188 | 13 | 0 | 0 | 162 | 38 | 0 | 0 | 0 | 8 | 0 | 0 | 0 | 36 | 0 | 445 | 0 | 0 | 0 | 0 |
| 8:00 AM | 0 | 195 | 14 | 0 | 0 | 142 | 36 | 0 | 0 | 0 | 14 | 0 | 0 | 0 | 37 | 0 | 438 | 0 | 0 | 0 | 0 |
| 8:05 AM | 0 | 210 | 21 | 0 | 0 | 162 | 34 | 0 | 0 | 0 | 12 | 0 | 0 | 0 | 25 | 0 | 464 | 0 | 0 | 0 | 0 |
| 8:10 AM | 0 | 174 | 16 | 0 | 0 | 95 | 26 | 0 | 0 | 0 | 7 | 0 | 0 | 0 | 36 | 0 | 354 | 0 | 0 | 0 | 0 |
| 8:15 AM | 0 | 150 | 12 | 0 | 0 | 108 | 36 | 1 | 0 | 0 | 11 | 0 | 0 | 0 | 54 | 0 | 371 | 0 | 0 | 0 | 0 |
| 8:20 AM | 0 | 205 | 11 | 0 | 0 | 126 | 29 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 27 | 0 | 401 | 0 | 0 | 0 | 0 |
| 8:25 AM | 0 | 178 | 16 | 0 | 0 | 132 | 37 | 0 | 0 | 0 | 6 | 0 | 0 | 0 | 37 | 0 | 406 | 0 | 0 | 0 | 0 |
| 8:30 AM | 0 | 152 | 9 | 0 | 0 | 134 | 40 | 0 | 0 | 0 | 12 | 0 | 0 | 0 | 38 | 0 | 385 | 0 | 0 | 0 | 0 |
| 8:35 AM | 0 | 155 | 13 | 0 | 0 | 173 | 40 | 0 | 0 | 0 | 14 | 0 | 0 | 0 | 37 | 0 | 432 | 0 | 0 | 0 | 0 |
| 8:40 AM | 0 | 168 | 14 | 0 | 0 | 148 | 34 | 0 | 0 | 0 | 8 | 0 | 0 | 0 | 25 | 0 | 397 | 0 | 0 | 0 | 0 |
| 8:45 AM | 0 | 145 | 18 | 0 | 0 | 153 | 47 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 33 | 0 | 399 | 0 | 0 | 1 | 0 |
| 8:50 AM | 0 | 142 | 13 | 0 | 0 | 138 | 43 | 0 | 0 | 0 | 16 | 0 | 0 | 0 | 45 | 0 | 397 | 0 | 0 | 0 | 0 |
| 8:55 AM | 0 | 183 | 17 | 0 | 0 | 110 | 37 | 0 | 0 | 0 | 9 | 0 | 0 | 0 | 36 | 0 | 392 | 0 | 0 | 0 | 0 |
| Total Survey | 0 | 4,519 | 292 | 1 | 0 | 3,229 | 837 | 1 | 0 | 0 | 191 | 0 | 0 | 0 | 849 | 0 | 9,917 | 0 | 0 | 1 | 0 |

15-Minute Interval Summary

7:00 AM to 9:00 AM

| Interval Start Time | Northbound Hwy 213 | | | | Southbound Hwy 213 | | | | Eastbound Clackamas River Dr | | | | Westbound Clackamas River Dr | | | | Interval Total | Pedestrians Crosswalk | | | |
|---------------------------|-----------------------|-------|-----|-------|-----------------------|-------|-----|-------|---------------------------------|---|-----|-------|---------------------------------|---|-----|-------|-------------------|--------------------------|-------|------|------|
| | L | T | R | Bikes | L | T | R | Bikes | L | T | R | Bikes | L | T | R | Bikes | | North | South | East | West |
| 7:00 AM | 0 | 651 | 23 | 0 | 0 | 332 | 62 | 0 | 0 | 0 | 16 | 0 | 0 | 0 | 98 | 0 | 1,182 | 0 | 0 | 0 | 0 |
| 7:15 AM | 0 | 671 | 27 | 1 | 0 | 382 | 116 | 0 | 0 | 0 | 21 | 0 | 0 | 0 | 119 | 0 | 1,336 | 0 | 0 | 0 | 0 |
| 7:30 AM | 0 | 584 | 31 | 0 | 0 | 400 | 103 | 0 | 0 | 0 | 19 | 0 | 0 | 0 | 100 | 0 | 1,237 | 0 | 0 | 0 | 0 |
| 7:45 AM | 0 | 556 | 37 | 0 | 0 | 494 | 117 | 0 | 0 | 0 | 20 | 0 | 0 | 0 | 102 | 0 | 1,326 | 0 | 0 | 0 | 0 |
| 8:00 AM | 0 | 579 | 51 | 0 | 0 | 399 | 96 | 0 | 0 | 0 | 33 | 0 | 0 | 0 | 98 | 0 | 1,256 | 0 | 0 | 0 | 0 |
| 8:15 AM | 0 | 533 | 39 | 0 | 0 | 366 | 102 | 1 | 0 | 0 | 20 | 0 | 0 | 0 | 118 | 0 | 1,178 | 0 | 0 | 0 | 0 |
| 8:30 AM | 0 | 475 | 36 | 0 | 0 | 455 | 114 | 0 | 0 | 0 | 34 | 0 | 0 | 0 | 100 | 0 | 1,214 | 0 | 0 | 0 | 0 |
| 8:45 AM | 0 | 470 | 48 | 0 | 0 | 401 | 127 | 0 | 0 | 0 | 28 | 0 | 0 | 0 | 114 | 0 | 1,188 | 0 | 0 | 1 | 0 |
| Total Survey | 0 | 4,519 | 292 | 1 | 0 | 3,229 | 837 | 1 | 0 | 0 | 191 | 0 | 0 | 0 | 849 | 0 | 9,917 | 0 | 0 | 1 | 0 |

Peak Hour Summary

7:10 AM to 8:10 AM

| By Approach | Northbound Hwy 213 | | | | Southbound Hwy 213 | | | | Eastbound Clackamas River Dr | | | | Westbound Clackamas River Dr | | | | Total | Pedestrians Crosswalk | | | |
|----------------|-----------------------|-------|-------|-------|-----------------------|-------|-------|-------|---------------------------------|-----|-------|-------|---------------------------------|-----|-------|-------|-------|--------------------------|-------|------|------|
| | In | Out | Total | Bikes | In | Out | Total | Bikes | In | Out | Total | Bikes | In | Out | Total | Bikes | | North | South | East | West |
| Volume | 2,553 | 1,807 | 4,360 | 1 | 2,141 | 2,832 | 4,973 | 0 | 93 | 427 | 520 | 0 | 417 | 138 | 555 | 0 | 5,204 | 0 | 0 | 0 | 0 |
| %HV | 4.0% | | | | 5.7% | | | | 3.2% | | | | 12.0% | | | | 5.3% | | | | |
| PHF | 0.91 | | | | 0.88 | | | | 0.68 | | | | 0.85 | | | | 0.97 | | | | |

| By Movement | Northbound Hwy 213 | | | | Southbound Hwy 213 | | | | Eastbound Clackamas River Dr | | | | Westbound Clackamas River Dr | | | | Total |
|----------------|-----------------------|-------|------|-------|-----------------------|-------|------|-------|---------------------------------|------|------|-------|---------------------------------|------|-------|-------|-------|
| | L | T | R | Total | L | T | R | Total | L | T | R | Total | L | T | R | Total | |
| Volume | 0 | 2,415 | 138 | 2,553 | 0 | 1,714 | 427 | 2,141 | 0 | 0 | 93 | 93 | 0 | 0 | 417 | 417 | 5,204 |
| %HV | 0.0% | 3.7% | 9.4% | 4.0% | 0.0% | 5.3% | 7.3% | 5.7% | 0.0% | 0.0% | 3.2% | 3.2% | 0.0% | 0.0% | 12.0% | 12.0% | 5.3% |
| PHF | 0.00 | 0.90 | 0.72 | 0.91 | 0.00 | 0.87 | 0.91 | 0.88 | 0.00 | 0.00 | 0.68 | 0.68 | 0.00 | 0.00 | 0.85 | 0.85 | 0.97 |

Rolling Hour Summary

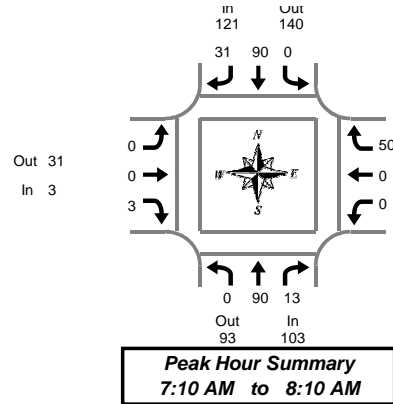
7:00 AM to 9:00 AM

| Interval Start Time | Northbound Hwy 213 | | | | Southbound Hwy 213 | | | | Eastbound Clackamas River Dr | | | | Westbound Clackamas River Dr | | | | Interval Total | Pedestrians Crosswalk | | | |
|---------------------------|-----------------------|-------|-----|-------|-----------------------|-------|-----|-------|---------------------------------|---|-----|-------|---------------------------------|---|-----|-------|-------------------|--------------------------|-------|------|------|
| | L | T | R | Bikes | L | T | R | Bikes | L | T | R | Bikes | L | T | R | Bikes | | North | South | East | West |
| 7:00 AM | 0 | 2,462 | 118 | 1 | 0 | 1,608 | 398 | 0 | 0 | 0 | 76 | 0 | 0 | 0 | 419 | 0 | 5,081 | 0 | 0 | 0 | 0 |
| 7:15 AM | 0 | 2,390 | 146 | 1 | 0 | 1,675 | 432 | 0 | 0 | 0 | 93 | 0 | 0 | 0 | 419 | 0 | 5,155 | 0 | 0 | 0 | 0 |
| 7:30 AM | 0 | 2,252 | 158 | 0 | 0 | 1,659 | 418 | 1 | 0 | 0 | 92 | 0 | 0 | 0 | 418 | 0 | 4,997 | 0 | 0 | 0 | 0 |
| 7:45 AM | 0 | 2,143 | 163 | 0 | 0 | 1,714 | 429 | 1 | 0 | 0 | 107 | 0 | 0 | 0 | 418 | 0 | 4,974 | 0 | 0 | 0 | 0 |
| 8:00 AM | 0 | 2,057 | 174 | 0 | 0 | 1,621 | 439 | 1 | 0 | 0 | 115 | 0 | 0 | 0 | 430 | 0 | 4,836 | 0 | 0 | 1 | 0 |

Heavy Vehicle Summary



Clay Carney
(503) 833-2740



Hwy 213 & Clackamas River Dr

Thursday, January 26, 2017

7:00 AM to 9:00 AM

Heavy Vehicle 5-Minute Interval Summary

7:00 AM to 9:00 AM

| Interval Start Time | Northbound Hwy 213 | | | | Southbound Hwy 213 | | | | Eastbound Clackamas River Dr | | | | Westbound Clackamas River Dr | | | | Interval Total |
|---------------------------|-----------------------|-----|----|-------|-----------------------|-----|----|-------|---------------------------------|---|---|-------|---------------------------------|---|-----|-------|-------------------|
| | L | T | R | Total | L | T | R | Total | L | T | R | Total | L | T | R | Total | |
| 7:00 AM | 0 | 7 | 0 | 7 | 0 | 6 | 2 | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 16 |
| 7:05 AM | 0 | 4 | 1 | 5 | 0 | 7 | 2 | 9 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 3 | 17 |
| 7:10 AM | 0 | 5 | 1 | 6 | 0 | 6 | 1 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 3 | 16 |
| 7:15 AM | 0 | 8 | 0 | 8 | 0 | 11 | 4 | 15 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 7 | 30 |
| 7:20 AM | 0 | 8 | 3 | 11 | 0 | 7 | 2 | 9 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 4 | 24 |
| 7:25 AM | 0 | 13 | 0 | 13 | 0 | 5 | 3 | 8 | 0 | 0 | 1 | 1 | 0 | 0 | 5 | 5 | 27 |
| 7:30 AM | 0 | 2 | 2 | 4 | 0 | 6 | 4 | 10 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 2 | 16 |
| 7:35 AM | 0 | 7 | 0 | 7 | 0 | 4 | 1 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 6 | 18 |
| 7:40 AM | 0 | 5 | 0 | 5 | 0 | 6 | 3 | 9 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 2 | 16 |
| 7:45 AM | 0 | 2 | 0 | 2 | 0 | 14 | 6 | 20 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 7 | 29 |
| 7:50 AM | 0 | 5 | 1 | 6 | 0 | 2 | 2 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 2 | 12 |
| 7:55 AM | 0 | 8 | 1 | 9 | 0 | 12 | 1 | 13 | 0 | 0 | 1 | 1 | 0 | 0 | 4 | 4 | 27 |
| 8:00 AM | 0 | 14 | 2 | 16 | 0 | 9 | 1 | 10 | 0 | 0 | 1 | 1 | 0 | 0 | 4 | 4 | 31 |
| 8:05 AM | 0 | 13 | 3 | 16 | 0 | 8 | 3 | 11 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 4 | 31 |
| 8:10 AM | 0 | 9 | 0 | 9 | 0 | 8 | 3 | 11 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 5 | 25 |
| 8:15 AM | 0 | 16 | 2 | 18 | 0 | 10 | 7 | 17 | 0 | 0 | 1 | 1 | 0 | 0 | 2 | 2 | 38 |
| 8:20 AM | 0 | 12 | 1 | 13 | 0 | 7 | 3 | 10 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 4 | 27 |
| 8:25 AM | 0 | 14 | 2 | 16 | 0 | 8 | 6 | 14 | 0 | 0 | 2 | 2 | 0 | 0 | 6 | 6 | 38 |
| 8:30 AM | 0 | 10 | 1 | 11 | 0 | 11 | 5 | 16 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 6 | 33 |
| 8:35 AM | 0 | 5 | 2 | 7 | 0 | 7 | 3 | 10 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 7 | 24 |
| 8:40 AM | 0 | 6 | 4 | 10 | 0 | 11 | 4 | 15 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 3 | 28 |
| 8:45 AM | 0 | 6 | 5 | 11 | 0 | 8 | 6 | 14 | 0 | 0 | 1 | 1 | 0 | 0 | 4 | 4 | 30 |
| 8:50 AM | 0 | 10 | 0 | 10 | 0 | 13 | 3 | 16 | 0 | 0 | 1 | 1 | 0 | 0 | 8 | 8 | 35 |
| 8:55 AM | 0 | 17 | 1 | 18 | 0 | 6 | 6 | 12 | 0 | 0 | 1 | 1 | 0 | 0 | 6 | 6 | 37 |
| Total Survey | 0 | 206 | 32 | 238 | 0 | 192 | 81 | 273 | 0 | 0 | 9 | 9 | 0 | 0 | 105 | 105 | 625 |

Heavy Vehicle 15-Minute Interval Summary

7:00 AM to 9:00 AM

| Interval Start Time | Northbound Hwy 213 | | | | Southbound Hwy 213 | | | | Eastbound Clackamas River Dr | | | | Westbound Clackamas River Dr | | | | Interval Total |
|---------------------------|-----------------------|-----|----|-------|-----------------------|-----|----|-------|---------------------------------|---|---|-------|---------------------------------|---|-----|-------|-------------------|
| | L | T | R | Total | L | T | R | Total | L | T | R | Total | L | T | R | Total | |
| 7:00 AM | 0 | 16 | 2 | 18 | 0 | 19 | 5 | 24 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 7 | 49 |
| 7:15 AM | 0 | 29 | 3 | 32 | 0 | 23 | 9 | 32 | 0 | 0 | 1 | 1 | 0 | 0 | 16 | 16 | 81 |
| 7:30 AM | 0 | 14 | 2 | 16 | 0 | 16 | 8 | 24 | 0 | 0 | 0 | 0 | 0 | 0 | 10 | 10 | 50 |
| 7:45 AM | 0 | 15 | 2 | 17 | 0 | 28 | 9 | 37 | 0 | 0 | 1 | 1 | 0 | 0 | 13 | 13 | 68 |
| 8:00 AM | 0 | 36 | 5 | 41 | 0 | 25 | 7 | 32 | 0 | 0 | 1 | 1 | 0 | 0 | 13 | 13 | 87 |
| 8:15 AM | 0 | 42 | 5 | 47 | 0 | 25 | 16 | 41 | 0 | 0 | 3 | 3 | 0 | 0 | 12 | 12 | 103 |
| 8:30 AM | 0 | 21 | 7 | 28 | 0 | 29 | 12 | 41 | 0 | 0 | 0 | 0 | 0 | 0 | 16 | 16 | 85 |
| 8:45 AM | 0 | 33 | 6 | 39 | 0 | 27 | 15 | 42 | 0 | 0 | 3 | 3 | 0 | 0 | 18 | 18 | 102 |
| Total Survey | 0 | 206 | 32 | 238 | 0 | 192 | 81 | 273 | 0 | 0 | 9 | 9 | 0 | 0 | 105 | 105 | 625 |

Heavy Vehicle Peak Hour Summary

7:10 AM to 8:10 AM

| By Approach | Northbound Hwy 213 | | | Southbound Hwy 213 | | | Eastbound Clackamas River Dr | | | Westbound Clackamas River Dr | | | Total |
|----------------|-----------------------|-----|-------|-----------------------|-----|-------|---------------------------------|-----|-------|---------------------------------|-----|-------|-------|
| | In | Out | Total | In | Out | Total | In | Out | Total | In | Out | Total | |
| Volume | 103 | 93 | 196 | 121 | 140 | 261 | 3 | 31 | 34 | 50 | 13 | 63 | 277 |
| PHF | 0.63 | | | 0.82 | | | 0.38 | | | 0.78 | | | 0.78 |

| By Movement | Northbound Hwy 213 | | | | Southbound Hwy 213 | | | | Eastbound Clackamas River Dr | | | | Westbound Clackamas River Dr | | | | Total |
|----------------|-----------------------|------|------|-------|-----------------------|------|------|-------|---------------------------------|------|------|-------|---------------------------------|------|------|-------|-------|
| | L | T | R | Total | L | T | R | Total | L | T | R | Total | L | T | R | Total | |
| Volume | 0 | 90 | 13 | 103 | 0 | 90 | 31 | 121 | 0 | 0 | 3 | 3 | 0 | 0 | 50 | 50 | 277 |
| PHF | 0.00 | 0.64 | 0.54 | 0.63 | 0.00 | 0.78 | 0.70 | 0.82 | 0.00 | 0.00 | 0.38 | 0.38 | 0.00 | 0.00 | 0.78 | 0.78 | 0.78 |

Heavy Vehicle Rolling Hour Summary

7:00 AM to 9:00 AM

| Interval Start Time | Northbound Hwy 213 | | | | Southbound Hwy 213 | | | | Eastbound Clackamas River Dr | | | | Westbound Clackamas River Dr | | | | Interval Total |
|---------------------------|-----------------------|-----|----|-------|-----------------------|-----|----|-------|---------------------------------|---|---|-------|---------------------------------|---|----|-------|-------------------|
| | L | T | R | Total | L | T | R | Total | L | T | R | Total | L | T | R | Total | |
| 7:00 AM | 0 | 74 | 9 | 83 | 0 | 86 | 31 | 117 | 0 | 0 | 2 | 2 | 0 | 0 | 46 | 46 | 248 |
| 7:15 AM | 0 | 94 | 12 | 106 | 0 | 92 | 33 | 125 | 0 | 0 | 3 | 3 | 0 | 0 | 52 | 52 | 286 |
| 7:30 AM | 0 | 107 | 14 | 121 | 0 | 94 | 40 | 134 | 0 | 0 | 5 | 5 | 0 | 0 | 48 | 48 | 308 |
| 7:45 AM | 0 | 114 | 19 | 133 | 0 | 107 | 44 | 151 | 0 | 0 | 5 | 5 | 0 | 0 | 54 | 54 | 343 |
| 8:00 AM | 0 | 132 | 23 | 155 | 0 | 106 | 50 | 156 | 0 | 0 | 7 | 7 | 0 | 0 | 59 | 59 | 377 |

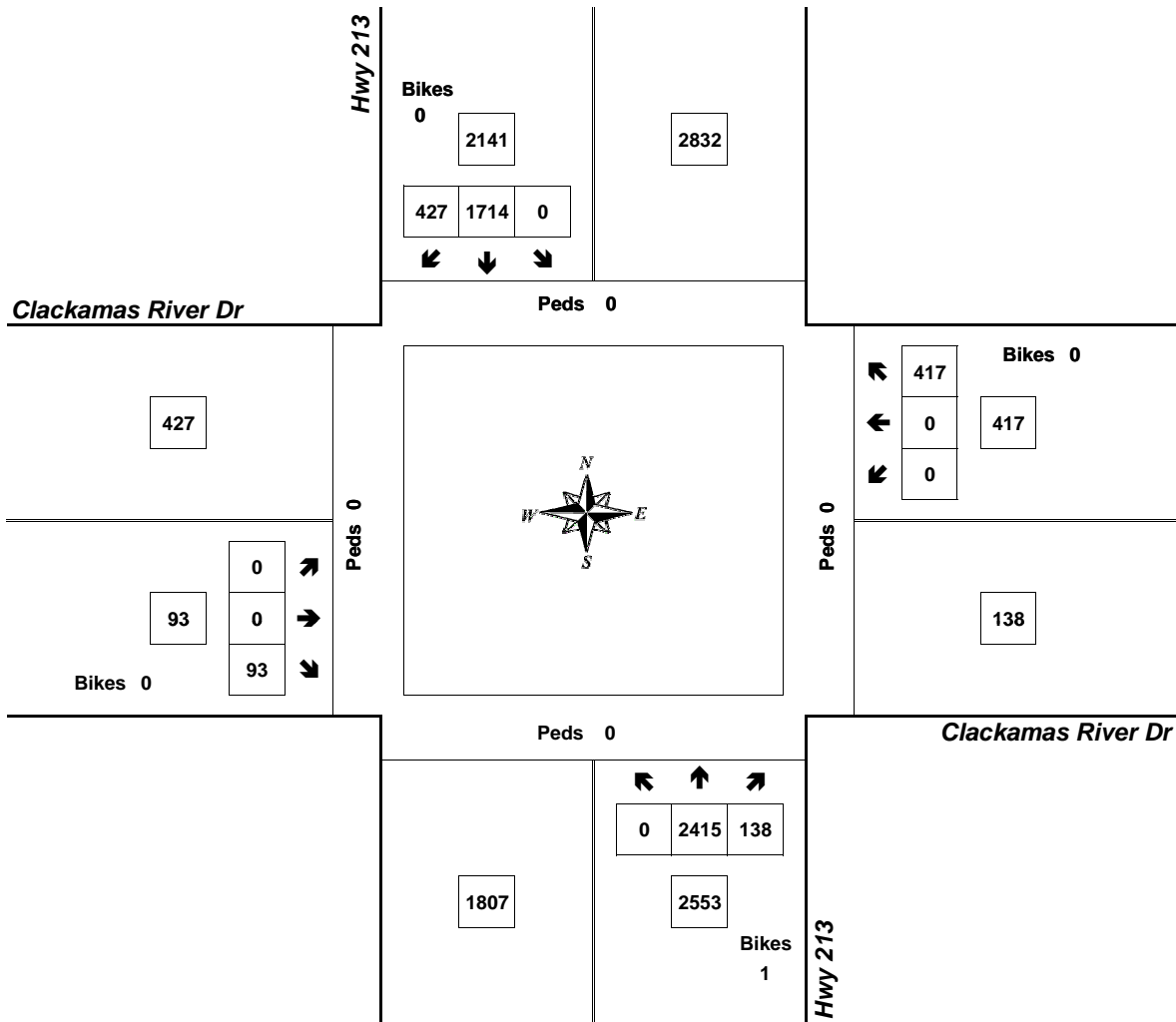
Peak Hour Summary



Clay Carney
(503) 833-2740

Hwy 213 & Clackamas River Dr

7:10 AM to 8:10 AM
Thursday, January 26, 2017



| Approach | PHF | HV% | Volume |
|---------------------|-------------|-------------|--------------|
| EB | 0.68 | 3.2% | 93 |
| WB | 0.85 | 12.0% | 417 |
| NB | 0.91 | 4.0% | 2,553 |
| SB | 0.88 | 5.7% | 2,141 |
| Intersection | 0.97 | 5.3% | 5,204 |

Count Period: 7:00 AM to 9:00 AM

Total Vehicle Summary

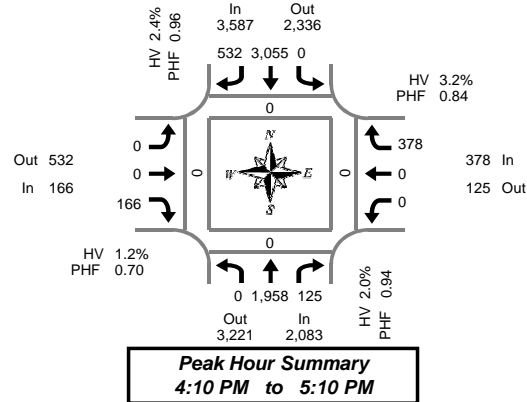


Clay Carney
(503) 833-2740

Hwy 213 & Clackamas River Dr

Wednesday, January 25, 2017

4:00 PM to 6:00 PM



5-Minute Interval Summary

4:00 PM to 6:00 PM

| Interval Start Time | Northbound Hwy 213 | | | | Southbound Hwy 213 | | | | Eastbound Clackamas River Dr | | | | Westbound Clackamas River Dr | | | | Interval Total | Pedestrians Crosswalk | | | |
|---------------------------|-----------------------|-------|-----|-------|-----------------------|-------|-------|-------|---------------------------------|---|-----|-------|---------------------------------|---|-----|-------|-------------------|--------------------------|-------|------|------|
| | L | T | R | Bikes | L | T | R | Bikes | L | T | R | Bikes | L | T | R | Bikes | | North | South | East | West |
| 4:00 PM | 0 | 156 | 13 | 0 | 0 | 249 | 49 | 0 | 0 | 0 | 14 | 0 | 0 | 0 | 24 | 0 | 505 | 0 | 0 | 0 | 0 |
| 4:05 PM | 0 | 145 | 16 | 0 | 0 | 224 | 54 | 0 | 0 | 0 | 11 | 0 | 0 | 0 | 39 | 0 | 489 | 0 | 0 | 0 | 0 |
| 4:10 PM | 0 | 194 | 11 | 0 | 0 | 264 | 49 | 0 | 0 | 0 | 11 | 0 | 0 | 0 | 35 | 0 | 564 | 0 | 0 | 0 | 0 |
| 4:15 PM | 0 | 170 | 14 | 0 | 0 | 283 | 41 | 0 | 0 | 0 | 13 | 0 | 0 | 0 | 24 | 0 | 545 | 0 | 0 | 0 | 0 |
| 4:20 PM | 0 | 155 | 10 | 0 | 0 | 250 | 46 | 0 | 0 | 0 | 14 | 0 | 0 | 0 | 24 | 0 | 499 | 0 | 0 | 0 | 0 |
| 4:25 PM | 0 | 141 | 10 | 0 | 0 | 254 | 46 | 0 | 0 | 0 | 11 | 0 | 0 | 0 | 43 | 0 | 505 | 0 | 0 | 0 | 0 |
| 4:30 PM | 0 | 170 | 12 | 0 | 0 | 241 | 52 | 0 | 0 | 0 | 11 | 0 | 0 | 0 | 35 | 0 | 521 | 0 | 0 | 0 | 0 |
| 4:35 PM | 0 | 168 | 8 | 0 | 0 | 246 | 52 | 0 | 0 | 0 | 12 | 0 | 0 | 0 | 34 | 0 | 520 | 0 | 0 | 0 | 0 |
| 4:40 PM | 0 | 139 | 12 | 0 | 0 | 225 | 42 | 0 | 0 | 0 | 34 | 0 | 0 | 0 | 29 | 0 | 481 | 0 | 0 | 0 | 0 |
| 4:45 PM | 0 | 190 | 7 | 0 | 0 | 277 | 47 | 0 | 0 | 0 | 13 | 0 | 0 | 0 | 33 | 0 | 567 | 0 | 0 | 0 | 0 |
| 4:50 PM | 0 | 162 | 11 | 0 | 0 | 270 | 36 | 0 | 0 | 0 | 11 | 0 | 0 | 0 | 27 | 0 | 517 | 0 | 0 | 0 | 0 |
| 4:55 PM | 0 | 128 | 7 | 0 | 0 | 217 | 44 | 0 | 0 | 0 | 21 | 0 | 0 | 0 | 27 | 0 | 444 | 0 | 0 | 0 | 0 |
| 5:00 PM | 0 | 169 | 9 | 0 | 0 | 271 | 37 | 0 | 0 | 0 | 10 | 0 | 0 | 0 | 31 | 0 | 527 | 0 | 0 | 0 | 0 |
| 5:05 PM | 0 | 172 | 14 | 0 | 0 | 257 | 40 | 0 | 0 | 0 | 5 | 0 | 0 | 0 | 36 | 0 | 524 | 0 | 0 | 0 | 0 |
| 5:10 PM | 0 | 172 | 11 | 0 | 0 | 235 | 41 | 0 | 0 | 0 | 16 | 0 | 0 | 0 | 40 | 0 | 515 | 0 | 0 | 0 | 0 |
| 5:15 PM | 0 | 163 | 14 | 0 | 0 | 261 | 45 | 0 | 0 | 0 | 19 | 0 | 0 | 0 | 33 | 0 | 535 | 0 | 0 | 0 | 0 |
| 5:20 PM | 0 | 190 | 14 | 0 | 0 | 248 | 37 | 0 | 0 | 0 | 12 | 0 | 0 | 0 | 20 | 0 | 521 | 0 | 0 | 0 | 0 |
| 5:25 PM | 0 | 148 | 17 | 0 | 0 | 261 | 30 | 0 | 0 | 0 | 8 | 0 | 0 | 0 | 29 | 0 | 493 | 0 | 0 | 0 | 0 |
| 5:30 PM | 0 | 115 | 10 | 0 | 0 | 238 | 39 | 0 | 0 | 0 | 13 | 0 | 0 | 0 | 27 | 0 | 442 | 0 | 0 | 0 | 0 |
| 5:35 PM | 0 | 154 | 5 | 0 | 0 | 249 | 36 | 0 | 0 | 0 | 9 | 0 | 0 | 0 | 32 | 0 | 485 | 0 | 0 | 0 | 0 |
| 5:40 PM | 0 | 167 | 15 | 0 | 0 | 215 | 36 | 0 | 0 | 0 | 10 | 0 | 0 | 0 | 17 | 0 | 460 | 0 | 0 | 0 | 0 |
| 5:45 PM | 0 | 154 | 9 | 0 | 0 | 214 | 33 | 0 | 0 | 0 | 9 | 0 | 0 | 0 | 21 | 0 | 440 | 0 | 0 | 0 | 0 |
| 5:50 PM | 0 | 165 | 8 | 0 | 0 | 252 | 36 | 0 | 0 | 0 | 5 | 0 | 0 | 0 | 22 | 0 | 488 | 0 | 0 | 0 | 0 |
| 5:55 PM | 0 | 114 | 12 | 0 | 0 | 219 | 41 | 0 | 0 | 0 | 14 | 0 | 0 | 0 | 18 | 0 | 418 | 0 | 0 | 0 | 0 |
| Total Survey | 0 | 3,801 | 269 | 0 | 0 | 5,920 | 1,009 | 0 | 0 | 0 | 306 | 0 | 0 | 0 | 700 | 0 | 12,005 | 0 | 0 | 0 | 0 |

15-Minute Interval Summary

4:00 PM to 6:00 PM

| Interval Start Time | Northbound Hwy 213 | | | | Southbound Hwy 213 | | | | Eastbound Clackamas River Dr | | | | Westbound Clackamas River Dr | | | | Interval Total | Pedestrians Crosswalk | | | |
|---------------------------|-----------------------|-------|-----|-------|-----------------------|-------|-------|-------|---------------------------------|---|-----|-------|---------------------------------|---|-----|-------|-------------------|--------------------------|-------|------|------|
| | L | T | R | Bikes | L | T | R | Bikes | L | T | R | Bikes | L | T | R | Bikes | | North | South | East | West |
| 4:00 PM | 0 | 495 | 40 | 0 | 0 | 737 | 152 | 0 | 0 | 0 | 36 | 0 | 0 | 0 | 98 | 0 | 1,558 | 0 | 0 | 0 | 0 |
| 4:15 PM | 0 | 466 | 34 | 0 | 0 | 787 | 133 | 0 | 0 | 0 | 38 | 0 | 0 | 0 | 91 | 0 | 1,549 | 0 | 0 | 0 | 0 |
| 4:30 PM | 0 | 477 | 32 | 0 | 0 | 712 | 146 | 0 | 0 | 0 | 57 | 0 | 0 | 0 | 98 | 0 | 1,522 | 0 | 0 | 0 | 0 |
| 4:45 PM | 0 | 480 | 25 | 0 | 0 | 764 | 127 | 0 | 0 | 0 | 45 | 0 | 0 | 0 | 87 | 0 | 1,528 | 0 | 0 | 0 | 0 |
| 5:00 PM | 0 | 513 | 34 | 0 | 0 | 763 | 118 | 0 | 0 | 0 | 31 | 0 | 0 | 0 | 107 | 0 | 1,566 | 0 | 0 | 0 | 0 |
| 5:15 PM | 0 | 501 | 45 | 0 | 0 | 770 | 112 | 0 | 0 | 0 | 39 | 0 | 0 | 0 | 82 | 0 | 1,549 | 0 | 0 | 0 | 0 |
| 5:30 PM | 0 | 436 | 30 | 0 | 0 | 702 | 111 | 0 | 0 | 0 | 32 | 0 | 0 | 0 | 76 | 0 | 1,387 | 0 | 0 | 0 | 0 |
| 5:45 PM | 0 | 433 | 29 | 0 | 0 | 685 | 110 | 0 | 0 | 0 | 28 | 0 | 0 | 0 | 61 | 0 | 1,346 | 0 | 0 | 0 | 0 |
| Total Survey | 0 | 3,801 | 269 | 0 | 0 | 5,920 | 1,009 | 0 | 0 | 0 | 306 | 0 | 0 | 0 | 700 | 0 | 12,005 | 0 | 0 | 0 | 0 |

Peak Hour Summary

4:10 PM to 5:10 PM

| By Approach | Northbound Hwy 213 | | | | Southbound Hwy 213 | | | | Eastbound Clackamas River Dr | | | | Westbound Clackamas River Dr | | | | Total | Pedestrians Crosswalk | | | |
|----------------|-----------------------|-------|-------|-------|-----------------------|-------|-------|-------|---------------------------------|-----|-------|-------|---------------------------------|-----|-------|-------|-------|--------------------------|-------|------|------|
| | In | Out | Total | Bikes | In | Out | Total | Bikes | In | Out | Total | Bikes | In | Out | Total | Bikes | | North | South | East | West |
| Volume | 2,083 | 3,221 | 5,304 | 0 | 3,587 | 2,336 | 5,923 | 0 | 166 | 532 | 698 | 0 | 378 | 125 | 503 | 0 | 6,214 | 0 | 0 | 0 | 0 |
| %HV | 2.0% | | | | 2.4% | | | | 1.2% | | | | 3.2% | | | | 2.3% | | | | |
| PHF | 0.94 | | | | 0.96 | | | | 0.70 | | | | 0.84 | | | | 0.97 | | | | |

| By Movement | Northbound Hwy 213 | | | | Southbound Hwy 213 | | | | Eastbound Clackamas River Dr | | | | Westbound Clackamas River Dr | | | | Total |
|----------------|-----------------------|-------|------|-------|-----------------------|-------|------|-------|---------------------------------|------|------|-------|---------------------------------|------|------|-------|-------|
| | L | T | R | Total | L | T | R | Total | L | T | R | Total | L | T | R | Total | |
| Volume | 0 | 1,958 | 125 | 2,083 | 0 | 3,055 | 532 | 3,587 | 0 | 0 | 166 | 166 | 0 | 0 | 378 | 378 | 6,214 |
| %HV | 0.0% | 1.9% | 3.2% | 2.0% | 0.0% | 2.2% | 3.6% | 2.4% | 0.0% | 0.0% | 1.2% | 1.2% | 0.0% | 0.0% | 3.2% | 3.2% | 2.3% |
| PHF | 0.00 | 0.94 | 0.89 | 0.94 | 0.00 | 0.96 | 0.89 | 0.96 | 0.00 | 0.00 | 0.70 | 0.70 | 0.00 | 0.00 | 0.84 | 0.84 | 0.97 |

Rolling Hour Summary

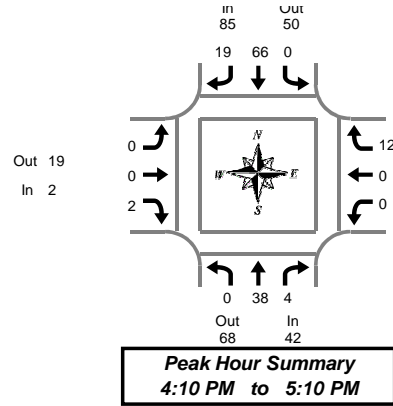
4:00 PM to 6:00 PM

| Interval Start Time | Northbound Hwy 213 | | | | Southbound Hwy 213 | | | | Eastbound Clackamas River Dr | | | | Westbound Clackamas River Dr | | | | Interval Total | Pedestrians Crosswalk | | | |
|---------------------------|-----------------------|-------|-----|-------|-----------------------|-------|-----|-------|---------------------------------|---|-----|-------|---------------------------------|---|-----|-------|-------------------|--------------------------|-------|------|------|
| | L | T | R | Bikes | L | T | R | Bikes | L | T | R | Bikes | L | T | R | Bikes | | North | South | East | West |
| 4:00 PM | 0 | 1,918 | 131 | 0 | 0 | 3,000 | 558 | 0 | 0 | 0 | 176 | 0 | 0 | 0 | 374 | 0 | 6,157 | 0 | 0 | 0 | 0 |
| 4:15 PM | 0 | 1,936 | 125 | 0 | 0 | 3,026 | 524 | 0 | 0 | 0 | 171 | 0 | 0 | 0 | 383 | 0 | 6,165 | 0 | 0 | 0 | 0 |
| 4:30 PM | 0 | 1,971 | 136 | 0 | 0 | 3,009 | 503 | 0 | 0 | 0 | 172 | 0 | 0 | 0 | 374 | 0 | 6,165 | 0 | 0 | 0 | 0 |
| 4:45 PM | 0 | 1,930 | 134 | 0 | 0 | 2,999 | 468 | 0 | 0 | 0 | 147 | 0 | 0 | 0 | 352 | 0 | 6,030 | 0 | 0 | 0 | 0 |
| 5:00 PM | 0 | 1,883 | 138 | 0 | 0 | 2,920 | 451 | 0 | 0 | 0 | 130 | 0 | 0 | 0 | 326 | 0 | 5,848 | 0 | 0 | 0 | 0 |

Heavy Vehicle Summary



Clay Carney
(503) 833-2740



Hwy 213 & Clackamas River Dr

Wednesday, January 25, 2017

4:00 PM to 6:00 PM

Heavy Vehicle 5-Minute Interval Summary

4:00 PM to 6:00 PM

| Interval Start Time | Northbound Hwy 213 | | | | Southbound Hwy 213 | | | | Eastbound Clackamas River Dr | | | | Westbound Clackamas River Dr | | | | Interval Total |
|---------------------------|-----------------------|----|---|-------|-----------------------|-----|----|-------|---------------------------------|---|---|-------|---------------------------------|---|----|-------|-------------------|
| | L | T | R | Total | L | T | R | Total | L | T | R | Total | L | T | R | Total | |
| 4:00 PM | 0 | 6 | 1 | 7 | 0 | 4 | 2 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 14 |
| 4:05 PM | 0 | 6 | 1 | 7 | 0 | 9 | 1 | 10 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 5 | 22 |
| 4:10 PM | 0 | 7 | 0 | 7 | 0 | 10 | 4 | 14 | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 1 | 23 |
| 4:15 PM | 0 | 5 | 0 | 5 | 0 | 7 | 1 | 8 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 14 |
| 4:20 PM | 0 | 3 | 0 | 3 | 0 | 5 | 4 | 9 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 13 |
| 4:25 PM | 0 | 1 | 0 | 1 | 0 | 7 | 2 | 9 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 2 | 12 |
| 4:30 PM | 0 | 4 | 0 | 4 | 0 | 5 | 1 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 10 |
| 4:35 PM | 0 | 3 | 0 | 3 | 0 | 7 | 1 | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 12 |
| 4:40 PM | 0 | 3 | 1 | 4 | 0 | 3 | 2 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 10 |
| 4:45 PM | 0 | 2 | 1 | 3 | 0 | 2 | 1 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 3 | 9 |
| 4:50 PM | 0 | 4 | 1 | 5 | 0 | 3 | 1 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 9 |
| 4:55 PM | 0 | 1 | 0 | 1 | 0 | 7 | 1 | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 10 |
| 5:00 PM | 0 | 3 | 0 | 3 | 0 | 5 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 2 | 10 |
| 5:05 PM | 0 | 2 | 1 | 3 | 0 | 5 | 1 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 9 |
| 5:10 PM | 0 | 5 | 2 | 7 | 0 | 6 | 3 | 9 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 17 |
| 5:15 PM | 0 | 4 | 0 | 4 | 0 | 5 | 1 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 11 |
| 5:20 PM | 0 | 2 | 0 | 2 | 0 | 8 | 1 | 9 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 12 |
| 5:25 PM | 0 | 2 | 0 | 2 | 0 | 5 | 1 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 2 | 10 |
| 5:30 PM | 0 | 3 | 0 | 3 | 0 | 3 | 1 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 |
| 5:35 PM | 0 | 5 | 0 | 5 | 0 | 4 | 1 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 11 |
| 5:40 PM | 0 | 1 | 0 | 1 | 0 | 3 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 |
| 5:45 PM | 0 | 2 | 1 | 3 | 0 | 2 | 2 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 |
| 5:50 PM | 0 | 3 | 0 | 3 | 0 | 5 | 0 | 5 | 0 | 0 | 2 | 2 | 0 | 0 | 1 | 1 | 11 |
| 5:55 PM | 0 | 1 | 0 | 1 | 0 | 1 | 2 | 3 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 5 |
| Total Survey | 0 | 78 | 9 | 87 | 0 | 121 | 34 | 155 | 0 | 0 | 6 | 6 | 0 | 0 | 24 | 24 | 272 |

Heavy Vehicle 15-Minute Interval Summary

4:00 PM to 6:00 PM

| Interval Start Time | Northbound Hwy 213 | | | | Southbound Hwy 213 | | | | Eastbound Clackamas River Dr | | | | Westbound Clackamas River Dr | | | | Interval Total |
|---------------------------|-----------------------|----|---|-------|-----------------------|-----|----|-------|---------------------------------|---|---|-------|---------------------------------|---|----|-------|-------------------|
| | L | T | R | Total | L | T | R | Total | L | T | R | Total | L | T | R | Total | |
| 4:00 PM | 0 | 19 | 2 | 21 | 0 | 23 | 7 | 30 | 0 | 0 | 1 | 1 | 0 | 0 | 7 | 7 | 59 |
| 4:15 PM | 0 | 9 | 0 | 9 | 0 | 19 | 7 | 26 | 0 | 0 | 1 | 1 | 0 | 0 | 3 | 3 | 39 |
| 4:30 PM | 0 | 10 | 1 | 11 | 0 | 15 | 4 | 19 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 2 | 32 |
| 4:45 PM | 0 | 7 | 2 | 9 | 0 | 12 | 3 | 15 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 4 | 28 |
| 5:00 PM | 0 | 10 | 3 | 13 | 0 | 16 | 4 | 20 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 3 | 36 |
| 5:15 PM | 0 | 8 | 0 | 8 | 0 | 18 | 3 | 21 | 0 | 0 | 1 | 1 | 0 | 0 | 3 | 3 | 33 |
| 5:30 PM | 0 | 9 | 0 | 9 | 0 | 10 | 2 | 12 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 22 |
| 5:45 PM | 0 | 6 | 1 | 7 | 0 | 8 | 4 | 12 | 0 | 0 | 3 | 3 | 0 | 0 | 1 | 1 | 23 |
| Total Survey | 0 | 78 | 9 | 87 | 0 | 121 | 34 | 155 | 0 | 0 | 6 | 6 | 0 | 0 | 24 | 24 | 272 |

Heavy Vehicle Peak Hour Summary

4:10 PM to 5:10 PM

| By Approach | Northbound Hwy 213 | | | Southbound Hwy 213 | | | Eastbound Clackamas River Dr | | | Westbound Clackamas River Dr | | | Total |
|----------------|-----------------------|-----|-------|-----------------------|-----|-------|---------------------------------|-----|-------|---------------------------------|-----|-------|-------|
| | In | Out | Total | In | Out | Total | In | Out | Total | In | Out | Total | |
| Volume | 42 | 68 | 110 | 85 | 50 | 135 | 2 | 19 | 21 | 12 | 4 | 16 | 141 |
| PHF | 0.70 | | | 0.69 | | | 0.25 | | | 0.60 | | | 0.71 |

| By Movement | Northbound Hwy 213 | | | | Southbound Hwy 213 | | | | Eastbound Clackamas River Dr | | | | Westbound Clackamas River Dr | | | | Total |
|----------------|-----------------------|------|------|-------|-----------------------|------|------|-------|---------------------------------|------|------|-------|---------------------------------|------|------|-------|-------|
| | L | T | R | Total | L | T | R | Total | L | T | R | Total | L | T | R | Total | |
| Volume | 0 | 38 | 4 | 42 | 0 | 66 | 19 | 85 | 0 | 0 | 2 | 2 | 0 | 0 | 12 | 12 | 141 |
| PHF | 0.00 | 0.63 | 0.33 | 0.70 | 0.00 | 0.75 | 0.53 | 0.69 | 0.00 | 0.00 | 0.25 | 0.25 | 0.00 | 0.00 | 0.60 | 0.60 | 0.71 |

Heavy Vehicle Rolling Hour Summary

4:00 PM to 6:00 PM

| Interval Start Time | Northbound Hwy 213 | | | | Southbound Hwy 213 | | | | Eastbound Clackamas River Dr | | | | Westbound Clackamas River Dr | | | | Interval Total |
|---------------------------|-----------------------|----|---|-------|-----------------------|----|----|-------|---------------------------------|---|---|-------|---------------------------------|---|----|-------|-------------------|
| | L | T | R | Total | L | T | R | Total | L | T | R | Total | L | T | R | Total | |
| 4:00 PM | 0 | 45 | 5 | 50 | 0 | 69 | 21 | 90 | 0 | 0 | 2 | 2 | 0 | 0 | 16 | 16 | 158 |
| 4:15 PM | 0 | 36 | 6 | 42 | 0 | 62 | 18 | 80 | 0 | 0 | 1 | 1 | 0 | 0 | 12 | 12 | 135 |
| 4:30 PM | 0 | 35 | 6 | 41 | 0 | 61 | 14 | 75 | 0 | 0 | 1 | 1 | 0 | 0 | 12 | 12 | 129 |
| 4:45 PM | 0 | 34 | 5 | 39 | 0 | 56 | 12 | 68 | 0 | 0 | 1 | 1 | 0 | 0 | 11 | 11 | 119 |
| 5:00 PM | 0 | 33 | 4 | 37 | 0 | 52 | 13 | 65 | 0 | 0 | 4 | 4 | 0 | 0 | 8 | 8 | 114 |

Peak Hour Summary

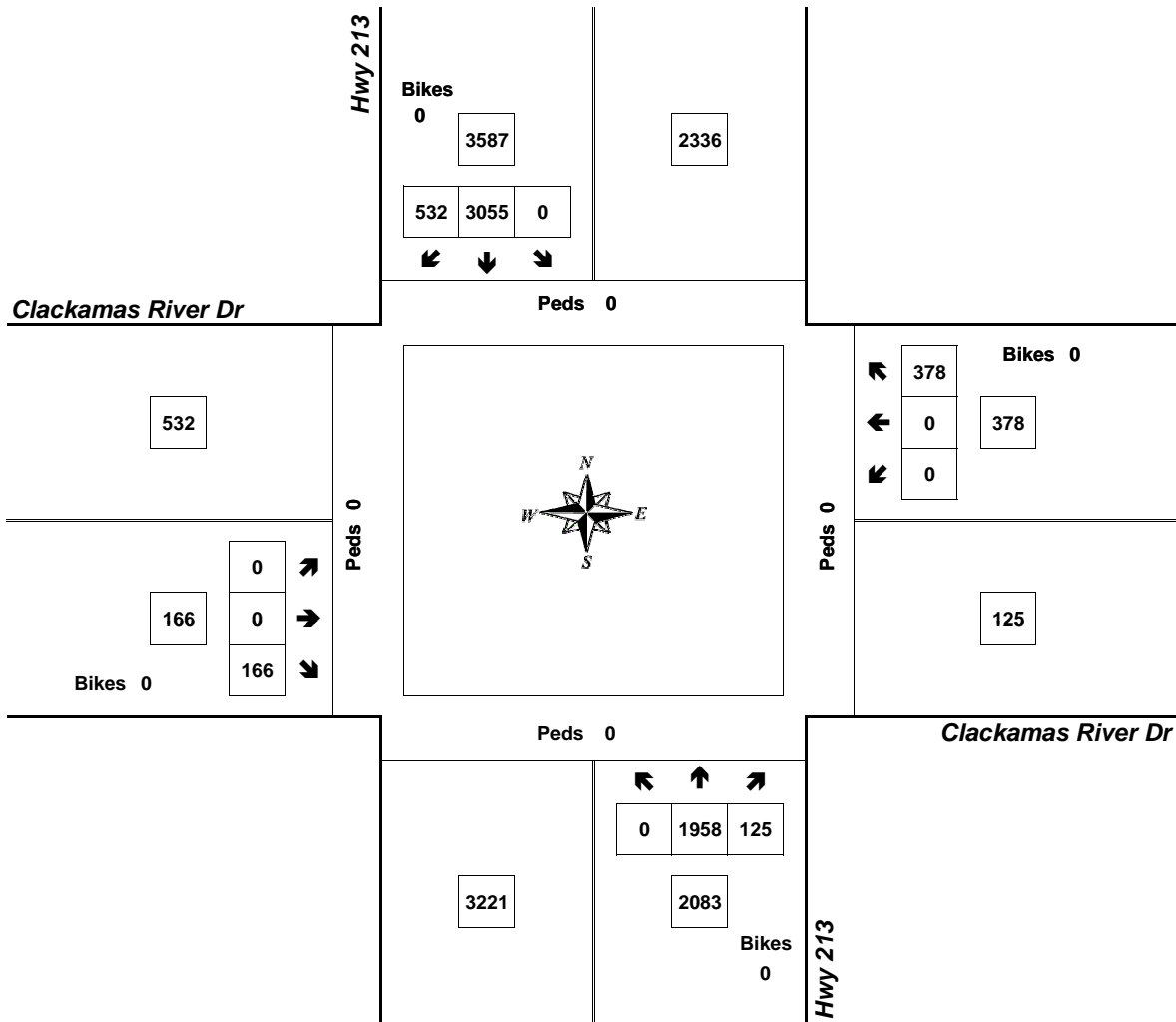


Clay Carney
(503) 833-2740

Hwy 213 & Clackamas River Dr

4:10 PM to 5:10 PM

Wednesday, January 25, 2017



| Approach | PHF | HV% | Volume |
|---------------------|-------------|-------------|--------------|
| EB | 0.70 | 1.2% | 166 |
| WB | 0.84 | 3.2% | 378 |
| NB | 0.94 | 2.0% | 2,083 |
| SB | 0.96 | 2.4% | 3,587 |
| Intersection | 0.97 | 2.3% | 6,214 |

Count Period: 4:00 PM to 6:00 PM

Total Vehicle Summary

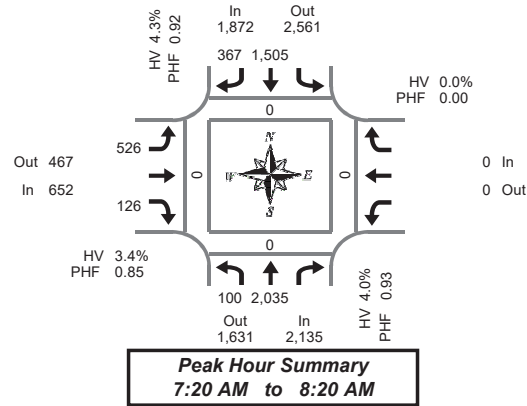


Clay Carney
(503) 833-2740

Hwy 213 & Redland Rd

Wednesday, January 25, 2017

7:00 AM to 9:00 AM



5-Minute Interval Summary

7:00 AM to 9:00 AM

| Interval Start Time | Northbound Hwy 213 | | | Southbound Hwy 213 | | | Eastbound Redland Rd | | | Westbound Redland Rd | | | Interval Total | Pedestrians Crosswalk | | | |
|---------------------------|-----------------------|-------|-------|-----------------------|-----|-------|-------------------------|-----|-------|-------------------------|--|-------|-------------------|--------------------------|-------|------|------|
| | L | T | Bikes | T | R | Bikes | L | R | Bikes | | | Bikes | | North | South | East | West |
| 7:00 AM | 8 | 139 | 0 | 75 | 17 | 0 | 55 | 18 | 0 | | | 0 | 312 | 0 | 0 | 0 | 0 |
| 7:05 AM | 7 | 183 | 0 | 100 | 24 | 0 | 49 | 6 | 0 | | | 0 | 369 | 0 | 0 | 0 | 0 |
| 7:10 AM | 0 | 164 | 0 | 93 | 16 | 0 | 43 | 17 | 0 | | | 0 | 333 | 0 | 0 | 0 | 0 |
| 7:15 AM | 7 | 154 | 0 | 105 | 26 | 0 | 67 | 15 | 0 | | | 0 | 374 | 0 | 0 | 0 | 0 |
| 7:20 AM | 10 | 197 | 0 | 125 | 40 | 0 | 34 | 12 | 0 | | | 0 | 418 | 0 | 0 | 0 | 0 |
| 7:25 AM | 4 | 189 | 0 | 116 | 35 | 0 | 40 | 18 | 0 | | | 0 | 402 | 0 | 0 | 0 | 0 |
| 7:30 AM | 4 | 172 | 0 | 109 | 29 | 0 | 58 | 16 | 0 | | | 0 | 388 | 0 | 0 | 0 | 0 |
| 7:35 AM | 14 | 179 | 0 | 112 | 31 | 0 | 48 | 12 | 0 | | | 0 | 396 | 0 | 0 | 0 | 0 |
| 7:40 AM | 10 | 178 | 0 | 168 | 35 | 0 | 33 | 9 | 0 | | | 0 | 433 | 0 | 0 | 0 | 0 |
| 7:45 AM | 7 | 169 | 0 | 116 | 32 | 0 | 50 | 10 | 0 | | | 0 | 384 | 0 | 0 | 0 | 0 |
| 7:50 AM | 13 | 149 | 0 | 132 | 26 | 0 | 45 | 13 | 0 | | | 0 | 378 | 0 | 0 | 0 | 0 |
| 7:55 AM | 8 | 160 | 0 | 149 | 25 | 0 | 32 | 4 | 0 | | | 0 | 378 | 0 | 0 | 0 | 0 |
| 8:00 AM | 6 | 148 | 0 | 121 | 30 | 0 | 35 | 9 | 0 | | | 0 | 349 | 0 | 0 | 0 | 0 |
| 8:05 AM | 7 | 154 | 0 | 90 | 31 | 0 | 62 | 10 | 0 | | | 0 | 354 | 0 | 0 | 0 | 0 |
| 8:10 AM | 8 | 181 | 0 | 119 | 31 | 0 | 41 | 4 | 0 | | | 0 | 384 | 0 | 0 | 0 | 0 |
| 8:15 AM | 9 | 159 | 0 | 148 | 22 | 0 | 48 | 9 | 0 | | | 0 | 395 | 0 | 0 | 0 | 0 |
| 8:20 AM | 6 | 132 | 0 | 89 | 41 | 0 | 58 | 13 | 0 | | | 0 | 339 | 0 | 0 | 0 | 0 |
| 8:25 AM | 3 | 137 | 0 | 112 | 25 | 0 | 32 | 4 | 0 | | | 0 | 313 | 0 | 0 | 0 | 0 |
| 8:30 AM | 6 | 141 | 0 | 148 | 33 | 0 | 40 | 14 | 0 | | | 0 | 382 | 0 | 0 | 0 | 0 |
| 8:35 AM | 5 | 142 | 0 | 106 | 15 | 0 | 40 | 8 | 0 | | | 0 | 316 | 0 | 0 | 0 | 0 |
| 8:40 AM | 11 | 154 | 0 | 128 | 33 | 0 | 53 | 9 | 0 | | | 0 | 388 | 0 | 0 | 0 | 0 |
| 8:45 AM | 9 | 129 | 0 | 147 | 21 | 0 | 41 | 8 | 0 | | | 0 | 355 | 0 | 0 | 0 | 0 |
| 8:50 AM | 4 | 143 | 0 | 118 | 26 | 0 | 43 | 4 | 0 | | | 0 | 338 | 0 | 0 | 0 | 0 |
| 8:55 AM | 12 | 123 | 0 | 124 | 18 | 0 | 49 | 11 | 0 | | | 0 | 337 | 0 | 0 | 0 | 0 |
| Total Survey | 178 | 3,776 | 0 | 2,850 | 662 | 0 | 1,096 | 253 | 0 | | | 0 | 8,815 | 0 | 0 | 0 | 0 |

15-Minute Interval Summary

7:00 AM to 9:00 AM

| Interval Start Time | Northbound Hwy 213 | | | Southbound Hwy 213 | | | Eastbound Redland Rd | | | Westbound Redland Rd | | | Interval Total | Pedestrians Crosswalk | | | |
|---------------------------|-----------------------|-------|-------|-----------------------|-----|-------|-------------------------|-----|-------|-------------------------|--|-------|-------------------|--------------------------|-------|------|------|
| | L | T | Bikes | T | R | Bikes | L | R | Bikes | | | Bikes | | North | South | East | West |
| 7:00 AM | 15 | 486 | 0 | 268 | 57 | 0 | 147 | 41 | 0 | | | 0 | 1,014 | 0 | 0 | 0 | 0 |
| 7:15 AM | 21 | 540 | 0 | 346 | 101 | 0 | 141 | 45 | 0 | | | 0 | 1,194 | 0 | 0 | 0 | 0 |
| 7:30 AM | 28 | 529 | 0 | 389 | 95 | 0 | 139 | 37 | 0 | | | 0 | 1,217 | 0 | 0 | 0 | 0 |
| 7:45 AM | 28 | 478 | 0 | 397 | 83 | 0 | 127 | 27 | 0 | | | 0 | 1,140 | 0 | 0 | 0 | 0 |
| 8:00 AM | 21 | 483 | 0 | 330 | 92 | 0 | 138 | 23 | 0 | | | 0 | 1,087 | 0 | 0 | 0 | 0 |
| 8:15 AM | 18 | 428 | 0 | 349 | 88 | 0 | 138 | 26 | 0 | | | 0 | 1,047 | 0 | 0 | 0 | 0 |
| 8:30 AM | 22 | 437 | 0 | 382 | 81 | 0 | 133 | 31 | 0 | | | 0 | 1,086 | 0 | 0 | 0 | 0 |
| 8:45 AM | 25 | 395 | 0 | 389 | 65 | 0 | 133 | 23 | 0 | | | 0 | 1,030 | 0 | 0 | 0 | 0 |
| Total Survey | 178 | 3,776 | 0 | 2,850 | 662 | 0 | 1,096 | 253 | 0 | | | 0 | 8,815 | 0 | 0 | 0 | 0 |

Peak Hour Summary

7:20 AM to 8:20 AM

| By Approach | Northbound Hwy 213 | | | Southbound Hwy 213 | | | Eastbound Redland Rd | | | Westbound Redland Rd | | | Total | Pedestrians Crosswalk | | | |
|----------------|-----------------------|-------|-------|-----------------------|-------|-------|-------------------------|------|-------|-------------------------|-----|-------|-------|--------------------------|-------|------|------|
| | In | Out | Total | In | Out | Total | In | Out | Total | In | Out | Total | | North | South | East | West |
| Volume | 2,135 | 1,631 | 3,766 | 1,872 | 2,561 | 4,433 | 652 | 467 | 1,119 | 0 | 0 | 0 | 4,659 | 0 | 0 | 0 | 0 |
| %HV | 4.0% | | | 4.3% | | | | 3.4% | | | | | 4.1% | | | | |
| PHF | 0.93 | | | 0.92 | | | | 0.85 | | | | | 0.96 | | | | |

| By Movement | Northbound Hwy 213 | | | Southbound Hwy 213 | | | Eastbound Redland Rd | | | Westbound Redland Rd | | | Total |
|----------------|-----------------------|-------|-------|-----------------------|------|-------|-------------------------|------|-------|-------------------------|----|-------|-------|
| | L | T | Total | T | R | Total | L | R | Total | | | Total | |
| Volume | 100 | 2,035 | 2,135 | 1,505 | 367 | 1,872 | 526 | 126 | 652 | | | 0 | 4,659 |
| %HV | 4.0% | 4.0% | NA | 4.5% | 3.5% | 4.3% | 3.4% | NA | 3.2% | 3.4% | NA | NA | 4.1% |
| PHF | 0.81 | 0.91 | 0.93 | 0.90 | 0.88 | 0.92 | 0.87 | 0.68 | 0.85 | | | 0.00 | 0.96 |

Rolling Hour Summary

7:00 AM to 9:00 AM

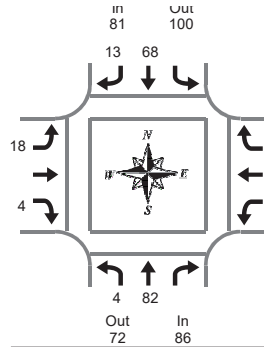
| Interval Start Time | Northbound Hwy 213 | | | Southbound Hwy 213 | | | Eastbound Redland Rd | | | Westbound Redland Rd | | | Interval Total | Pedestrians Crosswalk | | | |
|---------------------------|-----------------------|-------|-------|-----------------------|-----|-------|-------------------------|-----|-------|-------------------------|--|-------|-------------------|--------------------------|-------|------|------|
| | L | T | Bikes | T | R | Bikes | L | R | Bikes | | | Bikes | | North | South | East | West |
| 7:00 AM | 92 | 2,033 | 0 | 1,400 | 336 | 0 | 554 | 150 | 0 | | | 0 | 4,565 | 0 | 0 | 0 | 0 |
| 7:15 AM | 98 | 2,030 | 0 | 1,462 | 371 | 0 | 545 | 132 | 0 | | | 0 | 4,638 | 0 | 0 | 0 | 0 |
| 7:30 AM | 95 | 1,918 | 0 | 1,465 | 358 | 0 | 542 | 113 | 0 | | | 0 | 4,491 | 0 | 0 | 0 | 0 |
| 7:45 AM | 89 | 1,826 | 0 | 1,458 | 344 | 0 | 536 | 107 | 0 | | | 0 | 4,360 | 0 | 0 | 0 | 0 |
| 8:00 AM | 86 | 1,743 | 0 | 1,450 | 326 | 0 | 542 | 103 | 0 | | | 0 | 4,250 | 0 | 0 | 0 | 0 |

Heavy Vehicle Summary



Clay Carney
(503) 833-2740

Out 17
In 22



Peak Hour Summary
7:20 AM to 8:20 AM

Hwy 213 & Redland Rd

Wednesday, January 25, 2017

7:00 AM to 9:00 AM

Heavy Vehicle 5-Minute Interval Summary

7:00 AM to 9:00 AM

| Interval Start Time | Northbound Hwy 213 | | | Southbound Hwy 213 | | | Eastbound Redland Rd | | | Westbound Redland Rd | | | Interval Total |
|---------------------------|-----------------------|-----|-------|-----------------------|----|-------|-------------------------|----|-------|-------------------------|--|-------|-------------------|
| | L | T | Total | T | R | Total | L | R | Total | | | Total | |
| 7:00 AM | 1 | 5 | 6 | 9 | 2 | 11 | 1 | 1 | 2 | | | 0 | 19 |
| 7:05 AM | 1 | 5 | 6 | 1 | 0 | 1 | 3 | 2 | 5 | | | 0 | 12 |
| 7:10 AM | 0 | 10 | 10 | 3 | 0 | 3 | 4 | 0 | 4 | | | 0 | 17 |
| 7:15 AM | 2 | 7 | 9 | 8 | 2 | 10 | 4 | 1 | 5 | | | 0 | 24 |
| 7:20 AM | 1 | 6 | 7 | 4 | 0 | 4 | 1 | 0 | 1 | | | 0 | 12 |
| 7:25 AM | 0 | 8 | 8 | 10 | 0 | 10 | 3 | 0 | 3 | | | 0 | 21 |
| 7:30 AM | 0 | 3 | 3 | 5 | 0 | 5 | 1 | 1 | 2 | | | 0 | 10 |
| 7:35 AM | 0 | 5 | 5 | 0 | 2 | 2 | 2 | 0 | 2 | | | 0 | 9 |
| 7:40 AM | 0 | 2 | 2 | 8 | 0 | 8 | 2 | 0 | 2 | | | 0 | 12 |
| 7:45 AM | 1 | 12 | 13 | 7 | 2 | 9 | 4 | 0 | 4 | | | 0 | 26 |
| 7:50 AM | 0 | 9 | 9 | 4 | 2 | 6 | 1 | 0 | 1 | | | 0 | 16 |
| 7:55 AM | 0 | 11 | 11 | 3 | 2 | 5 | 1 | 1 | 2 | | | 0 | 18 |
| 8:00 AM | 1 | 10 | 11 | 4 | 1 | 5 | 0 | 2 | 2 | | | 0 | 18 |
| 8:05 AM | 0 | 3 | 3 | 6 | 0 | 6 | 1 | 0 | 1 | | | 0 | 10 |
| 8:10 AM | 0 | 6 | 6 | 8 | 4 | 12 | 1 | 0 | 1 | | | 0 | 19 |
| 8:15 AM | 1 | 7 | 8 | 9 | 0 | 9 | 1 | 0 | 1 | | | 0 | 18 |
| 8:20 AM | 0 | 5 | 5 | 8 | 2 | 10 | 2 | 2 | 4 | | | 0 | 19 |
| 8:25 AM | 0 | 5 | 5 | 12 | 3 | 15 | 5 | 0 | 5 | | | 0 | 25 |
| 8:30 AM | 0 | 7 | 7 | 3 | 4 | 7 | 3 | 1 | 4 | | | 0 | 18 |
| 8:35 AM | 1 | 13 | 14 | 4 | 4 | 8 | 2 | 0 | 2 | | | 0 | 24 |
| 8:40 AM | 0 | 8 | 8 | 9 | 0 | 9 | 2 | 0 | 2 | | | 0 | 19 |
| 8:45 AM | 0 | 6 | 6 | 4 | 1 | 5 | 1 | 1 | 2 | | | 0 | 13 |
| 8:50 AM | 0 | 7 | 7 | 15 | 2 | 17 | 0 | 0 | 0 | | | 0 | 24 |
| 8:55 AM | 0 | 5 | 5 | 9 | 3 | 12 | 1 | 0 | 1 | | | 0 | 18 |
| Total Survey | 9 | 165 | 174 | 153 | 36 | 189 | 46 | 12 | 58 | | | 0 | 421 |

Heavy Vehicle 15-Minute Interval Summary

7:00 AM to 9:00 AM

| Interval Start Time | Northbound Hwy 213 | | | Southbound Hwy 213 | | | Eastbound Redland Rd | | | Westbound Redland Rd | | | Interval Total |
|---------------------------|-----------------------|-----|-------|-----------------------|----|-------|-------------------------|----|-------|-------------------------|--|-------|-------------------|
| | L | T | Total | T | R | Total | L | R | Total | | | Total | |
| 7:00 AM | 2 | 20 | 22 | 13 | 2 | 15 | 8 | 3 | 11 | | | 0 | 48 |
| 7:15 AM | 3 | 21 | 24 | 22 | 2 | 24 | 8 | 1 | 9 | | | 0 | 57 |
| 7:30 AM | 0 | 10 | 10 | 13 | 2 | 15 | 5 | 1 | 6 | | | 0 | 31 |
| 7:45 AM | 1 | 32 | 33 | 14 | 6 | 20 | 6 | 1 | 7 | | | 0 | 60 |
| 8:00 AM | 1 | 19 | 20 | 18 | 5 | 23 | 2 | 2 | 4 | | | 0 | 47 |
| 8:15 AM | 1 | 17 | 18 | 29 | 5 | 34 | 8 | 2 | 10 | | | 0 | 62 |
| 8:30 AM | 1 | 28 | 29 | 16 | 8 | 24 | 7 | 1 | 8 | | | 0 | 61 |
| 8:45 AM | 0 | 18 | 18 | 28 | 6 | 34 | 2 | 1 | 3 | | | 0 | 55 |
| Total Survey | 9 | 165 | 174 | 153 | 36 | 189 | 46 | 12 | 58 | | | 0 | 421 |

Heavy Vehicle Peak Hour Summary

7:20 AM to 8:20 AM

| By Approach | Northbound Hwy 213 | | | Southbound Hwy 213 | | | Eastbound Redland Rd | | | Westbound Redland Rd | | | Total |
|----------------|-----------------------|-----|-------|-----------------------|-----|-------|-------------------------|-----|-------|-------------------------|-----|-------|-------|
| | In | Out | Total | In | Out | Total | In | Out | Total | In | Out | Total | |
| Volume | 86 | 72 | 158 | 81 | 100 | 181 | 22 | 17 | 39 | 0 | 0 | 0 | 189 |
| PHF | 0.65 | | | 0.75 | | | 0.69 | | | 0.00 | | | 0.79 |

| By Movement | Northbound Hwy 213 | | | Southbound Hwy 213 | | | Eastbound Redland Rd | | | Westbound Redland Rd | | | Total |
|----------------|-----------------------|------|-------|-----------------------|------|-------|-------------------------|------|-------|-------------------------|--|-------|-------|
| | L | T | Total | T | R | Total | L | R | Total | | | Total | |
| Volume | 4 | 82 | 86 | 68 | 13 | 81 | 18 | 4 | 22 | | | 0 | 189 |
| PHF | 1.00 | 0.64 | 0.65 | 0.74 | 0.54 | 0.75 | 0.56 | 0.33 | 0.69 | | | 0.00 | 0.79 |

Heavy Vehicle Rolling Hour Summary

7:00 AM to 9:00 AM

| Interval Start Time | Northbound Hwy 213 | | | Southbound Hwy 213 | | | Eastbound Redland Rd | | | Westbound Redland Rd | | | Interval Total |
|---------------------------|-----------------------|----|-------|-----------------------|----|-------|-------------------------|---|-------|-------------------------|--|-------|-------------------|
| | L | T | Total | T | R | Total | L | R | Total | | | Total | |
| 7:00 AM | 6 | 83 | 89 | 62 | 12 | 74 | 27 | 6 | 33 | | | 0 | 196 |
| 7:15 AM | 5 | 82 | 87 | 67 | 15 | 82 | 21 | 5 | 26 | | | 0 | 195 |
| 7:30 AM | 3 | 78 | 81 | 74 | 18 | 92 | 21 | 6 | 27 | | | 0 | 200 |
| 7:45 AM | 4 | 96 | 100 | 77 | 24 | 101 | 23 | 6 | 29 | | | 0 | 230 |
| 8:00 AM | 3 | 82 | 85 | 91 | 24 | 115 | 19 | 6 | 25 | | | 0 | 225 |

Peak Hour Summary

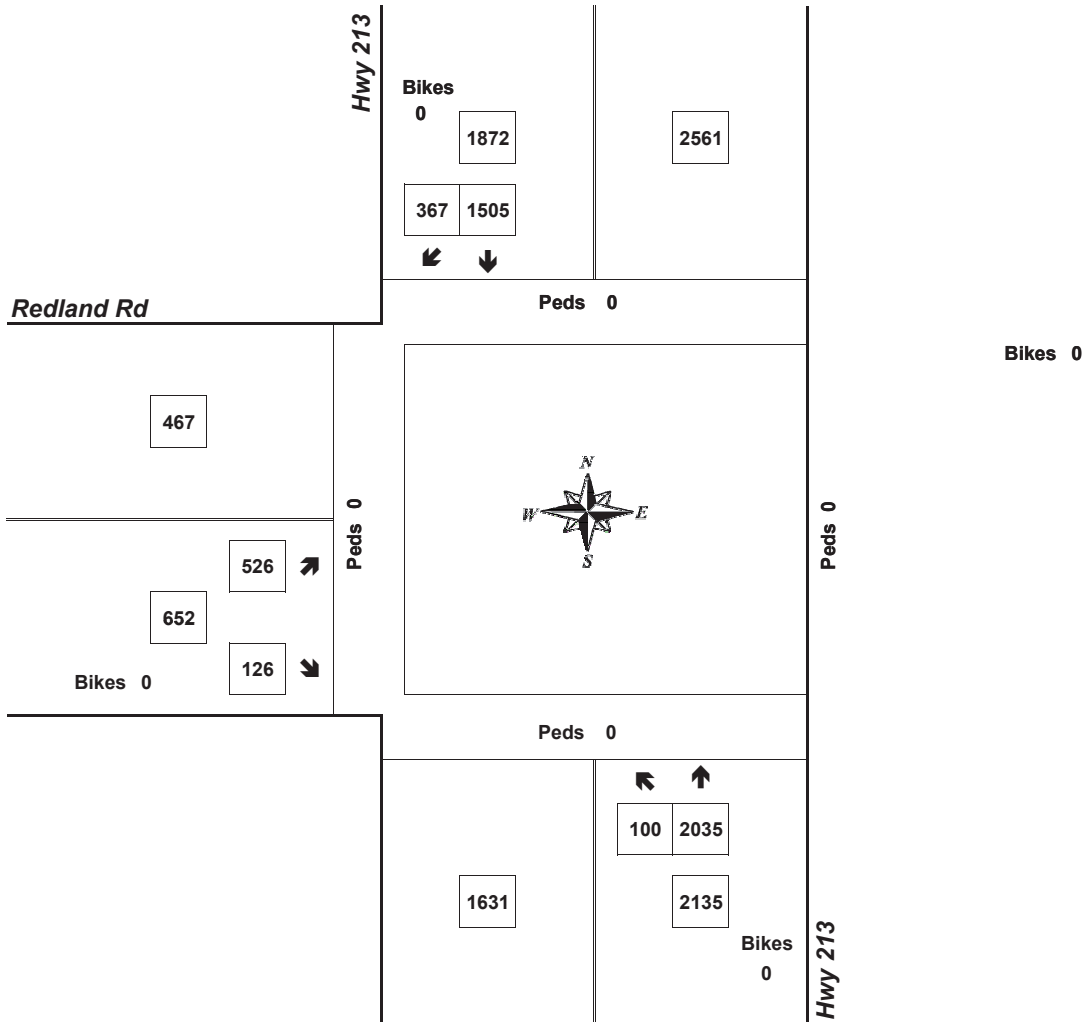


Clay Carney
(503) 833-2740

Hwy 213 & Redland Rd

7:20 AM to 8:20 AM

Wednesday, January 25, 2017



| Approach | PHF | HV% | Volume |
|---------------------|-------------|-------------|--------------|
| EB | 0.85 | 3.4% | 652 |
| WB | 0.00 | 0.0% | 0 |
| NB | 0.93 | 4.0% | 2,135 |
| SB | 0.92 | 4.3% | 1,872 |
| Intersection | 0.96 | 4.1% | 4,659 |

Count Period: 7:00 AM to 9:00 AM

Total Vehicle Summary

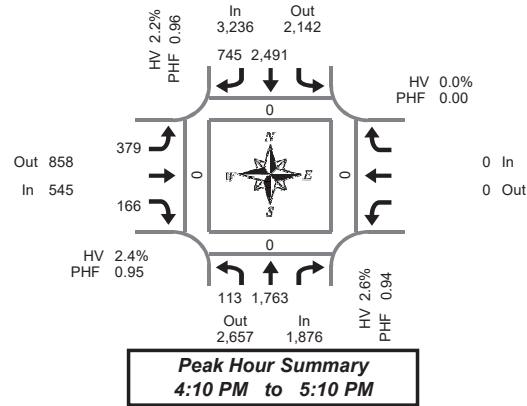


Clay Carney
(503) 833-2740

Hwy 213 & Redland Rd

Tuesday, January 24, 2017

4:00 PM to 6:00 PM



5-Minute Interval Summary

4:00 PM to 6:00 PM

| Interval Start Time | Northbound Hwy 213 | | | Southbound Hwy 213 | | | Eastbound Redland Rd | | | Westbound Redland Rd | | | Interval Total | Pedestrians Crosswalk | | | |
|---------------------------|-----------------------|-------|-------|-----------------------|-------|-------|-------------------------|-----|-------|-------------------------|--|-------|-------------------|--------------------------|-------|------|------|
| | L | T | Bikes | T | R | Bikes | L | R | Bikes | | | Bikes | | North | South | East | West |
| 4:00 PM | 11 | 148 | 0 | 204 | 67 | 0 | 26 | 6 | 0 | | | 0 | 462 | 0 | 0 | 0 | 0 |
| 4:05 PM | 7 | 140 | 0 | 216 | 54 | 0 | 28 | 12 | 0 | | | 0 | 457 | 0 | 0 | 0 | 0 |
| 4:10 PM | 9 | 160 | 0 | 187 | 58 | 0 | 42 | 15 | 0 | | | 0 | 471 | 0 | 0 | 0 | 0 |
| 4:15 PM | 14 | 153 | 0 | 202 | 63 | 0 | 26 | 12 | 0 | | | 0 | 470 | 0 | 0 | 0 | 0 |
| 4:20 PM | 11 | 151 | 0 | 207 | 65 | 0 | 32 | 13 | 0 | | | 0 | 479 | 0 | 0 | 0 | 0 |
| 4:25 PM | 6 | 113 | 0 | 216 | 57 | 0 | 34 | 10 | 0 | | | 0 | 436 | 0 | 0 | 0 | 0 |
| 4:30 PM | 14 | 128 | 0 | 194 | 60 | 0 | 34 | 15 | 0 | | | 0 | 445 | 0 | 0 | 0 | 0 |
| 4:35 PM | 8 | 140 | 0 | 232 | 74 | 0 | 29 | 15 | 0 | | | 0 | 498 | 0 | 0 | 0 | 0 |
| 4:40 PM | 3 | 157 | 0 | 228 | 51 | 0 | 30 | 9 | 0 | | | 0 | 478 | 0 | 0 | 0 | 0 |
| 4:45 PM | 12 | 147 | 1 | 181 | 61 | 0 | 42 | 18 | 0 | | | 0 | 461 | 0 | 0 | 0 | 0 |
| 4:50 PM | 8 | 144 | 0 | 221 | 71 | 0 | 24 | 10 | 0 | | | 0 | 478 | 0 | 0 | 0 | 0 |
| 4:55 PM | 8 | 169 | 0 | 223 | 68 | 0 | 30 | 10 | 0 | | | 0 | 508 | 0 | 0 | 0 | 0 |
| 5:00 PM | 15 | 148 | 0 | 178 | 54 | 0 | 31 | 20 | 0 | | | 0 | 446 | 0 | 0 | 0 | 0 |
| 5:05 PM | 5 | 153 | 0 | 222 | 63 | 0 | 25 | 19 | 0 | | | 0 | 487 | 0 | 0 | 0 | 0 |
| 5:10 PM | 11 | 144 | 0 | 226 | 46 | 0 | 32 | 11 | 0 | | | 0 | 470 | 0 | 0 | 0 | 0 |
| 5:15 PM | 11 | 130 | 0 | 198 | 56 | 0 | 44 | 8 | 0 | | | 0 | 447 | 0 | 0 | 0 | 0 |
| 5:20 PM | 17 | 148 | 0 | 194 | 44 | 0 | 28 | 4 | 0 | | | 0 | 435 | 0 | 0 | 0 | 0 |
| 5:25 PM | 6 | 127 | 0 | 229 | 69 | 0 | 26 | 6 | 0 | | | 0 | 463 | 0 | 0 | 0 | 0 |
| 5:30 PM | 6 | 114 | 0 | 205 | 58 | 0 | 25 | 17 | 0 | | | 0 | 425 | 0 | 0 | 0 | 0 |
| 5:35 PM | 14 | 137 | 0 | 177 | 58 | 0 | 32 | 9 | 0 | | | 0 | 427 | 0 | 0 | 0 | 0 |
| 5:40 PM | 8 | 134 | 0 | 217 | 63 | 0 | 21 | 4 | 0 | | | 0 | 447 | 0 | 0 | 0 | 0 |
| 5:45 PM | 7 | 148 | 0 | 220 | 60 | 0 | 18 | 8 | 0 | | | 0 | 461 | 0 | 0 | 0 | 0 |
| 5:50 PM | 8 | 129 | 0 | 177 | 62 | 0 | 32 | 6 | 0 | | | 0 | 414 | 0 | 0 | 0 | 0 |
| 5:55 PM | 9 | 115 | 0 | 197 | 40 | 0 | 19 | 9 | 0 | | | 0 | 389 | 0 | 0 | 0 | 0 |
| Total Survey | 228 | 3,377 | 1 | 4,951 | 1,422 | 0 | 710 | 266 | 0 | | | 0 | 10,954 | 0 | 0 | 0 | 0 |

15-Minute Interval Summary

4:00 PM to 6:00 PM

| Interval Start Time | Northbound Hwy 213 | | | Southbound Hwy 213 | | | Eastbound Redland Rd | | | Westbound Redland Rd | | | Interval Total | Pedestrians Crosswalk | | | |
|---------------------------|-----------------------|-------|-------|-----------------------|-------|-------|-------------------------|-----|-------|-------------------------|--|-------|-------------------|--------------------------|-------|------|------|
| | L | T | Bikes | T | R | Bikes | L | R | Bikes | | | Bikes | | North | South | East | West |
| 4:00 PM | 27 | 448 | 0 | 607 | 179 | 0 | 96 | 33 | 0 | | | 0 | 1,390 | 0 | 0 | 0 | 0 |
| 4:15 PM | 31 | 417 | 0 | 625 | 185 | 0 | 92 | 35 | 0 | | | 0 | 1,385 | 0 | 0 | 0 | 0 |
| 4:30 PM | 25 | 425 | 0 | 654 | 185 | 0 | 93 | 39 | 0 | | | 0 | 1,421 | 0 | 0 | 0 | 0 |
| 4:45 PM | 28 | 460 | 1 | 625 | 200 | 0 | 96 | 38 | 0 | | | 0 | 1,447 | 0 | 0 | 0 | 0 |
| 5:00 PM | 31 | 445 | 0 | 626 | 163 | 0 | 88 | 50 | 0 | | | 0 | 1,403 | 0 | 0 | 0 | 0 |
| 5:15 PM | 34 | 405 | 0 | 621 | 169 | 0 | 98 | 18 | 0 | | | 0 | 1,345 | 0 | 0 | 0 | 0 |
| 5:30 PM | 28 | 385 | 0 | 599 | 179 | 0 | 78 | 30 | 0 | | | 0 | 1,299 | 0 | 0 | 0 | 0 |
| 5:45 PM | 24 | 392 | 0 | 594 | 162 | 0 | 69 | 23 | 0 | | | 0 | 1,264 | 0 | 0 | 0 | 0 |
| Total Survey | 228 | 3,377 | 1 | 4,951 | 1,422 | 0 | 710 | 266 | 0 | | | 0 | 10,954 | 0 | 0 | 0 | 0 |

Peak Hour Summary

4:10 PM to 5:10 PM

| By Approach | Northbound Hwy 213 | | | | Southbound Hwy 213 | | | | Eastbound Redland Rd | | | | Westbound Redland Rd | | | | Total | Pedestrians Crosswalk | | | |
|-------------|-----------------------|-------|-------|-------|-----------------------|-------|-------|-------|-------------------------|------|-------|-------|-------------------------|------|-------|-------|-------|--------------------------|-------|------|------|
| | In | Out | Total | Bikes | In | Out | Total | Bikes | In | Out | Total | Bikes | In | Out | Total | Bikes | | North | South | East | West |
| Volume | 1,876 | 2,657 | 4,533 | 1 | 3,236 | 2,142 | 5,378 | 0 | 545 | 858 | 1,403 | 0 | 0 | 0 | 0 | 0 | 5,657 | 0 | 0 | 0 | 0 |
| %HV | | | | | | | | | | | | | | | | | | | | | |
| PHF | | 0.94 | | | | 0.96 | | | | 0.95 | | | | 0.00 | | | 0.98 | | | | |

| By Movement | Northbound Hwy 213 | | | | Southbound Hwy 213 | | | | Eastbound Redland Rd | | | | Westbound Redland Rd | | | | Total |
|-------------|-----------------------|-------|-------|------|-----------------------|------|-------|------|-------------------------|------|-------|------|-------------------------|----|-------|------|-------|
| | L | T | Total | | T | R | Total | | L | R | Total | | | | Total | | |
| Volume | 113 | 1,763 | 1,876 | | 2,491 | 745 | 3,236 | 377 | 166 | 545 | | | | | 0 | | 5,657 |
| %HV | 0.0% | 2.8% | NA | 2.6% | NA | 2.2% | 2.1% | 2.2% | 2.4% | NA | 2.4% | 2.4% | NA | NA | NA | 0.0% | 2.4% |
| PHF | 0.83 | 0.94 | 0.94 | | 0.95 | 0.93 | 0.96 | 0.94 | 0.85 | 0.95 | | | | | 0.00 | | 0.98 |

Rolling Hour Summary

4:00 PM to 6:00 PM

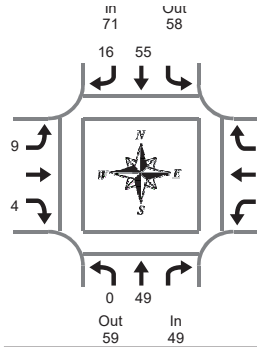
| Interval Start Time | Northbound Hwy 213 | | | Southbound Hwy 213 | | | Eastbound Redland Rd | | | Westbound Redland Rd | | | Interval Total | Pedestrians Crosswalk | | | |
|---------------------------|-----------------------|-------|-------|-----------------------|-----|-------|-------------------------|-----|-------|-------------------------|--|-------|-------------------|--------------------------|-------|------|------|
| | L | T | Bikes | T | R | Bikes | L | R | Bikes | | | Bikes | | North | South | East | West |
| 4:00 PM | 111 | 1,750 | 1 | 2,511 | 749 | 0 | 377 | 145 | 0 | | | 0 | 5,643 | 0 | 0 | 0 | 0 |
| 4:15 PM | 115 | 1,747 | 1 | 2,530 | 733 | 0 | 369 | 162 | 0 | | | 0 | 5,656 | 0 | 0 | 0 | 0 |
| 4:30 PM | 118 | 1,735 | 1 | 2,526 | 717 | 0 | 375 | 145 | 0 | | | 0 | 5,616 | 0 | 0 | 0 | 0 |
| 4:45 PM | 121 | 1,695 | 1 | 2,471 | 711 | 0 | 360 | 136 | 0 | | | 0 | 5,494 | 0 | 0 | 0 | 0 |
| 5:00 PM | 117 | 1,627 | 0 | 2,440 | 673 | 0 | 333 | 121 | 0 | | | 0 | 5,311 | 0 | 0 | 0 | 0 |

Heavy Vehicle Summary



Clay Carney
(503) 833-2740

Out 16
In 13



Hwy 213 & Redland Rd

Tuesday, January 24, 2017

4:00 PM to 6:00 PM

Peak Hour Summary
4:10 PM to 5:10 PM

Heavy Vehicle 5-Minute Interval Summary

4:00 PM to 6:00 PM

| Interval Start Time | Northbound Hwy 213 | | | Southbound Hwy 213 | | | Eastbound Redland Rd | | | Westbound Redland Rd | | | Interval Total |
|---------------------------|-----------------------|----|-------|-----------------------|----|-------|-------------------------|---|-------|-------------------------|--|-------|-------------------|
| | L | T | Total | T | R | Total | L | R | Total | | | Total | |
| 4:00 PM | 0 | 4 | 4 | 4 | 3 | 7 | 1 | 0 | 1 | | | 0 | 12 |
| 4:05 PM | 1 | 8 | 9 | 8 | 0 | 8 | 1 | 3 | 4 | | | 0 | 21 |
| 4:10 PM | 0 | 7 | 7 | 5 | 0 | 5 | 1 | 1 | 2 | | | 0 | 14 |
| 4:15 PM | 0 | 4 | 4 | 9 | 1 | 10 | 1 | 0 | 1 | | | 0 | 15 |
| 4:20 PM | 0 | 5 | 5 | 8 | 1 | 9 | 0 | 0 | 0 | | | 0 | 14 |
| 4:25 PM | 0 | 4 | 4 | 4 | 3 | 7 | 0 | 0 | 0 | | | 0 | 11 |
| 4:30 PM | 0 | 4 | 4 | 2 | 1 | 3 | 2 | 0 | 2 | | | 0 | 9 |
| 4:35 PM | 0 | 3 | 3 | 11 | 2 | 13 | 2 | 0 | 2 | | | 0 | 18 |
| 4:40 PM | 0 | 6 | 6 | 0 | 1 | 1 | 0 | 1 | 1 | | | 0 | 8 |
| 4:45 PM | 0 | 3 | 3 | 4 | 1 | 5 | 0 | 1 | 1 | | | 0 | 9 |
| 4:50 PM | 0 | 2 | 2 | 4 | 4 | 8 | 0 | 0 | 0 | | | 0 | 10 |
| 4:55 PM | 0 | 3 | 3 | 4 | 1 | 5 | 1 | 0 | 1 | | | 0 | 9 |
| 5:00 PM | 0 | 4 | 4 | 2 | 1 | 3 | 1 | 0 | 1 | | | 0 | 8 |
| 5:05 PM | 0 | 4 | 4 | 2 | 0 | 2 | 1 | 1 | 2 | | | 0 | 8 |
| 5:10 PM | 0 | 4 | 4 | 4 | 1 | 5 | 0 | 0 | 0 | | | 0 | 9 |
| 5:15 PM | 0 | 1 | 1 | 6 | 0 | 6 | 1 | 0 | 1 | | | 0 | 8 |
| 5:20 PM | 1 | 3 | 4 | 3 | 0 | 3 | 1 | 0 | 1 | | | 0 | 8 |
| 5:25 PM | 0 | 2 | 2 | 3 | 1 | 4 | 0 | 1 | 1 | | | 0 | 7 |
| 5:30 PM | 0 | 2 | 2 | 3 | 2 | 5 | 1 | 0 | 1 | | | 0 | 8 |
| 5:35 PM | 0 | 3 | 3 | 5 | 0 | 5 | 1 | 0 | 1 | | | 0 | 9 |
| 5:40 PM | 0 | 3 | 3 | 2 | 1 | 3 | 0 | 0 | 0 | | | 0 | 6 |
| 5:45 PM | 0 | 3 | 3 | 6 | 0 | 6 | 0 | 1 | 1 | | | 0 | 10 |
| 5:50 PM | 0 | 1 | 1 | 5 | 1 | 6 | 2 | 0 | 2 | | | 0 | 9 |
| 5:55 PM | 0 | 2 | 2 | 1 | 2 | 3 | 0 | 0 | 0 | | | 0 | 5 |
| Total Survey | 2 | 85 | 87 | 105 | 27 | 132 | 17 | 9 | 26 | | | 0 | 245 |

Heavy Vehicle 15-Minute Interval Summary

4:00 PM to 6:00 PM

| Interval Start Time | Northbound Hwy 213 | | | Southbound Hwy 213 | | | Eastbound Redland Rd | | | Westbound Redland Rd | | | Interval Total |
|---------------------------|-----------------------|----|-------|-----------------------|----|-------|-------------------------|---|-------|-------------------------|--|-------|-------------------|
| | L | T | Total | T | R | Total | L | R | Total | | | Total | |
| 4:00 PM | 1 | 19 | 20 | 17 | 3 | 20 | 3 | 4 | 7 | | | 0 | 47 |
| 4:15 PM | 0 | 13 | 13 | 21 | 5 | 26 | 1 | 0 | 1 | | | 0 | 40 |
| 4:30 PM | 0 | 13 | 13 | 13 | 4 | 17 | 4 | 1 | 5 | | | 0 | 35 |
| 4:45 PM | 0 | 8 | 8 | 12 | 6 | 18 | 1 | 1 | 2 | | | 0 | 28 |
| 5:00 PM | 0 | 12 | 12 | 8 | 2 | 10 | 2 | 1 | 3 | | | 0 | 25 |
| 5:15 PM | 1 | 6 | 7 | 12 | 1 | 13 | 2 | 1 | 3 | | | 0 | 23 |
| 5:30 PM | 0 | 8 | 8 | 10 | 3 | 13 | 2 | 0 | 2 | | | 0 | 23 |
| 5:45 PM | 0 | 6 | 6 | 12 | 3 | 15 | 2 | 1 | 3 | | | 0 | 24 |
| Total Survey | 2 | 85 | 87 | 105 | 27 | 132 | 17 | 9 | 26 | | | 0 | 245 |

Heavy Vehicle Peak Hour Summary

4:10 PM to 5:10 PM

| By Approach | Northbound Hwy 213 | | | Southbound Hwy 213 | | | Eastbound Redland Rd | | | Westbound Redland Rd | | | Total |
|-------------|-----------------------|-----|-------|-----------------------|-----|-------|-------------------------|-----|-------|-------------------------|-----|-------|-------|
| | In | Out | Total | In | Out | Total | In | Out | Total | In | Out | Total | |
| Volume | 49 | 59 | 108 | 71 | 58 | 129 | 13 | 16 | 29 | 0 | 0 | 0 | 133 |
| PHF | 0.77 | | | 0.68 | | | 0.65 | | | 0.00 | | | 0.77 |

| By Movement | Northbound Hwy 213 | | | Southbound Hwy 213 | | | Eastbound Redland Rd | | | Westbound Redland Rd | | | Total |
|-------------|-----------------------|------|-------|-----------------------|------|-------|-------------------------|------|-------|-------------------------|--|-------|-------|
| | L | T | Total | T | R | Total | L | R | Total | | | Total | |
| Volume | 0 | 49 | 49 | 55 | 16 | 71 | 9 | 4 | 13 | | | 0 | 133 |
| PHF | 0.00 | 0.77 | 0.77 | 0.63 | 0.67 | 0.68 | 0.56 | 0.50 | 0.65 | | | 0.00 | 0.77 |

Heavy Vehicle Rolling Hour Summary

4:00 PM to 6:00 PM

| Interval Start Time | Northbound Hwy 213 | | | Southbound Hwy 213 | | | Eastbound Redland Rd | | | Westbound Redland Rd | | | Interval Total |
|---------------------------|-----------------------|----|-------|-----------------------|----|-------|-------------------------|---|-------|-------------------------|--|-------|-------------------|
| | L | T | Total | T | R | Total | L | R | Total | | | Total | |
| 4:00 PM | 1 | 53 | 54 | 63 | 18 | 81 | 9 | 6 | 15 | | | 0 | 150 |
| 4:15 PM | 0 | 46 | 46 | 54 | 17 | 71 | 8 | 3 | 11 | | | 0 | 128 |
| 4:30 PM | 1 | 39 | 40 | 45 | 13 | 58 | 9 | 4 | 13 | | | 0 | 111 |
| 4:45 PM | 1 | 34 | 35 | 42 | 12 | 54 | 7 | 3 | 10 | | | 0 | 99 |
| 5:00 PM | 1 | 32 | 33 | 42 | 9 | 51 | 8 | 3 | 11 | | | 0 | 95 |

Peak Hour Summary

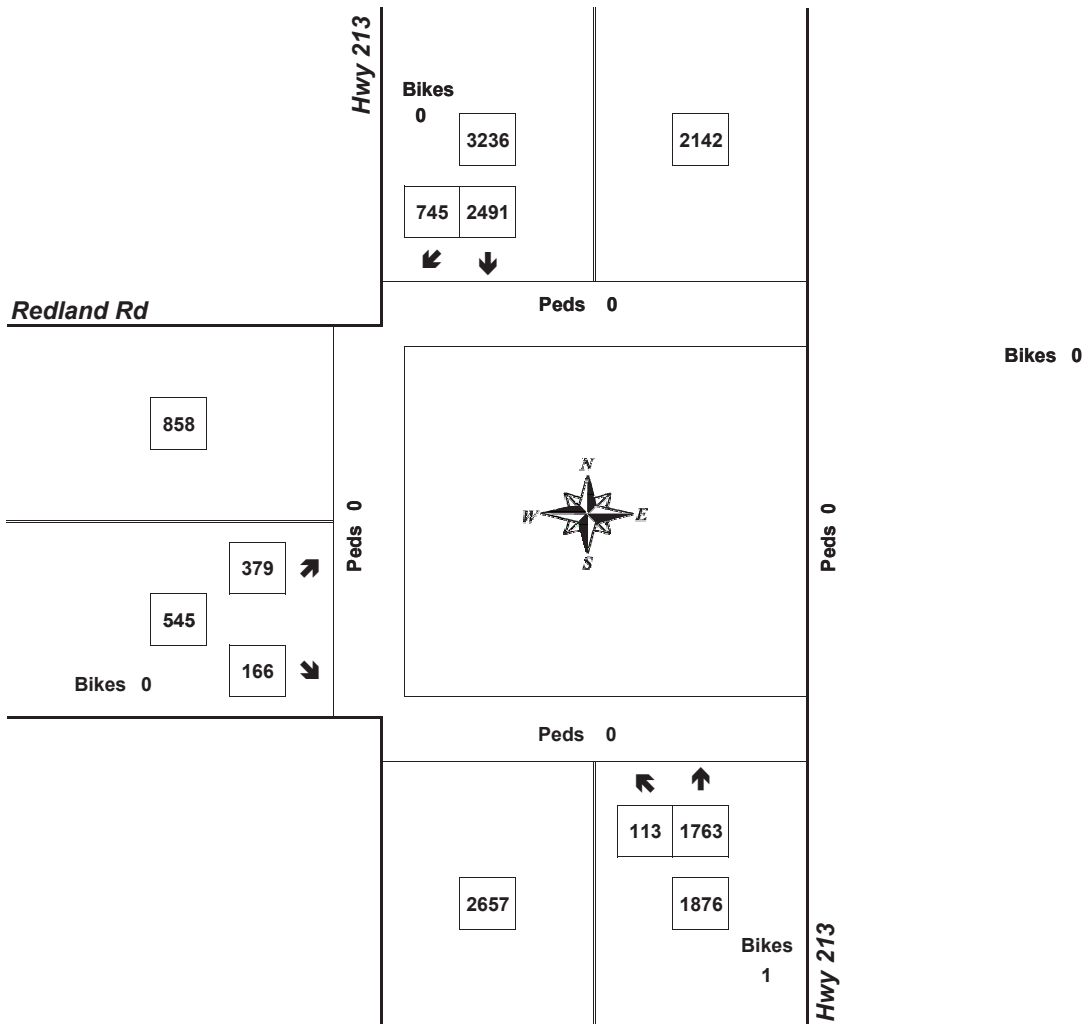


Clay Carney
(503) 833-2740

Hwy 213 & Redland Rd

4:10 PM to 5:10 PM

Tuesday, January 24, 2017



| Approach | PHF | HV% | Volume |
|---------------------|-------------|-------------|--------------|
| EB | 0.95 | 2.4% | 545 |
| WB | 0.00 | 0.0% | 0 |
| NB | 0.94 | 2.6% | 1,876 |
| SB | 0.96 | 2.2% | 3,236 |
| Intersection | 0.98 | 2.4% | 5,657 |

Count Period: 4:00 PM to 6:00 PM

Total Vehicle Summary

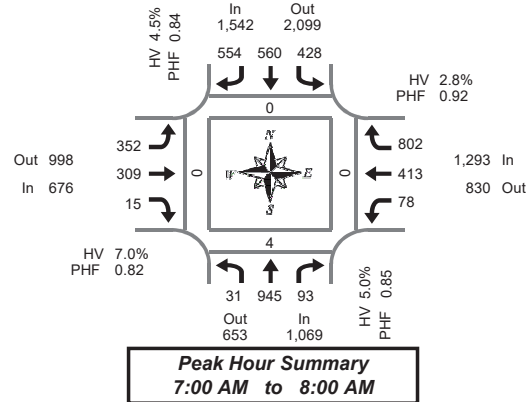


Clay Carney
(503) 833-2740

Hwy 213 & Beaver Creek Rd

Wednesday, January 25, 2017

7:00 AM to 9:00 AM



5-Minute Interval Summary

7:00 AM to 9:00 AM

| Interval Start Time | Northbound Hwy 213 | | | | Southbound Hwy 213 | | | | Eastbound Beaver Creek Rd | | | | Westbound Beaver Creek Rd | | | | Interval Total | Pedestrians Crosswalk | | | |
|---------------------------|-----------------------|-------|-----|-------|-----------------------|-------|-------|-------|------------------------------|-----|----|-------|------------------------------|-----|-------|-------|-------------------|--------------------------|-------|------|------|
| | L | T | R | Bikes | L | T | R | Bikes | L | T | R | Bikes | L | T | R | Bikes | | North | South | East | West |
| 7:00 AM | 4 | 71 | 11 | 0 | 27 | 28 | 50 | 0 | 26 | 20 | 2 | 0 | 6 | 25 | 67 | 0 | 337 | 0 | 0 | 0 | 0 |
| 7:05 AM | 2 | 64 | 7 | 0 | 28 | 34 | 46 | 0 | 32 | 27 | 2 | 0 | 3 | 35 | 58 | 0 | 338 | 0 | 0 | 0 | 0 |
| 7:10 AM | 1 | 80 | 9 | 0 | 33 | 32 | 35 | 0 | 29 | 33 | 2 | 0 | 9 | 32 | 66 | 0 | 361 | 0 | 1 | 0 | 0 |
| 7:15 AM | 3 | 93 | 10 | 0 | 34 | 32 | 36 | 0 | 24 | 35 | 1 | 0 | 5 | 31 | 73 | 0 | 377 | 0 | 0 | 0 | 0 |
| 7:20 AM | 4 | 91 | 10 | 0 | 44 | 48 | 54 | 0 | 36 | 31 | 1 | 0 | 10 | 37 | 65 | 0 | 431 | 0 | 0 | 0 | 0 |
| 7:25 AM | 5 | 90 | 8 | 0 | 38 | 49 | 40 | 0 | 25 | 53 | 1 | 0 | 5 | 39 | 71 | 0 | 424 | 0 | 0 | 0 | 0 |
| 7:30 AM | 1 | 78 | 8 | 0 | 32 | 49 | 39 | 0 | 31 | 28 | 0 | 0 | 10 | 34 | 69 | 0 | 379 | 0 | 0 | 0 | 0 |
| 7:35 AM | 2 | 81 | 4 | 0 | 31 | 56 | 53 | 0 | 30 | 23 | 2 | 0 | 6 | 44 | 72 | 0 | 404 | 0 | 1 | 0 | 0 |
| 7:40 AM | 1 | 83 | 8 | 0 | 37 | 57 | 41 | 0 | 32 | 18 | 2 | 0 | 5 | 28 | 71 | 0 | 383 | 0 | 1 | 0 | 0 |
| 7:45 AM | 3 | 64 | 6 | 0 | 54 | 64 | 51 | 0 | 26 | 13 | 2 | 0 | 7 | 32 | 68 | 0 | 390 | 0 | 0 | 0 | 0 |
| 7:50 AM | 3 | 71 | 5 | 0 | 38 | 50 | 52 | 0 | 27 | 12 | 0 | 0 | 8 | 32 | 60 | 0 | 358 | 0 | 1 | 0 | 0 |
| 7:55 AM | 2 | 79 | 7 | 0 | 32 | 61 | 57 | 0 | 34 | 16 | 0 | 0 | 4 | 44 | 62 | 0 | 398 | 0 | 0 | 0 | 0 |
| 8:00 AM | 4 | 69 | 7 | 0 | 21 | 45 | 55 | 0 | 24 | 13 | 2 | 0 | 11 | 21 | 54 | 0 | 326 | 0 | 0 | 0 | 0 |
| 8:05 AM | 4 | 75 | 6 | 0 | 34 | 49 | 63 | 0 | 18 | 15 | 0 | 0 | 9 | 18 | 57 | 0 | 348 | 0 | 0 | 0 | 0 |
| 8:10 AM | 6 | 73 | 7 | 0 | 15 | 38 | 42 | 0 | 25 | 14 | 5 | 0 | 6 | 24 | 66 | 0 | 321 | 0 | 0 | 0 | 0 |
| 8:15 AM | 3 | 65 | 14 | 0 | 23 | 38 | 47 | 0 | 38 | 19 | 2 | 0 | 7 | 32 | 38 | 0 | 326 | 1 | 0 | 0 | 0 |
| 8:20 AM | 4 | 54 | 14 | 0 | 40 | 53 | 66 | 0 | 27 | 18 | 0 | 0 | 3 | 27 | 43 | 0 | 349 | 0 | 2 | 0 | 2 |
| 8:25 AM | 6 | 75 | 10 | 0 | 23 | 45 | 42 | 0 | 25 | 11 | 2 | 0 | 9 | 20 | 30 | 0 | 298 | 0 | 1 | 0 | 0 |
| 8:30 AM | 2 | 48 | 3 | 0 | 34 | 51 | 53 | 0 | 27 | 13 | 3 | 0 | 6 | 33 | 65 | 0 | 338 | 0 | 0 | 0 | 0 |
| 8:35 AM | 3 | 70 | 5 | 0 | 25 | 47 | 48 | 0 | 27 | 20 | 2 | 0 | 6 | 27 | 44 | 0 | 324 | 0 | 0 | 0 | 0 |
| 8:40 AM | 2 | 51 | 8 | 0 | 39 | 72 | 33 | 0 | 34 | 18 | 4 | 0 | 7 | 27 | 44 | 0 | 339 | 0 | 1 | 0 | 0 |
| 8:45 AM | 1 | 84 | 6 | 0 | 30 | 58 | 40 | 0 | 23 | 10 | 6 | 0 | 14 | 48 | 45 | 0 | 365 | 0 | 0 | 0 | 0 |
| 8:50 AM | 3 | 60 | 7 | 0 | 40 | 48 | 51 | 0 | 37 | 32 | 1 | 0 | 4 | 36 | 38 | 0 | 357 | 0 | 0 | 0 | 0 |
| 8:55 AM | 9 | 56 | 7 | 0 | 33 | 57 | 46 | 0 | 14 | 16 | 1 | 0 | 4 | 31 | 39 | 0 | 313 | 0 | 0 | 0 | 0 |
| Total Survey | 78 | 1,725 | 187 | 0 | 785 | 1,161 | 1,140 | 0 | 671 | 508 | 43 | 0 | 164 | 757 | 1,365 | 0 | 8,584 | 1 | 8 | 0 | 2 |

15-Minute Interval Summary

7:00 AM to 9:00 AM

| Interval Start Time | Northbound Hwy 213 | | | | Southbound Hwy 213 | | | | Eastbound Beaver Creek Rd | | | | Westbound Beaver Creek Rd | | | | Interval Total | Pedestrians Crosswalk | | | |
|---------------------------|-----------------------|-------|-----|-------|-----------------------|-------|-------|-------|------------------------------|-----|----|-------|------------------------------|-----|-------|-------|-------------------|--------------------------|-------|------|------|
| | L | T | R | Bikes | L | T | R | Bikes | L | T | R | Bikes | L | T | R | Bikes | | North | South | East | West |
| 7:00 AM | 7 | 215 | 27 | 0 | 88 | 94 | 131 | 0 | 87 | 80 | 6 | 0 | 18 | 92 | 191 | 0 | 1,036 | 0 | 1 | 0 | 0 |
| 7:15 AM | 12 | 274 | 28 | 0 | 116 | 129 | 130 | 0 | 85 | 119 | 3 | 0 | 20 | 107 | 209 | 0 | 1,232 | 0 | 0 | 0 | 0 |
| 7:30 AM | 4 | 242 | 20 | 0 | 100 | 162 | 133 | 0 | 93 | 69 | 4 | 0 | 21 | 106 | 212 | 0 | 1,166 | 0 | 2 | 0 | 0 |
| 7:45 AM | 8 | 214 | 18 | 0 | 124 | 175 | 160 | 0 | 87 | 41 | 2 | 0 | 19 | 108 | 190 | 0 | 1,146 | 0 | 1 | 0 | 0 |
| 8:00 AM | 14 | 217 | 20 | 0 | 70 | 132 | 160 | 0 | 67 | 42 | 7 | 0 | 26 | 63 | 177 | 0 | 995 | 0 | 0 | 0 | 0 |
| 8:15 AM | 13 | 194 | 38 | 0 | 86 | 136 | 155 | 0 | 90 | 48 | 4 | 0 | 19 | 79 | 111 | 0 | 973 | 1 | 3 | 0 | 2 |
| 8:30 AM | 7 | 169 | 16 | 0 | 98 | 170 | 134 | 0 | 88 | 51 | 9 | 0 | 19 | 87 | 153 | 0 | 1,001 | 0 | 1 | 0 | 0 |
| 8:45 AM | 13 | 200 | 20 | 0 | 103 | 163 | 137 | 0 | 74 | 58 | 8 | 0 | 22 | 115 | 122 | 0 | 1,035 | 0 | 0 | 0 | 0 |
| Total Survey | 78 | 1,725 | 187 | 0 | 785 | 1,161 | 1,140 | 0 | 671 | 508 | 43 | 0 | 164 | 757 | 1,365 | 0 | 8,584 | 1 | 8 | 0 | 2 |

Peak Hour Summary

7:00 AM to 8:00 AM

| By Approach | Northbound Hwy 213 | | | | Southbound Hwy 213 | | | | Eastbound Beaver Creek Rd | | | | Westbound Beaver Creek Rd | | | | Total | Pedestrians Crosswalk | | | |
|----------------|-----------------------|-----|-------|-------|-----------------------|-------|-------|-------|------------------------------|-----|-------|-------|------------------------------|-----|-------|-------|-------|--------------------------|-------|------|------|
| | In | Out | Total | Bikes | In | Out | Total | Bikes | In | Out | Total | Bikes | In | Out | Total | Bikes | | North | South | East | West |
| Volume | 1,069 | 653 | 1,722 | 0 | 1,542 | 2,099 | 3,641 | 0 | 676 | 998 | 1,674 | 0 | 1,293 | 830 | 2,123 | 0 | 4,580 | 0 | 4 | 0 | 0 |
| %HV | 5.0% | | | | 4.5% | | | | 7.0% | | | | 2.8% | | | | 4.5% | | | | |
| PHF | 0.85 | | | | 0.84 | | | | 0.82 | | | | 0.82 | | | | 0.93 | | | | |

| By Movement | Northbound Hwy 213 | | | | Southbound Hwy 213 | | | | Eastbound Beaver Creek Rd | | | | Westbound Beaver Creek Rd | | | | Total |
|----------------|-----------------------|------|------|-------|-----------------------|------|------|-------|------------------------------|------|-------|-------|------------------------------|------|------|-------|-------|
| | L | T | R | Total | L | T | R | Total | L | T | R | Total | L | T | R | Total | |
| Volume | 31 | 945 | 93 | 1,069 | 428 | 560 | 554 | 1,542 | 352 | 309 | 15 | 676 | 78 | 413 | 802 | 1,293 | 4,580 |
| %HV | 9.7% | 5.1% | 2.2% | 5.0% | 3.0% | 7.0% | 3.1% | 4.5% | 8.5% | 4.5% | 20.0% | 7.0% | 2.6% | 3.9% | 2.2% | 2.8% | 4.5% |
| PHF | 0.65 | 0.86 | 0.80 | 0.85 | 0.83 | 0.79 | 0.87 | 0.84 | 0.95 | 0.65 | 0.63 | 0.82 | 0.78 | 0.88 | 0.95 | 0.92 | 0.93 |

Rolling Hour Summary

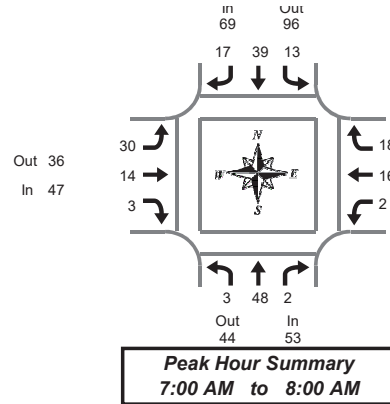
7:00 AM to 9:00 AM

| Interval Start Time | Northbound Hwy 213 | | | | Southbound Hwy 213 | | | | Eastbound Beaver Creek Rd | | | | Westbound Beaver Creek Rd | | | | Interval Total | Pedestrians Crosswalk | | | |
|---------------------------|-----------------------|-----|----|-------|-----------------------|-----|-----|-------|------------------------------|-----|----|-------|------------------------------|-----|-----|-------|-------------------|--------------------------|-------|------|------|
| | L | T | R | Bikes | L | T | R | Bikes | L | T | R | Bikes | L | T | R | Bikes | | North | South | East | West |
| 7:00 AM | 31 | 945 | 93 | 0 | 428 | 560 | 554 | 0 | 352 | 309 | 15 | 0 | 78 | 413 | 802 | 0 | 4,580 | 0 | 4 | 0 | 0 |
| 7:15 AM | 38 | 947 | 86 | 0 | 410 | 598 | 583 | 0 | 332 | 271 | 16 | 0 | 86 | 384 | 788 | 0 | 4,539 | 0 | 3 | 0 | 0 |
| 7:30 AM | 39 | 867 | 96 | 0 | 380 | 605 | 608 | 0 | 337 | 200 | 17 | 0 | 85 | 356 | 690 | 0 | 4,280 | 1 | 6 | 0 | 2 |
| 7:45 AM | 42 | 794 | 92 | 0 | 378 | 613 | 609 | 0 | 332 | 182 | 22 | 0 | 83 | 337 | 631 | 0 | 4,115 | 1 | 5 | 0 | 2 |
| 8:00 AM | 47 | 780 | 94 | 0 | 357 | 601 | 586 | 0 | 319 | 199 | 28 | 0 | 86 | 344 | 563 | 0 | 4,004 | 1 | 4 | 0 | 2 |

Heavy Vehicle Summary



Clay Carney
(503) 833-2740



Hwy 213 & Beaver Creek Rd

Wednesday, January 25, 2017

7:00 AM to 9:00 AM

Heavy Vehicle 5-Minute Interval Summary

7:00 AM to 9:00 AM

| Interval Start Time | Northbound Hwy 213 | | | | Southbound Hwy 213 | | | | Eastbound Beaver Creek Rd | | | | Westbound Beaver Creek Rd | | | | Interval Total |
|---------------------------|-----------------------|----|---|-------|-----------------------|----|----|-------|------------------------------|----|---|-------|------------------------------|----|----|-------|-------------------|
| | L | T | R | Total | L | T | R | Total | L | T | R | Total | L | T | R | Total | |
| 7:00 AM | 1 | 1 | 1 | 3 | 2 | 1 | 0 | 3 | 0 | 4 | 0 | 4 | 0 | 1 | 1 | 2 | 12 |
| 7:05 AM | 0 | 5 | 0 | 5 | 2 | 3 | 4 | 9 | 2 | 2 | 0 | 4 | 0 | 5 | 2 | 7 | 25 |
| 7:10 AM | 0 | 10 | 0 | 10 | 0 | 2 | 0 | 2 | 3 | 1 | 1 | 5 | 1 | 3 | 2 | 6 | 23 |
| 7:15 AM | 0 | 3 | 0 | 3 | 0 | 4 | 1 | 5 | 2 | 2 | 0 | 4 | 0 | 2 | 0 | 2 | 14 |
| 7:20 AM | 1 | 2 | 0 | 3 | 1 | 5 | 4 | 10 | 4 | 0 | 1 | 5 | 1 | 4 | 1 | 6 | 24 |
| 7:25 AM | 0 | 4 | 0 | 4 | 0 | 6 | 1 | 7 | 1 | 2 | 0 | 3 | 0 | 1 | 2 | 3 | 17 |
| 7:30 AM | 0 | 5 | 1 | 6 | 3 | 2 | 1 | 6 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 13 |
| 7:35 AM | 1 | 1 | 0 | 2 | 0 | 3 | 2 | 5 | 2 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 9 |
| 7:40 AM | 0 | 5 | 0 | 5 | 0 | 2 | 0 | 2 | 4 | 0 | 1 | 5 | 0 | 0 | 2 | 2 | 14 |
| 7:45 AM | 0 | 3 | 0 | 3 | 2 | 4 | 1 | 7 | 6 | 1 | 0 | 7 | 0 | 0 | 2 | 2 | 19 |
| 7:50 AM | 0 | 5 | 0 | 5 | 3 | 3 | 3 | 9 | 3 | 1 | 0 | 4 | 0 | 0 | 1 | 1 | 19 |
| 7:55 AM | 0 | 4 | 0 | 4 | 0 | 4 | 0 | 4 | 3 | 0 | 0 | 3 | 0 | 0 | 5 | 5 | 16 |
| 8:00 AM | 0 | 1 | 1 | 2 | 0 | 2 | 2 | 4 | 1 | 0 | 0 | 1 | 0 | 0 | 2 | 2 | 9 |
| 8:05 AM | 1 | 6 | 1 | 8 | 2 | 3 | 1 | 6 | 1 | 1 | 0 | 2 | 0 | 1 | 0 | 1 | 17 |
| 8:10 AM | 0 | 5 | 2 | 7 | 2 | 4 | 1 | 7 | 2 | 0 | 1 | 3 | 2 | 0 | 3 | 5 | 22 |
| 8:15 AM | 0 | 4 | 0 | 4 | 1 | 6 | 1 | 8 | 1 | 1 | 0 | 2 | 1 | 1 | 0 | 2 | 16 |
| 8:20 AM | 0 | 3 | 1 | 4 | 1 | 3 | 5 | 9 | 5 | 0 | 0 | 5 | 1 | 1 | 0 | 2 | 20 |
| 8:25 AM | 0 | 2 | 1 | 3 | 2 | 8 | 1 | 11 | 1 | 0 | 0 | 1 | 0 | 2 | 0 | 2 | 17 |
| 8:30 AM | 0 | 8 | 0 | 8 | 2 | 7 | 2 | 11 | 3 | 0 | 1 | 4 | 1 | 1 | 4 | 6 | 29 |
| 8:35 AM | 1 | 8 | 0 | 9 | 0 | 2 | 0 | 2 | 2 | 1 | 0 | 3 | 0 | 0 | 0 | 0 | 14 |
| 8:40 AM | 0 | 5 | 0 | 5 | 0 | 6 | 3 | 9 | 1 | 2 | 1 | 4 | 0 | 0 | 1 | 1 | 19 |
| 8:45 AM | 0 | 4 | 0 | 4 | 0 | 4 | 2 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 2 | 12 |
| 8:50 AM | 0 | 3 | 0 | 3 | 0 | 2 | 3 | 5 | 2 | 0 | 0 | 2 | 0 | 2 | 2 | 4 | 14 |
| 8:55 AM | 0 | 1 | 0 | 1 | 1 | 13 | 3 | 17 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 18 |
| Total Survey | 5 | 98 | 8 | 111 | 24 | 99 | 41 | 164 | 49 | 19 | 6 | 74 | 7 | 24 | 32 | 63 | 412 |

Heavy Vehicle 15-Minute Interval Summary

7:00 AM to 9:00 AM

| Interval Start Time | Northbound Hwy 213 | | | | Southbound Hwy 213 | | | | Eastbound Beaver Creek Rd | | | | Westbound Beaver Creek Rd | | | | Interval Total |
|---------------------------|-----------------------|----|---|-------|-----------------------|----|----|-------|------------------------------|----|---|-------|------------------------------|----|----|-------|-------------------|
| | L | T | R | Total | L | T | R | Total | L | T | R | Total | L | T | R | Total | |
| 7:00 AM | 1 | 16 | 1 | 18 | 4 | 6 | 4 | 14 | 5 | 7 | 1 | 13 | 1 | 9 | 5 | 15 | 60 |
| 7:15 AM | 1 | 9 | 0 | 10 | 1 | 15 | 6 | 22 | 7 | 4 | 1 | 12 | 1 | 7 | 3 | 11 | 55 |
| 7:30 AM | 1 | 11 | 1 | 13 | 3 | 7 | 3 | 13 | 6 | 1 | 1 | 8 | 0 | 0 | 2 | 2 | 36 |
| 7:45 AM | 0 | 12 | 0 | 12 | 5 | 11 | 4 | 20 | 12 | 2 | 0 | 14 | 0 | 0 | 8 | 8 | 54 |
| 8:00 AM | 1 | 12 | 4 | 17 | 4 | 9 | 4 | 17 | 4 | 1 | 1 | 6 | 2 | 1 | 5 | 8 | 48 |
| 8:15 AM | 0 | 9 | 2 | 11 | 4 | 17 | 7 | 28 | 7 | 1 | 0 | 8 | 2 | 4 | 0 | 6 | 53 |
| 8:30 AM | 1 | 21 | 0 | 22 | 2 | 15 | 5 | 22 | 6 | 3 | 2 | 11 | 1 | 1 | 5 | 7 | 62 |
| 8:45 AM | 0 | 8 | 0 | 8 | 1 | 19 | 8 | 28 | 2 | 0 | 0 | 2 | 0 | 2 | 4 | 6 | 44 |
| Total Survey | 5 | 98 | 8 | 111 | 24 | 99 | 41 | 164 | 49 | 19 | 6 | 74 | 7 | 24 | 32 | 63 | 412 |

Heavy Vehicle Peak Hour Summary

7:00 AM to 8:00 AM

| By Approach | Northbound Hwy 213 | | | Southbound Hwy 213 | | | Eastbound Beaver Creek Rd | | | Westbound Beaver Creek Rd | | | Total |
|----------------|-----------------------|-----|-------|-----------------------|-----|-------|------------------------------|-----|-------|------------------------------|-----|-------|-------|
| | In | Out | Total | In | Out | Total | In | Out | Total | In | Out | Total | |
| Volume | 53 | 44 | 97 | 69 | 96 | 165 | 47 | 36 | 83 | 36 | 29 | 65 | 205 |
| PHF | 0.74 | | | 0.75 | | | 0.73 | | | 0.60 | | | 0.83 |

| By Movement | Northbound Hwy 213 | | | | Southbound Hwy 213 | | | | Eastbound Beaver Creek Rd | | | | Westbound Beaver Creek Rd | | | | Total |
|----------------|-----------------------|------|------|-------|-----------------------|------|------|-------|------------------------------|------|------|-------|------------------------------|------|------|-------|-------|
| | L | T | R | Total | L | T | R | Total | L | T | R | Total | L | T | R | Total | |
| Volume | 3 | 48 | 2 | 53 | 13 | 39 | 17 | 69 | 30 | 14 | 3 | 47 | 2 | 16 | 18 | 36 | 205 |
| PHF | 0.75 | 0.67 | 0.50 | 0.74 | 0.65 | 0.65 | 0.71 | 0.75 | 0.58 | 0.50 | 0.38 | 0.73 | 0.25 | 0.40 | 0.56 | 0.60 | 0.83 |

Heavy Vehicle Rolling Hour Summary

7:00 AM to 9:00 AM

| Interval Start Time | Northbound Hwy 213 | | | | Southbound Hwy 213 | | | | Eastbound Beaver Creek Rd | | | | Westbound Beaver Creek Rd | | | | Interval Total |
|---------------------------|-----------------------|----|---|-------|-----------------------|----|----|-------|------------------------------|----|---|-------|------------------------------|----|----|-------|-------------------|
| | L | T | R | Total | L | T | R | Total | L | T | R | Total | L | T | R | Total | |
| 7:00 AM | 3 | 48 | 2 | 53 | 13 | 39 | 17 | 69 | 30 | 14 | 3 | 47 | 2 | 16 | 18 | 36 | 205 |
| 7:15 AM | 3 | 44 | 5 | 52 | 13 | 42 | 17 | 72 | 29 | 8 | 3 | 40 | 3 | 8 | 18 | 29 | 193 |
| 7:30 AM | 2 | 44 | 7 | 53 | 16 | 44 | 18 | 78 | 29 | 5 | 2 | 36 | 4 | 5 | 15 | 24 | 191 |
| 7:45 AM | 2 | 54 | 6 | 62 | 15 | 52 | 20 | 87 | 29 | 7 | 3 | 39 | 5 | 6 | 18 | 29 | 217 |
| 8:00 AM | 2 | 50 | 6 | 58 | 11 | 60 | 24 | 95 | 19 | 5 | 3 | 27 | 5 | 8 | 14 | 27 | 207 |

Peak Hour Summary

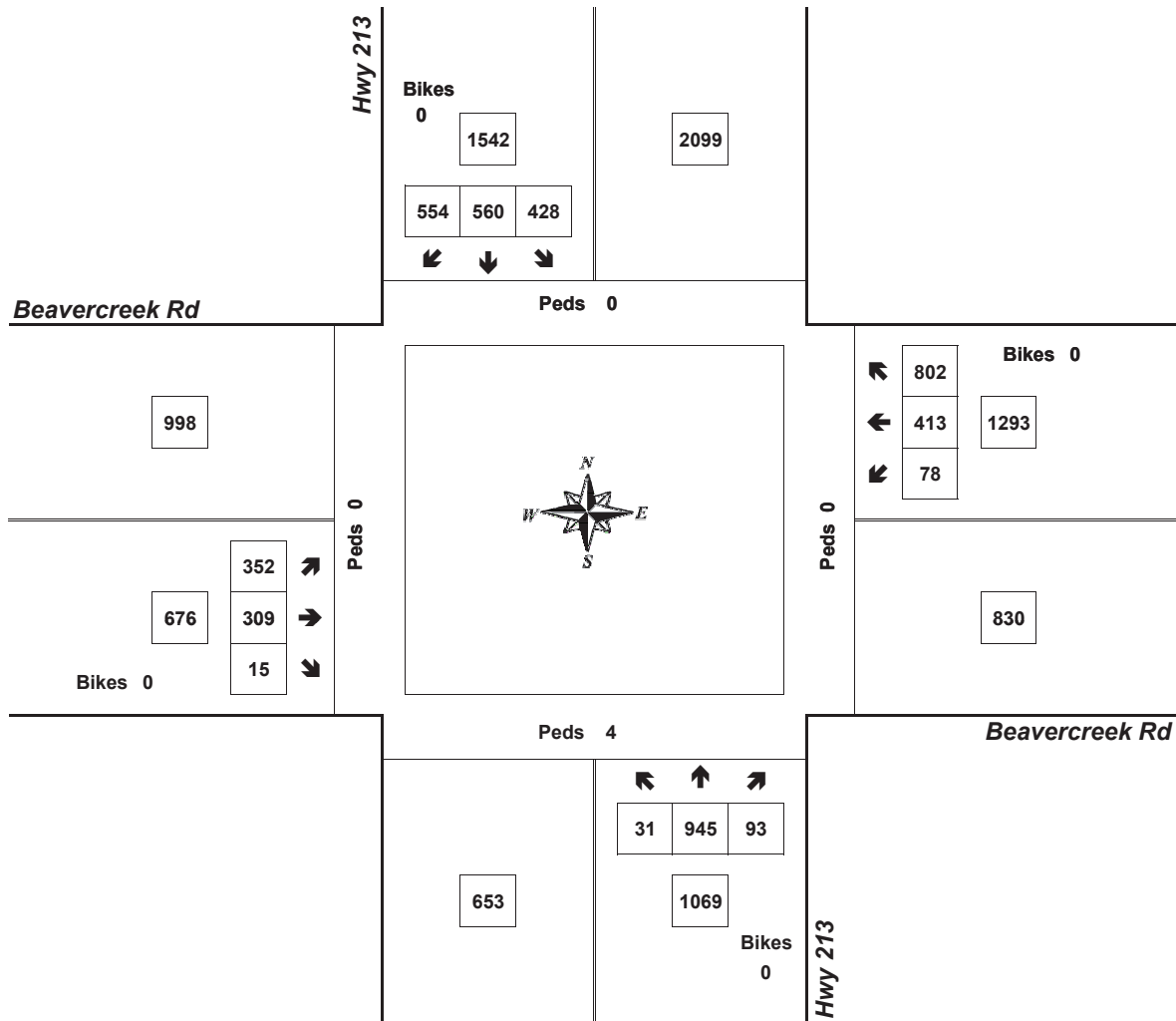


Clay Carney
(503) 833-2740

Hwy 213 & Beavercreek Rd

7:00 AM to 8:00 AM

Wednesday, January 25, 2017



| Approach | PHF | HV% | Volume |
|--------------|------|------|--------|
| EB | 0.82 | 7.0% | 676 |
| WB | 0.92 | 2.8% | 1,293 |
| NB | 0.85 | 5.0% | 1,069 |
| SB | 0.84 | 4.5% | 1,542 |
| Intersection | 0.93 | 4.5% | 4,580 |

Count Period: 7:00 AM to 9:00 AM

Total Vehicle Summary



Clay Carney
(503) 833-2740

Hwy 213 & Beaver Creek Rd

Tuesday, January 24, 2017

4:00 PM to 6:00 PM

5-Minute Interval Summary

4:00 PM to 6:00 PM

| Interval Start Time | Northbound Hwy 213 | | | | Southbound Hwy 213 | | | | Eastbound Beaver Creek Rd | | | | Westbound Beaver Creek Rd | | | | Interval Total | Pedestrians Crosswalk | | | |
|---------------------------|-----------------------|-------|-----|-------|-----------------------|-------|-------|-------|------------------------------|-------|-----|-------|------------------------------|-----|-----|-------|-------------------|--------------------------|-------|------|------|
| | L | T | R | Bikes | L | T | R | Bikes | L | T | R | Bikes | L | T | R | Bikes | | North | South | East | West |
| 4:00 PM | 6 | 48 | 10 | 0 | 76 | 94 | 49 | 0 | 57 | 69 | 4 | 0 | 9 | 33 | 29 | 0 | 484 | 0 | 0 | 0 | 0 |
| 4:05 PM | 2 | 69 | 15 | 0 | 56 | 88 | 54 | 0 | 62 | 54 | 4 | 0 | 11 | 37 | 35 | 0 | 487 | 0 | 0 | 0 | 0 |
| 4:10 PM | 8 | 67 | 7 | 0 | 47 | 90 | 82 | 0 | 55 | 58 | 8 | 0 | 10 | 39 | 38 | 0 | 509 | 0 | 0 | 0 | 0 |
| 4:15 PM | 4 | 67 | 8 | 0 | 40 | 91 | 78 | 0 | 48 | 36 | 3 | 0 | 7 | 42 | 45 | 0 | 469 | 0 | 0 | 0 | 0 |
| 4:20 PM | 0 | 46 | 7 | 0 | 61 | 89 | 66 | 0 | 59 | 62 | 4 | 0 | 9 | 36 | 36 | 0 | 455 | 0 | 2 | 0 | 0 |
| 4:25 PM | 1 | 51 | 21 | 0 | 53 | 91 | 56 | 0 | 26 | 59 | 8 | 0 | 13 | 45 | 29 | 0 | 453 | 3 | 1 | 0 | 2 |
| 4:30 PM | 5 | 69 | 9 | 0 | 63 | 115 | 66 | 0 | 59 | 39 | 2 | 0 | 15 | 33 | 29 | 0 | 504 | 0 | 0 | 0 | 0 |
| 4:35 PM | 2 | 68 | 12 | 0 | 60 | 105 | 72 | 0 | 65 | 67 | 4 | 0 | 6 | 20 | 33 | 0 | 514 | 0 | 0 | 0 | 0 |
| 4:40 PM | 4 | 45 | 10 | 1 | 72 | 101 | 64 | 0 | 63 | 63 | 7 | 0 | 15 | 42 | 39 | 0 | 525 | 1 | 1 | 1 | 0 |
| 4:45 PM | 3 | 56 | 10 | 0 | 74 | 102 | 58 | 0 | 61 | 60 | 6 | 0 | 17 | 37 | 40 | 0 | 524 | 0 | 0 | 0 | 2 |
| 4:50 PM | 2 | 53 | 15 | 0 | 46 | 74 | 56 | 0 | 66 | 65 | 12 | 0 | 8 | 38 | 46 | 0 | 481 | 0 | 1 | 0 | 0 |
| 4:55 PM | 3 | 75 | 18 | 0 | 46 | 86 | 64 | 0 | 59 | 62 | 5 | 0 | 12 | 36 | 42 | 0 | 508 | 0 | 0 | 0 | 0 |
| 5:00 PM | 6 | 70 | 9 | 0 | 75 | 94 | 64 | 0 | 51 | 47 | 6 | 0 | 14 | 36 | 39 | 0 | 511 | 0 | 1 | 0 | 0 |
| 5:05 PM | 5 | 61 | 8 | 0 | 59 | 107 | 61 | 0 | 41 | 55 | 7 | 0 | 19 | 33 | 45 | 0 | 501 | 0 | 1 | 0 | 1 |
| 5:10 PM | 4 | 66 | 14 | 0 | 74 | 103 | 80 | 0 | 56 | 52 | 9 | 0 | 10 | 20 | 33 | 0 | 521 | 0 | 0 | 0 | 0 |
| 5:15 PM | 2 | 59 | 10 | 0 | 78 | 97 | 47 | 0 | 66 | 68 | 5 | 0 | 8 | 32 | 29 | 0 | 501 | 0 | 1 | 0 | 0 |
| 5:20 PM | 5 | 38 | 13 | 0 | 70 | 84 | 60 | 0 | 61 | 72 | 5 | 0 | 8 | 41 | 34 | 0 | 491 | 0 | 0 | 0 | 0 |
| 5:25 PM | 5 | 54 | 12 | 0 | 64 | 89 | 46 | 0 | 41 | 67 | 7 | 0 | 11 | 33 | 32 | 0 | 461 | 0 | 1 | 0 | 0 |
| 5:30 PM | 1 | 32 | 12 | 0 | 60 | 88 | 55 | 0 | 71 | 58 | 6 | 0 | 10 | 34 | 35 | 0 | 462 | 0 | 0 | 0 | 0 |
| 5:35 PM | 7 | 48 | 15 | 0 | 78 | 100 | 58 | 0 | 57 | 66 | 4 | 0 | 10 | 29 | 32 | 0 | 504 | 0 | 0 | 0 | 0 |
| 5:40 PM | 1 | 63 | 10 | 0 | 54 | 64 | 45 | 0 | 64 | 63 | 7 | 0 | 8 | 37 | 33 | 0 | 449 | 0 | 1 | 0 | 0 |
| 5:45 PM | 0 | 43 | 16 | 0 | 76 | 101 | 46 | 0 | 66 | 54 | 5 | 0 | 9 | 36 | 32 | 0 | 484 | 0 | 2 | 0 | 1 |
| 5:50 PM | 4 | 48 | 11 | 0 | 93 | 83 | 55 | 0 | 33 | 61 | 8 | 0 | 6 | 32 | 37 | 0 | 471 | 0 | 0 | 0 | 0 |
| 5:55 PM | 4 | 52 | 6 | 0 | 53 | 78 | 52 | 0 | 47 | 65 | 4 | 0 | 16 | 36 | 35 | 0 | 448 | 0 | 0 | 0 | 0 |
| Total Survey | 84 | 1,348 | 278 | 1 | 1,528 | 2,194 | 1,434 | 0 | 1,334 | 1,422 | 140 | 0 | 261 | 837 | 857 | 0 | 11,717 | 4 | 12 | 1 | 6 |

15-Minute Interval Summary

4:00 PM to 6:00 PM

| Interval Start Time | Northbound Hwy 213 | | | | Southbound Hwy 213 | | | | Eastbound Beaver Creek Rd | | | | Westbound Beaver Creek Rd | | | | Interval Total | Pedestrians Crosswalk | | | |
|---------------------------|-----------------------|-------|-----|-------|-----------------------|-------|-------|-------|------------------------------|-------|-----|-------|------------------------------|-----|-----|-------|-------------------|--------------------------|-------|------|------|
| | L | T | R | Bikes | L | T | R | Bikes | L | T | R | Bikes | L | T | R | Bikes | | North | South | East | West |
| 4:00 PM | 16 | 184 | 32 | 0 | 179 | 272 | 185 | 0 | 174 | 181 | 16 | 0 | 30 | 109 | 102 | 0 | 1,480 | 0 | 0 | 0 | 0 |
| 4:15 PM | 5 | 164 | 36 | 0 | 154 | 251 | 200 | 0 | 133 | 157 | 15 | 0 | 29 | 123 | 110 | 0 | 1,377 | 3 | 3 | 0 | 2 |
| 4:30 PM | 11 | 182 | 31 | 1 | 195 | 321 | 202 | 0 | 187 | 169 | 13 | 0 | 36 | 95 | 101 | 0 | 1,543 | 1 | 1 | 1 | 0 |
| 4:45 PM | 8 | 184 | 43 | 0 | 166 | 262 | 178 | 0 | 186 | 187 | 23 | 0 | 37 | 111 | 128 | 0 | 1,513 | 0 | 1 | 0 | 2 |
| 5:00 PM | 15 | 197 | 31 | 0 | 208 | 304 | 205 | 0 | 148 | 154 | 22 | 0 | 43 | 89 | 117 | 0 | 1,533 | 0 | 2 | 0 | 1 |
| 5:15 PM | 12 | 151 | 35 | 0 | 212 | 270 | 153 | 0 | 168 | 207 | 17 | 0 | 27 | 106 | 95 | 0 | 1,453 | 0 | 2 | 0 | 0 |
| 5:30 PM | 9 | 143 | 37 | 0 | 192 | 252 | 158 | 0 | 192 | 187 | 17 | 0 | 28 | 100 | 100 | 0 | 1,415 | 0 | 1 | 0 | 0 |
| 5:45 PM | 8 | 143 | 33 | 0 | 222 | 262 | 153 | 0 | 146 | 180 | 17 | 0 | 31 | 104 | 104 | 0 | 1,403 | 0 | 2 | 0 | 1 |
| Total Survey | 84 | 1,348 | 278 | 1 | 1,528 | 2,194 | 1,434 | 0 | 1,334 | 1,422 | 140 | 0 | 261 | 837 | 857 | 0 | 11,717 | 4 | 12 | 1 | 6 |

Peak Hour Summary

4:30 PM to 5:30 PM

| By Approach | Northbound Hwy 213 | | | | Southbound Hwy 213 | | | | Eastbound Beaver Creek Rd | | | | Westbound Beaver Creek Rd | | | | Total | Pedestrians Crosswalk | | | |
|-------------|-----------------------|-------|-------|-------|-----------------------|-------|-------|-------|------------------------------|-------|-------|-------|------------------------------|-------|-------|-------|-------|--------------------------|-------|------|------|
| | In | Out | Total | Bikes | In | Out | Total | Bikes | In | Out | Total | Bikes | In | Out | Total | Bikes | | North | South | East | West |
| Volume | 900 | 1,375 | 2,275 | 1 | 2,676 | 1,844 | 4,520 | 0 | 1,481 | 1,185 | 2,666 | 0 | 985 | 1,638 | 2,623 | 0 | 6,042 | 1 | 6 | 1 | 3 |
| %HV | | 3.3% | | | | 1.6% | | | | 0.9% | | | | 1.3% | | | 1.7% | | | | |
| PHF | | 0.88 | | | | 0.93 | | | | 0.92 | | | | 0.87 | | | 0.97 | | | | |

| By Movement | Northbound Hwy 213 | | | | Southbound Hwy 213 | | | | Eastbound Beaver Creek Rd | | | | Westbound Beaver Creek Rd | | | | Total |
|-------------|-----------------------|------|------|-------|-----------------------|-------|------|-------|------------------------------|------|------|-------|------------------------------|------|------|-------|-------|
| | L | T | R | Total | L | T | R | Total | L | T | R | Total | L | T | R | Total | |
| Volume | 46 | 714 | 140 | 900 | 781 | 1,157 | 738 | 2,676 | 689 | 717 | 75 | 1,481 | 143 | 401 | 441 | 985 | 6,042 |
| %HV | 6.5% | 3.6% | 0.7% | 3.3% | 1.2% | 2.0% | 1.5% | 1.6% | 0.6% | 1.1% | 2.7% | 0.9% | 1.4% | 1.7% | 0.9% | 1.3% | 1.7% |
| PHF | 0.77 | 0.87 | 0.81 | 0.88 | 0.88 | 0.90 | 0.90 | 0.93 | 0.91 | 0.87 | 0.75 | 0.92 | 0.79 | 0.86 | 0.86 | 0.87 | 0.97 |

Rolling Hour Summary

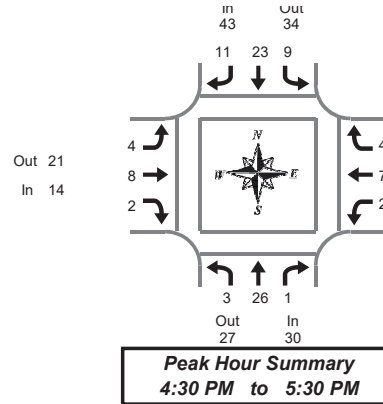
4:00 PM to 6:00 PM

| Interval Start Time | Northbound Hwy 213 | | | | Southbound Hwy 213 | | | | Eastbound Beaver Creek Rd | | | | Westbound Beaver Creek Rd | | | | Interval Total | Pedestrians Crosswalk | | | |
|---------------------------|-----------------------|-----|-----|-------|-----------------------|-------|-----|-------|------------------------------|-----|----|-------|------------------------------|-----|-----|-------|-------------------|--------------------------|-------|------|------|
| | L | T | R | Bikes | L | T | R | Bikes | L | T | R | Bikes | L | T | R | Bikes | | North | South | East | West |
| 4:00 PM | 40 | 714 | 142 | 1 | 694 | 1,106 | 765 | 0 | 680 | 694 | 67 | 0 | 132 | 438 | 441 | 0 | 5,913 | 4 | 5 | 1 | 4 |
| 4:15 PM | 39 | 727 | 141 | 1 | 723 | 1,138 | 785 | 0 | 654 | 667 | 73 | 0 | 145 | 418 | 456 | 0 | 5,966 | 4 | 7 | 1 | 5 |
| 4:30 PM | 46 | 714 | 140 | 1 | 781 | 1,157 | 738 | 0 | 689 | 717 | 75 | 0 | 143 | 401 | 441 | 0 | 6,042 | 1 | 6 | 1 | 3 |
| 4:45 PM | 44 | 675 | 146 | 0 | 778 | 1,088 | 694 | 0 | 694 | 735 | 79 | 0 | 135 | 406 | 440 | 0 | 5,914 | 0 | 6 | 0 | 3 |
| 5:00 PM | 44 | 634 | 136 | 0 | 834 | 1,088 | 669 | 0 | 654 | 728 | 73 | 0 | 129 | 399 | 416 | 0 | 5,804 | 0 | 7 | 0 | 2 |

Heavy Vehicle Summary



Clay Carney
(503) 833-2740



Hwy 213 & Beaver Creek Rd

Tuesday, January 24, 2017

4:00 PM to 6:00 PM

Heavy Vehicle 5-Minute Interval Summary

4:00 PM to 6:00 PM

| Interval Start Time | Northbound Hwy 213 | | | | Southbound Hwy 213 | | | | Eastbound Beaver Creek Rd | | | | Westbound Beaver Creek Rd | | | | Interval Total |
|---------------------------|-----------------------|----|---|-------|-----------------------|----|----|-------|------------------------------|----|---|-------|------------------------------|----|----|-------|-------------------|
| | L | T | R | Total | L | T | R | Total | L | T | R | Total | L | T | R | Total | |
| 4:00 PM | 1 | 6 | 0 | 7 | 3 | 6 | 0 | 9 | 3 | 0 | 0 | 3 | 0 | 1 | 0 | 1 | 20 |
| 4:05 PM | 0 | 4 | 0 | 4 | 1 | 2 | 3 | 6 | 0 | 2 | 1 | 3 | 0 | 1 | 1 | 2 | 15 |
| 4:10 PM | 0 | 1 | 0 | 1 | 3 | 2 | 5 | 10 | 2 | 2 | 0 | 4 | 0 | 0 | 0 | 0 | 15 |
| 4:15 PM | 1 | 2 | 0 | 3 | 3 | 2 | 1 | 6 | 1 | 1 | 0 | 2 | 0 | 0 | 1 | 1 | 12 |
| 4:20 PM | 0 | 3 | 0 | 3 | 1 | 4 | 1 | 6 | 3 | 0 | 0 | 3 | 0 | 1 | 1 | 2 | 14 |
| 4:25 PM | 0 | 1 | 1 | 2 | 3 | 2 | 1 | 6 | 2 | 2 | 6 | 0 | 0 | 0 | 0 | 0 | 14 |
| 4:30 PM | 0 | 1 | 0 | 1 | 0 | 0 | 2 | 2 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 5 |
| 4:35 PM | 0 | 6 | 0 | 6 | 1 | 3 | 3 | 7 | 1 | 1 | 0 | 2 | 0 | 0 | 0 | 0 | 15 |
| 4:40 PM | 0 | 0 | 0 | 0 | 3 | 3 | 0 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 |
| 4:45 PM | 1 | 2 | 0 | 3 | 1 | 2 | 0 | 3 | 2 | 0 | 0 | 2 | 0 | 1 | 0 | 1 | 9 |
| 4:50 PM | 0 | 2 | 0 | 2 | 1 | 1 | 1 | 3 | 0 | 1 | 1 | 2 | 0 | 1 | 0 | 1 | 8 |
| 4:55 PM | 0 | 3 | 0 | 3 | 0 | 3 | 0 | 3 | 0 | 0 | 1 | 1 | 0 | 1 | 0 | 1 | 8 |
| 5:00 PM | 0 | 2 | 0 | 2 | 0 | 3 | 0 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | 1 | 2 | 8 |
| 5:05 PM | 1 | 3 | 0 | 4 | 2 | 1 | 0 | 3 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 1 | 9 |
| 5:10 PM | 0 | 1 | 1 | 2 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 |
| 5:15 PM | 0 | 2 | 0 | 2 | 0 | 1 | 2 | 3 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 1 | 7 |
| 5:20 PM | 0 | 3 | 0 | 3 | 1 | 3 | 2 | 6 | 1 | 2 | 0 | 3 | 0 | 1 | 1 | 2 | 14 |
| 5:25 PM | 1 | 1 | 0 | 2 | 0 | 2 | 1 | 3 | 0 | 1 | 0 | 1 | 1 | 1 | 0 | 2 | 8 |
| 5:30 PM | 0 | 1 | 0 | 1 | 1 | 1 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 4 |
| 5:35 PM | 0 | 0 | 0 | 0 | 1 | 3 | 1 | 5 | 1 | 0 | 1 | 2 | 0 | 0 | 0 | 0 | 7 |
| 5:40 PM | 0 | 2 | 0 | 2 | 1 | 0 | 0 | 1 | 2 | 0 | 0 | 2 | 0 | 0 | 1 | 1 | 6 |
| 5:45 PM | 0 | 1 | 0 | 1 | 1 | 2 | 1 | 4 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 6 |
| 5:50 PM | 0 | 0 | 0 | 0 | 3 | 0 | 2 | 5 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 7 |
| 5:55 PM | 1 | 2 | 0 | 3 | 1 | 2 | 1 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 |
| Total Survey | 6 | 49 | 2 | 57 | 31 | 49 | 27 | 107 | 19 | 15 | 6 | 40 | 2 | 11 | 10 | 23 | 227 |

Heavy Vehicle 15-Minute Interval Summary

4:00 PM to 6:00 PM

| Interval Start Time | Northbound Hwy 213 | | | | Southbound Hwy 213 | | | | Eastbound Beaver Creek Rd | | | | Westbound Beaver Creek Rd | | | | Interval Total |
|---------------------------|-----------------------|----|---|-------|-----------------------|----|----|-------|------------------------------|----|---|-------|------------------------------|----|----|-------|-------------------|
| | L | T | R | Total | L | T | R | Total | L | T | R | Total | L | T | R | Total | |
| 4:00 PM | 1 | 11 | 0 | 12 | 7 | 10 | 8 | 25 | 5 | 4 | 1 | 10 | 0 | 2 | 1 | 3 | 50 |
| 4:15 PM | 1 | 6 | 1 | 8 | 7 | 8 | 3 | 18 | 6 | 3 | 2 | 11 | 0 | 1 | 2 | 3 | 40 |
| 4:30 PM | 0 | 7 | 0 | 7 | 4 | 6 | 5 | 15 | 1 | 1 | 0 | 2 | 0 | 1 | 1 | 2 | 26 |
| 4:45 PM | 1 | 7 | 0 | 8 | 2 | 6 | 1 | 9 | 2 | 1 | 2 | 5 | 0 | 3 | 0 | 3 | 25 |
| 5:00 PM | 1 | 6 | 1 | 8 | 2 | 5 | 0 | 7 | 0 | 2 | 0 | 2 | 0 | 1 | 2 | 3 | 20 |
| 5:15 PM | 1 | 6 | 0 | 7 | 1 | 6 | 5 | 12 | 1 | 4 | 0 | 5 | 2 | 2 | 1 | 5 | 29 |
| 5:30 PM | 0 | 3 | 0 | 3 | 3 | 4 | 1 | 8 | 3 | 0 | 1 | 4 | 0 | 0 | 2 | 2 | 17 |
| 5:45 PM | 1 | 3 | 0 | 4 | 5 | 4 | 4 | 13 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 2 | 20 |
| Total Survey | 6 | 49 | 2 | 57 | 31 | 49 | 27 | 107 | 19 | 15 | 6 | 40 | 2 | 11 | 10 | 23 | 227 |

Heavy Vehicle Peak Hour Summary

4:30 PM to 5:30 PM

| By Approach | Northbound Hwy 213 | | | Southbound Hwy 213 | | | Eastbound Beaver Creek Rd | | | Westbound Beaver Creek Rd | | | Total |
|----------------|-----------------------|-----|-------|-----------------------|-----|-------|------------------------------|-----|-------|------------------------------|-----|-------|-------|
| | In | Out | Total | In | Out | Total | In | Out | Total | In | Out | Total | |
| Volume | 30 | 27 | 57 | 43 | 34 | 77 | 14 | 21 | 35 | 13 | 18 | 31 | 100 |
| PHF | 0.83 | | | 0.67 | | | 0.70 | | | 0.65 | | | 0.83 |

| By Movement | Northbound Hwy 213 | | | | Southbound Hwy 213 | | | | Eastbound Beaver Creek Rd | | | | Westbound Beaver Creek Rd | | | | Total |
|----------------|-----------------------|------|------|-------|-----------------------|------|------|-------|------------------------------|------|------|-------|------------------------------|------|------|-------|-------|
| | L | T | R | Total | L | T | R | Total | L | T | R | Total | L | T | R | Total | |
| Volume | 3 | 26 | 1 | 30 | 9 | 23 | 11 | 43 | 4 | 8 | 2 | 14 | 2 | 7 | 4 | 13 | 100 |
| PHF | 0.75 | 0.81 | 0.25 | 0.83 | 0.45 | 0.72 | 0.55 | 0.67 | 0.33 | 0.50 | 0.25 | 0.70 | 0.25 | 0.58 | 0.50 | 0.65 | 0.83 |

Heavy Vehicle Rolling Hour Summary

4:00 PM to 6:00 PM

| Interval Start Time | Northbound Hwy 213 | | | | Southbound Hwy 213 | | | | Eastbound Beaver Creek Rd | | | | Westbound Beaver Creek Rd | | | | Interval Total |
|---------------------------|-----------------------|----|---|-------|-----------------------|----|----|-------|------------------------------|---|---|-------|------------------------------|---|---|-------|-------------------|
| | L | T | R | Total | L | T | R | Total | L | T | R | Total | L | T | R | Total | |
| 4:00 PM | 3 | 31 | 1 | 35 | 20 | 30 | 17 | 67 | 14 | 9 | 5 | 28 | 0 | 7 | 4 | 11 | 141 |
| 4:15 PM | 3 | 26 | 2 | 31 | 15 | 25 | 9 | 49 | 9 | 7 | 4 | 20 | 0 | 6 | 5 | 11 | 111 |
| 4:30 PM | 3 | 26 | 1 | 30 | 9 | 23 | 11 | 43 | 4 | 8 | 2 | 14 | 2 | 7 | 4 | 13 | 100 |
| 4:45 PM | 3 | 22 | 1 | 26 | 8 | 21 | 7 | 36 | 6 | 7 | 3 | 16 | 2 | 6 | 5 | 13 | 91 |
| 5:00 PM | 3 | 18 | 1 | 22 | 11 | 19 | 10 | 40 | 5 | 6 | 1 | 12 | 2 | 4 | 6 | 12 | 86 |

Peak Hour Summary

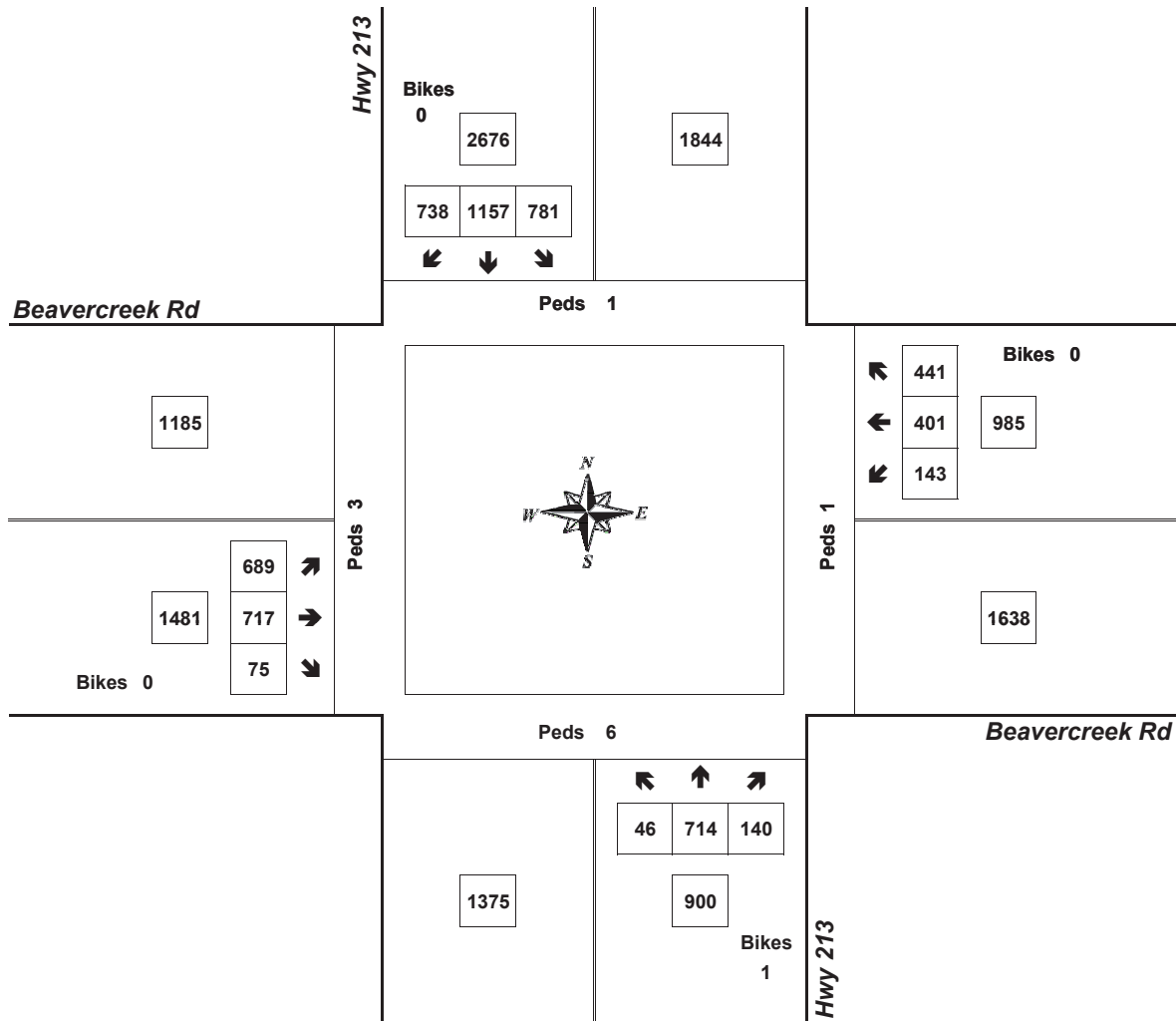


Clay Carney
(503) 833-2740

Hwy 213 & Beavercreek Rd

4:30 PM to 5:30 PM

Tuesday, January 24, 2017



| Approach | PHF | HV% | Volume |
|---------------------|-------------|-------------|--------------|
| EB | 0.92 | 0.9% | 1,481 |
| WB | 0.87 | 1.3% | 985 |
| NB | 0.88 | 3.3% | 900 |
| SB | 0.93 | 1.6% | 2,676 |
| Intersection | 0.97 | 1.7% | 6,042 |

Count Period: 4:00 PM to 6:00 PM

Total Vehicle Summary

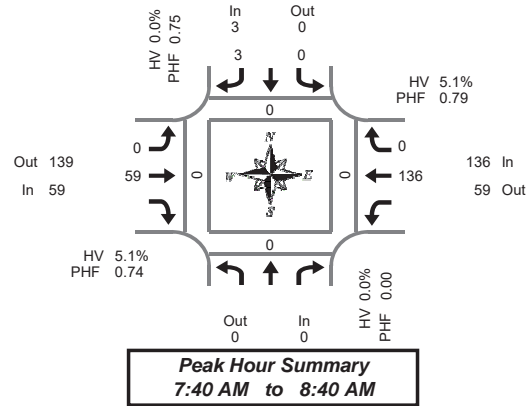


Clay Carney
(503) 833-2740

Jada Way & Holcomb Blvd

Tuesday, June 21, 2016

7:00 AM to 9:00 AM



5-Minute Interval Summary 7:00 AM to 9:00 AM

| Interval Start Time | Northbound Jada Way | | | | Southbound Jada Way | | | | Eastbound Holcomb Blvd | | | | Westbound Holcomb Blvd | | | | Interval Total | Pedestrians Crosswalk | | | |
|---------------------------|------------------------|-----|-------|-------|------------------------|-----|-------|-------|---------------------------|-----|-------|-------|---------------------------|-----|-------|-------|-------------------|--------------------------|-------|------|------|
| | In | Out | Total | Bikes | In | Out | Total | Bikes | In | Out | Total | Bikes | In | Out | Total | Bikes | | North | South | East | West |
| 7:00 AM | | | | 0 | 0 | | 0 | 0 | 0 | 3 | | 0 | 12 | 0 | 0 | 0 | 15 | 0 | 0 | 0 | 0 |
| 7:05 AM | | | | 0 | 0 | | 0 | 0 | 0 | 2 | | 0 | 11 | 0 | 0 | 0 | 13 | 0 | 0 | 0 | 0 |
| 7:10 AM | | | | 0 | 0 | | 0 | 0 | 0 | 2 | | 0 | 11 | 0 | 0 | 0 | 13 | 0 | 0 | 0 | 0 |
| 7:15 AM | | | | 0 | 0 | | 0 | 0 | 0 | 5 | | 0 | 9 | 0 | 0 | 0 | 14 | 0 | 0 | 0 | 0 |
| 7:20 AM | | | | 0 | 0 | | 0 | 0 | 0 | 4 | | 0 | 14 | 1 | 0 | 0 | 19 | 0 | 0 | 0 | 0 |
| 7:25 AM | | | | 0 | 0 | | 1 | 0 | 0 | 4 | | 0 | 8 | 0 | 0 | 0 | 13 | 0 | 0 | 0 | 0 |
| 7:30 AM | | | | 0 | 0 | | 0 | 0 | 0 | 5 | | 0 | 10 | 0 | 0 | 0 | 15 | 0 | 0 | 0 | 0 |
| 7:35 AM | | | | 0 | 0 | | 0 | 0 | 0 | 3 | | 0 | 7 | 0 | 0 | 0 | 10 | 0 | 0 | 0 | 0 |
| 7:40 AM | | | | 0 | 0 | | 0 | 0 | 0 | 6 | | 0 | 19 | 0 | 0 | 0 | 25 | 0 | 0 | 0 | 0 |
| 7:45 AM | | | | 0 | 0 | | 0 | 0 | 0 | 4 | | 0 | 16 | 0 | 0 | 0 | 20 | 0 | 0 | 0 | 0 |
| 7:50 AM | | | | 0 | 0 | | 1 | 0 | 0 | 6 | | 0 | 8 | 0 | 0 | 0 | 15 | 0 | 0 | 0 | 0 |
| 7:55 AM | | | | 0 | 0 | | 0 | 0 | 0 | 6 | | 0 | 9 | 0 | 0 | 0 | 15 | 0 | 0 | 0 | 0 |
| 8:00 AM | | | | 0 | 0 | | 0 | 0 | 0 | 4 | | 0 | 10 | 0 | 0 | 0 | 14 | 0 | 0 | 0 | 0 |
| 8:05 AM | | | | 0 | 0 | | 0 | 0 | 0 | 5 | | 0 | 14 | 0 | 0 | 0 | 19 | 0 | 0 | 0 | 0 |
| 8:10 AM | | | | 0 | 0 | | 1 | 0 | 0 | 2 | | 0 | 6 | 0 | 0 | 0 | 9 | 0 | 0 | 0 | 0 |
| 8:15 AM | | | | 0 | 0 | | 0 | 0 | 0 | 3 | | 0 | 14 | 0 | 0 | 0 | 17 | 0 | 0 | 0 | 0 |
| 8:20 AM | | | | 0 | 0 | | 0 | 0 | 0 | 3 | | 0 | 10 | 0 | 0 | 0 | 13 | 0 | 0 | 0 | 0 |
| 8:25 AM | | | | 0 | 0 | | 0 | 0 | 0 | 7 | | 0 | 9 | 0 | 0 | 0 | 16 | 0 | 0 | 0 | 0 |
| 8:30 AM | | | | 0 | 0 | | 0 | 0 | 0 | 9 | | 0 | 12 | 0 | 0 | 0 | 21 | 0 | 0 | 0 | 0 |
| 8:35 AM | | | | 0 | 0 | | 1 | 0 | 0 | 4 | | 0 | 9 | 0 | 0 | 0 | 14 | 0 | 0 | 0 | 0 |
| 8:40 AM | | | | 0 | 0 | | 0 | 0 | 0 | 6 | | 0 | 9 | 0 | 0 | 0 | 15 | 0 | 0 | 0 | 0 |
| 8:45 AM | | | | 0 | 0 | | 0 | 0 | 0 | 6 | | 0 | 17 | 0 | 0 | 0 | 23 | 0 | 0 | 0 | 0 |
| 8:50 AM | | | | 0 | 0 | | 0 | 0 | 0 | 7 | | 0 | 4 | 0 | 0 | 0 | 11 | 0 | 0 | 0 | 0 |
| 8:55 AM | | | | 0 | 0 | | 0 | 0 | 0 | 4 | | 0 | 9 | 0 | 0 | 0 | 13 | 0 | 0 | 0 | 0 |
| Total Survey | | | | 0 | 0 | | 4 | 0 | 0 | 110 | | 0 | 257 | 1 | 0 | 0 | 372 | 0 | 0 | 0 | 0 |

15-Minute Interval Summary 7:00 AM to 9:00 AM

| Interval Start Time | Northbound Jada Way | | | | Southbound Jada Way | | | | Eastbound Holcomb Blvd | | | | Westbound Holcomb Blvd | | | | Interval Total | Pedestrians Crosswalk | | | |
|---------------------------|------------------------|-----|-------|-------|------------------------|-----|-------|-------|---------------------------|-----|-------|-------|---------------------------|-----|-------|-------|-------------------|--------------------------|-------|------|------|
| | In | Out | Total | Bikes | In | Out | Total | Bikes | In | Out | Total | Bikes | In | Out | Total | Bikes | | North | South | East | West |
| 7:00 AM | | | | 0 | 0 | | 0 | 0 | 0 | 7 | | 0 | 34 | 0 | 0 | 0 | 41 | 0 | 0 | 0 | 0 |
| 7:15 AM | | | | 0 | 0 | | 1 | 0 | 0 | 13 | | 0 | 31 | 1 | 0 | 0 | 46 | 0 | 0 | 0 | 0 |
| 7:30 AM | | | | 0 | 0 | | 0 | 0 | 0 | 14 | | 0 | 36 | 0 | 0 | 0 | 50 | 0 | 0 | 0 | 0 |
| 7:45 AM | | | | 0 | 0 | | 1 | 0 | 0 | 16 | | 0 | 33 | 0 | 0 | 0 | 50 | 0 | 0 | 0 | 0 |
| 8:00 AM | | | | 0 | 0 | | 1 | 0 | 0 | 11 | | 0 | 30 | 0 | 0 | 0 | 42 | 0 | 0 | 0 | 0 |
| 8:15 AM | | | | 0 | 0 | | 0 | 0 | 0 | 13 | | 0 | 33 | 0 | 0 | 0 | 46 | 0 | 0 | 0 | 0 |
| 8:30 AM | | | | 0 | 0 | | 1 | 0 | 0 | 19 | | 0 | 30 | 0 | 0 | 0 | 50 | 0 | 0 | 0 | 0 |
| 8:45 AM | | | | 0 | 0 | | 0 | 0 | 0 | 17 | | 0 | 30 | 0 | 0 | 0 | 47 | 0 | 0 | 0 | 0 |
| Total Survey | | | | 0 | 0 | | 4 | 0 | 0 | 110 | | 0 | 257 | 1 | 0 | 0 | 372 | 0 | 0 | 0 | 0 |

Peak Hour Summary 7:40 AM to 8:40 AM

| By Approach | Northbound Jada Way | | | | Southbound Jada Way | | | | Eastbound Holcomb Blvd | | | | Westbound Holcomb Blvd | | | | Total | Pedestrians Crosswalk | | | |
|----------------|------------------------|-----|-------|-------|------------------------|-----|-------|-------|---------------------------|-----|-------|-------|---------------------------|-----|-------|-------|-------|--------------------------|-------|------|------|
| | In | Out | Total | Bikes | In | Out | Total | Bikes | In | Out | Total | Bikes | In | Out | Total | Bikes | | North | South | East | West |
| Volume | 0 | 0 | 0 | 0 | 3 | 0 | 3 | 0 | 59 | 139 | 198 | 0 | 136 | 59 | 195 | 0 | 198 | 0 | 0 | 0 | 0 |
| %HV | 0.0% | | | | 0.0% | | | | 5.1% | | | | 5.1% | | | | 5.1% | | | | |
| PHF | 0.00 | | | | 0.75 | | | | 0.74 | | | | 0.79 | | | | 0.83 | | | | |

| By Movement | Northbound Jada Way | | | | Southbound Jada Way | | | | Eastbound Holcomb Blvd | | | | Westbound Holcomb Blvd | | | | Total | | | | |
|----------------|------------------------|----|----|-------|------------------------|----|------|-------|---------------------------|------|----|-------|---------------------------|------|------|-------|-------|--|--|--|--|
| | Total | L | R | Bikes | Total | L | R | Bikes | Total | L | T | Bikes | Total | T | R | Total | | | | | |
| Volume | 0 | 0 | 3 | 0 | 0 | 3 | 0 | 0 | 59 | 59 | 0 | 0 | 136 | 0 | 136 | 0 | 198 | | | | |
| %HV | NA | NA | NA | 0.0% | 0.0% | NA | 0.0% | 0.0% | 0.0% | 5.1% | NA | 5.1% | NA | 5.1% | 0.0% | 5.1% | 5.1% | | | | |
| PHF | | | | 0.00 | 0.00 | | 0.75 | 0.75 | 0.00 | 0.74 | | 0.74 | | 0.79 | 0.00 | 0.79 | 0.83 | | | | |

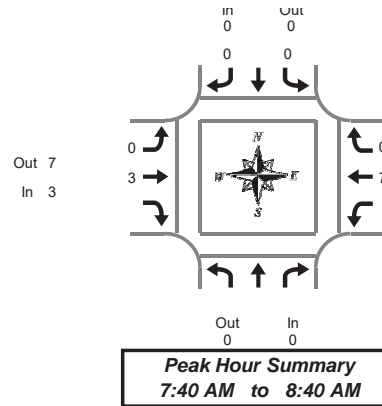
Rolling Hour Summary 7:00 AM to 9:00 AM

| Interval Start Time | Northbound Jada Way | | | | Southbound Jada Way | | | | Eastbound Holcomb Blvd | | | | Westbound Holcomb Blvd | | | | Interval Total | Pedestrians Crosswalk | | | |
|---------------------------|------------------------|-----|-------|-------|------------------------|-----|-------|-------|---------------------------|-----|-------|-------|---------------------------|-----|-------|-------|-------------------|--------------------------|-------|------|------|
| | In | Out | Total | Bikes | In | Out | Total | Bikes | In | Out | Total | Bikes | In | Out | Total | Bikes | | North | South | East | West |
| 7:00 AM | | | | 0 | 0 | | 2 | 0 | 0 | 50 | | 0 | 134 | 1 | 0 | 0 | 187 | 0 | 0 | 0 | 0 |
| 7:15 AM | | | | 0 | 0 | | 3 | 0 | 0 | 54 | | 0 | 130 | 1 | 0 | 0 | 188 | 0 | 0 | 0 | 0 |
| 7:30 AM | | | | 0 | 0 | | 2 | 0 | 0 | 54 | | 0 | 132 | 0 | 0 | 0 | 188 | 0 | 0 | 0 | 0 |
| 7:45 AM | | | | 0 | 0 | | 3 | 0 | 0 | 59 | | 0 | 126 | 0 | 0 | 0 | 188 | 0 | 0 | 0 | 0 |
| 8:00 AM | | | | 0 | 0 | | 2 | 0 | 0 | 60 | | 0 | 123 | 0 | 0 | 0 | 185 | 0 | 0 | 0 | 0 |

Heavy Vehicle Summary



Clay Carney
(503) 833-2740



Jada Way & Holcomb Blvd

Tuesday, June 21, 2016

7:00 AM to 9:00 AM

Heavy Vehicle 5-Minute Interval Summary

7:00 AM to 9:00 AM

| Interval Start Time | Northbound Jada Way | | | Southbound Jada Way | | | Eastbound Holcomb Blvd | | | Westbound Holcomb Blvd | | | Interval Total |
|---------------------------|------------------------|--|-------|------------------------|---|-------|---------------------------|---|-------|---------------------------|---|-------|-------------------|
| | | | Total | L | R | Total | L | T | Total | T | R | Total | |
| 7:00 AM | | | 0 | 0 | 0 | 0 | 0 | 2 | 2 | 1 | 0 | 1 | 3 |
| 7:05 AM | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 1 |
| 7:10 AM | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 7:15 AM | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 7:20 AM | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 |
| 7:25 AM | | | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 7:30 AM | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 7:35 AM | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 7:40 AM | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 1 |
| 7:45 AM | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 1 |
| 7:50 AM | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 7:55 AM | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 1 |
| 8:00 AM | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 8:05 AM | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 1 |
| 8:10 AM | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 8:15 AM | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 8:20 AM | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 8:25 AM | | | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 0 | 2 | 3 |
| 8:30 AM | | | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 1 |
| 8:35 AM | | | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 1 | 2 |
| 8:40 AM | | | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 1 |
| 8:45 AM | | | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 1 | 2 |
| 8:50 AM | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 1 |
| 8:55 AM | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 2 | 2 |
| Total Survey | | | 0 | 0 | 1 | 1 | 0 | 7 | 7 | 13 | 1 | 14 | 22 |

Heavy Vehicle 15-Minute Interval Summary

7:00 AM to 9:00 AM

| Interval Start Time | Northbound Jada Way | | | Southbound Jada Way | | | Eastbound Holcomb Blvd | | | Westbound Holcomb Blvd | | | Interval Total |
|---------------------------|------------------------|--|-------|------------------------|---|-------|---------------------------|---|-------|---------------------------|---|-------|-------------------|
| | | | Total | L | R | Total | L | T | Total | T | R | Total | |
| 7:00 AM | | | 0 | 0 | 0 | 0 | 0 | 2 | 2 | 2 | 0 | 2 | 4 |
| 7:15 AM | | | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 2 |
| 7:30 AM | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 1 |
| 7:45 AM | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 2 | 2 |
| 8:00 AM | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 1 |
| 8:15 AM | | | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 0 | 2 | 3 |
| 8:30 AM | | | 0 | 0 | 0 | 0 | 0 | 3 | 3 | 1 | 0 | 1 | 4 |
| 8:45 AM | | | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 4 | 0 | 4 | 5 |
| Total Survey | | | 0 | 0 | 1 | 1 | 0 | 7 | 7 | 13 | 1 | 14 | 22 |

Heavy Vehicle Peak Hour Summary

7:40 AM to 8:40 AM

| By Approach | Northbound Jada Way | | | Southbound Jada Way | | | Eastbound Holcomb Blvd | | | Westbound Holcomb Blvd | | | Total |
|----------------|------------------------|-----|-------|------------------------|-----|-------|---------------------------|-----|-------|---------------------------|-----|-------|-------|
| | In | Out | Total | In | Out | Total | In | Out | Total | In | Out | Total | |
| Volume | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 7 | 10 | 7 | 3 | 10 | 10 |
| PHF | 0.00 | | | 0.00 | | | 0.25 | | | 0.58 | | | 0.42 |

| By Movement | Northbound Jada Way | | | Southbound Jada Way | | | Eastbound Holcomb Blvd | | | Westbound Holcomb Blvd | | | Total |
|----------------|------------------------|--|-------|------------------------|------|-------|---------------------------|------|-------|---------------------------|------|-------|-------|
| | | | Total | L | R | Total | L | T | Total | T | R | Total | |
| Volume | | | 0 | 0 | 0 | 0 | 0 | 3 | 3 | 7 | 0 | 7 | 10 |
| PHF | | | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.25 | 0.25 | 0.58 | 0.00 | 0.58 | 0.42 |

Heavy Vehicle Rolling Hour Summary

7:00 AM to 9:00 AM

| Interval Start Time | Northbound Jada Way | | | Southbound Jada Way | | | Eastbound Holcomb Blvd | | | Westbound Holcomb Blvd | | | Interval Total |
|---------------------------|------------------------|--|-------|------------------------|---|-------|---------------------------|---|-------|---------------------------|---|-------|-------------------|
| | | | Total | L | R | Total | L | T | Total | T | R | Total | |
| 7:00 AM | | | 0 | 0 | 1 | 1 | 0 | 2 | 2 | 5 | 1 | 6 | 9 |
| 7:15 AM | | | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 4 | 1 | 5 | 6 |
| 7:30 AM | | | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 6 | 0 | 6 | 7 |
| 7:45 AM | | | 0 | 0 | 0 | 0 | 0 | 4 | 4 | 6 | 0 | 6 | 10 |
| 8:00 AM | | | 0 | 0 | 0 | 0 | 0 | 5 | 5 | 8 | 0 | 8 | 13 |

Peak Hour Summary

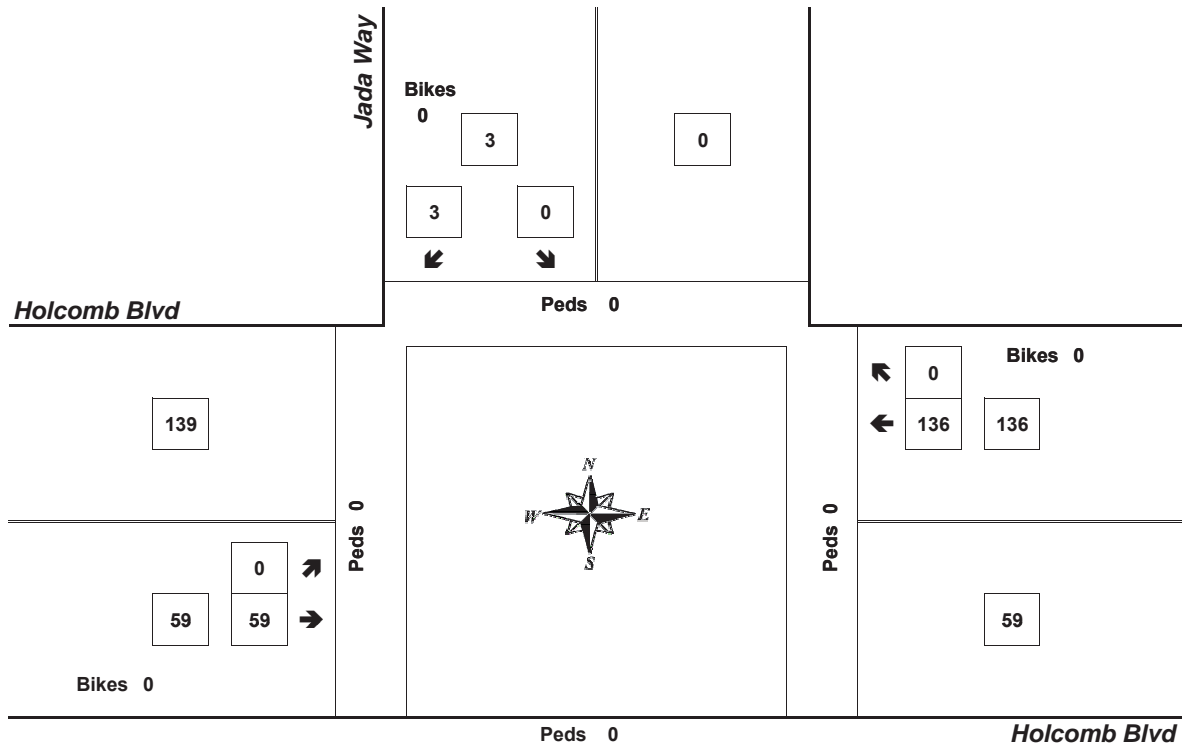


Clay Carney
(503) 833-2740

Jada Way & Holcomb Blvd

7:40 AM to 8:40 AM

Tuesday, June 21, 2016



| Approach | PHF | HV% | Volume |
|---------------------|-------------|-------------|------------|
| EB | 0.74 | 5.1% | 59 |
| WB | 0.79 | 5.1% | 136 |
| NB | 0.00 | 0.0% | 0 |
| SB | 0.75 | 0.0% | 3 |
| Intersection | 0.83 | 5.1% | 198 |

Count Period: 7:00 AM to 9:00 AM

Total Vehicle Summary

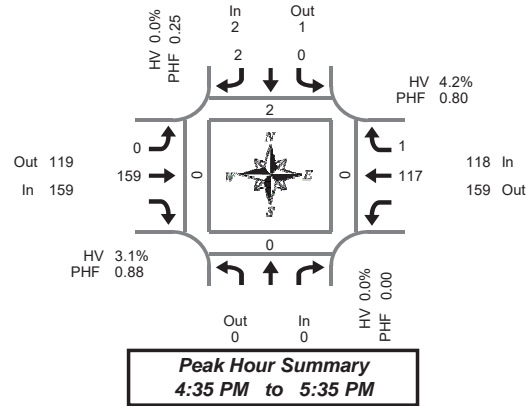


Clay Carney
(503) 833-2740

Jada Way & Holcomb Blvd

Tuesday, June 21, 2016

4:00 PM to 6:00 PM



5-Minute Interval Summary 4:00 PM to 6:00 PM

| Interval Start Time | Northbound Jada Way | | | | Southbound Jada Way | | | | Eastbound Holcomb Blvd | | | | Westbound Holcomb Blvd | | | | Interval Total | Pedestrians Crosswalk | | | |
|---------------------------|------------------------|-----|-------|-------|------------------------|-----|-------|-------|---------------------------|-----|-------|-------|---------------------------|-----|-------|-------|-------------------|--------------------------|-------|------|------|
| | In | Out | Total | Bikes | In | Out | Total | Bikes | In | Out | Total | Bikes | In | Out | Total | Bikes | | North | South | East | West |
| 4:00 PM | | | | 0 | 0 | | 0 | 0 | 0 | 15 | | 0 | 4 | 0 | 0 | 0 | 19 | 0 | 0 | 0 | 0 |
| 4:05 PM | | | | 0 | 0 | | 0 | 0 | 2 | 5 | | 0 | 7 | 0 | 0 | 0 | 14 | 0 | 0 | 0 | 0 |
| 4:10 PM | | | | 0 | 0 | | 0 | 0 | 0 | 16 | | 0 | 8 | 0 | 0 | 0 | 24 | 0 | 0 | 0 | 0 |
| 4:15 PM | | | | 0 | 0 | | 0 | 0 | 0 | 18 | | 0 | 2 | 0 | 0 | 0 | 20 | 0 | 0 | 0 | 0 |
| 4:20 PM | | | | 0 | 0 | | 0 | 0 | 0 | 11 | | 0 | 7 | 0 | 0 | 0 | 18 | 0 | 0 | 0 | 0 |
| 4:25 PM | | | | 0 | 0 | | 0 | 0 | 0 | 8 | | 0 | 14 | 0 | 0 | 0 | 22 | 0 | 0 | 0 | 0 |
| 4:30 PM | | | | 0 | 0 | | 1 | 0 | 0 | 11 | | 0 | 4 | 0 | 0 | 0 | 16 | 0 | 0 | 0 | 0 |
| 4:35 PM | | | | 0 | 0 | | 0 | 0 | 0 | 21 | | 0 | 17 | 0 | 0 | 0 | 38 | 0 | 0 | 0 | 0 |
| 4:40 PM | | | | 0 | 0 | | 0 | 0 | 0 | 11 | | 0 | 7 | 0 | 0 | 0 | 18 | 0 | 0 | 0 | 0 |
| 4:45 PM | | | | 0 | 0 | | 0 | 0 | 0 | 9 | | 0 | 13 | 0 | 0 | 0 | 22 | 0 | 0 | 0 | 0 |
| 4:50 PM | | | | 0 | 0 | | 0 | 0 | 0 | 15 | | 0 | 3 | 0 | 0 | 0 | 18 | 0 | 0 | 0 | 0 |
| 4:55 PM | | | | 0 | 0 | | 0 | 0 | 0 | 8 | | 0 | 14 | 0 | 0 | 0 | 22 | 0 | 0 | 0 | 0 |
| 5:00 PM | | | | 0 | 0 | | 0 | 0 | 0 | 8 | | 0 | 4 | 0 | 0 | 0 | 12 | 0 | 0 | 0 | 0 |
| 5:05 PM | | | | 0 | 0 | | 0 | 0 | 0 | 11 | | 0 | 13 | 0 | 0 | 0 | 24 | 0 | 0 | 0 | 0 |
| 5:10 PM | | | | 0 | 0 | | 0 | 0 | 0 | 19 | | 0 | 11 | 0 | 0 | 0 | 30 | 0 | 0 | 0 | 0 |
| 5:15 PM | | | | 0 | 0 | | 2 | 0 | 0 | 12 | | 0 | 5 | 1 | 0 | 0 | 20 | 2 | 0 | 0 | 0 |
| 5:20 PM | | | | 0 | 0 | | 0 | 0 | 0 | 13 | | 0 | 9 | 0 | 0 | 0 | 22 | 0 | 0 | 0 | 0 |
| 5:25 PM | | | | 0 | 0 | | 0 | 0 | 0 | 14 | | 0 | 8 | 0 | 0 | 0 | 22 | 0 | 0 | 0 | 0 |
| 5:30 PM | | | | 0 | 0 | | 0 | 0 | 0 | 18 | | 0 | 13 | 0 | 0 | 0 | 31 | 0 | 0 | 0 | 0 |
| 5:35 PM | | | | 0 | 0 | | 0 | 0 | 0 | 11 | | 0 | 6 | 0 | 0 | 0 | 17 | 0 | 0 | 0 | 0 |
| 5:40 PM | | | | 0 | 0 | | 0 | 0 | 1 | 15 | | 0 | 5 | 0 | 0 | 0 | 21 | 0 | 0 | 0 | 0 |
| 5:45 PM | | | | 0 | 0 | | 0 | 0 | 1 | 11 | | 0 | 7 | 0 | 0 | 0 | 19 | 0 | 0 | 0 | 0 |
| 5:50 PM | | | | 0 | 0 | | 0 | 0 | 0 | 10 | | 0 | 10 | 0 | 0 | 0 | 20 | 0 | 0 | 0 | 0 |
| 5:55 PM | | | | 0 | 0 | | 0 | 0 | 0 | 9 | | 0 | 7 | 0 | 0 | 0 | 16 | 0 | 0 | 1 | 0 |
| Total Survey | | | | 0 | 0 | | 3 | 0 | 4 | 299 | | 0 | 198 | 1 | 0 | 0 | 505 | 2 | 0 | 1 | 0 |

15-Minute Interval Summary 4:00 PM to 6:00 PM

| Interval Start Time | Northbound Jada Way | | | | Southbound Jada Way | | | | Eastbound Holcomb Blvd | | | | Westbound Holcomb Blvd | | | | Interval Total | Pedestrians Crosswalk | | | |
|---------------------------|------------------------|-----|-------|-------|------------------------|-----|-------|-------|---------------------------|-----|-------|-------|---------------------------|-----|-------|-------|-------------------|--------------------------|-------|------|------|
| | In | Out | Total | Bikes | In | Out | Total | Bikes | In | Out | Total | Bikes | In | Out | Total | Bikes | | North | South | East | West |
| 4:00 PM | | | | 0 | 0 | | 0 | 0 | 2 | 36 | | 0 | 19 | 0 | 0 | 0 | 57 | 0 | 0 | 0 | 0 |
| 4:15 PM | | | | 0 | 0 | | 0 | 0 | 0 | 37 | | 0 | 23 | 0 | 0 | 0 | 60 | 0 | 0 | 0 | 0 |
| 4:30 PM | | | | 0 | 0 | | 1 | 0 | 0 | 43 | | 0 | 28 | 0 | 0 | 0 | 72 | 0 | 0 | 0 | 0 |
| 4:45 PM | | | | 0 | 0 | | 0 | 0 | 0 | 32 | | 0 | 30 | 0 | 0 | 0 | 62 | 0 | 0 | 0 | 0 |
| 5:00 PM | | | | 0 | 0 | | 0 | 0 | 0 | 38 | | 0 | 28 | 0 | 0 | 0 | 66 | 0 | 0 | 0 | 0 |
| 5:15 PM | | | | 0 | 0 | | 2 | 0 | 0 | 39 | | 0 | 22 | 1 | 0 | 0 | 64 | 2 | 0 | 0 | 0 |
| 5:30 PM | | | | 0 | 0 | | 0 | 0 | 1 | 44 | | 0 | 24 | 0 | 0 | 0 | 69 | 0 | 0 | 0 | 0 |
| 5:45 PM | | | | 0 | 0 | | 0 | 0 | 1 | 30 | | 0 | 24 | 0 | 0 | 0 | 55 | 0 | 0 | 1 | 0 |
| Total Survey | | | | 0 | 0 | | 3 | 0 | 4 | 299 | | 0 | 198 | 1 | 0 | 0 | 505 | 2 | 0 | 1 | 0 |

Peak Hour Summary 4:35 PM to 5:35 PM

| By Approach | Northbound Jada Way | | | | Southbound Jada Way | | | | Eastbound Holcomb Blvd | | | | Westbound Holcomb Blvd | | | | Total | Pedestrians Crosswalk | | | |
|----------------|------------------------|-----|-------|-------|------------------------|-----|-------|-------|---------------------------|-----|-------|-------|---------------------------|-----|-------|-------|-------|--------------------------|-------|------|------|
| | In | Out | Total | Bikes | In | Out | Total | Bikes | In | Out | Total | Bikes | In | Out | Total | Bikes | | North | South | East | West |
| Volume | 0 | 0 | 0 | 0 | 2 | 1 | 3 | 0 | 159 | 119 | 278 | 0 | 118 | 159 | 277 | 0 | 279 | 2 | 0 | 0 | 0 |
| %HV | 0.0% | | | | 0.0% | | | | 3.1% | | | | 4.2% | | | | 3.6% | | | | |
| PHF | 0.00 | | | | 0.25 | | | | 0.88 | | | | 0.80 | | | | 0.89 | | | | |

| By Movement | Northbound Jada Way | | | | Southbound Jada Way | | | | Eastbound Holcomb Blvd | | | | Westbound Holcomb Blvd | | | | Total |
|----------------|------------------------|-----|-------|-------|------------------------|-----|-------|-------|---------------------------|------|-------|-------|---------------------------|------|-------|-------|-------|
| | In | Out | Total | Bikes | In | Out | Total | Bikes | In | Out | Total | Bikes | In | Out | Total | Bikes | |
| Volume | 0 | 0 | 0 | 0 | 2 | 1 | 3 | 0 | 159 | 119 | 278 | 0 | 118 | 159 | 277 | 0 | 279 |
| %HV | NA | NA | NA | 0.0% | 0.0% | NA | 0.0% | 0.0% | 0.0% | 3.1% | NA | 3.1% | NA | 4.3% | 0.0% | 4.2% | 3.6% |
| PHF | | | | 0.00 | 0.00 | | 0.25 | 0.25 | 0.00 | 0.88 | | 0.88 | | 0.79 | 0.25 | 0.80 | 0.89 |

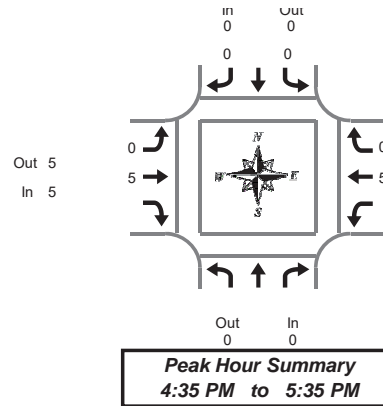
Rolling Hour Summary 4:00 PM to 6:00 PM

| Interval Start Time | Northbound Jada Way | | | | Southbound Jada Way | | | | Eastbound Holcomb Blvd | | | | Westbound Holcomb Blvd | | | | Interval Total | Pedestrians Crosswalk | | | |
|---------------------------|------------------------|-----|-------|-------|------------------------|-----|-------|-------|---------------------------|-----|-------|-------|---------------------------|-----|-------|-------|-------------------|--------------------------|-------|------|------|
| | In | Out | Total | Bikes | In | Out | Total | Bikes | In | Out | Total | Bikes | In | Out | Total | Bikes | | North | South | East | West |
| 4:00 PM | | | | 0 | 0 | | 1 | 0 | 2 | 148 | | 0 | 100 | 0 | 0 | 0 | 251 | 0 | 0 | 0 | 0 |
| 4:15 PM | | | | 0 | 0 | | 1 | 0 | 0 | 150 | | 0 | 109 | 0 | 0 | 0 | 260 | 0 | 0 | 0 | 0 |
| 4:30 PM | | | | 0 | 0 | | 3 | 0 | 0 | 152 | | 0 | 108 | 1 | 0 | 0 | 264 | 2 | 0 | 0 | 0 |
| 4:45 PM | | | | 0 | 0 | | 2 | 0 | 1 | 153 | | 0 | 104 | 1 | 0 | 0 | 261 | 2 | 0 | 0 | 0 |
| 5:00 PM | | | | 0 | 0 | | 2 | 0 | 2 | 151 | | 0 | 98 | 1 | 0 | 0 | 254 | 2 | 0 | 1 | 0 |

Heavy Vehicle Summary



Clay Carney
(503) 833-2740



Jada Way & Holcomb Blvd

Tuesday, June 21, 2016

4:00 PM to 6:00 PM

Heavy Vehicle 5-Minute Interval Summary

4:00 PM to 6:00 PM

| Interval Start Time | Northbound Jada Way | | | Southbound Jada Way | | | Eastbound Holcomb Blvd | | | Westbound Holcomb Blvd | | | Interval Total |
|---------------------------|------------------------|--|-------|------------------------|---|-------|---------------------------|----|-------|---------------------------|---|-------|-------------------|
| | | | Total | L | R | Total | L | T | Total | T | R | Total | |
| 4:00 PM | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 4:05 PM | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 4:10 PM | | | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 1 |
| 4:15 PM | | | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 1 |
| 4:20 PM | | | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 1 | 2 |
| 4:25 PM | | | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 1 |
| 4:30 PM | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 4:35 PM | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 1 |
| 4:40 PM | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 4:45 PM | | | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 1 | 2 |
| 4:50 PM | | | 0 | 0 | 0 | 0 | 0 | 2 | 2 | 0 | 0 | 0 | 2 |
| 4:55 PM | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 5:00 PM | | | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 1 |
| 5:05 PM | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 5:10 PM | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 5:15 PM | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 5:20 PM | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 5:25 PM | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 1 |
| 5:30 PM | | | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 0 | 2 | 3 |
| 5:35 PM | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 5:40 PM | | | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 1 |
| 5:45 PM | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 5:50 PM | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 1 |
| 5:55 PM | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 1 |
| Total Survey | | | 0 | 0 | 0 | 0 | 0 | 10 | 10 | 8 | 0 | 8 | 18 |

Heavy Vehicle 15-Minute Interval Summary

4:00 PM to 6:00 PM

| Interval Start Time | Northbound Jada Way | | | Southbound Jada Way | | | Eastbound Holcomb Blvd | | | Westbound Holcomb Blvd | | | Interval Total |
|---------------------------|------------------------|--|-------|------------------------|---|-------|---------------------------|----|-------|---------------------------|---|-------|-------------------|
| | | | Total | L | R | Total | L | T | Total | T | R | Total | |
| 4:00 PM | | | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 1 |
| 4:15 PM | | | 0 | 0 | 0 | 0 | 0 | 3 | 3 | 1 | 0 | 1 | 4 |
| 4:30 PM | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 1 |
| 4:45 PM | | | 0 | 0 | 0 | 0 | 0 | 3 | 3 | 1 | 0 | 1 | 4 |
| 5:00 PM | | | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 1 |
| 5:15 PM | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 1 |
| 5:30 PM | | | 0 | 0 | 0 | 0 | 0 | 2 | 2 | 2 | 0 | 2 | 4 |
| 5:45 PM | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 2 | 2 |
| Total Survey | | | 0 | 0 | 0 | 0 | 0 | 10 | 10 | 8 | 0 | 8 | 18 |

Heavy Vehicle Peak Hour Summary

4:35 PM to 5:35 PM

| By Approach | Northbound Jada Way | | | Southbound Jada Way | | | Eastbound Holcomb Blvd | | | Westbound Holcomb Blvd | | | Total |
|----------------|------------------------|-----|-------|------------------------|-----|-------|---------------------------|-----|-------|---------------------------|-----|-------|-------|
| | In | Out | Total | In | Out | Total | In | Out | Total | In | Out | Total | |
| Volume | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 5 | 10 | 5 | 5 | 10 | 10 |
| PHF | 0.00 | | | 0.00 | | | 0.42 | | | 0.42 | | | 0.63 |

| By Movement | Northbound Jada Way | | | Southbound Jada Way | | | Eastbound Holcomb Blvd | | | Westbound Holcomb Blvd | | | Total |
|----------------|------------------------|--|-------|------------------------|------|-------|---------------------------|------|-------|---------------------------|------|-------|-------|
| | | | Total | L | R | Total | L | T | Total | T | R | Total | |
| Volume | | | 0 | 0 | 0 | 0 | 0 | 5 | 5 | 5 | 0 | 5 | 10 |
| PHF | | | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.42 | 0.42 | 0.42 | 0.00 | 0.42 | 0.63 |

Heavy Vehicle Rolling Hour Summary

4:00 PM to 6:00 PM

| Interval Start Time | Northbound Jada Way | | | Southbound Jada Way | | | Eastbound Holcomb Blvd | | | Westbound Holcomb Blvd | | | Interval Total |
|---------------------------|------------------------|--|-------|------------------------|---|-------|---------------------------|---|-------|---------------------------|---|-------|-------------------|
| | | | Total | L | R | Total | L | T | Total | T | R | Total | |
| 4:00 PM | | | 0 | 0 | 0 | 0 | 0 | 7 | 7 | 3 | 0 | 3 | 10 |
| 4:15 PM | | | 0 | 0 | 0 | 0 | 0 | 7 | 7 | 3 | 0 | 3 | 10 |
| 4:30 PM | | | 0 | 0 | 0 | 0 | 0 | 4 | 4 | 3 | 0 | 3 | 7 |
| 4:45 PM | | | 0 | 0 | 0 | 0 | 0 | 6 | 6 | 4 | 0 | 4 | 10 |
| 5:00 PM | | | 0 | 0 | 0 | 0 | 0 | 3 | 3 | 5 | 0 | 5 | 8 |

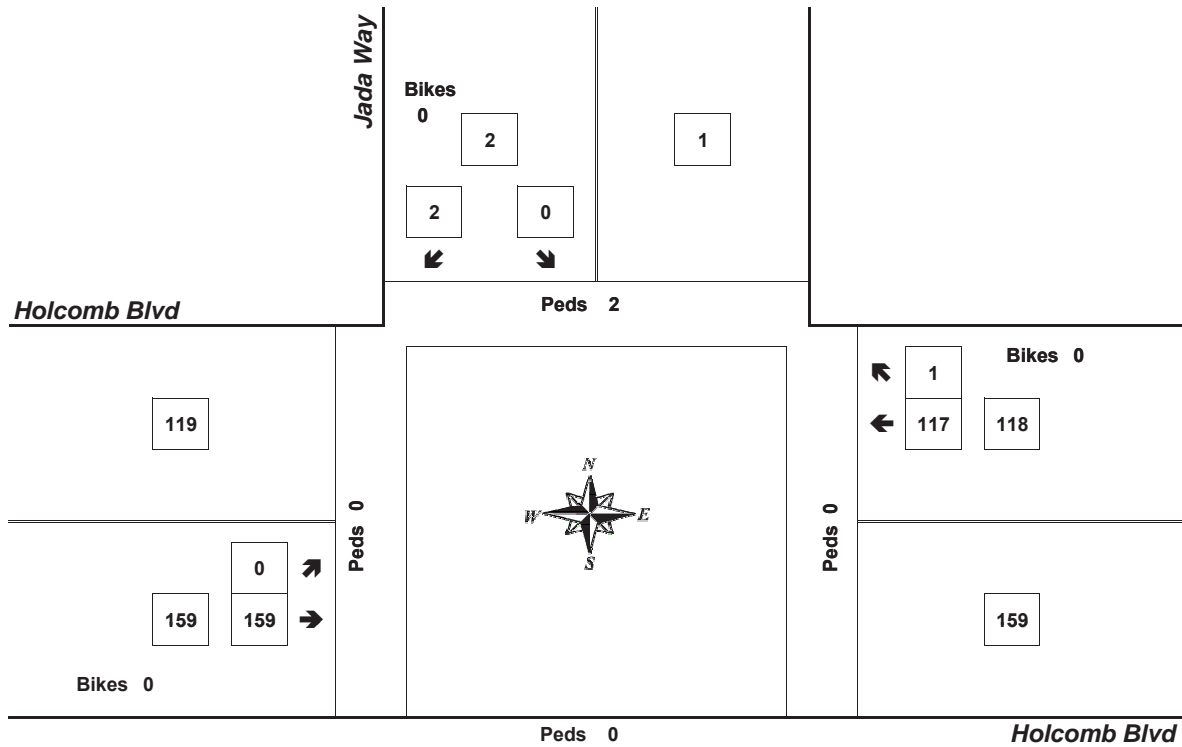
Peak Hour Summary



Clay Carney
(503) 833-2740

Jada Way & Holcomb Blvd

4:35 PM to 5:35 PM
Tuesday, June 21, 2016



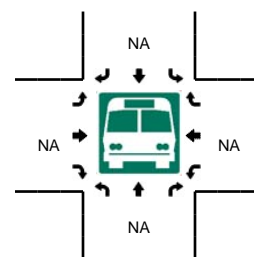
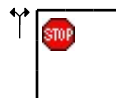
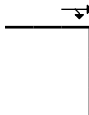
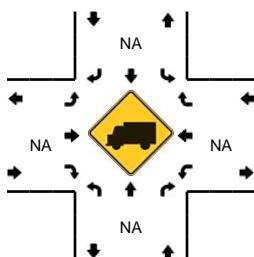
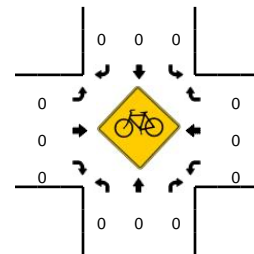
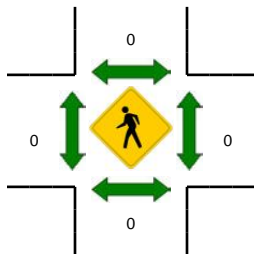
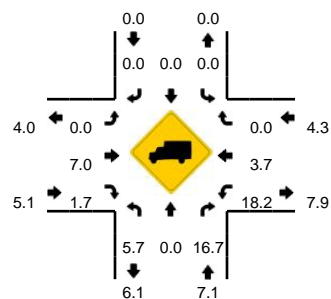
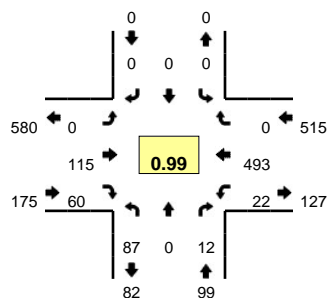
| Approach | PHF | HV% | Volume |
|--------------|------|------|--------|
| EB | 0.88 | 3.1% | 159 |
| WB | 0.80 | 4.2% | 118 |
| NB | 0.00 | 0.0% | 0 |
| SB | 0.25 | 0.0% | 2 |
| Intersection | 0.89 | 3.6% | 279 |

Count Period: 4:00 PM to 6:00 PM

LOCATION: S Holly Ln -- S Redland Rd
CITY/STATE: Oregon City, OR

QC JOB #: 13332115
DATE: Tue, Mar 17 2015

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



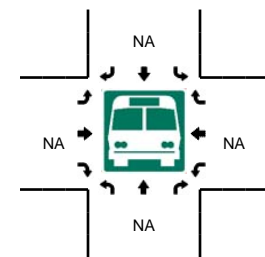
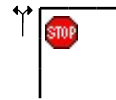
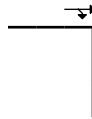
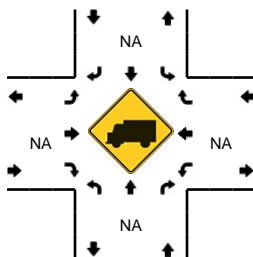
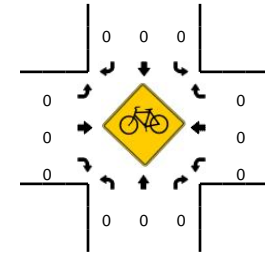
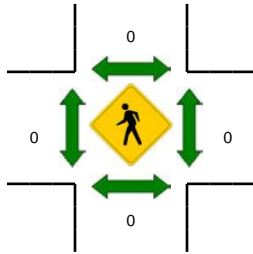
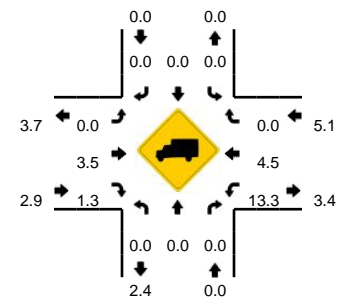
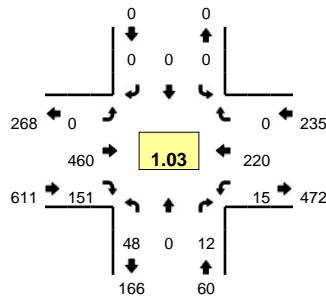
| 5-Min Count Period Beginning At | S Holly Ln (Northbound) | | | | S Holly Ln (Southbound) | | | | S Redland Rd (Eastbound) | | | | S Redland Rd (Westbound) | | | | Total | Hourly Totals |
|---------------------------------|-------------------------|------|-------|---|-------------------------|------|-------|---|--------------------------|------|-------|---|--------------------------|------|-------|---|-------|---------------|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | | |
| 7:00 AM | 9 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 2 | 0 | 2 | 42 | 0 | 0 | 63 | |
| 7:05 AM | 9 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 9 | 0 | 0 | 0 | 40 | 0 | 0 | 58 | |
| 7:10 AM | 12 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 3 | 0 | 2 | 40 | 0 | 0 | 65 | |
| 7:15 AM | 7 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 9 | 3 | 0 | 1 | 40 | 0 | 0 | 61 | |
| 7:20 AM | 9 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 14 | 9 | 0 | 2 | 40 | 0 | 0 | 74 | |
| 7:25 AM | 5 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 6 | 0 | 3 | 43 | 0 | 0 | 65 | |
| 7:30 AM | 4 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 10 | 6 | 0 | 2 | 39 | 0 | 0 | 62 | |
| 7:35 AM | 7 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 6 | 0 | 1 | 50 | 0 | 0 | 74 | |
| 7:40 AM | 10 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 10 | 6 | 0 | 1 | 43 | 0 | 0 | 71 | |
| 7:45 AM | 9 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 12 | 4 | 0 | 0 | 48 | 0 | 0 | 73 | |
| 7:50 AM | 7 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 14 | 7 | 0 | 2 | 39 | 0 | 0 | 70 | |
| 7:55 AM | 5 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 6 | 0 | 5 | 39 | 0 | 0 | 61 | 797 |
| 8:00 AM | 3 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 12 | 4 | 0 | 3 | 32 | 0 | 0 | 55 | 789 |
| 8:05 AM | 11 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 4 | 0 | 1 | 37 | 0 | 0 | 62 | 793 |
| 8:10 AM | 5 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 12 | 7 | 0 | 0 | 30 | 0 | 0 | 55 | 783 |
| 8:15 AM | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 12 | 6 | 0 | 2 | 33 | 0 | 0 | 56 | 778 |
| 8:20 AM | 9 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 10 | 11 | 0 | 8 | 33 | 0 | 0 | 74 | 778 |
| 8:25 AM | 12 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 16 | 6 | 0 | 9 | 26 | 0 | 0 | 69 | 782 |
| 8:30 AM | 11 | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 13 | 13 | 0 | 5 | 36 | 0 | 0 | 85 | 805 |
| 8:35 AM | 12 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 9 | 13 | 0 | 8 | 27 | 0 | 0 | 71 | 802 |
| 8:40 AM | 17 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 13 | 12 | 0 | 8 | 25 | 0 | 0 | 80 | 811 |
| 8:45 AM | 23 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 11 | 7 | 0 | 4 | 26 | 0 | 0 | 76 | 814 |
| 8:50 AM | 7 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 15 | 5 | 0 | 1 | 30 | 0 | 0 | 60 | 804 |
| 8:55 AM | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 3 | 0 | 1 | 17 | 0 | 0 | 33 | 776 |
| 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 | 84 | 0 | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 120 | 72 | 0 | 24 | 492 | 0 | 0 | 800 | |
| Heavy Trucks | 12 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 12 | 0 | 0 | 0 | 12 | 0 | 0 | 40 | |
| Pedestrians | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Bicycles | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Railroad | | | | | | | | | | | | | | | | | | |
| Stopped Buses | | | | | | | | | | | | | | | | | | |

Comments:

LOCATION: S Holly Ln -- S Redland Rd
CITY/STATE: Oregon City, OR

QC JOB #: 13332116
DATE: Tue, Mar 17 2015

Peak-Hour: 4:40 PM -- 5:40 PM
Peak 15-Min: 5:10 PM -- 5:25 PM



| 5-Min Count Period Beginning At | S Holly Ln (Northbound) | | | | S Holly Ln (Southbound) | | | | S Redland Rd (Eastbound) | | | | S Redland Rd (Westbound) | | | | Total | Hourly Totals |
|------------------------------------|-------------------------|------|-------|---|-------------------------|------|-------|---|--------------------------|------|-------|---|--------------------------|------|-------|---|-------|---------------|
| | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | | |
| 4:00 PM | 6 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 40 | 12 | 0 | 5 | 13 | 0 | 0 | 78 | |
| 4:05 PM | 9 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 32 | 12 | 0 | 7 | 9 | 0 | 0 | 70 | |
| 4:10 PM | 2 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 47 | 10 | 0 | 3 | 25 | 0 | 0 | 89 | |
| 4:15 PM | 6 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 37 | 8 | 0 | 3 | 14 | 0 | 0 | 69 | |
| 4:20 PM | 2 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 25 | 16 | 0 | 3 | 16 | 0 | 0 | 64 | |
| 4:25 PM | 4 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 39 | 9 | 0 | 1 | 23 | 0 | 0 | 78 | |
| 4:30 PM | 7 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 33 | 9 | 0 | 1 | 20 | 0 | 0 | 72 | |
| 4:35 PM | 7 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 47 | 15 | 0 | 2 | 21 | 0 | 0 | 93 | |
| 4:40 PM | 6 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 34 | 8 | 0 | 1 | 16 | 0 | 0 | 66 | |
| 4:45 PM | 5 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 42 | 11 | 0 | 0 | 23 | 0 | 0 | 84 | |
| 4:50 PM | 1 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 38 | 11 | 0 | 2 | 17 | 0 | 0 | 71 | |
| 4:55 PM | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 35 | 11 | 0 | 0 | 16 | 0 | 0 | 64 | 898 |
| 5:00 PM | 2 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 37 | 16 | 0 | 1 | 17 | 0 | 0 | 75 | 895 |
| 5:05 PM | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 45 | 13 | 0 | 2 | 17 | 0 | 0 | 84 | 909 |
| 5:10 PM | 3 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 41 | 18 | 0 | 0 | 26 | 0 | 0 | 89 | 909 |
| 5:15 PM | 2 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 30 | 14 | 0 | 1 | 14 | 0 | 0 | 62 | 902 |
| 5:20 PM | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 32 | 9 | 0 | 3 | 20 | 0 | 0 | 68 | 906 |
| 5:25 PM | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 40 | 17 | 0 | 1 | 17 | 0 | 0 | 77 | 905 |
| 5:30 PM | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 40 | 12 | 0 | 2 | 23 | 0 | 0 | 85 | 918 |
| 5:35 PM | 7 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 46 | 11 | 0 | 2 | 14 | 0 | 0 | 81 | 906 |
| 5:40 PM | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 41 | 11 | 0 | 0 | 16 | 0 | 0 | 73 | 913 |
| 5:45 PM | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 39 | 13 | 0 | 0 | 21 | 0 | 0 | 74 | 903 |
| 5:50 PM | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 29 | 13 | 0 | 1 | 24 | 0 | 0 | 72 | 904 |
| 5:55 PM | 2 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 48 | 15 | 0 | 1 | 19 | 0 | 0 | 87 | 927 |
| 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 | 36 | 0 | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 412 | 164 | 0 | 16 | 240 | 0 | 0 | 876 | |
| Heavy Trucks | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 12 | 0 | 0 | 0 | 8 | 0 | 0 | 20 | |
| Pedestrians | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Bicycles | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Railroad | | | | | | | | | | | | | | | | | | |
| Stopped Buses | | | | | | | | | | | | | | | | | | |

Comments:



TRIP GENERATION CALCULATIONS

Land Use: Single-Family Detached Housing
Land Use Code: 210
Variable: Dwelling Units
Variable Value: 533

AM PEAK HOUR

Trip Equation: $T = 0.70(X) + 9.74$

| | Enter | Exit | Total |
|--------------------------|-----------|------------|------------|
| Directional Distribution | 25% | 75% | |
| Trip Ends | 96 | 287 | 383 |

PM PEAK HOUR

Trip Equation: $\ln(T) = 0.90\ln(X) + 0.51$

| | Enter | Exit | Total |
|--------------------------|------------|------------|------------|
| Directional Distribution | 63% | 37% | |
| Trip Ends | 299 | 175 | 474 |

WEEKDAY

Trip Equation: $\ln(T) = 0.92\ln(X) + 2.72$

| | Enter | Exit | Total |
|--------------------------|--------------|--------------|--------------|
| Directional Distribution | 50% | 50% | |
| Trip Ends | 2,448 | 2,448 | 4,896 |

SATURDAY

Trip Equation: $\ln(T) = 0.93\ln(X) + 2.64$

| | Enter | Exit | Total |
|--------------------------|--------------|--------------|--------------|
| Directional Distribution | 50% | 50% | |
| Trip Ends | 2,406 | 2,406 | 4,812 |

Source: TRIP GENERATION, Ninth Edition



TRIP GENERATION CALCULATIONS

Land Use: Shopping Center
Land Use Code: 820
Variable: 1,000 Sq Ft Gross Leasable Area
Variable Value: 49.0

AM PEAK HOUR

Trip Rate: 0.96

| | Enter | Exit | Total |
|--------------------------|-----------|-----------|-----------|
| Directional Distribution | 62% | 38% | |
| Trip Ends | 29 | 18 | 47 |

PM PEAK HOUR

Trip Rate: 3.71

| | Enter | Exit | Total |
|--------------------------|-----------|-----------|------------|
| Directional Distribution | 48% | 52% | |
| Trip Ends | 87 | 95 | 182 |

WEEKDAY

Trip Rate: 42.7

| | Enter | Exit | Total |
|--------------------------|--------------|--------------|--------------|
| Directional Distribution | 50% | 50% | |
| Trip Ends | 1,046 | 1,046 | 2,092 |

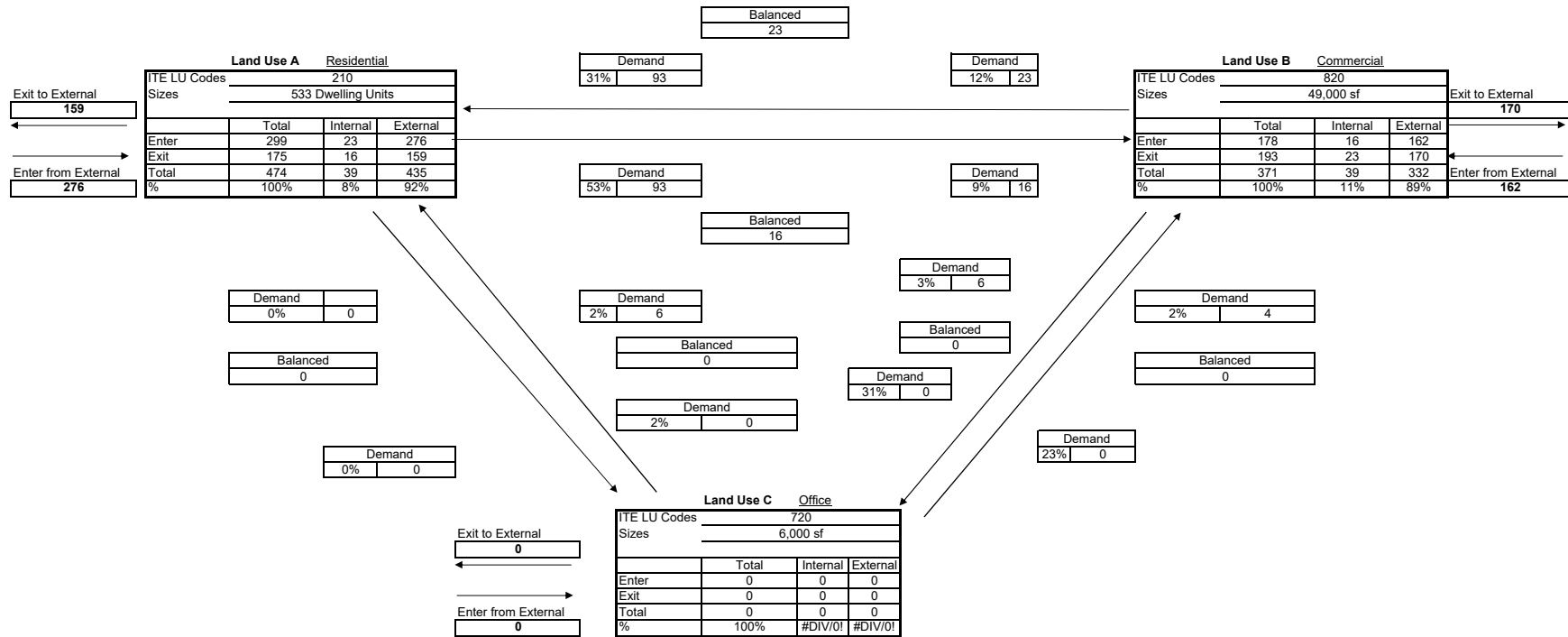
SATURDAY

Trip Rate: 49.97

| | Enter | Exit | Total |
|--------------------------|--------------|--------------|--------------|
| Directional Distribution | 50% | 50% | |
| Trip Ends | 1,224 | 1,224 | 2,448 |

Source: TRIP GENERATION, Ninth Edition

Internalization



| Net External Trips for Mult-Use Development | | | | |
|---------------------------------------------|------------|------------|------------|---------------------|
| | Land Use A | Land Use B | Land Use C | Total |
| Enter | 276 | 162 | 0 | 438 |
| Exit | 159 | 170 | 0 | 329 |
| Total | 435 | 332 | 0 | 767 |
| Single-Use Trip Gen. Est. | 474 | 371 | 0 | 845 |
| | | | | INTERNAL CAPTURE 9% |



TRIP GENERATION CALCULATIONS

Land Use: Single-Family Detached Housing
Land Use Code: 210
Variable: Dwelling Units
Variable Value: 11

AM PEAK HOUR

Trip Rate: 0.75

| | Enter | Exit | Total |
|--------------------------|-------|------|-------|
| Directional Distribution | 25% | 75% | |
| Trip Ends | 2 | 6 | 8 |

PM PEAK HOUR

Trip Rate: 1.00

| | Enter | Exit | Total |
|--------------------------|-------|------|-------|
| Directional Distribution | 63% | 37% | |
| Trip Ends | 7 | 4 | 11 |

WEEKDAY

Trip Rate: 9.52

| | Enter | Exit | Total |
|--------------------------|-------|------|-------|
| Directional Distribution | 50% | 50% | |
| Trip Ends | 52 | 52 | 104 |

SATURDAY

Trip Rate: 9.91

| | Enter | Exit | Total |
|--------------------------|-------|------|-------|
| Directional Distribution | 50% | 50% | |
| Trip Ends | 55 | 55 | 110 |

Source: TRIP GENERATION, Ninth Edition



LEVEL OF SERVICE

Level of service is used to describe the quality of traffic flow. Levels of service A to C are considered good, and rural roads are usually designed for level of service C. Urban streets and signalized intersections are typically designed for level of service D. Level of service E is considered to be the limit of acceptable delay. For unsignalized intersections, level of service E is generally considered acceptable. Here is a more complete description of levels of service:

Level of service A: Very low delay at intersections, with all traffic signal cycles clearing and no vehicles waiting through more than one signal cycle. On highways, low volume and high speeds, with speeds not restricted by other vehicles.

Level of service B: Operating speeds beginning to be affected by other traffic; short traffic delays at intersections. Higher average intersection delay than for level of service A resulting from more vehicles stopping.

Level of service C: Operating speeds and maneuverability closely controlled by other traffic; higher delays at intersections than for level of service B due to a significant number of vehicles stopping. Not all signal cycles clear the waiting vehicles. This is the recommended design standard for rural highways.

Level of service D: Tolerable operating speeds; long traffic delays occur at intersections. The influence of congestion is noticeable. At traffic signals many vehicles stop, and the proportion of vehicles not stopping declines. The number of signal cycle failures, for which vehicles must wait through more than one signal cycle, are noticeable. This is typically the design level for urban signalized intersections.

Level of service E: Restricted speeds, very long traffic delays at traffic signals, and traffic volumes near capacity. Flow is unstable so that any interruption, no matter how minor, will cause queues to form and service to deteriorate to level of service F. Traffic signal cycle failures are frequent occurrences. For unsignalized intersections, level of service E or better is generally considered acceptable.

Level of service F: Extreme delays, resulting in long queues which may interfere with other traffic movements. There may be stoppages of long duration, and speeds may drop to zero. There may be frequent signal cycle failures. Level of service F will typically result when vehicle arrival rates are greater than capacity. It is considered unacceptable by most drivers.



*LEVEL OF SERVICE CRITERIA
FOR SIGNALIZED INTERSECTIONS*

| LEVEL OF SERVICE | CONTROL DELAY PER VEHICLE (Seconds) |
|------------------------|-------------------------------------------|
| A | <10 |
| B | 10-20 |
| C | 20-35 |
| D | 35-55 |
| E | 55-80 |
| F | >80 |


*LEVEL OF SERVICE CRITERIA
FOR UNSIGNALIZED INTERSECTIONS*

| LEVEL OF SERVICE | CONTROL DELAY PER VEHICLE (Seconds) |
|------------------------|-------------------------------------------|
| A | <10 |
| B | 10-15 |
| C | 15-25 |
| D | 25-35 |
| E | 35-50 |
| F | >50 |

HCM Signalized Intersection Capacity Analysis

1: OR-99E & I-205 SB Ramps













07/07/2017

| |  | | | | | |
|-----------------------------------|-----------------------------------------------------------------------------------|-------|-------|------|---------------------------|------|
| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
| Lane Configurations | ↔↔ | ↔ | ↔↔↔ | ↔ | ↔ | ↔↔↔ |
| Traffic Volume (vph) | 373 | 224 | 1415 | 271 | 599 | 918 |
| Future Volume (vph) | 373 | 224 | 1415 | 271 | 599 | 918 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 |
| Lane Util. Factor | 0.97 | 1.00 | 0.91 | 1.00 | 1.00 | 0.91 |
| Frpb, ped/bikes | 1.00 | 1.00 | 1.00 | 0.97 | 1.00 | 1.00 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.85 | 1.00 | 0.85 | 1.00 | 1.00 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (prot) | 3273 | 1509 | 4988 | 1510 | 1752 | 5036 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (perm) | 3273 | 1509 | 4988 | 1510 | 1752 | 5036 |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 405 | 243 | 1538 | 295 | 651 | 998 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 207 | 0 | 0 |
| Lane Group Flow (vph) | 405 | 243 | 1538 | 89 | 651 | 998 |
| Confl. Peds. (#/hr) | | | | 3 | 3 | |
| Heavy Vehicles (%) | 7% | 7% | 4% | 4% | 3% | 3% |
| Turn Type | Prot | pm+ov | NA | Perm | Prot | NA |
| Protected Phases | 8 | 1 | 2 | | 1 | 6 |
| Permitted Phases | | 8 | | 2 | | |
| Actuated Green, G (s) | 15.7 | 49.5 | 27.0 | 27.0 | 33.8 | 65.3 |
| Effective Green, g (s) | 15.7 | 49.5 | 27.0 | 27.0 | 33.8 | 65.3 |
| Actuated g/C Ratio | 0.17 | 0.55 | 0.30 | 0.30 | 0.38 | 0.73 |
| Clearance Time (s) | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 570 | 905 | 1496 | 453 | 657 | 3653 |
| v/s Ratio Prot | c0.12 | 0.10 | c0.31 | | c0.37 | 0.20 |
| v/s Ratio Perm | | 0.06 | | 0.06 | | |
| v/c Ratio | 0.71 | 0.27 | 1.03 | 0.20 | 0.99 | 0.27 |
| Uniform Delay, d1 | 35.0 | 10.7 | 31.5 | 23.4 | 27.9 | 4.2 |
| Progression Factor | 1.00 | 1.00 | 0.93 | 2.14 | 1.00 | 1.00 |
| Incremental Delay, d2 | 4.2 | 0.2 | 28.7 | 0.8 | 32.7 | 0.2 |
| Delay (s) | 39.2 | 10.8 | 57.9 | 50.9 | 60.6 | 4.4 |
| Level of Service | D | B | E | D | E | A |
| Approach Delay (s) | 28.5 | | 56.8 | | | 26.6 |
| Approach LOS | C | | E | | | C |
| Intersection Summary | | | | | | |
| HCM 2000 Control Delay | | | 40.3 | | HCM 2000 Level of Service | D |
| HCM 2000 Volume to Capacity ratio | | | 0.95 | | | |
| Actuated Cycle Length (s) | | | 90.0 | | Sum of lost time (s) | 13.5 |
| Intersection Capacity Utilization | | | 82.4% | | ICU Level of Service | E |
| Analysis Period (min) | | | 15 | | | |
| c Critical Lane Group | | | | | | |

HCM Signalized Intersection Capacity Analysis

2: OR-99E & I-205 NB Ramps







07/07/2017

| |  |  |  |  |  |  |
|-----------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
| Lane Configurations |  |  |  |  |  |  |
| Traffic Volume (vph) | 143 | 402 | 1280 | 880 | 242 | 1058 |
| Future Volume (vph) | 143 | 402 | 1280 | 880 | 242 | 1058 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 |
| Lane Util. Factor | 1.00 | 1.00 | 0.91 | 1.00 | 1.00 | 0.91 |
| Frpb, ped/bikes | 1.00 | 1.00 | 1.00 | 0.97 | 1.00 | 1.00 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.85 | 1.00 | 0.85 | 1.00 | 1.00 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (prot) | 1719 | 1538 | 4940 | 1496 | 1719 | 4940 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (perm) | 1719 | 1538 | 4940 | 1496 | 1719 | 4940 |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Adj. Flow (vph) | 151 | 423 | 1347 | 926 | 255 | 1114 |
| RTOR Reduction (vph) | 0 | 259 | 0 | 319 | 0 | 0 |
| Lane Group Flow (vph) | 151 | 164 | 1347 | 607 | 255 | 1114 |
| Confl. Peds. (#/hr) | | | | 3 | 3 | |
| Heavy Vehicles (%) | 5% | 5% | 5% | 5% | 5% | 5% |
| Turn Type | Prot | Perm | NA | Perm | Prot | NA |
| Protected Phases | 8 | | 2 | | 1 | 6 |
| Permitted Phases | | 8 | | 2 | | |
| Actuated Green, G (s) | 13.9 | 13.9 | 46.4 | 46.4 | 16.2 | 67.1 |
| Effective Green, g (s) | 13.9 | 13.9 | 46.4 | 46.4 | 16.2 | 67.1 |
| Actuated g/C Ratio | 0.15 | 0.15 | 0.52 | 0.52 | 0.18 | 0.75 |
| Clearance Time (s) | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 265 | 237 | 2546 | 771 | 309 | 3683 |
| v/s Ratio Prot | 0.09 | | 0.27 | | c0.15 | 0.23 |
| v/s Ratio Perm | | c0.11 | | c0.41 | | |
| v/c Ratio | 0.57 | 0.69 | 0.53 | 0.79 | 0.83 | 0.30 |
| Uniform Delay, d1 | 35.3 | 36.0 | 14.5 | 17.8 | 35.5 | 3.8 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 0.81 | 1.38 |
| Incremental Delay, d2 | 2.8 | 8.5 | 0.8 | 8.0 | 15.5 | 0.2 |
| Delay (s) | 38.1 | 44.5 | 15.3 | 25.7 | 44.3 | 5.4 |
| Level of Service | D | D | B | C | D | A |
| Approach Delay (s) | 42.8 | | 19.6 | | | 12.6 |
| Approach LOS | D | | B | | | B |
| Intersection Summary | | | | | | |
| HCM 2000 Control Delay | | | 20.5 | | HCM 2000 Level of Service | C |
| HCM 2000 Volume to Capacity ratio | | | 0.78 | | | |
| Actuated Cycle Length (s) | | | 90.0 | | Sum of lost time (s) | 13.5 |
| Intersection Capacity Utilization | | | 75.7% | | ICU Level of Service | D |
| Analysis Period (min) | | | 15 | | | |
| c Critical Lane Group | | | | | | |

HCM Unsignalized Intersection Capacity Analysis

3: OR-99E & 15th Street

07/07/2017

| |  |  |  |  |  |  |
|-----------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
| Movement | NBT | NBR | SBL | SBT | NWL | NWR |
| Lane Configurations | ↑↑ | | | ↑↑↑ | | ↑ |
| Traffic Volume (veh/h) | 1950 | 12 | 0 | 1229 | 0 | 208 |
| Future Volume (Veh/h) | 1950 | 12 | 0 | 1229 | 0 | 208 |
| Sign Control | Free | | | Free | Stop | |
| Grade | 0% | | | 0% | 0% | |
| Peak Hour Factor | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 |
| Hourly flow rate (vph) | 2097 | 13 | 0 | 1322 | 0 | 224 |
| Pedestrians | | | | | | |
| Lane Width (ft) | | | | | | |
| Walking Speed (ft/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | None | | | None | | |
| Median storage (veh) | | | | | | |
| Upstream signal (ft) | 335 | | | 372 | | |
| pX, platoon unblocked | | | 0.57 | | 0.61 | 0.57 |
| vC, conflicting volume | | | 2110 | | 2544 | 1055 |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | | | 1448 | | 1582 | 0 |
| tC, single (s) | | | 4.2 | | 6.8 | 6.9 |
| tC, 2 stage (s) | | | | | | |
| tF (s) | | | 2.3 | | 3.5 | 3.3 |
| p0 queue free % | | | 100 | | 100 | 64 |
| cM capacity (veh/h) | | | 255 | | 60 | 622 |
| Direction, Lane # | NB 1 | NB 2 | SB 1 | SB 2 | SB 3 | NW 1 |
| Volume Total | 1398 | 712 | 441 | 441 | 441 | 224 |
| Volume Left | 0 | 0 | 0 | 0 | 0 | 0 |
| Volume Right | 0 | 13 | 0 | 0 | 0 | 224 |
| cSH | 1700 | 1700 | 1700 | 1700 | 1700 | 622 |
| Volume to Capacity | 0.82 | 0.42 | 0.26 | 0.26 | 0.26 | 0.36 |
| Queue Length 95th (ft) | 0 | 0 | 0 | 0 | 0 | 41 |
| Control Delay (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 14.0 |
| Lane LOS | | | | | | B |
| Approach Delay (s) | 0.0 | | 0.0 | | | 14.0 |
| Approach LOS | | | | | | B |
| Intersection Summary | | | | | | |
| Average Delay | | | 0.9 | | | |
| Intersection Capacity Utilization | | | 73.8% | | ICU Level of Service | D |
| Analysis Period (min) | | | 15 | | | |

| Intersection | | | | | | |
|--------------------------|--------|------|--------|------|--------|------|
| Int Delay, s/veh | 1.5 | | | | | |
| Movement | NBT | NBR | SBL | SBT | NWL | NWR |
| Lane Configurations | ↑↑↱ | | ↑↑↑↑ | | ↱↑ | |
| Traffic Vol, veh/h | 1950 | 12 | 0 | 1229 | 0 | 208 |
| Future Vol, veh/h | 1950 | 12 | 0 | 1229 | 0 | 208 |
| 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 | 93 | 93 | 93 | 93 | 93 | 93 |
| Heavy Vehicles, % | 6 | 6 | 6 | 6 | 2 | 2 |
| Mvmt Flow | 2097 | 13 | 0 | 1322 | 0 | 224 |
| | | | | | | |
| Major/Minor | Major1 | | Major2 | | Minor1 | |
| Conflicting Flow All | 0 | 0 | - | - | - | 1055 |
| Stage 1 | - | - | - | - | - | - |
| Stage 2 | - | - | - | - | - | - |
| Critical Hdwy | - | - | - | - | - | 6 |
| Critical Hdwy Stg 1 | - | - | - | - | - | - |
| Critical Hdwy Stg 2 | - | - | - | - | - | - |
| Follow-up Hdwy | - | - | - | - | - | 2 |
| Pot Cap-1 Maneuver | - | - | 0 | - | 0 | 410 |
| Stage 1 | - | - | 0 | - | 0 | - |
| Stage 2 | - | - | 0 | - | 0 | - |
| Platoon blocked, % | - | - | | - | | |
| Mov Cap-1 Maneuver | - | - | - | - | - | 410 |
| Mov Cap-2 Maneuver | - | - | - | - | - | - |
| Stage 1 | - | - | - | - | - | - |
| Stage 2 | - | - | - | - | - | - |
| | | | | | | |
| | | | | | | |
| Approach | NB | | SB | | NW | |
| HCM Control Delay, s | 0 | | 0 | | 23.8 | |
| HCM LOS | | | | | C | |
| | | | | | | |
| Minor Lane/Major Mvmt | NBT | NBR | NWL | n1 | SBT | |
| Capacity (veh/h) | - | - | 410 | - | | |
| HCM Lane V/C Ratio | - | - | 0.546 | - | | |
| HCM Control Delay (s) | - | - | 23.8 | - | | |
| HCM Lane LOS | - | - | C | - | | |
| HCM 95th %tile Q(veh) | - | - | 3.2 | - | | |

HCM Signalized Intersection Capacity Analysis

4: OR-99E & 14th Street












07/07/2017

| | ↑ | ↖ | ↙ | ↓ | ↘ | ↗ |
|-----------------------------------|-------|-------|-------|---------------------------|------|-------|
| Movement | NBT | NBR | SBL | SBT | NWL | NWR |
| Lane Configurations | ↑↑ | | ↖ | ↑↑ | ↖ | ↗ |
| Traffic Volume (vph) | 1478 | 22 | 293 | 932 | 71 | 465 |
| Future Volume (vph) | 1478 | 22 | 293 | 932 | 71 | 465 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.5 | | 4.5 | 4.5 | 4.5 | 4.5 |
| Lane Util. Factor | 0.95 | | 1.00 | 0.95 | 1.00 | 1.00 |
| Frpb, ped/bikes | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 |
| Flpb, ped/bikes | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | | 1.00 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 1.00 | | 0.95 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (prot) | 3398 | | 1703 | 3406 | 1736 | 1553 |
| Flt Permitted | 1.00 | | 0.07 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (perm) | 3398 | | 125 | 3406 | 1736 | 1553 |
| Peak-hour factor, PHF | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Adj. Flow (vph) | 1572 | 23 | 312 | 991 | 76 | 495 |
| RTOR Reduction (vph) | 1 | 0 | 0 | 0 | 0 | 10 |
| Lane Group Flow (vph) | 1594 | 0 | 312 | 991 | 76 | 485 |
| Confl. Peds. (#/hr) | | 1 | 1 | | 3 | |
| Heavy Vehicles (%) | 6% | 6% | 6% | 6% | 4% | 4% |
| Turn Type | NA | | pm+pt | NA | Prot | pm+ov |
| Protected Phases | 2 | | 1 | 6 | 4 | 1 |
| Permitted Phases | | | 6 | | | 4 |
| Actuated Green, G (s) | 52.9 | | 82.5 | 82.5 | 8.5 | 33.6 |
| Effective Green, g (s) | 52.9 | | 82.5 | 82.5 | 8.5 | 33.6 |
| Actuated g/C Ratio | 0.53 | | 0.82 | 0.82 | 0.08 | 0.34 |
| Clearance Time (s) | 4.5 | | 4.5 | 4.5 | 4.5 | 4.5 |
| Vehicle Extension (s) | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 1797 | | 499 | 2809 | 147 | 591 |
| v/s Ratio Prot | c0.47 | | 0.16 | 0.29 | 0.04 | c0.21 |
| v/s Ratio Perm | | | 0.36 | | | 0.11 |
| v/c Ratio | 0.89 | | 0.63 | 0.35 | 0.52 | 0.82 |
| Uniform Delay, d1 | 20.9 | | 25.2 | 2.2 | 43.8 | 30.4 |
| Progression Factor | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 6.9 | | 2.4 | 0.1 | 3.1 | 8.9 |
| Delay (s) | 27.8 | | 27.6 | 2.2 | 46.8 | 39.4 |
| Level of Service | C | | C | A | D | D |
| Approach Delay (s) | 27.8 | | | 8.3 | 40.4 | |
| Approach LOS | C | | | A | D | |
| Intersection Summary | | | | | | |
| HCM 2000 Control Delay | | 22.6 | | HCM 2000 Level of Service | | C |
| HCM 2000 Volume to Capacity ratio | | 0.90 | | | | |
| Actuated Cycle Length (s) | | 100.0 | | Sum of lost time (s) | | 13.5 |
| Intersection Capacity Utilization | | 77.8% | | ICU Level of Service | | D |
| Analysis Period (min) | | 15 | | | | |
| c Critical Lane Group | | | | | | |

HCM Signalized Intersection Capacity Analysis

5: Redland Road & Abernethy Road/Holcomb Boulevard






















07/07/2017

| |  | | | | | | | | | | | |
|-----------------------------------|------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations |  |  | |  |  |  |  |  | |  |  |  |
| Traffic Volume (vph) | 23 | 83 | 44 | 90 | 167 | 267 | 195 | 393 | 86 | 128 | 278 | 51 |
| Future Volume (vph) | 23 | 83 | 44 | 90 | 167 | 267 | 195 | 393 | 86 | 128 | 278 | 51 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.5 | 4.5 | | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | | 4.5 | 4.5 | 4.5 |
| Lane Util. Factor | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frpb, ped/bikes | 1.00 | 0.99 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.95 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.97 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1656 | 1640 | | 1752 | 1845 | 1568 | 1752 | 1795 | | 1736 | 1827 | 1553 |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1656 | 1640 | | 1752 | 1845 | 1568 | 1752 | 1795 | | 1736 | 1827 | 1553 |
| Peak-hour factor, PHF | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 |
| Adj. Flow (vph) | 25 | 89 | 47 | 97 | 180 | 287 | 210 | 423 | 92 | 138 | 299 | 55 |
| RTOR Reduction (vph) | 0 | 27 | 0 | 0 | 0 | 191 | 0 | 11 | 0 | 0 | 0 | 37 |
| Lane Group Flow (vph) | 25 | 109 | 0 | 97 | 180 | 96 | 210 | 504 | 0 | 138 | 299 | 18 |
| Confl. Peds. (#/hr) | | | 1 | 1 | | | | | | | | |
| Heavy Vehicles (%) | 9% | 9% | 9% | 3% | 3% | 3% | 3% | 3% | 3% | 4% | 4% | 4% |
| Turn Type | Prot | NA | | Prot | NA | pm+ov | Prot | NA | | Prot | NA | pm+ov |
| Protected Phases | 7 | 4 | | 3 | 8 | 1 | 5 | 2 | | 1 | 6 | 7 |
| Permitted Phases | | | | | | 8 | | | | | | 6 |
| Actuated Green, G (s) | 2.9 | 12.2 | | 4.1 | 13.4 | 21.2 | 11.3 | 21.4 | | 7.8 | 17.9 | 20.8 |
| Effective Green, g (s) | 2.9 | 12.2 | | 4.1 | 13.4 | 21.2 | 11.3 | 21.4 | | 7.8 | 17.9 | 20.8 |
| Actuated g/C Ratio | 0.05 | 0.19 | | 0.06 | 0.21 | 0.33 | 0.18 | 0.34 | | 0.12 | 0.28 | 0.33 |
| Clearance Time (s) | 4.5 | 4.5 | | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | | 4.5 | 4.5 | 4.5 |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 75 | 315 | | 113 | 389 | 634 | 311 | 604 | | 213 | 515 | 618 |
| v/s Ratio Prot | 0.02 | 0.07 | | c0.06 | c0.10 | 0.02 | c0.12 | c0.28 | | 0.08 | 0.16 | 0.00 |
| v/s Ratio Perm | | | | | | 0.04 | | | | | | 0.01 |
| v/c Ratio | 0.33 | 0.35 | | 0.86 | 0.46 | 0.15 | 0.68 | 0.84 | | 0.65 | 0.58 | 0.03 |
| Uniform Delay, d1 | 29.4 | 22.2 | | 29.4 | 21.9 | 14.8 | 24.4 | 19.4 | | 26.5 | 19.6 | 14.5 |
| 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 | 2.6 | 0.7 | | 43.6 | 0.9 | 0.1 | 5.7 | 9.7 | | 6.6 | 1.7 | 0.0 |
| Delay (s) | 32.0 | 22.9 | | 73.0 | 22.8 | 14.9 | 30.1 | 29.1 | | 33.2 | 21.2 | 14.5 |
| Level of Service | C | C | | E | C | B | C | C | | C | C | B |
| Approach Delay (s) | | 24.3 | | | 27.4 | | | 29.4 | | | 23.8 | |
| Approach LOS | | C | | | C | | | C | | | C | |
| Intersection Summary | | | | | | | | | | | | |
| HCM 2000 Control Delay | | | 27.0 | | | | HCM 2000 Level of Service | | | C | | |
| HCM 2000 Volume to Capacity ratio | | | 0.75 | | | | | | | | | |
| Actuated Cycle Length (s) | | | 63.5 | | | | Sum of lost time (s) | | | 18.0 | | |
| Intersection Capacity Utilization | | | 61.0% | | | | ICU Level of Service | | | B | | |
| Analysis Period (min) | | | 15 | | | | | | | | | |
| c Critical Lane Group | | | | | | | | | | | | |

HCM Signalized Intersection Capacity Analysis

6: Washington Street & Abernethy Road



















07/07/2017

| |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement | SEL | SET | SER | NWL | NWT | NWR | NEL | NET | NER | SWL | SWT | SWR |
| Lane Configurations | |  | |  |  | |  |  |  |  |  |  |
| Traffic Volume (vph) | 0 | 1 | 0 | 387 | 1 | 27 | 1 | 150 | 144 | 15 | 365 | 0 |
| Future Volume (vph) | 0 | 1 | 0 | 387 | 1 | 27 | 1 | 150 | 144 | 15 | 365 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.5 | | 4.5 | 4.5 | | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | |
| Lane Util. Factor | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frpb, ped/bikes | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | |
| Flpb, ped/bikes | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | | 1.00 | | 1.00 | 0.85 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | |
| Flt Protected | | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | | 1900 | | 1717 | 1547 | | 1700 | 1792 | 1491 | 1734 | 1827 | |
| Flt Permitted | | 1.00 | | 0.76 | 1.00 | | 0.37 | 1.00 | 1.00 | 0.65 | 1.00 | |
| Satd. Flow (perm) | | 1900 | | 1369 | 1547 | | 654 | 1792 | 1491 | 1181 | 1827 | |
| Peak-hour factor, PHF | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 |
| Adj. Flow (vph) | 0 | 1 | 0 | 450 | 1 | 31 | 1 | 174 | 167 | 17 | 424 | 0 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 17 | 0 | 0 | 0 | 109 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 0 | 1 | 0 | 450 | 15 | 0 | 1 | 174 | 58 | 17 | 424 | 0 |
| Confl. Peds. (#/hr) | | | 1 | 1 | | | 3 | | 1 | 1 | | 3 |
| Heavy Vehicles (%) | 0% | 0% | 0% | 5% | 5% | 5% | 6% | 6% | 6% | 4% | 4% | 4% |
| Turn Type | | NA | | Perm | NA | | Perm | NA | Perm | Perm | NA | |
| Protected Phases | | 6 | | | 2 | | | 4 | | | | 8 |
| Permitted Phases | 6 | | | 2 | | | 4 | | 4 | 8 | | |
| Actuated Green, G (s) | | 20.0 | | 20.0 | 20.0 | | 15.3 | 15.3 | 15.3 | 15.3 | 15.3 | |
| Effective Green, g (s) | | 20.0 | | 20.0 | 20.0 | | 15.3 | 15.3 | 15.3 | 15.3 | 15.3 | |
| Actuated g/C Ratio | | 0.45 | | 0.45 | 0.45 | | 0.35 | 0.35 | 0.35 | 0.35 | 0.35 | |
| Clearance Time (s) | | 4.5 | | 4.5 | 4.5 | | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | |
| Vehicle Extension (s) | | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | | 857 | | 618 | 698 | | 225 | 618 | 514 | 407 | 630 | |
| v/s Ratio Prot | | 0.00 | | | 0.01 | | | 0.10 | | | c0.23 | |
| v/s Ratio Perm | | | | c0.33 | | | 0.00 | | 0.04 | 0.01 | | |
| v/c Ratio | | 0.00 | | 0.73 | 0.02 | | 0.00 | 0.28 | 0.11 | 0.04 | 0.67 | |
| Uniform Delay, d1 | | 6.7 | | 9.9 | 6.7 | | 9.5 | 10.5 | 9.9 | 9.6 | 12.4 | |
| Progression Factor | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | | 0.0 | | 4.3 | 0.0 | | 0.0 | 0.3 | 0.1 | 0.0 | 2.8 | |
| Delay (s) | | 6.7 | | 14.2 | 6.7 | | 9.5 | 10.8 | 10.0 | 9.7 | 15.2 | |
| Level of Service | | A | | B | A | | A | B | A | A | B | |
| Approach Delay (s) | | 6.7 | | | 13.7 | | | 10.4 | | | 15.0 | |
| Approach LOS | | A | | | B | | | B | | | B | |
| Intersection Summary | | | | | | | | | | | | |
| HCM 2000 Control Delay | | | 13.3 | | | HCM 2000 Level of Service | | | | B | | |
| HCM 2000 Volume to Capacity ratio | | | 0.70 | | | | | | | | | |
| Actuated Cycle Length (s) | | | 44.3 | | | Sum of lost time (s) | | | 9.0 | | | |
| Intersection Capacity Utilization | | | 54.8% | | | ICU Level of Service | | | A | | | |
| Analysis Period (min) | | | 15 | | | | | | | | | |
| c Critical Lane Group | | | | | | | | | | | | |

HCM Signalized Intersection Capacity Analysis

7: Washington Street & 15th Street




















07/07/2017

| |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement | SEL | SET | SER | NWL | NWT | NWR | NEL | NET | NER | SWL | SWT | SWR |
| Lane Configurations | |  | | |  | |  |  | |  |  | |
| Traffic Volume (vph) | 13 | 14 | 13 | 10 | 64 | 31 | 25 | 262 | 85 | 49 | 500 | 194 |
| Future Volume (vph) | 13 | 14 | 13 | 10 | 64 | 31 | 25 | 262 | 85 | 49 | 500 | 194 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.5 | | | 4.5 | | 4.5 | 4.5 | | 4.5 | 4.5 | |
| Lane Util. Factor | | 1.00 | | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frpb, ped/bikes | | 0.99 | | | 0.99 | | 1.00 | 0.99 | | 1.00 | 0.99 | |
| Flpb, ped/bikes | | 1.00 | | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | | 0.96 | | | 0.96 | | 1.00 | 0.96 | | 1.00 | 0.96 | |
| Flt Protected | | 0.98 | | | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | | 1478 | | | 1669 | | 1703 | 1717 | | 1735 | 1740 | |
| Flt Permitted | | 0.91 | | | 0.97 | | 0.25 | 1.00 | | 0.48 | 1.00 | |
| Satd. Flow (perm) | | 1368 | | | 1621 | | 442 | 1717 | | 874 | 1740 | |
| Peak-hour factor, PHF | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 |
| Adj. Flow (vph) | 15 | 16 | 15 | 11 | 72 | 35 | 28 | 294 | 96 | 55 | 562 | 218 |
| RTOR Reduction (vph) | 0 | 13 | 0 | 0 | 18 | 0 | 0 | 13 | 0 | 0 | 15 | 0 |
| Lane Group Flow (vph) | 0 | 33 | 0 | 0 | 100 | 0 | 28 | 377 | 0 | 55 | 765 | 0 |
| Confl. Peds. (#/hr) | 1 | | 1 | 1 | | 1 | 1 | | 1 | 1 | | 1 |
| Confl. Bikes (#/hr) | | | | | | 1 | | | | | | |
| Heavy Vehicles (%) | 20% | 20% | 20% | 8% | 8% | 8% | 6% | 6% | 6% | 4% | 4% | 4% |
| Turn Type | Perm | NA | | Perm | NA | | pm+pt | NA | | pm+pt | NA | |
| Protected Phases | | 4 | | | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | | 8 | | | 2 | | | 6 | | |
| Actuated Green, G (s) | | 7.7 | | | 7.7 | | 35.5 | 34.1 | | 38.3 | 35.5 | |
| Effective Green, g (s) | | 7.7 | | | 7.7 | | 35.5 | 34.1 | | 38.3 | 35.5 | |
| Actuated g/C Ratio | | 0.13 | | | 0.13 | | 0.61 | 0.59 | | 0.66 | 0.61 | |
| Clearance Time (s) | | 4.5 | | | 4.5 | | 4.5 | 4.5 | | 4.5 | 4.5 | |
| Vehicle Extension (s) | | 3.0 | | | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | | 181 | | | 214 | | 300 | 1007 | | 617 | 1063 | |
| v/s Ratio Prot | | | | | | | 0.00 | 0.22 | | c0.00 | c0.44 | |
| v/s Ratio Perm | | 0.02 | | | c0.06 | | 0.05 | | | 0.05 | | |
| v/c Ratio | | 0.18 | | | 0.47 | | 0.09 | 0.37 | | 0.09 | 0.72 | |
| Uniform Delay, d1 | | 22.4 | | | 23.3 | | 5.6 | 6.4 | | 3.6 | 7.8 | |
| Progression Factor | | 1.00 | | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | | 0.5 | | | 1.6 | | 0.1 | 0.2 | | 0.1 | 2.4 | |
| Delay (s) | | 22.9 | | | 24.9 | | 5.8 | 6.6 | | 3.7 | 10.2 | |
| Level of Service | | C | | | C | | A | A | | A | B | |
| Approach Delay (s) | | 22.9 | | | 24.9 | | | 6.5 | | | 9.8 | |
| Approach LOS | | C | | | C | | | A | | | A | |
| Intersection Summary | | | | | | | | | | | | |
| HCM 2000 Control Delay | | 10.5 | | | HCM 2000 Level of Service | | | B | | | | |
| HCM 2000 Volume to Capacity ratio | | 0.66 | | | | | | | | | | |
| Actuated Cycle Length (s) | | 58.1 | | | Sum of lost time (s) | | | 13.5 | | | | |
| Intersection Capacity Utilization | | 54.7% | | | ICU Level of Service | | | A | | | | |
| Analysis Period (min) | | 15 | | | | | | | | | | |
| c Critical Lane Group | | | | | | | | | | | | |

HCM Signalized Intersection Capacity Analysis

8: Washington Street & 14th Street



















07/07/2017







| |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement | SEL | SET | SER | NWL | NWT | NWR | NEL | NET | NER | SWL | SWT | SWR |
| Lane Configurations | |  |  | |  | |  |  | |  |  | |
| Traffic Volume (vph) | 170 | 32 | 106 | 3 | 37 | 3 | 293 | 188 | 7 | 1 | 260 | 276 |
| Future Volume (vph) | 170 | 32 | 106 | 3 | 37 | 3 | 293 | 188 | 7 | 1 | 260 | 276 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.5 | 4.5 | | 4.5 | | 4.5 | 4.5 | | 4.5 | 4.5 | |
| Lane Util. Factor | | 1.00 | 1.00 | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frpb, ped/bikes | | 1.00 | 0.97 | | 1.00 | | 1.00 | 1.00 | | 1.00 | 0.99 | |
| Flpb, ped/bikes | | 1.00 | 1.00 | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | | 1.00 | 0.85 | | 0.99 | | 1.00 | 0.99 | | 1.00 | 0.92 | |
| Flt Protected | | 0.96 | 1.00 | | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | | 1750 | 1508 | | 1838 | | 1752 | 1833 | | 1716 | 1646 | |
| Flt Permitted | | 0.73 | 1.00 | | 0.98 | | 0.17 | 1.00 | | 0.62 | 1.00 | |
| Satd. Flow (perm) | | 1324 | 1508 | | 1810 | | 309 | 1833 | | 1119 | 1646 | |
| Peak-hour factor, PHF | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 |
| Adj. Flow (vph) | 193 | 36 | 120 | 3 | 42 | 3 | 333 | 214 | 8 | 1 | 295 | 314 |
| RTOR Reduction (vph) | 0 | 0 | 94 | 0 | 2 | 0 | 0 | 1 | 0 | 0 | 43 | 0 |
| Lane Group Flow (vph) | 0 | 229 | 26 | 0 | 46 | 0 | 333 | 221 | 0 | 1 | 566 | 0 |
| Confl. Peds. (#/hr) | 1 | | 4 | 4 | | 1 | 3 | | 2 | 2 | | 3 |
| Confl. Bikes (#/hr) | | | | | | | | | | | | 1 |
| Heavy Vehicles (%) | 4% | 4% | 4% | 2% | 2% | 2% | 3% | 3% | 3% | 5% | 5% | 5% |
| Turn Type | Perm | NA | Perm | Perm | NA | | pm+pt | NA | | pm+pt | NA | |
| Protected Phases | | 4 | | | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | 4 | 8 | | | 2 | | | 6 | | |
| Actuated Green, G (s) | | 17.2 | 17.2 | | 17.2 | | 54.3 | 48.9 | | 35.0 | 34.1 | |
| Effective Green, g (s) | | 17.2 | 17.2 | | 17.2 | | 54.3 | 48.9 | | 35.0 | 34.1 | |
| Actuated g/C Ratio | | 0.21 | 0.21 | | 0.21 | | 0.67 | 0.61 | | 0.43 | 0.42 | |
| Clearance Time (s) | | 4.5 | 4.5 | | 4.5 | | 4.5 | 4.5 | | 4.5 | 4.5 | |
| Vehicle Extension (s) | | 3.0 | 3.0 | | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | | 282 | 322 | | 386 | | 489 | 1113 | | 493 | 697 | |
| v/s Ratio Prot | | | | | | | c0.13 | 0.12 | | 0.00 | c0.34 | |
| v/s Ratio Perm | | c0.17 | 0.02 | | 0.03 | | 0.33 | | | 0.00 | | |
| v/c Ratio | | 0.81 | 0.08 | | 0.12 | | 0.68 | 0.20 | | 0.00 | 0.81 | |
| Uniform Delay, d1 | | 30.1 | 25.3 | | 25.5 | | 12.4 | 7.1 | | 12.9 | 20.4 | |
| Progression Factor | | 1.00 | 1.00 | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | | 16.1 | 0.1 | | 0.1 | | 3.9 | 0.1 | | 0.0 | 7.1 | |
| Delay (s) | | 46.2 | 25.4 | | 25.7 | | 16.2 | 7.1 | | 12.9 | 27.5 | |
| Level of Service | | D | C | | C | | B | A | | B | C | |
| Approach Delay (s) | | 39.1 | | | 25.7 | | | 12.6 | | | 27.5 | |
| Approach LOS | | D | | | C | | | B | | | C | |
| Intersection Summary | | | | | | | | | | | | |
| HCM 2000 Control Delay | | 24.7 | | | | | | | | | | |
| HCM 2000 Volume to Capacity ratio | | 0.78 | | | | | | | | | | |
| Actuated Cycle Length (s) | | 80.5 | | | | | | | | 13.5 | | |
| Intersection Capacity Utilization | | 76.0% | | | | | | | | | | |
| Analysis Period (min) | | 15 | | | | | | | | | | |
| c Critical Lane Group | | | | | | | | | | | | |

HCM Unsignalized Intersection Capacity Analysis

9: Main Street & 14th Street

07/07/2017

| |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement | SEL | SET | SER | NWL | NWT | NWR | NEL | NET | NER | SWL | SWT | SWR |
| Lane Configurations |  |  | | |  | | |  |  | |  | |
| Traffic Volume (veh/h) | 20 | 265 | 26 | 117 | 521 | 11 | 5 | 23 | 53 | 0 | 11 | 10 |
| Future Volume (Veh/h) | 20 | 265 | 26 | 117 | 521 | 11 | 5 | 23 | 53 | 0 | 11 | 10 |
| Sign Control | | Free | | | Free | | | Stop | | | Stop | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 |
| Hourly flow rate (vph) | 22 | 285 | 28 | 126 | 560 | 12 | 5 | 25 | 57 | 0 | 12 | 11 |
| Pedestrians | | 2 | | | 10 | | | 4 | | | | |
| Lane Width (ft) | | 12.0 | | | 12.0 | | | 12.0 | | | | |
| Walking Speed (ft/s) | | 3.5 | | | 3.5 | | | 3.5 | | | | |
| Percent Blockage | | 0 | | | 1 | | | 0 | | | | |
| Right turn flare (veh) | | | | | | | | | 5 | | | |
| Median type | | None | | | None | | | | | | | |
| Median storage (veh) | | | | | | | | | | | | |
| Upstream signal (ft) | | 187 | | | 537 | | | | | | | |
| pX, platoon unblocked | 0.93 | | | | | | 0.93 | 0.93 | | 0.93 | 0.93 | 0.93 |
| vC, conflicting volume | 572 | | | 317 | | | 1184 | 1171 | 313 | 1198 | 1179 | 568 |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 502 | | | 317 | | | 1160 | 1146 | 313 | 1175 | 1155 | 498 |
| tC, single (s) | 4.1 | | | 4.1 | | | 7.2 | 6.6 | 6.3 | 7.1 | 6.5 | 6.2 |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 2.2 | | | 2.2 | | | 3.6 | 4.1 | 3.4 | 3.5 | 4.0 | 3.3 |
| p0 queue free % | 98 | | | 90 | | | 96 | 84 | 92 | 100 | 93 | 98 |
| cM capacity (veh/h) | 978 | | | 1233 | | | 129 | 157 | 702 | 114 | 161 | 535 |
| Direction, Lane # | SE 1 | SE 2 | NW 1 | NE 1 | SW 1 | | | | | | | |
| Volume Total | 22 | 313 | 698 | 87 | 23 | | | | | | | |
| Volume Left | 22 | 0 | 126 | 5 | 0 | | | | | | | |
| Volume Right | 0 | 28 | 12 | 57 | 11 | | | | | | | |
| cSH | 978 | 1700 | 1233 | 442 | 242 | | | | | | | |
| Volume to Capacity | 0.02 | 0.18 | 0.10 | 0.20 | 0.09 | | | | | | | |
| Queue Length 95th (ft) | 2 | 0 | 9 | 18 | 8 | | | | | | | |
| Control Delay (s) | 8.8 | 0.0 | 2.5 | 18.8 | 21.4 | | | | | | | |
| Lane LOS | A | | A | C | C | | | | | | | |
| Approach Delay (s) | 0.6 | | 2.5 | 18.8 | 21.4 | | | | | | | |
| Approach LOS | | | | C | C | | | | | | | |
| Intersection Summary | | | | | | | | | | | | |
| Average Delay | | | 3.6 | | | | | | | | | |
| Intersection Capacity Utilization | | | 67.8% | | ICU Level of Service | | | | C | | | |
| Analysis Period (min) | | | 15 | | | | | | | | | |

| Intersection | | | | | | | | | | | | |
|--------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------|------|-----------------------------------------------------------------------------------|------|------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|------|-------------------------------------------------------------------------------------|------|
| Int Delay, s/veh | 3 | | | | | | | | | | | |
| Movement | SEL | SET | SER | NWL | NWT | NWR | NEL | NET | NER | SWL | SWT | SWR |
| Lane Configurations |  |  | | |  | | |  |  | |  | |
| Traffic Vol, veh/h | 20 | 265 | 26 | 117 | 521 | 11 | 5 | 23 | 53 | 0 | 11 | 10 |
| Future Vol, veh/h | 20 | 265 | 26 | 117 | 521 | 11 | 5 | 23 | 53 | 0 | 11 | 10 |
| Conflicting Peds, #/hr | 0 | 0 | 4 | 4 | 0 | 0 | 2 | 0 | 10 | 10 | 0 | 2 |
| Sign Control | Free | Free | Free | Free | Free | Free | Stop | Stop | Stop | Stop | Stop | Stop |
| RT Channelized | - | - | None | - | - | None | - | - | None | - | - | None |
| Storage Length | 0 | - | - | - | - | - | - | - | 130 | - | - | - |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 93 | 93 | 93 | 93 | 93 | 93 | 93 | 93 | 93 | 93 | 93 | 93 |
| Heavy Vehicles, % | 4 | 4 | 4 | 3 | 3 | 3 | 9 | 9 | 9 | 0 | 0 | 0 |
| Mvmt Flow | 22 | 285 | 28 | 126 | 560 | 12 | 5 | 25 | 57 | 0 | 12 | 11 |

| Major/Minor | Major1 | | | Major2 | | | Minor1 | | | Minor2 | | |
|----------------------|--------|---|---|--------|---|---|--------|-------|-------|--------|------|-----|
| Conflicting Flow All | 572 | 0 | 0 | 317 | 0 | 0 | 1177 | 1170 | 313 | 1182 | 1178 | 568 |
| Stage 1 | - | - | - | - | - | - | 346 | 346 | - | 818 | 818 | - |
| Stage 2 | - | - | - | - | - | - | 831 | 824 | - | 364 | 360 | - |
| Critical Hdwy | 4.14 | - | - | 4.13 | - | - | 7.19 | 6.59 | 6.29 | 7.1 | 6.5 | 6.2 |
| Critical Hdwy Stg 1 | - | - | - | - | - | - | 6.19 | 5.59 | - | 6.1 | 5.5 | - |
| Critical Hdwy Stg 2 | - | - | - | - | - | - | 6.19 | 5.59 | - | 6.1 | 5.5 | - |
| Follow-up Hdwy | 2.236 | - | - | 2.227 | - | - | 3.581 | 4.081 | 3.381 | 3.5 | 4 | 3.3 |
| Pot Cap-1 Maneuver | 991 | - | - | 1237 | - | - | 163 | 187 | 711 | 168 | 192 | 526 |
| Stage 1 | - | - | - | - | - | - | 655 | 623 | - | 373 | 393 | - |
| Stage 2 | - | - | - | - | - | - | 354 | 378 | - | 659 | 630 | - |
| Platoon blocked, % | | - | - | | - | - | | | | | | |
| Mov Cap-1 Maneuver | 989 | - | - | 1225 | - | - | 130 | 155 | 702 | 117 | 159 | 525 |
| Mov Cap-2 Maneuver | - | - | - | - | - | - | 130 | 155 | - | 117 | 159 | - |
| Stage 1 | - | - | - | - | - | - | 638 | 607 | - | 365 | 334 | - |
| Stage 2 | - | - | - | - | - | - | 283 | 321 | - | 563 | 614 | - |

| Approach | SE | NW | NE | SW |
|----------------------|-----|-----|----|------|
| HCM Control Delay, s | 0.6 | 1.5 | 19 | 21.7 |
| HCM LOS | | | C | C |






| Minor Lane/Major Mvmt | NELn1 | NELn2 | NWL | NWT | NWR | SEL | SET | SERSWLn1 |
|-----------------------|-------|-------|-------|-----|-----|-------|-----|----------|
| Capacity (veh/h) | 150 | 702 | 1225 | - | - | 989 | - | - 238 |
| HCM Lane V/C Ratio | 0.201 | 0.081 | 0.103 | - | - | 0.022 | - | - 0.095 |
| HCM Control Delay (s) | 34.9 | 10.6 | 8.3 | 0 | - | 8.7 | - | - 21.7 |
| HCM Lane LOS | D | B | A | A | - | A | - | - C |
| HCM 95th %tile Q(veh) | 0.7 | 0.3 | 0.3 | - | - | 0.1 | - | - 0.3 |

HCM Unsignalized Intersection Capacity Analysis

101: OR-213 & I-205 SB Ramps

07/07/2017








| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|-----------------------------------|-----------------------------------------------------------------------------------|------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
| Lane Configurations |  | |  |  |  |  |
| Traffic Volume (veh/h) | 14 | 0 | 864 | 25 | 18 | 4 |
| Future Volume (Veh/h) | 14 | 0 | 864 | 25 | 18 | 4 |
| Sign Control | Stop | | | Free | Free | |
| Grade | 0% | | | 0% | 0% | |
| Peak Hour Factor | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 |
| Hourly flow rate (vph) | 15 | 0 | 949 | 27 | 20 | 4 |
| Pedestrians | | | | | | |
| Lane Width (ft) | | | | | | |
| Walking Speed (ft/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | | | | None | None | |
| Median storage veh | | | | | | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 1945 | 20 | 20 | | | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 1945 | 20 | 20 | | | |
| tC, single (s) | *6.0 | 6.3 | 4.1 | | | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | *2.0 | 3.4 | 2.2 | | | |
| p0 queue free % | 67 | 100 | 40 | | | |
| cM capacity (veh/h) | 46 | 1046 | 1577 | | | |
| Direction, Lane # | EB 1 | NB 1 | NB 2 | SB 1 | SB 2 | |
| Volume Total | 15 | 949 | 27 | 20 | 4 | |
| Volume Left | 15 | 949 | 0 | 0 | 0 | |
| Volume Right | 0 | 0 | 0 | 0 | 4 | |
| cSH | 46 | 1577 | 1700 | 1700 | 1700 | |
| Volume to Capacity | 0.33 | 0.60 | 0.02 | 0.01 | 0.00 | |
| Queue Length 95th (ft) | 28 | 107 | 0 | 0 | 0 | |
| Control Delay (s) | 117.9 | 10.7 | 0.0 | 0.0 | 0.0 | |
| Lane LOS | F | B | | | | |
| Approach Delay (s) | 117.9 | 10.4 | 0.0 | | | |
| Approach LOS | F | | | | | |
| Intersection Summary | | | | | | |
| Average Delay | | | 11.7 | | | |
| Intersection Capacity Utilization | | | 64.5% | | ICU Level of Service | |
| Analysis Period (min) | | | 15 | | | |
| | | | C | | | |

* User Entered Value

Intersection

Int Delay, s/veh 11.8

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|--------------------------|-----------------------------------------------------------------------------------|------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Lane Configurations |  | |  |  |  |  |
| Traffic Vol, veh/h | 14 | 0 | 864 | 25 | 18 | 4 |
| Future Vol, veh/h | 14 | 0 | 864 | 25 | 18 | 4 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Free | Free | Free | Free |
| RT Channelized | - | None | - | None | - | Free |
| Storage Length | 0 | - | 0 | - | - | 0 |
| Veh in Median Storage, # | 0 | - | - | 0 | 0 | - |
| Grade, % | 0 | - | - | 0 | 0 | - |
| Peak Hour Factor | 91 | 91 | 91 | 91 | 91 | 91 |
| Heavy Vehicles, % | 6 | 6 | 5 | 5 | 18 | 18 |
| Mvmt Flow | 15 | 0 | 949 | 27 | 20 | 4 |

| Major/Minor | Minor2 | | Major1 | | Major2 | |
|----------------------|--------|---|--------|---|--------|---|
| Conflicting Flow All | 1946 | - | 20 | 0 | - | 0 |
| Stage 1 | 20 | - | - | - | - | - |
| Stage 2 | 1926 | - | - | - | - | - |
| Critical Hdwy | 6 | - | 4.15 | - | - | - |
| Critical Hdwy Stg 1 | 5.46 | - | - | - | - | - |
| Critical Hdwy Stg 2 | 5.46 | - | - | - | - | - |
| Follow-up Hdwy | 2 | - | 2.245 | - | - | - |
| Pot Cap-1 Maneuver | 115 | 0 | 1577 | - | - | 0 |
| Stage 1 | 1756 | 0 | - | - | - | 0 |
| Stage 2 | 158 | 0 | - | - | - | 0 |
| Platoon blocked, % | | | | - | - | |
| Mov Cap-1 Maneuver | 46 | - | 1577 | - | - | - |
| Mov Cap-2 Maneuver | 46 | - | - | - | - | - |
| Stage 1 | 1756 | - | - | - | - | - |
| Stage 2 | 63 | - | - | - | - | - |

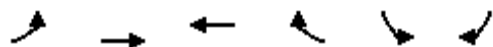
| Approach | EB | NB | SB |
|----------------------|-------|------|----|
| HCM Control Delay, s | 118.5 | 10.4 | 0 |
| HCM LOS | F | | |

| Minor Lane/Major Mvmt | NBL | NBT | EBLn1 | SBT |
|-----------------------|-------|-----|-------|-----|
| Capacity (veh/h) | 1577 | - | 46 | - |
| HCM Lane V/C Ratio | 0.602 | - | 0.334 | - |
| HCM Control Delay (s) | 10.7 | - | 118.5 | - |
| HCM Lane LOS | B | - | F | - |
| HCM 95th %tile Q(veh) | 4.3 | - | 1.2 | - |

HCM Unsignalized Intersection Capacity Analysis

102: I-205 SB Ramps & OR-213

07/07/2017





















| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|-----------------------------------|------|------|-------|------|----------------------|------|
| Lane Configurations | | ↑↑ | | ↑↑ | ↑ | |
| Traffic Volume (veh/h) | 0 | 1508 | 0 | 889 | 18 | 0 |
| Future Volume (Veh/h) | 0 | 1508 | 0 | 889 | 18 | 0 |
| Sign Control | | Free | Free | | Stop | |
| Grade | | 0% | 0% | | 0% | |
| Peak Hour Factor | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 |
| Hourly flow rate (vph) | 0 | 1657 | 0 | 977 | 20 | 0 |
| Pedestrians | | | | | | |
| Lane Width (ft) | | | | | | |
| Walking Speed (ft/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | | None | None | | | |
| Median storage (veh) | | | | | | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 977 | | | | 828 | 0 |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 977 | | | | 828 | 0 |
| tC, single (s) | 4.2 | | | | 7.2 | 7.3 |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 2.3 | | | | 3.7 | 3.5 |
| p0 queue free % | 100 | | | | 93 | 100 |
| cM capacity (veh/h) | 678 | | | | 279 | 1034 |
| Direction, Lane # | EB 1 | EB 2 | WB 1 | WB 2 | SB 1 | |
| Volume Total | 828 | 828 | 488 | 488 | 20 | |
| Volume Left | 0 | 0 | 0 | 0 | 20 | |
| Volume Right | 0 | 0 | 488 | 488 | 0 | |
| cSH | 1700 | 1700 | 1700 | 1700 | 279 | |
| Volume to Capacity | 0.49 | 0.49 | 0.29 | 0.29 | 0.07 | |
| Queue Length 95th (ft) | 0 | 0 | 0 | 0 | 6 | |
| Control Delay (s) | 0.0 | 0.0 | 0.0 | 0.0 | 18.9 | |
| Lane LOS | | | | | C | |
| Approach Delay (s) | 0.0 | | 0.0 | | 18.9 | |
| Approach LOS | | | | | C | |
| Intersection Summary | | | | | | |
| Average Delay | | | 0.1 | | | |
| Intersection Capacity Utilization | | | 51.7% | | ICU Level of Service | A |
| Analysis Period (min) | | | 15 | | | |

| Intersection | | | | | | |
|--------------------------|--------|------|--------|------|--------|------|
| Int Delay, s/veh | 0.2 | | | | | |
| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
| Lane Configurations | | ↑↑ | | ↑↑ | ↑ | |
| Traffic Vol, veh/h | 0 | 1508 | 0 | 889 | 18 | 0 |
| Future Vol, veh/h | 0 | 1508 | 0 | 889 | 18 | 0 |
| 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 | 0 | - |
| Veh in Median Storage, # | - | 0 | 0 | - | 0 | - |
| Grade, % | - | 0 | 0 | - | 0 | - |
| Peak Hour Factor | 91 | 91 | 91 | 91 | 91 | 91 |
| Heavy Vehicles, % | 6 | 6 | 5 | 5 | 18 | 18 |
| Mvmt Flow | 0 | 1657 | 0 | 977 | 20 | 0 |
| | | | | | | |
| Major/Minor | Major1 | | Major2 | | Minor2 | |
| Conflicting Flow All | - | 0 | - | - | 829 | - |
| Stage 1 | - | - | - | - | 0 | - |
| Stage 2 | - | - | - | - | 829 | - |
| Critical Hdwy | - | - | - | - | 7.86 | - |
| Critical Hdwy Stg 1 | - | - | - | - | - | - |
| Critical Hdwy Stg 2 | - | - | - | - | 6.86 | - |
| Follow-up Hdwy | - | - | - | - | 3.68 | - |
| Pot Cap-1 Maneuver | 0 | - | 0 | - | 237 | 0 |
| Stage 1 | 0 | - | 0 | - | - | 0 |
| Stage 2 | 0 | - | 0 | - | 299 | 0 |
| Platoon blocked, % | | - | | - | | |
| Mov Cap-1 Maneuver | - | - | - | - | 237 | - |
| Mov Cap-2 Maneuver | - | - | - | - | 237 | - |
| Stage 1 | - | - | - | - | - | - |
| Stage 2 | - | - | - | - | 299 | - |
| | | | | | | |
| Approach | EB | | WB | | SB | |
| HCM Control Delay, s | 0 | | 0 | | 21.6 | |
| HCM LOS | | | | | C | |
| | | | | | | |
| Minor Lane/Major Mvmt | EBT | WBR | SBLn1 | | | |
| Capacity (veh/h) | - | - | 237 | | | |
| HCM Lane V/C Ratio | - | - | 0.083 | | | |
| HCM Control Delay (s) | - | - | 21.6 | | | |
| HCM Lane LOS | - | - | C | | | |
| HCM 95th %tile Q(veh) | - | - | 0.3 | | | |

HCM Signalized Intersection Capacity Analysis

12: OR-213 & Prairie Schooner Way/Clackamas River Drive

07/07/2017

| |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | | |  | | |  | |  |  | |  |  |
| Traffic Volume (vph) | 0 | 0 | 93 | 0 | 0 | 417 | 0 | 2415 | 138 | 0 | 1714 | 427 |
| Future Volume (vph) | 0 | 0 | 93 | 0 | 0 | 417 | 0 | 2415 | 138 | 0 | 1714 | 427 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | | 4.5 | | | 4.5 | | 4.5 | 4.5 | | 4.5 | 4.5 |
| Lane Util. Factor | | | 0.88 | | | 0.88 | | 0.91 | 1.00 | | 0.91 | 1.00 |
| Frpb, ped/bikes | | | 1.00 | | | 1.00 | | 1.00 | 0.98 | | 1.00 | 1.00 |
| Flpb, ped/bikes | | | 1.00 | | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 |
| Frt | | | 0.85 | | | 0.85 | | 1.00 | 0.85 | | 1.00 | 0.85 |
| Flt Protected | | | 1.00 | | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 |
| Satd. Flow (prot) | | | 2760 | | | 2538 | | 4988 | 1521 | | 4893 | 1524 |
| Flt Permitted | | | 1.00 | | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 |
| Satd. Flow (perm) | | | 2760 | | | 2538 | | 4988 | 1521 | | 4893 | 1524 |
| Peak-hour factor, PHF | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Adj. Flow (vph) | 0 | 0 | 96 | 0 | 0 | 430 | 0 | 2490 | 142 | 0 | 1767 | 440 |
| RTOR Reduction (vph) | 0 | 0 | 24 | 0 | 0 | 20 | 0 | 0 | 57 | 0 | 0 | 114 |
| Lane Group Flow (vph) | 0 | 0 | 72 | 0 | 0 | 410 | 0 | 2490 | 85 | 0 | 1767 | 326 |
| Confl. Bikes (#/hr) | | | | | | | | | 1 | | | |
| Heavy Vehicles (%) | 3% | 3% | 3% | 12% | 12% | 12% | 4% | 4% | 4% | 6% | 6% | 6% |
| Turn Type | | | Perm | | | Perm | | NA | Perm | | NA | Perm |
| Protected Phases | | | | | | | | 2 | | | 6 | |
| Permitted Phases | | | 5 | | | 1 | | | 2 | | | 6 |
| Actuated Green, G (s) | | | 5.8 | | | 13.8 | | 34.2 | 34.2 | | 42.2 | 42.2 |
| Effective Green, g (s) | | | 5.8 | | | 13.8 | | 34.2 | 34.2 | | 42.2 | 42.2 |
| Actuated g/C Ratio | | | 0.10 | | | 0.24 | | 0.60 | 0.60 | | 0.74 | 0.74 |
| Clearance Time (s) | | | 4.5 | | | 4.5 | | 4.5 | 4.5 | | 4.5 | 4.5 |
| Vehicle Extension (s) | | | 3.0 | | | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 |
| Lane Grp Cap (vph) | | | 280 | | | 614 | | 2992 | 912 | | 3622 | 1128 |
| v/s Ratio Prot | | | | | | | | c0.50 | | | 0.36 | |
| v/s Ratio Perm | | | 0.03 | | | c0.16 | | | 0.06 | | | 0.21 |
| v/c Ratio | | | 0.26 | | | 0.67 | | 0.83 | 0.09 | | 0.49 | 0.29 |
| Uniform Delay, d1 | | | 23.6 | | | 19.5 | | 9.1 | 4.8 | | 3.0 | 2.4 |
| Progression Factor | | | 1.00 | | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 |
| Incremental Delay, d2 | | | 0.5 | | | 2.7 | | 2.1 | 0.0 | | 0.1 | 0.1 |
| Delay (s) | | | 24.1 | | | 22.3 | | 11.2 | 4.9 | | 3.1 | 2.6 |
| Level of Service | | | C | | | C | | B | A | | A | A |
| Approach Delay (s) | | 24.1 | | | 22.3 | | | 10.9 | | | 3.0 | |
| Approach LOS | | C | | | C | | | B | | | A | |
| Intersection Summary | | | | | | | | | | | | |
| HCM 2000 Control Delay | | | 8.8 | | | HCM 2000 Level of Service | | | A | | | |
| HCM 2000 Volume to Capacity ratio | | | 0.78 | | | | | | | | | |
| Actuated Cycle Length (s) | | | 57.0 | | | Sum of lost time (s) | | | 9.0 | | | |
| Intersection Capacity Utilization | | | 68.7% | | | ICU Level of Service | | | C | | | |
| Analysis Period (min) | | | 15 | | | | | | | | | |
| c Critical Lane Group | | | | | | | | | | | | |

HCM Signalized Intersection Capacity Analysis

13: OR-213 & Redland Road

07/07/2017



| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|------------------------|-------|-------|------|-------|------|-------|
| Lane Configurations | | | | | | |
| Traffic Volume (vph) | 526 | 126 | 100 | 2035 | 1505 | 367 |
| Future Volume (vph) | 526 | 126 | 100 | 2035 | 1505 | 367 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 |
| Lane Util. Factor | 0.97 | 1.00 | 1.00 | 0.95 | 0.95 | 1.00 |
| Frt | 1.00 | 0.85 | 1.00 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 0.95 | 1.00 | 1.00 | 1.00 |
| Satd. Flow (prot) | 3400 | 1568 | 1736 | 3471 | 3471 | 1553 |
| Flt Permitted | 0.95 | 1.00 | 0.95 | 1.00 | 1.00 | 1.00 |
| Satd. Flow (perm) | 3400 | 1568 | 1736 | 3471 | 3471 | 1553 |
| Peak-hour factor, PHF | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 |
| Adj. Flow (vph) | 548 | 131 | 104 | 2120 | 1568 | 382 |
| RTOR Reduction (vph) | 0 | 18 | 0 | 0 | 0 | 61 |
| Lane Group Flow (vph) | 548 | 113 | 104 | 2120 | 1568 | 321 |
| Heavy Vehicles (%) | 3% | 3% | 4% | 4% | 4% | 4% |
| Turn Type | Prot | pm+ov | Prot | NA | NA | pm+ov |
| Protected Phases | 4 | 5 | 5 | 2 | 6 | 4 |
| Permitted Phases | | 4 | | | | 6 |
| Actuated Green, G (s) | 23.6 | 34.7 | 11.1 | 87.4 | 71.8 | 95.4 |
| Effective Green, g (s) | 23.6 | 34.7 | 11.1 | 87.4 | 71.8 | 95.4 |
| Actuated g/C Ratio | 0.20 | 0.29 | 0.09 | 0.73 | 0.60 | 0.80 |
| Clearance Time (s) | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 668 | 512 | 160 | 2528 | 2076 | 1292 |
| v/s Ratio Prot | c0.16 | 0.02 | 0.06 | c0.61 | 0.45 | 0.05 |
| v/s Ratio Perm | | 0.05 | | | | 0.16 |
| v/c Ratio | 0.82 | 0.22 | 0.65 | 0.84 | 0.76 | 0.25 |
| Uniform Delay, d1 | 46.2 | 32.4 | 52.6 | 11.4 | 17.7 | 3.1 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 8.0 | 0.2 | 9.1 | 3.5 | 2.6 | 0.1 |
| Delay (s) | 54.1 | 32.6 | 61.7 | 14.9 | 20.3 | 3.2 |
| Level of Service | D | C | E | B | C | A |
| Approach Delay (s) | 50.0 | | | 17.1 | 16.9 | |
| Approach LOS | D | | | B | B | |


Intersection Summary

| | | | |
|-----------------------------------|-------|---------------------------|------|
| HCM 2000 Control Delay | 21.6 | HCM 2000 Level of Service | C |
| HCM 2000 Volume to Capacity ratio | 0.87 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 13.5 |
| Intersection Capacity Utilization | 78.8% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

HCM Signalized Intersection Capacity Analysis

14: OR-213 & Beavercreek Road

















07/07/2017





| |  | | | | | | | | | | | |
|-----------------------------------|------------------------------------------------------------------------------------|------|-------|------|-------|---------------------------|------|-------|------|-------|------|------|
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | ↰↱ | ↱↱ | | ↰↱ | ↱↱ | ↱ | ↰↱ | ↱↱ | ↱ | ↰↱ | ↱↱ | ↱ |
| Traffic Volume (vph) | 352 | 309 | 15 | 78 | 413 | 0 | 31 | 945 | 93 | 428 | 560 | 554 |
| Future Volume (vph) | 352 | 309 | 15 | 78 | 413 | 0 | 31 | 945 | 93 | 428 | 560 | 554 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.5 | 4.5 | | 4.5 | 4.5 | | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 |
| Lane Util. Factor | 0.97 | 0.95 | | 0.97 | 0.95 | | 1.00 | 0.95 | 1.00 | 0.97 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.99 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 3273 | 3348 | | 3400 | 3505 | | 1719 | 3438 | 1538 | 3335 | 3438 | 1538 |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 3273 | 3348 | | 3400 | 3505 | | 1719 | 3438 | 1538 | 3335 | 3438 | 1538 |
| Peak-hour factor, PHF | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 |
| Adj. Flow (vph) | 378 | 332 | 16 | 84 | 444 | 0 | 33 | 1016 | 100 | 460 | 602 | 596 |
| RTOR Reduction (vph) | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 62 | 0 | 0 | 235 |
| Lane Group Flow (vph) | 378 | 345 | 0 | 84 | 444 | 0 | 33 | 1016 | 38 | 460 | 602 | 361 |
| Confl. Peds. (#/hr) | | | 4 | 4 | | | | | | | | |
| Heavy Vehicles (%) | 7% | 7% | 7% | 3% | 3% | 3% | 5% | 5% | 5% | 5% | 5% | 5% |
| Turn Type | Prot | NA | | Prot | NA | Perm | Prot | NA | Perm | Prot | NA | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | 8 | | | 2 | | | 6 |
| Actuated Green, G (s) | 17.5 | 31.2 | | 5.8 | 19.5 | | 4.0 | 45.4 | 45.4 | 19.6 | 61.0 | 61.0 |
| Effective Green, g (s) | 17.5 | 31.2 | | 5.8 | 19.5 | | 4.0 | 45.4 | 45.4 | 19.6 | 61.0 | 61.0 |
| Actuated g/C Ratio | 0.15 | 0.26 | | 0.05 | 0.16 | | 0.03 | 0.38 | 0.38 | 0.16 | 0.51 | 0.51 |
| Clearance Time (s) | 4.5 | 4.5 | | 4.5 | 4.5 | | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 477 | 870 | | 164 | 569 | | 57 | 1300 | 581 | 544 | 1747 | 781 |
| v/s Ratio Prot | c0.12 | 0.10 | | 0.02 | c0.13 | | 0.02 | c0.30 | | c0.14 | 0.18 | |
| v/s Ratio Perm | | | | | | | | | 0.02 | | | 0.24 |
| v/c Ratio | 0.79 | 0.40 | | 0.51 | 0.78 | | 0.58 | 0.78 | 0.07 | 0.85 | 0.34 | 0.46 |
| Uniform Delay, d1 | 49.5 | 36.6 | | 55.7 | 48.2 | | 57.2 | 32.9 | 23.8 | 48.7 | 17.6 | 19.0 |
| 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 | 8.8 | 0.3 | | 2.7 | 6.9 | | 13.5 | 4.7 | 0.2 | 11.6 | 0.5 | 2.0 |
| Delay (s) | 58.3 | 36.9 | | 58.4 | 55.0 | | 70.6 | 37.6 | 24.0 | 60.3 | 18.1 | 20.9 |
| Level of Service | E | D | | E | E | | E | D | C | E | B | C |
| Approach Delay (s) | | 48.0 | | | 55.6 | | | 37.4 | | | 30.8 | |
| Approach LOS | | D | | | E | | | D | | | C | |
| Intersection Summary | | | | | | | | | | | | |
| HCM 2000 Control Delay | | | 39.0 | | | HCM 2000 Level of Service | | | D | | | |
| HCM 2000 Volume to Capacity ratio | | | 0.79 | | | | | | | | | |
| Actuated Cycle Length (s) | | | 120.0 | | | Sum of lost time (s) | | | 18.0 | | | |
| Intersection Capacity Utilization | | | 74.8% | | | ICU Level of Service | | | D | | | |
| Analysis Period (min) | | | 15 | | | | | | | | | |
| c Critical Lane Group | | | | | | | | | | | | |

HCM Unsignalized Intersection Capacity Analysis

16: Holly Lane & Redland Road

07/07/2017


| | | | | | | | | | | | | |
|-----------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| |  |  |  |  |  |  |  |  |  |  |  |  |
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | |  | | |  | | |  | | |  | |
| Traffic Volume (veh/h) | 0 | 142 | 101 | 58 | 404 | 0 | 124 | 0 | 28 | 0 | 0 | 0 |
| Future Volume (Veh/h) | 0 | 142 | 101 | 58 | 404 | 0 | 124 | 0 | 28 | 0 | 0 | 0 |
| Sign Control | | Free | | | Free | | | Stop | | | Stop | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 |
| Hourly flow rate (vph) | 0 | 165 | 117 | 67 | 470 | 0 | 144 | 0 | 33 | 0 | 0 | 0 |
| Pedestrians | | | | | | | | | | | | |
| Lane Width (ft) | | | | | | | | | | | | |
| Walking Speed (ft/s) | | | | | | | | | | | | |
| Percent Blockage | | | | | | | | | | | | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | None | | | None | | | | | | | | |
| Median storage (veh) | | | | | | | | | | | | |
| Upstream signal (ft) | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 470 | | | 282 | | | 828 | 828 | 224 | 860 | 886 | 470 |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 470 | | | 282 | | | 828 | 828 | 224 | 860 | 886 | 470 |
| tC, single (s) | 4.2 | | | 4.2 | | | *6.0 | 6.5 | *6.0 | 7.1 | 6.5 | 6.2 |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 2.3 | | | 2.3 | | | *2.0 | 4.0 | *2.0 | 3.5 | 4.0 | 3.3 |
| p0 queue free % | 100 | | | 95 | | | 73 | 100 | 97 | 100 | 100 | 100 |
| cM capacity (veh/h) | 1032 | | | 1252 | | | 542 | 288 | 1319 | 258 | 268 | 594 |
| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 | | | | | | | | |
| Volume Total | 282 | 537 | 177 | 0 | | | | | | | | |
| Volume Left | 0 | 67 | 144 | 0 | | | | | | | | |
| Volume Right | 117 | 0 | 33 | 0 | | | | | | | | |
| cSH | 1032 | 1252 | 609 | 1700 | | | | | | | | |
| Volume to Capacity | 0.00 | 0.05 | 0.29 | 0.00 | | | | | | | | |
| Queue Length 95th (ft) | 0 | 4 | 30 | 0 | | | | | | | | |
| Control Delay (s) | 0.0 | 1.5 | 13.3 | 0.0 | | | | | | | | |
| Lane LOS | | A | B | A | | | | | | | | |
| Approach Delay (s) | 0.0 | 1.5 | 13.3 | 0.0 | | | | | | | | |
| Approach LOS | | | B | A | | | | | | | | |
| Intersection Summary | | | | | | | | | | | | |
| Average Delay | | | 3.2 | | | | | | | | | |
| Intersection Capacity Utilization | | | 56.7% | ICU Level of Service | | | | | B | | | |
| Analysis Period (min) | | | 15 | | | | | | | | | |
| * User Entered Value | | | | | | | | | | | | |

| Intersection | | | | | | | | | | | | |
|--------------------------|--------|-----------------------------------------------------------------------------------|------|--------|-----------------------------------------------------------------------------------|------|--------|-------------------------------------------------------------------------------------|------|--------|-------------------------------------------------------------------------------------|------|
| Int Delay, s/veh | 2.9 | | | | | | | | | | | |
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | |  | | |  | | |  | | |  | |
| Traffic Vol, veh/h | 0 | 142 | 101 | 58 | 404 | 0 | 124 | 0 | 28 | 0 | 0 | 0 |
| Future Vol, veh/h | 0 | 142 | 101 | 58 | 404 | 0 | 124 | 0 | 28 | 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 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 86 | 86 | 86 | 86 | 86 | 86 | 86 | 86 | 86 | 86 | 86 | 86 |
| Heavy Vehicles, % | 14 | 14 | 14 | 7 | 7 | 7 | 4 | 4 | 4 | 2 | 2 | 2 |
| Mvmt Flow | 0 | 165 | 117 | 67 | 470 | 0 | 144 | 0 | 33 | 0 | 0 | 0 |
| | | | | | | | | | | | | |
| Major/Minor | Major1 | | | Major2 | | | Minor1 | | | Minor2 | | |
| Conflicting Flow All | 470 | 0 | 0 | 283 | 0 | 0 | 829 | 829 | 224 | 845 | 888 | 470 |
| Stage 1 | - | - | - | - | - | - | 224 | 224 | - | 605 | 605 | - |
| Stage 2 | - | - | - | - | - | - | 605 | 605 | - | 240 | 283 | - |
| Critical Hdwy | 4.24 | - | - | 4.17 | - | - | 6 | 6 | 6 | 6 | 6 | 6 |
| Critical Hdwy Stg 1 | - | - | - | - | - | - | 6.14 | 5.54 | - | 6.12 | 5.52 | - |
| Critical Hdwy Stg 2 | - | - | - | - | - | - | 6.14 | 5.54 | - | 6.12 | 5.52 | - |
| Follow-up Hdwy | 2.326 | - | - | 2.263 | - | - | 2 | 2 | 2 | 2 | 2 | 2 |
| Pot Cap-1 Maneuver | 1032 | - | - | 1251 | - | - | 564 | 564 | 1318 | 552 | 519 | 934 |
| Stage 1 | - | - | - | - | - | - | 1306 | 1356 | - | 758 | 838 | - |
| Stage 2 | - | - | - | - | - | - | 755 | 835 | - | 1279 | 1260 | - |
| Platoon blocked, % | | - | - | | - | - | | | | | | |
| Mov Cap-1 Maneuver | 1032 | - | - | 1251 | - | - | 533 | 523 | 1318 | 509 | 482 | 934 |
| Mov Cap-2 Maneuver | - | - | - | - | - | - | 533 | 523 | - | 509 | 482 | - |
| Stage 1 | - | - | - | - | - | - | 1306 | 1356 | - | 758 | 778 | - |
| Stage 2 | - | - | - | - | - | - | 701 | 775 | - | 1247 | 1260 | - |
| | | | | | | | | | | | | |
| Approach | EB | | | WB | | | NB | | | SB | | |
| HCM Control Delay, s | 0 | | | 1 | | | 13.5 | | | 0 | | |
| HCM LOS | | | | | | | B | | | A | | |
| | | | | | | | | | | | | |
| Minor Lane/Major Mvmt | NBLn1 | EBL | EBT | EBR | WBL | WBT | WBR | SBLn1 | | | | |
| Capacity (veh/h) | 599 | 1032 | - | - | 1251 | - | - | - | | | | |
| HCM Lane V/C Ratio | 0.295 | - | - | - | 0.054 | - | - | - | | | | |
| HCM Control Delay (s) | 13.5 | 0 | - | - | 8 | 0 | - | 0 | | | | |
| HCM Lane LOS | B | A | - | - | A | A | - | A | | | | |
| HCM 95th %tile Q(veh) | 1.2 | 0 | - | - | 0.2 | - | - | - | | | | |

HCM Signalized Intersection Capacity Analysis

1: OR-99E & I-205 SB Ramps








07/07/2017

| |  | | | | | |
|-----------------------------------|-----------------------------------------------------------------------------------|-------|-------|------|---------------------------|------|
| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
| Lane Configurations | ↔↔ | ↔ | ↔↔↔ | ↔ | ↔ | ↔↔↔ |
| Traffic Volume (vph) | 819 | 297 | 1255 | 219 | 463 | 1647 |
| Future Volume (vph) | 819 | 297 | 1255 | 219 | 463 | 1647 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 |
| Lane Util. Factor | 0.97 | 1.00 | 0.91 | 1.00 | 1.00 | 0.91 |
| Frpb, ped/bikes | 1.00 | 1.00 | 1.00 | 0.96 | 1.00 | 1.00 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.85 | 1.00 | 0.85 | 1.00 | 1.00 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (prot) | 3400 | 1568 | 5085 | 1526 | 1770 | 5085 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (perm) | 3400 | 1568 | 5085 | 1526 | 1770 | 5085 |
| Peak-hour factor, PHF | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Adj. Flow (vph) | 844 | 306 | 1294 | 226 | 477 | 1698 |
| RTOR Reduction (vph) | 0 | 1 | 0 | 159 | 0 | 0 |
| Lane Group Flow (vph) | 844 | 305 | 1294 | 67 | 477 | 1698 |
| Confl. Peds. (#/hr) | | | | 6 | 6 | |
| Confl. Bikes (#/hr) | | | | 1 | | |
| Heavy Vehicles (%) | 3% | 3% | 2% | 2% | 2% | 2% |
| Turn Type | Prot | pm+ov | NA | Perm | Prot | NA |
| Protected Phases | 8 | 1 | 2 | | 1 | 6 |
| Permitted Phases | | 8 | | 2 | | |
| Actuated Green, G (s) | 24.1 | 50.0 | 26.5 | 26.5 | 25.9 | 56.9 |
| Effective Green, g (s) | 24.1 | 50.0 | 26.5 | 26.5 | 25.9 | 56.9 |
| Actuated g/C Ratio | 0.27 | 0.56 | 0.29 | 0.29 | 0.29 | 0.63 |
| Clearance Time (s) | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 910 | 949 | 1497 | 449 | 509 | 3214 |
| v/s Ratio Prot | c0.25 | 0.09 | c0.25 | | c0.27 | 0.33 |
| v/s Ratio Perm | | 0.10 | | 0.04 | | |
| v/c Ratio | 0.93 | 0.32 | 0.86 | 0.15 | 0.94 | 0.53 |
| Uniform Delay, d1 | 32.1 | 10.8 | 30.0 | 23.4 | 31.3 | 9.1 |
| Progression Factor | 1.00 | 1.00 | 0.84 | 1.85 | 1.00 | 1.00 |
| Incremental Delay, d2 | 15.1 | 0.2 | 6.0 | 0.6 | 24.9 | 0.6 |
| Delay (s) | 47.2 | 11.0 | 31.1 | 44.0 | 56.2 | 9.8 |
| Level of Service | D | B | C | D | E | A |
| Approach Delay (s) | 37.6 | | 33.0 | | | 19.9 |
| Approach LOS | D | | C | | | B |
| Intersection Summary | | | | | | |
| HCM 2000 Control Delay | | | 28.2 | | HCM 2000 Level of Service | C |
| HCM 2000 Volume to Capacity ratio | | | 0.91 | | | |
| Actuated Cycle Length (s) | | | 90.0 | | Sum of lost time (s) | 13.5 |
| Intersection Capacity Utilization | | | 84.5% | | ICU Level of Service | E |
| Analysis Period (min) | | | 15 | | | |
| c Critical Lane Group | | | | | | |

HCM Signalized Intersection Capacity Analysis

2: OR-99E & I-205 NB Ramps

07/07/2017

| |  | | | | | |
|-----------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
| Lane Configurations |  |  |  |  |  |  |
| Traffic Volume (vph) | 115 | 412 | 1112 | 763 | 391 | 2030 |
| Future Volume (vph) | 115 | 412 | 1112 | 763 | 391 | 2030 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 |
| Lane Util. Factor | 1.00 | 1.00 | 0.91 | 1.00 | 1.00 | 0.91 |
| Frpb, ped/bikes | 1.00 | 1.00 | 1.00 | 0.96 | 1.00 | 1.00 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.85 | 1.00 | 0.85 | 1.00 | 1.00 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (prot) | 1770 | 1583 | 5036 | 1510 | 1770 | 5085 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (perm) | 1770 | 1583 | 5036 | 1510 | 1770 | 5085 |
| Peak-hour factor, PHF | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 |
| Adj. Flow (vph) | 117 | 420 | 1135 | 779 | 399 | 2071 |
| RTOR Reduction (vph) | 0 | 365 | 0 | 305 | 0 | 0 |
| Lane Group Flow (vph) | 117 | 55 | 1135 | 474 | 399 | 2071 |
| Confl. Peds. (#/hr) | | | | 7 | 7 | |
| Heavy Vehicles (%) | 2% | 2% | 3% | 3% | 2% | 2% |
| Turn Type | Prot | Perm | NA | Perm | Prot | NA |
| Protected Phases | 8 | | 2 | | 1 | 6 |
| Permitted Phases | | 8 | | 2 | | |
| Actuated Green, G (s) | 11.7 | 11.7 | 40.6 | 40.6 | 24.2 | 69.3 |
| Effective Green, g (s) | 11.7 | 11.7 | 40.6 | 40.6 | 24.2 | 69.3 |
| Actuated g/C Ratio | 0.13 | 0.13 | 0.45 | 0.45 | 0.27 | 0.77 |
| Clearance Time (s) | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 230 | 205 | 2271 | 681 | 475 | 3915 |
| v/s Ratio Prot | c0.07 | | 0.23 | | c0.23 | 0.41 |
| v/s Ratio Perm | | 0.03 | | c0.31 | | |
| v/c Ratio | 0.51 | 0.27 | 0.50 | 0.70 | 0.84 | 0.53 |
| Uniform Delay, d1 | 36.5 | 35.3 | 17.5 | 19.8 | 31.1 | 4.0 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.01 | 0.72 |
| Incremental Delay, d2 | 1.8 | 0.7 | 0.8 | 5.8 | 9.6 | 0.4 |
| Delay (s) | 38.2 | 36.0 | 18.3 | 25.6 | 40.9 | 3.3 |
| Level of Service | D | D | B | C | D | A |
| Approach Delay (s) | 36.5 | | 21.3 | | | 9.4 |
| Approach LOS | D | | C | | | A |
| Intersection Summary | | | | | | |
| HCM 2000 Control Delay | | | 16.9 | | HCM 2000 Level of Service | B |
| HCM 2000 Volume to Capacity ratio | | | 0.71 | | | |
| Actuated Cycle Length (s) | | | 90.0 | | Sum of lost time (s) | 13.5 |
| Intersection Capacity Utilization | | | 77.1% | | ICU Level of Service | D |
| Analysis Period (min) | | | 15 | | | |
| c Critical Lane Group | | | | | | |

HCM Unsignalized Intersection Capacity Analysis

3: OR-99E & 15th Street

07/07/2017

| | ↑ | ↖ | ↙ | ↓ | ↘ | ↗ |
|-----------------------------------|------|------|-------|------|----------------------|------|
| Movement | NBT | NBR | SBL | SBT | NWL | NWR |
| Lane Configurations | ↑↑ | | | ↑↑↑ | | ↗ |
| Traffic Volume (veh/h) | 1654 | 12 | 0 | 2175 | 0 | 208 |
| Future Volume (Veh/h) | 1654 | 12 | 0 | 2175 | 0 | 208 |
| Sign Control | Free | | | Free | Stop | |
| Grade | 0% | | | 0% | 0% | |
| Peak Hour Factor | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Hourly flow rate (vph) | 1741 | 13 | 0 | 2289 | 0 | 219 |
| Pedestrians | | | | | 3 | |
| Lane Width (ft) | | | | | 12.0 | |
| Walking Speed (ft/s) | | | | | 3.5 | |
| Percent Blockage | | | | | 0 | |
| Right turn flare (veh) | | | | | | |
| Median type | None | | | None | | |
| Median storage (veh) | | | | | | |
| Upstream signal (ft) | 335 | | | 372 | | |
| pX, platoon unblocked | | | 0.69 | | 0.77 | 0.69 |
| vC, conflicting volume | | | 1757 | | 2514 | 880 |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | | | 1204 | | 1096 | 0 |
| tC, single (s) | | | 4.2 | | 6.8 | 6.9 |
| tC, 2 stage (s) | | | | | | |
| tF (s) | | | 2.2 | | 3.5 | 3.3 |
| p0 queue free % | | | 100 | | 100 | 71 |
| cM capacity (veh/h) | | | 393 | | 160 | 748 |
| Direction, Lane # | NB 1 | NB 2 | SB 1 | SB 2 | SB 3 | NW 1 |
| Volume Total | 1161 | 593 | 763 | 763 | 763 | 219 |
| Volume Left | 0 | 0 | 0 | 0 | 0 | 0 |
| Volume Right | 0 | 13 | 0 | 0 | 0 | 219 |
| cSH | 1700 | 1700 | 1700 | 1700 | 1700 | 748 |
| Volume to Capacity | 0.68 | 0.35 | 0.45 | 0.45 | 0.45 | 0.29 |
| Queue Length 95th (ft) | 0 | 0 | 0 | 0 | 0 | 30 |
| Control Delay (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 11.8 |
| Lane LOS | | | | | | B |
| Approach Delay (s) | 0.0 | | 0.0 | | | 11.8 |
| Approach LOS | | | | | | B |
| Intersection Summary | | | | | | |
| Average Delay | | | 0.6 | | | |
| Intersection Capacity Utilization | | | 65.7% | | ICU Level of Service | C |
| Analysis Period (min) | | | 15 | | | |

Intersection

Int Delay, s/veh 1.1

| Movement | NBT | NBR | SBL | SBT | NWL | NWR |
|--------------------------|------|------|------|------|------|------|
| Lane Configurations | ↑↑ | | | ↑↑↑ | | ↑ |
| Traffic Vol, veh/h | 1654 | 12 | 0 | 2175 | 0 | 208 |
| Future Vol, veh/h | 1654 | 12 | 0 | 2175 | 0 | 208 |
| Conflicting Peds, #/hr | 0 | 3 | 3 | 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, % | 3 | 3 | 3 | 3 | 2 | 2 |
| Mvmt Flow | 1741 | 13 | 0 | 2289 | 0 | 219 |

| Major/Minor | Major1 | Major2 | Minor1 |
|----------------------|--------|--------|--------|
| Conflicting Flow All | 0 | 0 | - |
| Stage 1 | - | - | - |
| Stage 2 | - | - | - |
| Critical Hdwy | - | - | - |
| Critical Hdwy Stg 1 | - | - | - |
| Critical Hdwy Stg 2 | - | - | - |
| Follow-up Hdwy | - | - | - |
| Pot Cap-1 Maneuver | - | 0 | 0 |
| Stage 1 | - | 0 | 0 |
| Stage 2 | - | 0 | 0 |
| Platoon blocked, % | - | - | - |
| Mov Cap-1 Maneuver | - | - | - |
| Mov Cap-2 Maneuver | - | - | - |
| Stage 1 | - | - | - |
| Stage 2 | - | - | - |

| Approach | NB | SB | NW |
|----------------------|----|----|------|
| HCM Control Delay, s | 0 | 0 | 20.8 |
| HCM LOS | | | C |

| Minor Lane/Major Mvmt | NBT | NBRNWLn1 | SBT |
|-----------------------|-----|----------|-------|
| Capacity (veh/h) | - | - | 443 |
| HCM Lane V/C Ratio | - | - | 0.494 |
| HCM Control Delay (s) | - | - | 20.8 |
| HCM Lane LOS | - | - | C |
| HCM 95th %tile Q(veh) | - | - | 2.7 |

HCM Signalized Intersection Capacity Analysis

4: OR-99E & 14th Street























07/07/2017

| | ↑ | ↖ | ↙ | ↓ | ↘ | ↗ |
|-----------------------------------|------|-------|-------|---------------------------|------|-------|
| Movement | NBT | NBR | SBL | SBT | NWL | NWR |
| Lane Configurations | ↑↑ | | ↖ | ↑↑ | ↖ | ↗ |
| Traffic Volume (vph) | 1298 | 46 | 397 | 1792 | 63 | 341 |
| Future Volume (vph) | 1298 | 46 | 397 | 1792 | 63 | 341 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.5 | | 4.5 | 4.5 | 4.5 | 4.5 |
| Lane Util. Factor | 0.95 | | 1.00 | 0.95 | 1.00 | 1.00 |
| Frpb, ped/bikes | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 |
| Flpb, ped/bikes | 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) | 3452 | | 1770 | 3539 | 1787 | 1599 |
| Flt Permitted | 1.00 | | 0.09 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (perm) | 3452 | | 173 | 3539 | 1787 | 1599 |
| Peak-hour factor, PHF | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Adj. Flow (vph) | 1338 | 47 | 409 | 1847 | 65 | 352 |
| RTOR Reduction (vph) | 2 | 0 | 0 | 0 | 0 | 14 |
| Lane Group Flow (vph) | 1383 | 0 | 409 | 1847 | 65 | 338 |
| Confl. Peds. (#/hr) | | 2 | 2 | | | |
| Heavy Vehicles (%) | 4% | 4% | 2% | 2% | 1% | 1% |
| Turn Type | NA | | pm+pt | NA | Prot | pm+ov |
| Protected Phases | 2 | | 1 | 6 | 4 | 1 |
| Permitted Phases | | | 6 | | | 4 |
| Actuated Green, G (s) | 54.6 | | 83.1 | 83.1 | 7.9 | 31.9 |
| Effective Green, g (s) | 54.6 | | 83.1 | 83.1 | 7.9 | 31.9 |
| Actuated g/C Ratio | 0.55 | | 0.83 | 0.83 | 0.08 | 0.32 |
| Clearance Time (s) | 4.5 | | 4.5 | 4.5 | 4.5 | 4.5 |
| Vehicle Extension (s) | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 1884 | | 527 | 2940 | 141 | 582 |
| v/s Ratio Prot | 0.40 | | c0.19 | 0.52 | 0.04 | c0.14 |
| v/s Ratio Perm | | | c0.46 | | | 0.07 |
| v/c Ratio | 0.73 | | 0.78 | 0.63 | 0.46 | 0.58 |
| Uniform Delay, d1 | 17.2 | | 25.0 | 3.0 | 44.0 | 28.5 |
| Progression Factor | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 2.6 | | 7.1 | 0.4 | 2.4 | 1.5 |
| Delay (s) | 19.8 | | 32.1 | 3.4 | 46.4 | 30.0 |
| Level of Service | B | | C | A | D | C |
| Approach Delay (s) | 19.8 | | | 8.6 | 32.5 | |
| Approach LOS | B | | | A | C | |
| Intersection Summary | | | | | | |
| HCM 2000 Control Delay | | 14.9 | | HCM 2000 Level of Service | | B |
| HCM 2000 Volume to Capacity ratio | | 0.80 | | | | |
| Actuated Cycle Length (s) | | 100.0 | | Sum of lost time (s) | | 13.5 |
| Intersection Capacity Utilization | | 74.8% | | ICU Level of Service | | D |
| Analysis Period (min) | | 15 | | | | |
| c Critical Lane Group | | | | | | |

HCM Signalized Intersection Capacity Analysis

5: Redland Road & Abernethy Road/Holcomb Boulevard






















07/07/2017

| |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations |  |  | |  |  |  |  |  | |  |  |  |
| Traffic Volume (vph) | 51 | 134 | 169 | 56 | 89 | 173 | 62 | 286 | 57 | 280 | 509 | 61 |
| Future Volume (vph) | 51 | 134 | 169 | 56 | 89 | 173 | 62 | 286 | 57 | 280 | 509 | 61 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.5 | 4.5 | | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | | 4.5 | 4.5 | 4.5 |
| Lane Util. Factor | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frpb, ped/bikes | 1.00 | 0.98 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.92 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.98 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1770 | 1679 | | 1787 | 1881 | 1599 | 1770 | 1817 | | 1770 | 1863 | 1583 |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1770 | 1679 | | 1787 | 1881 | 1599 | 1770 | 1817 | | 1770 | 1863 | 1583 |
| Peak-hour factor, PHF | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 |
| Adj. Flow (vph) | 55 | 144 | 182 | 60 | 96 | 186 | 67 | 308 | 61 | 301 | 547 | 66 |
| RTOR Reduction (vph) | 0 | 62 | 0 | 0 | 0 | 109 | 0 | 10 | 0 | 0 | 0 | 35 |
| Lane Group Flow (vph) | 55 | 264 | 0 | 60 | 96 | 77 | 67 | 359 | 0 | 301 | 547 | 31 |
| Confl. Peds. (#/hr) | | | 4 | 4 | | | | | | | | |
| Confl. Bikes (#/hr) | | | 1 | | | | | | | | | |
| Heavy Vehicles (%) | 2% | 2% | 2% | 1% | 1% | 1% | 2% | 2% | 2% | 2% | 2% | 2% |
| Turn Type | Prot | NA | | Prot | NA | pm+ov | Prot | NA | | Prot | NA | pm+ov |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | 8 | | | | | | 6 |
| Actuated Green, G (s) | 3.7 | 15.3 | | 2.6 | 14.2 | 28.3 | 3.8 | 18.1 | | 14.1 | 28.4 | 32.1 |
| Effective Green, g (s) | 3.7 | 15.3 | | 2.6 | 14.2 | 28.3 | 3.8 | 18.1 | | 14.1 | 28.4 | 32.1 |
| Actuated g/C Ratio | 0.05 | 0.22 | | 0.04 | 0.21 | 0.42 | 0.06 | 0.27 | | 0.21 | 0.42 | 0.47 |
| Clearance Time (s) | 4.5 | 4.5 | | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | | 4.5 | 4.5 | 4.5 |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 96 | 377 | | 68 | 392 | 770 | 98 | 482 | | 366 | 776 | 850 |
| v/s Ratio Prot | 0.03 | c0.16 | | c0.03 | 0.05 | 0.02 | 0.04 | 0.20 | | c0.17 | c0.29 | 0.00 |
| v/s Ratio Perm | | | | | | 0.03 | | | | | | 0.02 |
| v/c Ratio | 0.57 | 0.70 | | 0.88 | 0.24 | 0.10 | 0.68 | 0.75 | | 0.82 | 0.70 | 0.04 |
| Uniform Delay, d1 | 31.4 | 24.3 | | 32.6 | 22.5 | 12.1 | 31.6 | 22.9 | | 25.8 | 16.4 | 9.7 |
| 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 | 8.0 | 5.8 | | 69.4 | 0.3 | 0.1 | 17.9 | 6.2 | | 13.8 | 2.9 | 0.0 |
| Delay (s) | 39.4 | 30.1 | | 102.0 | 22.8 | 12.2 | 49.5 | 29.1 | | 39.6 | 19.3 | 9.7 |
| Level of Service | D | C | | F | C | B | D | C | | D | B | A |
| Approach Delay (s) | | 31.4 | | | 30.9 | | | 32.2 | | | 25.3 | |
| Approach LOS | | C | | | C | | | C | | | C | |
| Intersection Summary | | | | | | | | | | | | |
| HCM 2000 Control Delay | | | 28.8 | | | | HCM 2000 Level of Service | | | C | | |
| HCM 2000 Volume to Capacity ratio | | | 0.78 | | | | | | | | | |
| Actuated Cycle Length (s) | | | 68.1 | | | | Sum of lost time (s) | | | 18.0 | | |
| Intersection Capacity Utilization | | | 70.8% | | | | ICU Level of Service | | | C | | |
| Analysis Period (min) | | | 15 | | | | | | | | | |
| c Critical Lane Group | | | | | | | | | | | | |

HCM Signalized Intersection Capacity Analysis

6: Washington Street & Abernethy Road



















07/07/2017

| |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement | SEL | SET | SER | NWL | NWT | NWR | NEL | NET | NER | SWL | SWT | SWR |
| Lane Configurations | |  | |  |  | |  |  |  |  |  |  |
| Traffic Volume (vph) | 2 | 0 | 6 | 184 | 1 | 30 | 5 | 244 | 307 | 31 | 367 | 1 |
| Future Volume (vph) | 2 | 0 | 6 | 184 | 1 | 30 | 5 | 244 | 307 | 31 | 367 | 1 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.5 | | 4.5 | 4.5 | | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | |
| Lane Util. Factor | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frpb, ped/bikes | | 0.98 | | 1.00 | 0.98 | | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | |
| Flpb, ped/bikes | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | | 0.90 | | 1.00 | 0.85 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | |
| Flt Protected | | 0.99 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | | 1654 | | 1734 | 1529 | | 1784 | 1881 | 1562 | 1749 | 1844 | |
| Flt Permitted | | 0.95 | | 0.75 | 1.00 | | 0.50 | 1.00 | 1.00 | 0.59 | 1.00 | |
| Satd. Flow (perm) | | 1591 | | 1372 | 1529 | | 936 | 1881 | 1562 | 1091 | 1844 | |
| 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) | 2 | 0 | 7 | 204 | 1 | 33 | 6 | 271 | 341 | 34 | 408 | 1 |
| RTOR Reduction (vph) | 0 | 7 | 0 | 0 | 25 | 0 | 0 | 0 | 170 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 0 | 2 | 0 | 204 | 9 | 0 | 6 | 271 | 171 | 34 | 409 | 0 |
| Confl. Peds. (#/hr) | 1 | | 1 | 1 | | 1 | 3 | | 3 | 3 | | 3 |
| Heavy Vehicles (%) | 0% | 0% | 0% | 4% | 4% | 4% | 1% | 1% | 1% | 3% | 3% | 3% |
| Turn Type | Perm | NA | | Perm | NA | | Perm | NA | Perm | Perm | NA | |
| Protected Phases | | 6 | | | 2 | | | 4 | | | | 8 |
| Permitted Phases | 6 | | | 2 | | | 4 | | 4 | 8 | | |
| Actuated Green, G (s) | | 9.1 | | 9.1 | 9.1 | | 18.2 | 18.2 | 18.2 | 18.2 | 18.2 | |
| Effective Green, g (s) | | 9.1 | | 9.1 | 9.1 | | 18.2 | 18.2 | 18.2 | 18.2 | 18.2 | |
| Actuated g/C Ratio | | 0.25 | | 0.25 | 0.25 | | 0.50 | 0.50 | 0.50 | 0.50 | 0.50 | |
| Clearance Time (s) | | 4.5 | | 4.5 | 4.5 | | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | |
| Vehicle Extension (s) | | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | | 398 | | 343 | 383 | | 469 | 943 | 783 | 547 | 924 | |
| v/s Ratio Prot | | | | | 0.01 | | | 0.14 | | | c0.22 | |
| v/s Ratio Perm | | 0.00 | | c0.15 | | | 0.01 | | 0.11 | 0.03 | | |
| v/c Ratio | | 0.01 | | 0.59 | 0.02 | | 0.01 | 0.29 | 0.22 | 0.06 | 0.44 | |
| Uniform Delay, d1 | | 10.2 | | 12.0 | 10.3 | | 4.5 | 5.3 | 5.1 | 4.7 | 5.8 | |
| Progression Factor | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | | 0.0 | | 2.8 | 0.0 | | 0.0 | 0.2 | 0.1 | 0.0 | 0.3 | |
| Delay (s) | | 10.2 | | 14.7 | 10.3 | | 4.6 | 5.4 | 5.2 | 4.7 | 6.1 | |
| Level of Service | | B | | B | B | | A | A | A | A | A | |
| Approach Delay (s) | | 10.2 | | | 14.1 | | | 5.3 | | | 6.0 | |
| Approach LOS | | B | | | B | | | A | | | A | |
| Intersection Summary | | | | | | | | | | | | |
| HCM 2000 Control Delay | | | 7.2 | | HCM 2000 Level of Service | | | | A | | | |
| HCM 2000 Volume to Capacity ratio | | | 0.49 | | | | | | | | | |
| Actuated Cycle Length (s) | | | 36.3 | | Sum of lost time (s) | | | | 9.0 | | | |
| Intersection Capacity Utilization | | | 50.1% | | ICU Level of Service | | | | A | | | |
| Analysis Period (min) | | | 15 | | | | | | | | | |
| c Critical Lane Group | | | | | | | | | | | | |

HCM Signalized Intersection Capacity Analysis

7: Washington Street & 15th Street




















07/07/2017

| |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement | SEL | SET | SER | NWL | NWT | NWR | NEL | NET | NER | SWL | SWT | SWR |
| Lane Configurations | |  | | |  | |  |  | |  |  | |
| Traffic Volume (vph) | 40 | 8 | 14 | 27 | 114 | 27 | 30 | 484 | 53 | 39 | 430 | 104 |
| Future Volume (vph) | 40 | 8 | 14 | 27 | 114 | 27 | 30 | 484 | 53 | 39 | 430 | 104 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.5 | | | 4.5 | | 4.5 | 4.5 | | 4.5 | 4.5 | |
| Lane Util. Factor | | 1.00 | | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frpb, ped/bikes | | 0.99 | | | 1.00 | | 1.00 | 1.00 | | 1.00 | 0.99 | |
| Flpb, ped/bikes | | 1.00 | | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | | 0.97 | | | 0.98 | | 1.00 | 0.99 | | 1.00 | 0.97 | |
| Flt Protected | | 0.97 | | | 0.99 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | | 1611 | | | 1799 | | 1786 | 1849 | | 1769 | 1798 | |
| Flt Permitted | | 0.74 | | | 0.93 | | 0.33 | 1.00 | | 0.33 | 1.00 | |
| Satd. Flow (perm) | | 1223 | | | 1695 | | 619 | 1849 | | 608 | 1798 | |
| Peak-hour factor, PHF | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Adj. Flow (vph) | 43 | 9 | 15 | 29 | 121 | 29 | 32 | 515 | 56 | 41 | 457 | 111 |
| RTOR Reduction (vph) | 0 | 12 | 0 | 0 | 12 | 0 | 0 | 6 | 0 | 0 | 12 | 0 |
| Lane Group Flow (vph) | 0 | 55 | 0 | 0 | 167 | 0 | 32 | 565 | 0 | 41 | 556 | 0 |
| Confl. Peds. (#/hr) | 3 | | 4 | 4 | | 3 | 6 | | 3 | 3 | | 6 |
| Heavy Vehicles (%) | 10% | 10% | 10% | 2% | 2% | 2% | 1% | 1% | 1% | 2% | 2% | 2% |
| Turn Type | Perm | NA | | Perm | NA | | pm+pt | NA | | pm+pt | NA | |
| Protected Phases | | 4 | | | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | | 8 | | | 2 | | | 6 | | |
| Actuated Green, G (s) | | 8.4 | | | 8.4 | | 24.8 | 23.3 | | 24.8 | 23.3 | |
| Effective Green, g (s) | | 8.4 | | | 8.4 | | 24.8 | 23.3 | | 24.8 | 23.3 | |
| Actuated g/C Ratio | | 0.18 | | | 0.18 | | 0.53 | 0.50 | | 0.53 | 0.50 | |
| Clearance Time (s) | | 4.5 | | | 4.5 | | 4.5 | 4.5 | | 4.5 | 4.5 | |
| Vehicle Extension (s) | | 3.0 | | | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | | 219 | | | 304 | | 366 | 922 | | 360 | 897 | |
| v/s Ratio Prot | | | | | | | 0.00 | 0.31 | | c0.00 | c0.31 | |
| v/s Ratio Perm | | 0.04 | | | c0.10 | | 0.04 | | | 0.06 | | |
| v/c Ratio | | 0.25 | | | 0.55 | | 0.09 | 0.61 | | 0.11 | 0.62 | |
| Uniform Delay, d1 | | 16.4 | | | 17.4 | | 5.7 | 8.4 | | 5.7 | 8.5 | |
| Progression Factor | | 1.00 | | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | | 0.6 | | | 2.0 | | 0.1 | 1.2 | | 0.1 | 1.3 | |
| Delay (s) | | 17.0 | | | 19.4 | | 5.8 | 9.7 | | 5.9 | 9.8 | |
| Level of Service | | B | | | B | | A | A | | A | A | |
| Approach Delay (s) | | 17.0 | | | 19.4 | | | 9.5 | | | 9.5 | |
| Approach LOS | | B | | | B | | | A | | | A | |
| Intersection Summary | | | | | | | | | | | | |
| HCM 2000 Control Delay | | | 11.1 | | | HCM 2000 Level of Service | | | | B | | |
| HCM 2000 Volume to Capacity ratio | | | 0.58 | | | | | | | | | |
| Actuated Cycle Length (s) | | | 46.7 | | | Sum of lost time (s) | | | | 13.5 | | |
| Intersection Capacity Utilization | | | 51.1% | | | ICU Level of Service | | | | A | | |
| Analysis Period (min) | | | 15 | | | | | | | | | |
| c Critical Lane Group | | | | | | | | | | | | |

HCM Signalized Intersection Capacity Analysis

8: Washington Street & 14th Street




















07/07/2017

| |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement | SEL | SET | SER | NWL | NWT | NWR | NEL | NET | NER | SWL | SWT | SWR |
| Lane Configurations | |  |  | |  | |  |  | |  |  | |
| Traffic Volume (vph) | 340 | 42 | 180 | 14 | 59 | 8 | 209 | 221 | 9 | 5 | 326 | 143 |
| Future Volume (vph) | 340 | 42 | 180 | 14 | 59 | 8 | 209 | 221 | 9 | 5 | 326 | 143 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.5 | 4.5 | | 4.5 | | 4.5 | 4.5 | | 4.5 | 4.5 | |
| Lane Util. Factor | | 1.00 | 1.00 | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frpb, ped/bikes | | 1.00 | 0.96 | | 1.00 | | 1.00 | 1.00 | | 1.00 | 0.99 | |
| Flpb, ped/bikes | | 1.00 | 1.00 | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | | 1.00 | 0.85 | | 0.99 | | 1.00 | 0.99 | | 1.00 | 0.95 | |
| Flt Protected | | 0.96 | 1.00 | | 0.99 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | | 1795 | 1537 | | 1797 | | 1787 | 1868 | | 1745 | 1744 | |
| Flt Permitted | | 0.73 | 1.00 | | 0.92 | | 0.20 | 1.00 | | 0.60 | 1.00 | |
| Satd. Flow (perm) | | 1371 | 1537 | | 1663 | | 375 | 1868 | | 1109 | 1744 | |
| 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) | 370 | 46 | 196 | 15 | 64 | 9 | 227 | 240 | 10 | 5 | 354 | 155 |
| RTOR Reduction (vph) | 0 | 0 | 130 | 0 | 5 | 0 | 0 | 2 | 0 | 0 | 20 | 0 |
| Lane Group Flow (vph) | 0 | 416 | 66 | 0 | 83 | 0 | 227 | 248 | 0 | 5 | 489 | 0 |
| Confl. Peds. (#/hr) | 2 | | 9 | 9 | | 2 | 5 | | 5 | 5 | | 5 |
| Heavy Vehicles (%) | 1% | 1% | 1% | 3% | 3% | 3% | 1% | 1% | 1% | 3% | 3% | 3% |
| Turn Type | Perm | NA | Perm | Perm | NA | | pm+pt | NA | | pm+pt | NA | |
| Protected Phases | | 4 | | | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | 4 | 8 | | | 2 | | | 6 | | |
| Actuated Green, G (s) | | 25.6 | 25.6 | | 25.6 | | 41.1 | 35.7 | | 28.8 | 27.9 | |
| Effective Green, g (s) | | 25.6 | 25.6 | | 25.6 | | 41.1 | 35.7 | | 28.8 | 27.9 | |
| Actuated g/C Ratio | | 0.34 | 0.34 | | 0.34 | | 0.54 | 0.47 | | 0.38 | 0.37 | |
| Clearance Time (s) | | 4.5 | 4.5 | | 4.5 | | 4.5 | 4.5 | | 4.5 | 4.5 | |
| Vehicle Extension (s) | | 3.0 | 3.0 | | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | | 463 | 519 | | 562 | | 365 | 880 | | 429 | 642 | |
| v/s Ratio Prot | | | | | | | c0.07 | 0.13 | | 0.00 | c0.28 | |
| v/s Ratio Perm | | c0.30 | 0.04 | | 0.05 | | 0.27 | | | 0.00 | | |
| v/c Ratio | | 0.90 | 0.13 | | 0.15 | | 0.62 | 0.28 | | 0.01 | 0.76 | |
| Uniform Delay, d1 | | 23.8 | 17.3 | | 17.4 | | 12.2 | 12.2 | | 14.6 | 21.0 | |
| Progression Factor | | 1.00 | 1.00 | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | | 19.8 | 0.1 | | 0.1 | | 3.3 | 0.2 | | 0.0 | 5.3 | |
| Delay (s) | | 43.6 | 17.4 | | 17.6 | | 15.5 | 12.4 | | 14.6 | 26.3 | |
| Level of Service | | D | B | | B | | B | B | | B | C | |
| Approach Delay (s) | | 35.2 | | | 17.6 | | | 13.8 | | | 26.2 | |
| Approach LOS | | D | | | B | | | B | | | C | |
| Intersection Summary | | | | | | | | | | | | |
| HCM 2000 Control Delay | | | 25.5 | | | | HCM 2000 Level of Service | | | | C | |
| HCM 2000 Volume to Capacity ratio | | | 0.80 | | | | | | | | | |
| Actuated Cycle Length (s) | | | 75.7 | | | | Sum of lost time (s) | | | 13.5 | | |
| Intersection Capacity Utilization | | | 76.6% | | | | ICU Level of Service | | | D | | |
| Analysis Period (min) | | | 15 | | | | | | | | | |
| c Critical Lane Group | | | | | | | | | | | | |

HCM Unsignalized Intersection Capacity Analysis







9: Main Street & 14th Street

07/07/2017

| |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement | SEL | SET | SER | NWL | NWT | NWR | NEL | NET | NER | SWL | SWT | SWR |
| Lane Configurations |  |  | | |  | | |  |  | |  |  |
| Traffic Volume (veh/h) | 24 | 389 | 27 | 64 | 384 | 11 | 19 | 19 | 146 | 2 | 16 | 22 |
| Future Volume (Veh/h) | 24 | 389 | 27 | 64 | 384 | 11 | 19 | 19 | 146 | 2 | 16 | 22 |
| Sign Control | | Free | | | Free | | | Stop | | | Stop | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Hourly flow rate (vph) | 26 | 414 | 29 | 68 | 409 | 12 | 20 | 20 | 155 | 2 | 17 | 23 |
| Pedestrians | | 1 | | | 7 | | | 9 | | | | |
| Lane Width (ft) | | 12.0 | | | 12.0 | | | 12.0 | | | | |
| Walking Speed (ft/s) | | 3.5 | | | 3.5 | | | 3.5 | | | | |
| Percent Blockage | | 0 | | | 1 | | | 1 | | | | |
| Right turn flare (veh) | | | | | | | | | 5 | | | |
| Median type | | None | | | None | | | | | | | |
| Median storage (veh) | | | | | | | | | | | | |
| Upstream signal (ft) | | 187 | | | 537 | | | | | | | |
| pX, platoon unblocked | 0.95 | | | | | | 0.95 | 0.95 | | 0.95 | 0.95 | 0.95 |
| vC, conflicting volume | 421 | | | 452 | | | 1073 | 1046 | 444 | 1112 | 1055 | 416 |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 370 | | | 452 | | | 1053 | 1025 | 444 | 1093 | 1034 | 365 |
| tC, single (s) | 4.1 | | | 4.1 | | | 7.1 | 6.5 | 6.2 | 7.1 | 6.5 | 6.2 |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 2.2 | | | 2.2 | | | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 |
| p0 queue free % | 98 | | | 94 | | | 88 | 90 | 74 | 98 | 92 | 96 |
| cM capacity (veh/h) | 1140 | | | 1099 | | | 161 | 202 | 600 | 117 | 203 | 653 |
| Direction, Lane # | SE 1 | SE 2 | NW 1 | NE 1 | SW 1 | | | | | | | |
| Volume Total | 26 | 443 | 489 | 195 | 42 | | | | | | | |
| Volume Left | 26 | 0 | 68 | 20 | 2 | | | | | | | |
| Volume Right | 0 | 29 | 12 | 155 | 23 | | | | | | | |
| cSH | 1140 | 1700 | 1099 | 755 | 309 | | | | | | | |
| Volume to Capacity | 0.02 | 0.26 | 0.06 | 0.26 | 0.14 | | | | | | | |
| Queue Length 95th (ft) | 2 | 0 | 5 | 26 | 12 | | | | | | | |
| Control Delay (s) | 8.2 | 0.0 | 1.8 | 16.6 | 18.5 | | | | | | | |
| Lane LOS | A | | A | C | C | | | | | | | |
| Approach Delay (s) | 0.5 | | 1.8 | 16.6 | 18.5 | | | | | | | |
| Approach LOS | | | | C | C | | | | | | | |
| Intersection Summary | | | | | | | | | | | | |
| Average Delay | | | 4.3 | | | | | | | | | |
| Intersection Capacity Utilization | | | 66.3% | | ICU Level of Service | | | | C | | | |
| Analysis Period (min) | | | 15 | | | | | | | | | |

Intersection

Int Delay, s/veh 4

| Movement | SEL | SET | SER | NWL | NWT | NWR | NEL | NET | NER | SWL | SWT | SWR |
|--------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------|------|-----------------------------------------------------------------------------------|------|------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|------|-------------------------------------------------------------------------------------|------|
| Lane Configurations |  |  | | |  | | |  |  | |  | |
| Traffic Vol, veh/h | 24 | 389 | 27 | 64 | 384 | 11 | 19 | 19 | 146 | 2 | 16 | 22 |
| Future Vol, veh/h | 24 | 389 | 27 | 64 | 384 | 11 | 19 | 19 | 146 | 2 | 16 | 22 |
| Conflicting Peds, #/hr | 0 | 0 | 9 | 9 | 0 | 0 | 1 | 0 | 7 | 7 | 0 | 1 |
| Sign Control | Free | Free | Free | Free | Free | Free | Stop | Stop | Stop | Stop | Stop | Stop |
| RT Channelized | - | - | None | - | - | None | - | - | None | - | - | None |
| Storage Length | 0 | - | - | - | - | - | - | - | 130 | - | - | - |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 94 | 94 | 94 | 94 | 94 | 94 | 94 | 94 | 94 | 94 | 94 | 94 |
| Heavy Vehicles, % | 1 | 1 | 1 | 2 | 2 | 2 | 4 | 4 | 4 | 0 | 0 | 0 |
| Mvmt Flow | 26 | 414 | 29 | 68 | 409 | 12 | 20 | 20 | 155 | 2 | 17 | 23 |

| Major/Minor | Major1 | | | Major2 | | | Minor1 | | | Minor2 | | |
|----------------------|--------|---|---|--------|---|---|--------|-------|-------|--------|------|-----|
| Conflicting Flow All | 420 | 0 | 0 | 452 | 0 | 0 | 1060 | 1044 | 444 | 1047 | 1054 | 415 |
| Stage 1 | - | - | - | - | - | - | 488 | 488 | - | 551 | 551 | - |
| Stage 2 | - | - | - | - | - | - | 572 | 556 | - | 496 | 503 | - |
| Critical Hdwy | 4.11 | - | - | 4.12 | - | - | 7.14 | 6.54 | 6.24 | 7.1 | 6.5 | 6.2 |
| Critical Hdwy Stg 1 | - | - | - | - | - | - | 6.14 | 5.54 | - | 6.1 | 5.5 | - |
| Critical Hdwy Stg 2 | - | - | - | - | - | - | 6.14 | 5.54 | - | 6.1 | 5.5 | - |
| Follow-up Hdwy | 2.209 | - | - | 2.218 | - | - | 3.536 | 4.036 | 3.336 | 3.5 | 4 | 3.3 |
| Pot Cap-1 Maneuver | 1145 | - | - | 1109 | - | - | 200 | 227 | 610 | 208 | 228 | 642 |
| Stage 1 | - | - | - | - | - | - | 558 | 547 | - | 522 | 519 | - |
| Stage 2 | - | - | - | - | - | - | 502 | 509 | - | 559 | 545 | - |
| Platoon blocked, % | | - | - | | - | - | | | | | | |
| Mov Cap-1 Maneuver | 1144 | - | - | 1102 | - | - | 165 | 202 | 601 | 131 | 203 | 641 |
| Mov Cap-2 Maneuver | - | - | - | - | - | - | 165 | 202 | - | 131 | 203 | - |
| Stage 1 | - | - | - | - | - | - | 541 | 530 | - | 510 | 477 | - |
| Stage 2 | - | - | - | - | - | - | 428 | 468 | - | 387 | 528 | - |

| Approach | SE | NW | NE | SW |
|----------------------|-----|-----|------|------|
| HCM Control Delay, s | 0.4 | 1.2 | 16.7 | 18.4 |
| HCM LOS | | | C | C |






| Minor Lane/Major Mvmt | NELn1 | NELn2 | NWL | NWT | NWR | SEL | SET | SERSWLn1 |
|-----------------------|-------|-------|-------|-----|-----|-------|-----|----------|
| Capacity (veh/h) | 182 | 601 | 1102 | - | - | 1144 | - | - 312 |
| HCM Lane V/C Ratio | 0.222 | 0.258 | 0.062 | - | - | 0.022 | - | - 0.136 |
| HCM Control Delay (s) | 30.3 | 13.1 | 8.5 | 0 | - | 8.2 | - | - 18.4 |
| HCM Lane LOS | D | B | A | A | - | A | - | - C |
| HCM 95th %tile Q(veh) | 0.8 | 1 | 0.2 | - | - | 0.1 | - | - 0.5 |

HCM Unsignalized Intersection Capacity Analysis

101: OR-213 & I-205 SB Ramps

07/07/2017








| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|-----------------------------------|-----------------------------------------------------------------------------------|------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
| Lane Configurations |  | |  |  |  |  |
| Traffic Volume (veh/h) | 4 | 0 | 626 | 12 | 16 | 12 |
| Future Volume (Veh/h) | 4 | 0 | 626 | 12 | 16 | 12 |
| Sign Control | Stop | | | Free | Free | |
| Grade | 0% | | | 0% | 0% | |
| Peak Hour Factor | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 |
| Hourly flow rate (vph) | 4 | 0 | 673 | 13 | 17 | 13 |
| Pedestrians | | | | | | |
| Lane Width (ft) | | | | | | |
| Walking Speed (ft/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | | | | None | None | |
| Median storage veh | | | | | | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 1376 | 17 | 17 | | | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 1376 | 17 | 17 | | | |
| tC, single (s) | *6.0 | 6.2 | 4.1 | | | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | *2.0 | 3.3 | 2.2 | | | |
| p0 queue free % | 97 | 100 | 58 | | | |
| cM capacity (veh/h) | 150 | 1059 | 1587 | | | |
| Direction, Lane # | EB 1 | NB 1 | NB 2 | SB 1 | SB 2 | |
| Volume Total | 4 | 673 | 13 | 17 | 13 | |
| Volume Left | 4 | 673 | 0 | 0 | 0 | |
| Volume Right | 0 | 0 | 0 | 0 | 13 | |
| cSH | 150 | 1587 | 1700 | 1700 | 1700 | |
| Volume to Capacity | 0.03 | 0.42 | 0.01 | 0.01 | 0.01 | |
| Queue Length 95th (ft) | 2 | 54 | 0 | 0 | 0 | |
| Control Delay (s) | 29.7 | 8.9 | 0.0 | 0.0 | 0.0 | |
| Lane LOS | D | A | | | | |
| Approach Delay (s) | 29.7 | 8.8 | 0.0 | | | |
| Approach LOS | D | | | | | |
| Intersection Summary | | | | | | |
| Average Delay | | | 8.5 | | | |
| Intersection Capacity Utilization | | | 51.3% | ICU Level of Service | | A |
| Analysis Period (min) | | | 15 | | | |

* User Entered Value

Intersection

Int Delay, s/veh 8.7

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|--------------------------|-----------------------------------------------------------------------------------|------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Lane Configurations |  | |  |  |  |  |
| Traffic Vol, veh/h | 4 | 0 | 626 | 12 | 16 | 12 |
| Future Vol, veh/h | 4 | 0 | 626 | 12 | 16 | 12 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Free | Free | Free | Free |
| RT Channelized | - | None | - | None | - | Free |
| Storage Length | 0 | - | 0 | - | - | 0 |
| Veh in Median Storage, # | 0 | - | - | 0 | 0 | - |
| Grade, % | 0 | - | - | 0 | 0 | - |
| Peak Hour Factor | 93 | 93 | 93 | 93 | 93 | 93 |
| Heavy Vehicles, % | 3 | 3 | 4 | 4 | 0 | 0 |
| Mvmt Flow | 4 | 0 | 673 | 13 | 17 | 13 |

| Major/Minor | Minor2 | | Major1 | | Major2 | |
|----------------------|--------|---|--------|---|--------|---|
| Conflicting Flow All | 1376 | - | 17 | 0 | - | 0 |
| Stage 1 | 17 | - | - | - | - | - |
| Stage 2 | 1359 | - | - | - | - | - |
| Critical Hdwy | 6 | - | 4.14 | - | - | - |
| Critical Hdwy Stg 1 | 5.43 | - | - | - | - | - |
| Critical Hdwy Stg 2 | 5.43 | - | - | - | - | - |
| Follow-up Hdwy | 2 | - | 2.236 | - | - | - |
| Pot Cap-1 Maneuver | 260 | 0 | 1587 | - | - | 0 |
| Stage 1 | 1763 | 0 | - | - | - | 0 |
| Stage 2 | 330 | 0 | - | - | - | 0 |
| Platoon blocked, % | | | | - | - | |
| Mov Cap-1 Maneuver | 150 | - | 1587 | - | - | - |
| Mov Cap-2 Maneuver | 150 | - | - | - | - | - |
| Stage 1 | 1763 | - | - | - | - | - |
| Stage 2 | 190 | - | - | - | - | - |

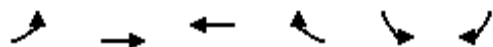
| Approach | EB | NB | SB |
|----------------------|------|-----|----|
| HCM Control Delay, s | 29.7 | 8.8 | 0 |
| HCM LOS | D | | |

| Minor Lane/Major Mvmt | NBL | NBT | EBLn1 | SBT |
|-----------------------|-------|-----|-------|-----|
| Capacity (veh/h) | 1587 | - | 150 | - |
| HCM Lane V/C Ratio | 0.424 | - | 0.029 | - |
| HCM Control Delay (s) | 8.9 | - | 29.7 | - |
| HCM Lane LOS | A | - | D | - |
| HCM 95th %tile Q(veh) | 2.2 | - | 0.1 | - |

HCM Unsignalized Intersection Capacity Analysis

102: I-205 SB Ramps & OR-213

07/07/2017



| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|-----------------------------------|------|------|-------|------|----------------------|------|
| Lane Configurations | | ↑↑ | | ↑↑ | ↑ | |
| Traffic Volume (veh/h) | 0 | 2523 | 0 | 638 | 16 | 0 |
| Future Volume (Veh/h) | 0 | 2523 | 0 | 638 | 16 | 0 |
| Sign Control | | Free | Free | | Stop | |
| Grade | | 0% | 0% | | 0% | |
| Peak Hour Factor | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 |
| Hourly flow rate (vph) | 0 | 2713 | 0 | 686 | 17 | 0 |
| Pedestrians | | | | | | |
| Lane Width (ft) | | | | | | |
| Walking Speed (ft/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | | None | None | | | |
| Median storage (veh) | | | | | | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 686 | | | | 1356 | 0 |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 686 | | | | 1356 | 0 |
| tC, single (s) | 4.2 | | | | *6.5 | 6.9 |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 2.2 | | | | *2.5 | 3.3 |
| p0 queue free % | 100 | | | | 91 | 100 |
| cM capacity (veh/h) | 897 | | | | 192 | 1091 |
| Direction, Lane # | EB 1 | EB 2 | WB 1 | WB 2 | SB 1 | |
| Volume Total | 1356 | 1356 | 343 | 343 | 17 | |
| Volume Left | 0 | 0 | 0 | 0 | 17 | |
| Volume Right | 0 | 0 | 343 | 343 | 0 | |
| cSH | 1700 | 1700 | 1700 | 1700 | 192 | |
| Volume to Capacity | 0.80 | 0.80 | 0.20 | 0.20 | 0.09 | |
| Queue Length 95th (ft) | 0 | 0 | 0 | 0 | 7 | |
| Control Delay (s) | 0.0 | 0.0 | 0.0 | 0.0 | 25.6 | |
| Lane LOS | | | | | D | |
| Approach Delay (s) | 0.0 | | 0.0 | | 25.6 | |
| Approach LOS | | | | | D | |
| Intersection Summary | | | | | | |
| Average Delay | | | 0.1 | | | |
| Intersection Capacity Utilization | | | 79.7% | | ICU Level of Service | D |
| Analysis Period (min) | | | 15 | | | |



















* User Entered Value

| Intersection | | | | | | |
|--------------------------|--------|------|--------|------|--------|------|
| Int Delay, s/veh | 0.1 | | | | | |
| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
| Lane Configurations | | ↑↑ | | ↑↑ | ↑ | |
| Traffic Vol, veh/h | 0 | 2523 | 0 | 638 | 16 | 0 |
| Future Vol, veh/h | 0 | 2523 | 0 | 638 | 16 | 0 |
| 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 | 0 | - |
| Veh in Median Storage, # | - | 0 | 0 | - | 0 | - |
| Grade, % | - | 0 | 0 | - | 0 | - |
| Peak Hour Factor | 93 | 93 | 93 | 93 | 93 | 93 |
| Heavy Vehicles, % | 3 | 3 | 4 | 4 | 0 | 0 |
| Mvmt Flow | 0 | 2713 | 0 | 686 | 17 | 0 |
| | | | | | | |
| Major/Minor | Major1 | | Major2 | | Minor2 | |
| Conflicting Flow All | - | 0 | - | - | 1356 | - |
| Stage 1 | - | - | - | - | 0 | - |
| Stage 2 | - | - | - | - | 1356 | - |
| Critical Hdwy | - | - | - | - | 6.5 | - |
| Critical Hdwy Stg 1 | - | - | - | - | - | - |
| Critical Hdwy Stg 2 | - | - | - | - | 5.8 | - |
| Follow-up Hdwy | - | - | - | - | 2.5 | - |
| Pot Cap-1 Maneuver | 0 | - | 0 | - | 192 | 0 |
| Stage 1 | 0 | - | 0 | - | - | 0 |
| Stage 2 | 0 | - | 0 | - | 250 | 0 |
| Platoon blocked, % | | - | | - | | |
| Mov Cap-1 Maneuver | - | - | - | - | 192 | - |
| Mov Cap-2 Maneuver | - | - | - | - | 192 | - |
| Stage 1 | - | - | - | - | - | - |
| Stage 2 | - | - | - | - | 250 | - |
| | | | | | | |
| Approach | EB | | WB | | SB | |
| HCM Control Delay, s | 0 | | 0 | | 25.6 | |
| HCM LOS | | | | | D | |
| | | | | | | |
| Minor Lane/Major Mvmt | EBT | WBR | SBLn1 | | | |
| Capacity (veh/h) | - | - | 192 | | | |
| HCM Lane V/C Ratio | - | - | 0.09 | | | |
| HCM Control Delay (s) | - | - | 25.6 | | | |
| HCM Lane LOS | - | - | D | | | |
| HCM 95th %tile Q(veh) | - | - | 0.3 | | | |

HCM Signalized Intersection Capacity Analysis

12: OR-213 & Prairie Schooner Way/Clackamas River Drive

07/07/2017

| |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | | |  | | |  | |  |  | |  |  |
| Traffic Volume (vph) | 0 | 0 | 166 | 0 | 0 | 378 | 0 | 1958 | 125 | 0 | 3055 | 532 |
| Future Volume (vph) | 0 | 0 | 166 | 0 | 0 | 378 | 0 | 1958 | 125 | 0 | 3055 | 532 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | | 4.5 | | | 4.5 | | 4.5 | 4.5 | | 4.5 | 4.5 |
| Lane Util. Factor | | | 0.88 | | | 0.88 | | 0.91 | 1.00 | | 0.91 | 1.00 |
| Frt | | | 0.85 | | | 0.85 | | 1.00 | 0.85 | | 1.00 | 0.85 |
| Flt Protected | | | 1.00 | | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 |
| Satd. Flow (prot) | | | 2814 | | | 2760 | | 5085 | 1583 | | 5085 | 1583 |
| Flt Permitted | | | 1.00 | | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 |
| Satd. Flow (perm) | | | 2814 | | | 2760 | | 5085 | 1583 | | 5085 | 1583 |
| Peak-hour factor, PHF | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Adj. Flow (vph) | 0 | 0 | 171 | 0 | 0 | 390 | 0 | 2019 | 129 | 0 | 3149 | 548 |
| RTOR Reduction (vph) | 0 | 0 | 17 | 0 | 0 | 24 | 0 | 0 | 41 | 0 | 0 | 138 |
| Lane Group Flow (vph) | 0 | 0 | 154 | 0 | 0 | 366 | 0 | 2019 | 88 | 0 | 3149 | 410 |
| Heavy Vehicles (%) | 1% | 1% | 1% | 3% | 3% | 3% | 2% | 2% | 2% | 2% | 2% | 2% |
| Turn Type | | | Perm | | | Perm | | NA | Perm | | NA | Perm |
| Protected Phases | | | | | | | | 2 | | | 6 | |
| Permitted Phases | | | 5 | | | 1 | | | 2 | | | 6 |
| Actuated Green, G (s) | | | 9.3 | | | 14.2 | | 49.5 | 49.5 | | 54.4 | 54.4 |
| Effective Green, g (s) | | | 9.3 | | | 14.2 | | 49.5 | 49.5 | | 54.4 | 54.4 |
| Actuated g/C Ratio | | | 0.13 | | | 0.20 | | 0.68 | 0.68 | | 0.75 | 0.75 |
| Clearance Time (s) | | | 4.5 | | | 4.5 | | 4.5 | 4.5 | | 4.5 | 4.5 |
| Vehicle Extension (s) | | | 3.0 | | | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 |
| Lane Grp Cap (vph) | | | 359 | | | 539 | | 3462 | 1077 | | 3805 | 1184 |
| v/s Ratio Prot | | | | | | | | 0.40 | | | c0.62 | |
| v/s Ratio Perm | | | 0.05 | | | c0.13 | | | 0.06 | | | 0.26 |
| v/c Ratio | | | 0.43 | | | 0.68 | | 0.58 | 0.08 | | 0.83 | 0.35 |
| Uniform Delay, d1 | | | 29.2 | | | 27.1 | | 6.1 | 3.9 | | 6.0 | 3.1 |
| Progression Factor | | | 1.00 | | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 |
| Incremental Delay, d2 | | | 0.8 | | | 3.4 | | 0.3 | 0.0 | | 1.6 | 0.2 |
| Delay (s) | | | 30.1 | | | 30.5 | | 6.4 | 4.0 | | 7.6 | 3.3 |
| Level of Service | | | C | | | C | | A | A | | A | A |
| Approach Delay (s) | | 30.1 | | | 30.5 | | | 6.2 | | | 7.0 | |
| Approach LOS | | C | | | C | | | A | | | A | |
| Intersection Summary | | | | | | | | | | | | |
| HCM 2000 Control Delay | | | 8.8 | | | HCM 2000 Level of Service | | | A | | | |
| HCM 2000 Volume to Capacity ratio | | | 0.83 | | | | | | | | | |
| Actuated Cycle Length (s) | | | 72.7 | | | Sum of lost time (s) | | | 9.0 | | | |
| Intersection Capacity Utilization | | | 72.3% | | | ICU Level of Service | | | C | | | |
| Analysis Period (min) | | | 15 | | | | | | | | | |
| c Critical Lane Group | | | | | | | | | | | | |

HCM Signalized Intersection Capacity Analysis

13: OR-213 & Redland Road

07/07/2017



| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|------------------------|-------|-------|-------|------|-------|-------|
| Lane Configurations | | | | | | |
| Traffic Volume (vph) | 379 | 166 | 113 | 1763 | 2491 | 745 |
| Future Volume (vph) | 379 | 166 | 113 | 1763 | 2491 | 745 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 |
| Lane Util. Factor | 0.97 | 1.00 | 1.00 | 0.95 | 0.95 | 1.00 |
| Frt | 1.00 | 0.85 | 1.00 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 0.95 | 1.00 | 1.00 | 1.00 |
| Satd. Flow (prot) | 3433 | 1583 | 1752 | 3505 | 3539 | 1583 |
| Flt Permitted | 0.95 | 1.00 | 0.95 | 1.00 | 1.00 | 1.00 |
| Satd. Flow (perm) | 3433 | 1583 | 1752 | 3505 | 3539 | 1583 |
| Peak-hour factor, PHF | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 |
| Adj. Flow (vph) | 387 | 169 | 115 | 1799 | 2542 | 760 |
| RTOR Reduction (vph) | 0 | 4 | 0 | 0 | 0 | 21 |
| Lane Group Flow (vph) | 387 | 165 | 115 | 1799 | 2542 | 739 |
| Heavy Vehicles (%) | 2% | 2% | 3% | 3% | 2% | 2% |
| Turn Type | Prot | pm+ov | Prot | NA | NA | pm+ov |
| Protected Phases | 4 | 5 | 5 | 2 | 6 | 4 |
| Permitted Phases | | 4 | | | | 6 |
| Actuated Green, G (s) | 17.6 | 26.6 | 9.0 | 93.4 | 79.9 | 97.5 |
| Effective Green, g (s) | 17.6 | 26.6 | 9.0 | 93.4 | 79.9 | 97.5 |
| Actuated g/C Ratio | 0.15 | 0.22 | 0.08 | 0.78 | 0.67 | 0.81 |
| Clearance Time (s) | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 503 | 410 | 131 | 2728 | 2356 | 1345 |
| v/s Ratio Prot | c0.11 | 0.03 | c0.07 | 0.51 | c0.72 | 0.08 |
| v/s Ratio Perm | | 0.07 | | | | 0.39 |
| v/c Ratio | 0.77 | 0.40 | 0.88 | 0.66 | 1.08 | 0.55 |
| Uniform Delay, d1 | 49.2 | 39.9 | 55.0 | 6.1 | 20.0 | 3.8 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 7.0 | 0.6 | 43.6 | 1.3 | 44.0 | 0.5 |
| Delay (s) | 56.2 | 40.6 | 98.6 | 7.3 | 64.0 | 4.3 |
| Level of Service | E | D | F | A | E | A |
| Approach Delay (s) | 51.5 | | | 12.8 | 50.3 | |
| Approach LOS | D | | | B | D | |
























Intersection Summary

| | | | |
|-----------------------------------|-------|---------------------------|------|
| HCM 2000 Control Delay | 38.0 | HCM 2000 Level of Service | D |
| HCM 2000 Volume to Capacity ratio | 1.01 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 13.5 |
| Intersection Capacity Utilization | 97.2% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

HCM Signalized Intersection Capacity Analysis

14: OR-213 & Beavercreek Road

















07/07/2017

| |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations |  |  | |  |  |  |  |  |  |  |  |  |
| Traffic Volume (vph) | 689 | 717 | 75 | 143 | 401 | 441 | 46 | 714 | 140 | 781 | 1157 | 738 |
| Future Volume (vph) | 689 | 717 | 75 | 143 | 401 | 441 | 46 | 714 | 140 | 781 | 1157 | 738 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.5 | 4.5 | | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 |
| Lane Util. Factor | 0.97 | 0.95 | | 0.97 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 0.97 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.99 | | 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) | 3467 | 3516 | | 3467 | 3574 | 1577 | 1752 | 3505 | 1545 | 3433 | 3539 | 1555 |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 3467 | 3516 | | 3467 | 3574 | 1577 | 1752 | 3505 | 1545 | 3433 | 3539 | 1555 |
| Peak-hour factor, PHF | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Adj. Flow (vph) | 710 | 739 | 77 | 147 | 413 | 455 | 47 | 736 | 144 | 805 | 1193 | 761 |
| RTOR Reduction (vph) | 0 | 6 | 0 | 0 | 0 | 319 | 0 | 0 | 109 | 0 | 0 | 308 |
| Lane Group Flow (vph) | 710 | 810 | 0 | 147 | 413 | 136 | 47 | 736 | 35 | 805 | 1193 | 453 |
| Confl. Peds. (#/hr) | 1 | | 6 | 6 | | 1 | 3 | | 1 | 1 | | 3 |
| Confl. Bikes (#/hr) | | | | | | | | | 1 | | | |
| Heavy Vehicles (%) | 1% | 1% | 1% | 1% | 1% | 1% | 3% | 3% | 3% | 2% | 2% | 2% |
| Turn Type | Prot | NA | | Prot | NA | Perm | Prot | NA | Perm | Prot | NA | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | 8 | | | 2 | | | 6 |
| Actuated Green, G (s) | 25.7 | 35.9 | | 7.7 | 17.9 | 17.9 | 4.7 | 29.0 | 29.0 | 29.4 | 53.7 | 53.7 |
| Effective Green, g (s) | 25.7 | 35.9 | | 7.7 | 17.9 | 17.9 | 4.7 | 29.0 | 29.0 | 29.4 | 53.7 | 53.7 |
| Actuated g/C Ratio | 0.21 | 0.30 | | 0.06 | 0.15 | 0.15 | 0.04 | 0.24 | 0.24 | 0.24 | 0.45 | 0.45 |
| Clearance Time (s) | 4.5 | 4.5 | | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 |
| 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) | 742 | 1051 | | 222 | 533 | 235 | 68 | 847 | 373 | 841 | 1583 | 695 |
| v/s Ratio Prot | c0.20 | c0.23 | | 0.04 | 0.12 | | 0.03 | c0.21 | | c0.23 | 0.34 | |
| v/s Ratio Perm | | | | | | 0.09 | | | 0.02 | | | 0.29 |
| v/c Ratio | 0.96 | 0.77 | | 0.66 | 0.77 | 0.58 | 0.69 | 0.87 | 0.09 | 0.96 | 0.75 | 0.65 |
| Uniform Delay, d1 | 46.6 | 38.3 | | 54.9 | 49.1 | 47.5 | 56.9 | 43.7 | 35.3 | 44.7 | 27.6 | 25.9 |
| 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 | 22.8 | 3.5 | | 7.2 | 6.9 | 3.4 | 26.1 | 11.7 | 0.5 | 21.0 | 3.4 | 4.7 |
| Delay (s) | 69.4 | 41.8 | | 62.1 | 56.1 | 51.0 | 83.1 | 55.4 | 35.8 | 65.7 | 31.0 | 30.5 |
| Level of Service | E | D | | E | E | D | F | E | D | E | C | C |
| Approach Delay (s) | | 54.7 | | | 54.6 | | | 53.8 | | | 41.0 | |
| Approach LOS | | D | | | D | | | D | | | D | |
| Intersection Summary | | | | | | | | | | | | |
| HCM 2000 Control Delay | | | 48.5 | | HCM 2000 Level of Service | | | | | D | | |
| HCM 2000 Volume to Capacity ratio | | | 0.92 | | | | | | | | | |
| Actuated Cycle Length (s) | | | 120.0 | | Sum of lost time (s) | | | | | 18.0 | | |
| Intersection Capacity Utilization | | | 87.9% | | ICU Level of Service | | | | | E | | |
| Analysis Period (min) | | | 15 | | | | | | | | | |
| c Critical Lane Group | | | | | | | | | | | | |

HCM Unsignalized Intersection Capacity Analysis

16: Holly Lane & Redland Road

07/07/2017


| | | | | | | | | | | | | |
|-----------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| |  |  |  |  |  |  |  |  |  |  |  |  |
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | |  | | |  | | |  | | |  | |
| Traffic Volume (veh/h) | 0 | 494 | 171 | 15 | 240 | 0 | 51 | 0 | 7 | 0 | 0 | 0 |
| Future Volume (Veh/h) | 0 | 494 | 171 | 15 | 240 | 0 | 51 | 0 | 7 | 0 | 0 | 0 |
| Sign Control | | Free | | | Free | | | Stop | | | Stop | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 |
| Hourly flow rate (vph) | 0 | 531 | 184 | 16 | 258 | 0 | 55 | 0 | 8 | 0 | 0 | 0 |
| Pedestrians | | | | | | | | | | | | |
| Lane Width (ft) | | | | | | | | | | | | |
| Walking Speed (ft/s) | | | | | | | | | | | | |
| Percent Blockage | | | | | | | | | | | | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | None | | | None | | | | | | | | |
| Median storage (veh) | | | | | | | | | | | | |
| Upstream signal (ft) | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 258 | | | 715 | | | 913 | 913 | 623 | 921 | 1005 | 258 |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 258 | | | 715 | | | 913 | 913 | 623 | 921 | 1005 | 258 |
| tC, single (s) | 4.1 | | | 4.1 | | | *6.0 | 6.5 | *6.0 | 7.1 | 6.5 | 6.2 |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 2.2 | | | 2.2 | | | *2.0 | 4.0 | *2.0 | 3.5 | 4.0 | 3.3 |
| p0 queue free % | 100 | | | 98 | | | 89 | 100 | 99 | 100 | 100 | 100 |
| cM capacity (veh/h) | 1307 | | | 881 | | | 494 | 268 | 754 | 245 | 237 | 781 |
| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 | | | | | | | | |
| Volume Total | 715 | 274 | 63 | 0 | | | | | | | | |
| Volume Left | 0 | 16 | 55 | 0 | | | | | | | | |
| Volume Right | 184 | 0 | 8 | 0 | | | | | | | | |
| cSH | 1307 | 881 | 517 | 1700 | | | | | | | | |
| Volume to Capacity | 0.00 | 0.02 | 0.12 | 0.00 | | | | | | | | |
| Queue Length 95th (ft) | 0 | 1 | 10 | 0 | | | | | | | | |
| Control Delay (s) | 0.0 | 0.7 | 12.9 | 0.0 | | | | | | | | |
| Lane LOS | | A | B | A | | | | | | | | |
| Approach Delay (s) | 0.0 | 0.7 | 12.9 | 0.0 | | | | | | | | |
| Approach LOS | | | B | A | | | | | | | | |
| Intersection Summary | | | | | | | | | | | | |
| Average Delay | | | 1.0 | | | | | | | | | |
| Intersection Capacity Utilization | | | 46.4% | ICU Level of Service | | | | | A | | | |
| Analysis Period (min) | | | 15 | | | | | | | | | |
| * User Entered Value | | | | | | | | | | | | |

| Intersection | | | | | | | | | | | | |
|--------------------------|--------|--------------|------|--------|--------------|------|--------|--------------|------|--------|--------------|------|
| Int Delay, s/veh | 0.9 | | | | | | | | | | | |
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | | <div>↕</div> | | | <div>↕</div> | | | <div>↕</div> | | | <div>↕</div> | |
| Traffic Vol, veh/h | 0 | 494 | 171 | 15 | 240 | 0 | 51 | 0 | 7 | 0 | 0 | 0 |
| Future Vol, veh/h | 0 | 494 | 171 | 15 | 240 | 0 | 51 | 0 | 7 | 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 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 93 | 93 | 93 | 93 | 93 | 93 | 93 | 93 | 93 | 93 | 93 | 93 |
| Heavy Vehicles, % | 2 | 2 | 2 | 3 | 3 | 3 | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 0 | 531 | 184 | 16 | 258 | 0 | 55 | 0 | 8 | 0 | 0 | 0 |
| | | | | | | | | | | | | |
| Major/Minor | Major1 | | | Major2 | | | Minor1 | | | Minor2 | | |
| Conflicting Flow All | 258 | 0 | 0 | 715 | 0 | 0 | 913 | 913 | 623 | 917 | 1005 | 258 |
| Stage 1 | - | - | - | - | - | - | 623 | 623 | - | 290 | 290 | - |
| Stage 2 | - | - | - | - | - | - | 290 | 290 | - | 627 | 715 | - |
| Critical Hdwy | 4.12 | - | - | 4.13 | - | - | 6 | 6 | 6 | 6 | 6 | 6 |
| 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 | - | - | 2.227 | - | - | 2 | 2 | 2 | 2 | 2 | 2 |
| Pot Cap-1 Maneuver | 1307 | - | - | 881 | - | - | 501 | 501 | 754 | 498 | 440 | 1257 |
| Stage 1 | - | - | - | - | - | - | 738 | 819 | - | 1190 | 1249 | - |
| Stage 2 | - | - | - | - | - | - | 1190 | 1249 | - | 734 | 729 | - |
| Platoon blocked, % | | - | - | | - | - | | | | | | |
| Mov Cap-1 Maneuver | 1307 | - | - | 881 | - | - | 493 | 490 | 754 | 485 | 431 | 1257 |
| Mov Cap-2 Maneuver | - | - | - | - | - | - | 493 | 490 | - | 485 | 431 | |
| Stage 1 | - | - | - | - | - | - | 738 | 819 | - | 1190 | 1223 | - |
| Stage 2 | - | - | - | - | - | - | 1165 | 1223 | - | 727 | 729 | - |
| | | | | | | | | | | | | |
| Approach | EB | | | WB | | | NB | | | SB | | |
| HCM Control Delay, s | 0 | | | 0.5 | | | 13 | | | 0 | | |
| HCM LOS | | | | | | | B | | | A | | |
| | | | | | | | | | | | | |
| Minor Lane/Major Mvmt | NBLn1 | EBL | EBT | EBR | WBL | WBT | WBR | SBLn1 | | | | |
| Capacity (veh/h) | 514 | 1307 | - | - | 881 | - | - | - | | | | |
| HCM Lane V/C Ratio | 0.121 | - | - | - | 0.018 | - | - | - | | | | |
| HCM Control Delay (s) | 13 | 0 | - | - | 9.2 | 0 | - | 0 | | | | |
| HCM Lane LOS | B | A | - | - | A | A | - | A | | | | |
| HCM 95th %tile Q(veh) | 0.4 | 0 | - | - | 0.1 | - | - | - | | | | |

HCM Signalized Intersection Capacity Analysis

1: OR-99E & I-205 SB Ramps

07/07/2017

| |  | | | | | |
|-----------------------------------|-----------------------------------------------------------------------------------|-------|--------|------|---------------------------|-------|
| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
| Lane Configurations | ↖↗ | ↖ | ↖↖↖ | ↖ | ↖ | ↖↖↖ |
| Traffic Volume (vph) | 535 | 321 | 1599 | 388 | 859 | 1045 |
| Future Volume (vph) | 535 | 321 | 1599 | 388 | 859 | 1045 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 |
| Lane Util. Factor | 0.97 | 1.00 | 0.91 | 1.00 | 1.00 | 0.91 |
| Frpb, ped/bikes | 1.00 | 1.00 | 1.00 | 0.97 | 1.00 | 1.00 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.85 | 1.00 | 0.85 | 1.00 | 1.00 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (prot) | 3273 | 1509 | 4988 | 1510 | 1752 | 5036 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (perm) | 3273 | 1509 | 4988 | 1510 | 1752 | 5036 |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Adj. Flow (vph) | 563 | 338 | 1683 | 408 | 904 | 1100 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 290 | 0 | 0 |
| Lane Group Flow (vph) | 563 | 338 | 1683 | 118 | 904 | 1100 |
| Confl. Peds. (#/hr) | | | | 3 | 3 | |
| Heavy Vehicles (%) | 7% | 7% | 4% | 4% | 3% | 3% |
| Turn Type | Prot | pm+ov | NA | Perm | Prot | NA |
| Protected Phases | 8 | 1 | 2 | | 1 | 6 |
| Permitted Phases | | 8 | | 2 | | |
| Actuated Green, G (s) | 17.6 | 50.5 | 26.0 | 26.0 | 32.9 | 63.4 |
| Effective Green, g (s) | 17.6 | 50.5 | 26.0 | 26.0 | 32.9 | 63.4 |
| Actuated g/C Ratio | 0.20 | 0.56 | 0.29 | 0.29 | 0.37 | 0.70 |
| Clearance Time (s) | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 640 | 922 | 1440 | 436 | 640 | 3547 |
| v/s Ratio Prot | c0.17 | 0.13 | c0.34 | | c0.52 | 0.22 |
| v/s Ratio Perm | | 0.09 | | 0.08 | | |
| v/c Ratio | 0.88 | 0.37 | 1.17 | 0.27 | 1.41 | 0.31 |
| Uniform Delay, d1 | 35.2 | 10.9 | 32.0 | 24.7 | 28.6 | 5.0 |
| Progression Factor | 1.00 | 1.00 | 1.08 | 2.74 | 1.00 | 1.00 |
| Incremental Delay, d2 | 13.1 | 0.2 | 80.9 | 0.9 | 194.8 | 0.2 |
| Delay (s) | 48.3 | 11.2 | 115.4 | 68.6 | 223.4 | 5.3 |
| Level of Service | D | B | F | E | F | A |
| Approach Delay (s) | 34.4 | | 106.3 | | | 103.6 |
| Approach LOS | C | | F | | | F |
| Intersection Summary | | | | | | |
| HCM 2000 Control Delay | | | 92.2 | | HCM 2000 Level of Service | F |
| HCM 2000 Volume to Capacity ratio | | | 1.21 | | | |
| Actuated Cycle Length (s) | | | 90.0 | | Sum of lost time (s) | 13.5 |
| Intersection Capacity Utilization | | | 105.0% | | ICU Level of Service | G |
| Analysis Period (min) | | | 15 | | | |
| c Critical Lane Group | | | | | | |

HCM Signalized Intersection Capacity Analysis

2: OR-99E & I-205 NB Ramps

07/07/2017



| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|------------------------|-------|-------|-------|-------|-------|------|
| Lane Configurations | | | | | | |
| Traffic Volume (vph) | 205 | 576 | 1445 | 1261 | 347 | 1205 |
| Future Volume (vph) | 205 | 576 | 1445 | 1261 | 347 | 1205 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 |
| Lane Util. Factor | 1.00 | 1.00 | 0.91 | 1.00 | 1.00 | 0.91 |
| Frpb, ped/bikes | 1.00 | 1.00 | 1.00 | 0.97 | 1.00 | 1.00 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.85 | 1.00 | 0.85 | 1.00 | 1.00 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (prot) | 1719 | 1538 | 4940 | 1496 | 1719 | 4940 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (perm) | 1719 | 1538 | 4940 | 1496 | 1719 | 4940 |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Adj. Flow (vph) | 216 | 606 | 1521 | 1327 | 365 | 1268 |
| RTOR Reduction (vph) | 0 | 226 | 0 | 328 | 0 | 0 |
| Lane Group Flow (vph) | 216 | 380 | 1521 | 999 | 365 | 1268 |
| Confl. Peds. (#/hr) | | | | 3 | 3 | |
| Heavy Vehicles (%) | 5% | 5% | 5% | 5% | 5% | 5% |
| Turn Type | Prot | Perm | NA | Perm | Prot | NA |
| Protected Phases | 8 | | 2 | | 1 | 6 |
| Permitted Phases | | 8 | | 2 | | |
| Actuated Green, G (s) | 18.5 | 18.5 | 43.5 | 43.5 | 14.5 | 62.5 |
| Effective Green, g (s) | 18.5 | 18.5 | 43.5 | 43.5 | 14.5 | 62.5 |
| Actuated g/C Ratio | 0.21 | 0.21 | 0.48 | 0.48 | 0.16 | 0.69 |
| Clearance Time (s) | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 353 | 316 | 2387 | 723 | 276 | 3430 |
| v/s Ratio Prot | 0.13 | | 0.31 | | 0.21 | 0.26 |
| v/s Ratio Perm | | 0.25 | | 0.67 | | |
| v/c Ratio | 0.61 | 1.20 | 0.64 | 1.38 | 1.32 | 0.37 |
| Uniform Delay, d1 | 32.5 | 35.8 | 17.4 | 23.2 | 37.8 | 5.7 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 0.80 | 1.84 |
| Incremental Delay, d2 | 3.1 | 117.9 | 1.3 | 180.6 | 165.7 | 0.3 |
| Delay (s) | 35.6 | 153.6 | 18.7 | 203.9 | 195.9 | 10.7 |
| Level of Service | D | F | B | F | F | B |
| Approach Delay (s) | 122.6 | | 105.0 | | | 52.1 |
| Approach LOS | F | | F | | | D |

Intersection Summary







| | | | |
|-----------------------------------|--------|---------------------------|------|
| HCM 2000 Control Delay | 91.4 | HCM 2000 Level of Service | F |
| HCM 2000 Volume to Capacity ratio | 1.33 | | |
| Actuated Cycle Length (s) | 90.0 | Sum of lost time (s) | 13.5 |
| Intersection Capacity Utilization | 105.1% | ICU Level of Service | G |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis

3: OR-99E & 15th Street

07/07/2017

| |  |  |  |  |  |  |
|-----------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
| Movement | NBT | NBR | SBL | SBT | NWL | NWR |
| Lane Configurations | ↑↑ | | | ↑↑↑ | | ↗ |
| Traffic Volume (veh/h) | 2236 | 16 | 0 | 1401 | 0 | 275 |
| Future Volume (Veh/h) | 2236 | 16 | 0 | 1401 | 0 | 275 |
| Sign Control | Free | | | Free | Stop | |
| Grade | 0% | | | 0% | 0% | |
| Peak Hour Factor | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Hourly flow rate (vph) | 2354 | 17 | 0 | 1475 | 0 | 289 |
| Pedestrians | | | | | | |
| Lane Width (ft) | | | | | | |
| Walking Speed (ft/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | None | | | None | | |
| Median storage (veh) | | | | | | |
| Upstream signal (ft) | 335 | | | 372 | | |
| pX, platoon unblocked | | | 0.55 | | 0.60 | 0.55 |
| vC, conflicting volume | | | 2371 | | 2854 | 1186 |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | | | 1848 | | 1745 | 0 |
| tC, single (s) | | | 4.2 | | 6.8 | 6.9 |
| tC, 2 stage (s) | | | | | | |
| tF (s) | | | 2.3 | | 3.5 | 3.3 |
| p0 queue free % | | | 100 | | 100 | 51 |
| cM capacity (veh/h) | | | 168 | | 46 | 592 |
| Direction, Lane # | NB 1 | NB 2 | SB 1 | SB 2 | SB 3 | NW 1 |
| Volume Total | 1569 | 802 | 492 | 492 | 492 | 289 |
| Volume Left | 0 | 0 | 0 | 0 | 0 | 0 |
| Volume Right | 0 | 17 | 0 | 0 | 0 | 289 |
| cSH | 1700 | 1700 | 1700 | 1700 | 1700 | 592 |
| Volume to Capacity | 0.92 | 0.47 | 0.29 | 0.29 | 0.29 | 0.49 |
| Queue Length 95th (ft) | 0 | 0 | 0 | 0 | 0 | 67 |
| Control Delay (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 16.7 |
| Lane LOS | | | | | | C |
| Approach Delay (s) | 0.0 | | 0.0 | | | 16.7 |
| Approach LOS | | | | | | C |
| Intersection Summary | | | | | | |
| Average Delay | | | 1.2 | | | |
| Intersection Capacity Utilization | | | 86.0% | | ICU Level of Service | E |
| Analysis Period (min) | | | 15 | | | |

| Intersection | | | | | | |
|--------------------------|--------|------|--------|------|--------|------|
| Int Delay, s/veh | 3.8 | | | | | |
| Movement | NBT | NBR | SBL | SBT | NWL | NWR |
| Lane Configurations | ↑↑↱ | | | ↑↑↑↑ | | ↱ |
| Traffic Vol, veh/h | 2236 | 16 | 0 | 1401 | 0 | 275 |
| Future Vol, veh/h | 2236 | 16 | 0 | 1401 | 0 | 275 |
| 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, % | 6 | 6 | 6 | 6 | 2 | 2 |
| Mvmt Flow | 2354 | 17 | 0 | 1475 | 0 | 289 |
| | | | | | | |
| Major/Minor | Major1 | | Major2 | | Minor1 | |
| Conflicting Flow All | 0 | 0 | - | - | - | 1185 |
| Stage 1 | - | - | - | - | - | - |
| Stage 2 | - | - | - | - | - | - |
| Critical Hdwy | - | - | - | - | - | 6 |
| Critical Hdwy Stg 1 | - | - | - | - | - | - |
| Critical Hdwy Stg 2 | - | - | - | - | - | - |
| Follow-up Hdwy | - | - | - | - | - | 2 |
| Pot Cap-1 Maneuver | - | - | 0 | - | 0 | 341 |
| Stage 1 | - | - | 0 | - | 0 | - |
| Stage 2 | - | - | 0 | - | 0 | - |
| Platoon blocked, % | - | - | | - | | |
| Mov Cap-1 Maneuver | - | - | - | - | - | 341 |
| Mov Cap-2 Maneuver | - | - | - | - | - | - |
| Stage 1 | - | - | - | - | - | - |
| Stage 2 | - | - | - | - | - | - |
| | | | | | | |
| | | | | | | |
| Approach | NB | | SB | | NW | |
| HCM Control Delay, s | 0 | | 0 | | 53.6 | |
| HCM LOS | | | | | F | |
| | | | | | | |
| Minor Lane/Major Mvmt | NBT | NBR | NWLn1 | SBT | | |
| Capacity (veh/h) | - | - | 341 | - | | |
| HCM Lane V/C Ratio | - | - | 0.849 | - | | |
| HCM Control Delay (s) | - | - | 53.6 | - | | |
| HCM Lane LOS | - | - | F | - | | |
| HCM 95th %tile Q(veh) | - | - | 7.7 | - | | |

HCM Signalized Intersection Capacity Analysis

4: OR-99E & 14th Street












07/07/2017

| | ↑ | ↖ | ↙ | ↓ | ↘ | ↗ |
|-----------------------------------|-------|------|-------|------|---------------------------|-------|
| Movement | NBT | NBR | SBL | SBT | NWL | NWR |
| Lane Configurations | ↑↑ | | ↙ | ↑↑ | ↘ | ↗ |
| Traffic Volume (vph) | 1694 | 32 | 412 | 1069 | 99 | 666 |
| Future Volume (vph) | 1694 | 32 | 412 | 1069 | 99 | 666 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.5 | | 4.5 | 4.5 | 4.5 | 4.5 |
| Lane Util. Factor | 0.95 | | 1.00 | 0.95 | 1.00 | 1.00 |
| Frpb, ped/bikes | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 |
| Flpb, ped/bikes | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | | 1.00 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 1.00 | | 0.95 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (prot) | 3395 | | 1703 | 3406 | 1736 | 1553 |
| Flt Permitted | 1.00 | | 0.08 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (perm) | 3395 | | 142 | 3406 | 1736 | 1553 |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Adj. Flow (vph) | 1783 | 34 | 434 | 1125 | 104 | 701 |
| RTOR Reduction (vph) | 2 | 0 | 0 | 0 | 0 | 4 |
| Lane Group Flow (vph) | 1815 | 0 | 434 | 1125 | 104 | 697 |
| Confl. Peds. (#/hr) | | 1 | 1 | | 3 | |
| Heavy Vehicles (%) | 6% | 6% | 6% | 6% | 4% | 4% |
| Turn Type | NA | | pm+pt | NA | Prot | pm+ov |
| Protected Phases | 2 | | 1 | 6 | 4 | 1 |
| Permitted Phases | | | 6 | | | 4 |
| Actuated Green, G (s) | 46.1 | | 81.1 | 81.1 | 9.9 | 40.4 |
| Effective Green, g (s) | 46.1 | | 81.1 | 81.1 | 9.9 | 40.4 |
| Actuated g/C Ratio | 0.46 | | 0.81 | 0.81 | 0.10 | 0.40 |
| Clearance Time (s) | 4.5 | | 4.5 | 4.5 | 4.5 | 4.5 |
| Vehicle Extension (s) | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 1565 | | 591 | 2762 | 171 | 697 |
| v/s Ratio Prot | c0.53 | | 0.22 | 0.33 | 0.06 | c0.31 |
| v/s Ratio Perm | | | 0.37 | | | 0.14 |
| v/c Ratio | 1.16 | | 0.73 | 0.41 | 0.61 | 1.00 |
| Uniform Delay, d1 | 26.9 | | 25.5 | 2.7 | 43.2 | 29.8 |
| Progression Factor | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 79.5 | | 4.7 | 0.1 | 6.0 | 34.2 |
| Delay (s) | 106.5 | | 30.2 | 2.8 | 49.2 | 64.0 |
| Level of Service | F | | C | A | D | E |
| Approach Delay (s) | 106.5 | | | 10.4 | 62.1 | |
| Approach LOS | F | | | B | E | |
| Intersection Summary | | | | | | |
| HCM 2000 Control Delay | | | 62.1 | | HCM 2000 Level of Service | E |
| HCM 2000 Volume to Capacity ratio | | | 1.14 | | | |
| Actuated Cycle Length (s) | | | 100.0 | | Sum of lost time (s) | 13.5 |
| Intersection Capacity Utilization | | | 96.6% | | ICU Level of Service | F |
| Analysis Period (min) | | | 15 | | | |
| c Critical Lane Group | | | | | | |

HCM Signalized Intersection Capacity Analysis

5: Redland Road & Abernethy Road/Holcomb Boulevard






















07/07/2017

| |  | | | | | | | | | | | |
|-----------------------------------|------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations |  |  | |  |  |  |  |  | |  |  |  |
| Traffic Volume (vph) | 33 | 119 | 43 | 43 | 242 | 389 | 222 | 463 | 41 | 184 | 363 | 73 |
| Future Volume (vph) | 33 | 119 | 43 | 43 | 242 | 389 | 222 | 463 | 41 | 184 | 363 | 73 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.5 | 4.5 | | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | | 4.5 | 4.5 | 4.5 |
| Lane Util. Factor | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frpb, ped/bikes | 1.00 | 0.99 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.96 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.99 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1656 | 1664 | | 1752 | 1845 | 1568 | 1752 | 1822 | | 1736 | 1827 | 1553 |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1656 | 1664 | | 1752 | 1845 | 1568 | 1752 | 1822 | | 1736 | 1827 | 1553 |
| 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) | 35 | 125 | 45 | 45 | 255 | 409 | 234 | 487 | 43 | 194 | 382 | 77 |
| RTOR Reduction (vph) | 0 | 18 | 0 | 0 | 0 | 143 | 0 | 4 | 0 | 0 | 0 | 50 |
| Lane Group Flow (vph) | 35 | 152 | 0 | 45 | 255 | 266 | 234 | 526 | 0 | 194 | 382 | 27 |
| Confl. Peds. (#/hr) | | | 1 | 1 | | | | | | | | |
| Heavy Vehicles (%) | 9% | 9% | 9% | 3% | 3% | 3% | 3% | 3% | 3% | 4% | 4% | 4% |
| Turn Type | Prot | NA | | Prot | NA | pm+ov | Prot | NA | | Prot | NA | pm+ov |
| Protected Phases | 7 | 4 | | 3 | 8 | 1 | 5 | 2 | | 1 | 6 | 7 |
| Permitted Phases | | | | | | 8 | | | | | | 6 |
| Actuated Green, G (s) | 3.7 | 16.0 | | 2.7 | 15.0 | 24.9 | 11.4 | 22.4 | | 9.9 | 20.9 | 24.6 |
| Effective Green, g (s) | 3.7 | 16.0 | | 2.7 | 15.0 | 24.9 | 11.4 | 22.4 | | 9.9 | 20.9 | 24.6 |
| Actuated g/C Ratio | 0.05 | 0.23 | | 0.04 | 0.22 | 0.36 | 0.17 | 0.32 | | 0.14 | 0.30 | 0.36 |
| Clearance Time (s) | 4.5 | 4.5 | | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | | 4.5 | 4.5 | 4.5 |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 88 | 385 | | 68 | 401 | 668 | 289 | 591 | | 249 | 553 | 654 |
| v/s Ratio Prot | 0.02 | 0.09 | | c0.03 | c0.14 | 0.06 | c0.13 | c0.29 | | 0.11 | 0.21 | 0.00 |
| v/s Ratio Perm | | | | | | 0.11 | | | | | | 0.02 |
| v/c Ratio | 0.40 | 0.40 | | 0.66 | 0.64 | 0.40 | 0.81 | 0.89 | | 0.78 | 0.69 | 0.04 |
| Uniform Delay, d1 | 31.6 | 22.4 | | 32.7 | 24.5 | 16.5 | 27.8 | 22.1 | | 28.5 | 21.2 | 14.5 |
| 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 | 2.9 | 0.7 | | 21.6 | 3.3 | 0.4 | 15.3 | 15.2 | | 14.2 | 3.7 | 0.0 |
| Delay (s) | 34.5 | 23.1 | | 54.3 | 27.8 | 16.8 | 43.0 | 37.3 | | 42.7 | 24.9 | 14.5 |
| Level of Service | C | C | | D | C | B | D | D | | D | C | B |
| Approach Delay (s) | | 25.0 | | | 23.2 | | | 39.1 | | | 29.0 | |
| Approach LOS | | C | | | C | | | D | | | C | |
| Intersection Summary | | | | | | | | | | | | |
| HCM 2000 Control Delay | | | 30.2 | | | | | | | | | |
| HCM 2000 Volume to Capacity ratio | | | 0.79 | | | | | | | | | |
| Actuated Cycle Length (s) | | | 69.0 | | | | | | | | | |
| Intersection Capacity Utilization | | | 69.0% | | | | | | | | | |
| Analysis Period (min) | | | 15 | | | | | | | | | |
| c Critical Lane Group | | | | | | | | | | | | |

HCM Signalized Intersection Capacity Analysis

6: Washington Street & Abernethy Road



















07/07/2017

| |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement | SEL | SET | SER | NWL | NWT | NWR | NEL | NET | NER | SWL | SWT | SWR |
| Lane Configurations | |  | |  |  | |  |  |  |  |  |  |
| Traffic Volume (vph) | 0 | 1 | 0 | 484 | 1 | 39 | 1 | 215 | 181 | 21 | 523 | 0 |
| Future Volume (vph) | 0 | 1 | 0 | 484 | 1 | 39 | 1 | 215 | 181 | 21 | 523 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.5 | | 4.5 | 4.5 | | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | |
| Lane Util. Factor | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frpb, ped/bikes | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | |
| Flpb, ped/bikes | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | | 1.00 | | 1.00 | 0.85 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | |
| Flt Protected | | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | | 1900 | | 1716 | 1544 | | 1701 | 1792 | 1491 | 1734 | 1827 | |
| Flt Permitted | | 1.00 | | 0.76 | 1.00 | | 0.20 | 1.00 | 1.00 | 0.59 | 1.00 | |
| Satd. Flow (perm) | | 1900 | | 1368 | 1544 | | 354 | 1792 | 1491 | 1077 | 1827 | |
| 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 | 1 | 0 | 538 | 1 | 43 | 1 | 239 | 201 | 23 | 581 | 0 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 23 | 0 | 0 | 0 | 126 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 0 | 1 | 0 | 538 | 21 | 0 | 1 | 239 | 75 | 23 | 581 | 0 |
| Confl. Peds. (#/hr) | | | 1 | 1 | | | 3 | | 1 | 1 | | 3 |
| Heavy Vehicles (%) | 0% | 0% | 0% | 5% | 5% | 5% | 6% | 6% | 6% | 4% | 4% | 4% |
| Turn Type | | NA | | Perm | NA | | Perm | NA | Perm | Perm | NA | |
| Protected Phases | | 6 | | | 2 | | | 4 | | | | 8 |
| Permitted Phases | 6 | | | 2 | | | 4 | | 4 | 8 | | |
| Actuated Green, G (s) | | 24.7 | | 24.7 | 24.7 | | 20.2 | 20.2 | 20.2 | 20.2 | 20.2 | |
| Effective Green, g (s) | | 24.7 | | 24.7 | 24.7 | | 20.2 | 20.2 | 20.2 | 20.2 | 20.2 | |
| Actuated g/C Ratio | | 0.46 | | 0.46 | 0.46 | | 0.37 | 0.37 | 0.37 | 0.37 | 0.37 | |
| Clearance Time (s) | | 4.5 | | 4.5 | 4.5 | | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | |
| Vehicle Extension (s) | | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | | 870 | | 626 | 707 | | 132 | 671 | 558 | 403 | 684 | |
| v/s Ratio Prot | | 0.00 | | | 0.01 | | | 0.13 | | | c0.32 | |
| v/s Ratio Perm | | | | c0.39 | | | 0.00 | | 0.05 | 0.02 | | |
| v/c Ratio | | 0.00 | | 0.86 | 0.03 | | 0.01 | 0.36 | 0.13 | 0.06 | 0.85 | |
| Uniform Delay, d1 | | 7.9 | | 13.0 | 8.0 | | 10.6 | 12.2 | 11.1 | 10.8 | 15.5 | |
| Progression Factor | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | | 0.0 | | 11.3 | 0.0 | | 0.0 | 0.3 | 0.1 | 0.1 | 9.7 | |
| Delay (s) | | 7.9 | | 24.4 | 8.0 | | 10.6 | 12.5 | 11.2 | 10.8 | 25.1 | |
| Level of Service | | A | | C | A | | B | B | B | B | C | |
| Approach Delay (s) | | 7.9 | | | 23.1 | | | 11.9 | | | 24.6 | |
| Approach LOS | | A | | | C | | | B | | | C | |
| Intersection Summary | | | | | | | | | | | | |
| HCM 2000 Control Delay | | | 20.6 | | | | | | | | | HCM 2000 Level of Service C |
| HCM 2000 Volume to Capacity ratio | | | 0.85 | | | | | | | | | |
| Actuated Cycle Length (s) | | | 53.9 | | | | | | | | | Sum of lost time (s) 9.0 |
| Intersection Capacity Utilization | | | 68.5% | | | | | | | | | ICU Level of Service C |
| Analysis Period (min) | | | 15 | | | | | | | | | |
| c Critical Lane Group | | | | | | | | | | | | |

HCM Signalized Intersection Capacity Analysis

7: Washington Street & 15th Street




















07/07/2017

| |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement | SEL | SET | SER | NWL | NWT | NWR | NEL | NET | NER | SWL | SWT | SWR |
| Lane Configurations | |  | | |  | |  |  | |  |  | |
| Traffic Volume (vph) | 18 | 20 | 19 | 14 | 92 | 44 | 36 | 352 | 122 | 70 | 669 | 255 |
| Future Volume (vph) | 18 | 20 | 19 | 14 | 92 | 44 | 36 | 352 | 122 | 70 | 669 | 255 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.5 | | | 4.5 | | 4.5 | 4.5 | | 4.5 | 4.5 | |
| Lane Util. Factor | | 1.00 | | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frpb, ped/bikes | | 0.99 | | | 0.99 | | 1.00 | 0.99 | | 1.00 | 0.99 | |
| Flpb, ped/bikes | | 1.00 | | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | | 0.95 | | | 0.96 | | 1.00 | 0.96 | | 1.00 | 0.96 | |
| Flt Protected | | 0.98 | | | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | | 1477 | | | 1669 | | 1703 | 1713 | | 1735 | 1741 | |
| Flt Permitted | | 0.85 | | | 0.97 | | 0.11 | 1.00 | | 0.39 | 1.00 | |
| Satd. Flow (perm) | | 1274 | | | 1624 | | 200 | 1713 | | 705 | 1741 | |
| 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) | 20 | 22 | 21 | 16 | 102 | 49 | 40 | 391 | 136 | 78 | 743 | 283 |
| RTOR Reduction (vph) | 0 | 18 | 0 | 0 | 18 | 0 | 0 | 12 | 0 | 0 | 13 | 0 |
| Lane Group Flow (vph) | 0 | 45 | 0 | 0 | 149 | 0 | 40 | 515 | 0 | 78 | 1013 | 0 |
| Confl. Peds. (#/hr) | 1 | | 1 | 1 | | 1 | 1 | | 1 | 1 | | 1 |
| Confl. Bikes (#/hr) | | | | | | 1 | | | | | | |
| Heavy Vehicles (%) | 20% | 20% | 20% | 8% | 8% | 8% | 6% | 6% | 6% | 4% | 4% | 4% |
| Turn Type | Perm | NA | | Perm | NA | | pm+pt | NA | | pm+pt | NA | |
| Protected Phases | | 4 | | | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | | 8 | | | 2 | | | 6 | | |
| Actuated Green, G (s) | | 12.5 | | | 12.5 | | 54.8 | 52.0 | | 57.6 | 53.4 | |
| Effective Green, g (s) | | 12.5 | | | 12.5 | | 54.8 | 52.0 | | 57.6 | 53.4 | |
| Actuated g/C Ratio | | 0.15 | | | 0.15 | | 0.67 | 0.63 | | 0.70 | 0.65 | |
| Clearance Time (s) | | 4.5 | | | 4.5 | | 4.5 | 4.5 | | 4.5 | 4.5 | |
| Vehicle Extension (s) | | 3.0 | | | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | | 193 | | | 246 | | 184 | 1083 | | 546 | 1131 | |
| v/s Ratio Prot | | | | | | | c0.01 | 0.30 | | 0.01 | c0.58 | |
| v/s Ratio Perm | | 0.04 | | | c0.09 | | 0.14 | | | 0.09 | | |
| v/c Ratio | | 0.23 | | | 0.61 | | 0.22 | 0.48 | | 0.14 | 0.90 | |
| Uniform Delay, d1 | | 30.6 | | | 32.6 | | 11.5 | 7.9 | | 4.4 | 12.1 | |
| Progression Factor | | 1.00 | | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | | 0.6 | | | 4.2 | | 0.6 | 0.3 | | 0.1 | 9.4 | |
| Delay (s) | | 31.3 | | | 36.7 | | 12.1 | 8.3 | | 4.6 | 21.5 | |
| Level of Service | | C | | | D | | B | A | | A | C | |
| Approach Delay (s) | | 31.3 | | | 36.7 | | | 8.5 | | | 20.3 | |
| Approach LOS | | C | | | D | | | A | | | C | |
| Intersection Summary | | | | | | | | | | | | |
| HCM 2000 Control Delay | | 18.6 | | | | | | | | | | |
| HCM 2000 Volume to Capacity ratio | | 0.81 | | | | | | | | | | |
| Actuated Cycle Length (s) | | 82.2 | | | | | | | | 13.5 | | |
| Intersection Capacity Utilization | | 74.7% | | | | | | | | | | |
| Analysis Period (min) | | 15 | | | | | | | | | | |
| c Critical Lane Group | | | | | | | | | | | | |

HCM Signalized Intersection Capacity Analysis

8: Washington Street & 14th Street



















07/07/2017







| |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement | SEL | SET | SER | NWL | NWT | NWR | NEL | NET | NER | SWL | SWT | SWR |
| Lane Configurations | |  |  | |  | |  |  | |  |  | |
| Traffic Volume (vph) | 233 | 46 | 152 | 4 | 53 | 4 | 420 | 256 | 10 | 1 | 336 | 385 |
| Future Volume (vph) | 233 | 46 | 152 | 4 | 53 | 4 | 420 | 256 | 10 | 1 | 336 | 385 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.5 | 4.5 | | 4.5 | | 4.5 | 4.5 | | 4.5 | 4.5 | |
| Lane Util. Factor | | 1.00 | 1.00 | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frpb, ped/bikes | | 1.00 | 0.97 | | 1.00 | | 1.00 | 1.00 | | 1.00 | 0.98 | |
| Flpb, ped/bikes | | 1.00 | 1.00 | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | | 1.00 | 0.85 | | 0.99 | | 1.00 | 0.99 | | 1.00 | 0.92 | |
| Flt Protected | | 0.96 | 1.00 | | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | | 1750 | 1506 | | 1838 | | 1752 | 1832 | | 1716 | 1639 | |
| Flt Permitted | | 0.76 | 1.00 | | 0.98 | | 0.09 | 1.00 | | 0.59 | 1.00 | |
| Satd. Flow (perm) | | 1394 | 1506 | | 1804 | | 159 | 1832 | | 1061 | 1639 | |
| 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) | 245 | 48 | 160 | 4 | 56 | 4 | 442 | 269 | 11 | 1 | 354 | 405 |
| RTOR Reduction (vph) | 0 | 0 | 127 | 0 | 2 | 0 | 0 | 1 | 0 | 0 | 44 | 0 |
| Lane Group Flow (vph) | 0 | 293 | 33 | 0 | 62 | 0 | 442 | 279 | 0 | 1 | 715 | 0 |
| Confl. Peds. (#/hr) | 1 | | 4 | 4 | | 1 | 3 | | 2 | 2 | | 3 |
| Confl. Bikes (#/hr) | | | | | | | | | | | | 1 |
| Heavy Vehicles (%) | 4% | 4% | 4% | 2% | 2% | 2% | 3% | 3% | 3% | 5% | 5% | 5% |
| Turn Type | Perm | NA | Perm | Perm | NA | | pm+pt | NA | | pm+pt | NA | |
| Protected Phases | | 4 | | | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | 4 | 8 | | | 2 | | | 6 | | |
| Actuated Green, G (s) | | 19.5 | 19.5 | | 19.5 | | 65.1 | 59.6 | | 42.9 | 41.9 | |
| Effective Green, g (s) | | 19.5 | 19.5 | | 19.5 | | 65.1 | 59.6 | | 42.9 | 41.9 | |
| Actuated g/C Ratio | | 0.21 | 0.21 | | 0.21 | | 0.70 | 0.64 | | 0.46 | 0.45 | |
| Clearance Time (s) | | 4.5 | 4.5 | | 4.5 | | 4.5 | 4.5 | | 4.5 | 4.5 | |
| Vehicle Extension (s) | | 3.0 | 3.0 | | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | | 290 | 313 | | 375 | | 428 | 1166 | | 493 | 733 | |
| v/s Ratio Prot | | | | | | | c0.21 | 0.15 | | 0.00 | 0.44 | |
| v/s Ratio Perm | | c0.21 | 0.02 | | 0.03 | | c0.51 | | | 0.00 | | |
| v/c Ratio | | 1.01 | 0.11 | | 0.16 | | 1.03 | 0.24 | | 0.00 | 0.98 | |
| Uniform Delay, d1 | | 37.0 | 30.0 | | 30.4 | | 29.7 | 7.3 | | 13.7 | 25.3 | |
| Progression Factor | | 1.00 | 1.00 | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | | 55.5 | 0.2 | | 0.2 | | 52.2 | 0.1 | | 0.0 | 26.9 | |
| Delay (s) | | 92.6 | 30.1 | | 30.6 | | 81.8 | 7.4 | | 13.7 | 52.3 | |
| Level of Service | | F | C | | C | | F | A | | B | D | |
| Approach Delay (s) | | 70.5 | | | 30.6 | | | 53.0 | | | 52.2 | |
| Approach LOS | | E | | | C | | | D | | | D | |
| Intersection Summary | | | | | | | | | | | | |
| HCM 2000 Control Delay | | | 55.9 | | | | HCM 2000 Level of Service | | | E | | |
| HCM 2000 Volume to Capacity ratio | | | 1.06 | | | | | | | | | |
| Actuated Cycle Length (s) | | | 93.6 | | | | Sum of lost time (s) | | | 13.5 | | |
| Intersection Capacity Utilization | | | 97.9% | | | | ICU Level of Service | | | F | | |
| Analysis Period (min) | | | 15 | | | | | | | | | |
| c Critical Lane Group | | | | | | | | | | | | |

HCM Unsignalized Intersection Capacity Analysis

9: Main Street & 14th Street

07/07/2017

| |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement | SEL | SET | SER | NWL | NWT | NWR | NEL | NET | NER | SWL | SWT | SWR |
| Lane Configurations |  |  | | |  | | |  |  | |  | |
| Traffic Volume (veh/h) | 29 | 372 | 37 | 160 | 744 | 16 | 7 | 33 | 73 | 0 | 16 | 14 |
| Future Volume (Veh/h) | 29 | 372 | 37 | 160 | 744 | 16 | 7 | 33 | 73 | 0 | 16 | 14 |
| Sign Control | | Free | | | Free | | | Stop | | | Stop | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Hourly flow rate (vph) | 31 | 392 | 39 | 168 | 783 | 17 | 7 | 35 | 77 | 0 | 17 | 15 |
| Pedestrians | | 2 | | | 10 | | | 4 | | | | |
| Lane Width (ft) | | 12.0 | | | 12.0 | | | 12.0 | | | | |
| Walking Speed (ft/s) | | 3.5 | | | 3.5 | | | 3.5 | | | | |
| Percent Blockage | | 0 | | | 1 | | | 0 | | | | |
| Right turn flare (veh) | | | | | | | | | 5 | | | |
| Median type | | None | | | None | | | | | | | |
| Median storage (veh) | | | | | | | | | | | | |
| Upstream signal (ft) | | 187 | | | 537 | | | | | | | |
| pX, platoon unblocked | 0.88 | | | | | | 0.88 | 0.88 | | 0.88 | 0.88 | 0.88 |
| vC, conflicting volume | 800 | | | 435 | | | 1630 | 1614 | 426 | 1648 | 1624 | 794 |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 707 | | | 435 | | | 1648 | 1629 | 426 | 1667 | 1641 | 700 |
| tC, single (s) | 4.1 | | | 4.1 | | | 7.2 | 6.6 | 6.3 | 7.1 | 6.5 | 6.2 |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 2.2 | | | 2.2 | | | 3.6 | 4.1 | 3.4 | 3.5 | 4.0 | 3.3 |
| p0 queue free % | 96 | | | 85 | | | 85 | 50 | 87 | 100 | 77 | 96 |
| cM capacity (veh/h) | 779 | | | 1115 | | | 45 | 70 | 606 | 31 | 73 | 390 |
| Direction, Lane # | SE 1 | SE 2 | NW 1 | NE 1 | SW 1 | | | | | | | |
| Volume Total | 31 | 431 | 968 | 119 | 32 | | | | | | | |
| Volume Left | 31 | 0 | 168 | 7 | 0 | | | | | | | |
| Volume Right | 0 | 39 | 17 | 77 | 15 | | | | | | | |
| cSH | 779 | 1700 | 1115 | 188 | 117 | | | | | | | |
| Volume to Capacity | 0.04 | 0.25 | 0.15 | 0.63 | 0.27 | | | | | | | |
| Queue Length 95th (ft) | 3 | 0 | 13 | 91 | 26 | | | | | | | |
| Control Delay (s) | 9.8 | 0.0 | 3.6 | 52.2 | 46.8 | | | | | | | |
| Lane LOS | A | | A | F | E | | | | | | | |
| Approach Delay (s) | 0.7 | | 3.6 | 52.2 | 46.8 | | | | | | | |
| Approach LOS | | | | F | E | | | | | | | |
| Intersection Summary | | | | | | | | | | | | |
| Average Delay | | | 7.3 | | | | | | | | | |
| Intersection Capacity Utilization | | | 90.2% | | ICU Level of Service | | | | E | | | |
| Analysis Period (min) | | | 15 | | | | | | | | | |

| Intersection | | | | | | | | | | | | |
|--------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------|------|-----------------------------------------------------------------------------------|------|------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|------|-------------------------------------------------------------------------------------|------|
| Int Delay, s/veh | 6.1 | | | | | | | | | | | |
| Movement | SEL | SET | SER | NWL | NWT | NWR | NEL | NET | NER | SWL | SWT | SWR |
| Lane Configurations |  |  | | |  | | |  |  | |  | |
| Traffic Vol, veh/h | 29 | 372 | 37 | 160 | 744 | 16 | 7 | 33 | 73 | 0 | 16 | 14 |
| Future Vol, veh/h | 29 | 372 | 37 | 160 | 744 | 16 | 7 | 33 | 73 | 0 | 16 | 14 |
| Conflicting Peds, #/hr | 0 | 0 | 4 | 4 | 0 | 0 | 2 | 0 | 10 | 10 | 0 | 2 |
| Sign Control | Free | Free | Free | Free | Free | Free | Stop | Stop | Stop | Stop | Stop | Stop |
| RT Channelized | - | - | None | - | - | None | - | - | None | - | - | None |
| Storage Length | 0 | - | - | - | - | - | - | - | 130 | - | - | - |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 95 | 95 | 95 | 95 | 95 | 95 | 95 | 95 | 95 | 95 | 95 | 95 |
| Heavy Vehicles, % | 4 | 4 | 4 | 3 | 3 | 3 | 9 | 9 | 9 | 0 | 0 | 0 |
| Mvmt Flow | 31 | 392 | 39 | 168 | 783 | 17 | 7 | 35 | 77 | 0 | 17 | 15 |

| Major/Minor | Major1 | | | Major2 | | | Minor1 | | | Minor2 | | |
|----------------------|--------|---|---|--------|---|---|--------|-------|-------|--------|------|-----|
| Conflicting Flow All | 800 | 0 | 0 | 435 | 0 | 0 | 1622 | 1613 | 425 | 1627 | 1624 | 794 |
| Stage 1 | - | - | - | - | - | - | 476 | 476 | - | 1128 | 1128 | - |
| Stage 2 | - | - | - | - | - | - | 1146 | 1137 | - | 499 | 496 | - |
| Critical Hdwy | 4.14 | - | - | 4.13 | - | - | 7.19 | 6.59 | 6.29 | 7.1 | 6.5 | 6.2 |
| Critical Hdwy Stg 1 | - | - | - | - | - | - | 6.19 | 5.59 | - | 6.1 | 5.5 | - |
| Critical Hdwy Stg 2 | - | - | - | - | - | - | 6.19 | 5.59 | - | 6.1 | 5.5 | - |
| Follow-up Hdwy | 2.236 | - | - | 2.227 | - | - | 3.581 | 4.081 | 3.381 | 3.5 | 4 | 3.3 |
| Pot Cap-1 Maneuver | 814 | - | - | 1119 | - | - | 79 | 100 | 615 | 83 | 104 | 391 |
| Stage 1 | - | - | - | - | - | - | 557 | 545 | - | 250 | 282 | - |
| Stage 2 | - | - | - | - | - | - | 235 | 269 | - | 557 | 549 | - |
| Platoon blocked, % | | - | - | | - | - | | | | | | |
| Mov Cap-1 Maneuver | 812 | - | - | 1108 | - | - | 48 | 70 | 607 | 34 | 72 | 390 |
| Mov Cap-2 Maneuver | - | - | - | - | - | - | 48 | 70 | - | 34 | 72 | - |
| Stage 1 | - | - | - | - | - | - | 534 | 522 | - | 240 | 205 | - |
| Stage 2 | - | - | - | - | - | - | 150 | 195 | - | 433 | 526 | - |

| Approach | SE | NW | NE | SW |
|----------------------|-----|-----|----|------|
| HCM Control Delay, s | 0.6 | 1.5 | 54 | 47.3 |
| HCM LOS | | | F | E |






| Minor Lane/Major Mvmt | NELn1 | NELn2 | NWL | NWT | NWR | SEL | SET | SERSWLn1 |
|-----------------------|-------|-------|-------|-----|-----|-------|-----|----------|
| Capacity (veh/h) | 65 | 607 | 1108 | - | - | 812 | - | - 116 |
| HCM Lane V/C Ratio | 0.648 | 0.127 | 0.152 | - | - | 0.038 | - | - 0.272 |
| HCM Control Delay (s) | 130.9 | 11.8 | 8.8 | 0 | - | 9.6 | - | - 47.3 |
| HCM Lane LOS | F | B | A | A | - | A | - | - E |
| HCM 95th %tile Q(veh) | 2.8 | 0.4 | 0.5 | - | - | 0.1 | - | - 1 |

HCM Unsignalized Intersection Capacity Analysis






101: OR-213 & I-205 SB Ramps

07/07/2017



| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|-----------------------------------|-----------------------------------------------------------------------------------|------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
| Lane Configurations |  | |  |  |  |  |
| Traffic Volume (veh/h) | 20 | 0 | 1006 | 36 | 26 | 6 |
| Future Volume (Veh/h) | 20 | 0 | 1006 | 36 | 26 | 6 |
| Sign Control | Stop | | | Free | Free | |
| Grade | 0% | | | 0% | 0% | |
| Peak Hour Factor | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Hourly flow rate (vph) | 21 | 0 | 1059 | 38 | 27 | 6 |
| Pedestrians | | | | | | |
| Lane Width (ft) | | | | | | |
| Walking Speed (ft/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | | | | None | None | |
| Median storage veh | | | | | | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 2183 | 27 | 27 | | | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 2183 | 27 | 27 | | | |
| tC, single (s) | *6.0 | 6.3 | 4.1 | | | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | *2.0 | 3.4 | 2.2 | | | |
| p0 queue free % | 21 | 100 | 32 | | | |
| cM capacity (veh/h) | 27 | 1037 | 1568 | | | |
| Direction, Lane # | EB 1 | NB 1 | NB 2 | SB 1 | SB 2 | |
| Volume Total | 21 | 1059 | 38 | 27 | 6 | |
| Volume Left | 21 | 1059 | 0 | 0 | 0 | |
| Volume Right | 0 | 0 | 0 | 0 | 6 | |
| cSH | 27 | 1568 | 1700 | 1700 | 1700 | |
| Volume to Capacity | 0.79 | 0.68 | 0.02 | 0.02 | 0.00 | |
| Queue Length 95th (ft) | 62 | 143 | 0 | 0 | 0 | |
| Control Delay (s) | 319.1 | 11.9 | 0.0 | 0.0 | 0.0 | |
| Lane LOS | F | B | | | | |
| Approach Delay (s) | 319.1 | 11.5 | | 0.0 | | |
| Approach LOS | F | | | | | |
| Intersection Summary | | | | | | |
| Average Delay | | | 16.8 | | | |
| Intersection Capacity Utilization | | | 72.4% | ICU Level of Service | | C |
| Analysis Period (min) | | | 15 | | | |

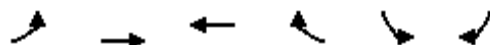
* User Entered Value

| Intersection | | | | | | |
|----------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|--------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Int Delay, s/veh | 16.7 | | | | | |
| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
| Lane Configurations |  | |  |  |  |  |
| Traffic Vol, veh/h | 20 | 0 | 1006 | 36 | 26 | 6 |
| Future Vol, veh/h | 20 | 0 | 1006 | 36 | 26 | 6 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Free | Free | Free | Free |
| RT Channelized | - | None | - | None | - | Free |
| Storage Length | 0 | - | 0 | - | - | 0 |
| Veh in Median Storage, # | 0 | - | - | 0 | 0 | - |
| Grade, % | 0 | - | - | 0 | 0 | - |
| Peak Hour Factor | 95 | 95 | 95 | 95 | 95 | 95 |
| Heavy Vehicles, % | 6 | 6 | 5 | 5 | 18 | 18 |
| Mvmt Flow | 21 | 0 | 1059 | 38 | 27 | 6 |
| | | | | | | |
| Major/Minor | Minor2 | Major1 | | Major2 | | |
| Conflicting Flow All | 2183 | - | 27 | 0 | - | 0 |
| Stage 1 | 27 | - | - | - | - | - |
| Stage 2 | 2156 | - | - | - | - | - |
| Critical Hdwy | 6 | - | 4.15 | - | - | - |
| Critical Hdwy Stg 1 | 5.46 | - | - | - | - | - |
| Critical Hdwy Stg 2 | 5.46 | - | - | - | - | - |
| Follow-up Hdwy | 2 | - | 2.245 | - | - | - |
| Pot Cap-1 Maneuver | 82 | 0 | 1568 | - | - | 0 |
| Stage 1 | 1741 | 0 | - | - | - | 0 |
| Stage 2 | 117 | 0 | - | - | - | 0 |
| Platoon blocked, % | | | | - | - | |
| Mov Cap-1 Maneuver | 27 | - | 1568 | - | - | - |
| Mov Cap-2 Maneuver | 27 | - | - | - | - | - |
| Stage 1 | 1741 | - | - | - | - | - |
| Stage 2 | 38 | - | - | - | - | - |
| | | | | | | |
| Approach | EB | NB | | SB | | |
| HCM Control Delay, s | \$ 310.7 | 11.5 | | 0 | | |
| HCM LOS | F | | | | | |
| | | | | | | |
| Minor Lane/Major Mvmt | NBL | NBT | EBLn1 | SBT | | |
| Capacity (veh/h) | 1568 | - | 27 | - | | |
| HCM Lane V/C Ratio | 0.675 | - | 0.78 | - | | |
| HCM Control Delay (s) | 11.9 | - | \$ 310.7 | - | | |
| HCM Lane LOS | B | - | F | - | | |
| HCM 95th %tile Q(veh) | 5.7 | - | 2.5 | - | | |
| Notes | | | | | | |
| ~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon | | | | | | |

HCM Unsignalized Intersection Capacity Analysis

102: I-205 SB Ramps & OR-213

07/07/2017





















| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|-----------------------------------|------|------|-------|------|----------------------|------|
| Lane Configurations | | ↑↑ | | ↑↑ | ↑ | |
| Traffic Volume (veh/h) | 0 | 1805 | 0 | 0 | 26 | 0 |
| Future Volume (Veh/h) | 0 | 1805 | 0 | 0 | 26 | 0 |
| Sign Control | | Free | Free | | Stop | |
| Grade | | 0% | 0% | | 0% | |
| Peak Hour Factor | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Hourly flow rate (vph) | 0 | 1900 | 0 | 0 | 27 | 0 |
| Pedestrians | | | | | | |
| Lane Width (ft) | | | | | | |
| Walking Speed (ft/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | | None | None | | | |
| Median storage (veh) | | | | | | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 0 | | | | 950 | 0 |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 0 | | | | 950 | 0 |
| tC, single (s) | 4.2 | | | | 7.2 | 7.3 |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 2.3 | | | | 3.7 | 3.5 |
| p0 queue free % | 100 | | | | 88 | 100 |
| cM capacity (veh/h) | 1593 | | | | 231 | 1034 |
| Direction, Lane # | EB 1 | EB 2 | WB 1 | WB 2 | SB 1 | |
| Volume Total | 950 | 950 | 0 | 0 | 27 | |
| Volume Left | 0 | 0 | 0 | 0 | 27 | |
| Volume Right | 0 | 0 | 0 | 0 | 0 | |
| cSH | 1700 | 1700 | 1700 | 1700 | 231 | |
| Volume to Capacity | 0.56 | 0.56 | 0.00 | 0.00 | 0.12 | |
| Queue Length 95th (ft) | 0 | 0 | 0 | 0 | 10 | |
| Control Delay (s) | 0.0 | 0.0 | 0.0 | 0.0 | 22.6 | |
| Lane LOS | | | | | C | |
| Approach Delay (s) | 0.0 | | 0.0 | | 22.6 | |
| Approach LOS | | | | | C | |
| Intersection Summary | | | | | | |
| Average Delay | | | 0.3 | | | |
| Intersection Capacity Utilization | | | 59.9% | | ICU Level of Service | B |
| Analysis Period (min) | | | 15 | | | |

| Intersection | | | | | | |
|--------------------------|--------|------|--------|------|--------|------|
| Int Delay, s/veh | 0.3 | | | | | |
| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
| Lane Configurations | | ↑↑ | | ↑↑ | ↑ | |
| Traffic Vol, veh/h | 0 | 1805 | 0 | 0 | 26 | 0 |
| Future Vol, veh/h | 0 | 1805 | 0 | 0 | 26 | 0 |
| 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 | 0 | - |
| Veh in Median Storage, # | - | 0 | 0 | - | 0 | - |
| Grade, % | - | 0 | 0 | - | 0 | - |
| Peak Hour Factor | 95 | 95 | 95 | 95 | 95 | 95 |
| Heavy Vehicles, % | 6 | 6 | 5 | 5 | 18 | 18 |
| Mvmt Flow | 0 | 1900 | 0 | 0 | 27 | 0 |
| | | | | | | |
| Major/Minor | Major1 | | Major2 | | Minor2 | |
| Conflicting Flow All | - | 0 | - | - | 950 | - |
| Stage 1 | - | - | - | - | 0 | - |
| Stage 2 | - | - | - | - | 950 | - |
| Critical Hdwy | - | - | - | - | 7.16 | - |
| Critical Hdwy Stg 1 | - | - | - | - | - | - |
| Critical Hdwy Stg 2 | - | - | - | - | 6.16 | - |
| Follow-up Hdwy | - | - | - | - | 3.68 | - |
| Pot Cap-1 Maneuver | 0 | - | 0 | - | 231 | 0 |
| Stage 1 | 0 | - | 0 | - | - | 0 |
| Stage 2 | 0 | - | 0 | - | 301 | 0 |
| Platoon blocked, % | | - | | - | | |
| Mov Cap-1 Maneuver | - | - | - | - | 231 | - |
| Mov Cap-2 Maneuver | - | - | - | - | 231 | - |
| Stage 1 | - | - | - | - | - | - |
| Stage 2 | - | - | - | - | 301 | - |
| | | | | | | |
| Approach | EB | | WB | | SB | |
| HCM Control Delay, s | 0 | | 0 | | 22.7 | |
| HCM LOS | | | | | C | |
| | | | | | | |
| Minor Lane/Major Mvmt | EBT | WBR | SBLn1 | | | |
| Capacity (veh/h) | - | - | 231 | | | |
| HCM Lane V/C Ratio | - | - | 0.118 | | | |
| HCM Control Delay (s) | - | - | 22.7 | | | |
| HCM Lane LOS | - | - | C | | | |
| HCM 95th %tile Q(veh) | - | - | 0.4 | | | |

HCM Signalized Intersection Capacity Analysis

12: OR-213 & Prairie Schooner Way/Clackamas River Drive

07/07/2017

| |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | | |  | | |  | |  |  | |  |  |
| Traffic Volume (vph) | 0 | 0 | 133 | 0 | 0 | 598 | 0 | 2618 | 198 | 0 | 1899 | 612 |
| Future Volume (vph) | 0 | 0 | 133 | 0 | 0 | 598 | 0 | 2618 | 198 | 0 | 1899 | 612 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | | 4.5 | | | 4.5 | | 4.5 | 4.5 | | 4.5 | 4.5 |
| Lane Util. Factor | | | 0.88 | | | 0.88 | | 0.91 | 1.00 | | 0.91 | 1.00 |
| Frpb, ped/bikes | | | 1.00 | | | 1.00 | | 1.00 | 0.98 | | 1.00 | 1.00 |
| Flpb, ped/bikes | | | 1.00 | | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 |
| Frt | | | 0.85 | | | 0.85 | | 1.00 | 0.85 | | 1.00 | 0.85 |
| Flt Protected | | | 1.00 | | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 |
| Satd. Flow (prot) | | | 2760 | | | 2538 | | 4988 | 1521 | | 4893 | 1524 |
| Flt Permitted | | | 1.00 | | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 |
| Satd. Flow (perm) | | | 2760 | | | 2538 | | 4988 | 1521 | | 4893 | 1524 |
| Peak-hour factor, PHF | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Adj. Flow (vph) | 0 | 0 | 137 | 0 | 0 | 616 | 0 | 2699 | 204 | 0 | 1958 | 631 |
| RTOR Reduction (vph) | 0 | 0 | 67 | 0 | 0 | 13 | 0 | 0 | 76 | 0 | 0 | 120 |
| Lane Group Flow (vph) | 0 | 0 | 70 | 0 | 0 | 603 | 0 | 2699 | 128 | 0 | 1958 | 511 |
| Confl. Bikes (#/hr) | | | | | | | | | 1 | | | |
| Heavy Vehicles (%) | 3% | 3% | 3% | 12% | 12% | 12% | 4% | 4% | 4% | 6% | 6% | 6% |
| Turn Type | | | Perm | | | Perm | | NA | Perm | | NA | Perm |
| Protected Phases | | | | | | | | 2 | | | 6 | |
| Permitted Phases | | | 5 | | | 1 | | | 2 | | | 6 |
| Actuated Green, G (s) | | | 7.7 | | | 23.8 | | 54.8 | 54.8 | | 70.9 | 70.9 |
| Effective Green, g (s) | | | 7.7 | | | 23.8 | | 54.8 | 54.8 | | 70.9 | 70.9 |
| Actuated g/C Ratio | | | 0.09 | | | 0.27 | | 0.63 | 0.63 | | 0.81 | 0.81 |
| Clearance Time (s) | | | 4.5 | | | 4.5 | | 4.5 | 4.5 | | 4.5 | 4.5 |
| Vehicle Extension (s) | | | 3.0 | | | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 |
| Lane Grp Cap (vph) | | | 242 | | | 689 | | 3120 | 951 | | 3960 | 1233 |
| v/s Ratio Prot | | | | | | | | c0.54 | | | 0.40 | |
| v/s Ratio Perm | | | 0.03 | | | c0.24 | | | 0.08 | | | 0.34 |
| v/c Ratio | | | 0.29 | | | 0.88 | | 0.87 | 0.13 | | 0.49 | 0.41 |
| Uniform Delay, d1 | | | 37.4 | | | 30.5 | | 13.4 | 6.7 | | 2.7 | 2.4 |
| Progression Factor | | | 1.00 | | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 |
| Incremental Delay, d2 | | | 0.7 | | | 11.9 | | 2.7 | 0.1 | | 0.1 | 0.2 |
| Delay (s) | | | 38.1 | | | 42.4 | | 16.1 | 6.8 | | 2.8 | 2.6 |
| Level of Service | | | D | | | D | | B | A | | A | A |
| Approach Delay (s) | | 38.1 | | | 42.4 | | | 15.5 | | | 2.7 | |
| Approach LOS | | D | | | D | | | B | | | A | |
| Intersection Summary | | | | | | | | | | | | |
| HCM 2000 Control Delay | | | 13.3 | | | HCM 2000 Level of Service | | | B | | | |
| HCM 2000 Volume to Capacity ratio | | | 0.87 | | | | | | | | | |
| Actuated Cycle Length (s) | | | 87.6 | | | Sum of lost time (s) | | | 9.0 | | | |
| Intersection Capacity Utilization | | | 79.0% | | | ICU Level of Service | | | D | | | |
| Analysis Period (min) | | | 15 | | | | | | | | | |
| c Critical Lane Group | | | | | | | | | | | | |

HCM Signalized Intersection Capacity Analysis

13: OR-213 & Redland Road

07/07/2017



| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|------------------------|-------|-------|------|-------|------|-------|
| Lane Configurations | | | | | | |
| Traffic Volume (vph) | 668 | 173 | 140 | 2303 | 1703 | 495 |
| Future Volume (vph) | 668 | 173 | 140 | 2303 | 1703 | 495 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 |
| Lane Util. Factor | 0.97 | 1.00 | 1.00 | 0.95 | 0.95 | 1.00 |
| Frt | 1.00 | 0.85 | 1.00 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 0.95 | 1.00 | 1.00 | 1.00 |
| Satd. Flow (prot) | 3400 | 1568 | 1736 | 3471 | 3471 | 1553 |
| Flt Permitted | 0.95 | 1.00 | 0.95 | 1.00 | 1.00 | 1.00 |
| Satd. Flow (perm) | 3400 | 1568 | 1736 | 3471 | 3471 | 1553 |
| Peak-hour factor, PHF | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 |
| Adj. Flow (vph) | 696 | 180 | 146 | 2399 | 1774 | 516 |
| RTOR Reduction (vph) | 0 | 12 | 0 | 0 | 0 | 30 |
| Lane Group Flow (vph) | 696 | 168 | 146 | 2399 | 1774 | 486 |
| Heavy Vehicles (%) | 3% | 3% | 4% | 4% | 4% | 4% |
| Turn Type | Prot | pm+ov | Prot | NA | NA | pm+ov |
| Protected Phases | 4 | 5 | 5 | 2 | 6 | 4 |
| Permitted Phases | | 4 | | | | 6 |
| Actuated Green, G (s) | 25.6 | 37.1 | 11.5 | 85.4 | 69.4 | 95.0 |
| Effective Green, g (s) | 25.6 | 37.1 | 11.5 | 85.4 | 69.4 | 95.0 |
| Actuated g/C Ratio | 0.21 | 0.31 | 0.10 | 0.71 | 0.58 | 0.79 |
| Clearance Time (s) | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 725 | 543 | 166 | 2470 | 2007 | 1287 |
| v/s Ratio Prot | c0.20 | 0.03 | 0.08 | c0.69 | 0.51 | 0.08 |
| v/s Ratio Perm | | 0.08 | | | | 0.23 |
| v/c Ratio | 0.96 | 0.31 | 0.88 | 0.97 | 0.88 | 0.38 |
| Uniform Delay, d1 | 46.7 | 31.7 | 53.6 | 16.2 | 21.8 | 3.7 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 23.7 | 0.3 | 37.2 | 12.5 | 6.1 | 0.2 |
| Delay (s) | 70.4 | 32.0 | 90.8 | 28.7 | 27.9 | 3.9 |
| Level of Service | E | C | F | C | C | A |
| Approach Delay (s) | 62.5 | | | 32.2 | 22.5 | |
| Approach LOS | E | | | C | C | |

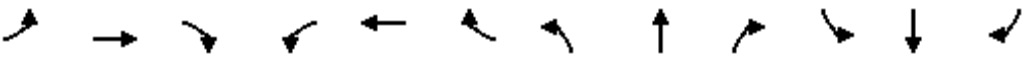
Intersection Summary

| | | | |
|-----------------------------------|-------|---------------------------|------|
| HCM 2000 Control Delay | 33.0 | HCM 2000 Level of Service | C |
| HCM 2000 Volume to Capacity ratio | 1.01 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 13.5 |
| Intersection Capacity Utilization | 90.2% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

HCM Signalized Intersection Capacity Analysis

14: OR-213 & Beavercreek Road

07/07/2017

| |  | | | | | | | | | | | |
|-----------------------------------|------------------------------------------------------------------------------------|------|-------|------|-------|---------------------------|-------|-------|------|-------|------|------|
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | ↰↱ | ↰↱ | | ↰↱ | ↰↱ | ↰ | ↰ | ↰↱ | ↰ | ↰↱ | ↰↱ | ↰ |
| Traffic Volume (vph) | 504 | 443 | 21 | 112 | 592 | 0 | 44 | 1068 | 133 | 612 | 630 | 791 |
| Future Volume (vph) | 504 | 443 | 21 | 112 | 592 | 0 | 44 | 1068 | 133 | 612 | 630 | 791 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.5 | 4.5 | | 4.5 | 4.5 | | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 |
| Lane Util. Factor | 0.97 | 0.95 | | 0.97 | 0.95 | | 1.00 | 0.95 | 1.00 | 0.97 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.99 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 3273 | 3348 | | 3400 | 3505 | | 1719 | 3438 | 1538 | 3335 | 3438 | 1538 |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 3273 | 3348 | | 3400 | 3505 | | 1719 | 3438 | 1538 | 3335 | 3438 | 1538 |
| 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) | 531 | 466 | 22 | 118 | 623 | 0 | 46 | 1124 | 140 | 644 | 663 | 833 |
| RTOR Reduction (vph) | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 93 | 0 | 0 | 220 |
| Lane Group Flow (vph) | 531 | 485 | 0 | 118 | 623 | 0 | 46 | 1124 | 47 | 644 | 663 | 613 |
| Confl. Peds. (#/hr) | | | 4 | 4 | | | | | | | | |
| Heavy Vehicles (%) | 7% | 7% | 7% | 3% | 3% | 3% | 5% | 5% | 5% | 5% | 5% | 5% |
| Turn Type | Prot | NA | | Prot | NA | Perm | Prot | NA | Perm | Prot | NA | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | 8 | | | 2 | | | 6 |
| Actuated Green, G (s) | 18.8 | 31.1 | | 8.2 | 20.5 | | 4.2 | 40.2 | 40.2 | 22.5 | 58.5 | 58.5 |
| Effective Green, g (s) | 18.8 | 31.1 | | 8.2 | 20.5 | | 4.2 | 40.2 | 40.2 | 22.5 | 58.5 | 58.5 |
| Actuated g/C Ratio | 0.16 | 0.26 | | 0.07 | 0.17 | | 0.04 | 0.34 | 0.34 | 0.19 | 0.49 | 0.49 |
| Clearance Time (s) | 4.5 | 4.5 | | 4.5 | 4.5 | | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 512 | 867 | | 232 | 598 | | 60 | 1151 | 515 | 625 | 1676 | 749 |
| v/s Ratio Prot | c0.16 | 0.14 | | 0.03 | c0.18 | | 0.03 | c0.33 | | c0.19 | 0.19 | |
| v/s Ratio Perm | | | | | | | | | 0.03 | | | 0.40 |
| v/c Ratio | 1.04 | 0.56 | | 0.51 | 1.04 | | 0.77 | 0.98 | 0.09 | 1.03 | 0.40 | 0.82 |
| Uniform Delay, d1 | 50.6 | 38.5 | | 54.0 | 49.8 | | 57.4 | 39.4 | 27.4 | 48.8 | 19.5 | 26.2 |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 49.7 | 0.8 | | 1.8 | 48.1 | | 43.5 | 21.5 | 0.3 | 44.0 | 0.7 | 9.7 |
| Delay (s) | 100.3 | 39.3 | | 55.7 | 97.9 | | 100.9 | 60.9 | 27.7 | 92.8 | 20.2 | 35.9 |
| Level of Service | F | D | | E | F | | F | E | C | F | C | D |
| Approach Delay (s) | | 71.1 | | | 91.2 | | | 58.8 | | | 48.2 | |
| Approach LOS | | E | | | F | | | E | | | D | |
| Intersection Summary | | | | | | | | | | | | |
| HCM 2000 Control Delay | | | 61.4 | | | HCM 2000 Level of Service | | | | E | | |
| HCM 2000 Volume to Capacity ratio | | | 1.01 | | | | | | | | | |
| Actuated Cycle Length (s) | | | 120.0 | | | Sum of lost time (s) | | | 18.0 | | | |
| Intersection Capacity Utilization | | | 92.7% | | | ICU Level of Service | | | F | | | |
| Analysis Period (min) | | | 15 | | | | | | | | | |
| c Critical Lane Group | | | | | | | | | | | | |

HCM Unsignalized Intersection Capacity Analysis




15: Holly Lane & Holcomb Boulevard

07/07/2017

| | | | | | | |
|-----------------------------------|------|------|-------|----------------------|------|------|
| | → | ↘ | ↙ | ← | ↖ | ↗ |
| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
| Lane Configurations | ↰ | | | ↱ | ↰ | ↱ |
| Traffic Volume (veh/h) | 53 | 54 | 43 | 165 | 45 | 41 |
| Future Volume (Veh/h) | 53 | 54 | 43 | 165 | 45 | 41 |
| Sign Control | Free | | | Free | Stop | |
| Grade | 0% | | | 0% | 0% | |
| Peak Hour Factor | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 |
| Hourly flow rate (vph) | 62 | 64 | 51 | 194 | 53 | 48 |
| Pedestrians | | | | | | |
| Lane Width (ft) | | | | | | |
| Walking Speed (ft/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | None | | None | | | |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | | | 126 | 390 | | 94 |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | | | 126 | 390 | | 94 |
| tC, single (s) | | | 4.1 | 6.4 | | 6.2 |
| tC, 2 stage (s) | | | | | | |
| tF (s) | | | 2.2 | 3.5 | | 3.3 |
| p0 queue free % | | | 96 | 91 | | 95 |
| cM capacity (veh/h) | | | 1442 | 592 | | 963 |
| | | | | | | |
| Direction, Lane # | EB 1 | WB 1 | NB 1 | | | |
| Volume Total | 126 | 245 | 101 | | | |
| Volume Left | 0 | 51 | 53 | | | |
| Volume Right | 64 | 0 | 48 | | | |
| cSH | 1700 | 1442 | 725 | | | |
| Volume to Capacity | 0.07 | 0.04 | 0.14 | | | |
| Queue Length 95th (ft) | 0 | 3 | 12 | | | |
| Control Delay (s) | 0.0 | 1.8 | 10.8 | | | |
| Lane LOS | | A | B | | | |
| Approach Delay (s) | 0.0 | 1.8 | 10.8 | | | |
| Approach LOS | | | B | | | |
| Intersection Summary | | | | | | |
| Average Delay | | | | | | |
| | | | 3.2 | | | |
| Intersection Capacity Utilization | | | 29.4% | ICU Level of Service | | A |
| Analysis Period (min) | | | 15 | | | |

Intersection

Int Delay, s/veh 3.1

| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|--------------------------|-----------------------------------------------------------------------------------|------|------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|------|
| Lane Configurations |  | | |  |  | |
| Traffic Vol, veh/h | 53 | 54 | 43 | 165 | 45 | 41 |
| Future Vol, veh/h | 53 | 54 | 43 | 165 | 45 | 41 |
| 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 | 85 | 85 | 85 | 85 | 85 | 85 |
| Heavy Vehicles, % | 5 | 5 | 5 | 5 | 2 | 2 |
| Mvmt Flow | 62 | 64 | 51 | 194 | 53 | 48 |

| Major/Minor | Major1 | Major2 | Minor1 |
|----------------------|--------|--------|--------|
| Conflicting Flow All | 0 | 0 | 126 |
| Stage 1 | - | - | - |
| Stage 2 | - | - | - |
| Critical Hdwy | - | - | - |
| Critical Hdwy Stg 1 | - | - | - |
| Critical Hdwy Stg 2 | - | - | - |
| Follow-up Hdwy | - | - | - |
| Pot Cap-1 Maneuver | - | - | - |
| Stage 1 | - | - | - |
| Stage 2 | - | - | - |
| Platoon blocked, % | - | - | - |
| Mov Cap-1 Maneuver | - | - | - |
| Mov Cap-2 Maneuver | - | - | - |
| Stage 1 | - | - | - |
| Stage 2 | - | - | - |

















| Approach | EB | WB | NB |
|----------------------|----|-----|------|
| HCM Control Delay, s | 0 | 1.6 | 10.8 |
| HCM LOS | | | B |

| Minor Lane/Major Mvmt | NBLn1 | EBT | EBR | WBL | WBT |
|-----------------------|-------|-----|-----|-------|-----|
| Capacity (veh/h) | 724 | - | - | 1442 | - |
| HCM Lane V/C Ratio | 0.14 | - | - | 0.035 | - |
| HCM Control Delay (s) | 10.8 | - | - | 7.6 | 0 |
| HCM Lane LOS | B | - | - | A | A |
| HCM 95th %tile Q(veh) | 0.5 | - | - | 0.1 | - |

HCM Unsignalized Intersection Capacity Analysis

16: Holly Lane & Redland Road

07/07/2017


| |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | |  | | |  | | |  | | |  | |
| Traffic Volume (veh/h) | 0 | 149 | 114 | 83 | 526 | 56 | 149 | 30 | 40 | 62 | 28 | 0 |
| Future Volume (Veh/h) | 0 | 149 | 114 | 83 | 526 | 56 | 149 | 30 | 40 | 62 | 28 | 0 |
| Sign Control | | Free | | | Free | | | Stop | | | Stop | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Hourly flow rate (vph) | 0 | 157 | 120 | 87 | 554 | 59 | 157 | 32 | 42 | 65 | 29 | 0 |
| Pedestrians | | | | | | | | | | | | |
| Lane Width (ft) | | | | | | | | | | | | |
| Walking Speed (ft/s) | | | | | | | | | | | | |
| Percent Blockage | | | | | | | | | | | | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | None | | | None | | | | | | | | |
| Median storage veh | | | | | | | | | | | | |
| Upstream signal (ft) | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 613 | | | 277 | | | 989 | 1004 | 217 | 1032 | 1034 | 584 |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 613 | | | 277 | | | 989 | 1004 | 217 | 1032 | 1034 | 584 |
| tC, single (s) | 4.2 | | | 4.2 | | | *6.0 | *6.0 | *6.0 | *6.0 | *6.0 | *6.0 |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 2.3 | | | 2.3 | | | *2.0 | *2.0 | *2.0 | *2.0 | *2.0 | *2.0 |
| p0 queue free % | 100 | | | 93 | | | 61 | 92 | 97 | 82 | 93 | 100 |
| cM capacity (veh/h) | 911 | | | 1258 | | | 402 | 410 | 1331 | 365 | 393 | 797 |
| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 | | | | | | | | |
| Volume Total | 277 | 700 | 231 | 94 | | | | | | | | |
| Volume Left | 0 | 87 | 157 | 65 | | | | | | | | |
| Volume Right | 120 | 59 | 42 | 0 | | | | | | | | |
| cSH | 911 | 1258 | 462 | 373 | | | | | | | | |
| Volume to Capacity | 0.00 | 0.07 | 0.50 | 0.25 | | | | | | | | |
| Queue Length 95th (ft) | 0 | 6 | 68 | 25 | | | | | | | | |
| Control Delay (s) | 0.0 | 1.8 | 20.3 | 17.9 | | | | | | | | |
| Lane LOS | | A | C | C | | | | | | | | |
| Approach Delay (s) | 0.0 | 1.8 | 20.3 | 17.9 | | | | | | | | |
| Approach LOS | | | C | C | | | | | | | | |
| Intersection Summary | | | | | | | | | | | | |
| Average Delay | | | 5.8 | | | | | | | | | |
| Intersection Capacity Utilization | | | 74.5% | | ICU Level of Service | | | | D | | | |
| Analysis Period (min) | | | 15 | | | | | | | | | |
| * User Entered Value | | | | | | | | | | | | |

| Intersection | | | | | | | | | | | | |
|--------------------------|--------|--------------|------|--------|--------------|------|--------|--------------|------|--------|--------------|------|
| Int Delay, s/veh | 5.6 | | | | | | | | | | | |
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | | <div>↕</div> | | | <div>↕</div> | | | <div>↕</div> | | | <div>↕</div> | |
| Traffic Vol, veh/h | 0 | 149 | 114 | 83 | 526 | 56 | 149 | 30 | 40 | 62 | 28 | 0 |
| Future Vol, veh/h | 0 | 149 | 114 | 83 | 526 | 56 | 149 | 30 | 40 | 62 | 28 | 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 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 95 | 95 | 95 | 95 | 95 | 95 | 95 | 95 | 95 | 95 | 95 | 95 |
| Heavy Vehicles, % | 14 | 14 | 14 | 7 | 7 | 7 | 4 | 4 | 4 | 2 | 2 | 2 |
| Mvmt Flow | 0 | 157 | 120 | 87 | 554 | 59 | 157 | 32 | 42 | 65 | 29 | 0 |
| | | | | | | | | | | | | |
| Major/Minor | Major1 | | | Major2 | | | Minor1 | | | Minor2 | | |
| Conflicting Flow All | 613 | 0 | 0 | 277 | 0 | 0 | 990 | 1004 | 217 | 1012 | 1035 | 583 |
| Stage 1 | - | - | - | - | - | - | 217 | 217 | - | 758 | 758 | - |
| Stage 2 | - | - | - | - | - | - | 773 | 787 | - | 254 | 277 | - |
| Critical Hdwy | 4.24 | - | - | 4.17 | - | - | 6 | 6 | 6 | 6 | 6 | 6 |
| Critical Hdwy Stg 1 | - | - | - | - | - | - | 6.14 | 5.54 | - | 6.12 | 5.52 | - |
| Critical Hdwy Stg 2 | - | - | - | - | - | - | 6.14 | 5.54 | - | 6.12 | 5.52 | - |
| Follow-up Hdwy | 2.326 | - | - | 2.263 | - | - | 2 | 2 | 2 | 2 | 2 | 2 |
| Pot Cap-1 Maneuver | 911 | - | - | 1258 | - | - | 449 | 441 | 1331 | 436 | 422 | 797 |
| Stage 1 | - | - | - | - | - | - | 1320 | 1368 | - | 608 | 690 | - |
| Stage 2 | - | - | - | - | - | - | 592 | 662 | - | 1253 | 1270 | - |
| Platoon blocked, % | | - | - | | - | - | | | | | | |
| Mov Cap-1 Maneuver | 911 | - | - | 1258 | - | - | 388 | 394 | 1331 | 365 | 377 | 797 |
| Mov Cap-2 Maneuver | - | - | - | - | - | - | 388 | 394 | - | 365 | 377 | - |
| Stage 1 | - | - | - | - | - | - | 1320 | 1368 | - | 608 | 617 | - |
| Stage 2 | - | - | - | - | - | - | 504 | 592 | - | 1185 | 1270 | - |
| | | | | | | | | | | | | |
| Approach | EB | | | WB | | | NB | | | SB | | |
| HCM Control Delay, s | 0 | | | 1 | | | 21.3 | | | 18.1 | | |
| HCM LOS | | | | | | | C | | | C | | |
| | | | | | | | | | | | | |
| Minor Lane/Major Mvmt | NBLn1 | EBL | EBT | EBR | WBL | WBT | WBR | SBLn1 | | | | |
| Capacity (veh/h) | 447 | 911 | - | - | 1258 | - | - | 369 | | | | |
| HCM Lane V/C Ratio | 0.516 | - | - | - | 0.069 | - | - | 0.257 | | | | |
| HCM Control Delay (s) | 21.3 | 0 | - | - | 8.1 | 0 | - | 18.1 | | | | |
| HCM Lane LOS | C | A | - | - | A | A | - | C | | | | |
| HCM 95th %tile Q(veh) | 2.9 | 0 | - | - | 0.2 | - | - | 1 | | | | |

HCM Signalized Intersection Capacity Analysis

1: OR-99E & I-205 SB Ramps








07/07/2017

| |  | | | | | |
|-----------------------------------|-----------------------------------------------------------------------------------|-------|--------|-------|---------------------------|------|
| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
| Lane Configurations | ↔↔ | ↔ | ↔↔↔ | ↔ | ↔ | ↔↔↔ |
| Traffic Volume (vph) | 1255 | 435 | 1233 | 535 | 560 | 1574 |
| Future Volume (vph) | 1255 | 435 | 1233 | 535 | 560 | 1574 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 |
| Lane Util. Factor | 0.97 | 1.00 | 0.91 | 1.00 | 1.00 | 0.91 |
| Frpb, ped/bikes | 1.00 | 1.00 | 1.00 | 0.96 | 1.00 | 1.00 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.85 | 1.00 | 0.85 | 1.00 | 1.00 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (prot) | 3400 | 1568 | 5085 | 1526 | 1770 | 5085 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (perm) | 3400 | 1568 | 5085 | 1526 | 1770 | 5085 |
| Peak-hour factor, PHF | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Adj. Flow (vph) | 1294 | 448 | 1271 | 552 | 577 | 1623 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 414 | 0 | 0 |
| Lane Group Flow (vph) | 1294 | 448 | 1271 | 138 | 577 | 1623 |
| Confl. Peds. (#/hr) | | | | 6 | 6 | |
| Confl. Bikes (#/hr) | | | | 1 | | |
| Heavy Vehicles (%) | 3% | 3% | 2% | 2% | 2% | 2% |
| Turn Type | Prot | pm+ov | NA | Perm | Prot | NA |
| Protected Phases | 8 | 1 | 2 | | 1 | 6 |
| Permitted Phases | | 8 | | 2 | | |
| Actuated Green, G (s) | 29.5 | 54.0 | 22.5 | 22.5 | 24.5 | 51.5 |
| Effective Green, g (s) | 29.5 | 54.0 | 22.5 | 22.5 | 24.5 | 51.5 |
| Actuated g/C Ratio | 0.33 | 0.60 | 0.25 | 0.25 | 0.27 | 0.57 |
| Clearance Time (s) | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 1114 | 1019 | 1271 | 381 | 481 | 2909 |
| v/s Ratio Prot | c0.38 | 0.12 | c0.25 | | c0.33 | 0.32 |
| v/s Ratio Perm | | 0.17 | | 0.09 | | |
| v/c Ratio | 1.16 | 0.44 | 1.00 | 0.36 | 1.20 | 0.56 |
| Uniform Delay, d1 | 30.2 | 9.8 | 33.8 | 27.8 | 32.8 | 12.1 |
| Progression Factor | 1.00 | 1.00 | 1.24 | 4.87 | 1.00 | 1.00 |
| Incremental Delay, d2 | 82.9 | 0.3 | 19.4 | 1.6 | 108.4 | 0.8 |
| Delay (s) | 113.1 | 10.1 | 61.3 | 137.1 | 141.2 | 12.9 |
| Level of Service | F | B | E | F | F | B |
| Approach Delay (s) | 86.6 | | 84.3 | | | 46.5 |
| Approach LOS | F | | F | | | D |
| Intersection Summary | | | | | | |
| HCM 2000 Control Delay | | | 70.6 | | HCM 2000 Level of Service | E |
| HCM 2000 Volume to Capacity ratio | | | 1.13 | | | |
| Actuated Cycle Length (s) | | | 90.0 | | Sum of lost time (s) | 13.5 |
| Intersection Capacity Utilization | | | 101.9% | | ICU Level of Service | G |
| Analysis Period (min) | | | 15 | | | |
| c Critical Lane Group | | | | | | |

HCM Signalized Intersection Capacity Analysis

2: OR-99E & I-205 NB Ramps

07/07/2017

| |  | | | | | |
|-----------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
| Lane Configurations |  |  |  |  |  |  |
| Traffic Volume (vph) | 615 | 520 | 1248 | 930 | 530 | 2299 |
| Future Volume (vph) | 615 | 520 | 1248 | 930 | 530 | 2299 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 |
| Lane Util. Factor | 1.00 | 1.00 | 0.91 | 1.00 | 1.00 | 0.91 |
| Frpb, ped/bikes | 1.00 | 1.00 | 1.00 | 0.96 | 1.00 | 1.00 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.85 | 1.00 | 0.85 | 1.00 | 1.00 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (prot) | 1770 | 1583 | 5036 | 1510 | 1770 | 5085 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (perm) | 1770 | 1583 | 5036 | 1510 | 1770 | 5085 |
| Peak-hour factor, PHF | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 |
| Adj. Flow (vph) | 628 | 531 | 1273 | 949 | 541 | 2346 |
| RTOR Reduction (vph) | 0 | 331 | 0 | 442 | 0 | 0 |
| Lane Group Flow (vph) | 628 | 200 | 1273 | 507 | 541 | 2346 |
| Confl. Peds. (#/hr) | | | | 7 | 7 | |
| Heavy Vehicles (%) | 2% | 2% | 3% | 3% | 2% | 2% |
| Turn Type | Prot | Perm | NA | Perm | Prot | NA |
| Protected Phases | 8 | | 2 | | 1 | 6 |
| Permitted Phases | | 8 | | 2 | | |
| Actuated Green, G (s) | 27.5 | 27.5 | 26.5 | 26.5 | 22.5 | 53.5 |
| Effective Green, g (s) | 27.5 | 27.5 | 26.5 | 26.5 | 22.5 | 53.5 |
| Actuated g/C Ratio | 0.31 | 0.31 | 0.29 | 0.29 | 0.25 | 0.59 |
| Clearance Time (s) | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 540 | 483 | 1482 | 444 | 442 | 3022 |
| v/s Ratio Prot | c0.35 | | 0.25 | | c0.31 | 0.46 |
| v/s Ratio Perm | | 0.13 | | c0.34 | | |
| v/c Ratio | 1.16 | 0.41 | 0.86 | 1.14 | 1.22 | 0.78 |
| Uniform Delay, d1 | 31.2 | 24.8 | 30.0 | 31.8 | 33.8 | 13.7 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 0.88 | 0.93 |
| Incremental Delay, d2 | 92.2 | 0.6 | 6.7 | 87.3 | 111.6 | 1.1 |
| Delay (s) | 123.5 | 25.4 | 36.7 | 119.1 | 141.4 | 13.9 |
| Level of Service | F | C | D | F | F | B |
| Approach Delay (s) | 78.6 | | 71.9 | | | 37.8 |
| Approach LOS | E | | E | | | D |
| Intersection Summary | | | | | | |
| HCM 2000 Control Delay | | | 57.4 | | HCM 2000 Level of Service | E |
| HCM 2000 Volume to Capacity ratio | | | 1.17 | | | |
| Actuated Cycle Length (s) | | | 90.0 | | Sum of lost time (s) | 13.5 |
| Intersection Capacity Utilization | | | 98.8% | | ICU Level of Service | F |
| Analysis Period (min) | | | 15 | | | |
| c Critical Lane Group | | | | | | |

HCM Unsignalized Intersection Capacity Analysis

3: OR-99E & 15th Street

07/07/2017

| | ↑ | ↖ | ↙ | ↓ | ↘ | ↗ |
|-----------------------------------|------|------|-------|------|----------------------|------|
| Movement | NBT | NBR | SBL | SBT | NWL | NWR |
| Lane Configurations | ↑↑ | | | ↑↑↑ | | ↗ |
| Traffic Volume (veh/h) | 1897 | 14 | 0 | 2914 | 0 | 281 |
| Future Volume (Veh/h) | 1897 | 14 | 0 | 2914 | 0 | 281 |
| Sign Control | Free | | | Free | Stop | |
| Grade | 0% | | | 0% | 0% | |
| Peak Hour Factor | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Hourly flow rate (vph) | 1997 | 15 | 0 | 3067 | 0 | 296 |
| Pedestrians | | | | | 3 | |
| Lane Width (ft) | | | | | 12.0 | |
| Walking Speed (ft/s) | | | | | 3.5 | |
| Percent Blockage | | | | | 0 | |
| Right turn flare (veh) | | | | | | |
| Median type | None | | | None | | |
| Median storage (veh) | | | | | | |
| Upstream signal (ft) | 335 | | | 372 | | |
| pX, platoon unblocked | | | 0.57 | | 0.75 | 0.57 |
| vC, conflicting volume | | | 2015 | | 3030 | 1009 |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | | | 1265 | | 152 | 0 |
| tC, single (s) | | | 4.2 | | 6.8 | 6.9 |
| tC, 2 stage (s) | | | | | | |
| tF (s) | | | 2.2 | | 3.5 | 3.3 |
| p0 queue free % | | | 100 | | 100 | 52 |
| cM capacity (veh/h) | | | 306 | | 615 | 614 |
| Direction, Lane # | NB 1 | NB 2 | SB 1 | SB 2 | SB 3 | NW 1 |
| Volume Total | 1331 | 681 | 1022 | 1022 | 1022 | 296 |
| Volume Left | 0 | 0 | 0 | 0 | 0 | 0 |
| Volume Right | 0 | 15 | 0 | 0 | 0 | 296 |
| cSH | 1700 | 1700 | 1700 | 1700 | 1700 | 614 |
| Volume to Capacity | 0.78 | 0.40 | 0.60 | 0.60 | 0.60 | 0.48 |
| Queue Length 95th (ft) | 0 | 0 | 0 | 0 | 0 | 65 |
| Control Delay (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 16.2 |
| Lane LOS | | | | | | C |
| Approach Delay (s) | 0.0 | | 0.0 | | | 16.2 |
| Approach LOS | | | | | | C |
| Intersection Summary | | | | | | |
| Average Delay | | | 0.9 | | | |
| Intersection Capacity Utilization | | | 77.0% | | ICU Level of Service | D |
| Analysis Period (min) | | | 15 | | | |

| Intersection | | | | | | |
|--------------------------|--------|------|--------|------|--------|------|
| Int Delay, s/veh | 2.4 | | | | | |
| Movement | NBT | NBR | SBL | SBT | NWL | NWR |
| Lane Configurations | ↑↑↱ | | | ↑↑↑↑ | | ↱ |
| Traffic Vol, veh/h | 1897 | 14 | 0 | 2914 | 0 | 281 |
| Future Vol, veh/h | 1897 | 14 | 0 | 2914 | 0 | 281 |
| Conflicting Peds, #/hr | 0 | 3 | 3 | 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, % | 3 | 3 | 3 | 3 | 2 | 2 |
| Mvmt Flow | 1997 | 15 | 0 | 3067 | 0 | 296 |
| | | | | | | |
| Major/Minor | Major1 | | Major2 | | Minor1 | |
| Conflicting Flow All | 0 | 0 | - | - | - | 1009 |
| Stage 1 | - | - | - | - | - | - |
| Stage 2 | - | - | - | - | - | - |
| Critical Hdwy | - | - | - | - | - | 6 |
| Critical Hdwy Stg 1 | - | - | - | - | - | - |
| Critical Hdwy Stg 2 | - | - | - | - | - | - |
| Follow-up Hdwy | - | - | - | - | - | 2.5 |
| Pot Cap-1 Maneuver | - | - | 0 | - | 0 | 373 |
| Stage 1 | - | - | 0 | - | 0 | - |
| Stage 2 | - | - | 0 | - | 0 | - |
| Platoon blocked, % | - | - | | - | | |
| Mov Cap-1 Maneuver | - | - | - | - | - | 372 |
| Mov Cap-2 Maneuver | - | - | - | - | - | - |
| Stage 1 | - | - | - | - | - | - |
| Stage 2 | - | - | - | - | - | - |
| | | | | | | |
| | | | | | | |
| Approach | NB | | SB | | NW | |
| HCM Control Delay, s | 0 | | 0 | | 43.3 | |
| HCM LOS | | | | | E | |
| | | | | | | |
| | | | | | | |
| Minor Lane/Major Mvmt | NBT | NBR | NWLn1 | SBT | | |
| Capacity (veh/h) | - | - | 372 | - | | |
| HCM Lane V/C Ratio | - | - | 0.795 | - | | |
| HCM Control Delay (s) | - | - | 43.3 | - | | |
| HCM Lane LOS | - | - | E | - | | |
| HCM 95th %tile Q(veh) | - | - | 6.8 | - | | |

HCM Signalized Intersection Capacity Analysis

4: OR-99E & 14th Street























07/07/2017

| | ↑ | ↖ | ↙ | ↓ | ↘ | ↗ |
|-----------------------------------|-------|-------|-------|---------------------------|------|-------|
| Movement | NBT | NBR | SBL | SBT | NWL | NWR |
| Lane Configurations | ↑↑ | | ↖ | ↑↑ | ↖ | ↗ |
| Traffic Volume (vph) | 1422 | 66 | 543 | 2371 | 88 | 489 |
| Future Volume (vph) | 1422 | 66 | 543 | 2371 | 88 | 489 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.5 | | 4.5 | 4.5 | 4.5 | 4.5 |
| Lane Util. Factor | 0.95 | | 1.00 | 0.95 | 1.00 | 1.00 |
| Frpb, ped/bikes | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 |
| Flpb, ped/bikes | 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) | 3446 | | 1770 | 3539 | 1787 | 1599 |
| Flt Permitted | 1.00 | | 0.08 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (perm) | 3446 | | 154 | 3539 | 1787 | 1599 |
| Peak-hour factor, PHF | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Adj. Flow (vph) | 1466 | 68 | 560 | 2444 | 91 | 504 |
| RTOR Reduction (vph) | 3 | 0 | 0 | 0 | 0 | 6 |
| Lane Group Flow (vph) | 1531 | 0 | 560 | 2444 | 91 | 498 |
| Confl. Peds. (#/hr) | | 2 | 2 | | | |
| Heavy Vehicles (%) | 4% | 4% | 2% | 2% | 1% | 1% |
| Turn Type | NA | | pm+pt | NA | Prot | pm+ov |
| Protected Phases | 2 | | 1 | 6 | 4 | 1 |
| Permitted Phases | | | 6 | | | 4 |
| Actuated Green, G (s) | 44.0 | | 81.9 | 81.9 | 9.1 | 42.5 |
| Effective Green, g (s) | 44.0 | | 81.9 | 81.9 | 9.1 | 42.5 |
| Actuated g/C Ratio | 0.44 | | 0.82 | 0.82 | 0.09 | 0.42 |
| Clearance Time (s) | 4.5 | | 4.5 | 4.5 | 4.5 | 4.5 |
| Vehicle Extension (s) | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 1516 | | 665 | 2898 | 162 | 751 |
| v/s Ratio Prot | c0.44 | | 0.28 | c0.69 | 0.05 | c0.22 |
| v/s Ratio Perm | | | 0.41 | | | 0.09 |
| v/c Ratio | 1.01 | | 0.84 | 0.84 | 0.56 | 0.66 |
| Uniform Delay, d1 | 28.0 | | 26.1 | 5.3 | 43.5 | 23.0 |
| Progression Factor | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 25.5 | | 9.5 | 2.4 | 4.4 | 2.2 |
| Delay (s) | 53.5 | | 35.6 | 7.7 | 47.9 | 25.2 |
| Level of Service | D | | D | A | D | C |
| Approach Delay (s) | 53.5 | | | 12.9 | 28.7 | |
| Approach LOS | D | | | B | C | |
| Intersection Summary | | | | | | |
| HCM 2000 Control Delay | | 26.9 | | HCM 2000 Level of Service | | C |
| HCM 2000 Volume to Capacity ratio | | 0.94 | | | | |
| Actuated Cycle Length (s) | | 100.0 | | Sum of lost time (s) | | 13.5 |
| Intersection Capacity Utilization | | 87.6% | | ICU Level of Service | | E |
| Analysis Period (min) | | 15 | | | | |
| c Critical Lane Group | | | | | | |

HCM Signalized Intersection Capacity Analysis

5: Redland Road & Abernethy Road/Holcomb Boulevard






















07/07/2017

| |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations |  |  | |  |  |  |  |  | |  |  |  |
| Traffic Volume (vph) | 73 | 176 | 177 | 73 | 118 | 230 | 47 | 336 | 70 | 373 | 617 | 87 |
| Future Volume (vph) | 73 | 176 | 177 | 73 | 118 | 230 | 47 | 336 | 70 | 373 | 617 | 87 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.5 | 4.5 | | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | | 4.5 | 4.5 | 4.5 |
| Lane Util. Factor | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frpb, ped/bikes | 1.00 | 0.99 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.92 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.97 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1770 | 1697 | | 1787 | 1881 | 1599 | 1770 | 1814 | | 1770 | 1863 | 1583 |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1770 | 1697 | | 1787 | 1881 | 1599 | 1770 | 1814 | | 1770 | 1863 | 1583 |
| 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) | 77 | 185 | 186 | 77 | 124 | 242 | 49 | 354 | 74 | 393 | 649 | 92 |
| RTOR Reduction (vph) | 0 | 49 | 0 | 0 | 0 | 98 | 0 | 10 | 0 | 0 | 0 | 46 |
| Lane Group Flow (vph) | 77 | 322 | 0 | 77 | 124 | 144 | 49 | 418 | 0 | 393 | 649 | 46 |
| Confl. Peds. (#/hr) | | | 4 | | 4 | | | | | | | |
| Confl. Bikes (#/hr) | | | 1 | | | | | | | | | |
| Heavy Vehicles (%) | 2% | 2% | 2% | 1% | 1% | 1% | 2% | 2% | 2% | 2% | 2% | 2% |
| Turn Type | Prot | NA | | Prot | NA | pm+ov | Prot | NA | | Prot | NA | pm+ov |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | 7 |
| Permitted Phases | | | | | | 8 | | | | | | 6 |
| Actuated Green, G (s) | 3.8 | 16.3 | | 3.8 | 16.3 | 32.5 | 2.9 | 20.0 | | 16.2 | 33.3 | 37.1 |
| Effective Green, g (s) | 3.8 | 16.3 | | 3.8 | 16.3 | 32.5 | 2.9 | 20.0 | | 16.2 | 33.3 | 37.1 |
| Actuated g/C Ratio | 0.05 | 0.22 | | 0.05 | 0.22 | 0.44 | 0.04 | 0.27 | | 0.22 | 0.45 | 0.50 |
| Clearance Time (s) | 4.5 | 4.5 | | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | | 4.5 | 4.5 | 4.5 |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 90 | 372 | | 91 | 412 | 796 | 69 | 488 | | 385 | 834 | 886 |
| v/s Ratio Prot | c0.04 | c0.19 | | 0.04 | 0.07 | 0.04 | 0.03 | 0.23 | | c0.22 | c0.35 | 0.00 |
| v/s Ratio Perm | | | | | | 0.05 | | | | | | 0.03 |
| v/c Ratio | 0.86 | 0.87 | | 0.85 | 0.30 | 0.18 | 0.71 | 0.86 | | 1.02 | 0.78 | 0.05 |
| Uniform Delay, d1 | 35.0 | 27.9 | | 35.0 | 24.2 | 12.8 | 35.3 | 25.8 | | 29.1 | 17.4 | 9.6 |
| 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 | 50.6 | 18.5 | | 47.9 | 0.4 | 0.1 | 29.0 | 13.9 | | 51.3 | 4.6 | 0.0 |
| Delay (s) | 85.6 | 46.4 | | 82.8 | 24.7 | 12.9 | 64.3 | 39.7 | | 80.3 | 22.0 | 9.6 |
| Level of Service | F | D | | F | C | B | E | D | | F | C | A |
| Approach Delay (s) | | 53.1 | | | 28.3 | | | 42.2 | | | 41.2 | |
| Approach LOS | | D | | | C | | | D | | | D | |
| Intersection Summary | | | | | | | | | | | | |
| HCM 2000 Control Delay | | | 41.2 | | | | HCM 2000 Level of Service | | | D | | |
| HCM 2000 Volume to Capacity ratio | | | 0.91 | | | | | | | | | |
| Actuated Cycle Length (s) | | | 74.3 | | | | Sum of lost time (s) | | | 18.0 | | |
| Intersection Capacity Utilization | | | 82.1% | | | | ICU Level of Service | | | E | | |
| Analysis Period (min) | | | 15 | | | | | | | | | |
| c Critical Lane Group | | | | | | | | | | | | |

HCM Signalized Intersection Capacity Analysis

6: Washington Street & Abernethy Road



















07/07/2017

| |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement | SEL | SET | SER | NWL | NWT | NWR | NEL | NET | NER | SWL | SWT | SWR |
| Lane Configurations | |  | |  |  | |  |  |  |  |  |  |
| Traffic Volume (vph) | 3 | 0 | 9 | 212 | 1 | 43 | 7 | 350 | 359 | 44 | 526 | 1 |
| Future Volume (vph) | 3 | 0 | 9 | 212 | 1 | 43 | 7 | 350 | 359 | 44 | 526 | 1 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.5 | | 4.5 | 4.5 | | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | |
| Lane Util. Factor | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frpb, ped/bikes | | 0.98 | | 1.00 | 0.98 | | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | |
| Flpb, ped/bikes | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | | 0.90 | | 1.00 | 0.85 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | |
| Flt Protected | | 0.99 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | | 1655 | | 1733 | 1526 | | 1785 | 1881 | 1561 | 1749 | 1844 | |
| Flt Permitted | | 0.96 | | 0.75 | 1.00 | | 0.33 | 1.00 | 1.00 | 0.50 | 1.00 | |
| Satd. Flow (perm) | | 1604 | | 1367 | 1526 | | 611 | 1881 | 1561 | 911 | 1844 | |
| 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) | 3 | 0 | 10 | 236 | 1 | 48 | 8 | 389 | 399 | 49 | 584 | 1 |
| RTOR Reduction (vph) | 0 | 9 | 0 | 0 | 34 | 0 | 0 | 0 | 196 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 0 | 4 | 0 | 236 | 15 | 0 | 8 | 389 | 203 | 49 | 585 | 0 |
| Confl. Peds. (#/hr) | 1 | | 1 | 1 | | 1 | 3 | | 3 | 3 | | 3 |
| Heavy Vehicles (%) | 0% | 0% | 0% | 4% | 4% | 4% | 1% | 1% | 1% | 3% | 3% | 3% |
| Turn Type | Perm | NA | | Perm | NA | | Perm | NA | Perm | Perm | NA | |
| Protected Phases | | 6 | | | 2 | | | 4 | | | | 8 |
| Permitted Phases | 6 | | | 2 | | | 4 | | 4 | 8 | | |
| Actuated Green, G (s) | | 13.1 | | 13.1 | 13.1 | | 23.0 | 23.0 | 23.0 | 23.0 | 23.0 | |
| Effective Green, g (s) | | 13.1 | | 13.1 | 13.1 | | 23.0 | 23.0 | 23.0 | 23.0 | 23.0 | |
| Actuated g/C Ratio | | 0.29 | | 0.29 | 0.29 | | 0.51 | 0.51 | 0.51 | 0.51 | 0.51 | |
| Clearance Time (s) | | 4.5 | | 4.5 | 4.5 | | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | |
| Vehicle Extension (s) | | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | | 465 | | 397 | 443 | | 311 | 959 | 796 | 464 | 940 | |
| v/s Ratio Prot | | | | | 0.01 | | | 0.21 | | | c0.32 | |
| v/s Ratio Perm | | 0.00 | | c0.17 | | | 0.01 | | 0.13 | 0.05 | | |
| v/c Ratio | | 0.01 | | 0.59 | 0.03 | | 0.03 | 0.41 | 0.26 | 0.11 | 0.62 | |
| Uniform Delay, d1 | | 11.4 | | 13.7 | 11.5 | | 5.5 | 6.8 | 6.2 | 5.7 | 7.9 | |
| Progression Factor | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | | 0.0 | | 2.4 | 0.0 | | 0.0 | 0.3 | 0.2 | 0.1 | 1.3 | |
| Delay (s) | | 11.4 | | 16.1 | 11.5 | | 5.5 | 7.1 | 6.4 | 5.8 | 9.2 | |
| Level of Service | | B | | B | B | | A | A | A | A | A | |
| Approach Delay (s) | | 11.4 | | | 15.3 | | | 6.7 | | | 9.0 | |
| Approach LOS | | B | | | B | | | A | | | A | |
| Intersection Summary | | | | | | | | | | | | |
| HCM 2000 Control Delay | | | 9.0 | | | HCM 2000 Level of Service | | | A | | | |
| HCM 2000 Volume to Capacity ratio | | | 0.61 | | | | | | | | | |
| Actuated Cycle Length (s) | | | 45.1 | | | Sum of lost time (s) | | | 9.0 | | | |
| Intersection Capacity Utilization | | | 61.6% | | | ICU Level of Service | | | B | | | |
| Analysis Period (min) | | | 15 | | | | | | | | | |
| c Critical Lane Group | | | | | | | | | | | | |

HCM Signalized Intersection Capacity Analysis

7: Washington Street & 15th Street




















07/07/2017

| |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement | SEL | SET | SER | NWL | NWT | NWR | NEL | NET | NER | SWL | SWT | SWR |
| Lane Configurations | |  | | |  | |  |  | |  |  | |
| Traffic Volume (vph) | 54 | 11 | 20 | 39 | 163 | 39 | 43 | 616 | 76 | 56 | 581 | 132 |
| Future Volume (vph) | 54 | 11 | 20 | 39 | 163 | 39 | 43 | 616 | 76 | 56 | 581 | 132 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.5 | | | 4.5 | | 4.5 | 4.5 | | 4.5 | 4.5 | |
| Lane Util. Factor | | 1.00 | | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frpb, ped/bikes | | 0.99 | | | 1.00 | | 1.00 | 1.00 | | 1.00 | 0.99 | |
| Flpb, ped/bikes | | 1.00 | | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | | 0.97 | | | 0.98 | | 1.00 | 0.98 | | 1.00 | 0.97 | |
| Flt Protected | | 0.97 | | | 0.99 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | | 1609 | | | 1799 | | 1787 | 1845 | | 1769 | 1801 | |
| Flt Permitted | | 0.64 | | | 0.94 | | 0.17 | 1.00 | | 0.18 | 1.00 | |
| Satd. Flow (perm) | | 1066 | | | 1697 | | 312 | 1845 | | 343 | 1801 | |
| 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 | 12 | 21 | 41 | 172 | 41 | 45 | 648 | 80 | 59 | 612 | 139 |
| RTOR Reduction (vph) | 0 | 16 | 0 | 0 | 12 | 0 | 0 | 6 | 0 | 0 | 11 | 0 |
| Lane Group Flow (vph) | 0 | 74 | 0 | 0 | 242 | 0 | 45 | 722 | 0 | 59 | 740 | 0 |
| Confl. Peds. (#/hr) | 3 | | 4 | 4 | | 3 | 6 | | 3 | 3 | | 6 |
| Heavy Vehicles (%) | 10% | 10% | 10% | 2% | 2% | 2% | 1% | 1% | 1% | 2% | 2% | 2% |
| Turn Type | Perm | NA | | Perm | NA | | pm+pt | NA | | pm+pt | NA | |
| Protected Phases | | 4 | | | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | | 8 | | | 2 | | | 6 | | |
| Actuated Green, G (s) | | 12.9 | | | 12.9 | | 31.9 | 29.1 | | 31.9 | 29.1 | |
| Effective Green, g (s) | | 12.9 | | | 12.9 | | 31.9 | 29.1 | | 31.9 | 29.1 | |
| Actuated g/C Ratio | | 0.22 | | | 0.22 | | 0.55 | 0.50 | | 0.55 | 0.50 | |
| Clearance Time (s) | | 4.5 | | | 4.5 | | 4.5 | 4.5 | | 4.5 | 4.5 | |
| Vehicle Extension (s) | | 3.0 | | | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | | 235 | | | 375 | | 241 | 920 | | 256 | 898 | |
| v/s Ratio Prot | | | | | | | 0.01 | 0.39 | | c0.01 | c0.41 | |
| v/s Ratio Perm | | 0.07 | | | c0.14 | | 0.09 | | | 0.12 | | |
| v/c Ratio | | 0.31 | | | 0.65 | | 0.19 | 0.78 | | 0.23 | 0.82 | |
| Uniform Delay, d1 | | 19.0 | | | 20.6 | | 8.6 | 12.0 | | 8.4 | 12.4 | |
| Progression Factor | | 1.00 | | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | | 0.8 | | | 3.8 | | 0.4 | 4.4 | | 0.5 | 6.2 | |
| Delay (s) | | 19.8 | | | 24.4 | | 9.0 | 16.5 | | 8.8 | 18.6 | |
| Level of Service | | B | | | C | | A | B | | A | B | |
| Approach Delay (s) | | 19.8 | | | 24.4 | | | 16.0 | | | 17.9 | |
| Approach LOS | | B | | | C | | | B | | | B | |
| Intersection Summary | | | | | | | | | | | | |
| HCM 2000 Control Delay | | | 18.1 | | | HCM 2000 Level of Service | | | | B | | |
| HCM 2000 Volume to Capacity ratio | | | 0.73 | | | | | | | | | |
| Actuated Cycle Length (s) | | | 58.3 | | | Sum of lost time (s) | | | | 13.5 | | |
| Intersection Capacity Utilization | | | 68.4% | | | ICU Level of Service | | | | C | | |
| Analysis Period (min) | | | 15 | | | | | | | | | |
| c Critical Lane Group | | | | | | | | | | | | |

HCM Signalized Intersection Capacity Analysis

8: Washington Street & 14th Street



















07/07/2017

| |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement | SEL | SET | SER | NWL | NWT | NWR | NEL | NET | NER | SWL | SWT | SWR |
| Lane Configurations | |  |  | |  | |  |  | |  |  | |
| Traffic Volume (vph) | 451 | 60 | 258 | 20 | 85 | 11 | 300 | 275 | 13 | 7 | 440 | 197 |
| Future Volume (vph) | 451 | 60 | 258 | 20 | 85 | 11 | 300 | 275 | 13 | 7 | 440 | 197 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.5 | 4.5 | | 4.5 | | 4.5 | 4.5 | | 4.5 | 4.5 | |
| Lane Util. Factor | | 1.00 | 1.00 | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frpb, ped/bikes | | 1.00 | 0.96 | | 1.00 | | 1.00 | 1.00 | | 1.00 | 0.99 | |
| Flpb, ped/bikes | | 1.00 | 1.00 | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | | 1.00 | 0.85 | | 0.99 | | 1.00 | 0.99 | | 1.00 | 0.95 | |
| Flt Protected | | 0.96 | 1.00 | | 0.99 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | | 1796 | 1534 | | 1800 | | 1787 | 1865 | | 1745 | 1742 | |
| Flt Permitted | | 0.68 | 1.00 | | 0.73 | | 0.11 | 1.00 | | 0.58 | 1.00 | |
| Satd. Flow (perm) | | 1281 | 1534 | | 1317 | | 211 | 1865 | | 1057 | 1742 | |
| 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) | 475 | 63 | 272 | 21 | 89 | 12 | 316 | 289 | 14 | 7 | 463 | 207 |
| RTOR Reduction (vph) | 0 | 0 | 176 | 0 | 5 | 0 | 0 | 2 | 0 | 0 | 19 | 0 |
| Lane Group Flow (vph) | 0 | 538 | 96 | 0 | 117 | 0 | 316 | 301 | 0 | 7 | 651 | 0 |
| Confl. Peds. (#/hr) | 2 | | 9 | 9 | | 2 | 5 | | 5 | 5 | | 5 |
| Heavy Vehicles (%) | 1% | 1% | 1% | 3% | 3% | 3% | 1% | 1% | 1% | 3% | 3% | 3% |
| Turn Type | Perm | NA | Perm | Perm | NA | | pm+pt | NA | | pm+pt | NA | |
| Protected Phases | | 4 | | | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | 4 | 8 | | | 2 | | | 6 | | |
| Actuated Green, G (s) | | 29.5 | 29.5 | | 29.5 | | 45.1 | 39.6 | | 32.1 | 31.1 | |
| Effective Green, g (s) | | 29.5 | 29.5 | | 29.5 | | 45.1 | 39.6 | | 32.1 | 31.1 | |
| Actuated g/C Ratio | | 0.35 | 0.35 | | 0.35 | | 0.54 | 0.47 | | 0.38 | 0.37 | |
| Clearance Time (s) | | 4.5 | 4.5 | | 4.5 | | 4.5 | 4.5 | | 4.5 | 4.5 | |
| Vehicle Extension (s) | | 3.0 | 3.0 | | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | | 452 | 541 | | 464 | | 292 | 883 | | 414 | 648 | |
| v/s Ratio Prot | | | | | | | c0.12 | 0.16 | | 0.00 | 0.37 | |
| v/s Ratio Perm | | c0.42 | 0.06 | | 0.09 | | c0.46 | | | 0.01 | | |
| v/c Ratio | | 1.19 | 0.18 | | 0.25 | | 1.08 | 0.34 | | 0.02 | 1.00 | |
| Uniform Delay, d1 | | 27.0 | 18.7 | | 19.2 | | 23.0 | 13.8 | | 15.9 | 26.2 | |
| Progression Factor | | 1.00 | 1.00 | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | | 105.8 | 0.2 | | 0.3 | | 76.3 | 0.2 | | 0.0 | 36.3 | |
| Delay (s) | | 132.8 | 18.8 | | 19.5 | | 99.3 | 14.0 | | 15.9 | 62.6 | |
| Level of Service | | F | B | | B | | F | B | | B | E | |
| Approach Delay (s) | | 94.6 | | | 19.5 | | | 57.6 | | | 62.1 | |
| Approach LOS | | F | | | B | | | E | | | E | |
| Intersection Summary | | | | | | | | | | | | |
| HCM 2000 Control Delay | | | 70.3 | | | | HCM 2000 Level of Service | | | E | | |
| HCM 2000 Volume to Capacity ratio | | | 1.17 | | | | | | | | | |
| Actuated Cycle Length (s) | | | 83.6 | | | | Sum of lost time (s) | | | 13.5 | | |
| Intersection Capacity Utilization | | | 98.0% | | | | ICU Level of Service | | | F | | |
| Analysis Period (min) | | | 15 | | | | | | | | | |
| c Critical Lane Group | | | | | | | | | | | | |

HCM Unsignalized Intersection Capacity Analysis







9: Main Street & 14th Street

07/07/2017

| |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement | SEL | SET | SER | NWL | NWT | NWR | NEL | NET | NER | SWL | SWT | SWR |
| Lane Configurations |  |  | | |  | | |  |  | |  | |
| Traffic Volume (veh/h) | 34 | 532 | 39 | 86 | 548 | 16 | 27 | 27 | 199 | 3 | 23 | 32 |
| Future Volume (Veh/h) | 34 | 532 | 39 | 86 | 548 | 16 | 27 | 27 | 199 | 3 | 23 | 32 |
| Sign Control | | Free | | | Free | | | Stop | | | Stop | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Hourly flow rate (vph) | 36 | 560 | 41 | 91 | 577 | 17 | 28 | 28 | 209 | 3 | 24 | 34 |
| Pedestrians | | 1 | | | 7 | | | 9 | | | | |
| Lane Width (ft) | | 12.0 | | | 12.0 | | | 12.0 | | | | |
| Walking Speed (ft/s) | | 3.5 | | | 3.5 | | | 3.5 | | | | |
| Percent Blockage | | 0 | | | 1 | | | 1 | | | | |
| Right turn flare (veh) | | | | | | | | | 5 | | | |
| Median type | | None | | | None | | | | | | | |
| Median storage (veh) | | | | | | | | | | | | |
| Upstream signal (ft) | | 187 | | | 537 | | | | | | | |
| pX, platoon unblocked | 0.90 | | | | | | 0.90 | 0.90 | | 0.90 | 0.90 | 0.90 |
| vC, conflicting volume | 594 | | | 610 | | | 1476 | 1438 | 596 | 1525 | 1450 | 586 |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 493 | | | 610 | | | 1473 | 1431 | 596 | 1528 | 1444 | 485 |
| tC, single (s) | 4.1 | | | 4.1 | | | 7.1 | 6.5 | 6.2 | 7.1 | 6.5 | 6.2 |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 2.2 | | | 2.2 | | | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 |
| p0 queue free % | 96 | | | 91 | | | 56 | 73 | 58 | 92 | 77 | 94 |
| cM capacity (veh/h) | 968 | | | 960 | | | 64 | 104 | 492 | 36 | 104 | 527 |
| Direction, Lane # | SE 1 | SE 2 | NW 1 | NE 1 | SW 1 | | | | | | | |
| Volume Total | 36 | 601 | 685 | 265 | 61 | | | | | | | |
| Volume Left | 36 | 0 | 91 | 28 | 3 | | | | | | | |
| Volume Right | 0 | 41 | 17 | 209 | 34 | | | | | | | |
| cSH | 968 | 1700 | 960 | 396 | 160 | | | | | | | |
| Volume to Capacity | 0.04 | 0.35 | 0.09 | 0.67 | 0.38 | | | | | | | |
| Queue Length 95th (ft) | 3 | 0 | 8 | 118 | 41 | | | | | | | |
| Control Delay (s) | 8.9 | 0.0 | 2.4 | 37.0 | 40.6 | | | | | | | |
| Lane LOS | A | | A | E | E | | | | | | | |
| Approach Delay (s) | 0.5 | | 2.4 | 37.0 | 40.6 | | | | | | | |
| Approach LOS | | | | E | E | | | | | | | |
| Intersection Summary | | | | | | | | | | | | |
| Average Delay | | | 8.6 | | | | | | | | | |
| Intersection Capacity Utilization | | | 85.4% | | ICU Level of Service | | | | E | | | |
| Analysis Period (min) | | | 15 | | | | | | | | | |

HCM 2010 TWSC
9: Main Street & 14th Street

07/07/2017

| Intersection | | | | | | | | | | | | |
|--------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------|------|-----------------------------------------------------------------------------------|------|------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|------|-------------------------------------------------------------------------------------|------|
| Int Delay, s/veh | 8 | | | | | | | | | | | |
| Movement | SEL | SET | SER | NWL | NWT | NWR | NEL | NET | NER | SWL | SWT | SWR |
| Lane Configurations |  |  | | |  | | |  |  | |  | |
| Traffic Vol, veh/h | 34 | 532 | 39 | 86 | 548 | 16 | 27 | 27 | 199 | 3 | 23 | 32 |
| Future Vol, veh/h | 34 | 532 | 39 | 86 | 548 | 16 | 27 | 27 | 199 | 3 | 23 | 32 |
| Conflicting Peds, #/hr | 0 | 0 | 9 | 9 | 0 | 0 | 1 | 0 | 7 | 7 | 0 | 1 |
| Sign Control | Free | Free | Free | Free | Free | Free | Stop | Stop | Stop | Stop | Stop | Stop |
| RT Channelized | - | - | None | - | - | None | - | - | None | - | - | None |
| Storage Length | 0 | - | - | - | - | - | - | - | 130 | - | - | - |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 95 | 95 | 95 | 95 | 95 | 95 | 95 | 95 | 95 | 95 | 95 | 95 |
| Heavy Vehicles, % | 1 | 1 | 1 | 2 | 2 | 2 | 4 | 4 | 4 | 0 | 0 | 0 |
| Mvmt Flow | 36 | 560 | 41 | 91 | 577 | 17 | 28 | 28 | 209 | 3 | 24 | 34 |

| Major/Minor | Major1 | | | Major2 | | | Minor1 | | | Minor2 | | |
|----------------------|--------|---|---|--------|---|---|--------|-------|-------|--------|------|-----|
| Conflicting Flow All | 594 | 0 | 0 | 610 | 0 | 0 | 1457 | 1436 | 597 | 1439 | 1448 | 586 |
| Stage 1 | - | - | - | - | - | - | 661 | 661 | - | 766 | 766 | - |
| Stage 2 | - | - | - | - | - | - | 796 | 775 | - | 673 | 682 | - |
| Critical Hdwy | 4.11 | - | - | 4.12 | - | - | 7.14 | 6.54 | 6.24 | 7.1 | 6.5 | 6.2 |
| Critical Hdwy Stg 1 | - | - | - | - | - | - | 6.14 | 5.54 | - | 6.1 | 5.5 | - |
| Critical Hdwy Stg 2 | - | - | - | - | - | - | 6.14 | 5.54 | - | 6.1 | 5.5 | - |
| Follow-up Hdwy | 2.209 | - | - | 2.218 | - | - | 3.536 | 4.036 | 3.336 | 3.5 | 4 | 3.3 |
| Pot Cap-1 Maneuver | 987 | - | - | 969 | - | - | 106 | 132 | 499 | 112 | 133 | 514 |
| Stage 1 | - | - | - | - | - | - | 448 | 457 | - | 398 | 415 | - |
| Stage 2 | - | - | - | - | - | - | 378 | 405 | - | 448 | 453 | - |
| Platoon blocked, % | | - | - | | - | - | | | | | | |
| Mov Cap-1 Maneuver | 986 | - | - | 963 | - | - | 71 | 108 | 491 | 44 | 109 | 514 |
| Mov Cap-2 Maneuver | - | - | - | - | - | - | 71 | 108 | - | 44 | 109 | - |
| Stage 1 | - | - | - | - | - | - | 428 | 437 | - | 383 | 356 | - |
| Stage 2 | - | - | - | - | - | - | 283 | 348 | - | 230 | 433 | - |

| Approach | SE | NW | NE | SW |
|----------------------|-----|-----|------|------|
| HCM Control Delay, s | 0.5 | 1.2 | 36.5 | 37.6 |
| HCM LOS | | | E | E |






| Minor Lane/Major Mvmt | NELn1 | NELn2 | NWL | NWT | NWR | SEL | SET | SERSWLn1 |
|-----------------------|-------|-------|-------|-----|-----|-------|-----|----------|
| Capacity (veh/h) | 86 | 491 | 963 | - | - | 986 | - | - 170 |
| HCM Lane V/C Ratio | 0.661 | 0.427 | 0.094 | - | - | 0.036 | - | - 0.359 |
| HCM Control Delay (s) | 105.7 | 17.7 | 9.1 | 0 | - | 8.8 | - | - 37.6 |
| HCM Lane LOS | F | C | A | A | - | A | - | - E |
| HCM 95th %tile Q(veh) | 3.1 | 2.1 | 0.3 | - | - | 0.1 | - | - 1.5 |

HCM Unsignalized Intersection Capacity Analysis

101: OR-213 & I-205 SB Ramps

07/07/2017








| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|-----------------------------------|-----------------------------------------------------------------------------------|------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
| Lane Configurations |  | |  |  |  |  |
| Traffic Volume (veh/h) | 6 | 0 | 728 | 17 | 23 | 17 |
| Future Volume (Veh/h) | 6 | 0 | 728 | 17 | 23 | 17 |
| Sign Control | Stop | | | Free | Free | |
| Grade | 0% | | | 0% | 0% | |
| Peak Hour Factor | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Hourly flow rate (vph) | 6 | 0 | 766 | 18 | 24 | 18 |
| Pedestrians | | | | | | |
| Lane Width (ft) | | | | | | |
| Walking Speed (ft/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | | | | None | None | |
| Median storage veh | | | | | | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 1574 | 24 | 24 | | | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 1574 | 24 | 24 | | | |
| tC, single (s) | *6.0 | 6.2 | 4.1 | | | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | *2.0 | 3.3 | 2.2 | | | |
| p0 queue free % | 94 | 100 | 51 | | | |
| cM capacity (veh/h) | 101 | 1050 | 1578 | | | |
| Direction, Lane # | EB 1 | NB 1 | NB 2 | SB 1 | SB 2 | |
| Volume Total | 6 | 766 | 18 | 24 | 18 | |
| Volume Left | 6 | 766 | 0 | 0 | 0 | |
| Volume Right | 0 | 0 | 0 | 0 | 18 | |
| cSH | 101 | 1578 | 1700 | 1700 | 1700 | |
| Volume to Capacity | 0.06 | 0.49 | 0.01 | 0.01 | 0.01 | |
| Queue Length 95th (ft) | 5 | 69 | 0 | 0 | 0 | |
| Control Delay (s) | 43.0 | 9.4 | 0.0 | 0.0 | 0.0 | |
| Lane LOS | E | A | | | | |
| Approach Delay (s) | 43.0 | 9.2 | | 0.0 | | |
| Approach LOS | E | | | | | |
| Intersection Summary | | | | | | |
| Average Delay | | | 9.0 | | | |
| Intersection Capacity Utilization | | | 57.0% | ICU Level of Service | | B |
| Analysis Period (min) | | | 15 | | | |

* User Entered Value

Intersection

Int Delay, s/veh 9.2

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|--------------------------|-----------------------------------------------------------------------------------|------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Lane Configurations |  | |  |  |  |  |
| Traffic Vol, veh/h | 6 | 0 | 728 | 17 | 23 | 17 |
| Future Vol, veh/h | 6 | 0 | 728 | 17 | 23 | 17 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Free | Free | Free | Free |
| RT Channelized | - | None | - | None | - | Free |
| Storage Length | 0 | - | 0 | - | - | 0 |
| Veh in Median Storage, # | 0 | - | - | 0 | 0 | - |
| Grade, % | 0 | - | - | 0 | 0 | - |
| Peak Hour Factor | 95 | 95 | 95 | 95 | 95 | 95 |
| Heavy Vehicles, % | 3 | 3 | 4 | 4 | 0 | 0 |
| Mvmt Flow | 6 | 0 | 766 | 18 | 24 | 18 |

| Major/Minor | Minor2 | | Major1 | | Major2 | |
|----------------------|--------|---|--------|---|--------|---|
| Conflicting Flow All | 1575 | - | 24 | 0 | - | 0 |
| Stage 1 | 24 | - | - | - | - | - |
| Stage 2 | 1551 | - | - | - | - | - |
| Critical Hdwy | 6 | - | 4.14 | - | - | - |
| Critical Hdwy Stg 1 | 5.43 | - | - | - | - | - |
| Critical Hdwy Stg 2 | 5.43 | - | - | - | - | - |
| Follow-up Hdwy | 2 | - | 2.236 | - | - | - |
| Pot Cap-1 Maneuver | 196 | 0 | 1578 | - | - | 0 |
| Stage 1 | 1748 | 0 | - | - | - | 0 |
| Stage 2 | 259 | 0 | - | - | - | 0 |
| Platoon blocked, % | | | | - | - | |
| Mov Cap-1 Maneuver | 101 | - | 1578 | - | - | - |
| Mov Cap-2 Maneuver | 101 | - | - | - | - | - |
| Stage 1 | 1748 | - | - | - | - | - |
| Stage 2 | 133 | - | - | - | - | - |

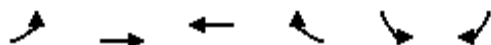
| Approach | EB | NB | SB |
|----------------------|----|-----|----|
| HCM Control Delay, s | 43 | 9.2 | 0 |
| HCM LOS | E | | |

| Minor Lane/Major Mvmt | NBL | NBT | EBLn1 | SBT |
|-----------------------|-------|-----|-------|-----|
| Capacity (veh/h) | 1578 | - | 101 | - |
| HCM Lane V/C Ratio | 0.486 | - | 0.063 | - |
| HCM Control Delay (s) | 9.4 | - | 43 | - |
| HCM Lane LOS | A | - | E | - |
| HCM 95th %tile Q(veh) | 2.8 | - | 0.2 | - |

HCM Unsignalized Intersection Capacity Analysis

102: I-205 SB Ramps & OR-213

07/07/2017



| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|-----------------------------------|------|------|-------|------|----------------------|------|
| Lane Configurations | | ↑↑ | | ↑↑ | ↑ | |
| Traffic Volume (veh/h) | 0 | 2982 | 0 | 0 | 23 | 0 |
| Future Volume (Veh/h) | 0 | 2982 | 0 | 0 | 23 | 0 |
| Sign Control | | Free | Free | | Stop | |
| Grade | | 0% | 0% | | 0% | |
| Peak Hour Factor | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Hourly flow rate (vph) | 0 | 3139 | 0 | 0 | 24 | 0 |
| Pedestrians | | | | | | |
| Lane Width (ft) | | | | | | |
| Walking Speed (ft/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | | None | None | | | |
| Median storage (veh) | | | | | | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 0 | | | | 1570 | 0 |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 0 | | | | 1570 | 0 |
| tC, single (s) | 4.2 | | | | *6.5 | 6.9 |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 2.2 | | | | *2.5 | 3.3 |
| p0 queue free % | 100 | | | | 83 | 100 |
| cM capacity (veh/h) | 1614 | | | | 139 | 1091 |
| Direction, Lane # | EB 1 | EB 2 | WB 1 | WB 2 | SB 1 | |
| Volume Total | 1570 | 1570 | 0 | 0 | 24 | |
| Volume Left | 0 | 0 | 0 | 0 | 24 | |
| Volume Right | 0 | 0 | 0 | 0 | 0 | |
| cSH | 1700 | 1700 | 1700 | 1700 | 139 | |
| Volume to Capacity | 0.92 | 0.92 | 0.00 | 0.00 | 0.17 | |
| Queue Length 95th (ft) | 0 | 0 | 0 | 0 | 15 | |
| Control Delay (s) | 0.0 | 0.0 | 0.0 | 0.0 | 36.2 | |
| Lane LOS | | | | | E | |
| Approach Delay (s) | 0.0 | | 0.0 | | 36.2 | |
| Approach LOS | | | | | E | |
| Intersection Summary | | | | | | |
| Average Delay | | | 0.3 | | | |
| Intersection Capacity Utilization | | | 92.4% | | ICU Level of Service | F |
| Analysis Period (min) | | | 15 | | | |

* User Entered Value

Intersection

Int Delay, s/veh 0.3

| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|--------------------------|------|------|------|------|------|------|
| Lane Configurations | | ↑↑ | | ↑↑ | ↑ | |
| Traffic Vol, veh/h | 0 | 2982 | 0 | 0 | 23 | 0 |
| Future Vol, veh/h | 0 | 2982 | 0 | 0 | 23 | 0 |
| 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 | 0 | - |
| Veh in Median Storage, # | - | 0 | 0 | - | 0 | - |
| Grade, % | - | 0 | 0 | - | 0 | - |
| Peak Hour Factor | 95 | 95 | 95 | 95 | 95 | 95 |
| Heavy Vehicles, % | 3 | 3 | 4 | 4 | 0 | 0 |
| Mvmt Flow | 0 | 3139 | 0 | 0 | 24 | 0 |

| Major/Minor | Major1 | Major2 | Minor2 |
|----------------------|--------|--------|--------|
| Conflicting Flow All | - 0 | - - | 1569 - |
| Stage 1 | - - | - - | 0 - |
| Stage 2 | - - | - - | 1569 - |
| Critical Hdwy | - - | - - | 6.5 - |
| Critical Hdwy Stg 1 | - - | - - | - - |
| Critical Hdwy Stg 2 | - - | - - | 5.8 - |
| Follow-up Hdwy | - - | - - | 2.5 - |
| Pot Cap-1 Maneuver | 0 - | 0 - | 139 0 |
| Stage 1 | 0 - | 0 - | - 0 |
| Stage 2 | 0 - | 0 - | 189 0 |
| Platoon blocked, % | - | - | - |
| Mov Cap-1 Maneuver | - - | - - | 139 - |
| Mov Cap-2 Maneuver | - - | - - | 139 - |
| Stage 1 | - - | - - | - - |
| Stage 2 | - - | - - | 189 - |



















| Approach | EB | WB | SB |
|----------------------|----|----|------|
| HCM Control Delay, s | 0 | 0 | 36.3 |
| HCM LOS | | | E |

| Minor Lane/Major Mvmt | EBT | WBR | SBLn1 |
|-----------------------|-----|-----|-------|
| Capacity (veh/h) | - | - | 139 |
| HCM Lane V/C Ratio | - | - | 0.174 |
| HCM Control Delay (s) | - | - | 36.3 |
| HCM Lane LOS | - | - | E |
| HCM 95th %tile Q(veh) | - | - | 0.6 |

HCM Signalized Intersection Capacity Analysis

12: OR-213 & Prairie Schooner Way/Clackamas River Drive

07/07/2017

| |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | | |  | | |  | |  |  | |  |  |
| Traffic Volume (vph) | 0 | 0 | 238 | 0 | 0 | 542 | 0 | 1878 | 179 | 0 | 3594 | 763 |
| Future Volume (vph) | 0 | 0 | 238 | 0 | 0 | 542 | 0 | 1878 | 179 | 0 | 3594 | 763 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | | 4.5 | | | 4.5 | | 4.5 | 4.5 | | 4.5 | 4.5 |
| Lane Util. Factor | | | 0.88 | | | 0.88 | | 0.91 | 1.00 | | 0.91 | 1.00 |
| Frt | | | 0.85 | | | 0.85 | | 1.00 | 0.85 | | 1.00 | 0.85 |
| Flt Protected | | | 1.00 | | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 |
| Satd. Flow (prot) | | | 2814 | | | 2760 | | 5085 | 1583 | | 5085 | 1583 |
| Flt Permitted | | | 1.00 | | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 |
| Satd. Flow (perm) | | | 2814 | | | 2760 | | 5085 | 1583 | | 5085 | 1583 |
| Peak-hour factor, PHF | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Adj. Flow (vph) | 0 | 0 | 245 | 0 | 0 | 559 | 0 | 1936 | 185 | 0 | 3705 | 787 |
| RTOR Reduction (vph) | 0 | 0 | 53 | 0 | 0 | 24 | 0 | 0 | 59 | 0 | 0 | 161 |
| Lane Group Flow (vph) | 0 | 0 | 192 | 0 | 0 | 535 | 0 | 1936 | 126 | 0 | 3705 | 626 |
| Heavy Vehicles (%) | 1% | 1% | 1% | 3% | 3% | 3% | 2% | 2% | 2% | 2% | 2% | 2% |
| Turn Type | | | Perm | | | Perm | | NA | Perm | | NA | Perm |
| Protected Phases | | | | | | | | 2 | | | 6 | |
| Permitted Phases | | | 5 | | | 1 | | | 2 | | | 6 |
| Actuated Green, G (s) | | | 12.3 | | | 24.5 | | 70.9 | 70.9 | | 83.1 | 83.1 |
| Effective Green, g (s) | | | 12.3 | | | 24.5 | | 70.9 | 70.9 | | 83.1 | 83.1 |
| Actuated g/C Ratio | | | 0.12 | | | 0.23 | | 0.68 | 0.68 | | 0.80 | 0.80 |
| Clearance Time (s) | | | 4.5 | | | 4.5 | | 4.5 | 4.5 | | 4.5 | 4.5 |
| Vehicle Extension (s) | | | 3.0 | | | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 |
| Lane Grp Cap (vph) | | | 331 | | | 647 | | 3453 | 1075 | | 4047 | 1260 |
| v/s Ratio Prot | | | | | | | | 0.38 | | | c0.73 | |
| v/s Ratio Perm | | | 0.07 | | | c0.19 | | | 0.08 | | | 0.40 |
| v/c Ratio | | | 0.58 | | | 0.83 | | 0.56 | 0.12 | | 0.92 | 0.50 |
| Uniform Delay, d1 | | | 43.6 | | | 37.9 | | 8.7 | 5.8 | | 8.0 | 3.6 |
| Progression Factor | | | 1.00 | | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 |
| Incremental Delay, d2 | | | 2.6 | | | 8.5 | | 0.2 | 0.0 | | 3.8 | 0.3 |
| Delay (s) | | | 46.2 | | | 46.4 | | 8.9 | 5.9 | | 11.8 | 3.9 |
| Level of Service | | | D | | | D | | A | A | | B | A |
| Approach Delay (s) | | 46.2 | | | 46.4 | | | 8.6 | | | 10.4 | |
| Approach LOS | | D | | | D | | | A | | | B | |
| Intersection Summary | | | | | | | | | | | | |
| HCM 2000 Control Delay | | | 13.8 | | | HCM 2000 Level of Service | | | B | | | |
| HCM 2000 Volume to Capacity ratio | | | 0.92 | | | | | | | | | |
| Actuated Cycle Length (s) | | | 104.4 | | | Sum of lost time (s) | | | 9.0 | | | |
| Intersection Capacity Utilization | | | 85.3% | | | ICU Level of Service | | | E | | | |
| Analysis Period (min) | | | 15 | | | | | | | | | |
| c Critical Lane Group | | | | | | | | | | | | |

HCM Signalized Intersection Capacity Analysis

13: OR-213 & Redland Road

07/07/2017



| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|------------------------|-------|-------|-------|------|-------|-------|
| Lane Configurations | | | | | | |
| Traffic Volume (vph) | 459 | 230 | 149 | 1598 | 2892 | 940 |
| Future Volume (vph) | 459 | 230 | 149 | 1598 | 2892 | 940 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 |
| Lane Util. Factor | 0.97 | 1.00 | 1.00 | 0.95 | 0.95 | 1.00 |
| Frt | 1.00 | 0.85 | 1.00 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 0.95 | 1.00 | 1.00 | 1.00 |
| Satd. Flow (prot) | 3433 | 1583 | 1752 | 3505 | 3539 | 1583 |
| Flt Permitted | 0.95 | 1.00 | 0.95 | 1.00 | 1.00 | 1.00 |
| Satd. Flow (perm) | 3433 | 1583 | 1752 | 3505 | 3539 | 1583 |
| Peak-hour factor, PHF | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 |
| Adj. Flow (vph) | 468 | 235 | 152 | 1631 | 2951 | 959 |
| RTOR Reduction (vph) | 0 | 2 | 0 | 0 | 0 | 11 |
| Lane Group Flow (vph) | 468 | 233 | 152 | 1631 | 2951 | 948 |
| Heavy Vehicles (%) | 2% | 2% | 3% | 3% | 2% | 2% |
| Turn Type | Prot | pm+ov | Prot | NA | NA | pm+ov |
| Protected Phases | 4 | 5 | 5 | 2 | 6 | 4 |
| Permitted Phases | | 4 | | | | 6 |
| Actuated Green, G (s) | 18.0 | 26.5 | 8.5 | 93.0 | 80.0 | 98.0 |
| Effective Green, g (s) | 18.0 | 26.5 | 8.5 | 93.0 | 80.0 | 98.0 |
| Actuated g/C Ratio | 0.15 | 0.22 | 0.07 | 0.78 | 0.67 | 0.82 |
| Clearance Time (s) | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 514 | 408 | 124 | 2716 | 2359 | 1352 |
| v/s Ratio Prot | c0.14 | 0.04 | c0.09 | 0.47 | c0.83 | 0.11 |
| v/s Ratio Perm | | 0.11 | | | | 0.49 |
| v/c Ratio | 0.91 | 0.57 | 1.23 | 0.60 | 1.25 | 0.70 |
| Uniform Delay, d1 | 50.2 | 41.7 | 55.8 | 5.7 | 20.0 | 4.7 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 20.3 | 1.9 | 153.7 | 1.0 | 116.6 | 1.7 |
| Delay (s) | 70.5 | 43.6 | 209.5 | 6.7 | 136.6 | 6.4 |
| Level of Service | E | D | F | A | F | A |
| Approach Delay (s) | 61.5 | | | 24.0 | 104.7 | |
| Approach LOS | E | | | C | F | |
























Intersection Summary

| | | | |
|-----------------------------------|--------|---------------------------|------|
| HCM 2000 Control Delay | 77.4 | HCM 2000 Level of Service | E |
| HCM 2000 Volume to Capacity ratio | 1.19 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 13.5 |
| Intersection Capacity Utilization | 112.5% | ICU Level of Service | H |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

HCM Signalized Intersection Capacity Analysis

14: OR-213 & Beavercreek Road

07/07/2017

| |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations |  |  | |  |  |  |  |  |  |  |  |  |
| Traffic Volume (vph) | 485 | 945 | 70 | 90 | 700 | 558 | 55 | 704 | 130 | 1044 | 1421 | 657 |
| Future Volume (vph) | 485 | 945 | 70 | 90 | 700 | 558 | 55 | 704 | 130 | 1044 | 1421 | 657 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.5 | 4.5 | | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 |
| Lane Util. Factor | 0.97 | 0.95 | | 0.97 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 0.97 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.99 | | 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) | 3467 | 3532 | | 3467 | 3574 | 1577 | 1752 | 3505 | 1544 | 3433 | 3539 | 1555 |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 3467 | 3532 | | 3467 | 3574 | 1577 | 1752 | 3505 | 1544 | 3433 | 3539 | 1555 |
| Peak-hour factor, PHF | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Adj. Flow (vph) | 500 | 974 | 72 | 93 | 722 | 575 | 57 | 726 | 134 | 1076 | 1465 | 677 |
| RTOR Reduction (vph) | 0 | 4 | 0 | 0 | 0 | 396 | 0 | 0 | 105 | 0 | 0 | 182 |
| Lane Group Flow (vph) | 500 | 1042 | 0 | 93 | 722 | 179 | 57 | 726 | 29 | 1076 | 1465 | 495 |
| Confl. Peds. (#/hr) | 1 | | 6 | 6 | | 1 | 3 | | 1 | 1 | | 3 |
| Confl. Bikes (#/hr) | | | | | | | | | 1 | | | |
| Heavy Vehicles (%) | 1% | 1% | 1% | 1% | 1% | 1% | 3% | 3% | 3% | 2% | 2% | 2% |
| Turn Type | Prot | NA | | Prot | NA | Perm | Prot | NA | Perm | Prot | NA | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | 8 | | | 2 | | | 6 |
| Actuated Green, G (s) | 16.8 | 35.0 | | 5.3 | 23.5 | 23.5 | 4.0 | 26.2 | 26.2 | 35.5 | 57.7 | 57.7 |
| Effective Green, g (s) | 16.8 | 35.0 | | 5.3 | 23.5 | 23.5 | 4.0 | 26.2 | 26.2 | 35.5 | 57.7 | 57.7 |
| Actuated g/C Ratio | 0.14 | 0.29 | | 0.04 | 0.20 | 0.20 | 0.03 | 0.22 | 0.22 | 0.30 | 0.48 | 0.48 |
| Clearance Time (s) | 4.5 | 4.5 | | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 |
| 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) | 485 | 1030 | | 153 | 699 | 308 | 58 | 765 | 337 | 1015 | 1701 | 747 |
| v/s Ratio Prot | c0.14 | c0.29 | | 0.03 | 0.20 | | 0.03 | c0.21 | | c0.31 | 0.41 | |
| v/s Ratio Perm | | | | | | 0.11 | | | 0.02 | | | 0.32 |
| v/c Ratio | 1.03 | 1.01 | | 0.61 | 1.03 | 0.58 | 0.98 | 0.95 | 0.09 | 1.06 | 0.86 | 0.66 |
| Uniform Delay, d1 | 51.6 | 42.5 | | 56.3 | 48.2 | 43.8 | 58.0 | 46.2 | 37.4 | 42.2 | 27.6 | 23.7 |
| 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 | 49.0 | 30.9 | | 6.7 | 42.8 | 2.8 | 111.4 | 22.2 | 0.5 | 45.6 | 6.0 | 4.6 |
| Delay (s) | 100.6 | 73.4 | | 63.0 | 91.0 | 46.6 | 169.4 | 68.5 | 37.9 | 87.8 | 33.6 | 28.3 |
| Level of Service | F | E | | E | F | D | F | E | D | F | C | C |
| Approach Delay (s) | | 82.2 | | | 70.8 | | | 70.3 | | | 50.6 | |
| Approach LOS | | F | | | E | | | E | | | D | |
| Intersection Summary | | | | | | | | | | | | |
| HCM 2000 Control Delay | | | 64.0 | | | | | | | | | |
| HCM 2000 Volume to Capacity ratio | | | 1.04 | | | | | | | | | |
| Actuated Cycle Length (s) | | | 120.0 | | | | | | | | | |
| Intersection Capacity Utilization | | | 97.4% | | | | | | | | | |
| Analysis Period (min) | | | 15 | | | | | | | | | |
| c Critical Lane Group | | | | | | | | | | | | |

HCM Unsignalized Intersection Capacity Analysis




15: Holly Lane & Holcomb Boulevard

07/07/2017

| | → | ↘ | ↙ | ← | ↖ | ↗ |
|-----------------------------------|------|-------|------|----------------------|------|------|
| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
| Lane Configurations | ↰ | | | ↱ | ↰ | ↱ |
| Traffic Volume (veh/h) | 212 | 34 | 26 | 159 | 39 | 28 |
| Future Volume (Veh/h) | 212 | 34 | 26 | 159 | 39 | 28 |
| Sign Control | Free | | | Free | Stop | |
| Grade | 0% | | | 0% | 0% | |
| Peak Hour Factor | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Hourly flow rate (vph) | 236 | 38 | 29 | 177 | 43 | 31 |
| Pedestrians | | | | | | |
| Lane Width (ft) | | | | | | |
| Walking Speed (ft/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | None | | | None | | |
| Median storage (veh) | | | | | | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | | | 274 | | 490 | 255 |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | | | 274 | | 490 | 255 |
| tC, single (s) | | | 4.1 | | 6.4 | 6.2 |
| tC, 2 stage (s) | | | | | | |
| tF (s) | | | 2.2 | | 3.5 | 3.3 |
| p0 queue free % | | | 98 | | 92 | 96 |
| cM capacity (veh/h) | | | 1278 | | 525 | 784 |
| Direction, Lane # | EB 1 | WB 1 | NB 1 | | | |
| Volume Total | 274 | 206 | 74 | | | |
| Volume Left | 0 | 29 | 43 | | | |
| Volume Right | 38 | 0 | 31 | | | |
| cSH | 1700 | 1278 | 609 | | | |
| Volume to Capacity | 0.16 | 0.02 | 0.12 | | | |
| Queue Length 95th (ft) | 0 | 2 | 10 | | | |
| Control Delay (s) | 0.0 | 1.3 | 11.7 | | | |
| Lane LOS | | A | B | | | |
| Approach Delay (s) | 0.0 | 1.3 | 11.7 | | | |
| Approach LOS | | | B | | | |
| Intersection Summary | | | | | | |
| Average Delay | | 2.0 | | | | |
| Intersection Capacity Utilization | | 36.9% | | ICU Level of Service | | A |
| Analysis Period (min) | | 15 | | | | |

Intersection

Int Delay, s/veh 2

| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|--------------------------|-----------------------------------------------------------------------------------|------|------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|------|
| Lane Configurations |  | | |  |  | |
| Traffic Vol, veh/h | 212 | 34 | 26 | 159 | 39 | 28 |
| Future Vol, veh/h | 212 | 34 | 26 | 159 | 39 | 28 |
| 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 | 90 | 90 | 90 | 90 | 90 | 90 |
| Heavy Vehicles, % | 3 | 3 | 4 | 4 | 2 | 2 |
| Mvmt Flow | 236 | 38 | 29 | 177 | 43 | 31 |

| Major/Minor | Major1 | | Major2 | | Minor1 | |
|----------------------|--------|---|--------|---|--------|-------|
| Conflicting Flow All | 0 | 0 | 273 | 0 | 488 | 254 |
| Stage 1 | - | - | - | - | 254 | - |
| Stage 2 | - | - | - | - | 234 | - |
| Critical Hdwy | - | - | 4.14 | - | 6.42 | 6.22 |
| Critical Hdwy Stg 1 | - | - | - | - | 5.42 | - |
| Critical Hdwy Stg 2 | - | - | - | - | 5.42 | - |
| Follow-up Hdwy | - | - | 2.236 | - | 3.518 | 3.318 |
| Pot Cap-1 Maneuver | - | - | 1279 | - | 539 | 785 |
| Stage 1 | - | - | - | - | 788 | - |
| Stage 2 | - | - | - | - | 805 | - |
| Platoon blocked, % | - | - | | - | | |
| Mov Cap-1 Maneuver | - | - | 1279 | - | 526 | 785 |
| Mov Cap-2 Maneuver | - | - | - | - | 526 | - |
| Stage 1 | - | - | - | - | 788 | - |
| Stage 2 | - | - | - | - | 785 | - |

















| Approach | EB | WB | NB |
|----------------------|----|-----|------|
| HCM Control Delay, s | 0 | 1.1 | 11.7 |
| HCM LOS | | | B |

| Minor Lane/Major Mvmt | NBLn1 | EBT | EBR | WBL | WBT |
|-----------------------|-------|-----|-----|-------|-----|
| Capacity (veh/h) | 610 | - | - | 1279 | - |
| HCM Lane V/C Ratio | 0.122 | - | - | 0.023 | - |
| HCM Control Delay (s) | 11.7 | - | - | 7.9 | 0 |
| HCM Lane LOS | B | - | - | A | A |
| HCM 95th %tile Q(veh) | 0.4 | - | - | 0.1 | - |

HCM Unsignalized Intersection Capacity Analysis

16: Holly Lane & Redland Road

07/07/2017


| | | | | | | | | | | | | |
|-----------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| |  |  |  |  |  |  |  |  |  |  |  |  |
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | |  | | |  | | |  | | |  | |
| Traffic Volume (veh/h) | 0 | 674 | 226 | 21 | 309 | 42 | 53 | 25 | 10 | 38 | 22 | 0 |
| Future Volume (Veh/h) | 0 | 674 | 226 | 21 | 309 | 42 | 53 | 25 | 10 | 38 | 22 | 0 |
| Sign Control | | Free | | | Free | | | Stop | | | Stop | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Hourly flow rate (vph) | 0 | 709 | 238 | 22 | 325 | 44 | 56 | 26 | 11 | 40 | 23 | 0 |
| Pedestrians | | | | | | | | | | | | |
| Lane Width (ft) | | | | | | | | | | | | |
| Walking Speed (ft/s) | | | | | | | | | | | | |
| Percent Blockage | | | | | | | | | | | | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | None | | | | None | | | | | | | |
| Median storage (veh) | | | | | | | | | | | | |
| Upstream signal (ft) | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 369 | | | 947 | | | 1230 | 1241 | 828 | 1243 | 1338 | 347 |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 369 | | | 947 | | | 1230 | 1241 | 828 | 1243 | 1338 | 347 |
| tC, single (s) | 4.1 | | | 4.1 | | | *6.0 | *6.0 | *6.0 | *6.0 | *6.0 | *6.0 |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 2.2 | | | 2.2 | | | *2.0 | *2.0 | *2.0 | *2.0 | *2.0 | *2.0 |
| p0 queue free % | 100 | | | 97 | | | 81 | 91 | 98 | 86 | 91 | 100 |
| cM capacity (veh/h) | 1190 | | | 721 | | | 292 | 305 | 565 | 281 | 266 | 1110 |
| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 | | | | | | | | |
| Volume Total | 947 | 391 | 93 | 63 | | | | | | | | |
| Volume Left | 0 | 22 | 56 | 40 | | | | | | | | |
| Volume Right | 238 | 44 | 11 | 0 | | | | | | | | |
| cSH | 1190 | 721 | 313 | 275 | | | | | | | | |
| Volume to Capacity | 0.00 | 0.03 | 0.30 | 0.23 | | | | | | | | |
| Queue Length 95th (ft) | 0 | 2 | 30 | 22 | | | | | | | | |
| Control Delay (s) | 0.0 | 0.9 | 21.3 | 21.9 | | | | | | | | |
| Lane LOS | | A | C | C | | | | | | | | |
| Approach Delay (s) | 0.0 | 0.9 | 21.3 | 21.9 | | | | | | | | |
| Approach LOS | | | C | C | | | | | | | | |
| Intersection Summary | | | | | | | | | | | | |
| Average Delay | | | 2.5 | | | | | | | | | |
| Intersection Capacity Utilization | | | 61.5% | ICU Level of Service | | | | | B | | | |
| Analysis Period (min) | | | 15 | | | | | | | | | |
| * User Entered Value | | | | | | | | | | | | |

| Intersection | | | | | | | | | | | | |
|--------------------------|--------|--------------|------|--------|--------------|------|--------|--------------|------|--------|--------------|------|
| Int Delay, s/veh | 2.4 | | | | | | | | | | | |
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | | <div>↕</div> | | | <div>↕</div> | | | <div>↕</div> | | | <div>↕</div> | |
| Traffic Vol, veh/h | 0 | 674 | 226 | 21 | 309 | 42 | 53 | 25 | 10 | 38 | 22 | 0 |
| Future Vol, veh/h | 0 | 674 | 226 | 21 | 309 | 42 | 53 | 25 | 10 | 38 | 22 | 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 | - | - | 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 | 3 | 3 | 3 | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 0 | 709 | 238 | 22 | 325 | 44 | 56 | 26 | 11 | 40 | 23 | 0 |
| | | | | | | | | | | | | |
| Major/Minor | Major1 | | | Major2 | | | Minor1 | | | Minor2 | | |
| Conflicting Flow All | 369 | 0 | 0 | 947 | 0 | 0 | 1231 | 1242 | 828 | 1239 | 1339 | 347 |
| Stage 1 | - | - | - | - | - | - | 828 | 828 | - | 392 | 392 | - |
| Stage 2 | - | - | - | - | - | - | 403 | 414 | - | 847 | 947 | - |
| Critical Hdwy | 4.12 | - | - | 4.13 | - | - | 6 | 6 | 6 | 6 | 6 | 6 |
| 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 | - | - | 2.227 | - | - | 2 | 2 | 2 | 2 | 2 | 2 |
| Pot Cap-1 Maneuver | 1190 | - | - | 721 | - | - | 319 | 314 | 565 | 316 | 274 | 1110 |
| Stage 1 | - | - | - | - | - | - | 550 | 631 | - | 1029 | 1098 | - |
| Stage 2 | - | - | - | - | - | - | 1013 | 1068 | - | 535 | 542 | - |
| Platoon blocked, % | | - | - | | - | - | | | | | | |
| Mov Cap-1 Maneuver | 1190 | - | - | 721 | - | - | 289 | 302 | 565 | 281 | 263 | 1110 |
| Mov Cap-2 Maneuver | - | - | - | - | - | - | 289 | 302 | - | 281 | 263 | |
| Stage 1 | - | - | - | - | - | - | 550 | 631 | - | 1029 | 1055 | - |
| Stage 2 | - | - | - | - | - | - | 952 | 1026 | - | 503 | 542 | - |
| | | | | | | | | | | | | |
| Approach | EB | | | WB | | | NB | | | SB | | |
| HCM Control Delay, s | 0 | | | 0.6 | | | 21.5 | | | 22 | | |
| HCM LOS | | | | | | | C | | | C | | |
| | | | | | | | | | | | | |
| Minor Lane/Major Mvmt | NBLn1 | EBL | EBT | EBR | WBL | WBT | WBR | SBLn1 | | | | |
| Capacity (veh/h) | 310 | 1190 | - | - | 721 | - | - | 274 | | | | |
| HCM Lane V/C Ratio | 0.299 | - | - | - | 0.031 | - | - | 0.231 | | | | |
| HCM Control Delay (s) | 21.5 | 0 | - | - | 10.2 | 0 | - | 22 | | | | |
| HCM Lane LOS | C | A | - | - | B | A | - | C | | | | |
| HCM 95th %tile Q(veh) | 1.2 | 0 | - | - | 0.1 | - | - | 0.9 | | | | |

HCM Signalized Intersection Capacity Analysis

1: OR-99E & I-205 SB Ramps













07/07/2017

| |  | | | | | |
|-----------------------------------|-----------------------------------------------------------------------------------|-------|--------|------|---------------------------|-------|
| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
| Lane Configurations | ↖↗ | ↖ | ↖↖↖ | ↖ | ↖ | ↖↖↖ |
| Traffic Volume (vph) | 535 | 321 | 1622 | 388 | 859 | 1053 |
| Future Volume (vph) | 535 | 321 | 1622 | 388 | 859 | 1053 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 |
| Lane Util. Factor | 0.97 | 1.00 | 0.91 | 1.00 | 1.00 | 0.91 |
| Frpb, ped/bikes | 1.00 | 1.00 | 1.00 | 0.97 | 1.00 | 1.00 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.85 | 1.00 | 0.85 | 1.00 | 1.00 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (prot) | 3273 | 1509 | 4988 | 1510 | 1752 | 5036 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (perm) | 3273 | 1509 | 4988 | 1510 | 1752 | 5036 |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Adj. Flow (vph) | 563 | 338 | 1707 | 408 | 904 | 1108 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 287 | 0 | 0 |
| Lane Group Flow (vph) | 563 | 338 | 1707 | 121 | 904 | 1108 |
| Confl. Peds. (#/hr) | | | | 3 | 3 | |
| Heavy Vehicles (%) | 7% | 7% | 4% | 4% | 3% | 3% |
| Turn Type | Prot | pm+ov | NA | Perm | Prot | NA |
| Protected Phases | 8 | 1 | 2 | | 1 | 6 |
| Permitted Phases | | 8 | | 2 | | |
| Actuated Green, G (s) | 17.6 | 50.5 | 26.0 | 26.0 | 32.9 | 63.4 |
| Effective Green, g (s) | 17.6 | 50.5 | 26.0 | 26.0 | 32.9 | 63.4 |
| Actuated g/C Ratio | 0.20 | 0.56 | 0.29 | 0.29 | 0.37 | 0.70 |
| Clearance Time (s) | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 640 | 922 | 1440 | 436 | 640 | 3547 |
| v/s Ratio Prot | c0.17 | 0.13 | c0.34 | | c0.52 | 0.22 |
| v/s Ratio Perm | | 0.09 | | 0.08 | | |
| v/c Ratio | 0.88 | 0.37 | 1.19 | 0.28 | 1.41 | 0.31 |
| Uniform Delay, d1 | 35.2 | 10.9 | 32.0 | 24.7 | 28.6 | 5.0 |
| Progression Factor | 1.00 | 1.00 | 1.09 | 2.71 | 1.00 | 1.00 |
| Incremental Delay, d2 | 13.1 | 0.2 | 88.0 | 0.9 | 194.8 | 0.2 |
| Delay (s) | 48.3 | 11.2 | 122.8 | 67.9 | 223.4 | 5.3 |
| Level of Service | D | B | F | E | F | A |
| Approach Delay (s) | 34.4 | | 112.2 | | | 103.3 |
| Approach LOS | C | | F | | | F |
| Intersection Summary | | | | | | |
| HCM 2000 Control Delay | | | 94.7 | | HCM 2000 Level of Service | F |
| HCM 2000 Volume to Capacity ratio | | | 1.21 | | | |
| Actuated Cycle Length (s) | | | 90.0 | | Sum of lost time (s) | 13.5 |
| Intersection Capacity Utilization | | | 105.4% | | ICU Level of Service | G |
| Analysis Period (min) | | | 15 | | | |
| c Critical Lane Group | | | | | | |

HCM Signalized Intersection Capacity Analysis

2: OR-99E & I-205 NB Ramps










07/07/2017

| |  |  |  |  |  |  |
|-----------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
| Lane Configurations |  |  |  |  |  |  |
| Traffic Volume (vph) | 205 | 576 | 1468 | 1261 | 347 | 1213 |
| Future Volume (vph) | 205 | 576 | 1468 | 1261 | 347 | 1213 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 |
| Lane Util. Factor | 1.00 | 1.00 | 0.91 | 1.00 | 1.00 | 0.91 |
| Frpb, ped/bikes | 1.00 | 1.00 | 1.00 | 0.97 | 1.00 | 1.00 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.85 | 1.00 | 0.85 | 1.00 | 1.00 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (prot) | 1719 | 1538 | 4940 | 1496 | 1719 | 4940 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (perm) | 1719 | 1538 | 4940 | 1496 | 1719 | 4940 |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Adj. Flow (vph) | 216 | 606 | 1545 | 1327 | 365 | 1277 |
| RTOR Reduction (vph) | 0 | 225 | 0 | 328 | 0 | 0 |
| Lane Group Flow (vph) | 216 | 381 | 1545 | 999 | 365 | 1277 |
| Confl. Peds. (#/hr) | | | | 3 | 3 | |
| Heavy Vehicles (%) | 5% | 5% | 5% | 5% | 5% | 5% |
| Turn Type | Prot | Perm | NA | Perm | Prot | NA |
| Protected Phases | 8 | | 2 | | 1 | 6 |
| Permitted Phases | | 8 | | 2 | | |
| Actuated Green, G (s) | 18.5 | 18.5 | 43.5 | 43.5 | 14.5 | 62.5 |
| Effective Green, g (s) | 18.5 | 18.5 | 43.5 | 43.5 | 14.5 | 62.5 |
| Actuated g/C Ratio | 0.21 | 0.21 | 0.48 | 0.48 | 0.16 | 0.69 |
| Clearance Time (s) | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 353 | 316 | 2387 | 723 | 276 | 3430 |
| v/s Ratio Prot | 0.13 | | 0.31 | | 0.21 | 0.26 |
| v/s Ratio Perm | | 0.25 | | 0.67 | | |
| v/c Ratio | 0.61 | 1.21 | 0.65 | 1.38 | 1.32 | 0.37 |
| Uniform Delay, d1 | 32.5 | 35.8 | 17.5 | 23.2 | 37.8 | 5.7 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 0.80 | 1.83 |
| Incremental Delay, d2 | 3.1 | 118.8 | 1.4 | 180.6 | 165.7 | 0.3 |
| Delay (s) | 35.6 | 154.6 | 18.9 | 203.9 | 195.9 | 10.6 |
| Level of Service | D | F | B | F | F | B |
| Approach Delay (s) | 123.3 | | 104.3 | | | 51.8 |
| Approach LOS | F | | F | | | D |
| Intersection Summary | | | | | | |
| HCM 2000 Control Delay | | | 91.1 | | HCM 2000 Level of Service | F |
| HCM 2000 Volume to Capacity ratio | | | 1.33 | | | |
| Actuated Cycle Length (s) | | | 90.0 | | Sum of lost time (s) | 13.5 |
| Intersection Capacity Utilization | | | 105.1% | | ICU Level of Service | G |
| Analysis Period (min) | | | 15 | | | |
| c Critical Lane Group | | | | | | |

HCM Unsignalized Intersection Capacity Analysis

3: OR-99E & 15th Street

07/07/2017

| |  |  |  |  |  |  |
|-----------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
| Movement | NBT | NBR | SBL | SBT | NWL | NWR |
| Lane Configurations |  | | |  | |  |
| Traffic Volume (veh/h) | 2236 | 17 | 0 | 1409 | 0 | 298 |
| Future Volume (Veh/h) | 2236 | 17 | 0 | 1409 | 0 | 298 |
| Sign Control | Free | | | Free | Stop | |
| Grade | 0% | | | 0% | 0% | |
| Peak Hour Factor | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Hourly flow rate (vph) | 2354 | 18 | 0 | 1483 | 0 | 314 |
| Pedestrians | | | | | | |
| Lane Width (ft) | | | | | | |
| Walking Speed (ft/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | None | | | None | | |
| Median storage (veh) | | | | | | |
| Upstream signal (ft) | 335 | | | 372 | | |
| pX, platoon unblocked | | | 0.54 | | 0.59 | 0.54 |
| vC, conflicting volume | | | 2372 | | 2857 | 1186 |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | | | 1830 | | 1721 | 0 |
| tC, single (s) | | | 4.2 | | 6.8 | 6.9 |
| tC, 2 stage (s) | | | | | | |
| tF (s) | | | 2.3 | | 3.5 | 3.3 |
| p0 queue free % | | | 100 | | 100 | 46 |
| cM capacity (veh/h) | | | 168 | | 47 | 582 |
| Direction, Lane # | NB 1 | NB 2 | SB 1 | SB 2 | SB 3 | NW 1 |
| Volume Total | 1569 | 803 | 494 | 494 | 494 | 314 |
| Volume Left | 0 | 0 | 0 | 0 | 0 | 0 |
| Volume Right | 0 | 18 | 0 | 0 | 0 | 314 |
| cSH | 1700 | 1700 | 1700 | 1700 | 1700 | 582 |
| Volume to Capacity | 0.92 | 0.47 | 0.29 | 0.29 | 0.29 | 0.54 |
| Queue Length 95th (ft) | 0 | 0 | 0 | 0 | 0 | 80 |
| Control Delay (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 18.2 |
| Lane LOS | | | | | | C |
| Approach Delay (s) | 0.0 | | 0.0 | | | 18.2 |
| Approach LOS | | | | | | C |
| Intersection Summary | | | | | | |
| Average Delay | | | 1.4 | | | |
| Intersection Capacity Utilization | | | 87.5% | | ICU Level of Service | E |
| Analysis Period (min) | | | 15 | | | |

| Intersection | | | | | | |
|--------------------------|--------|------|--------|------|--------|------|
| Int Delay, s/veh | 5 | | | | | |
| Movement | NBT | NBR | SBL | SBT | NWL | NWR |
| Lane Configurations | ↑↑↱ | | | ↑↑↑↑ | | ↱↑ |
| Traffic Vol, veh/h | 2236 | 17 | 0 | 1409 | 0 | 298 |
| Future Vol, veh/h | 2236 | 17 | 0 | 1409 | 0 | 298 |
| 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, % | 6 | 6 | 6 | 6 | 2 | 2 |
| Mvmt Flow | 2354 | 18 | 0 | 1483 | 0 | 314 |
| | | | | | | |
| Major/Minor | Major1 | | Major2 | | Minor1 | |
| Conflicting Flow All | 0 | 0 | - | - | - | 1186 |
| Stage 1 | - | - | - | - | - | - |
| Stage 2 | - | - | - | - | - | - |
| Critical Hdwy | - | - | - | - | - | 6 |
| Critical Hdwy Stg 1 | - | - | - | - | - | - |
| Critical Hdwy Stg 2 | - | - | - | - | - | - |
| Follow-up Hdwy | - | - | - | - | - | 2 |
| Pot Cap-1 Maneuver | - | - | 0 | - | 0 | 340 |
| Stage 1 | - | - | 0 | - | 0 | - |
| Stage 2 | - | - | 0 | - | 0 | - |
| Platoon blocked, % | - | - | | - | | |
| Mov Cap-1 Maneuver | - | - | - | - | - | 340 |
| Mov Cap-2 Maneuver | - | - | - | - | - | - |
| Stage 1 | - | - | - | - | - | - |
| Stage 2 | - | - | - | - | - | - |
| | | | | | | |
| | | | | | | |
| Approach | NB | | SB | | NW | |
| HCM Control Delay, s | 0 | | 0 | | 66.7 | |
| HCM LOS | | | | | F | |
| | | | | | | |
| | | | | | | |
| Minor Lane/Major Mvmt | NBT | NBR | NWLn1 | SBT | | |
| Capacity (veh/h) | - | - | 340 | - | | |
| HCM Lane V/C Ratio | - | - | 0.923 | - | | |
| HCM Control Delay (s) | - | - | 66.7 | - | | |
| HCM Lane LOS | - | - | F | - | | |
| HCM 95th %tile Q(veh) | - | - | 9.3 | - | | |

HCM Signalized Intersection Capacity Analysis

4: OR-99E & 14th Street























07/07/2017

| | ↑ | ↖ | ↙ | ↓ | ↘ | ↗ |
|-----------------------------------|-------|------|-------|------|---------------------------|-------|
| Movement | NBT | NBR | SBL | SBT | NWL | NWR |
| Lane Configurations | ↑↑ | | ↖ | ↑↑ | ↖ | ↗ |
| Traffic Volume (vph) | 1695 | 32 | 420 | 1069 | 102 | 666 |
| Future Volume (vph) | 1695 | 32 | 420 | 1069 | 102 | 666 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.5 | | 4.5 | 4.5 | 4.5 | 4.5 |
| Lane Util. Factor | 0.95 | | 1.00 | 0.95 | 1.00 | 1.00 |
| Frpb, ped/bikes | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 |
| Flpb, ped/bikes | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | | 1.00 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 1.00 | | 0.95 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (prot) | 3395 | | 1703 | 3406 | 1736 | 1553 |
| Flt Permitted | 1.00 | | 0.08 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (perm) | 3395 | | 139 | 3406 | 1736 | 1553 |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Adj. Flow (vph) | 1784 | 34 | 442 | 1125 | 107 | 701 |
| RTOR Reduction (vph) | 2 | 0 | 0 | 0 | 0 | 4 |
| Lane Group Flow (vph) | 1816 | 0 | 442 | 1125 | 107 | 697 |
| Confl. Peds. (#/hr) | | 1 | 1 | | 3 | |
| Heavy Vehicles (%) | 6% | 6% | 6% | 6% | 4% | 4% |
| Turn Type | NA | | pm+pt | NA | Prot | pm+ov |
| Protected Phases | 2 | | 1 | 6 | 4 | 1 |
| Permitted Phases | | | 6 | | | 4 |
| Actuated Green, G (s) | 47.0 | | 79.5 | 79.5 | 11.5 | 39.5 |
| Effective Green, g (s) | 47.0 | | 79.5 | 79.5 | 11.5 | 39.5 |
| Actuated g/C Ratio | 0.47 | | 0.80 | 0.80 | 0.12 | 0.40 |
| Clearance Time (s) | 4.5 | | 4.5 | 4.5 | 4.5 | 4.5 |
| Vehicle Extension (s) | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 1595 | | 548 | 2707 | 199 | 683 |
| v/s Ratio Prot | c0.53 | | 0.23 | 0.33 | 0.06 | c0.29 |
| v/s Ratio Perm | | | 0.41 | | | 0.16 |
| v/c Ratio | 1.14 | | 0.81 | 0.42 | 0.54 | 1.02 |
| Uniform Delay, d1 | 26.5 | | 27.7 | 3.1 | 41.7 | 30.2 |
| Progression Factor | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 70.7 | | 8.5 | 0.1 | 2.8 | 39.9 |
| Delay (s) | 97.2 | | 36.2 | 3.2 | 44.5 | 70.1 |
| Level of Service | F | | D | A | D | E |
| Approach Delay (s) | 97.2 | | | 12.5 | 66.7 | |
| Approach LOS | F | | | B | E | |
| Intersection Summary | | | | | | |
| HCM 2000 Control Delay | | | 59.7 | | HCM 2000 Level of Service | E |
| HCM 2000 Volume to Capacity ratio | | | 1.14 | | | |
| Actuated Cycle Length (s) | | | 100.0 | | Sum of lost time (s) | 13.5 |
| Intersection Capacity Utilization | | | 96.6% | | ICU Level of Service | F |
| Analysis Period (min) | | | 15 | | | |
| c Critical Lane Group | | | | | | |

HCM Signalized Intersection Capacity Analysis

5: Redland Road & Abernethy Road/Holcomb Boulevard






















07/07/2017

| |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations |  |  | |  |  |  |  |  | |  |  |  |
| Traffic Volume (vph) | 33 | 124 | 63 | 43 | 256 | 414 | 279 | 563 | 41 | 193 | 398 | 73 |
| Future Volume (vph) | 33 | 124 | 63 | 43 | 256 | 414 | 279 | 563 | 41 | 193 | 398 | 73 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.5 | 4.5 | | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | | 4.5 | 4.5 | 4.5 |
| Lane Util. Factor | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frpb, ped/bikes | 1.00 | 0.99 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.95 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.99 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1656 | 1643 | | 1752 | 1845 | 1568 | 1752 | 1826 | | 1736 | 1827 | 1553 |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1656 | 1643 | | 1752 | 1845 | 1568 | 1752 | 1826 | | 1736 | 1827 | 1553 |
| 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) | 35 | 131 | 66 | 45 | 269 | 436 | 294 | 593 | 43 | 203 | 419 | 77 |
| RTOR Reduction (vph) | 0 | 25 | 0 | 0 | 0 | 124 | 0 | 3 | 0 | 0 | 0 | 51 |
| Lane Group Flow (vph) | 35 | 172 | 0 | 45 | 269 | 312 | 294 | 633 | 0 | 203 | 419 | 26 |
| Confl. Peds. (#/hr) | | | 1 | 1 | | | | | | | | |
| Heavy Vehicles (%) | 9% | 9% | 9% | 3% | 3% | 3% | 3% | 3% | 3% | 4% | 4% | 4% |
| Turn Type | Prot | NA | | Prot | NA | pm+ov | Prot | NA | | Prot | NA | pm+ov |
| Protected Phases | 7 | 4 | | 3 | 8 | 1 | 5 | 2 | | 1 | 6 | 7 |
| Permitted Phases | | | | | | 8 | | | | | | 6 |
| Actuated Green, G (s) | 3.8 | 16.4 | | 2.8 | 15.4 | 24.8 | 13.6 | 25.0 | | 9.4 | 20.8 | 24.6 |
| Effective Green, g (s) | 3.8 | 16.4 | | 2.8 | 15.4 | 24.8 | 13.6 | 25.0 | | 9.4 | 20.8 | 24.6 |
| Actuated g/C Ratio | 0.05 | 0.23 | | 0.04 | 0.22 | 0.35 | 0.19 | 0.35 | | 0.13 | 0.29 | 0.34 |
| Clearance Time (s) | 4.5 | 4.5 | | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | | 4.5 | 4.5 | 4.5 |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 87 | 376 | | 68 | 396 | 641 | 332 | 637 | | 227 | 530 | 631 |
| v/s Ratio Prot | 0.02 | 0.10 | | c0.03 | c0.15 | 0.06 | c0.17 | c0.35 | | 0.12 | 0.23 | 0.00 |
| v/s Ratio Perm | | | | | | 0.14 | | | | | | 0.01 |
| v/c Ratio | 0.40 | 0.46 | | 0.66 | 0.68 | 0.49 | 0.89 | 0.99 | | 0.89 | 0.79 | 0.04 |
| Uniform Delay, d1 | 32.8 | 23.8 | | 33.9 | 25.8 | 18.4 | 28.2 | 23.2 | | 30.6 | 23.4 | 15.7 |
| 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 | 3.0 | 0.9 | | 21.6 | 4.6 | 0.6 | 23.3 | 33.8 | | 32.7 | 7.9 | 0.0 |
| Delay (s) | 35.8 | 24.7 | | 55.5 | 30.4 | 19.0 | 51.6 | 57.0 | | 63.3 | 31.3 | 15.7 |
| Level of Service | D | C | | E | C | B | D | E | | E | C | B |
| Approach Delay (s) | | 26.3 | | | 25.3 | | | 55.3 | | | 38.9 | |
| Approach LOS | | C | | | C | | | E | | | D | |
| Intersection Summary | | | | | | | | | | | | |
| HCM 2000 Control Delay | | | 39.7 | | | | HCM 2000 Level of Service | | | D | | |
| HCM 2000 Volume to Capacity ratio | | | 0.88 | | | | | | | | | |
| Actuated Cycle Length (s) | | | 71.6 | | | | Sum of lost time (s) | | | 18.0 | | |
| Intersection Capacity Utilization | | | 75.4% | | | | ICU Level of Service | | | D | | |
| Analysis Period (min) | | | 15 | | | | | | | | | |
| c Critical Lane Group | | | | | | | | | | | | |

HCM Signalized Intersection Capacity Analysis

6: Washington Street & Abernethy Road



















07/07/2017

| |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement | SEL | SET | SER | NWL | NWT | NWR | NEL | NET | NER | SWL | SWT | SWR |
| Lane Configurations | |  | |  |  | |  |  |  |  |  |  |
| Traffic Volume (vph) | 0 | 1 | 0 | 555 | 1 | 39 | 1 | 215 | 206 | 21 | 523 | 0 |
| Future Volume (vph) | 0 | 1 | 0 | 555 | 1 | 39 | 1 | 215 | 206 | 21 | 523 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.5 | | 4.5 | 4.5 | | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | |
| Lane Util. Factor | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frpb, ped/bikes | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | |
| Flpb, ped/bikes | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | | 1.00 | | 1.00 | 0.85 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | |
| Flt Protected | | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | | 1900 | | 1716 | 1544 | | 1701 | 1792 | 1491 | 1734 | 1827 | |
| Flt Permitted | | 1.00 | | 0.76 | 1.00 | | 0.20 | 1.00 | 1.00 | 0.57 | 1.00 | |
| Satd. Flow (perm) | | 1900 | | 1368 | 1544 | | 360 | 1792 | 1491 | 1045 | 1827 | |
| 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 | 1 | 0 | 617 | 1 | 43 | 1 | 239 | 229 | 23 | 581 | 0 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 22 | 0 | 0 | 0 | 149 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 0 | 1 | 0 | 617 | 22 | 0 | 1 | 239 | 80 | 23 | 581 | 0 |
| Confl. Peds. (#/hr) | | | 1 | 1 | | | 3 | | 1 | 1 | | 3 |
| Heavy Vehicles (%) | 0% | 0% | 0% | 5% | 5% | 5% | 6% | 6% | 6% | 4% | 4% | 4% |
| Turn Type | | NA | | Perm | NA | | Perm | NA | Perm | Perm | NA | |
| Protected Phases | | 6 | | | 2 | | | 4 | | | | 8 |
| Permitted Phases | 6 | | | 2 | | | 4 | | 4 | 8 | | |
| Actuated Green, G (s) | | 28.4 | | 28.4 | 28.4 | | 19.9 | 19.9 | 19.9 | 19.9 | 19.9 | |
| Effective Green, g (s) | | 28.4 | | 28.4 | 28.4 | | 19.9 | 19.9 | 19.9 | 19.9 | 19.9 | |
| Actuated g/C Ratio | | 0.50 | | 0.50 | 0.50 | | 0.35 | 0.35 | 0.35 | 0.35 | 0.35 | |
| Clearance Time (s) | | 4.5 | | 4.5 | 4.5 | | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | |
| Vehicle Extension (s) | | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | | 941 | | 678 | 765 | | 125 | 622 | 517 | 362 | 634 | |
| v/s Ratio Prot | | 0.00 | | | 0.01 | | | 0.13 | | | c0.32 | |
| v/s Ratio Perm | | | | c0.45 | | | 0.00 | | 0.05 | 0.02 | | |
| v/c Ratio | | 0.00 | | 0.91 | 0.03 | | 0.01 | 0.38 | 0.15 | 0.06 | 0.92 | |
| Uniform Delay, d1 | | 7.3 | | 13.3 | 7.4 | | 12.2 | 14.1 | 12.9 | 12.5 | 17.9 | |
| Progression Factor | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | | 0.0 | | 16.4 | 0.0 | | 0.0 | 0.4 | 0.1 | 0.1 | 18.0 | |
| Delay (s) | | 7.3 | | 29.6 | 7.4 | | 12.3 | 14.5 | 13.0 | 12.6 | 35.9 | |
| Level of Service | | A | | C | A | | B | B | B | B | D | |
| Approach Delay (s) | | 7.3 | | | 28.2 | | | 13.8 | | | 35.0 | |
| Approach LOS | | A | | | C | | | B | | | D | |
| Intersection Summary | | | | | | | | | | | | |
| HCM 2000 Control Delay | | | 26.7 | | | | | | | | | HCM 2000 Level of Service C |
| HCM 2000 Volume to Capacity ratio | | | 0.91 | | | | | | | | | |
| Actuated Cycle Length (s) | | | 57.3 | | | | | | | | | Sum of lost time (s) 9.0 |
| Intersection Capacity Utilization | | | 72.4% | | | | | | | | | ICU Level of Service C |
| Analysis Period (min) | | | 15 | | | | | | | | | |
| c Critical Lane Group | | | | | | | | | | | | |

HCM Signalized Intersection Capacity Analysis

7: Washington Street & 15th Street




















07/07/2017

| |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement | SEL | SET | SER | NWL | NWT | NWR | NEL | NET | NER | SWL | SWT | SWR |
| Lane Configurations | |  | | |  | |  |  | |  |  | |
| Traffic Volume (vph) | 19 | 20 | 19 | 14 | 92 | 44 | 36 | 376 | 122 | 70 | 717 | 278 |
| Future Volume (vph) | 19 | 20 | 19 | 14 | 92 | 44 | 36 | 376 | 122 | 70 | 717 | 278 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.5 | | | 4.5 | | 4.5 | 4.5 | | 4.5 | 4.5 | |
| Lane Util. Factor | | 1.00 | | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frpb, ped/bikes | | 0.99 | | | 0.99 | | 1.00 | 0.99 | | 1.00 | 0.99 | |
| Flpb, ped/bikes | | 1.00 | | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | | 0.96 | | | 0.96 | | 1.00 | 0.96 | | 1.00 | 0.96 | |
| Flt Protected | | 0.98 | | | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | | 1477 | | | 1669 | | 1703 | 1717 | | 1735 | 1739 | |
| Flt Permitted | | 0.82 | | | 0.97 | | 0.07 | 1.00 | | 0.37 | 1.00 | |
| Satd. Flow (perm) | | 1236 | | | 1624 | | 132 | 1717 | | 681 | 1739 | |
| 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) | 21 | 22 | 21 | 16 | 102 | 49 | 40 | 418 | 136 | 78 | 797 | 309 |
| RTOR Reduction (vph) | 0 | 18 | 0 | 0 | 18 | 0 | 0 | 11 | 0 | 0 | 13 | 0 |
| Lane Group Flow (vph) | 0 | 46 | 0 | 0 | 149 | 0 | 40 | 543 | 0 | 78 | 1093 | 0 |
| Confl. Peds. (#/hr) | 1 | | 1 | 1 | | 1 | 1 | | 1 | 1 | | 1 |
| Confl. Bikes (#/hr) | | | | | | 1 | | | | | | |
| Heavy Vehicles (%) | 20% | 20% | 20% | 8% | 8% | 8% | 6% | 6% | 6% | 4% | 4% | 4% |
| Turn Type | Perm | NA | | Perm | NA | | pm+pt | NA | | pm+pt | NA | |
| Protected Phases | | 4 | | | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | | 8 | | | 2 | | | 6 | | |
| Actuated Green, G (s) | | 12.6 | | | 12.6 | | 58.1 | 55.2 | | 60.9 | 56.6 | |
| Effective Green, g (s) | | 12.6 | | | 12.6 | | 58.1 | 55.2 | | 60.9 | 56.6 | |
| Actuated g/C Ratio | | 0.15 | | | 0.15 | | 0.68 | 0.64 | | 0.71 | 0.66 | |
| Clearance Time (s) | | 4.5 | | | 4.5 | | 4.5 | 4.5 | | 4.5 | 4.5 | |
| Vehicle Extension (s) | | 3.0 | | | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | | 181 | | | 239 | | 142 | 1107 | | 537 | 1149 | |
| v/s Ratio Prot | | | | | | | c0.01 | 0.32 | | 0.01 | c0.63 | |
| v/s Ratio Perm | | 0.04 | | | c0.09 | | 0.18 | | | 0.10 | | |
| v/c Ratio | | 0.25 | | | 0.62 | | 0.28 | 0.49 | | 0.15 | 0.95 | |
| Uniform Delay, d1 | | 32.3 | | | 34.3 | | 14.9 | 7.9 | | 4.4 | 13.2 | |
| Progression Factor | | 1.00 | | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | | 0.7 | | | 5.0 | | 1.1 | 0.3 | | 0.1 | 16.2 | |
| Delay (s) | | 33.1 | | | 39.3 | | 16.0 | 8.2 | | 4.6 | 29.4 | |
| Level of Service | | C | | | D | | B | A | | A | C | |
| Approach Delay (s) | | 33.1 | | | 39.3 | | | 8.8 | | | 27.8 | |
| Approach LOS | | C | | | D | | | A | | | C | |
| Intersection Summary | | | | | | | | | | | | |
| HCM 2000 Control Delay | | 23.3 | | | HCM 2000 Level of Service | | | C | | | | |
| HCM 2000 Volume to Capacity ratio | | 0.87 | | | | | | | | | | |
| Actuated Cycle Length (s) | | 85.6 | | | Sum of lost time (s) | | | 13.5 | | | | |
| Intersection Capacity Utilization | | 74.6% | | | ICU Level of Service | | | D | | | | |
| Analysis Period (min) | | 15 | | | | | | | | | | |
| c Critical Lane Group | | | | | | | | | | | | |

HCM Signalized Intersection Capacity Analysis

8: Washington Street & 14th Street



















07/07/2017







| |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement | SEL | SET | SER | NWL | NWT | NWR | NEL | NET | NER | SWL | SWT | SWR |
| Lane Configurations | |  |  | |  | |  |  | |  |  | |
| Traffic Volume (vph) | 244 | 46 | 152 | 4 | 53 | 4 | 420 | 269 | 10 | 1 | 373 | 396 |
| Future Volume (vph) | 244 | 46 | 152 | 4 | 53 | 4 | 420 | 269 | 10 | 1 | 373 | 396 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.5 | 4.5 | | 4.5 | | 4.5 | 4.5 | | 4.5 | 4.5 | |
| Lane Util. Factor | | 1.00 | 1.00 | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frpb, ped/bikes | | 1.00 | 0.97 | | 1.00 | | 1.00 | 1.00 | | 1.00 | 0.99 | |
| Flpb, ped/bikes | | 1.00 | 1.00 | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | | 1.00 | 0.85 | | 0.99 | | 1.00 | 0.99 | | 1.00 | 0.92 | |
| Flt Protected | | 0.96 | 1.00 | | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | | 1750 | 1506 | | 1838 | | 1752 | 1833 | | 1716 | 1645 | |
| Flt Permitted | | 0.76 | 1.00 | | 0.98 | | 0.08 | 1.00 | | 0.58 | 1.00 | |
| Satd. Flow (perm) | | 1393 | 1506 | | 1803 | | 154 | 1833 | | 1048 | 1645 | |
| 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 | 48 | 160 | 4 | 56 | 4 | 442 | 283 | 11 | 1 | 393 | 417 |
| RTOR Reduction (vph) | 0 | 0 | 127 | 0 | 2 | 0 | 0 | 1 | 0 | 0 | 41 | 0 |
| Lane Group Flow (vph) | 0 | 305 | 33 | 0 | 62 | 0 | 442 | 293 | 0 | 1 | 769 | 0 |
| Confl. Peds. (#/hr) | 1 | | 4 | 4 | | 1 | 3 | | 2 | 2 | | 3 |
| Confl. Bikes (#/hr) | | | | | | | | | | | | 1 |
| Heavy Vehicles (%) | 4% | 4% | 4% | 2% | 2% | 2% | 3% | 3% | 3% | 5% | 5% | 5% |
| Turn Type | Perm | NA | Perm | Perm | NA | | pm+pt | NA | | pm+pt | NA | |
| Protected Phases | | 4 | | | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | 4 | 8 | | | 2 | | | 6 | | |
| Actuated Green, G (s) | | 19.1 | 19.1 | | 19.1 | | 65.5 | 60.0 | | 44.4 | 43.4 | |
| Effective Green, g (s) | | 19.1 | 19.1 | | 19.1 | | 65.5 | 60.0 | | 44.4 | 43.4 | |
| Actuated g/C Ratio | | 0.20 | 0.20 | | 0.20 | | 0.70 | 0.64 | | 0.47 | 0.46 | |
| Clearance Time (s) | | 4.5 | 4.5 | | 4.5 | | 4.5 | 4.5 | | 4.5 | 4.5 | |
| Vehicle Extension (s) | | 3.0 | 3.0 | | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | | 284 | 307 | | 367 | | 408 | 1175 | | 504 | 762 | |
| v/s Ratio Prot | | | | | | | c0.20 | 0.16 | | 0.00 | 0.47 | |
| v/s Ratio Perm | | c0.22 | 0.02 | | 0.03 | | c0.55 | | | 0.00 | | |
| v/c Ratio | | 1.07 | 0.11 | | 0.17 | | 1.08 | 0.25 | | 0.00 | 1.01 | |
| Uniform Delay, d1 | | 37.2 | 30.3 | | 30.7 | | 30.2 | 7.2 | | 12.9 | 25.1 | |
| Progression Factor | | 1.00 | 1.00 | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | | 74.4 | 0.2 | | 0.2 | | 68.8 | 0.1 | | 0.0 | 35.0 | |
| Delay (s) | | 111.7 | 30.5 | | 30.9 | | 99.0 | 7.3 | | 12.9 | 60.1 | |
| Level of Service | | F | C | | C | | F | A | | B | E | |
| Approach Delay (s) | | 83.7 | | | 30.9 | | | 62.4 | | | 60.0 | |
| Approach LOS | | F | | | C | | | E | | | E | |
| Intersection Summary | | | | | | | | | | | | |
| HCM 2000 Control Delay | | | 65.3 | | | | HCM 2000 Level of Service | | | E | | |
| HCM 2000 Volume to Capacity ratio | | | 1.12 | | | | | | | | | |
| Actuated Cycle Length (s) | | | 93.6 | | | | Sum of lost time (s) | | | 13.5 | | |
| Intersection Capacity Utilization | | | 101.1% | | | | ICU Level of Service | | | G | | |
| Analysis Period (min) | | | 15 | | | | | | | | | |
| c Critical Lane Group | | | | | | | | | | | | |

HCM Unsignalized Intersection Capacity Analysis

9: Main Street & 14th Street

07/07/2017

| |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement | SEL | SET | SER | NWL | NWT | NWR | NEL | NET | NER | SWL | SWT | SWR |
| Lane Configurations |  |  | | |  | | |  |  | |  | |
| Traffic Volume (veh/h) | 29 | 380 | 37 | 168 | 747 | 16 | 7 | 33 | 76 | 0 | 16 | 14 |
| Future Volume (Veh/h) | 29 | 380 | 37 | 168 | 747 | 16 | 7 | 33 | 76 | 0 | 16 | 14 |
| Sign Control | | Free | | | Free | | | Stop | | | Stop | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Hourly flow rate (vph) | 31 | 400 | 39 | 177 | 786 | 17 | 7 | 35 | 80 | 0 | 17 | 15 |
| Pedestrians | | 2 | | | 10 | | | 4 | | | | |
| Lane Width (ft) | | 12.0 | | | 12.0 | | | 12.0 | | | | |
| Walking Speed (ft/s) | | 3.5 | | | 3.5 | | | 3.5 | | | | |
| Percent Blockage | | 0 | | | 1 | | | 0 | | | | |
| Right turn flare (veh) | | | | | | | | | 5 | | | |
| Median type | | None | | | None | | | | | | | |
| Median storage (veh) | | | | | | | | | | | | |
| Upstream signal (ft) | | 187 | | | 537 | | | | | | | |
| pX, platoon unblocked | 0.88 | | | | | | 0.88 | 0.88 | | 0.88 | 0.88 | 0.88 |
| vC, conflicting volume | 803 | | | 443 | | | 1660 | 1642 | 434 | 1678 | 1654 | 796 |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 712 | | | 443 | | | 1680 | 1661 | 434 | 1701 | 1674 | 705 |
| tC, single (s) | 4.1 | | | 4.1 | | | 7.2 | 6.6 | 6.3 | 7.1 | 6.5 | 6.2 |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 2.2 | | | 2.2 | | | 3.6 | 4.1 | 3.4 | 3.5 | 4.0 | 3.3 |
| p0 queue free % | 96 | | | 84 | | | 83 | 47 | 87 | 100 | 75 | 96 |
| cM capacity (veh/h) | 777 | | | 1108 | | | 42 | 67 | 600 | 28 | 69 | 388 |
| Direction, Lane # | SE 1 | SE 2 | NW 1 | NE 1 | SW 1 | | | | | | | |
| Volume Total | 31 | 439 | 980 | 122 | 32 | | | | | | | |
| Volume Left | 31 | 0 | 177 | 7 | 0 | | | | | | | |
| Volume Right | 0 | 39 | 17 | 80 | 15 | | | | | | | |
| cSH | 777 | 1700 | 1108 | 182 | 112 | | | | | | | |
| Volume to Capacity | 0.04 | 0.26 | 0.16 | 0.67 | 0.29 | | | | | | | |
| Queue Length 95th (ft) | 3 | 0 | 14 | 100 | 27 | | | | | | | |
| Control Delay (s) | 9.8 | 0.0 | 3.8 | 56.0 | 49.6 | | | | | | | |
| Lane LOS | A | | A | F | E | | | | | | | |
| Approach Delay (s) | 0.6 | | 3.8 | 56.0 | 49.6 | | | | | | | |
| Approach LOS | | | | F | E | | | | | | | |
| Intersection Summary | | | | | | | | | | | | |
| Average Delay | | | 7.8 | | | | | | | | | |
| Intersection Capacity Utilization | | | 91.2% | | ICU Level of Service | | | | F | | | |
| Analysis Period (min) | | | 15 | | | | | | | | | |

| Intersection | | | | | | | | | | | | |
|--------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------|------|-----------------------------------------------------------------------------------|------|------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|------|-------------------------------------------------------------------------------------|------|
| Int Delay, s/veh | 6.7 | | | | | | | | | | | |
| Movement | SEL | SET | SER | NWL | NWT | NWR | NEL | NET | NER | SWL | SWT | SWR |
| Lane Configurations |  |  | | |  | | |  |  | |  | |
| Traffic Vol, veh/h | 29 | 380 | 37 | 168 | 747 | 16 | 7 | 33 | 76 | 0 | 16 | 14 |
| Future Vol, veh/h | 29 | 380 | 37 | 168 | 747 | 16 | 7 | 33 | 76 | 0 | 16 | 14 |
| Conflicting Peds, #/hr | 0 | 0 | 4 | 4 | 0 | 0 | 2 | 0 | 10 | 10 | 0 | 2 |
| Sign Control | Free | Free | Free | Free | Free | Free | Stop | Stop | Stop | Stop | Stop | Stop |
| RT Channelized | - | - | None | - | - | None | - | - | None | - | - | None |
| Storage Length | 0 | - | - | - | - | - | - | - | 130 | - | - | - |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 95 | 95 | 95 | 95 | 95 | 95 | 95 | 95 | 95 | 95 | 95 | 95 |
| Heavy Vehicles, % | 4 | 4 | 4 | 3 | 3 | 3 | 9 | 9 | 9 | 0 | 0 | 0 |
| Mvmt Flow | 31 | 400 | 39 | 177 | 786 | 17 | 7 | 35 | 80 | 0 | 17 | 15 |

| Major/Minor | Major1 | | | Major2 | | | Minor1 | | | Minor2 | | |
|----------------------|--------|---|---|--------|---|---|--------|-------|-------|--------|------|-----|
| Conflicting Flow All | 803 | 0 | 0 | 443 | 0 | 0 | 1651 | 1642 | 433 | 1656 | 1652 | 797 |
| Stage 1 | - | - | - | - | - | - | 485 | 485 | - | 1148 | 1148 | - |
| Stage 2 | - | - | - | - | - | - | 1166 | 1157 | - | 508 | 504 | - |
| Critical Hdwy | 4.14 | - | - | 4.13 | - | - | 7.19 | 6.59 | 6.29 | 7.1 | 6.5 | 6.2 |
| Critical Hdwy Stg 1 | - | - | - | - | - | - | 6.19 | 5.59 | - | 6.1 | 5.5 | - |
| Critical Hdwy Stg 2 | - | - | - | - | - | - | 6.19 | 5.59 | - | 6.1 | 5.5 | - |
| Follow-up Hdwy | 2.236 | - | - | 2.227 | - | - | 3.581 | 4.081 | 3.381 | 3.5 | 4 | 3.3 |
| Pot Cap-1 Maneuver | 812 | - | - | 1112 | - | - | 76 | 96 | 608 | 79 | 100 | 390 |
| Stage 1 | - | - | - | - | - | - | 550 | 540 | - | 244 | 276 | - |
| Stage 2 | - | - | - | - | - | - | 229 | 263 | - | 551 | 544 | - |
| Platoon blocked, % | | - | - | | - | - | | | | | | |
| Mov Cap-1 Maneuver | 810 | - | - | 1101 | - | - | 45 | 65 | 600 | 30 | 68 | 389 |
| Mov Cap-2 Maneuver | - | - | - | - | - | - | 45 | 65 | - | 30 | 68 | - |
| Stage 1 | - | - | - | - | - | - | 527 | 517 | - | 235 | 196 | - |
| Stage 2 | - | - | - | - | - | - | 143 | 186 | - | 424 | 521 | - |

| Approach | SE | NW | NE | SW |
|----------------------|-----|-----|------|------|
| HCM Control Delay, s | 0.6 | 1.6 | 59.9 | 49.8 |
| HCM LOS | | | F | E |






| Minor Lane/Major Mvmt | NELn1 | NELn2 | NWL | NWT | NWR | SEL | SET | SERSWLn1 |
|-----------------------|-------|-------|-------|-----|-----|-------|-----|----------|
| Capacity (veh/h) | 60 | 600 | 1101 | - | - | 810 | - | - 111 |
| HCM Lane V/C Ratio | 0.702 | 0.133 | 0.161 | - | - | 0.038 | - | - 0.284 |
| HCM Control Delay (s) | 151 | 11.9 | 8.9 | 0 | - | 9.6 | - | - 49.8 |
| HCM Lane LOS | F | B | A | A | - | A | - | - E |
| HCM 95th %tile Q(veh) | 3 | 0.5 | 0.6 | - | - | 0.1 | - | - 1.1 |

HCM Unsignalized Intersection Capacity Analysis

101: OR-213 & I-205 SB Ramps

07/07/2017








| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|-----------------------------------|-----------------------------------------------------------------------------------|------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
| Lane Configurations |  | |  |  |  |  |
| Traffic Volume (veh/h) | 20 | 0 | 1049 | 36 | 26 | 6 |
| Future Volume (Veh/h) | 20 | 0 | 1049 | 36 | 26 | 6 |
| Sign Control | Stop | | | Free | Free | |
| Grade | 0% | | | 0% | 0% | |
| Peak Hour Factor | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Hourly flow rate (vph) | 21 | 0 | 1104 | 38 | 27 | 6 |
| Pedestrians | | | | | | |
| Lane Width (ft) | | | | | | |
| Walking Speed (ft/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | | | | None | None | |
| Median storage veh | | | | | | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 2273 | 27 | 27 | | | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 2273 | 27 | 27 | | | |
| tC, single (s) | *6.0 | 6.3 | 4.1 | | | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | *2.0 | 3.4 | 2.2 | | | |
| p0 queue free % | 1 | 100 | 30 | | | |
| cM capacity (veh/h) | 21 | 1037 | 1568 | | | |
| Direction, Lane # | EB 1 | NB 1 | NB 2 | SB 1 | SB 2 | |
| Volume Total | 21 | 1104 | 38 | 27 | 6 | |
| Volume Left | 21 | 1104 | 0 | 0 | 0 | |
| Volume Right | 0 | 0 | 0 | 0 | 6 | |
| cSH | 21 | 1568 | 1700 | 1700 | 1700 | |
| Volume to Capacity | 0.99 | 0.70 | 0.02 | 0.02 | 0.00 | |
| Queue Length 95th (ft) | 70 | 161 | 0 | 0 | 0 | |
| Control Delay (s) | 447.4 | 12.6 | 0.0 | 0.0 | 0.0 | |
| Lane LOS | F | B | | | | |
| Approach Delay (s) | 447.4 | 12.1 | | 0.0 | | |
| Approach LOS | F | | | | | |
| Intersection Summary | | | | | | |
| Average Delay | | | 19.4 | | | |
| Intersection Capacity Utilization | | | 74.8% | ICU Level of Service | | D |
| Analysis Period (min) | | | 15 | | | |

* User Entered Value

Intersection

Int Delay, s/veh 19.7

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|--------------------------|-----------------------------------------------------------------------------------|------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Lane Configurations |  | |  |  |  |  |
| Traffic Vol, veh/h | 20 | 0 | 1049 | 36 | 26 | 6 |
| Future Vol, veh/h | 20 | 0 | 1049 | 36 | 26 | 6 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Free | Free | Free | Free |
| RT Channelized | - | None | - | None | - | Free |
| Storage Length | 0 | - | 0 | - | - | 0 |
| Veh in Median Storage, # | 0 | - | - | 0 | 0 | - |
| Grade, % | 0 | - | - | 0 | 0 | - |
| Peak Hour Factor | 95 | 95 | 95 | 95 | 95 | 95 |
| Heavy Vehicles, % | 6 | 6 | 5 | 5 | 18 | 18 |
| Mvmt Flow | 21 | 0 | 1104 | 38 | 27 | 6 |

| Major/Minor | Minor2 | | Major1 | | Major2 | |
|----------------------|--------|---|--------|---|--------|---|
| Conflicting Flow All | 2273 | - | 27 | 0 | - | 0 |
| Stage 1 | 27 | - | - | - | - | - |
| Stage 2 | 2246 | - | - | - | - | - |
| Critical Hdwy | 6 | - | 4.15 | - | - | - |
| Critical Hdwy Stg 1 | 5.46 | - | - | - | - | - |
| Critical Hdwy Stg 2 | 5.46 | - | - | - | - | - |
| Follow-up Hdwy | 2 | - | 2.245 | - | - | - |
| Pot Cap-1 Maneuver | 72 | 0 | 1568 | - | - | 0 |
| Stage 1 | 1741 | 0 | - | - | - | 0 |
| Stage 2 | 104 | 0 | - | - | - | 0 |
| Platoon blocked, % | | | | - | | - |
| Mov Cap-1 Maneuver | ~ 21 | - | 1568 | - | - | - |
| Mov Cap-2 Maneuver | ~ 21 | - | - | - | - | - |
| Stage 1 | 1741 | - | - | - | - | - |
| Stage 2 | 31 | - | - | - | - | - |

| Approach | EB | NB | SB |
|----------------------|----------|------|----|
| HCM Control Delay, s | \$ 455.1 | 12.1 | 0 |
| HCM LOS | F | | |

| Minor Lane/Major Mvmt | NBL | NBT | EBLn1 | SBT |
|-----------------------|-------|-----|----------|-----|
| Capacity (veh/h) | 1568 | - | 21 | - |
| HCM Lane V/C Ratio | 0.704 | - | 1.003 | - |
| HCM Control Delay (s) | 12.6 | - | \$ 455.1 | - |
| HCM Lane LOS | B | - | F | - |
| HCM 95th %tile Q(veh) | 6.4 | - | 2.8 | - |

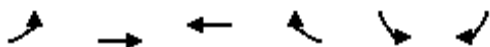
Notes

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

HCM Unsignalized Intersection Capacity Analysis

102: I-205 SB Ramps & OR-213

07/07/2017





















| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|-----------------------------------|------|------|-------|------|----------------------|------|
| Lane Configurations | | ↑↑ | | ↑↑ | ↑ | |
| Traffic Volume (veh/h) | 0 | 1830 | 0 | 1085 | 26 | 0 |
| Future Volume (Veh/h) | 0 | 1830 | 0 | 1085 | 26 | 0 |
| Sign Control | | Free | Free | | Stop | |
| Grade | | 0% | 0% | | 0% | |
| Peak Hour Factor | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Hourly flow rate (vph) | 0 | 1926 | 0 | 1142 | 27 | 0 |
| Pedestrians | | | | | | |
| Lane Width (ft) | | | | | | |
| Walking Speed (ft/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | | None | None | | | |
| Median storage (veh) | | | | | | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 1142 | | | | 963 | 0 |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 1142 | | | | 963 | 0 |
| tC, single (s) | 4.2 | | | | 7.2 | 7.3 |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 2.3 | | | | 3.7 | 3.5 |
| p0 queue free % | 100 | | | | 88 | 100 |
| cM capacity (veh/h) | 585 | | | | 226 | 1034 |
| Direction, Lane # | EB 1 | EB 2 | WB 1 | WB 2 | SB 1 | |
| Volume Total | 963 | 963 | 571 | 571 | 27 | |
| Volume Left | 0 | 0 | 0 | 0 | 27 | |
| Volume Right | 0 | 0 | 571 | 571 | 0 | |
| cSH | 1700 | 1700 | 1700 | 1700 | 226 | |
| Volume to Capacity | 0.57 | 0.57 | 0.34 | 0.34 | 0.12 | |
| Queue Length 95th (ft) | 0 | 0 | 0 | 0 | 10 | |
| Control Delay (s) | 0.0 | 0.0 | 0.0 | 0.0 | 23.0 | |
| Lane LOS | | | | | C | |
| Approach Delay (s) | 0.0 | | 0.0 | | 23.0 | |
| Approach LOS | | | | | C | |
| Intersection Summary | | | | | | |
| Average Delay | | | 0.2 | | | |
| Intersection Capacity Utilization | | | 60.6% | | ICU Level of Service | B |
| Analysis Period (min) | | | 15 | | | |

| Intersection | | | | | | |
|--------------------------|--------|------|--------|------|--------|------|
| Int Delay, s/veh | 0.2 | | | | | |
| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
| Lane Configurations | | ↑↑ | | ↑↑ | ↑ | |
| Traffic Vol, veh/h | 0 | 1830 | 0 | 1085 | 26 | 0 |
| Future Vol, veh/h | 0 | 1830 | 0 | 1085 | 26 | 0 |
| 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 | 0 | - |
| Veh in Median Storage, # | - | 0 | 0 | - | 0 | - |
| Grade, % | - | 0 | 0 | - | 0 | - |
| Peak Hour Factor | 95 | 95 | 95 | 95 | 95 | 95 |
| Heavy Vehicles, % | 6 | 6 | 5 | 5 | 18 | 18 |
| Mvmt Flow | 0 | 1926 | 0 | 1142 | 27 | 0 |
| | | | | | | |
| Major/Minor | Major1 | | Major2 | | Minor2 | |
| Conflicting Flow All | - | 0 | - | - | 963 | - |
| Stage 1 | - | - | - | - | 0 | - |
| Stage 2 | - | - | - | - | 963 | - |
| Critical Hdwy | - | - | - | - | 7.86 | - |
| Critical Hdwy Stg 1 | - | - | - | - | - | - |
| Critical Hdwy Stg 2 | - | - | - | - | 6.86 | - |
| Follow-up Hdwy | - | - | - | - | 3.68 | - |
| Pot Cap-1 Maneuver | 0 | - | 0 | - | 188 | 0 |
| Stage 1 | 0 | - | 0 | - | - | 0 |
| Stage 2 | 0 | - | 0 | - | 245 | 0 |
| Platoon blocked, % | | - | | - | | |
| Mov Cap-1 Maneuver | - | - | - | - | 188 | - |
| Mov Cap-2 Maneuver | - | - | - | - | 188 | - |
| Stage 1 | - | - | - | - | - | - |
| Stage 2 | - | - | - | - | 245 | - |
| | | | | | | |
| Approach | EB | | WB | | SB | |
| HCM Control Delay, s | 0 | | 0 | | 27.4 | |
| HCM LOS | | | | | D | |
| | | | | | | |
| Minor Lane/Major Mvmt | EBT | WBR | SBLn1 | | | |
| Capacity (veh/h) | - | - | 188 | | | |
| HCM Lane V/C Ratio | - | - | 0.146 | | | |
| HCM Control Delay (s) | - | - | 27.4 | | | |
| HCM Lane LOS | - | - | D | | | |
| HCM 95th %tile Q(veh) | - | - | 0.5 | | | |

HCM Signalized Intersection Capacity Analysis

12: OR-213 & Prairie Schooner Way/Clackamas River Drive

07/07/2017

| |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | | |  | | |  | |  |  | |  |  |
| Traffic Volume (vph) | 0 | 0 | 133 | 0 | 0 | 598 | 0 | 2732 | 198 | 0 | 1939 | 612 |
| Future Volume (vph) | 0 | 0 | 133 | 0 | 0 | 598 | 0 | 2732 | 198 | 0 | 1939 | 612 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | | 4.5 | | | 4.5 | | 4.5 | 4.5 | | 4.5 | 4.5 |
| Lane Util. Factor | | | 0.88 | | | 0.88 | | 0.91 | 1.00 | | 0.91 | 1.00 |
| Frpb, ped/bikes | | | 1.00 | | | 1.00 | | 1.00 | 0.98 | | 1.00 | 1.00 |
| Flpb, ped/bikes | | | 1.00 | | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 |
| Frt | | | 0.85 | | | 0.85 | | 1.00 | 0.85 | | 1.00 | 0.85 |
| Flt Protected | | | 1.00 | | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 |
| Satd. Flow (prot) | | | 2760 | | | 2538 | | 4988 | 1521 | | 4893 | 1524 |
| Flt Permitted | | | 1.00 | | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 |
| Satd. Flow (perm) | | | 2760 | | | 2538 | | 4988 | 1521 | | 4893 | 1524 |
| Peak-hour factor, PHF | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Adj. Flow (vph) | 0 | 0 | 137 | 0 | 0 | 616 | 0 | 2816 | 204 | 0 | 1999 | 631 |
| RTOR Reduction (vph) | 0 | 0 | 67 | 0 | 0 | 13 | 0 | 0 | 74 | 0 | 0 | 118 |
| Lane Group Flow (vph) | 0 | 0 | 70 | 0 | 0 | 603 | 0 | 2816 | 130 | 0 | 1999 | 513 |
| Confl. Bikes (#/hr) | | | | | | | | | 1 | | | |
| Heavy Vehicles (%) | 3% | 3% | 3% | 12% | 12% | 12% | 4% | 4% | 4% | 6% | 6% | 6% |
| Turn Type | | | Perm | | | Perm | | NA | Perm | | NA | Perm |
| Protected Phases | | | | | | | | 2 | | | 6 | |
| Permitted Phases | | | 5 | | | 1 | | | 2 | | | 6 |
| Actuated Green, G (s) | | | 7.7 | | | 23.5 | | 56.5 | 56.5 | | 72.3 | 72.3 |
| Effective Green, g (s) | | | 7.7 | | | 23.5 | | 56.5 | 56.5 | | 72.3 | 72.3 |
| Actuated g/C Ratio | | | 0.09 | | | 0.26 | | 0.63 | 0.63 | | 0.81 | 0.81 |
| Clearance Time (s) | | | 4.5 | | | 4.5 | | 4.5 | 4.5 | | 4.5 | 4.5 |
| Vehicle Extension (s) | | | 3.0 | | | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 |
| Lane Grp Cap (vph) | | | 238 | | | 670 | | 3166 | 965 | | 3974 | 1238 |
| v/s Ratio Prot | | | | | | | | c0.56 | | | 0.41 | |
| v/s Ratio Perm | | | 0.03 | | | c0.24 | | | 0.09 | | | 0.34 |
| v/c Ratio | | | 0.30 | | | 0.90 | | 0.89 | 0.13 | | 0.50 | 0.41 |
| Uniform Delay, d1 | | | 38.1 | | | 31.6 | | 13.6 | 6.5 | | 2.6 | 2.4 |
| Progression Factor | | | 1.00 | | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 |
| Incremental Delay, d2 | | | 0.7 | | | 14.9 | | 3.5 | 0.1 | | 0.1 | 0.2 |
| Delay (s) | | | 38.8 | | | 46.5 | | 17.1 | 6.6 | | 2.8 | 2.6 |
| Level of Service | | | D | | | D | | B | A | | A | A |
| Approach Delay (s) | | 38.8 | | | 46.5 | | | 16.4 | | | 2.7 | |
| Approach LOS | | D | | | D | | | B | | | A | |
| Intersection Summary | | | | | | | | | | | | |
| HCM 2000 Control Delay | | | 14.1 | | | HCM 2000 Level of Service | | | B | | | |
| HCM 2000 Volume to Capacity ratio | | | 0.89 | | | | | | | | | |
| Actuated Cycle Length (s) | | | 89.0 | | | Sum of lost time (s) | | | 9.0 | | | |
| Intersection Capacity Utilization | | | 81.2% | | | ICU Level of Service | | | D | | | |
| Analysis Period (min) | | | 15 | | | | | | | | | |
| c Critical Lane Group | | | | | | | | | | | | |

HCM Signalized Intersection Capacity Analysis

13: OR-213 & Redland Road

07/07/2017



| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|------------------------|-------|-------|------|-------|------|-------|
| Lane Configurations | | | | | | |
| Traffic Volume (vph) | 782 | 184 | 144 | 2303 | 1703 | 535 |
| Future Volume (vph) | 782 | 184 | 144 | 2303 | 1703 | 535 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 |
| Lane Util. Factor | 0.97 | 1.00 | 1.00 | 0.95 | 0.95 | 1.00 |
| Frt | 1.00 | 0.85 | 1.00 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 0.95 | 1.00 | 1.00 | 1.00 |
| Satd. Flow (prot) | 3400 | 1568 | 1736 | 3471 | 3471 | 1553 |
| Flt Permitted | 0.95 | 1.00 | 0.95 | 1.00 | 1.00 | 1.00 |
| Satd. Flow (perm) | 3400 | 1568 | 1736 | 3471 | 3471 | 1553 |
| Peak-hour factor, PHF | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 |
| Adj. Flow (vph) | 815 | 192 | 150 | 2399 | 1774 | 557 |
| RTOR Reduction (vph) | 0 | 9 | 0 | 0 | 0 | 28 |
| Lane Group Flow (vph) | 815 | 183 | 150 | 2399 | 1774 | 529 |
| Heavy Vehicles (%) | 3% | 3% | 4% | 4% | 4% | 4% |
| Turn Type | Prot | pm+ov | Prot | NA | NA | pm+ov |
| Protected Phases | 4 | 5 | 5 | 2 | 6 | 4 |
| Permitted Phases | | 4 | | | | 6 |
| Actuated Green, G (s) | 28.5 | 39.9 | 11.4 | 82.5 | 66.6 | 95.1 |
| Effective Green, g (s) | 28.5 | 39.9 | 11.4 | 82.5 | 66.6 | 95.1 |
| Actuated g/C Ratio | 0.24 | 0.33 | 0.10 | 0.69 | 0.55 | 0.79 |
| Clearance Time (s) | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 807 | 580 | 164 | 2386 | 1926 | 1288 |
| v/s Ratio Prot | c0.24 | 0.03 | 0.09 | c0.69 | 0.51 | 0.10 |
| v/s Ratio Perm | | 0.09 | | | | 0.24 |
| v/c Ratio | 1.01 | 0.31 | 0.91 | 1.01 | 0.92 | 0.41 |
| Uniform Delay, d1 | 45.8 | 29.9 | 53.8 | 18.8 | 24.3 | 3.8 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 34.1 | 0.3 | 45.9 | 19.7 | 8.8 | 0.2 |
| Delay (s) | 79.9 | 30.2 | 99.7 | 38.5 | 33.1 | 4.0 |
| Level of Service | E | C | F | D | C | A |
| Approach Delay (s) | 70.4 | | | 42.1 | 26.1 | |
| Approach LOS | E | | | D | C | |
























Intersection Summary

| | | | |
|-----------------------------------|-------|---------------------------|------|
| HCM 2000 Control Delay | 40.6 | HCM 2000 Level of Service | D |
| HCM 2000 Volume to Capacity ratio | 1.05 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 13.5 |
| Intersection Capacity Utilization | 93.5% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

HCM Signalized Intersection Capacity Analysis

14: OR-213 & Beavercreek Road

07/07/2017

| |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations |  |  | |  |  |  |  |  |  |  |  |  |
| Traffic Volume (vph) | 505 | 443 | 21 | 112 | 592 | 0 | 44 | 1070 | 133 | 614 | 635 | 795 |
| Future Volume (vph) | 505 | 443 | 21 | 112 | 592 | 0 | 44 | 1070 | 133 | 614 | 635 | 795 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.5 | 4.5 | | 4.5 | 4.5 | | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 |
| Lane Util. Factor | 0.97 | 0.95 | | 0.97 | 0.95 | | 1.00 | 0.95 | 1.00 | 0.97 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.99 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 3273 | 3348 | | 3400 | 3505 | | 1719 | 3438 | 1538 | 3335 | 3438 | 1538 |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 3273 | 3348 | | 3400 | 3505 | | 1719 | 3438 | 1538 | 3335 | 3438 | 1538 |
| 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) | 532 | 466 | 22 | 118 | 623 | 0 | 46 | 1126 | 140 | 646 | 668 | 837 |
| RTOR Reduction (vph) | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 93 | 0 | 0 | 218 |
| Lane Group Flow (vph) | 532 | 485 | 0 | 118 | 623 | 0 | 46 | 1126 | 47 | 646 | 668 | 619 |
| Confl. Peds. (#/hr) | | | 4 | 4 | | | | | | | | |
| Heavy Vehicles (%) | 7% | 7% | 7% | 3% | 3% | 3% | 5% | 5% | 5% | 5% | 5% | 5% |
| Turn Type | Prot | NA | | Prot | NA | Perm | Prot | NA | Perm | Prot | NA | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | 8 | | | 2 | | | 6 |
| Actuated Green, G (s) | 18.6 | 30.9 | | 8.2 | 20.5 | | 4.2 | 40.4 | 40.4 | 22.5 | 58.7 | 58.7 |
| Effective Green, g (s) | 18.6 | 30.9 | | 8.2 | 20.5 | | 4.2 | 40.4 | 40.4 | 22.5 | 58.7 | 58.7 |
| Actuated g/C Ratio | 0.16 | 0.26 | | 0.07 | 0.17 | | 0.04 | 0.34 | 0.34 | 0.19 | 0.49 | 0.49 |
| Clearance Time (s) | 4.5 | 4.5 | | 4.5 | 4.5 | | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 507 | 862 | | 232 | 598 | | 60 | 1157 | 517 | 625 | 1681 | 752 |
| v/s Ratio Prot | c0.16 | 0.14 | | 0.03 | c0.18 | | 0.03 | c0.33 | | c0.19 | 0.19 | |
| v/s Ratio Perm | | | | | | | | | 0.03 | | | 0.40 |
| v/c Ratio | 1.05 | 0.56 | | 0.51 | 1.04 | | 0.77 | 0.97 | 0.09 | 1.03 | 0.40 | 0.82 |
| Uniform Delay, d1 | 50.7 | 38.7 | | 54.0 | 49.8 | | 57.4 | 39.3 | 27.2 | 48.8 | 19.4 | 26.2 |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 53.5 | 0.8 | | 1.8 | 48.1 | | 43.5 | 20.8 | 0.3 | 44.9 | 0.7 | 9.9 |
| Delay (s) | 104.2 | 39.5 | | 55.7 | 97.9 | | 100.9 | 60.0 | 27.6 | 93.7 | 20.1 | 36.2 |
| Level of Service | F | D | | E | F | | F | E | C | F | C | D |
| Approach Delay (s) | | 73.3 | | | 91.2 | | | 58.0 | | | 48.5 | |
| Approach LOS | | E | | | F | | | E | | | D | |
| Intersection Summary | | | | | | | | | | | | |
| HCM 2000 Control Delay | | | 61.8 | | | HCM 2000 Level of Service | | | E | | | |
| HCM 2000 Volume to Capacity ratio | | | 1.01 | | | | | | | | | |
| Actuated Cycle Length (s) | | | 120.0 | | | Sum of lost time (s) | | | 18.0 | | | |
| Intersection Capacity Utilization | | | 92.9% | | | ICU Level of Service | | | F | | | |
| Analysis Period (min) | | | 15 | | | | | | | | | |
| c Critical Lane Group | | | | | | | | | | | | |

HCM Unsignalized Intersection Capacity Analysis




15: Holly Lane & Holcomb Boulevard

07/07/2017

| | | | | | | |
|-----------------------------------|------|------|-------|----------------------|------|------|
| | → | ↘ | ↙ | ← | ↖ | ↗ |
| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
| Lane Configurations | ↱ | | | ↱ | ↘↗ | |
| Traffic Volume (veh/h) | 53 | 73 | 52 | 165 | 98 | 67 |
| Future Volume (Veh/h) | 53 | 73 | 52 | 165 | 98 | 67 |
| Sign Control | Free | | | Free | Stop | |
| Grade | 0% | | | 0% | 0% | |
| Peak Hour Factor | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 |
| Hourly flow rate (vph) | 62 | 86 | 61 | 194 | 115 | 79 |
| Pedestrians | | | | | | |
| Lane Width (ft) | | | | | | |
| Walking Speed (ft/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | None | | None | | | |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | | | 148 | 421 | | 105 |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | | | 148 | 421 | | 105 |
| tC, single (s) | | | 4.1 | 6.4 | | 6.2 |
| tC, 2 stage (s) | | | | | | |
| tF (s) | | | 2.2 | 3.5 | | 3.3 |
| p0 queue free % | | | 96 | 80 | | 92 |
| cM capacity (veh/h) | | | 1415 | 564 | | 949 |
| Direction, Lane # | EB 1 | WB 1 | NB 1 | | | |
| Volume Total | 148 | 255 | 194 | | | |
| Volume Left | 0 | 61 | 115 | | | |
| Volume Right | 86 | 0 | 79 | | | |
| cSH | 1700 | 1415 | 676 | | | |
| Volume to Capacity | 0.09 | 0.04 | 0.29 | | | |
| Queue Length 95th (ft) | 0 | 3 | 30 | | | |
| Control Delay (s) | 0.0 | 2.1 | 12.5 | | | |
| Lane LOS | | A | B | | | |
| Approach Delay (s) | 0.0 | 2.1 | 12.5 | | | |
| Approach LOS | | | B | | | |
| Intersection Summary | | | | | | |
| Average Delay | | | 5.0 | | | |
| Intersection Capacity Utilization | | | 38.4% | ICU Level of Service | | A |
| Analysis Period (min) | | | 15 | | | |

Intersection

Int Delay, s/veh 4.8

| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|--------------------------|-----------------------------------------------------------------------------------|------|------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|------|
| Lane Configurations |  | | |  |  | |
| Traffic Vol, veh/h | 53 | 73 | 52 | 165 | 98 | 67 |
| Future Vol, veh/h | 53 | 73 | 52 | 165 | 98 | 67 |
| 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 | 85 | 85 | 85 | 85 | 85 | 85 |
| Heavy Vehicles, % | 5 | 5 | 5 | 5 | 2 | 2 |
| Mvmt Flow | 62 | 86 | 61 | 194 | 115 | 79 |

| Major/Minor | Major1 | Major2 | Minor1 |
|----------------------|--------|--------|--------|
| Conflicting Flow All | 0 | 0 | 421 |
| Stage 1 | - | - | 105 |
| Stage 2 | - | - | 316 |
| Critical Hdwy | - | 4.15 | 6.42 |
| Critical Hdwy Stg 1 | - | - | 5.42 |
| Critical Hdwy Stg 2 | - | - | 5.42 |
| Follow-up Hdwy | - | 2.245 | 3.518 |
| Pot Cap-1 Maneuver | - | 1415 | 589 |
| Stage 1 | - | - | 919 |
| Stage 2 | - | - | 739 |
| Platoon blocked, % | - | - | - |
| Mov Cap-1 Maneuver | - | 1415 | 561 |
| Mov Cap-2 Maneuver | - | - | 561 |
| Stage 1 | - | - | 919 |
| Stage 2 | - | - | 704 |

















| Approach | EB | WB | NB |
|----------------------|----|-----|------|
| HCM Control Delay, s | 0 | 1.8 | 12.5 |
| HCM LOS | | | B |

| Minor Lane/Major Mvmt | NBLn1 | EBT | EBR | WBL | WBT |
|-----------------------|-------|-----|-----|-------|-----|
| Capacity (veh/h) | 673 | - | - | 1415 | - |
| HCM Lane V/C Ratio | 0.288 | - | - | 0.043 | - |
| HCM Control Delay (s) | 12.5 | - | - | 7.7 | 0 |
| HCM Lane LOS | B | - | - | A | A |
| HCM 95th %tile Q(veh) | 1.2 | - | - | 0.1 | - |

HCM Unsignalized Intersection Capacity Analysis

16: Holly Lane & Redland Road

07/07/2017


| | | | | | | | | | | | | |
|-----------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| |  |  |  |  |  |  |  |  |  |  |  |  |
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | |  | | |  | | |  | | |  | |
| Traffic Volume (veh/h) | 58 | 149 | 114 | 83 | 526 | 65 | 149 | 35 | 40 | 88 | 42 | 166 |
| Future Volume (Veh/h) | 58 | 149 | 114 | 83 | 526 | 65 | 149 | 35 | 40 | 88 | 42 | 166 |
| Sign Control | | Free | | | Free | | | Stop | | | Stop | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Hourly flow rate (vph) | 61 | 157 | 120 | 87 | 554 | 68 | 157 | 37 | 42 | 93 | 44 | 175 |
| Pedestrians | | | | | | | | | | | | |
| Lane Width (ft) | | | | | | | | | | | | |
| Walking Speed (ft/s) | | | | | | | | | | | | |
| Percent Blockage | | | | | | | | | | | | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | None | | | None | | | | | | | | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (ft) | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 622 | | | 277 | | | 1298 | 1135 | 217 | 1162 | 1161 | 588 |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 622 | | | 277 | | | 1298 | 1135 | 217 | 1162 | 1161 | 588 |
| tC, single (s) | 4.2 | | | 4.2 | | | *6.0 | *6.0 | *6.0 | *6.0 | *6.0 | *6.0 |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 2.3 | | | 2.3 | | | *2.0 | *2.0 | *2.0 | *2.0 | *2.0 | *2.0 |
| p0 queue free % | 93 | | | 93 | | | 13 | 88 | 97 | 67 | 86 | 78 |
| cM capacity (veh/h) | 903 | | | 1258 | | | 181 | 318 | 1331 | 280 | 306 | 792 |
| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 | | | | | | | | |
| Volume Total | 338 | 709 | 236 | 312 | | | | | | | | |
| Volume Left | 61 | 87 | 157 | 93 | | | | | | | | |
| Volume Right | 120 | 68 | 42 | 175 | | | | | | | | |
| cSH | 903 | 1258 | 233 | 448 | | | | | | | | |
| Volume to Capacity | 0.07 | 0.07 | 1.01 | 0.70 | | | | | | | | |
| Queue Length 95th (ft) | 5 | 6 | 240 | 132 | | | | | | | | |
| Control Delay (s) | 2.3 | 1.8 | 107.6 | 29.5 | | | | | | | | |
| Lane LOS | A | A | F | D | | | | | | | | |
| Approach Delay (s) | 2.3 | 1.8 | 107.6 | 29.5 | | | | | | | | |
| Approach LOS | | | F | D | | | | | | | | |
| Intersection Summary | | | | | | | | | | | | |
| Average Delay | | | 23.0 | | | | | | | | | |
| Intersection Capacity Utilization | | | 76.0% | ICU Level of Service | | | | | D | | | |
| Analysis Period (min) | | | 15 | | | | | | | | | |
| * User Entered Value | | | | | | | | | | | | |

| Intersection | | | | | | | | | | | | |
|--------------------------|--------|--------------|------|--------|--------------|------|--------|--------------|------|--------|--------------|------|
| Int Delay, s/veh | 20 | | | | | | | | | | | |
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | | <div>↕</div> | | | <div>↕</div> | | | <div>↕</div> | | | <div>↕</div> | |
| Traffic Vol, veh/h | 58 | 149 | 114 | 83 | 526 | 65 | 149 | 35 | 40 | 88 | 42 | 166 |
| Future Vol, veh/h | 58 | 149 | 114 | 83 | 526 | 65 | 149 | 35 | 40 | 88 | 42 | 166 |
| 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 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 95 | 95 | 95 | 95 | 95 | 95 | 95 | 95 | 95 | 95 | 95 | 95 |
| Heavy Vehicles, % | 14 | 14 | 14 | 7 | 7 | 7 | 4 | 4 | 4 | 2 | 2 | 2 |
| Mvmt Flow | 61 | 157 | 120 | 87 | 554 | 68 | 157 | 37 | 42 | 93 | 44 | 175 |
| | | | | | | | | | | | | |
| Major/Minor | Major1 | | | Major2 | | | Minor1 | | | Minor2 | | |
| Conflicting Flow All | 622 | 0 | 0 | 277 | 0 | 0 | 1211 | 1136 | 217 | 1141 | 1162 | 588 |
| Stage 1 | - | - | - | - | - | - | 339 | 339 | - | 763 | 763 | - |
| Stage 2 | - | - | - | - | - | - | 872 | 797 | - | 378 | 399 | - |
| Critical Hdwy | 4.24 | - | - | 4.17 | - | - | 6 | 6 | 6 | 6 | 6 | 6 |
| Critical Hdwy Stg 1 | - | - | - | - | - | - | 6.14 | 5.54 | - | 6.12 | 5.52 | - |
| Critical Hdwy Stg 2 | - | - | - | - | - | - | 6.14 | 5.54 | - | 6.12 | 5.52 | - |
| Follow-up Hdwy | 2.326 | - | - | 2.263 | - | - | 2 | 2 | 2 | 2 | 2 | 2 |
| Pot Cap-1 Maneuver | 903 | - | - | 1258 | - | - | 329 | 365 | 1331 | 363 | 352 | 792 |
| Stage 1 | - | - | - | - | - | - | 1108 | 1172 | - | 604 | 685 | - |
| Stage 2 | - | - | - | - | - | - | 513 | 653 | - | 1050 | 1088 | - |
| Platoon blocked, % | | - | - | | - | - | | | | | | |
| Mov Cap-1 Maneuver | 903 | - | - | 1258 | - | - | 196 | 300 | 1331 | 275 | 289 | 792 |
| Mov Cap-2 Maneuver | - | - | - | - | - | - | 196 | 300 | - | 275 | 289 | - |
| Stage 1 | - | - | - | - | - | - | 1018 | 1077 | - | 555 | 612 | - |
| Stage 2 | - | - | - | - | - | - | 331 | 583 | - | 902 | 1000 | - |
| | | | | | | | | | | | | |
| Approach | EB | | | WB | | | NB | | | SB | | |
| HCM Control Delay, s | 1.7 | | | 1 | | | 89.1 | | | 30.9 | | |
| HCM LOS | | | | | | | F | | | D | | |
| | | | | | | | | | | | | |
| Minor Lane/Major Mvmt | NBLn1 | EBL | EBT | EBR | WBL | WBT | WBR | SBLn1 | | | | |
| Capacity (veh/h) | 247 | 903 | - | - | 1258 | - | - | 439 | | | | |
| HCM Lane V/C Ratio | 0.955 | 0.068 | - | - | 0.069 | - | - | 0.71 | | | | |
| HCM Control Delay (s) | 89.1 | 9.3 | 0 | - | 8.1 | 0 | - | 30.9 | | | | |
| HCM Lane LOS | F | A | A | - | A | A | - | D | | | | |
| HCM 95th %tile Q(veh) | 8.7 | 0.2 | - | - | 0.2 | - | - | 5.5 | | | | |

HCM Signalized Intersection Capacity Analysis

1: OR-99E & I-205 SB Ramps








07/07/2017

| |  | | | | | |
|-----------------------------------|-----------------------------------------------------------------------------------|-------|--------|-------|---------------------------|------|
| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
| Lane Configurations | ↔↔ | ↔ | ↔↔↔ | ↔ | ↔ | ↔↔↔ |
| Traffic Volume (vph) | 1255 | 435 | 1250 | 535 | 560 | 1600 |
| Future Volume (vph) | 1255 | 435 | 1250 | 535 | 560 | 1600 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 |
| Lane Util. Factor | 0.97 | 1.00 | 0.91 | 1.00 | 1.00 | 0.91 |
| Frpb, ped/bikes | 1.00 | 1.00 | 1.00 | 0.96 | 1.00 | 1.00 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.85 | 1.00 | 0.85 | 1.00 | 1.00 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (prot) | 3400 | 1568 | 5085 | 1526 | 1770 | 5085 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (perm) | 3400 | 1568 | 5085 | 1526 | 1770 | 5085 |
| Peak-hour factor, PHF | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Adj. Flow (vph) | 1294 | 448 | 1289 | 552 | 577 | 1649 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 414 | 0 | 0 |
| Lane Group Flow (vph) | 1294 | 448 | 1289 | 138 | 577 | 1649 |
| Confl. Peds. (#/hr) | | | | 6 | 6 | |
| Confl. Bikes (#/hr) | | | | 1 | | |
| Heavy Vehicles (%) | 3% | 3% | 2% | 2% | 2% | 2% |
| Turn Type | Prot | pm+ov | NA | Perm | Prot | NA |
| Protected Phases | 8 | 1 | 2 | | 1 | 6 |
| Permitted Phases | | 8 | | 2 | | |
| Actuated Green, G (s) | 29.5 | 54.0 | 22.5 | 22.5 | 24.5 | 51.5 |
| Effective Green, g (s) | 29.5 | 54.0 | 22.5 | 22.5 | 24.5 | 51.5 |
| Actuated g/C Ratio | 0.33 | 0.60 | 0.25 | 0.25 | 0.27 | 0.57 |
| Clearance Time (s) | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 1114 | 1019 | 1271 | 381 | 481 | 2909 |
| v/s Ratio Prot | c0.38 | 0.12 | c0.25 | | c0.33 | 0.32 |
| v/s Ratio Perm | | 0.17 | | 0.09 | | |
| v/c Ratio | 1.16 | 0.44 | 1.01 | 0.36 | 1.20 | 0.57 |
| Uniform Delay, d1 | 30.2 | 9.8 | 33.8 | 27.8 | 32.8 | 12.2 |
| Progression Factor | 1.00 | 1.00 | 1.25 | 4.88 | 1.00 | 1.00 |
| Incremental Delay, d2 | 82.9 | 0.3 | 22.7 | 1.5 | 108.4 | 0.8 |
| Delay (s) | 113.1 | 10.1 | 64.9 | 137.2 | 141.2 | 13.0 |
| Level of Service | F | B | E | F | F | B |
| Approach Delay (s) | 86.6 | | 86.6 | | | 46.2 |
| Approach LOS | F | | F | | | D |
| Intersection Summary | | | | | | |
| HCM 2000 Control Delay | | | 71.1 | | HCM 2000 Level of Service | E |
| HCM 2000 Volume to Capacity ratio | | | 1.13 | | | |
| Actuated Cycle Length (s) | | | 90.0 | | Sum of lost time (s) | 13.5 |
| Intersection Capacity Utilization | | | 102.2% | | ICU Level of Service | G |
| Analysis Period (min) | | | 15 | | | |
| c Critical Lane Group | | | | | | |

HCM Signalized Intersection Capacity Analysis

2: OR-99E & I-205 NB Ramps

07/07/2017

| |  | | | | | |
|-----------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
| Lane Configurations |  |  |  |  |  |  |
| Traffic Volume (vph) | 615 | 520 | 1265 | 930 | 530 | 2325 |
| Future Volume (vph) | 615 | 520 | 1265 | 930 | 530 | 2325 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 |
| Lane Util. Factor | 1.00 | 1.00 | 0.91 | 1.00 | 1.00 | 0.91 |
| Frpb, ped/bikes | 1.00 | 1.00 | 1.00 | 0.96 | 1.00 | 1.00 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.85 | 1.00 | 0.85 | 1.00 | 1.00 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (prot) | 1770 | 1583 | 5036 | 1510 | 1770 | 5085 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (perm) | 1770 | 1583 | 5036 | 1510 | 1770 | 5085 |
| Peak-hour factor, PHF | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 |
| Adj. Flow (vph) | 628 | 531 | 1291 | 949 | 541 | 2372 |
| RTOR Reduction (vph) | 0 | 331 | 0 | 442 | 0 | 0 |
| Lane Group Flow (vph) | 628 | 200 | 1291 | 507 | 541 | 2372 |
| Confl. Peds. (#/hr) | | | | 7 | 7 | |
| Heavy Vehicles (%) | 2% | 2% | 3% | 3% | 2% | 2% |
| Turn Type | Prot | Perm | NA | Perm | Prot | NA |
| Protected Phases | 8 | | 2 | | 1 | 6 |
| Permitted Phases | | 8 | | 2 | | |
| Actuated Green, G (s) | 27.5 | 27.5 | 26.5 | 26.5 | 22.5 | 53.5 |
| Effective Green, g (s) | 27.5 | 27.5 | 26.5 | 26.5 | 22.5 | 53.5 |
| Actuated g/C Ratio | 0.31 | 0.31 | 0.29 | 0.29 | 0.25 | 0.59 |
| Clearance Time (s) | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 540 | 483 | 1482 | 444 | 442 | 3022 |
| v/s Ratio Prot | c0.35 | | 0.26 | | c0.31 | 0.47 |
| v/s Ratio Perm | | 0.13 | | c0.34 | | |
| v/c Ratio | 1.16 | 0.41 | 0.87 | 1.14 | 1.22 | 0.78 |
| Uniform Delay, d1 | 31.2 | 24.8 | 30.1 | 31.8 | 33.8 | 13.9 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 0.89 | 0.93 |
| Incremental Delay, d2 | 92.2 | 0.6 | 7.3 | 87.3 | 111.5 | 1.1 |
| Delay (s) | 123.5 | 25.4 | 37.4 | 119.1 | 141.6 | 14.0 |
| Level of Service | F | C | D | F | F | B |
| Approach Delay (s) | 78.6 | | 72.0 | | | 37.7 |
| Approach LOS | E | | E | | | D |
| Intersection Summary | | | | | | |
| HCM 2000 Control Delay | | | 57.4 | | HCM 2000 Level of Service | E |
| HCM 2000 Volume to Capacity ratio | | | 1.17 | | | |
| Actuated Cycle Length (s) | | | 90.0 | | Sum of lost time (s) | 13.5 |
| Intersection Capacity Utilization | | | 99.1% | | ICU Level of Service | F |
| Analysis Period (min) | | | 15 | | | |
| c Critical Lane Group | | | | | | |

HCM Unsignalized Intersection Capacity Analysis

3: OR-99E & 15th Street

07/07/2017

| | ↑ | ↖ | ↙ | ↓ | ↘ | ↗ |
|-----------------------------------|------|------|-------|------|----------------------|------|
| Movement | NBT | NBR | SBL | SBT | NWL | NWR |
| Lane Configurations | ↑↑ | | | ↑↑↑ | | ↗ |
| Traffic Volume (veh/h) | 1897 | 17 | 0 | 2940 | 0 | 298 |
| Future Volume (Veh/h) | 1897 | 17 | 0 | 2940 | 0 | 298 |
| Sign Control | Free | | | Free | Stop | |
| Grade | 0% | | | 0% | 0% | |
| Peak Hour Factor | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Hourly flow rate (vph) | 1997 | 18 | 0 | 3095 | 0 | 314 |
| Pedestrians | | | | | 3 | |
| Lane Width (ft) | | | | | 12.0 | |
| Walking Speed (ft/s) | | | | | 3.5 | |
| Percent Blockage | | | | | 0 | |
| Right turn flare (veh) | | | | | | |
| Median type | None | | | None | | |
| Median storage (veh) | | | | | | |
| Upstream signal (ft) | 335 | | | 372 | | |
| pX, platoon unblocked | | | 0.58 | | 0.77 | 0.58 |
| vC, conflicting volume | | | 2018 | | 3041 | 1010 |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | | | 1316 | | 176 | 0 |
| tC, single (s) | | | 4.2 | | 6.8 | 6.9 |
| tC, 2 stage (s) | | | | | | |
| tF (s) | | | 2.2 | | 3.5 | 3.3 |
| p0 queue free % | | | 100 | | 100 | 50 |
| cM capacity (veh/h) | | | 300 | | 610 | 631 |
| Direction, Lane # | NB 1 | NB 2 | SB 1 | SB 2 | SB 3 | NW 1 |
| Volume Total | 1331 | 684 | 1032 | 1032 | 1032 | 314 |
| Volume Left | 0 | 0 | 0 | 0 | 0 | 0 |
| Volume Right | 0 | 18 | 0 | 0 | 0 | 314 |
| cSH | 1700 | 1700 | 1700 | 1700 | 1700 | 631 |
| Volume to Capacity | 0.78 | 0.40 | 0.61 | 0.61 | 0.61 | 0.50 |
| Queue Length 95th (ft) | 0 | 0 | 0 | 0 | 0 | 69 |
| Control Delay (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 16.2 |
| Lane LOS | | | | | | C |
| Approach Delay (s) | 0.0 | | 0.0 | | | 16.2 |
| Approach LOS | | | | | | C |
| Intersection Summary | | | | | | |
| Average Delay | | | 0.9 | | | |
| Intersection Capacity Utilization | | | 78.1% | | ICU Level of Service | D |
| Analysis Period (min) | | | 15 | | | |

| Intersection | | | | | | |
|--------------------------|--------|------|--------|------|--------|------|
| Int Delay, s/veh | 2.9 | | | | | |
| Movement | NBT | NBR | SBL | SBT | NWL | NWR |
| Lane Configurations | ↑↑↱ | | ↑↑↑↑ | | ↱↑ | |
| Traffic Vol, veh/h | 1897 | 17 | 0 | 2940 | 0 | 298 |
| Future Vol, veh/h | 1897 | 17 | 0 | 2940 | 0 | 298 |
| Conflicting Peds, #/hr | 0 | 3 | 3 | 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, % | 3 | 3 | 3 | 3 | 2 | 2 |
| Mvmt Flow | 1997 | 18 | 0 | 3095 | 0 | 314 |
| | | | | | | |
| Major/Minor | Major1 | | Major2 | | Minor1 | |
| Conflicting Flow All | 0 | 0 | - | - | - | 1010 |
| Stage 1 | - | - | - | - | - | - |
| Stage 2 | - | - | - | - | - | - |
| Critical Hdwy | - | - | - | - | - | 6 |
| Critical Hdwy Stg 1 | - | - | - | - | - | - |
| Critical Hdwy Stg 2 | - | - | - | - | - | - |
| Follow-up Hdwy | - | - | - | - | - | 2.5 |
| Pot Cap-1 Maneuver | - | - | 0 | - | 0 | 372 |
| Stage 1 | - | - | 0 | - | 0 | - |
| Stage 2 | - | - | 0 | - | 0 | - |
| Platoon blocked, % | - | - | | - | | |
| Mov Cap-1 Maneuver | - | - | - | - | - | 371 |
| Mov Cap-2 Maneuver | - | - | - | - | - | - |
| Stage 1 | - | - | - | - | - | - |
| Stage 2 | - | - | - | - | - | - |
| | | | | | | |
| | | | | | | |
| Approach | NB | | SB | | NW | |
| HCM Control Delay, s | 0 | | 0 | | 49.9 | |
| HCM LOS | | | | | E | |
| | | | | | | |
| Minor Lane/Major Mvmt | NBT | NBR | NWL | n1 | SBT | |
| Capacity (veh/h) | - | - | 371 | - | | |
| HCM Lane V/C Ratio | - | - | 0.846 | - | | |
| HCM Control Delay (s) | - | - | 49.9 | - | | |
| HCM Lane LOS | - | - | E | - | | |
| HCM 95th %tile Q(veh) | - | - | 7.8 | - | | |

HCM Signalized Intersection Capacity Analysis

4: OR-99E & 14th Street












07/07/2017

| | ↑ | ↖ | ↙ | ↓ | ↘ | ↗ |
|-----------------------------------|-------|-------|-------|---------------------------|------|-------|
| Movement | NBT | NBR | SBL | SBT | NWL | NWR |
| Lane Configurations | ↑↑ | | ↖ | ↑↑ | ↖ | ↗ |
| Traffic Volume (vph) | 1425 | 66 | 569 | 2371 | 90 | 489 |
| Future Volume (vph) | 1425 | 66 | 569 | 2371 | 90 | 489 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.5 | | 4.5 | 4.5 | 4.5 | 4.5 |
| Lane Util. Factor | 0.95 | | 1.00 | 0.95 | 1.00 | 1.00 |
| Frpb, ped/bikes | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 |
| Flpb, ped/bikes | 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) | 3446 | | 1770 | 3539 | 1787 | 1599 |
| Flt Permitted | 1.00 | | 0.09 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (perm) | 3446 | | 159 | 3539 | 1787 | 1599 |
| Peak-hour factor, PHF | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Adj. Flow (vph) | 1469 | 68 | 587 | 2444 | 93 | 504 |
| RTOR Reduction (vph) | 3 | 0 | 0 | 0 | 0 | 4 |
| Lane Group Flow (vph) | 1534 | 0 | 587 | 2444 | 93 | 500 |
| Confl. Peds. (#/hr) | | 2 | 2 | | | |
| Heavy Vehicles (%) | 4% | 4% | 2% | 2% | 1% | 1% |
| Turn Type | NA | | pm+pt | NA | Prot | pm+ov |
| Protected Phases | 2 | | 1 | 6 | 4 | 1 |
| Permitted Phases | | | 6 | | | 4 |
| Actuated Green, G (s) | 42.3 | | 81.8 | 81.8 | 9.2 | 44.2 |
| Effective Green, g (s) | 42.3 | | 81.8 | 81.8 | 9.2 | 44.2 |
| Actuated g/C Ratio | 0.42 | | 0.82 | 0.82 | 0.09 | 0.44 |
| Clearance Time (s) | 4.5 | | 4.5 | 4.5 | 4.5 | 4.5 |
| Vehicle Extension (s) | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 1457 | | 693 | 2894 | 164 | 778 |
| v/s Ratio Prot | c0.45 | | 0.30 | c0.69 | 0.05 | c0.22 |
| v/s Ratio Perm | | | 0.40 | | | 0.09 |
| v/c Ratio | 1.05 | | 0.85 | 0.84 | 0.57 | 0.64 |
| Uniform Delay, d1 | 28.9 | | 25.4 | 5.4 | 43.5 | 21.7 |
| Progression Factor | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 38.7 | | 9.4 | 2.4 | 4.4 | 1.8 |
| Delay (s) | 67.6 | | 34.8 | 7.8 | 47.9 | 23.6 |
| Level of Service | E | | C | A | D | C |
| Approach Delay (s) | 67.6 | | | 13.0 | 27.4 | |
| Approach LOS | E | | | B | C | |
| Intersection Summary | | | | | | |
| HCM 2000 Control Delay | | 30.9 | | HCM 2000 Level of Service | | C |
| HCM 2000 Volume to Capacity ratio | | 0.96 | | | | |
| Actuated Cycle Length (s) | | 100.0 | | Sum of lost time (s) | | 13.5 |
| Intersection Capacity Utilization | | 89.3% | | ICU Level of Service | | E |
| Analysis Period (min) | | 15 | | | | |
| c Critical Lane Group | | | | | | |

HCM Signalized Intersection Capacity Analysis

5: Redland Road & Abernethy Road/Holcomb Boulevard






















07/07/2017

| |  | | | | | | | | | | | |
|-----------------------------------|------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations |  |  | |  |  |  |  |  | |  |  |  |
| Traffic Volume (vph) | 73 | 192 | 242 | 73 | 128 | 248 | 89 | 410 | 70 | 401 | 730 | 87 |
| Future Volume (vph) | 73 | 192 | 242 | 73 | 128 | 248 | 89 | 410 | 70 | 401 | 730 | 87 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.5 | 4.5 | | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | | 4.5 | 4.5 | 4.5 |
| Lane Util. Factor | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frpb, ped/bikes | 1.00 | 0.98 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.92 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.98 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1770 | 1679 | | 1787 | 1881 | 1599 | 1770 | 1822 | | 1770 | 1863 | 1583 |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1770 | 1679 | | 1787 | 1881 | 1599 | 1770 | 1822 | | 1770 | 1863 | 1583 |
| 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) | 77 | 202 | 255 | 77 | 135 | 261 | 94 | 432 | 74 | 422 | 768 | 92 |
| RTOR Reduction (vph) | 0 | 61 | 0 | 0 | 0 | 83 | 0 | 8 | 0 | 0 | 0 | 49 |
| Lane Group Flow (vph) | 77 | 396 | 0 | 77 | 135 | 178 | 94 | 498 | 0 | 422 | 768 | 43 |
| Confl. Peds. (#/hr) | | | 4 | 4 | | | | | | | | |
| Confl. Bikes (#/hr) | | | 1 | | | | | | | | | |
| Heavy Vehicles (%) | 2% | 2% | 2% | 1% | 1% | 1% | 2% | 2% | 2% | 2% | 2% | 2% |
| Turn Type | Prot | NA | | Prot | NA | pm+ov | Prot | NA | | Prot | NA | pm+ov |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | 7 |
| Permitted Phases | | | | | | 8 | | | | | | 6 |
| Actuated Green, G (s) | 3.9 | 18.1 | | 3.9 | 18.1 | 32.6 | 3.9 | 20.6 | | 14.5 | 31.2 | 35.1 |
| Effective Green, g (s) | 3.9 | 18.1 | | 3.9 | 18.1 | 32.6 | 3.9 | 20.6 | | 14.5 | 31.2 | 35.1 |
| Actuated g/C Ratio | 0.05 | 0.24 | | 0.05 | 0.24 | 0.43 | 0.05 | 0.27 | | 0.19 | 0.42 | 0.47 |
| Clearance Time (s) | 4.5 | 4.5 | | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | | 4.5 | 4.5 | 4.5 |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 91 | 404 | | 92 | 453 | 789 | 91 | 499 | | 341 | 773 | 834 |
| v/s Ratio Prot | c0.04 | c0.24 | | 0.04 | 0.07 | 0.04 | 0.05 | 0.27 | | c0.24 | c0.41 | 0.00 |
| v/s Ratio Perm | | | | | | 0.07 | | | | | | 0.02 |
| v/c Ratio | 0.85 | 0.98 | | 0.84 | 0.30 | 0.23 | 1.03 | 1.00 | | 1.24 | 0.99 | 0.05 |
| Uniform Delay, d1 | 35.3 | 28.3 | | 35.3 | 23.3 | 13.3 | 35.6 | 27.2 | | 30.3 | 21.8 | 10.9 |
| 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 | 47.9 | 39.5 | | 45.2 | 0.4 | 0.1 | 103.6 | 39.5 | | 129.6 | 30.6 | 0.0 |
| Delay (s) | 83.2 | 67.9 | | 80.5 | 23.7 | 13.5 | 139.2 | 66.7 | | 159.9 | 52.4 | 10.9 |
| Level of Service | F | E | | F | C | B | F | E | | F | D | B |
| Approach Delay (s) | | 70.1 | | | 27.3 | | | 78.1 | | | 84.8 | |
| Approach LOS | | E | | | C | | | E | | | F | |
| Intersection Summary | | | | | | | | | | | | |
| HCM 2000 Control Delay | | | 71.3 | | | | HCM 2000 Level of Service | | | E | | |
| HCM 2000 Volume to Capacity ratio | | | 1.08 | | | | | | | | | |
| Actuated Cycle Length (s) | | | 75.1 | | | | Sum of lost time (s) | | | 18.0 | | |
| Intersection Capacity Utilization | | | 92.4% | | | | ICU Level of Service | | | F | | |
| Analysis Period (min) | | | 15 | | | | | | | | | |
| c Critical Lane Group | | | | | | | | | | | | |

HCM Signalized Intersection Capacity Analysis

6: Washington Street & Abernethy Road



















07/07/2017

| |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement | SEL | SET | SER | NWL | NWT | NWR | NEL | NET | NER | SWL | SWT | SWR |
| Lane Configurations | |  | |  |  | |  |  |  |  |  |  |
| Traffic Volume (vph) | 3 | 0 | 9 | 264 | 1 | 43 | 7 | 350 | 440 | 44 | 526 | 1 |
| Future Volume (vph) | 3 | 0 | 9 | 264 | 1 | 43 | 7 | 350 | 440 | 44 | 526 | 1 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.5 | | 4.5 | 4.5 | | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | |
| Lane Util. Factor | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frpb, ped/bikes | | 0.98 | | 1.00 | 0.98 | | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | |
| Flpb, ped/bikes | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | | 0.90 | | 1.00 | 0.85 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | |
| Flt Protected | | 0.99 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | | 1655 | | 1733 | 1526 | | 1785 | 1881 | 1561 | 1749 | 1844 | |
| Flt Permitted | | 0.96 | | 0.75 | 1.00 | | 0.30 | 1.00 | 1.00 | 0.48 | 1.00 | |
| Satd. Flow (perm) | | 1611 | | 1367 | 1526 | | 565 | 1881 | 1561 | 884 | 1844 | |
| 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) | 3 | 0 | 10 | 293 | 1 | 48 | 8 | 389 | 489 | 49 | 584 | 1 |
| RTOR Reduction (vph) | 0 | 9 | 0 | 0 | 32 | 0 | 0 | 0 | 256 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 0 | 4 | 0 | 293 | 17 | 0 | 8 | 389 | 233 | 49 | 585 | 0 |
| Confl. Peds. (#/hr) | 1 | | 1 | 1 | | 1 | 3 | | 3 | 3 | | 3 |
| Heavy Vehicles (%) | 0% | 0% | 0% | 4% | 4% | 4% | 1% | 1% | 1% | 3% | 3% | 3% |
| Turn Type | Perm | NA | | Perm | NA | | Perm | NA | Perm | Perm | NA | |
| Protected Phases | | 6 | | | 2 | | | 4 | | | | 8 |
| Permitted Phases | 6 | | | 2 | | | 4 | | 4 | 8 | | |
| Actuated Green, G (s) | | 15.0 | | 15.0 | 15.0 | | 21.9 | 21.9 | 21.9 | 21.9 | 21.9 | |
| Effective Green, g (s) | | 15.0 | | 15.0 | 15.0 | | 21.9 | 21.9 | 21.9 | 21.9 | 21.9 | |
| Actuated g/C Ratio | | 0.33 | | 0.33 | 0.33 | | 0.48 | 0.48 | 0.48 | 0.48 | 0.48 | |
| Clearance Time (s) | | 4.5 | | 4.5 | 4.5 | | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | |
| Vehicle Extension (s) | | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | | 526 | | 446 | 498 | | 269 | 897 | 744 | 421 | 879 | |
| v/s Ratio Prot | | | | | 0.01 | | | 0.21 | | | c0.32 | |
| v/s Ratio Perm | | 0.00 | | c0.21 | | | 0.01 | | 0.15 | 0.06 | | |
| v/c Ratio | | 0.01 | | 0.66 | 0.03 | | 0.03 | 0.43 | 0.31 | 0.12 | 0.67 | |
| Uniform Delay, d1 | | 10.4 | | 13.2 | 10.5 | | 6.4 | 7.9 | 7.4 | 6.6 | 9.2 | |
| Progression Factor | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | | 0.0 | | 3.5 | 0.0 | | 0.0 | 0.3 | 0.2 | 0.1 | 1.9 | |
| Delay (s) | | 10.4 | | 16.7 | 10.5 | | 6.4 | 8.2 | 7.6 | 6.8 | 11.1 | |
| Level of Service | | B | | B | B | | A | A | A | A | B | |
| Approach Delay (s) | | 10.4 | | | 15.8 | | | 7.9 | | | 10.8 | |
| Approach LOS | | B | | | B | | | A | | | B | |
| Intersection Summary | | | | | | | | | | | | |
| HCM 2000 Control Delay | | | 10.3 | | | HCM 2000 Level of Service | | | B | | | |
| HCM 2000 Volume to Capacity ratio | | | 0.66 | | | | | | | | | |
| Actuated Cycle Length (s) | | | 45.9 | | | Sum of lost time (s) | | | 9.0 | | | |
| Intersection Capacity Utilization | | | 64.5% | | | ICU Level of Service | | | C | | | |
| Analysis Period (min) | | | 15 | | | | | | | | | |
| c Critical Lane Group | | | | | | | | | | | | |

HCM Signalized Intersection Capacity Analysis

7: Washington Street & 15th Street




















07/07/2017

| |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement | SEL | SET | SER | NWL | NWT | NWR | NEL | NET | NER | SWL | SWT | SWR |
| Lane Configurations | |  | | |  | |  |  | |  |  | |
| Traffic Volume (vph) | 57 | 11 | 20 | 39 | 163 | 39 | 43 | 694 | 76 | 56 | 616 | 149 |
| Future Volume (vph) | 57 | 11 | 20 | 39 | 163 | 39 | 43 | 694 | 76 | 56 | 616 | 149 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.5 | | | 4.5 | | 4.5 | 4.5 | | 4.5 | 4.5 | |
| Lane Util. Factor | | 1.00 | | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frpb, ped/bikes | | 0.99 | | | 1.00 | | 1.00 | 1.00 | | 1.00 | 0.99 | |
| Flpb, ped/bikes | | 1.00 | | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | | 0.97 | | | 0.98 | | 1.00 | 0.99 | | 1.00 | 0.97 | |
| Flt Protected | | 0.97 | | | 0.99 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | | 1610 | | | 1799 | | 1787 | 1849 | | 1770 | 1798 | |
| Flt Permitted | | 0.61 | | | 0.94 | | 0.14 | 1.00 | | 0.13 | 1.00 | |
| Satd. Flow (perm) | | 1013 | | | 1696 | | 258 | 1849 | | 248 | 1798 | |
| 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 | 12 | 21 | 41 | 172 | 41 | 45 | 731 | 80 | 59 | 648 | 157 |
| RTOR Reduction (vph) | 0 | 16 | 0 | 0 | 12 | 0 | 0 | 5 | 0 | 0 | 12 | 0 |
| Lane Group Flow (vph) | 0 | 77 | 0 | 0 | 242 | 0 | 45 | 806 | 0 | 59 | 793 | 0 |
| Confl. Peds. (#/hr) | 3 | | 4 | 4 | | 3 | 6 | | 3 | 3 | | 6 |
| Heavy Vehicles (%) | 10% | 10% | 10% | 2% | 2% | 2% | 1% | 1% | 1% | 2% | 2% | 2% |
| Turn Type | Perm | NA | | Perm | NA | | pm+pt | NA | | pm+pt | NA | |
| Protected Phases | | 4 | | | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | | 8 | | | 2 | | | 6 | | |
| Actuated Green, G (s) | | 13.0 | | | 13.0 | | 34.0 | 31.1 | | 34.0 | 31.1 | |
| Effective Green, g (s) | | 13.0 | | | 13.0 | | 34.0 | 31.1 | | 34.0 | 31.1 | |
| Actuated g/C Ratio | | 0.21 | | | 0.21 | | 0.56 | 0.51 | | 0.56 | 0.51 | |
| Clearance Time (s) | | 4.5 | | | 4.5 | | 4.5 | 4.5 | | 4.5 | 4.5 | |
| Vehicle Extension (s) | | 3.0 | | | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | | 217 | | | 364 | | 218 | 950 | | 212 | 924 | |
| v/s Ratio Prot | | | | | | | 0.01 | 0.44 | | c0.01 | c0.44 | |
| v/s Ratio Perm | | 0.08 | | | c0.14 | | 0.11 | | | 0.14 | | |
| v/c Ratio | | 0.35 | | | 0.67 | | 0.21 | 0.85 | | 0.28 | 0.86 | |
| Uniform Delay, d1 | | 20.2 | | | 21.8 | | 9.2 | 12.7 | | 9.5 | 12.8 | |
| Progression Factor | | 1.00 | | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | | 1.0 | | | 4.5 | | 0.5 | 7.1 | | 0.7 | 8.0 | |
| Delay (s) | | 21.2 | | | 26.3 | | 9.7 | 19.8 | | 10.2 | 20.8 | |
| Level of Service | | C | | | C | | A | B | | B | C | |
| Approach Delay (s) | | 21.2 | | | 26.3 | | | 19.3 | | | 20.1 | |
| Approach LOS | | C | | | C | | | B | | | C | |
| Intersection Summary | | | | | | | | | | | | |
| HCM 2000 Control Delay | | 20.5 | | | HCM 2000 Level of Service | | | C | | | | |
| HCM 2000 Volume to Capacity ratio | | 0.77 | | | | | | | | | | |
| Actuated Cycle Length (s) | | 60.5 | | | Sum of lost time (s) | | | 13.5 | | | | |
| Intersection Capacity Utilization | | 69.1% | | | ICU Level of Service | | | C | | | | |
| Analysis Period (min) | | 15 | | | | | | | | | | |
| c Critical Lane Group | | | | | | | | | | | | |

HCM Signalized Intersection Capacity Analysis

8: Washington Street & 14th Street




















07/07/2017







| |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement | SEL | SET | SER | NWL | NWT | NWR | NEL | NET | NER | SWL | SWT | SWR |
| Lane Configurations | |  |  | |  | |  |  | |  |  | |
| Traffic Volume (vph) | 487 | 60 | 258 | 20 | 85 | 11 | 300 | 317 | 13 | 7 | 467 | 205 |
| Future Volume (vph) | 487 | 60 | 258 | 20 | 85 | 11 | 300 | 317 | 13 | 7 | 467 | 205 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.5 | 4.5 | | 4.5 | | 4.5 | 4.5 | | 4.5 | 4.5 | |
| Lane Util. Factor | | 1.00 | 1.00 | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frpb, ped/bikes | | 1.00 | 0.96 | | 1.00 | | 1.00 | 1.00 | | 1.00 | 0.99 | |
| Flpb, ped/bikes | | 1.00 | 1.00 | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | | 1.00 | 0.85 | | 0.99 | | 1.00 | 0.99 | | 1.00 | 0.95 | |
| Flt Protected | | 0.96 | 1.00 | | 0.99 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | | 1795 | 1534 | | 1800 | | 1787 | 1867 | | 1746 | 1743 | |
| Flt Permitted | | 0.68 | 1.00 | | 0.66 | | 0.11 | 1.00 | | 0.55 | 1.00 | |
| Satd. Flow (perm) | | 1277 | 1534 | | 1192 | | 206 | 1867 | | 1015 | 1743 | |
| 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) | 513 | 63 | 272 | 21 | 89 | 12 | 316 | 334 | 14 | 7 | 492 | 216 |
| RTOR Reduction (vph) | 0 | 0 | 176 | 0 | 5 | 0 | 0 | 2 | 0 | 0 | 19 | 0 |
| Lane Group Flow (vph) | 0 | 576 | 96 | 0 | 117 | 0 | 316 | 346 | 0 | 7 | 689 | 0 |
| Confl. Peds. (#/hr) | 2 | | 9 | 9 | | 2 | 5 | | 5 | 5 | | 5 |
| Heavy Vehicles (%) | 1% | 1% | 1% | 3% | 3% | 3% | 1% | 1% | 1% | 3% | 3% | 3% |
| Turn Type | Perm | NA | Perm | Perm | NA | | pm+pt | NA | | pm+pt | NA | |
| Protected Phases | | 4 | | | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | 4 | 8 | | | 2 | | | 6 | | |
| Actuated Green, G (s) | | 29.5 | 29.5 | | 29.5 | | 45.1 | 39.6 | | 33.1 | 32.1 | |
| Effective Green, g (s) | | 29.5 | 29.5 | | 29.5 | | 45.1 | 39.6 | | 33.1 | 32.1 | |
| Actuated g/C Ratio | | 0.35 | 0.35 | | 0.35 | | 0.54 | 0.47 | | 0.40 | 0.38 | |
| Clearance Time (s) | | 4.5 | 4.5 | | 4.5 | | 4.5 | 4.5 | | 4.5 | 4.5 | |
| Vehicle Extension (s) | | 3.0 | 3.0 | | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | | 450 | 541 | | 420 | | 271 | 884 | | 410 | 669 | |
| v/s Ratio Prot | | | | | | | c0.12 | 0.19 | | 0.00 | 0.40 | |
| v/s Ratio Perm | | c0.45 | 0.06 | | 0.10 | | c0.51 | | | 0.01 | | |
| v/c Ratio | | 1.28 | 0.18 | | 0.28 | | 1.17 | 0.39 | | 0.02 | 1.03 | |
| Uniform Delay, d1 | | 27.0 | 18.7 | | 19.4 | | 22.7 | 14.2 | | 15.3 | 25.7 | |
| Progression Factor | | 1.00 | 1.00 | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | | 142.2 | 0.2 | | 0.4 | | 107.2 | 0.3 | | 0.0 | 42.6 | |
| Delay (s) | | 169.3 | 18.8 | | 19.8 | | 129.9 | 14.5 | | 15.3 | 68.4 | |
| Level of Service | | F | B | | B | | F | B | | B | E | |
| Approach Delay (s) | | 121.0 | | | 19.8 | | | 69.4 | | | 67.9 | |
| Approach LOS | | F | | | B | | | E | | | E | |
| Intersection Summary | | | | | | | | | | | | |
| HCM 2000 Control Delay | | | 85.0 | | | | HCM 2000 Level of Service | | | F | | |
| HCM 2000 Volume to Capacity ratio | | | 1.26 | | | | | | | | | |
| Actuated Cycle Length (s) | | | 83.6 | | | | Sum of lost time (s) | | | 13.5 | | |
| Intersection Capacity Utilization | | | 101.9% | | | | ICU Level of Service | | | G | | |
| Analysis Period (min) | | | 15 | | | | | | | | | |
| c Critical Lane Group | | | | | | | | | | | | |

HCM Unsignalized Intersection Capacity Analysis

9: Main Street & 14th Street

07/07/2017

| |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement | SEL | SET | SER | NWL | NWT | NWR | NEL | NET | NER | SWL | SWT | SWR |
| Lane Configurations |  |  | | |  | | |  |  | |  |  |
| Traffic Volume (veh/h) | 34 | 558 | 39 | 92 | 550 | 16 | 27 | 27 | 209 | 3 | 23 | 32 |
| Future Volume (Veh/h) | 34 | 558 | 39 | 92 | 550 | 16 | 27 | 27 | 209 | 3 | 23 | 32 |
| Sign Control | | Free | | | Free | | | Stop | | | Stop | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Hourly flow rate (vph) | 36 | 587 | 41 | 97 | 579 | 17 | 28 | 28 | 220 | 3 | 24 | 34 |
| Pedestrians | | 1 | | | 7 | | | 9 | | | | |
| Lane Width (ft) | | 12.0 | | | 12.0 | | | 12.0 | | | | |
| Walking Speed (ft/s) | | 3.5 | | | 3.5 | | | 3.5 | | | | |
| Percent Blockage | | 0 | | | 1 | | | 1 | | | | |
| Right turn flare (veh) | | | | | | | | | 5 | | | |
| Median type | | None | | | None | | | | | | | |
| Median storage (veh) | | | | | | | | | | | | |
| Upstream signal (ft) | | 187 | | | 537 | | | | | | | |
| pX, platoon unblocked | 0.90 | | | | | | 0.90 | 0.90 | | 0.90 | 0.90 | 0.90 |
| vC, conflicting volume | 596 | | | 637 | | | 1517 | 1478 | 624 | 1572 | 1490 | 588 |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 495 | | | 637 | | | 1519 | 1476 | 624 | 1579 | 1489 | 487 |
| tC, single (s) | 4.1 | | | 4.1 | | | 7.1 | 6.5 | 6.2 | 7.1 | 6.5 | 6.2 |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 2.2 | | | 2.2 | | | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 |
| p0 queue free % | 96 | | | 90 | | | 52 | 71 | 54 | 90 | 75 | 94 |
| cM capacity (veh/h) | 966 | | | 939 | | | 58 | 96 | 475 | 30 | 96 | 526 |
| Direction, Lane # | SE 1 | SE 2 | NW 1 | NE 1 | SW 1 | | | | | | | |
| Volume Total | 36 | 628 | 693 | 276 | 61 | | | | | | | |
| Volume Left | 36 | 0 | 97 | 28 | 3 | | | | | | | |
| Volume Right | 0 | 41 | 17 | 220 | 34 | | | | | | | |
| cSH | 966 | 1700 | 939 | 380 | 147 | | | | | | | |
| Volume to Capacity | 0.04 | 0.37 | 0.10 | 0.73 | 0.41 | | | | | | | |
| Queue Length 95th (ft) | 3 | 0 | 9 | 139 | 45 | | | | | | | |
| Control Delay (s) | 8.9 | 0.0 | 2.6 | 41.1 | 45.8 | | | | | | | |
| Lane LOS | A | | A | E | E | | | | | | | |
| Approach Delay (s) | 0.5 | | 2.6 | 41.1 | 45.8 | | | | | | | |
| Approach LOS | | | | E | E | | | | | | | |
| Intersection Summary | | | | | | | | | | | | |
| Average Delay | | | 9.6 | | | | | | | | | |
| Intersection Capacity Utilization | | | 87.2% | | ICU Level of Service | | | | E | | | |
| Analysis Period (min) | | | 15 | | | | | | | | | |

| Intersection | | | | | | | | | | | | |
|--------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------|------|-----------------------------------------------------------------------------------|------|------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|------|-------------------------------------------------------------------------------------|------|
| Int Delay, s/veh | 9 | | | | | | | | | | | |
| Movement | SEL | SET | SER | NWL | NWT | NWR | NEL | NET | NER | SWL | SWT | SWR |
| Lane Configurations |  |  | | |  | | |  |  | |  | |
| Traffic Vol, veh/h | 34 | 558 | 39 | 92 | 550 | 16 | 27 | 27 | 209 | 3 | 23 | 32 |
| Future Vol, veh/h | 34 | 558 | 39 | 92 | 550 | 16 | 27 | 27 | 209 | 3 | 23 | 32 |
| Conflicting Peds, #/hr | 0 | 0 | 9 | 9 | 0 | 0 | 1 | 0 | 7 | 7 | 0 | 1 |
| Sign Control | Free | Free | Free | Free | Free | Free | Stop | Stop | Stop | Stop | Stop | Stop |
| RT Channelized | - | - | None | - | - | None | - | - | None | - | - | None |
| Storage Length | 0 | - | - | - | - | - | - | - | 130 | - | - | - |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 95 | 95 | 95 | 95 | 95 | 95 | 95 | 95 | 95 | 95 | 95 | 95 |
| Heavy Vehicles, % | 1 | 1 | 1 | 2 | 2 | 2 | 4 | 4 | 4 | 0 | 0 | 0 |
| Mvmt Flow | 36 | 587 | 41 | 97 | 579 | 17 | 28 | 28 | 220 | 3 | 24 | 34 |

| Major/Minor | Major1 | | | Major2 | | | Minor1 | | | Minor2 | | |
|----------------------|--------|---|---|--------|---|---|--------|-------|-------|--------|------|-----|
| Conflicting Flow All | 596 | 0 | 0 | 637 | 0 | 0 | 1499 | 1477 | 624 | 1482 | 1490 | 588 |
| Stage 1 | - | - | - | - | - | - | 688 | 688 | - | 781 | 781 | - |
| Stage 2 | - | - | - | - | - | - | 811 | 789 | - | 701 | 709 | - |
| Critical Hdwy | 4.11 | - | - | 4.12 | - | - | 7.14 | 6.54 | 6.24 | 7.1 | 6.5 | 6.2 |
| Critical Hdwy Stg 1 | - | - | - | - | - | - | 6.14 | 5.54 | - | 6.1 | 5.5 | - |
| Critical Hdwy Stg 2 | - | - | - | - | - | - | 6.14 | 5.54 | - | 6.1 | 5.5 | - |
| Follow-up Hdwy | 2.209 | - | - | 2.218 | - | - | 3.536 | 4.036 | 3.336 | 3.5 | 4 | 3.3 |
| Pot Cap-1 Maneuver | 985 | - | - | 947 | - | - | 99 | 125 | 482 | 104 | 125 | 513 |
| Stage 1 | - | - | - | - | - | - | 433 | 444 | - | 391 | 408 | - |
| Stage 2 | - | - | - | - | - | - | 370 | 399 | - | 433 | 440 | - |
| Platoon blocked, % | | - | - | | - | - | | | | | | |
| Mov Cap-1 Maneuver | 984 | - | - | 941 | - | - | 64 | 101 | 475 | 37 | 101 | 513 |
| Mov Cap-2 Maneuver | - | - | - | - | - | - | 64 | 101 | - | 37 | 101 | - |
| Stage 1 | - | - | - | - | - | - | 414 | 424 | - | 377 | 345 | - |
| Stage 2 | - | - | - | - | - | - | 271 | 337 | - | 208 | 420 | - |

| Approach | SE | NW | NE | SW |
|----------------------|-----|-----|------|------|
| HCM Control Delay, s | 0.5 | 1.3 | 41.3 | 42.2 |
| HCM LOS | | | E | E |






| Minor Lane/Major Mvmt | NELn1 | NELn2 | NWL | NWT | NWR | SEL | SET | SERSWLn1 |
|-----------------------|-------|-------|-------|-----|-----|-------|-----|----------|
| Capacity (veh/h) | 78 | 475 | 941 | - | - | 984 | - | - 156 |
| HCM Lane V/C Ratio | 0.729 | 0.463 | 0.103 | - | - | 0.036 | - | - 0.391 |
| HCM Control Delay (s) | 127.5 | 19 | 9.3 | 0 | - | 8.8 | - | - 42.2 |
| HCM Lane LOS | F | C | A | A | - | A | - | - E |
| HCM 95th %tile Q(veh) | 3.5 | 2.4 | 0.3 | - | - | 0.1 | - | - 1.7 |

HCM Unsignalized Intersection Capacity Analysis

101: OR-213 & I-205 SB Ramps






07/07/2017



| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|-----------------------------------|-----------------------------------------------------------------------------------|------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
| Lane Configurations |  | |  |  |  |  |
| Traffic Volume (veh/h) | 6 | 0 | 760 | 17 | 23 | 17 |
| Future Volume (Veh/h) | 6 | 0 | 760 | 17 | 23 | 17 |
| Sign Control | Stop | | | Free | Free | |
| Grade | 0% | | | 0% | 0% | |
| Peak Hour Factor | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Hourly flow rate (vph) | 6 | 0 | 800 | 18 | 24 | 18 |
| Pedestrians | | | | | | |
| Lane Width (ft) | | | | | | |
| Walking Speed (ft/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | | | | None | None | |
| Median storage veh | | | | | | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 1642 | 24 | 24 | | | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 1642 | 24 | 24 | | | |
| tC, single (s) | *6.0 | 6.2 | 4.1 | | | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | *2.0 | 3.3 | 2.2 | | | |
| p0 queue free % | 93 | 100 | 49 | | | |
| cM capacity (veh/h) | 88 | 1050 | 1578 | | | |
| Direction, Lane # | EB 1 | NB 1 | NB 2 | SB 1 | SB 2 | |
| Volume Total | 6 | 800 | 18 | 24 | 18 | |
| Volume Left | 6 | 800 | 0 | 0 | 0 | |
| Volume Right | 0 | 0 | 0 | 0 | 18 | |
| cSH | 88 | 1578 | 1700 | 1700 | 1700 | |
| Volume to Capacity | 0.07 | 0.51 | 0.01 | 0.01 | 0.01 | |
| Queue Length 95th (ft) | 5 | 75 | 0 | 0 | 0 | |
| Control Delay (s) | 49.1 | 9.6 | 0.0 | 0.0 | 0.0 | |
| Lane LOS | E | A | | | | |
| Approach Delay (s) | 49.1 | 9.4 | | 0.0 | | |
| Approach LOS | E | | | | | |
| Intersection Summary | | | | | | |
| Average Delay | | | 9.2 | | | |
| Intersection Capacity Utilization | | | 58.8% | ICU Level of Service | | B |
| Analysis Period (min) | | | 15 | | | |
| * User Entered Value | | | | | | |

Intersection

Int Delay, s/veh 9.4

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|--------------------------|-----------------------------------------------------------------------------------|------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Lane Configurations |  | |  |  |  |  |
| Traffic Vol, veh/h | 6 | 0 | 760 | 17 | 23 | 17 |
| Future Vol, veh/h | 6 | 0 | 760 | 17 | 23 | 17 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Free | Free | Free | Free |
| RT Channelized | - | None | - | None | - | Free |
| Storage Length | 0 | - | 0 | - | - | 0 |
| Veh in Median Storage, # | 0 | - | - | 0 | 0 | - |
| Grade, % | 0 | - | - | 0 | 0 | - |
| Peak Hour Factor | 95 | 95 | 95 | 95 | 95 | 95 |
| Heavy Vehicles, % | 3 | 3 | 4 | 4 | 0 | 0 |
| Mvmt Flow | 6 | 0 | 800 | 18 | 24 | 18 |

| Major/Minor | Minor2 | | Major1 | | Major2 | |
|----------------------|--------|---|--------|---|--------|---|
| Conflicting Flow All | 1642 | - | 24 | 0 | - | 0 |
| Stage 1 | 24 | - | - | - | - | - |
| Stage 2 | 1618 | - | - | - | - | - |
| Critical Hdwy | 6 | - | 4.14 | - | - | - |
| Critical Hdwy Stg 1 | 5.43 | - | - | - | - | - |
| Critical Hdwy Stg 2 | 5.43 | - | - | - | - | - |
| Follow-up Hdwy | 2 | - | 2.236 | - | - | - |
| Pot Cap-1 Maneuver | 178 | 0 | 1578 | - | - | 0 |
| Stage 1 | 1748 | 0 | - | - | - | 0 |
| Stage 2 | 238 | 0 | - | - | - | 0 |
| Platoon blocked, % | | | | - | - | |
| Mov Cap-1 Maneuver | 88 | - | 1578 | - | - | - |
| Mov Cap-2 Maneuver | 88 | - | - | - | - | - |
| Stage 1 | 1748 | - | - | - | - | - |
| Stage 2 | 117 | - | - | - | - | - |

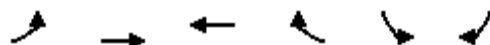
| Approach | EB | NB | SB |
|----------------------|----|-----|----|
| HCM Control Delay, s | 49 | 9.4 | 0 |
| HCM LOS | E | | |

| Minor Lane/Major Mvmt | NBL | NBT | EBLn1 | SBT |
|-----------------------|-------|-----|-------|-----|
| Capacity (veh/h) | 1578 | - | 88 | - |
| HCM Lane V/C Ratio | 0.507 | - | 0.072 | - |
| HCM Control Delay (s) | 9.6 | - | 49 | - |
| HCM Lane LOS | A | - | E | - |
| HCM 95th %tile Q(veh) | 3 | - | 0.2 | - |

HCM Unsignalized Intersection Capacity Analysis

102: I-205 SB Ramps & OR-213

07/07/2017



| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|-----------------------------------|------|------|-------|------|----------------------|------|
| Lane Configurations | | ↑↑ | | ↑↑ | ↑ | |
| Traffic Volume (veh/h) | 0 | 3062 | 0 | 777 | 23 | 0 |
| Future Volume (Veh/h) | 0 | 3062 | 0 | 777 | 23 | 0 |
| Sign Control | | Free | Free | | Stop | |
| Grade | | 0% | 0% | | 0% | |
| Peak Hour Factor | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Hourly flow rate (vph) | 0 | 3223 | 0 | 818 | 24 | 0 |
| Pedestrians | | | | | | |
| Lane Width (ft) | | | | | | |
| Walking Speed (ft/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | | None | None | | | |
| Median storage (veh) | | | | | | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 818 | | | | 1612 | 0 |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 818 | | | | 1612 | 0 |
| tC, single (s) | 4.2 | | | | *6.5 | 6.9 |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 2.2 | | | | *2.5 | 3.3 |
| p0 queue free % | 100 | | | | 82 | 100 |
| cM capacity (veh/h) | 800 | | | | 130 | 1091 |
| Direction, Lane # | EB 1 | EB 2 | WB 1 | WB 2 | SB 1 | |
| Volume Total | 1612 | 1612 | 409 | 409 | 24 | |
| Volume Left | 0 | 0 | 0 | 0 | 24 | |
| Volume Right | 0 | 0 | 409 | 409 | 0 | |
| cSH | 1700 | 1700 | 1700 | 1700 | 130 | |
| Volume to Capacity | 0.95 | 0.95 | 0.24 | 0.24 | 0.18 | |
| Queue Length 95th (ft) | 0 | 0 | 0 | 0 | 16 | |
| Control Delay (s) | 0.0 | 0.0 | 0.0 | 0.0 | 38.7 | |
| Lane LOS | | | | | E | |
| Approach Delay (s) | 0.0 | | 0.0 | | 38.7 | |
| Approach LOS | | | | | E | |
| Intersection Summary | | | | | | |
| Average Delay | | | 0.2 | | | |
| Intersection Capacity Utilization | | | 94.6% | | ICU Level of Service | F |
| Analysis Period (min) | | | 15 | | | |
| * User Entered Value | | | | | | |

Intersection

Int Delay, s/veh 0.2

| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|--------------------------|------|------|------|------|------|------|
| Lane Configurations | | ↑↑ | | ↑↑ | ↑ | |
| Traffic Vol, veh/h | 0 | 3062 | 0 | 777 | 23 | 0 |
| Future Vol, veh/h | 0 | 3062 | 0 | 777 | 23 | 0 |
| 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 | 0 | - |
| Veh in Median Storage, # | - | 0 | 0 | - | 0 | - |
| Grade, % | - | 0 | 0 | - | 0 | - |
| Peak Hour Factor | 95 | 95 | 95 | 95 | 95 | 95 |
| Heavy Vehicles, % | 3 | 3 | 4 | 4 | 0 | 0 |
| Mvmt Flow | 0 | 3223 | 0 | 818 | 24 | 0 |

| Major/Minor | Major1 | Major2 | Minor2 |
|----------------------|--------|--------|--------|
| Conflicting Flow All | - 0 | - - | 1612 - |
| Stage 1 | - - | - - | 0 - |
| Stage 2 | - - | - - | 1612 - |
| Critical Hdwy | - - | - - | 6.5 - |
| Critical Hdwy Stg 1 | - - | - - | - - |
| Critical Hdwy Stg 2 | - - | - - | 5.8 - |
| Follow-up Hdwy | - - | - - | 2.5 - |
| Pot Cap-1 Maneuver | 0 - | 0 - | 130 0 |
| Stage 1 | 0 - | 0 - | - 0 |
| Stage 2 | 0 - | 0 - | 178 0 |
| Platoon blocked, % | - | - | - |
| Mov Cap-1 Maneuver | - - | - - | 130 - |
| Mov Cap-2 Maneuver | - - | - - | 130 - |
| Stage 1 | - - | - - | - - |
| Stage 2 | - - | - - | 178 - |



















| Approach | EB | WB | SB |
|----------------------|----|----|------|
| HCM Control Delay, s | 0 | 0 | 38.9 |
| HCM LOS | | | E |

| Minor Lane/Major Mvmt | EBT | WBR | SBLn1 |
|-----------------------|-----|-----|-------|
| Capacity (veh/h) | - | - | 130 |
| HCM Lane V/C Ratio | - | - | 0.186 |
| HCM Control Delay (s) | - | - | 38.9 |
| HCM Lane LOS | - | - | E |
| HCM 95th %tile Q(veh) | - | - | 0.7 |

HCM Signalized Intersection Capacity Analysis

12: OR-213 & Prairie Schooner Way/Clackamas River Drive

07/07/2017

| |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | | |  | | |  | |  |  | |  |  |
| Traffic Volume (vph) | 0 | 0 | 238 | 0 | 0 | 542 | 0 | 1962 | 179 | 0 | 3722 | 763 |
| Future Volume (vph) | 0 | 0 | 238 | 0 | 0 | 542 | 0 | 1962 | 179 | 0 | 3722 | 763 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | | 4.5 | | | 4.5 | | 4.5 | 4.5 | | 4.5 | 4.5 |
| Lane Util. Factor | | | 0.88 | | | 0.88 | | 0.91 | 1.00 | | 0.91 | 1.00 |
| Frt | | | 0.85 | | | 0.85 | | 1.00 | 0.85 | | 1.00 | 0.85 |
| Flt Protected | | | 1.00 | | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 |
| Satd. Flow (prot) | | | 2814 | | | 2760 | | 5085 | 1583 | | 5085 | 1583 |
| Flt Permitted | | | 1.00 | | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 |
| Satd. Flow (perm) | | | 2814 | | | 2760 | | 5085 | 1583 | | 5085 | 1583 |
| Peak-hour factor, PHF | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Adj. Flow (vph) | 0 | 0 | 245 | 0 | 0 | 559 | 0 | 2023 | 185 | 0 | 3837 | 787 |
| RTOR Reduction (vph) | 0 | 0 | 53 | 0 | 0 | 20 | 0 | 0 | 60 | 0 | 0 | 160 |
| Lane Group Flow (vph) | 0 | 0 | 192 | 0 | 0 | 539 | 0 | 2023 | 125 | 0 | 3837 | 627 |
| Heavy Vehicles (%) | 1% | 1% | 1% | 3% | 3% | 3% | 2% | 2% | 2% | 2% | 2% | 2% |
| Turn Type | | | Perm | | | Perm | | NA | Perm | | NA | Perm |
| Protected Phases | | | | | | | | 2 | | | 6 | |
| Permitted Phases | | | 5 | | | 1 | | | 2 | | | 6 |
| Actuated Green, G (s) | | | 12.3 | | | 24.7 | | 70.9 | 70.9 | | 83.3 | 83.3 |
| Effective Green, g (s) | | | 12.3 | | | 24.7 | | 70.9 | 70.9 | | 83.3 | 83.3 |
| Actuated g/C Ratio | | | 0.12 | | | 0.24 | | 0.68 | 0.68 | | 0.80 | 0.80 |
| Clearance Time (s) | | | 4.5 | | | 4.5 | | 4.5 | 4.5 | | 4.5 | 4.5 |
| Vehicle Extension (s) | | | 3.0 | | | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 |
| Lane Grp Cap (vph) | | | 330 | | | 651 | | 3446 | 1072 | | 4049 | 1260 |
| v/s Ratio Prot | | | | | | | | 0.40 | | | c0.75 | |
| v/s Ratio Perm | | | 0.07 | | | c0.20 | | | 0.08 | | | 0.40 |
| v/c Ratio | | | 0.58 | | | 0.83 | | 0.59 | 0.12 | | 0.95 | 0.50 |
| Uniform Delay, d1 | | | 43.7 | | | 37.9 | | 9.0 | 5.9 | | 8.8 | 3.6 |
| Progression Factor | | | 1.00 | | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 |
| Incremental Delay, d2 | | | 2.6 | | | 8.5 | | 0.3 | 0.0 | | 5.8 | 0.3 |
| Delay (s) | | | 46.3 | | | 46.5 | | 9.3 | 5.9 | | 14.7 | 3.9 |
| Level of Service | | | D | | | D | | A | A | | B | A |
| Approach Delay (s) | | 46.3 | | | 46.5 | | | 9.0 | | | 12.8 | |
| Approach LOS | | D | | | D | | | A | | | B | |
| Intersection Summary | | | | | | | | | | | | |
| HCM 2000 Control Delay | | | 15.3 | | | HCM 2000 Level of Service | | | B | | | |
| HCM 2000 Volume to Capacity ratio | | | 0.95 | | | | | | | | | |
| Actuated Cycle Length (s) | | | 104.6 | | | Sum of lost time (s) | | | 9.0 | | | |
| Intersection Capacity Utilization | | | 87.7% | | | ICU Level of Service | | | E | | | |
| Analysis Period (min) | | | 15 | | | | | | | | | |
| c Critical Lane Group | | | | | | | | | | | | |

HCM Signalized Intersection Capacity Analysis

13: OR-213 & Redland Road

07/07/2017



| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|------------------------|-------|-------|-------|------|-------|-------|
| Lane Configurations | | | | | | |
| Traffic Volume (vph) | 543 | 238 | 162 | 1598 | 2892 | 1068 |
| Future Volume (vph) | 543 | 238 | 162 | 1598 | 2892 | 1068 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 |
| Lane Util. Factor | 0.97 | 1.00 | 1.00 | 0.95 | 0.95 | 1.00 |
| Frt | 1.00 | 0.85 | 1.00 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 0.95 | 1.00 | 1.00 | 1.00 |
| Satd. Flow (prot) | 3433 | 1583 | 1752 | 3505 | 3539 | 1583 |
| Flt Permitted | 0.95 | 1.00 | 0.95 | 1.00 | 1.00 | 1.00 |
| Satd. Flow (perm) | 3433 | 1583 | 1752 | 3505 | 3539 | 1583 |
| Peak-hour factor, PHF | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 |
| Adj. Flow (vph) | 554 | 243 | 165 | 1631 | 2951 | 1090 |
| RTOR Reduction (vph) | 0 | 2 | 0 | 0 | 0 | 9 |
| Lane Group Flow (vph) | 554 | 241 | 165 | 1631 | 2951 | 1081 |
| Heavy Vehicles (%) | 2% | 2% | 3% | 3% | 2% | 2% |
| Turn Type | Prot | pm+ov | Prot | NA | NA | pm+ov |
| Protected Phases | 4 | 5 | 5 | 2 | 6 | 4 |
| Permitted Phases | | 4 | | | | 6 |
| Actuated Green, G (s) | 18.5 | 27.0 | 8.5 | 92.5 | 79.5 | 98.0 |
| Effective Green, g (s) | 18.5 | 27.0 | 8.5 | 92.5 | 79.5 | 98.0 |
| Actuated g/C Ratio | 0.15 | 0.22 | 0.07 | 0.77 | 0.66 | 0.82 |
| Clearance Time (s) | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 529 | 415 | 124 | 2701 | 2344 | 1352 |
| v/s Ratio Prot | c0.16 | 0.04 | c0.09 | 0.47 | c0.83 | 0.12 |
| v/s Ratio Perm | | 0.11 | | | | 0.56 |
| v/c Ratio | 1.05 | 0.58 | 1.33 | 0.60 | 1.26 | 0.80 |
| Uniform Delay, d1 | 50.8 | 41.5 | 55.8 | 5.9 | 20.2 | 5.8 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 52.1 | 2.1 | 193.7 | 1.0 | 120.2 | 3.4 |
| Delay (s) | 102.8 | 43.5 | 249.4 | 6.9 | 140.4 | 9.2 |
| Level of Service | F | D | F | A | F | A |
| Approach Delay (s) | 84.7 | | | 29.2 | 105.0 | |
| Approach LOS | F | | | C | F | |
























Intersection Summary

| | | | |
|-----------------------------------|--------|---------------------------|------|
| HCM 2000 Control Delay | 82.1 | HCM 2000 Level of Service | F |
| HCM 2000 Volume to Capacity ratio | 1.23 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 13.5 |
| Intersection Capacity Utilization | 115.7% | ICU Level of Service | H |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

HCM Signalized Intersection Capacity Analysis

14: OR-213 & Beavercreek Road










07/07/2017

| |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations |  |  | |  |  |  |  |  |  |  |  |  |
| Traffic Volume (vph) | 490 | 945 | 70 | 90 | 700 | 560 | 55 | 710 | 130 | 1045 | 1425 | 660 |
| Future Volume (vph) | 490 | 945 | 70 | 90 | 700 | 560 | 55 | 710 | 130 | 1045 | 1425 | 660 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.5 | 4.5 | | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 |
| Lane Util. Factor | 0.97 | 0.95 | | 0.97 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 0.97 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.99 | | 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) | 3467 | 3532 | | 3467 | 3574 | 1577 | 1752 | 3505 | 1544 | 3433 | 3539 | 1555 |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 3467 | 3532 | | 3467 | 3574 | 1577 | 1752 | 3505 | 1544 | 3433 | 3539 | 1555 |
| Peak-hour factor, PHF | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Adj. Flow (vph) | 505 | 974 | 72 | 93 | 722 | 577 | 57 | 732 | 134 | 1077 | 1469 | 680 |
| RTOR Reduction (vph) | 0 | 4 | 0 | 0 | 0 | 396 | 0 | 0 | 105 | 0 | 0 | 183 |
| Lane Group Flow (vph) | 505 | 1042 | 0 | 93 | 722 | 181 | 57 | 732 | 29 | 1077 | 1469 | 497 |
| Confl. Peds. (#/hr) | 1 | | 6 | 6 | | 1 | 3 | | 1 | 1 | | 3 |
| Confl. Bikes (#/hr) | | | | | | | | | 1 | | | |
| Heavy Vehicles (%) | 1% | 1% | 1% | 1% | 1% | 1% | 3% | 3% | 3% | 2% | 2% | 2% |
| Turn Type | Prot | NA | | Prot | NA | Perm | Prot | NA | Perm | Prot | NA | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | 8 | | | 2 | | | 6 |
| Actuated Green, G (s) | 16.7 | 35.1 | | 5.1 | 23.5 | 23.5 | 4.0 | 26.3 | 26.3 | 35.5 | 57.8 | 57.8 |
| Effective Green, g (s) | 16.7 | 35.1 | | 5.1 | 23.5 | 23.5 | 4.0 | 26.3 | 26.3 | 35.5 | 57.8 | 57.8 |
| Actuated g/C Ratio | 0.14 | 0.29 | | 0.04 | 0.20 | 0.20 | 0.03 | 0.22 | 0.22 | 0.30 | 0.48 | 0.48 |
| Clearance Time (s) | 4.5 | 4.5 | | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 |
| 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) | 482 | 1033 | | 147 | 699 | 308 | 58 | 768 | 338 | 1015 | 1704 | 748 |
| v/s Ratio Prot | c0.15 | c0.29 | | 0.03 | 0.20 | | 0.03 | c0.21 | | c0.31 | 0.42 | |
| v/s Ratio Perm | | | | | | 0.12 | | | 0.02 | | | 0.32 |
| v/c Ratio | 1.05 | 1.01 | | 0.63 | 1.03 | 0.59 | 0.98 | 0.95 | 0.09 | 1.06 | 0.86 | 0.66 |
| Uniform Delay, d1 | 51.6 | 42.5 | | 56.5 | 48.2 | 43.9 | 58.0 | 46.2 | 37.3 | 42.2 | 27.6 | 23.7 |
| 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 | 54.0 | 30.1 | | 8.6 | 42.8 | 2.9 | 111.4 | 22.9 | 0.5 | 45.9 | 6.0 | 4.6 |
| Delay (s) | 105.7 | 72.5 | | 65.1 | 91.0 | 46.7 | 169.4 | 69.1 | 37.8 | 88.2 | 33.6 | 28.3 |
| Level of Service | F | E | | E | F | D | F | E | D | F | C | C |
| Approach Delay (s) | | 83.3 | | | 70.9 | | | 70.8 | | | 50.7 | |
| Approach LOS | | F | | | E | | | E | | | D | |
| Intersection Summary | | | | | | | | | | | | |
| HCM 2000 Control Delay | | | 64.4 | | | HCM 2000 Level of Service | | | E | | | |
| HCM 2000 Volume to Capacity ratio | | | 1.04 | | | | | | | | | |
| Actuated Cycle Length (s) | | | 120.0 | | | Sum of lost time (s) | | | 18.0 | | | |
| Intersection Capacity Utilization | | | 97.8% | | | ICU Level of Service | | | F | | | |
| Analysis Period (min) | | | 15 | | | | | | | | | |
| c Critical Lane Group | | | | | | | | | | | | |

HCM Unsignalized Intersection Capacity Analysis




15: Holly Lane & Holcomb Boulevard

07/07/2017

| | | | | | | |
|-----------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
| |  |  |  |  |  |  |
| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
| Lane Configurations |  | | |  |  | |
| Traffic Volume (veh/h) | 212 | 94 | 55 | 159 | 77 | 47 |
| Future Volume (Veh/h) | 212 | 94 | 55 | 159 | 77 | 47 |
| Sign Control | Free | | | Free | Stop | |
| Grade | 0% | | | 0% | 0% | |
| Peak Hour Factor | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Hourly flow rate (vph) | 236 | 104 | 61 | 177 | 86 | 52 |
| Pedestrians | | | | | | |
| Lane Width (ft) | | | | | | |
| Walking Speed (ft/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | None | | | None | | |
| Median storage veh | | | | | | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | | | 340 | | | 587 |
| vC1, stage 1 conf vol | | | | | | 288 |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | | | 340 | | | 587 |
| tC, single (s) | | | 4.1 | | | 6.4 |
| tC, 2 stage (s) | | | | | | 6.2 |
| tF (s) | | | 2.2 | | | 3.5 |
| p0 queue free % | | | 95 | | | 81 |
| cM capacity (veh/h) | | | 1208 | | | 448 |
| | | | | | | 751 |
| Direction, Lane # | EB 1 | WB 1 | NB 1 | | | |
| Volume Total | 340 | 238 | 138 | | | |
| Volume Left | 0 | 61 | 86 | | | |
| Volume Right | 104 | 0 | 52 | | | |
| cSH | 1700 | 1208 | 529 | | | |
| Volume to Capacity | 0.20 | 0.05 | 0.26 | | | |
| Queue Length 95th (ft) | 0 | 4 | 26 | | | |
| Control Delay (s) | 0.0 | 2.4 | 14.2 | | | |
| Lane LOS | | A | B | | | |
| Approach Delay (s) | 0.0 | 2.4 | 14.2 | | | |
| Approach LOS | | | B | | | |
| Intersection Summary | | | | | | |
| Average Delay | | | 3.5 | | | |
| Intersection Capacity Utilization | | | 45.4% | ICU Level of Service | A | |
| Analysis Period (min) | | | 15 | | | |

Intersection

Int Delay, s/veh 3.4

| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|--------------------------|-----------------------------------------------------------------------------------|------|------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|------|
| Lane Configurations |  | | |  |  | |
| Traffic Vol, veh/h | 212 | 94 | 55 | 159 | 77 | 47 |
| Future Vol, veh/h | 212 | 94 | 55 | 159 | 77 | 47 |
| 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 | 90 | 90 | 90 | 90 | 90 | 90 |
| Heavy Vehicles, % | 3 | 3 | 4 | 4 | 2 | 2 |
| Mvmt Flow | 236 | 104 | 61 | 177 | 86 | 52 |

| Major/Minor | Major1 | Major2 | Minor1 |
|----------------------|--------|--------|--------|
| Conflicting Flow All | 0 | 0 | 587 |
| Stage 1 | - | - | 288 |
| Stage 2 | - | - | 299 |
| Critical Hdwy | - | 4.14 | 6.42 |
| Critical Hdwy Stg 1 | - | - | 5.42 |
| Critical Hdwy Stg 2 | - | - | 5.42 |
| Follow-up Hdwy | - | 2.236 | 3.518 |
| Pot Cap-1 Maneuver | - | 1208 | 472 |
| Stage 1 | - | - | 761 |
| Stage 2 | - | - | 752 |
| Platoon blocked, % | - | - | - |
| Mov Cap-1 Maneuver | - | 1208 | 446 |
| Mov Cap-2 Maneuver | - | - | 446 |
| Stage 1 | - | - | 761 |
| Stage 2 | - | - | 710 |

















| Approach | EB | WB | NB |
|----------------------|----|-----|------|
| HCM Control Delay, s | 0 | 2.1 | 14.2 |
| HCM LOS | | | B |

| Minor Lane/Major Mvmt | NBLn1 | EBT | EBR | WBL | WBT |
|-----------------------|-------|-----|-----|-------|-----|
| Capacity (veh/h) | 527 | - | - | 1208 | - |
| HCM Lane V/C Ratio | 0.261 | - | - | 0.051 | - |
| HCM Control Delay (s) | 14.2 | - | - | 8.1 | 0 |
| HCM Lane LOS | B | - | - | A | A |
| HCM 95th %tile Q(veh) | 1 | - | - | 0.2 | - |

HCM Unsignalized Intersection Capacity Analysis

16: Holly Lane & Redland Road

07/07/2017


| | | | | | | | | | | | | |
|-----------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| |  |  |  |  |  |  |  |  |  |  |  |  |
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | |  | | |  | | |  | | |  | |
| Traffic Volume (veh/h) | 188 | 674 | 226 | 21 | 309 | 71 | 53 | 41 | 10 | 57 | 33 | 122 |
| Future Volume (Veh/h) | 188 | 674 | 226 | 21 | 309 | 71 | 53 | 41 | 10 | 57 | 33 | 122 |
| Sign Control | | Free | | | Free | | | Stop | | | Stop | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Hourly flow rate (vph) | 198 | 709 | 238 | 22 | 325 | 75 | 56 | 43 | 11 | 60 | 35 | 128 |
| Pedestrians | | | | | | | | | | | | |
| Lane Width (ft) | | | | | | | | | | | | |
| Walking Speed (ft/s) | | | | | | | | | | | | |
| Percent Blockage | | | | | | | | | | | | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | None | | | | None | | | | | | | |
| Median storage (veh) | | | | | | | | | | | | |
| Upstream signal (ft) | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 400 | | | 947 | | | 1776 | 1668 | 828 | 1663 | 1750 | 362 |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 400 | | | 947 | | | 1776 | 1668 | 828 | 1663 | 1750 | 362 |
| tC, single (s) | 4.1 | | | 4.1 | | | *6.0 | *6.0 | *6.0 | *6.0 | *6.0 | *6.0 |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 2.2 | | | 2.2 | | | *2.0 | *2.0 | *2.0 | *2.0 | *2.0 | *2.0 |
| p0 queue free % | 83 | | | 97 | | | 35 | 69 | 98 | 45 | 71 | 88 |
| cM capacity (veh/h) | 1159 | | | 721 | | | 86 | 138 | 565 | 110 | 123 | 1086 |
| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 | | | | | | | | |
| Volume Total | 1145 | 422 | 110 | 223 | | | | | | | | |
| Volume Left | 198 | 22 | 56 | 60 | | | | | | | | |
| Volume Right | 238 | 75 | 11 | 128 | | | | | | | | |
| cSH | 1159 | 721 | 112 | 235 | | | | | | | | |
| Volume to Capacity | 0.17 | 0.03 | 0.98 | 0.95 | | | | | | | | |
| Queue Length 95th (ft) | 15 | 2 | 157 | 211 | | | | | | | | |
| Control Delay (s) | 4.3 | 0.9 | 151.7 | 90.7 | | | | | | | | |
| Lane LOS | A | A | F | F | | | | | | | | |
| Approach Delay (s) | 4.3 | 0.9 | 151.7 | 90.7 | | | | | | | | |
| Approach LOS | | | F | F | | | | | | | | |
| Intersection Summary | | | | | | | | | | | | |
| Average Delay | | | 22.2 | | | | | | | | | |
| Intersection Capacity Utilization | | | 104.6% | ICU Level of Service | | | | G | | | | |
| Analysis Period (min) | | | 15 | | | | | | | | | |
| * User Entered Value | | | | | | | | | | | | |

| Intersection | | | | | | | | | | | | |
|--------------------------|--------|-------|------|--------|-------|------|--------|-------|------|--------|------|------|
| Int Delay, s/veh | 40 | | | | | | | | | | | |
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | | ↕ | | | ↕ | | | ↕ | | | ↕ | |
| Traffic Vol, veh/h | 188 | 674 | 226 | 21 | 309 | 71 | 53 | 41 | 10 | 57 | 33 | 122 |
| Future Vol, veh/h | 188 | 674 | 226 | 21 | 309 | 71 | 53 | 41 | 10 | 57 | 33 | 122 |
| 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 | - | - | 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 | 3 | 3 | 3 | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 198 | 709 | 238 | 22 | 325 | 75 | 56 | 43 | 11 | 60 | 35 | 128 |
| | | | | | | | | | | | | |
| Major/Minor | Major1 | | | Major2 | | | Minor1 | | | Minor2 | | |
| Conflicting Flow All | 400 | 0 | 0 | 947 | 0 | 0 | 1712 | 1668 | 828 | 1658 | 1750 | 363 |
| Stage 1 | - | - | - | - | - | - | 1224 | 1224 | - | 407 | 407 | - |
| Stage 2 | - | - | - | - | - | - | 488 | 444 | - | 1251 | 1343 | - |
| Critical Hdwy | 4.12 | - | - | 4.13 | - | - | 6 | 6 | 6 | 6 | 6 | 6 |
| 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 | - | - | 2.227 | - | - | 2 | 2 | 2 | 2 | 2 | 2 |
| Pot Cap-1 Maneuver | 1159 | - | - | 721 | - | - | 161 | 171 | 565 | 174 | 152 | 1085 |
| Stage 1 | - | - | - | - | - | - | 310 | 380 | - | 1007 | 1078 | - |
| Stage 2 | - | - | - | - | - | - | 896 | 1028 | - | 298 | 326 | - |
| Platoon blocked, % | | - | - | | - | - | | | | | | |
| Mov Cap-1 Maneuver | 1159 | - | - | 721 | - | - | 70 | 101 | 565 | 80 | 90 | 1085 |
| Mov Cap-2 Maneuver | - | - | - | - | - | - | 70 | 101 | - | 80 | 90 | |
| Stage 1 | - | - | - | - | - | - | 192 | 235 | - | 622 | 1035 | - |
| Stage 2 | - | - | - | - | - | - | 733 | 987 | - | 148 | 201 | - |
| | | | | | | | | | | | | |
| Approach | EB | | | WB | | | NB | | | SB | | |
| HCM Control Delay, s | 1.5 | | | 0.5 | | | 261.8 | | | 203.4 | | |
| HCM LOS | | | | | | | F | | | F | | |
| | | | | | | | | | | | | |
| Minor Lane/Major Mvmt | NBLn1 | EBL | EBT | EBR | WBL | WBT | WBR | SBLn1 | | | | |
| Capacity (veh/h) | 88 | 1159 | - | - | 721 | - | - | 178 | | | | |
| HCM Lane V/C Ratio | 1.244 | 0.171 | - | - | 0.031 | - | - | 1.254 | | | | |
| HCM Control Delay (s) | 261.8 | 8.7 | 0 | - | 10.2 | 0 | - | 203.4 | | | | |
| HCM Lane LOS | F | A | A | - | B | A | - | F | | | | |
| HCM 95th %tile Q(veh) | 7.9 | 0.6 | - | - | 0.1 | - | - | 12.4 | | | | |

HCM Signalized Intersection Capacity Analysis

1: OR-99E & I-205 SB Ramps


07/14/2017

| |  | | | | | |
|-----------------------------------|-----------------------------------------------------------------------------------|-------|-------|------|---------------------------|------|
| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
| Lane Configurations | ↔↔ | ↔ | ↕↕↕ | ↔ | ↔↔ | ↕↕↕ |
| Traffic Volume (vph) | 535 | 321 | 1622 | 388 | 859 | 1053 |
| Future Volume (vph) | 535 | 321 | 1622 | 388 | 859 | 1053 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 |
| Lane Util. Factor | 0.97 | 1.00 | 0.91 | 1.00 | 0.97 | 0.91 |
| Frpb, ped/bikes | 1.00 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.85 | 1.00 | 0.85 | 1.00 | 1.00 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (prot) | 3273 | 1509 | 4988 | 1527 | 3400 | 5036 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (perm) | 3273 | 1509 | 4988 | 1527 | 3400 | 5036 |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Adj. Flow (vph) | 563 | 338 | 1707 | 408 | 904 | 1108 |
| RTOR Reduction (vph) | 0 | 1 | 0 | 257 | 0 | 0 |
| Lane Group Flow (vph) | 563 | 337 | 1707 | 151 | 904 | 1108 |
| Confl. Peds. (#/hr) | | | | 3 | 3 | |
| Heavy Vehicles (%) | 7% | 7% | 4% | 4% | 3% | 3% |
| Turn Type | Prot | pm+ov | NA | Perm | Prot | NA |
| Protected Phases | 8 | 1 | 2 | | 1 | 6 |
| Permitted Phases | | 8 | | 2 | | |
| Actuated Green, G (s) | 17.6 | 43.1 | 33.4 | 33.4 | 25.5 | 63.4 |
| Effective Green, g (s) | 17.6 | 43.1 | 33.4 | 33.4 | 25.5 | 63.4 |
| Actuated g/C Ratio | 0.20 | 0.48 | 0.37 | 0.37 | 0.28 | 0.70 |
| Clearance Time (s) | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 640 | 798 | 1851 | 566 | 963 | 3547 |
| v/s Ratio Prot | c0.17 | 0.12 | c0.34 | | c0.27 | 0.22 |
| v/s Ratio Perm | | 0.10 | | 0.10 | | |
| v/c Ratio | 0.88 | 0.42 | 0.92 | 0.27 | 0.94 | 0.31 |
| Uniform Delay, d1 | 35.2 | 15.3 | 27.1 | 19.8 | 31.5 | 5.0 |
| Progression Factor | 1.00 | 1.00 | 0.83 | 1.97 | 1.00 | 1.00 |
| Incremental Delay, d2 | 13.1 | 0.4 | 5.5 | 0.6 | 16.1 | 0.2 |
| Delay (s) | 48.3 | 15.7 | 27.9 | 39.6 | 47.6 | 5.3 |
| Level of Service | D | B | C | D | D | A |
| Approach Delay (s) | 36.1 | | 30.1 | | | 24.3 |
| Approach LOS | D | | C | | | C |
| Intersection Summary | | | | | | |
| HCM 2000 Control Delay | | | 28.9 | | HCM 2000 Level of Service | C |
| HCM 2000 Volume to Capacity ratio | | | 0.92 | | | |
| Actuated Cycle Length (s) | | | 90.0 | | Sum of lost time (s) | 13.5 |
| Intersection Capacity Utilization | | | 82.4% | | ICU Level of Service | E |
| Analysis Period (min) | | | 15 | | | |
| c Critical Lane Group | | | | | | |

HCM Signalized Intersection Capacity Analysis

2: OR-99E & I-205 NB Ramps

07/14/2017

| |  | | | | | |
|-----------------------------------|-----------------------------------------------------------------------------------|------|-------|-------|---------------------------|------|
| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
| Lane Configurations | ↔↔ | ↔ | ↔↔↔ | ↔↔ | ↔ | ↔↔↔ |
| Traffic Volume (vph) | 205 | 576 | 1468 | 1261 | 347 | 1213 |
| Future Volume (vph) | 205 | 576 | 1468 | 1261 | 347 | 1213 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 |
| Lane Util. Factor | 0.97 | 1.00 | 0.91 | 0.88 | 1.00 | 0.91 |
| Frpb, ped/bikes | 1.00 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.85 | 1.00 | 0.85 | 1.00 | 1.00 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (prot) | 3335 | 1538 | 4940 | 2660 | 1719 | 4940 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (perm) | 3335 | 1538 | 4940 | 2660 | 1719 | 4940 |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Adj. Flow (vph) | 216 | 606 | 1545 | 1327 | 365 | 1277 |
| RTOR Reduction (vph) | 0 | 339 | 0 | 99 | 0 | 0 |
| Lane Group Flow (vph) | 216 | 267 | 1545 | 1228 | 365 | 1277 |
| Confl. Peds. (#/hr) | | | | 3 | 3 | |
| Heavy Vehicles (%) | 5% | 5% | 5% | 5% | 5% | 5% |
| Turn Type | Prot | Perm | NA | pm+ov | Prot | NA |
| Protected Phases | 8 | | 2 | 8 | 1 | 6 |
| Permitted Phases | | 8 | | 2 | | |
| Actuated Green, G (s) | 20.0 | 20.0 | 35.3 | 55.3 | 21.2 | 61.0 |
| Effective Green, g (s) | 20.0 | 20.0 | 35.3 | 55.3 | 21.2 | 61.0 |
| Actuated g/C Ratio | 0.22 | 0.22 | 0.39 | 0.61 | 0.24 | 0.68 |
| Clearance Time (s) | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 741 | 341 | 1937 | 1767 | 404 | 3348 |
| v/s Ratio Prot | 0.06 | | c0.31 | c0.15 | c0.21 | 0.26 |
| v/s Ratio Perm | | 0.17 | | 0.31 | | |
| v/c Ratio | 0.29 | 0.78 | 0.80 | 0.70 | 0.90 | 0.38 |
| Uniform Delay, d1 | 29.1 | 33.0 | 24.2 | 11.7 | 33.4 | 6.3 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 0.72 | 0.83 |
| Incremental Delay, d2 | 0.2 | 11.1 | 3.5 | 1.2 | 20.8 | 0.3 |
| Delay (s) | 29.3 | 44.1 | 27.7 | 12.9 | 45.0 | 5.5 |
| Level of Service | C | D | C | B | D | A |
| Approach Delay (s) | 40.2 | | 20.9 | | | 14.3 |
| Approach LOS | D | | C | | | B |
| Intersection Summary | | | | | | |
| HCM 2000 Control Delay | | | 21.8 | | HCM 2000 Level of Service | C |
| HCM 2000 Volume to Capacity ratio | | | 0.82 | | | |
| Actuated Cycle Length (s) | | | 90.0 | | Sum of lost time (s) | 13.5 |
| Intersection Capacity Utilization | | | 71.5% | | ICU Level of Service | C |
| Analysis Period (min) | | | 15 | | | |
| c Critical Lane Group | | | | | | |

HCM Signalized Intersection Capacity Analysis

3: OR-99E & 15th Street

07/14/2017

| | ↑ | ↖ | ↙ | ↓ | ↘ | ↗ |
|-----------------------------------|-------|------|-------|------|---------------------------|-------|
| Movement | NBT | NBR | SBL | SBT | NWL | NWR |
| Lane Configurations | ↑↑ | | | ↑↑↑ | ↘ | ↗↗ |
| Traffic Volume (vph) | 1570 | 0 | 0 | 1409 | 102 | 964 |
| Future Volume (vph) | 1570 | 0 | 0 | 1409 | 102 | 964 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.5 | | | 4.5 | 4.5 | 4.5 |
| Lane Util. Factor | 0.95 | | | 0.91 | 1.00 | 0.88 |
| Frt | 1.00 | | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 1.00 | | | 1.00 | 0.95 | 1.00 |
| Satd. Flow (prot) | 3406 | | | 4893 | 1770 | 2787 |
| Flt Permitted | 1.00 | | | 1.00 | 0.95 | 1.00 |
| Satd. Flow (perm) | 3406 | | | 4893 | 1770 | 2787 |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Adj. Flow (vph) | 1653 | 0 | 0 | 1483 | 107 | 1015 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 0 | 16 |
| Lane Group Flow (vph) | 1653 | 0 | 0 | 1483 | 107 | 999 |
| Heavy Vehicles (%) | 6% | 6% | 6% | 6% | 2% | 2% |
| Turn Type | NA | | | NA | Prot | Perm |
| Protected Phases | 2 | | | 6 | 8 | |
| Permitted Phases | | | | | | 8 |
| Actuated Green, G (s) | 41.4 | | | 41.4 | 29.1 | 29.1 |
| Effective Green, g (s) | 41.4 | | | 41.4 | 29.1 | 29.1 |
| Actuated g/C Ratio | 0.52 | | | 0.52 | 0.37 | 0.37 |
| Clearance Time (s) | 4.5 | | | 4.5 | 4.5 | 4.5 |
| Vehicle Extension (s) | 3.0 | | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 1773 | | | 2548 | 647 | 1020 |
| v/s Ratio Prot | c0.49 | | | 0.30 | 0.06 | |
| v/s Ratio Perm | | | | | | c0.36 |
| v/c Ratio | 0.93 | | | 0.58 | 0.17 | 0.98 |
| Uniform Delay, d1 | 17.7 | | | 13.1 | 17.0 | 24.9 |
| Progression Factor | 1.00 | | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 9.5 | | | 0.3 | 0.1 | 22.9 |
| Delay (s) | 27.2 | | | 13.4 | 17.1 | 47.8 |
| Level of Service | C | | | B | B | D |
| Approach Delay (s) | 27.2 | | | 13.4 | 44.8 | |
| Approach LOS | C | | | B | D | |
| Intersection Summary | | | | | | |
| HCM 2000 Control Delay | | | 27.1 | | HCM 2000 Level of Service | C |
| HCM 2000 Volume to Capacity ratio | | | 0.95 | | | |
| Actuated Cycle Length (s) | | | 79.5 | | 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

4: OR-99E & 14th Street

























07/14/2017

| | ↑ | ↖ | ↙ | ↓ | ↘ | ↗ |
|-----------------------------------|------|------|-------|------|---------------------------|------|
| Movement | NBT | NBR | SBL | SBT | NWL | NWR |
| Lane Configurations | ↑↑ | | ↖ | ↑↑ | | |
| Traffic Volume (vph) | 1678 | 49 | 420 | 1171 | 0 | 0 |
| Future Volume (vph) | 1678 | 49 | 420 | 1171 | 0 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.5 | | 4.5 | 4.5 | | |
| Lane Util. Factor | 0.95 | | 1.00 | 0.95 | | |
| Frpb, ped/bikes | 1.00 | | 1.00 | 1.00 | | |
| Flpb, ped/bikes | 1.00 | | 1.00 | 1.00 | | |
| Frt | 1.00 | | 1.00 | 1.00 | | |
| Flt Protected | 1.00 | | 0.95 | 1.00 | | |
| Satd. Flow (prot) | 3390 | | 1703 | 3406 | | |
| Flt Permitted | 1.00 | | 0.10 | 1.00 | | |
| Satd. Flow (perm) | 3390 | | 174 | 3406 | | |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Adj. Flow (vph) | 1766 | 52 | 442 | 1233 | 0 | 0 |
| RTOR Reduction (vph) | 3 | 0 | 0 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 1815 | 0 | 442 | 1233 | 0 | 0 |
| Confl. Peds. (#/hr) | | 1 | 1 | | 3 | |
| Heavy Vehicles (%) | 6% | 6% | 6% | 6% | 4% | 4% |
| Turn Type | NA | | pm+pt | NA | | |
| Protected Phases | 2 | | 1 | 6 | | |
| Permitted Phases | | | 6 | | | |
| Actuated Green, G (s) | 36.6 | | 54.2 | 58.7 | | |
| Effective Green, g (s) | 36.6 | | 54.2 | 58.7 | | |
| Actuated g/C Ratio | 0.62 | | 0.92 | 1.00 | | |
| Clearance Time (s) | 4.5 | | 4.5 | 4.5 | | |
| Vehicle Extension (s) | 3.0 | | 3.0 | 3.0 | | |
| Lane Grp Cap (vph) | 2113 | | 501 | 3406 | | |
| v/s Ratio Prot | 0.54 | | c0.20 | 0.36 | | |
| v/s Ratio Perm | | | c0.62 | | | |
| v/c Ratio | 0.86 | | 0.88 | 0.36 | | |
| Uniform Delay, d1 | 9.0 | | 16.8 | 0.0 | | |
| Progression Factor | 1.00 | | 1.00 | 1.00 | | |
| Incremental Delay, d2 | 4.8 | | 16.6 | 0.1 | | |
| Delay (s) | 13.8 | | 33.4 | 0.1 | | |
| Level of Service | B | | C | A | | |
| Approach Delay (s) | 13.8 | | | 8.9 | 0.0 | |
| Approach LOS | B | | | A | A | |
| Intersection Summary | | | | | | |
| HCM 2000 Control Delay | | | 11.4 | | HCM 2000 Level of Service | B |
| HCM 2000 Volume to Capacity ratio | | | 0.93 | | | |
| Actuated Cycle Length (s) | | | 58.7 | | 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

5: Redland Road & Abernethy Road/Holcomb Boulevard

07/14/2017

| |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations |  |  |  |  |  |  |  |  |  |  |  |  |
| Traffic Volume (vph) | 33 | 124 | 63 | 43 | 256 | 414 | 279 | 563 | 41 | 193 | 398 | 73 |
| Future Volume (vph) | 33 | 124 | 63 | 43 | 256 | 414 | 279 | 563 | 41 | 193 | 398 | 73 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | | 4.5 | 4.5 | 4.5 |
| 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 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 0.99 | | 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) | 1656 | 1743 | 1449 | 1752 | 1845 | 1568 | 1752 | 1826 | | 1736 | 1827 | 1553 |
| 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) | 1656 | 1743 | 1449 | 1752 | 1845 | 1568 | 1752 | 1826 | | 1736 | 1827 | 1553 |
| 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) | 35 | 131 | 66 | 45 | 269 | 436 | 294 | 593 | 43 | 203 | 419 | 77 |
| RTOR Reduction (vph) | 0 | 0 | 51 | 0 | 0 | 124 | 0 | 3 | 0 | 0 | 0 | 51 |
| Lane Group Flow (vph) | 35 | 131 | 15 | 45 | 269 | 312 | 294 | 633 | 0 | 203 | 419 | 26 |
| Confl. Peds. (#/hr) | | | 1 | 1 | | | | | | | | |
| Heavy Vehicles (%) | 9% | 9% | 9% | 3% | 3% | 3% | 3% | 3% | 3% | 4% | 4% | 4% |
| Turn Type | Prot | NA | Perm | Prot | NA | pm+ov | Prot | NA | | Prot | NA | pm+ov |
| Protected Phases | 7 | 4 | | 3 | 8 | 1 | 5 | 2 | | 1 | 6 | 7 |
| Permitted Phases | | | 4 | | | 8 | | | | | | 6 |
| Actuated Green, G (s) | 3.8 | 16.4 | 16.4 | 2.8 | 15.4 | 24.8 | 13.6 | 25.0 | | 9.4 | 20.8 | 24.6 |
| Effective Green, g (s) | 3.8 | 16.4 | 16.4 | 2.8 | 15.4 | 24.8 | 13.6 | 25.0 | | 9.4 | 20.8 | 24.6 |
| Actuated g/C Ratio | 0.05 | 0.23 | 0.23 | 0.04 | 0.22 | 0.35 | 0.19 | 0.35 | | 0.13 | 0.29 | 0.34 |
| Clearance Time (s) | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | | 4.5 | 4.5 | 4.5 |
| 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) | 87 | 399 | 331 | 68 | 396 | 641 | 332 | 637 | | 227 | 530 | 631 |
| v/s Ratio Prot | 0.02 | 0.08 | | c0.03 | c0.15 | 0.06 | c0.17 | c0.35 | | 0.12 | 0.23 | 0.00 |
| v/s Ratio Perm | | | 0.01 | | | 0.14 | | | | | | 0.01 |
| v/c Ratio | 0.40 | 0.33 | 0.05 | 0.66 | 0.68 | 0.49 | 0.89 | 0.99 | | 0.89 | 0.79 | 0.04 |
| Uniform Delay, d1 | 32.8 | 23.0 | 21.5 | 33.9 | 25.8 | 18.4 | 28.2 | 23.2 | | 30.6 | 23.4 | 15.7 |
| 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 | 3.0 | 0.5 | 0.1 | 21.6 | 4.6 | 0.6 | 23.3 | 33.8 | | 32.7 | 7.9 | 0.0 |
| Delay (s) | 35.8 | 23.5 | 21.6 | 55.5 | 30.4 | 19.0 | 51.6 | 57.0 | | 63.3 | 31.3 | 15.7 |
| Level of Service | D | C | C | E | C | B | D | E | | E | C | B |
| Approach Delay (s) | | 24.8 | | | 25.3 | | | 55.3 | | | 38.9 | |
| Approach LOS | | C | | | C | | | E | | | D | |
| Intersection Summary | | | | | | | | | | | | |
| HCM 2000 Control Delay | | | 39.6 | | | | HCM 2000 Level of Service | | | D | | |
| HCM 2000 Volume to Capacity ratio | | | 0.88 | | | | | | | | | |
| Actuated Cycle Length (s) | | | 71.6 | | | | Sum of lost time (s) | | | 18.0 | | |
| Intersection Capacity Utilization | | | 75.4% | | | | ICU Level of Service | | | D | | |
| Analysis Period (min) | | | 15 | | | | | | | | | |
| c Critical Lane Group | | | | | | | | | | | | |

HCM Signalized Intersection Capacity Analysis

7: Washington Street & 15th Street


















07/14/2017

| Movement | SEL | SET | SER | NWL | NWT | NWR | NEL | NET | NER | SWL | SWT | SWR |
|-----------------------------------|------|------|-------|------|------|------|-------|------|------|-------|------|-------|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 0 | 0 | 0 | 18 | 145 | 48 | 456 | 391 | 142 | 70 | 321 | 674 |
| Future Volume (vph) | 0 | 0 | 0 | 18 | 145 | 48 | 456 | 391 | 142 | 70 | 321 | 674 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | | | | 4.5 | | 4.5 | 4.5 | | 4.5 | 4.5 | 4.5 |
| Lane Util. Factor | | | | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frpb, ped/bikes | | | | | 0.99 | | 1.00 | 0.99 | | 1.00 | 1.00 | 0.99 |
| Flpb, ped/bikes | | | | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | | | | | 0.97 | | 1.00 | 0.96 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | | | | | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | | | | | 1689 | | 1702 | 1711 | | 1735 | 1827 | 1532 |
| Flt Permitted | | | | | 1.00 | | 0.40 | 1.00 | | 0.44 | 1.00 | 1.00 |
| Satd. Flow (perm) | | | | | 1689 | | 708 | 1711 | | 805 | 1827 | 1532 |
| 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 | 0 | 0 | 20 | 161 | 53 | 507 | 434 | 158 | 78 | 357 | 749 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 12 | 0 | 0 | 14 | 0 | 0 | 0 | 174 |
| Lane Group Flow (vph) | 0 | 0 | 0 | 0 | 222 | 0 | 507 | 578 | 0 | 78 | 357 | 575 |
| Confl. Peds. (#/hr) | 1 | | 1 | 1 | | 1 | 1 | | 1 | 1 | | 1 |
| Confl. Bikes (#/hr) | | | | | | 1 | | | | | | |
| Heavy Vehicles (%) | 20% | 20% | 20% | 8% | 8% | 8% | 6% | 6% | 6% | 4% | 4% | 4% |
| Turn Type | | | | Perm | NA | | pm+pt | NA | | pm+pt | NA | Perm |
| Protected Phases | | | | | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | 8 | | | 2 | | | 6 | | 6 |
| Actuated Green, G (s) | | | | | 14.6 | | 56.9 | 48.6 | | 39.3 | 35.5 | 35.5 |
| Effective Green, g (s) | | | | | 14.6 | | 56.9 | 48.6 | | 39.3 | 35.5 | 35.5 |
| Actuated g/C Ratio | | | | | 0.18 | | 0.71 | 0.60 | | 0.49 | 0.44 | 0.44 |
| Clearance Time (s) | | | | | 4.5 | | 4.5 | 4.5 | | 4.5 | 4.5 | 4.5 |
| Vehicle Extension (s) | | | | | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | | | | | 306 | | 709 | 1032 | | 436 | 805 | 675 |
| v/s Ratio Prot | | | | | | | c0.15 | 0.34 | | 0.01 | 0.20 | |
| v/s Ratio Perm | | | | | 0.13 | | 0.36 | | | 0.08 | | c0.38 |
| v/c Ratio | | | | | 0.72 | | 0.72 | 0.56 | | 0.18 | 0.44 | 0.85 |
| Uniform Delay, d1 | | | | | 31.1 | | 6.5 | 9.5 | | 11.0 | 15.6 | 20.1 |
| Progression Factor | | | | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | | | | | 8.2 | | 3.4 | 0.7 | | 0.2 | 0.4 | 10.1 |
| Delay (s) | | | | | 39.3 | | 10.0 | 10.2 | | 11.2 | 16.0 | 30.3 |
| Level of Service | | | | | D | | A | B | | B | B | C |
| Approach Delay (s) | | 0.0 | | | 39.3 | | | 10.1 | | | 24.7 | |
| Approach LOS | | A | | | D | | | B | | | C | |
| Intersection Summary | | | | | | | | | | | | |
| HCM 2000 Control Delay | | | 19.7 | | | | | | | | | |
| HCM 2000 Volume to Capacity ratio | | | 0.80 | | | | | | | | | |
| Actuated Cycle Length (s) | | | 80.5 | | | | | | | 13.5 | | |
| Intersection Capacity Utilization | | | 90.0% | | | | | | | | | |
| Analysis Period (min) | | | 15 | | | | | | | | | |
| c Critical Lane Group | | | | | | | | | | | | |

HCM Signalized Intersection Capacity Analysis

8: Washington Street & 14th Street

















07/14/2017

| |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement | SEL | SET | SER | NWL | NWT | NWR | NEL | NET | NER | SWL | SWT | SWR |
| Lane Configurations |  |  | | | | | |  | |  |  | |
| Traffic Volume (vph) | 283 | 46 | 171 | 0 | 0 | 0 | 0 | 689 | 10 | 1 | 358 | 0 |
| Future Volume (vph) | 283 | 46 | 171 | 0 | 0 | 0 | 0 | 689 | 10 | 1 | 358 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.5 | 4.5 | | | | | | 4.5 | | 4.5 | 4.5 | |
| Lane Util. Factor | 1.00 | 1.00 | | | | | | 1.00 | | 1.00 | 1.00 | |
| Frpb, ped/bikes | 1.00 | 0.98 | | | | | | 1.00 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | | | | | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 0.88 | | | | | | 1.00 | | 1.00 | 1.00 | |
| Flt Protected | 0.95 | 1.00 | | | | | | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1733 | 1578 | | | | | | 1840 | | 1719 | 1810 | |
| Flt Permitted | 0.95 | 1.00 | | | | | | 1.00 | | 0.14 | 1.00 | |
| Satd. Flow (perm) | 1733 | 1578 | | | | | | 1840 | | 249 | 1810 | |
| 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) | 298 | 48 | 180 | 0 | 0 | 0 | 0 | 725 | 11 | 1 | 377 | 0 |
| RTOR Reduction (vph) | 0 | 134 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 298 | 94 | 0 | 0 | 0 | 0 | 0 | 735 | 0 | 1 | 377 | 0 |
| Confl. Peds. (#/hr) | 1 | | 4 | 4 | | 1 | 3 | | 2 | 2 | | 3 |
| Confl. Bikes (#/hr) | | | | | | | | | | | | 1 |
| Heavy Vehicles (%) | 4% | 4% | 4% | 2% | 2% | 2% | 3% | 3% | 3% | 5% | 5% | 5% |
| Turn Type | Perm | NA | | | | | | NA | | pm+pt | NA | |
| Protected Phases | | 4 | | | | | | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | | | | | | | | 6 | | |
| Actuated Green, G (s) | 14.0 | 14.0 | | | | | | 25.9 | | 31.2 | 31.2 | |
| Effective Green, g (s) | 14.0 | 14.0 | | | | | | 25.9 | | 31.2 | 31.2 | |
| Actuated g/C Ratio | 0.26 | 0.26 | | | | | | 0.48 | | 0.58 | 0.58 | |
| Clearance Time (s) | 4.5 | 4.5 | | | | | | 4.5 | | 4.5 | 4.5 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | | | | | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 447 | 407 | | | | | | 879 | | 165 | 1041 | |
| v/s Ratio Prot | | 0.06 | | | | | | c0.40 | | 0.00 | c0.21 | |
| v/s Ratio Perm | c0.17 | | | | | | | | | 0.00 | | |
| v/c Ratio | 0.67 | 0.23 | | | | | | 0.84 | | 0.01 | 0.36 | |
| Uniform Delay, d1 | 18.0 | 15.9 | | | | | | 12.3 | | 8.4 | 6.2 | |
| Progression Factor | 1.00 | 1.00 | | | | | | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 3.7 | 0.3 | | | | | | 7.0 | | 0.0 | 0.2 | |
| Delay (s) | 21.7 | 16.2 | | | | | | 19.3 | | 8.4 | 6.4 | |
| Level of Service | C | B | | | | | | B | | A | A | |
| Approach Delay (s) | | 19.3 | | | 0.0 | | | 19.3 | | | 6.4 | |
| Approach LOS | | B | | | A | | | B | | | A | |
| Intersection Summary | | | | | | | | | | | | |
| HCM 2000 Control Delay | | | 16.3 | | | | | HCM 2000 Level of Service | | | B | |
| HCM 2000 Volume to Capacity ratio | | | 0.79 | | | | | | | | | |
| Actuated Cycle Length (s) | | | 54.2 | | | | | Sum of lost time (s) | | 13.5 | | |
| Intersection Capacity Utilization | | | 60.1% | | | | | ICU Level of Service | | B | | |
| Analysis Period (min) | | | 15 | | | | | | | | | |
| c Critical Lane Group | | | | | | | | | | | | |




HCM Unsignalized Intersection Capacity Analysis

9: Main Street & 14th Street

07/14/2017

| |  |  |  |  |  |  |  |  |  |  |  |  | | | | | | | |
|-----------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|--|--|--|--|--|--|--|
| Movement | SEL | SET | SER | NWL | NWT | NWR | NEL | NET | NER | SWL | SWT | SWR | | | | | | | |
| Lane Configurations | |  | | | | | |  |  | |  | | | | | | | | |
| Sign Control | | Stop | | | Stop | | | Stop | | | Stop | | | | | | | | |
| Traffic Volume (vph) | 29 | 397 | 37 | 0 | 0 | 0 | 0 | 40 | 76 | 41 | 155 | 0 | | | | | | | |
| Future Volume (vph) | 29 | 397 | 37 | 0 | 0 | 0 | 0 | 40 | 76 | 41 | 155 | 0 | | | | | | | |
| Peak Hour Factor | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | | | | | | | |
| Hourly flow rate (vph) | 31 | 418 | 39 | 0 | 0 | 0 | 0 | 42 | 80 | 43 | 163 | 0 | | | | | | | |
| Direction, Lane # | SE 1 | SE 2 | NE 1 | NE 2 | SW 1 | | | | | | | | | | | | | | |
| Volume Total (vph) | 240 | 248 | 42 | 80 | 206 | | | | | | | | | | | | | | |
| Volume Left (vph) | 31 | 0 | 0 | 0 | 43 | | | | | | | | | | | | | | |
| Volume Right (vph) | 0 | 39 | 0 | 80 | 0 | | | | | | | | | | | | | | |
| Hadj (s) | 0.13 | -0.04 | 0.15 | -0.55 | 0.04 | | | | | | | | | | | | | | |
| Departure Headway (s) | 5.6 | 5.4 | 6.2 | 5.5 | 5.9 | | | | | | | | | | | | | | |
| Degree Utilization, x | 0.37 | 0.37 | 0.07 | 0.12 | 0.34 | | | | | | | | | | | | | | |
| Capacity (veh/h) | 621 | 645 | 542 | 607 | 580 | | | | | | | | | | | | | | |
| Control Delay (s) | 10.6 | 10.3 | 8.5 | 8.1 | 11.9 | | | | | | | | | | | | | | |
| Approach Delay (s) | 10.5 | | 8.2 | | 11.9 | | | | | | | | | | | | | | |
| Approach LOS | B | | A | | B | | | | | | | | | | | | | | |
| Intersection Summary | | | | | | | | | | | | | | | | | | | |
| Delay | | | 10.5 | | | | | | | | | | | | | | | | |
| Level of Service | | | B | | | | | | | | | | | | | | | | |
| Intersection Capacity Utilization | | | 41.6% | ICU Level of Service | | | | | A | | | | | | | | | | |
| Analysis Period (min) | | | 15 | | | | | | | | | | | | | | | | |

| Intersection | |
|---------------------------|------|
| Intersection Delay, s/veh | 11.2 |
| Intersection LOS | B |

| Movement | SEU | SEL | SET | SER | NWU | NWL | NWT | NWR | NEU | NEL | NET | NER |
|---------------------|------|------|-----------------------------------------------------------------------------------|------|------|------|------|------|------|------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Lane Configurations | | |  | | | | | | | |  |  |
| Traffic Vol, veh/h | 0 | 29 | 397 | 37 | 0 | 0 | 0 | 0 | 0 | 0 | 40 | 76 |
| Future Vol, veh/h | 0 | 29 | 397 | 37 | 0 | 0 | 0 | 0 | 0 | 0 | 40 | 76 |
| Peak Hour Factor | 0.92 | 0.95 | 0.95 | 0.95 | 0.92 | 0.95 | 0.95 | 0.95 | 0.92 | 0.95 | 0.95 | 0.95 |
| Heavy Vehicles, % | 2 | 4 | 4 | 4 | 2 | 3 | 3 | 3 | 2 | 9 | 9 | 9 |
| Mvmt Flow | 0 | 31 | 418 | 39 | 0 | 0 | 0 | 0 | 0 | 0 | 42 | 80 |
| Number of Lanes | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 |

| Approach | SE | NE |
|----------------------------|------|-----|
| Opposing Approach | | SW |
| Opposing Lanes | 0 | 1 |
| Conflicting Approach Left | SW | SE |
| Conflicting Lanes Left | 1 | 2 |
| Conflicting Approach Right | NE | |
| Conflicting Lanes Right | 2 | 0 |
| HCM Control Delay | 11.4 | 9.1 |
| HCM LOS | B | A |

| Lane | NELn1 | NELn2 | SELn1 | SELn2 | SWLn1 |
|------------------------|-------|-------|-------|-------|-------|
| Vol Left, % | 0% | 0% | 13% | 0% | 21% |
| Vol Thru, % | 100% | 0% | 87% | 84% | 79% |
| Vol Right, % | 0% | 100% | 0% | 16% | 0% |
| Sign Control | Stop | Stop | Stop | Stop | Stop |
| Traffic Vol by Lane | 40 | 76 | 228 | 236 | 196 |
| LT Vol | 0 | 0 | 29 | 0 | 41 |
| Through Vol | 40 | 0 | 199 | 199 | 155 |
| RT Vol | 0 | 76 | 0 | 37 | 0 |
| Lane Flow Rate | 42 | 80 | 239 | 248 | 206 |
| Geometry Grp | 7 | 7 | 7 | 7 | 6 |
| Degree of Util (X) | 0.072 | 0.121 | 0.368 | 0.369 | 0.335 |
| Departure Headway (Hd) | 6.146 | 5.436 | 5.527 | 5.352 | 5.85 |
| Convergence, Y/N | Yes | Yes | Yes | Yes | Yes |
| Cap | 577 | 652 | 647 | 667 | 611 |
| Service Time | 3.945 | 3.235 | 3.303 | 3.129 | 3.932 |
| HCM Lane V/C Ratio | 0.073 | 0.123 | 0.369 | 0.372 | 0.337 |
| HCM Control Delay | 9.4 | 9 | 11.5 | 11.3 | 11.9 |
| HCM Lane LOS | A | A | B | B | B |
| HCM 95th-tile Q | 0.2 | 0.4 | 1.7 | 1.7 | 1.5 |

Intersection

Intersection Delay, s/veh

Intersection LOS

| Movement | SWU | SWL | SWT | SWR |
|---------------------|------|------|------|------|
| Lane Configurations | | | | |
| Traffic Vol, veh/h | 0 | 41 | 155 | 0 |
| Future Vol, veh/h | 0 | 41 | 155 | 0 |
| Peak Hour Factor | 0.92 | 0.95 | 0.95 | 0.95 |
| Heavy Vehicles, % | 2 | 0 | 0 | 0 |
| Mvmt Flow | 0 | 43 | 163 | 0 |
| Number of Lanes | 0 | 0 | 1 | 0 |

| Approach | SW |
|----------------------------|------|
| Opposing Approach | NE |
| Opposing Lanes | 2 |
| Conflicting Approach Left | |
| Conflicting Lanes Left | 0 |
| Conflicting Approach Right | SE |
| Conflicting Lanes Right | 2 |
| HCM Control Delay | 11.9 |
| HCM LOS | B |

HCM Signalized Intersection Capacity Analysis

13: OR-213 & Redland Road

07/14/2017









| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|------------------------|-------|-------|------|-------|------|-------|
| Lane Configurations | | | | | | |
| Traffic Volume (vph) | 782 | 184 | 144 | 2303 | 1703 | 535 |
| Future Volume (vph) | 782 | 184 | 144 | 2303 | 1703 | 535 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 |
| Lane Util. Factor | 0.97 | 1.00 | 1.00 | 0.91 | 0.91 | 1.00 |
| Frt | 1.00 | 0.85 | 1.00 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 0.95 | 1.00 | 1.00 | 1.00 |
| Satd. Flow (prot) | 3400 | 1568 | 1736 | 4988 | 4988 | 1553 |
| Flt Permitted | 0.95 | 1.00 | 0.95 | 1.00 | 1.00 | 1.00 |
| Satd. Flow (perm) | 3400 | 1568 | 1736 | 4988 | 4988 | 1553 |
| Peak-hour factor, PHF | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 |
| Adj. Flow (vph) | 815 | 192 | 150 | 2399 | 1774 | 557 |
| RTOR Reduction (vph) | 0 | 2 | 0 | 0 | 0 | 67 |
| Lane Group Flow (vph) | 815 | 190 | 150 | 2399 | 1774 | 490 |
| Heavy Vehicles (%) | 3% | 3% | 4% | 4% | 4% | 4% |
| Turn Type | Prot | pm+ov | Prot | NA | NA | pm+ov |
| Protected Phases | 4 | 5 | 5 | 2 | 6 | 4 |
| Permitted Phases | | 4 | | | | 6 |
| Actuated Green, G (s) | 33.9 | 48.6 | 14.7 | 77.1 | 57.9 | 91.8 |
| Effective Green, g (s) | 33.9 | 48.6 | 14.7 | 77.1 | 57.9 | 91.8 |
| Actuated g/C Ratio | 0.28 | 0.41 | 0.12 | 0.64 | 0.48 | 0.76 |
| Clearance Time (s) | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 960 | 693 | 212 | 3204 | 2406 | 1246 |
| v/s Ratio Prot | c0.24 | 0.03 | 0.09 | c0.48 | 0.36 | 0.11 |
| v/s Ratio Perm | | 0.09 | | | | 0.20 |
| v/c Ratio | 0.85 | 0.27 | 0.71 | 0.75 | 0.74 | 0.39 |
| Uniform Delay, d1 | 40.6 | 23.9 | 50.6 | 14.8 | 24.9 | 4.7 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 7.1 | 0.2 | 10.3 | 1.7 | 2.1 | 0.2 |
| Delay (s) | 47.7 | 24.1 | 60.9 | 16.4 | 27.0 | 4.9 |
| Level of Service | D | C | E | B | C | A |
| Approach Delay (s) | 43.2 | | | 19.0 | 21.7 | |
| Approach LOS | D | | | B | C | |

Intersection Summary

| | | | |
|-----------------------------------|-------|---------------------------|------|
| HCM 2000 Control Delay | 24.2 | HCM 2000 Level of Service | C |
| HCM 2000 Volume to Capacity ratio | 0.81 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 13.5 |
| Intersection Capacity Utilization | 74.4% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

HCM Unsignalized Intersection Capacity Analysis 15: Holly Lane & Holcomb Boulevard

07/14/2017

| |  |  |  |  |  |  |
|-----------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
| Right Turn Channelized | | | | | | |
| Traffic Volume (veh/h) | 53 | 73 | 52 | 165 | 98 | 67 |
| Future Volume (veh/h) | 53 | 73 | 52 | 165 | 98 | 67 |
| Peak Hour Factor | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 |
| Hourly flow rate (vph) | 62 | 86 | 61 | 194 | 115 | 79 |
| Approach Volume (veh/h) | 148 | | | 255 | 194 | |
| Crossing Volume (veh/h) | 61 | | | 115 | 62 | |
| High Capacity (veh/h) | 1320 | | | 1266 | 1319 | |
| High v/c (veh/h) | 0.11 | | | 0.20 | 0.15 | |
| Low Capacity (veh/h) | 1103 | | | 1053 | 1102 | |
| Low v/c (veh/h) | 0.13 | | | 0.24 | 0.18 | |
| Intersection Summary | | | | | | |
| Maximum v/c High | | | 0.20 | | | |
| Maximum v/c Low | | | 0.24 | | | |
| Intersection Capacity Utilization | | | 38.4% | | ICU Level of Service | A |

HCM 2010 Roundabout
15: Holly Lane & Holcomb Boulevard













07/14/2017

| Intersection | | | |
|-----------------------------|-------|-------|-------|
| Intersection Delay, s/veh | 5.7 | | |
| Intersection LOS | A | | |
| Approach | EB | WB | NB |
| Entry Lanes | 1 | 1 | 1 |
| Conflicting Circle Lanes | 1 | 1 | 1 |
| Adj Approach Flow, veh/h | 148 | 255 | 194 |
| Demand Flow Rate, veh/h | 155 | 268 | 198 |
| Vehicles Circulating, veh/h | 64 | 117 | 65 |
| Vehicles Exiting, veh/h | 321 | 146 | 154 |
| 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 | 4.9 | 6.5 | 5.2 |
| Approach LOS | A | A | A |
| Lane | Left | Left | Left |
| Designated Moves | TR | LT | LR |
| Assumed Moves | TR | LT | LR |
| RT Channelized | | | |
| Lane Util | 1.000 | 1.000 | 1.000 |
| Critical Headway, s | 5.193 | 5.193 | 5.193 |
| Entry Flow, veh/h | 155 | 268 | 198 |
| Cap Entry Lane, veh/h | 1060 | 1005 | 1059 |
| Entry HV Adj Factor | 0.954 | 0.953 | 0.980 |
| Flow Entry, veh/h | 148 | 255 | 194 |
| Cap Entry, veh/h | 1011 | 957 | 1037 |
| V/C Ratio | 0.146 | 0.267 | 0.187 |
| Control Delay, s/veh | 4.9 | 6.5 | 5.2 |
| LOS | A | A | A |
| 95th %tile Queue, veh | 1 | 1 | 1 |

HCM Unsignalized Intersection Capacity Analysis

16: Holly Lane & Redland Road

07/14/2017


| |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Right Turn Channelized | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 58 | 149 | 114 | 83 | 526 | 65 | 149 | 35 | 40 | 88 | 42 | 166 |
| Future Volume (veh/h) | 58 | 149 | 114 | 83 | 526 | 65 | 149 | 35 | 40 | 88 | 42 | 166 |
| Peak Hour Factor | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Hourly flow rate (vph) | 61 | 157 | 120 | 87 | 554 | 68 | 157 | 37 | 42 | 93 | 44 | 175 |
| Approach Volume (veh/h) | 338 | | | 709 | | | 236 | | | 312 | | |
| Crossing Volume (veh/h) | 224 | | | 255 | | | 311 | | | 798 | | |
| High Capacity (veh/h) | 1162 | | | 1134 | | | 1085 | | | 734 | | |
| High v/c (veh/h) | 0.29 | | | 0.63 | | | 0.22 | | | 0.42 | | |
| Low Capacity (veh/h) | 959 | | | 934 | | | 890 | | | 579 | | |
| Low v/c (veh/h) | 0.35 | | | 0.76 | | | 0.27 | | | 0.54 | | |
| Intersection Summary | | | | | | | | | | | | |
| Maximum v/c High | 0.63 | | | | | | | | | | | |
| Maximum v/c Low | 0.76 | | | | | | | | | | | |
| Intersection Capacity Utilization | 82.7% | | | ICU Level of Service | | | E | | | | | |
| | | | | | | | | | | | | |

| Intersection | | | | | |
|-----------------------------|-------|-------|-------|-------|-------|
| Intersection Delay, s/veh | 21.7 | | | | |
| Intersection LOS | C | | | | |
| Approach | EB | | WB | | NB |
| Entry Lanes | 2 | | 1 | | 1 |
| Conflicting Circle Lanes | 1 | | 1 | | 1 |
| Adj Approach Flow, veh/h | 338 | | 709 | | 236 |
| Demand Flow Rate, veh/h | 386 | | 759 | | 245 |
| Vehicles Circulating, veh/h | 233 | | 271 | | 344 |
| Vehicles Exiting, veh/h | 934 | | 318 | | 275 |
| 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 | 7.2 | | 32.0 | | 8.3 |
| Approach LOS | A | | D | | A |
| Lane | Left | Right | Left | Left | Left |
| Designated Moves | LT | R | LTR | LTR | LTR |
| Assumed Moves | LT | R | LTR | LTR | LTR |
| RT Channelized | | | | | |
| Lane Util | 0.645 | 0.355 | 1.000 | 1.000 | 1.000 |
| Critical Headway, s | 5.193 | 5.193 | 5.193 | 5.193 | 5.193 |
| Entry Flow, veh/h | 249 | 137 | 759 | 245 | 318 |
| Cap Entry Lane, veh/h | 895 | 895 | 862 | 801 | 483 |
| Entry HV Adj Factor | 0.876 | 0.876 | 0.934 | 0.961 | 0.982 |
| Flow Entry, veh/h | 218 | 120 | 709 | 236 | 312 |
| Cap Entry, veh/h | 784 | 784 | 805 | 770 | 474 |
| V/C Ratio | 0.278 | 0.153 | 0.881 | 0.306 | 0.658 |
| Control Delay, s/veh | 7.7 | 6.2 | 32.0 | 8.3 | 24.3 |
| LOS | A | A | D | A | C |
| 95th %tile Queue, veh | 1 | 1 | 11 | 1 | 5 |

HCM Signalized Intersection Capacity Analysis

1: OR-99E & I-205 SB Ramps


















07/19/2017

| |  | | | | | |
|-----------------------------------|-----------------------------------------------------------------------------------|-------|-------|-------|---------------------------|------|
| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
| Lane Configurations | ↔↔ | ↔ | ↔↔↔ | ↔ | ↔↔ | ↔↔↔ |
| Traffic Volume (vph) | 1255 | 435 | 1250 | 535 | 560 | 1600 |
| Future Volume (vph) | 1255 | 435 | 1250 | 535 | 560 | 1600 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 |
| Lane Util. Factor | 0.97 | 1.00 | 0.91 | 1.00 | 0.97 | 0.91 |
| Frpb, ped/bikes | 1.00 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.85 | 1.00 | 0.85 | 1.00 | 1.00 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (prot) | 3400 | 1568 | 5085 | 1549 | 3433 | 5085 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (perm) | 3400 | 1568 | 5085 | 1549 | 3433 | 5085 |
| Peak-hour factor, PHF | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Adj. Flow (vph) | 1294 | 448 | 1289 | 552 | 577 | 1649 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 399 | 0 | 0 |
| Lane Group Flow (vph) | 1294 | 448 | 1289 | 153 | 577 | 1649 |
| Confl. Peds. (#/hr) | | | | 6 | 6 | |
| Confl. Bikes (#/hr) | | | | 1 | | |
| Heavy Vehicles (%) | 3% | 3% | 2% | 2% | 2% | 2% |
| Turn Type | Prot | pm+ov | NA | Perm | Prot | NA |
| Protected Phases | 8 | 1 | 2 | | 1 | 6 |
| Permitted Phases | | 8 | | 2 | | |
| Actuated Green, G (s) | 35.5 | 51.6 | 24.9 | 24.9 | 16.1 | 45.5 |
| Effective Green, g (s) | 35.5 | 51.6 | 24.9 | 24.9 | 16.1 | 45.5 |
| Actuated g/C Ratio | 0.39 | 0.57 | 0.28 | 0.28 | 0.18 | 0.51 |
| Clearance Time (s) | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 1341 | 977 | 1406 | 428 | 614 | 2570 |
| v/s Ratio Prot | c0.38 | 0.08 | c0.25 | | c0.17 | 0.32 |
| v/s Ratio Perm | | 0.20 | | 0.10 | | |
| v/c Ratio | 0.96 | 0.46 | 0.92 | 0.36 | 0.94 | 0.64 |
| Uniform Delay, d1 | 26.6 | 11.1 | 31.5 | 26.1 | 36.5 | 16.3 |
| Progression Factor | 1.00 | 1.00 | 1.05 | 4.08 | 1.00 | 1.00 |
| Incremental Delay, d2 | 16.8 | 0.3 | 7.1 | 1.4 | 22.3 | 1.2 |
| Delay (s) | 43.4 | 11.5 | 40.1 | 107.9 | 58.8 | 17.5 |
| Level of Service | D | B | D | F | E | B |
| Approach Delay (s) | 35.2 | | 60.4 | | | 28.2 |
| Approach LOS | D | | E | | | C |
| Intersection Summary | | | | | | |
| HCM 2000 Control Delay | | | 40.5 | | HCM 2000 Level of Service | D |
| HCM 2000 Volume to Capacity ratio | | | 0.94 | | | |
| Actuated Cycle Length (s) | | | 90.0 | | Sum of lost time (s) | 13.5 |
| Intersection Capacity Utilization | | | 87.2% | | ICU Level of Service | E |
| Analysis Period (min) | | | 15 | | | |
| c Critical Lane Group | | | | | | |

HCM Signalized Intersection Capacity Analysis

2: OR-99E & I-205 NB Ramps

07/19/2017

| |  |  |  |  |  |  |
|-----------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
| Lane Configurations |  |  |    |   |  |    |
| Traffic Volume (vph) | 615 | 520 | 1265 | 930 | 530 | 2325 |
| Future Volume (vph) | 615 | 520 | 1265 | 930 | 530 | 2325 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 |
| Lane Util. Factor | 0.97 | 1.00 | 0.91 | 0.88 | 1.00 | 0.91 |
| Frpb, ped/bikes | 1.00 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.85 | 1.00 | 0.85 | 1.00 | 1.00 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (prot) | 3433 | 1583 | 5036 | 2699 | 1770 | 5085 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (perm) | 3433 | 1583 | 5036 | 2699 | 1770 | 5085 |
| Peak-hour factor, PHF | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 |
| Adj. Flow (vph) | 628 | 531 | 1291 | 949 | 541 | 2372 |
| RTOR Reduction (vph) | 0 | 419 | 0 | 111 | 0 | 0 |
| Lane Group Flow (vph) | 628 | 112 | 1291 | 838 | 541 | 2372 |
| Confl. Peds. (#/hr) | | | | 7 | 7 | |
| Heavy Vehicles (%) | 2% | 2% | 3% | 3% | 2% | 2% |
| Turn Type | Prot | Perm | NA | pm+ov | Prot | NA |
| Protected Phases | 8 | | 2 | 8 | 1 | 6 |
| Permitted Phases | | 8 | | 2 | | |
| Actuated Green, G (s) | 19.0 | 19.0 | 28.0 | 47.0 | 29.5 | 62.0 |
| Effective Green, g (s) | 19.0 | 19.0 | 28.0 | 47.0 | 29.5 | 62.0 |
| Actuated g/C Ratio | 0.21 | 0.21 | 0.31 | 0.52 | 0.33 | 0.69 |
| Clearance Time (s) | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 724 | 334 | 1566 | 1544 | 580 | 3503 |
| v/s Ratio Prot | c0.18 | | c0.26 | 0.11 | c0.31 | 0.47 |
| v/s Ratio Perm | | 0.07 | | 0.20 | | |
| v/c Ratio | 0.87 | 0.34 | 0.82 | 0.54 | 0.93 | 0.68 |
| Uniform Delay, d1 | 34.3 | 30.1 | 28.7 | 14.3 | 29.3 | 8.2 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.17 | 0.59 |
| Incremental Delay, d2 | 10.7 | 0.6 | 5.1 | 0.4 | 15.2 | 0.6 |
| Delay (s) | 45.0 | 30.7 | 33.8 | 14.7 | 49.4 | 5.4 |
| Level of Service | D | C | C | B | D | A |
| Approach Delay (s) | 38.5 | | 25.7 | | | 13.6 |
| Approach LOS | D | | C | | | B |
| Intersection Summary | | | | | | |
| HCM 2000 Control Delay | | | 22.5 | | HCM 2000 Level of Service | C |
| HCM 2000 Volume to Capacity ratio | | | 0.88 | | | |
| Actuated Cycle Length (s) | | | 90.0 | | Sum of lost time (s) | 13.5 |
| Intersection Capacity Utilization | | | 82.6% | | ICU Level of Service | E |
| Analysis Period (min) | | | 15 | | | |
| c Critical Lane Group | | | | | | |

HCM Signalized Intersection Capacity Analysis

3: OR-99E & 15th Street

07/19/2017

| | ↑ | ↖ | ↙ | ↓ | ↘ | ↗ |
|-----------------------------------|------|-------|------|---------------------------|------|-------|
| Movement | NBT | NBR | SBL | SBT | NWL | NWR |
| Lane Configurations | ↑↑ | | | ↑↑↑ | ↖ | ↗ |
| Traffic Volume (vph) | 1408 | 0 | 0 | 2940 | 73 | 787 |
| Future Volume (vph) | 1408 | 0 | 0 | 2940 | 73 | 787 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.5 | | | 4.5 | 4.5 | 4.5 |
| Lane Util. Factor | 0.95 | | | 0.91 | 1.00 | 0.88 |
| Frpb, ped/bikes | 1.00 | | | 1.00 | 1.00 | 1.00 |
| Flpb, ped/bikes | 1.00 | | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 1.00 | | | 1.00 | 0.95 | 1.00 |
| Satd. Flow (prot) | 3505 | | | 5036 | 1770 | 2787 |
| Flt Permitted | 1.00 | | | 1.00 | 0.95 | 1.00 |
| Satd. Flow (perm) | 3505 | | | 5036 | 1770 | 2787 |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Adj. Flow (vph) | 1482 | 0 | 0 | 3095 | 77 | 828 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 0 | 63 |
| Lane Group Flow (vph) | 1482 | 0 | 0 | 3095 | 77 | 765 |
| Confl. Peds. (#/hr) | | 3 | 3 | | | |
| Heavy Vehicles (%) | 3% | 3% | 3% | 3% | 2% | 2% |
| Turn Type | NA | | | NA | Prot | Perm |
| Protected Phases | 2 | | | 6 | 8 | |
| Permitted Phases | | | | | | 8 |
| Actuated Green, G (s) | 77.5 | | | 77.5 | 33.5 | 33.5 |
| Effective Green, g (s) | 77.5 | | | 77.5 | 33.5 | 33.5 |
| Actuated g/C Ratio | 0.65 | | | 0.65 | 0.28 | 0.28 |
| Clearance Time (s) | 4.5 | | | 4.5 | 4.5 | 4.5 |
| Vehicle Extension (s) | 3.0 | | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 2263 | | | 3252 | 494 | 778 |
| v/s Ratio Prot | 0.42 | | | c0.61 | 0.04 | |
| v/s Ratio Perm | | | | | | c0.27 |
| v/c Ratio | 0.65 | | | 0.95 | 0.16 | 0.98 |
| Uniform Delay, d1 | 13.0 | | | 19.5 | 32.6 | 43.0 |
| Progression Factor | 1.00 | | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 0.7 | | | 7.5 | 0.1 | 28.0 |
| Delay (s) | 13.7 | | | 27.0 | 32.7 | 71.0 |
| Level of Service | B | | | C | C | E |
| Approach Delay (s) | 13.7 | | | 27.0 | 67.7 | |
| Approach LOS | B | | | C | E | |
| Intersection Summary | | | | | | |
| HCM 2000 Control Delay | | 30.1 | | HCM 2000 Level of Service | | C |
| HCM 2000 Volume to Capacity ratio | | 0.96 | | | | |
| Actuated Cycle Length (s) | | 120.0 | | Sum of lost time (s) | | 9.0 |
| Intersection Capacity Utilization | | 80.6% | | ICU Level of Service | | D |
| Analysis Period (min) | | 15 | | | | |
| c Critical Lane Group | | | | | | |

HCM Signalized Intersection Capacity Analysis

4: OR-99E & 14th Street
























07/19/2017

| | ↑ | ↖ | ↙ | ↓ | ↗ | ↘ |
|-----------------------------------|------|-------|-------|---------------------------|------|------|
| Movement | NBT | NBR | SBL | SBT | NWL | NWR |
| Lane Configurations | ↑↑ | | ↙ | ↑↑ | | |
| Traffic Volume (vph) | 1408 | 83 | 569 | 2444 | 0 | 0 |
| Future Volume (vph) | 1408 | 83 | 569 | 2444 | 0 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.5 | | 4.5 | 4.5 | | |
| Lane Util. Factor | 0.95 | | 1.00 | 0.95 | | |
| Frpb, ped/bikes | 1.00 | | 1.00 | 1.00 | | |
| Flpb, ped/bikes | 1.00 | | 1.00 | 1.00 | | |
| Frt | 0.99 | | 1.00 | 1.00 | | |
| Flt Protected | 1.00 | | 0.95 | 1.00 | | |
| Satd. Flow (prot) | 3439 | | 1770 | 3539 | | |
| Flt Permitted | 1.00 | | 0.11 | 1.00 | | |
| Satd. Flow (perm) | 3439 | | 201 | 3539 | | |
| Peak-hour factor, PHF | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Adj. Flow (vph) | 1452 | 86 | 587 | 2520 | 0 | 0 |
| RTOR Reduction (vph) | 7 | 0 | 0 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 1531 | 0 | 587 | 2520 | 0 | 0 |
| Confl. Peds. (#/hr) | | 2 | 2 | | | |
| Heavy Vehicles (%) | 4% | 4% | 2% | 2% | 1% | 1% |
| Turn Type | NA | | pm+pt | NA | | |
| Protected Phases | 2 | | 1 | 6 | | |
| Permitted Phases | | | 6 | | | |
| Actuated Green, G (s) | 32.6 | | 54.2 | 58.7 | | |
| Effective Green, g (s) | 32.6 | | 54.2 | 58.7 | | |
| Actuated g/C Ratio | 0.56 | | 0.92 | 1.00 | | |
| Clearance Time (s) | 4.5 | | 4.5 | 4.5 | | |
| Vehicle Extension (s) | 3.0 | | 3.0 | 3.0 | | |
| Lane Grp Cap (vph) | 1909 | | 642 | 3539 | | |
| v/s Ratio Prot | 0.45 | | c0.27 | 0.71 | | |
| v/s Ratio Perm | | | c0.58 | | | |
| v/c Ratio | 0.80 | | 0.91 | 0.71 | | |
| Uniform Delay, d1 | 10.5 | | 15.6 | 0.0 | | |
| Progression Factor | 1.00 | | 1.00 | 1.00 | | |
| Incremental Delay, d2 | 3.7 | | 17.6 | 0.7 | | |
| Delay (s) | 14.1 | | 33.2 | 0.7 | | |
| Level of Service | B | | C | A | | |
| Approach Delay (s) | 14.1 | | | 6.8 | 0.0 | |
| Approach LOS | B | | | A | A | |
| Intersection Summary | | | | | | |
| HCM 2000 Control Delay | | 9.2 | | HCM 2000 Level of Service | | A |
| HCM 2000 Volume to Capacity ratio | | 0.96 | | | | |
| Actuated Cycle Length (s) | | 58.7 | | Sum of lost time (s) | | 9.0 |
| Intersection Capacity Utilization | | 80.6% | | ICU Level of Service | | D |
| Analysis Period (min) | | 15 | | | | |
| c Critical Lane Group | | | | | | |

HCM Signalized Intersection Capacity Analysis

5: Redland Road & Abernethy Road/Holcomb Boulevard








07/19/2017

| |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations |  |  |  |  |  |  |  |  | |  |  |  |
| Traffic Volume (vph) | 73 | 192 | 242 | 73 | 128 | 248 | 89 | 410 | 70 | 401 | 730 | 87 |
| Future Volume (vph) | 73 | 192 | 242 | 73 | 128 | 248 | 89 | 410 | 70 | 401 | 730 | 87 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | | 4.5 | 4.5 | 4.5 |
| 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 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.97 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 0.98 | | 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) | 1770 | 1863 | 1536 | 1787 | 1881 | 1599 | 1770 | 1822 | | 1770 | 1863 | 1583 |
| 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) | 1770 | 1863 | 1536 | 1787 | 1881 | 1599 | 1770 | 1822 | | 1770 | 1863 | 1583 |
| 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) | 77 | 202 | 255 | 77 | 135 | 261 | 94 | 432 | 74 | 422 | 768 | 92 |
| RTOR Reduction (vph) | 0 | 0 | 203 | 0 | 0 | 89 | 0 | 8 | 0 | 0 | 0 | 45 |
| Lane Group Flow (vph) | 77 | 202 | 52 | 77 | 135 | 172 | 94 | 498 | 0 | 422 | 768 | 47 |
| Confl. Peds. (#/hr) | | | 4 | | 4 | | | | | | | |
| Confl. Bikes (#/hr) | | | 1 | | | | | | | | | |
| Heavy Vehicles (%) | 2% | 2% | 2% | 1% | 1% | 1% | 2% | 2% | 2% | 2% | 2% | 2% |
| Turn Type | Prot | NA | Perm | Prot | NA | pm+ov | Prot | NA | | Prot | NA | pm+ov |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | 7 |
| Permitted Phases | | | 4 | | | 8 | | | | | | 6 |
| Actuated Green, G (s) | 3.8 | 12.7 | 12.7 | 3.8 | 12.7 | 27.4 | 3.8 | 20.8 | | 14.7 | 31.7 | 35.5 |
| Effective Green, g (s) | 3.8 | 12.7 | 12.7 | 3.8 | 12.7 | 27.4 | 3.8 | 20.8 | | 14.7 | 31.7 | 35.5 |
| Actuated g/C Ratio | 0.05 | 0.18 | 0.18 | 0.05 | 0.18 | 0.39 | 0.05 | 0.30 | | 0.21 | 0.45 | 0.51 |
| Clearance Time (s) | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | | 4.5 | 4.5 | 4.5 |
| 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) | 96 | 338 | 278 | 97 | 341 | 728 | 96 | 541 | | 371 | 843 | 904 |
| v/s Ratio Prot | c0.04 | c0.11 | | 0.04 | 0.07 | 0.05 | 0.05 | 0.27 | | c0.24 | c0.41 | 0.00 |
| v/s Ratio Perm | | | 0.03 | | | 0.06 | | | | | | 0.03 |
| v/c Ratio | 0.80 | 0.60 | 0.19 | 0.79 | 0.40 | 0.24 | 0.98 | 0.92 | | 1.14 | 0.91 | 0.05 |
| Uniform Delay, d1 | 32.7 | 26.3 | 24.3 | 32.7 | 25.3 | 14.3 | 33.1 | 23.8 | | 27.6 | 17.8 | 8.7 |
| 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 | 36.6 | 2.8 | 0.3 | 34.6 | 0.8 | 0.2 | 84.1 | 21.2 | | 89.6 | 13.9 | 0.0 |
| Delay (s) | 69.3 | 29.1 | 24.6 | 67.4 | 26.0 | 14.5 | 117.2 | 45.0 | | 117.2 | 31.7 | 8.8 |
| Level of Service | E | C | C | E | C | B | F | D | | F | C | A |
| Approach Delay (s) | | 32.8 | | | 26.4 | | | 56.3 | | | 58.2 | |
| Approach LOS | | C | | | C | | | E | | | E | |
| Intersection Summary | | | | | | | | | | | | |
| HCM 2000 Control Delay | | | 47.9 | | | | HCM 2000 Level of Service | | | D | | |
| HCM 2000 Volume to Capacity ratio | | | 0.93 | | | | | | | | | |
| Actuated Cycle Length (s) | | | 70.0 | | | | Sum of lost time (s) | | | 18.0 | | |
| Intersection Capacity Utilization | | | 77.9% | | | | ICU Level of Service | | | D | | |
| Analysis Period (min) | | | 15 | | | | | | | | | |
| c Critical Lane Group | | | | | | | | | | | | |

HCM Signalized Intersection Capacity Analysis

7: Washington Street & 15th Street


















07/19/2017

| |  | | | | | | | | | | | |
|-----------------------------------|------------------------------------------------------------------------------------|------|-------|------|-----------------------------------------------------------------------------------|------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement | SEL | SET | SER | NWL | NWT | NWR | NEL | NET | NER | SWL | SWT | SWR |
| Lane Configurations | | | | |  | |  |  | |  |  |  |
| Traffic Volume (vph) | 0 | 0 | 0 | 59 | 248 | 50 | 343 | 740 | 87 | 56 | 411 | 354 |
| Future Volume (vph) | 0 | 0 | 0 | 59 | 248 | 50 | 343 | 740 | 87 | 56 | 411 | 354 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | | | | 4.5 | | 4.5 | 4.5 | | 4.5 | 4.5 | 4.5 |
| Lane Util. Factor | | | | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frpb, ped/bikes | | | | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | | | | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | | | | | 0.98 | | 1.00 | 0.98 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | | | | | 0.99 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | | | | | 1803 | | 1786 | 1846 | | 1769 | 1863 | 1553 |
| Flt Permitted | | | | | 0.99 | | 0.30 | 1.00 | | 0.14 | 1.00 | 1.00 |
| Satd. Flow (perm) | | | | | 1803 | | 564 | 1846 | | 260 | 1863 | 1553 |
| 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 | 0 | 0 | 62 | 261 | 53 | 361 | 779 | 92 | 59 | 433 | 373 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 8 | 0 | 0 | 5 | 0 | 0 | 0 | 146 |
| Lane Group Flow (vph) | 0 | 0 | 0 | 0 | 368 | 0 | 361 | 866 | 0 | 59 | 433 | 227 |
| Confl. Peds. (#/hr) | 3 | | 4 | 4 | | 3 | 6 | | 3 | 3 | | 6 |
| Heavy Vehicles (%) | 10% | 10% | 10% | 2% | 2% | 2% | 1% | 1% | 1% | 2% | 2% | 2% |
| Turn Type | | | | Perm | NA | | pm+pt | NA | | pm+pt | NA | Perm |
| Protected Phases | | | | | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | 8 | | | 2 | | | 6 | | 6 |
| Actuated Green, G (s) | | | | | 17.5 | | 45.4 | 38.2 | | 31.4 | 28.7 | 28.7 |
| Effective Green, g (s) | | | | | 17.5 | | 45.4 | 38.2 | | 31.4 | 28.7 | 28.7 |
| Actuated g/C Ratio | | | | | 0.24 | | 0.63 | 0.53 | | 0.44 | 0.40 | 0.40 |
| Clearance Time (s) | | | | | 4.5 | | 4.5 | 4.5 | | 4.5 | 4.5 | 4.5 |
| Vehicle Extension (s) | | | | | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | | | | | 438 | | 563 | 980 | | 170 | 743 | 619 |
| v/s Ratio Prot | | | | | | | c0.11 | c0.47 | | 0.01 | 0.23 | |
| v/s Ratio Perm | | | | | 0.20 | | 0.30 | | | 0.14 | | 0.15 |
| v/c Ratio | | | | | 0.84 | | 0.64 | 0.88 | | 0.35 | 0.58 | 0.37 |
| Uniform Delay, d1 | | | | | 25.9 | | 8.2 | 14.9 | | 14.2 | 16.9 | 15.2 |
| Progression Factor | | | | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | | | | | 13.6 | | 2.5 | 9.5 | | 1.2 | 1.2 | 0.4 |
| Delay (s) | | | | | 39.5 | | 10.7 | 24.4 | | 15.4 | 18.1 | 15.6 |
| Level of Service | | | | | D | | B | C | | B | B | B |
| Approach Delay (s) | | 0.0 | | | 39.5 | | | 20.4 | | | 16.8 | |
| Approach LOS | | A | | | D | | | C | | | B | |
| Intersection Summary | | | | | | | | | | | | |
| HCM 2000 Control Delay | | | 22.0 | | HCM 2000 Level of Service | | | | | C | | |
| HCM 2000 Volume to Capacity ratio | | | 0.88 | | | | | | | | | |
| Actuated Cycle Length (s) | | | 71.9 | | Sum of lost time (s) | | | | | 13.5 | | |
| Intersection Capacity Utilization | | | 85.7% | | ICU Level of Service | | | | | E | | |
| Analysis Period (min) | | | 15 | | | | | | | | | |
| c Critical Lane Group | | | | | | | | | | | | |

HCM Signalized Intersection Capacity Analysis

8: Washington Street & 14th Street

















07/19/2017

| |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement | SEL | SET | SER | NWL | NWT | NWR | NEL | NET | NER | SWL | SWT | SWR |
| Lane Configurations |  |  | | | | | |  | |  |  | |
| Traffic Volume (vph) | 555 | 60 | 278 | 0 | 0 | 0 | 0 | 617 | 13 | 7 | 467 | 0 |
| Future Volume (vph) | 555 | 60 | 278 | 0 | 0 | 0 | 0 | 617 | 13 | 7 | 467 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.5 | 4.5 | | | | | | 4.5 | | 4.5 | 4.5 | |
| Lane Util. Factor | 1.00 | 1.00 | | | | | | 1.00 | | 1.00 | 1.00 | |
| Frpb, ped/bikes | 1.00 | 0.97 | | | | | | 1.00 | | 1.00 | 1.00 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | | | | | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 0.88 | | | | | | 1.00 | | 1.00 | 1.00 | |
| Flt Protected | 0.95 | 1.00 | | | | | | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1780 | 1597 | | | | | | 1875 | | 1752 | 1845 | |
| Flt Permitted | 0.95 | 1.00 | | | | | | 1.00 | | 0.11 | 1.00 | |
| Satd. Flow (perm) | 1780 | 1597 | | | | | | 1875 | | 208 | 1845 | |
| 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) | 584 | 63 | 293 | 0 | 0 | 0 | 0 | 649 | 14 | 7 | 492 | 0 |
| RTOR Reduction (vph) | 0 | 176 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 584 | 180 | 0 | 0 | 0 | 0 | 0 | 662 | 0 | 7 | 492 | 0 |
| Confl. Peds. (#/hr) | 2 | | 9 | 9 | | 2 | 5 | | 5 | 5 | | 5 |
| Heavy Vehicles (%) | 1% | 1% | 1% | 3% | 3% | 3% | 1% | 1% | 1% | 3% | 3% | 3% |
| Turn Type | Perm | NA | | | | | | NA | | pm+pt | NA | |
| Protected Phases | | 4 | | | | | | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | | | | | | | | 6 | | |
| Actuated Green, G (s) | 30.2 | 30.2 | | | | | | 31.2 | | 36.5 | 36.5 | |
| Effective Green, g (s) | 30.2 | 30.2 | | | | | | 31.2 | | 36.5 | 36.5 | |
| Actuated g/C Ratio | 0.40 | 0.40 | | | | | | 0.41 | | 0.48 | 0.48 | |
| Clearance Time (s) | 4.5 | 4.5 | | | | | | 4.5 | | 4.5 | 4.5 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | | | | | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 710 | 637 | | | | | | 772 | | 116 | 889 | |
| v/s Ratio Prot | | 0.11 | | | | | | c0.35 | | 0.00 | c0.27 | |
| v/s Ratio Perm | c0.33 | | | | | | | | | 0.03 | | |
| v/c Ratio | 0.82 | 0.28 | | | | | | 0.86 | | 0.06 | 0.55 | |
| Uniform Delay, d1 | 20.4 | 15.4 | | | | | | 20.2 | | 14.7 | 13.8 | |
| Progression Factor | 1.00 | 1.00 | | | | | | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 7.6 | 0.2 | | | | | | 9.3 | | 0.2 | 0.7 | |
| Delay (s) | 28.0 | 15.7 | | | | | | 29.6 | | 14.9 | 14.6 | |
| Level of Service | C | B | | | | | | C | | B | B | |
| Approach Delay (s) | | 23.3 | | | 0.0 | | | 29.6 | | | 14.6 | |
| Approach LOS | | C | | | A | | | C | | | B | |
| Intersection Summary | | | | | | | | | | | | |
| HCM 2000 Control Delay | | 23.2 | | | | | | | | | | |
| HCM 2000 Volume to Capacity ratio | | 0.85 | | | | | | | | | | |
| Actuated Cycle Length (s) | | 75.7 | | | | | | | | 13.5 | | |
| Intersection Capacity Utilization | | 71.5% | | | | | | | | | | |
| Analysis Period (min) | | 15 | | | | | | | | | | |
| c Critical Lane Group | | | | | | | | | | | | |

HCM Unsignalized Intersection Capacity Analysis




9: Main Street & 14th Street

07/19/2017

| |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement | SEL | SET | SER | NWL | NWT | NWR | NEL | NET | NER | SWL | SWT | SWR |
| Lane Configurations | |  | | | | | |  |  | |  | |
| Sign Control | | Stop | | | Stop | | | Stop | | | Stop | |
| Traffic Volume (vph) | 34 | 575 | 39 | 0 | 0 | 0 | 0 | 54 | 209 | 74 | 117 | 0 |
| Future Volume (vph) | 34 | 575 | 39 | 0 | 0 | 0 | 0 | 54 | 209 | 74 | 117 | 0 |
| Peak Hour Factor | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Hourly flow rate (vph) | 36 | 605 | 41 | 0 | 0 | 0 | 0 | 57 | 220 | 78 | 123 | 0 |
| Direction, Lane # | SE 1 | SE 2 | NE 1 | NE 2 | SW 1 | | | | | | | |
| Volume Total (vph) | 339 | 344 | 57 | 220 | 201 | | | | | | | |
| Volume Left (vph) | 36 | 0 | 0 | 0 | 78 | | | | | | | |
| Volume Right (vph) | 0 | 41 | 0 | 220 | 0 | | | | | | | |
| Hadj (s) | 0.07 | -0.07 | 0.07 | -0.63 | 0.08 | | | | | | | |
| Departure Headway (s) | 6.0 | 5.9 | 6.7 | 6.0 | 6.7 | | | | | | | |
| Degree Utilization, x | 0.56 | 0.56 | 0.11 | 0.37 | 0.37 | | | | | | | |
| Capacity (veh/h) | 583 | 600 | 507 | 569 | 518 | | | | | | | |
| Control Delay (s) | 15.3 | 14.9 | 9.3 | 11.3 | 13.5 | | | | | | | |
| Approach Delay (s) | 15.1 | | 10.9 | | 13.5 | | | | | | | |
| Approach LOS | C | | B | | B | | | | | | | |
| Intersection Summary | | | | | | | | | | | | |
| Delay | | | 13.8 | | | | | | | | | |
| Level of Service | | | B | | | | | | | | | |
| Intersection Capacity Utilization | | | 52.2% | | | ICU Level of Service | | | A | | | |
| Analysis Period (min) | | | 15 | | | | | | | | | |

Intersection

| | |
|---------------------------|------|
| Intersection Delay, s/veh | 14.6 |
| Intersection LOS | B |

| Movement | SEU | SEL | SET | SER | NWU | NWL | NWT | NWR | NEU | NEL | NET | NER |
|---------------------|------|------|-----------------------------------------------------------------------------------|------|------|------|------|------|------|------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Lane Configurations | | |  | | | | | | | |  |  |
| Traffic Vol, veh/h | 0 | 34 | 575 | 39 | 0 | 0 | 0 | 0 | 0 | 0 | 54 | 209 |
| Future Vol, veh/h | 0 | 34 | 575 | 39 | 0 | 0 | 0 | 0 | 0 | 0 | 54 | 209 |
| Peak Hour Factor | 0.92 | 0.95 | 0.95 | 0.95 | 0.92 | 0.95 | 0.95 | 0.95 | 0.92 | 0.95 | 0.95 | 0.95 |
| Heavy Vehicles, % | 2 | 1 | 1 | 1 | 2 | 2 | 2 | 2 | 2 | 4 | 4 | 4 |
| Mvmt Flow | 0 | 36 | 605 | 41 | 0 | 0 | 0 | 0 | 0 | 0 | 57 | 220 |
| Number of Lanes | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 |

| Approach | SE | NE |
|----------------------------|------|------|
| Opposing Approach | | SW |
| Opposing Lanes | 0 | 1 |
| Conflicting Approach Left | SW | SE |
| Conflicting Lanes Left | 1 | 2 |
| Conflicting Approach Right | NE | |
| Conflicting Lanes Right | 2 | 0 |
| HCM Control Delay | 16.1 | 11.8 |
| HCM LOS | C | B |

| Lane | NELn1 | NELn2 | SELn1 | SELn2 | SWLn1 |
|------------------------|-------|-------|-------|-------|-------|
| Vol Left, % | 0% | 0% | 11% | 0% | 39% |
| Vol Thru, % | 100% | 0% | 89% | 88% | 61% |
| Vol Right, % | 0% | 100% | 0% | 12% | 0% |
| Sign Control | Stop | Stop | Stop | Stop | Stop |
| Traffic Vol by Lane | 54 | 209 | 322 | 327 | 191 |
| LT Vol | 0 | 0 | 34 | 0 | 74 |
| Through Vol | 54 | 0 | 288 | 288 | 117 |
| RT Vol | 0 | 209 | 0 | 39 | 0 |
| Lane Flow Rate | 57 | 220 | 338 | 344 | 201 |
| Geometry Grp | 7 | 7 | 7 | 7 | 6 |
| Degree of Util (X) | 0.106 | 0.367 | 0.566 | 0.561 | 0.372 |
| Departure Headway (Hd) | 6.717 | 6.004 | 6.017 | 5.879 | 6.657 |
| Convergence, Y/N | Yes | Yes | Yes | Yes | Yes |
| Cap | 533 | 598 | 599 | 615 | 541 |
| Service Time | 4.464 | 3.751 | 3.751 | 3.613 | 4.698 |
| HCM Lane V/C Ratio | 0.107 | 0.368 | 0.564 | 0.559 | 0.372 |
| HCM Control Delay | 10.3 | 12.2 | 16.3 | 15.9 | 13.6 |
| HCM Lane LOS | B | B | C | C | B |
| HCM 95th-tile Q | 0.4 | 1.7 | 3.5 | 3.5 | 1.7 |

Intersection

Intersection Delay, s/veh

Intersection LOS

| Movement | SWU | SWL | SWT | SWR |
|---------------------|------|------|------|------|
| Lane Configurations | | | | |
| Traffic Vol, veh/h | 0 | 74 | 117 | 0 |
| Future Vol, veh/h | 0 | 74 | 117 | 0 |
| Peak Hour Factor | 0.92 | 0.95 | 0.95 | 0.95 |
| Heavy Vehicles, % | 2 | 0 | 0 | 0 |
| Mvmt Flow | 0 | 78 | 123 | 0 |
| Number of Lanes | 0 | 0 | 1 | 0 |

| Approach | SW |
|----------------------------|------|
| Opposing Approach | NE |
| Opposing Lanes | 2 |
| Conflicting Approach Left | |
| Conflicting Lanes Left | 0 |
| Conflicting Approach Right | SE |
| Conflicting Lanes Right | 2 |
| HCM Control Delay | 13.6 |
| HCM LOS | B |

HCM Signalized Intersection Capacity Analysis

13: OR-213 & Redland Road

07/19/2017



| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|------------------------|------|-------|-------|------|-------|-------|
| Lane Configurations | | | | | | |
| Traffic Volume (vph) | 543 | 238 | 162 | 1598 | 2892 | 1068 |
| Future Volume (vph) | 543 | 238 | 162 | 1598 | 2892 | 1068 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 |
| Lane Util. Factor | 0.97 | 1.00 | 1.00 | 0.91 | 0.91 | 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) | 3433 | 1583 | 1752 | 5036 | 5085 | 1583 |
| Flt Permitted | 0.95 | 1.00 | 0.95 | 1.00 | 1.00 | 1.00 |
| Satd. Flow (perm) | 3433 | 1583 | 1752 | 5036 | 5085 | 1583 |
| Peak-hour factor, PHF | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 |
| Adj. Flow (vph) | 554 | 243 | 165 | 1631 | 2951 | 1090 |
| RTOR Reduction (vph) | 0 | 1 | 0 | 0 | 0 | 26 |
| Lane Group Flow (vph) | 554 | 242 | 165 | 1631 | 2951 | 1064 |
| Heavy Vehicles (%) | 2% | 2% | 3% | 3% | 2% | 2% |
| Turn Type | Prot | pm+ov | Prot | NA | NA | pm+ov |
| Protected Phases | 4 | 5 | 5 | 2 | 6 | 4 |
| Permitted Phases | | 4 | | | | 6 |
| Actuated Green, G (s) | 23.3 | 35.7 | 12.4 | 87.7 | 70.8 | 94.1 |
| Effective Green, g (s) | 23.3 | 35.7 | 12.4 | 87.7 | 70.8 | 94.1 |
| Actuated g/C Ratio | 0.19 | 0.30 | 0.10 | 0.73 | 0.59 | 0.78 |
| Clearance Time (s) | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 666 | 530 | 181 | 3680 | 3000 | 1300 |
| v/s Ratio Prot | 0.16 | 0.05 | c0.09 | 0.32 | c0.58 | c0.16 |
| v/s Ratio Perm | | 0.11 | | | | 0.51 |
| v/c Ratio | 0.83 | 0.46 | 0.91 | 0.44 | 0.98 | 0.82 |
| Uniform Delay, d1 | 46.5 | 34.3 | 53.3 | 6.4 | 24.0 | 7.8 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 8.7 | 0.6 | 42.5 | 0.4 | 13.0 | 4.1 |
| Delay (s) | 55.2 | 34.9 | 95.7 | 6.8 | 37.1 | 11.9 |
| Level of Service | E | C | F | A | D | B |
| Approach Delay (s) | 49.0 | | | 15.0 | 30.3 | |
| Approach LOS | D | | | B | C | |

Intersection Summary

| | | | |
|-----------------------------------|-------|---------------------------|------|
| HCM 2000 Control Delay | 28.4 | HCM 2000 Level of Service | C |
| HCM 2000 Volume to Capacity ratio | 0.96 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 13.5 |
| Intersection Capacity Utilization | 91.6% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

HCM Unsignalized Intersection Capacity Analysis 15: Holly Lane & Holcomb Boulevard

07/19/2017

| | → | ↘ | ↙ | ← | ↖ | ↗ |
|-----------------------------------|------|------|-------|------|----------------------|------|
| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
| Right Turn Channelized | | | | | | |
| Traffic Volume (veh/h) | 212 | 94 | 55 | 159 | 77 | 47 |
| Future Volume (veh/h) | 212 | 94 | 55 | 159 | 77 | 47 |
| Peak Hour Factor | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Hourly flow rate (vph) | 236 | 104 | 61 | 177 | 86 | 52 |
| Approach Volume (veh/h) | 340 | | | 238 | 138 | |
| Crossing Volume (veh/h) | 61 | | | 86 | 236 | |
| High Capacity (veh/h) | 1320 | | | 1295 | 1151 | |
| High v/c (veh/h) | 0.26 | | | 0.18 | 0.12 | |
| Low Capacity (veh/h) | 1103 | | | 1079 | 949 | |
| Low v/c (veh/h) | 0.31 | | | 0.22 | 0.15 | |
| Intersection Summary | | | | | | |
| Maximum v/c High | | | 0.26 | | | |
| Maximum v/c Low | | | 0.31 | | | |
| Intersection Capacity Utilization | | | 45.4% | | ICU Level of Service | A |

HCM 2010 Roundabout
15: Holly Lane & Holcomb Boulevard













07/19/2017

| Intersection | | | |
|-----------------------------|-------|-------|-------|
| Intersection Delay, s/veh | 6.3 | | |
| Intersection LOS | A | | |
| Approach | EB | WB | NB |
| Entry Lanes | 1 | 1 | 1 |
| Conflicting Circle Lanes | 1 | 1 | 1 |
| Adj Approach Flow, veh/h | 340 | 238 | 138 |
| Demand Flow Rate, veh/h | 350 | 247 | 141 |
| Vehicles Circulating, veh/h | 63 | 88 | 243 |
| Vehicles Exiting, veh/h | 272 | 296 | 170 |
| 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 | 6.9 | 5.9 | 5.7 |
| Approach LOS | A | A | A |
| Lane | Left | Left | Left |
| Designated Moves | TR | LT | LR |
| Assumed Moves | TR | LT | LR |
| RT Channelized | | | |
| Lane Util | 1.000 | 1.000 | 1.000 |
| Critical Headway, s | 5.193 | 5.193 | 5.193 |
| Entry Flow, veh/h | 350 | 247 | 141 |
| Cap Entry Lane, veh/h | 1061 | 1035 | 886 |
| Entry HV Adj Factor | 0.971 | 0.963 | 0.979 |
| Flow Entry, veh/h | 340 | 238 | 138 |
| Cap Entry, veh/h | 1030 | 997 | 867 |
| V/C Ratio | 0.330 | 0.239 | 0.159 |
| Control Delay, s/veh | 6.9 | 5.9 | 5.7 |
| LOS | A | A | A |
| 95th %tile Queue, veh | 1 | 1 | 1 |

HCM Unsignalized Intersection Capacity Analysis

16: Holly Lane & Redland Road

07/19/2017

| |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Right Turn Channelized | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 188 | 674 | 226 | 21 | 309 | 71 | 53 | 41 | 10 | 57 | 33 | 122 |
| Future Volume (veh/h) | 188 | 674 | 226 | 21 | 309 | 71 | 53 | 41 | 10 | 57 | 33 | 122 |
| Peak Hour Factor | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Hourly flow rate (vph) | 198 | 709 | 238 | 22 | 325 | 75 | 56 | 43 | 11 | 60 | 35 | 128 |
| Approach Volume (veh/h) | 1145 | | | 422 | | | 110 | | | 223 | | |
| Crossing Volume (veh/h) | 117 | | | 297 | | | 967 | | | 403 | | |
| High Capacity (veh/h) | 1264 | | | 1097 | | | 640 | | | 1008 | | |
| High v/c (veh/h) | 0.91 | | | 0.38 | | | 0.17 | | | 0.22 | | |
| Low Capacity (veh/h) | 1051 | | | 900 | | | 497 | | | 821 | | |
| Low v/c (veh/h) | 1.09 | | | 0.47 | | | 0.22 | | | 0.27 | | |
| Intersection Summary | | | | | | | | | | | | |
| Maximum v/c High | 0.91 | | | | | | | | | | | |
| Maximum v/c Low | 1.09 | | | | | | | | | | | |
| Intersection Capacity Utilization | 90.8% | | | ICU Level of Service | | | E | | | | | |
| | | | | | | | | | | | | |

| Intersection | | | | | |
|-----------------------------|-------|-------|-------|-------|-------|
| Intersection Delay, s/veh | 21.2 | | | | |
| Intersection LOS | C | | | | |
| Approach | EB | | WB | | NB SB |
| Entry Lanes | 2 | | 1 | | 1 |
| Conflicting Circle Lanes | 1 | | 1 | | 1 |
| Adj Approach Flow, veh/h | 1145 | | 422 | | 223 |
| Demand Flow Rate, veh/h | 1168 | | 435 | | 228 |
| Vehicles Circulating, veh/h | 120 | | 303 | | 415 |
| Vehicles Exiting, veh/h | 523 | | 795 | | 323 |
| 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 | 27.9 | | 11.8 | | 8.6 |
| Approach LOS | D | | B | | A |
| Lane | Left | Right | Left | Left | Left |
| Designated Moves | LT | R | LTR | LTR | LTR |
| Assumed Moves | LT | R | LTR | LTR | LTR |
| RT Channelized | | | | | |
| Lane Util | 0.792 | 0.208 | 1.000 | 1.000 | 1.000 |
| Critical Headway, s | 5.193 | 5.193 | 5.193 | 5.193 | 5.193 |
| Entry Flow, veh/h | 925 | 243 | 435 | 112 | 228 |
| Cap Entry Lane, veh/h | 1002 | 1002 | 835 | 422 | 746 |
| Entry HV Adj Factor | 0.980 | 0.979 | 0.971 | 0.983 | 0.979 |
| Flow Entry, veh/h | 907 | 238 | 422 | 110 | 223 |
| Cap Entry, veh/h | 982 | 982 | 810 | 415 | 731 |
| V/C Ratio | 0.923 | 0.242 | 0.521 | 0.266 | 0.306 |
| Control Delay, s/veh | 33.6 | 6.0 | 11.8 | 13.1 | 8.6 |
| LOS | D | A | B | B | A |
| 95th %tile Queue, veh | 14 | 1 | 3 | 1 | 1 |

Queuing and Blocking Report
2035 Planning Horizon plus Site Trips - AM Peak Hour

07/07/2017

Intersection: 101: OR-213 & I-205 SB Ramps

| Movement | EB | NB |
|-----------------------|-----|-----|
| Directions Served | L | L |
| Maximum Queue (ft) | 136 | 157 |
| Average Queue (ft) | 38 | 47 |
| 95th Queue (ft) | 109 | 125 |
| Link Distance (ft) | 227 | 219 |
| Upstream Blk Time (%) | | 0 |
| Queuing Penalty (veh) | | 0 |
| Storage Bay Dist (ft) | | |
| Storage Blk Time (%) | | |
| Queuing Penalty (veh) | | |

Queuing and Blocking Report
2035 Planning Horizon plus Site Trips - PM Peak Hour

07/07/2017

Intersection: 101: OR-213 & I-205 SB Ramps

| Movement | EB | NB | SB |
|-----------------------|-----|-----|-----|
| Directions Served | L | L | T |
| Maximum Queue (ft) | 34 | 135 | 23 |
| Average Queue (ft) | 6 | 22 | 1 |
| 95th Queue (ft) | 26 | 80 | 13 |
| Link Distance (ft) | 227 | 219 | 242 |
| Upstream Blk Time (%) | | 0 | |
| Queuing Penalty (veh) | | 0 | |
| Storage Bay Dist (ft) | | | |
| Storage Blk Time (%) | | | |
| Queuing Penalty (veh) | | | |

CRASH SUMMARIES BY YEAR BY COLLISION TYPE

PACIFIC HY 99E at WB EX PAC HY 99E, City of Oregon City, Clackamas County, 01/01/2011 to 12/31/2015

| COLLISION TYPE | FATAL CRASHES | NON- FATAL CRASHES | PROPERTY DAMAGE ONLY | TOTAL CRASHES | PEOPLE KILLED | PEOPLE INJURED | TRUCKS | DRY SURF | WET SURF | DAY | DARK | INTER- SECTION RELATED | INTER- SECTION RELATED | OFF- ROAD |
|------------------------|------------------|--------------------------|----------------------------|------------------|------------------|-------------------|----------|-------------|-------------|----------|----------|------------------------------|------------------------------|--------------|
| | | | | | | | | | | | | | | |
| YEAR: 2015 | | | | | | | | | | | | | | |
| REAR-END | 0 | 4 | 0 | 4 | 0 | 8 | 0 | 4 | 0 | 4 | 0 | 4 | 0 | 0 |
| TURNING MOVEMENTS | 0 | 2 | 1 | 3 | 0 | 2 | 0 | 2 | 1 | 3 | 0 | 3 | 0 | 0 |
| YEAR 2015 TOTAL | 0 | 6 | 1 | 7 | 0 | 10 | 0 | 6 | 1 | 7 | 0 | 7 | 0 | 0 |
| YEAR: 2014 | | | | | | | | | | | | | | |
| REAR-END | 0 | 2 | 0 | 2 | 0 | 3 | 0 | 2 | 0 | 1 | 1 | 2 | 0 | 0 |
| TURNING MOVEMENTS | 0 | 1 | 2 | 3 | 0 | 1 | 0 | 3 | 0 | 2 | 1 | 3 | 0 | 0 |
| YEAR 2014 TOTAL | 0 | 3 | 2 | 5 | 0 | 4 | 0 | 5 | 0 | 3 | 2 | 5 | 0 | 0 |
| YEAR: 2013 | | | | | | | | | | | | | | |
| REAR-END | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 |
| YEAR 2013 TOTAL | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 |
| YEAR: 2012 | | | | | | | | | | | | | | |
| PEDESTRIAN | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | 1 | 0 | 0 |
| REAR-END | 0 | 2 | 2 | 4 | 0 | 2 | 0 | 2 | 2 | 2 | 2 | 4 | 0 | 0 |
| TURNING MOVEMENTS | 0 | 4 | 2 | 6 | 0 | 6 | 0 | 4 | 2 | 2 | 4 | 6 | 0 | 0 |
| YEAR 2012 TOTAL | 0 | 7 | 4 | 11 | 0 | 9 | 0 | 6 | 5 | 5 | 6 | 11 | 0 | 0 |
| YEAR: 2011 | | | | | | | | | | | | | | |
| REAR-END | 0 | 4 | 1 | 5 | 0 | 6 | 0 | 3 | 2 | 5 | 0 | 5 | 0 | 0 |

CRASH SUMMARIES BY YEAR BY COLLISION TYPE

PACIFIC HY 99E at WB EX PAC HY 99E, City of Oregon City, Clackamas County, 01/01/2011 to 12/31/2015

| COLLISION TYPE | FATAL CRASHES | NON- PROPERTY | | TOTAL CRASHES | PEOPLE KILLED | | PEOPLE INJURED | TRUCKS | DRY SURF | | WET SURF | DAY | DARK | INTER- SECTION RELATED | | INTER- SECTION RELATED | OFF- ROAD |
|-------------------|------------------|------------------|----------------|------------------|------------------|---|-------------------|--------|-------------|---|-------------|-----|------|------------------------------|---|------------------------------|--------------|
| | | FATAL CRASHES | DAMAGE ONLY | | | | | | | | | | | | | | |
| TURNING MOVEMENTS | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 0 |
| YEAR 2011 TOTAL | 0 | 4 | 2 | 6 | 0 | 0 | 6 | 0 | 3 | 3 | 3 | 6 | 0 | 6 | 0 | 0 | 0 |
| FINAL TOTAL | 0 | 20 | 10 | 30 | 0 | 0 | 29 | 0 | 20 | 9 | 9 | 22 | 8 | 30 | 0 | 0 | 0 |

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CDS380
03/01/2017

OREGON.. DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT

CITY OF OREGON CITY, CLACKAMAS COUNTY

URBAN NON-SYSTEM CRASH LISTING
PACIFIC HY 99E at WB EX PAC HY 99E, city of Oregon City, Clackamas County, 01/01/2011 to 12/31/2015

Total crash records: 30

| SER# | INVEST | D C S L K | N N N | 01/18/2011 | 14 | CITY STREET | RD CHAR | INT-TYPE | INT-BEL | OFFRD | WTHR | CRASH | SPCL USE | MOVE | PRTC | INJ | A S | E L C N S | PED | LOC | RES | LOC | ERROR | ACT EVENT | CAUSE |
|-------|--------|-----------|-------|------------|----|------------------------------------|-------------|------------|-----------------|-------|-------------|-----------------|-------------------------------|----------------|-----------|------|------|-----------|---------|-----|-----|-----|-------|-----------|-------|
| 00210 | NONE | N N N | N N N | TU 10A | 14 | PACIFIC HY 99E WB EX PAC HY 99E | INTER 06 | 3-LEG 1 | TRF SIGNAL N | N | RAIN WET | S-1STOP REAR | 01 NONE UNKN PSNGR CAR | STRGHT N -S | 01 DRIVER | NONE | 00 M | UNK | UNK | 026 | 000 | 000 | 000 | 000 | 07 |
| 02676 | NONE | N N N | N N N | WE 12P | 14 | PACIFIC HY 99E WB EX PAC HY 99E | INTER 06 | 3-LEG 1 | TRF SIGNAL N | N | CLR DAY | S-1STOP REAR | 01 NONE PRVTE PSNGR CAR | STRGHT N -S | 01 DRIVER | NONE | 28 M | OR-Y | 026 | 000 | 000 | 000 | 000 | 000 | 07 |
| 03094 | NONE | N N N | N N N | WE 9A | 14 | PACIFIC HY 99E WB EX PAC HY 99E | INTER 06 | 3-LEG 1 | TRF SIGNAL N | N | CLR DAY | S-1STOP REAR | 01 NONE PRVTE PSNGR CAR | STRGHT N -S | 01 DRIVER | NONE | 52 F | OR-Y | 026 | 000 | 000 | 000 | 000 | 000 | 07 |
| 01210 | STATE | Y Y N | N N N | SA 1A | 14 | PACIFIC HY 99E WB EX PAC HY 99E | INTER 06 | 3-LEG 1 | L-TURN REF N | N | UNK DLIT | S-1STOP REAR | 01 NONE PRVTE PSNGR CAR | STRGHT N -S | 01 DRIVER | NONE | 38 F | OR-Y | 000 | 000 | 000 | 000 | 000 | 000 | 00 |
| 05299 | NONE | N N N | N N N | TU 6P | 14 | PACIFIC HY 99E WB EX PAC HY 99E | INTER 06 | 3-LEG 2 | TRF SIGNAL N | N | CLR DLIT | S-1STOP REAR | 01 NONE PRVTE PSNGR CAR | STRGHT N -S | 01 DRIVER | NONE | 22 F | OR-Y | 016,026 | 038 | 099 | 000 | 000 | 000 | 27,29 |
| 01064 | NONE | N N N | N N N | FR 11A | 14 | PACIFIC HY 99E WB EX PAC HY 99E | INTER 06 | 3-LEG 1 | TRF SIGNAL N | N | CLR DAY | S-1STOP REAR | 01 NONE PRVTE PSNGR CAR | STRGHT N -S | 01 DRIVER | NONE | 77 M | OR-Y | 000 | 000 | 000 | 000 | 000 | 000 | 29 |

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OREGON.. DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT

CDS380
03/01/2017

URBAN NON-SYSTEM CRASH LISTING

PACIFIC HY 99E at WB EX PAC HY 99E, city of Oregon City, Clackamas County, 01/01/2011 to 12/31/2015

Total crash records: 30

CITY OF OREGON CITY, CLACKAMAS COUNTY

| SER# | INVEST | D C S L K TIME | FROM | DIST | CLASS | CITY STREET | RD CHAR | INT-TYPE | | INT-REL | OFFRD | WTHR | CRASH | SPLC QTY | MOVE | FROM | PRTC | INJ | A S | PED | LOC | ERROR | ACT EVENT | CAUSE | | | |
|-------|--------|----------------|------|------|-------|------------------------------------|------------|----------|------------|------------|-------------|------|-----------------|------------------|----------------|------|-----------|------|------|-------|-----------|-------|-----------|-------|---------|-------|-------|
| | | | | | | | | LEGS | (PLANES) | | | | | | | | | | | | | | | | CONT'L | SVRTY | PDO |
| 04205 | N N N | 11/07/2012 | 11 | | | PACIFIC HY 99E WB EX PAC HY 99E | INTER E | 3-LEG | N | TRF SIGNAL | N | RAIN | S-1STOP REAR | 01 NONE PRVTE | STRGHT E -W | 0 | 01 DRIVER | NONE | 38 F | OR-Y | 01 DRIVER | NONE | 00 M | UNK | 026 | 000 | 07 |
| NONE | | 7A | | | | | 06 | 0 | TRF SIGNAL | N | WET DAWN | PDO | PSNGR CAR | | | | | | | | | | | | | | |
| 02304 | N N N | 06/28/2013 | 11 | | | PACIFIC HY 99E WB EX PAC HY 99E | INTER E | 3-LEG | N | TRF SIGNAL | N | UNK | S-1STOP REAR | 01 NONE PRVTE | STRGHT E -W | 0 | 01 DRIVER | NONE | 43 M | OR-Y | 01 DRIVER | NONE | 00 M | UNK | 016.026 | 000 | 27,07 |
| NONE | | 3P | | | | | 06 | 1 | TRF SIGNAL | N | UNK DAY | PDO | PSNGR CAR | | | | | | | | | | | | | | |
| 03151 | N N N | 08/15/2014 | 11 | | | PACIFIC HY 99E WB EX PAC HY 99E | INTER E | 3-LEG | N | TRF SIGNAL | N | CLR | S-1STOP REAR | 01 NONE PRVTE | STRGHT E -W | 0 | 01 DRIVER | INJC | 46 F | OTH-Y | 01 DRIVER | NONE | 46 F | OR-Y | 011 013 | 000 | 29 |
| NONE | | 3P | | | | | 06 | 1 | TRF SIGNAL | N | DRY DAY | INT | PSNGR CAR | | | | | | | | | | | | | | |
| 00830 | N N N | 03/06/2015 | 11 | | | PACIFIC HY 99E WB EX PAC HY 99E | INTER E | 3-LEG | N | TRF SIGNAL | N | CLR | S-1STOP REAR | 01 NONE PRVTE | STRGHT E -W | 0 | 01 DRIVER | NONE | 49 F | OR-Y | 01 DRIVER | NONE | 00 Unk | UNK | 022 | 000 | 00 |
| NONE | | 3P | | | | | 06 | 2 | TRF SIGNAL | N | DRY DAY | INT | PSNGR CAR | | | | | | | | | | | | | | |
| 0481 | N N N | 06/22/2015 | 11 | | | PACIFIC HY 99E | INTER | 3-LEG | N | | N | CLR | S-1STOP | 01 NONE | STRGHT | 0 | 02 PSNGR | INJC | 32 F | OR-Y | 02 PSNGR | INJC | 000 | 011 | 000 | 29 | |
| | | | | | | | | | | | | | | PSNGR CAR | | | | | | | | | | | | | |

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CITY OF OREGON CITY, CLACKAMAS COUNTY

| S P R S W | | | E A U C O D A T E | | | C L A S S | | C I T Y S T R E E T | | R D C H A R | | I N T - T Y P E (M E D I A N) | | O F F R D | | W T H R | | C R A S H | | S P C I A L U S E | | M O V E | | P R T C | | I N J | | A S E L I O N S | | P E D | | C A U S E | | | |
|-----------------------|---------------|------------|-------------------------------------------|----------------|------------------|-----------------------|-------------|------------------------------------------------|----------------------|----------------------------|-------|------------------------------------------------------------------------------|-------|---------------------------|-------|------------------|-----|-----------------------|------|-------------------------------------------|-------|------------------|-------|------------------|----|-------------|---------|--------------------------------------|---|-------------|-----|-----------------------|-------|-----------|-------|
| SER# | E L G H R DAY | INVEST | D C S L K TIME | FROM | DIST | CLASS | CITY STREET | RD CHAR | INT-TYPE (MEDIAN) | INT-REL | OFFRD | WTHR | CRASH | TRAF- LEGS (PLANES) | CONTL | DRVWY | DRY | SURF | COLL | SVTY | PRVTE | TELFR QTY | OWNER | V# TYPE | TO | FROM | PH TYPE | SVRTY | E | X | RES | LOC | ERROR | ACT EVENT | CAUSE |
| NONE | MO | 3P | WB EX PAC HY 99E | SECOND STREET | FIRST STREET | 06 | 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 |
| 02606 | N N N | 07/18/2012 | 14 | PACIFIC HY 99E | WB EX PAC HY 99E | 06 | 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 |
| 01678 | N N N | 05/07/2012 | 11 | PACIFIC HY 99E | WB EX PAC HY 99E | 06 | 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 |
| 00891 | N N N | 03/15/2011 | 14 | PACIFIC HY 99E | WB EX PAC HY 99E | 03 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 00905 | N N N N | 03/14/2011 | 14 | PACIFIC HY 99E | WB EX PAC HY 99E | 04 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 01007 | N N N | 03/17/2012 | 14 | PACIFIC HY 99E | WB EX PAC HY 99E | 01 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |

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OREGON.. DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT

URBAN NON-SYSTEM CRASH LISTING

PACIFIC HY 99E at WB EX PAC HY 99E, City of Oregon City, Clackamas County, 01/01/2011 to 12/31/2015

Total crash records: 30

[illegible]

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OREGON.. DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT

CDS380
03/01/2017

URBAN NON-SYSTEM CRASH LISTING
PACIFIC HY 99E at WB EX PAC HY 99E, city of Oregon City, Clackamas County, 01/01/2011 to 12/31/2015
Total crash records: 30

CITY OF OREGON CITY, CLACKAMAS COUNTY

| SER# | INVEST | D C S L K TIME | 12P | RD CHAR | INT-TYPE (MEDIAN) | INT-BEL | OFFRD | WTHR | CRASH | SPCL USE | TRLR QTY | MOVE | PETC | INJ | A S | PED | LOC | RES | OR-Y | ERROR | ACT EVENT | CAUSE |
|------|--------|----------------|-----|---------|----------------------|---------|-------|------|-------|-----------|----------|--------|------|------|------|-----|-----|------|-------|-------|-----------|-------|
| | | | | LOCN | 0 | | N | DAY | SVRTY | VH TYPE | OWNER | FROM | 01 | DRVR | NONE | 25 | F | OR-Y | OR<25 | 020 | 000 | 04 |
| | | | | 01 | | | | | PDO | 02 NONE | 0 | TURN-L | | | | | | | | | | |
| | | | | | | | | | | PRVTE | | E -S | | | | | | | | | | |
| | | | | | | | | | | PSNGR CAR | | | 01 | DRVR | NONE | 77 | F | OR-Y | OR<25 | 000 | 000 | 00 |

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CRASH SUMMARIES BY YEAR BY COLLISION TYPE

PACIFIC HY 99E at NB EXTO I-205 WB, City of Oregon City, Clackamas County, 01/01/2011 to 12/31/2015

| COLLISION TYPE | FATAL CRASHES | NON- FATAL CRASHES | PROPERTY DAMAGE ONLY | TOTAL CRASHES | PEOPLE KILLED | PEOPLE INJURED | TRUCKS | DRY SURF | WET SURF | DAY | DARK | INTER- SECTION RELATED | INTER- SECTION RELATED | OFF- ROAD |
|------------------------|------------------|--------------------------|----------------------------|------------------|------------------|-------------------|----------|-------------|-------------|----------|----------|------------------------------|------------------------------|--------------|
| | | | | | | | | | | | | | | |
| YEAR: 2015 | | | | | | | | | | | | | | |
| REAR-END | 0 | 2 | 2 | 4 | 0 | 2 | 0 | 2 | 1 | 3 | 1 | 4 | 0 | 0 |
| TURNING MOVEMENTS | 0 | 2 | 0 | 2 | 0 | 3 | 0 | 2 | 0 | 0 | 2 | 2 | 0 | 0 |
| YEAR 2015 TOTAL | 0 | 4 | 2 | 6 | 0 | 5 | 0 | 4 | 1 | 3 | 3 | 6 | 0 | 0 |
| YEAR: 2014 | | | | | | | | | | | | | | |
| REAR-END | 0 | 1 | 0 | 1 | 0 | 2 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 0 |
| TURNING MOVEMENTS | 0 | 0 | 2 | 2 | 0 | 0 | 0 | 2 | 0 | 0 | 2 | 2 | 0 | 0 |
| YEAR 2014 TOTAL | 0 | 1 | 2 | 3 | 0 | 2 | 0 | 2 | 1 | 0 | 3 | 3 | 0 | 0 |
| YEAR: 2013 | | | | | | | | | | | | | | |
| FIXED / OTHER OBJECT | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | 0 |
| REAR-END | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 0 |
| TURNING MOVEMENTS | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | 0 |
| YEAR 2013 TOTAL | 0 | 1 | 2 | 3 | 0 | 1 | 0 | 2 | 1 | 0 | 3 | 3 | 0 | 0 |
| YEAR: 2012 | | | | | | | | | | | | | | |
| REAR-END | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 1 | 0 | 0 |
| YEAR 2012 TOTAL | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 1 | 0 | 0 |
| YEAR: 2011 | | | | | | | | | | | | | | |
| REAR-END | 0 | 0 | 2 | 2 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 2 | 0 | 0 |

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

PACIFIC HY 99E at NB EXTO I-205 WB, City of Oregon City, Clackamas County, 01/01/2011 to 12/31/2015

| COLLISION TYPE | FATAL CRASHES | NON- FATAL CRASHES | PROPERTY DAMAGE ONLY | TOTAL CRASHES | PEOPLE KILLED | PEOPLE INJURED | TRUCKS | DRY SURF | WET SURF | DAY | DARK | INTER- SECTION RELATED | INTER- SECTION RELATED | OFF- ROAD |
|-------------------|------------------|--------------------------|----------------------------|------------------|------------------|-------------------|--------|-------------|-------------|-----|------|------------------------------|------------------------------|--------------|
| | | | | | | | | | | | | | | |
| TURNING MOVEMENTS | 0 | 1 | 1 | 2 | 0 | 1 | 0 | 1 | 1 | 1 | 1 | 2 | 0 | 0 |
| YEAR 2011 TOTAL | 0 | 1 | 3 | 4 | 0 | 1 | 0 | 2 | 2 | 2 | 2 | 4 | 0 | 0 |
| FINAL TOTAL | 0 | 7 | 10 | 17 | 0 | 9 | 0 | 10 | 6 | 6 | 11 | 17 | 0 | 0 |

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OREGON.. DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT

URBAN NON-SYSTEM CRASH LISTING

PACIFIC HY 99E at NB EXTO I-205 WB, City of Oregon City, Clackamas County, 01/01/2011 to 12/31/2015

Total crash records: 17

| S P E R S W | D E A U C O D E | C L A S S | C I T Y S T R E E T | R D C H A R | I N T - T Y P E (M E D I A N) | O F F R D | W T H R | C R A S H | S P C I A L U S E | M O V E | P R T C | I N J | A S | E L I C I T S | P E D | C A U S E | S E R # | I N V E S T | D C S I K T I M E | F R O M | D I S T | C L A S S | C I T Y S T R E E T | R D C H A R | I N T - T Y P E (M E D I A N) | O F F R D | W T H R | C R A S H | S P C I A L U S E | M O V E | P R T C | I N J | A S | E L I C I T S | P E D | C A U S E | S E R # | I N V E S T | D C S I K T I M E | F R O M | D I S T | C L A S S | C I T Y S T R E E T | R D C H A R | I N T - T Y P E (M E D I A N) | O F F R D | W T H R | C R A S H | S P C I A L U S E | M O V E | P R T C | I N J | A S | E L I C I T S | P E D | C A U S E | S E R # | I N V E S T | D C S I K T I M E | F R O M | D I S T | C L A S S | C I T Y S T R E E T | R D C H A R | I N T - T Y P E (M E D I A N) | O F F R D | W T H R | C R A S H | S P C I A L U S E | M O V E | P R T C | I N J | A S | E L I C I T S | P E D | C A U S E | S E R # | I N V E S T | D C S I K T I M E | F R O M | D I S T | C L A S S | C I T Y S T R E E T | R D C H A R | I N T - T Y P E (M E D I A N) | O F F R D | W T H R | C R A S H | S P C I A L U S E | M O V E | P R T C | I N J | A S | E L I C I T S | P E D | C A U S E | S E R # | I N V E S T | D C S I K T I M E | F R O M | D I S T | C L A S S | C I T Y S T R E E T | R D C H A R | I N T - T Y P E (M E D I A N) | O F F R D | W T H R | C R A S H | S P C I A L U S E | M O V E | P R T C | I N J | A S | E L I C I T S | P E D | C A U S E | S E R # | I N V E S T | D C S I K T I M E | F R O M | D I S T | C L A S S | C I T Y S T R E E T | R D C H A R | I N T - T Y P E (M E D I A N) | O F F R D | W T H R | C R A S H | S P C I A L U S E | M O V E | P R T C | I N J | A S | E L I C I T S | P E D | C A U S E | S E R # | I N V E S T | D C S I K T I M E | F R O M | D I S T | C L A S S | C I T Y S T R E E T | R D C H A R | I N T - T Y P E (M E D I A N) | O F F R D | W T H R | C R A S H | S P C I A L U S E | M O V E | P R T C | I N J | A S | E L I C I T S | P E D | C A U S E | S E R # | I N V E S T | D C S I K T I M E | F R O M | D I S T | C L A S S | C I T Y S T R E E T | R D C H A R | I N T - T Y P E (M E D I A N) | O F F R D | W T H R | C R A S H | S P C I A L U S E | M O V E | P R T C | I N J | A S | E L |
|----------------------------|--------------------------------------|-----------------------|------------------------------------------------|----------------------------|------------------------------------------------------------------------------|-----------------------|------------------|-----------------------|-------------------------------------------|------------------|------------------|-------------|--------|---------------------------------|-------------|-----------------------|------------------|----------------------------|-------------------------------------------|------------------|------------------|-----------------------|------------------------------------------------|----------------------------|------------------------------------------------------------------------------|-----------------------|------------------|-----------------------|-------------------------------------------|------------------|------------------|-------------|--------|---------------------------------|-------------|-----------------------|------------------|----------------------------|-------------------------------------------|------------------|------------------|-----------------------|------------------------------------------------|----------------------------|------------------------------------------------------------------------------|-----------------------|------------------|-----------------------|-------------------------------------------|------------------|------------------|-------------|--------|---------------------------------|-------------|-----------------------|------------------|----------------------------|-------------------------------------------|------------------|------------------|-----------------------|------------------------------------------------|----------------------------|------------------------------------------------------------------------------|-----------------------|------------------|-----------------------|-------------------------------------------|------------------|------------------|-------------|--------|---------------------------------|-------------|-----------------------|------------------|----------------------------|-------------------------------------------|------------------|------------------|-----------------------|------------------------------------------------|----------------------------|------------------------------------------------------------------------------|-----------------------|------------------|-----------------------|-------------------------------------------|------------------|------------------|-------------|--------|---------------------------------|-------------|-----------------------|------------------|----------------------------|-------------------------------------------|------------------|------------------|-----------------------|------------------------------------------------|----------------------------|------------------------------------------------------------------------------|-----------------------|------------------|-----------------------|-------------------------------------------|------------------|------------------|-------------|--------|---------------------------------|-------------|-----------------------|------------------|----------------------------|-------------------------------------------|------------------|------------------|-----------------------|------------------------------------------------|----------------------------|------------------------------------------------------------------------------|-----------------------|------------------|-----------------------|-------------------------------------------|------------------|------------------|-------------|--------|---------------------------------|-------------|-----------------------|------------------|----------------------------|-------------------------------------------|------------------|------------------|-----------------------|------------------------------------------------|----------------------------|------------------------------------------------------------------------------|-----------------------|------------------|-----------------------|-------------------------------------------|------------------|------------------|-------------|--------|---------------------------------|-------------|-----------------------|------------------|----------------------------|-------------------------------------------|------------------|------------------|-----------------------|------------------------------------------------|----------------------------|------------------------------------------------------------------------------|-----------------------|------------------|-----------------------|-------------------------------------------|------------------|------------------|-------------|--------|--------|
|----------------------------|--------------------------------------|-----------------------|------------------------------------------------|----------------------------|------------------------------------------------------------------------------|-----------------------|------------------|-----------------------|-------------------------------------------|------------------|------------------|-------------|--------|---------------------------------|-------------|-----------------------|------------------|----------------------------|-------------------------------------------|------------------|------------------|-----------------------|------------------------------------------------|----------------------------|------------------------------------------------------------------------------|-----------------------|------------------|-----------------------|-------------------------------------------|------------------|------------------|-------------|--------|---------------------------------|-------------|-----------------------|------------------|----------------------------|-------------------------------------------|------------------|------------------|-----------------------|------------------------------------------------|----------------------------|------------------------------------------------------------------------------|-----------------------|------------------|-----------------------|-------------------------------------------|------------------|------------------|-------------|--------|---------------------------------|-------------|-----------------------|------------------|----------------------------|-------------------------------------------|------------------|------------------|-----------------------|------------------------------------------------|----------------------------|------------------------------------------------------------------------------|-----------------------|------------------|-----------------------|-------------------------------------------|------------------|------------------|-------------|--------|---------------------------------|-------------|-----------------------|------------------|----------------------------|-------------------------------------------|------------------|------------------|-----------------------|------------------------------------------------|----------------------------|------------------------------------------------------------------------------|-----------------------|------------------|-----------------------|-------------------------------------------|------------------|------------------|-------------|--------|---------------------------------|-------------|-----------------------|------------------|----------------------------|-------------------------------------------|------------------|------------------|-----------------------|------------------------------------------------|----------------------------|------------------------------------------------------------------------------|-----------------------|------------------|-----------------------|-------------------------------------------|------------------|------------------|-------------|--------|---------------------------------|-------------|-----------------------|------------------|----------------------------|-------------------------------------------|------------------|------------------|-----------------------|------------------------------------------------|----------------------------|------------------------------------------------------------------------------|-----------------------|------------------|-----------------------|-------------------------------------------|------------------|------------------|-------------|--------|---------------------------------|-------------|-----------------------|------------------|----------------------------|-------------------------------------------|------------------|------------------|-----------------------|------------------------------------------------|----------------------------|------------------------------------------------------------------------------|-----------------------|------------------|-----------------------|-------------------------------------------|------------------|------------------|-------------|--------|---------------------------------|-------------|-----------------------|------------------|----------------------------|-------------------------------------------|------------------|------------------|-----------------------|------------------------------------------------|----------------------------|------------------------------------------------------------------------------|-----------------------|------------------|-----------------------|-------------------------------------------|------------------|------------------|-------------|--------|--------|

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OREGON.. DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT

URBAN NON-SYSTEM CRASH LISTING
PACIFIC HY 99E at NB EXTO I-205 WB, City of Oregon City, Clackamas County, 01/01/2011 to 12/31/2015

Total crash records: 17

| SER# | INVEST | P E R S O N | CLASS | CITY STREET | RD CHAR | INT-TYPE (MEDIAN) | INT-REL | OFFRD | WTHR | CRASH | SPCL USE | MOVE | FROM | PRTC | INJ | A | S | PED | LOC | X RES | ERROR | ACT EVENT | CAUSE | | | | | | | | | | | | | | | | | | | |
|-------|----------|-------------|------------|------------------|---------|----------------------|------------|-------|------|------------|-----------|------|--------|--------|------|----|---|-------|-------|-------------|-------|-----------|-------|------|--------------|---------------|-------|-------|-------|-------|---------|----|---------|-------|---|---|-----|-----|-------|-------|-----------|-------|
| | | | | | | | | | | | | | | | | | | | | | | | | DIST | FIRST STREET | SECOND STREET | LOCIN | DRYVY | LIGHT | SVRTY | V# TYPE | TO | PH TYPE | SVRTY | E | X | RES | LOC | X RES | ERROR | ACT EVENT | CAUSE |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 01852 | NONE | N N N | 05/27/2011 | PACIFIC HY 99E | INTER | 3-LEG | N | N | CIR | S-ISTOP | 01 NONE | 0 | TURN-R | 01 DRV | NONE | 48 | F | OR-Y | OR<25 | 026 | 000 | 07 | | | | | | | | | | | | | | | | | | | | |
| | | | | NB EXT0 I-205 WB | SE | 1 | YIELD | N | DRY | REAR | PRVTE | 0 | S-E | 01 DRV | NONE | | | OR-Y | | 000 | 00 | | | | | | | | | | | | | | | | | | | | | |
| | | | 7A | | 09 | | | N | DAY | PDO | PSNGR CAR | | | | | | | OR<25 | | 000 | 07 | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | 02 NONE | 0 | STOP | | | | | OR<25 | | 011 | 00 | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | PRVTE | 0 | S-E | 01 DRV | NONE | 31 | M | OR-Y | OR<25 | 000 | 00 | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | PSNGR CAR | | | | | | | OR<25 | | 000 | 00 | | | | | | | | | | | | | | | | | | | | | |
| 04141 | NONE RPT | N N N | 11/04/2011 | PACIFIC HY 99E | INTER | 3-LEG | N | N | CIR | S-ISTOP | 01 NONE | 0 | STRGHT | 01 DRV | NONE | 90 | F | OR-Y | OR<25 | 026 | 000 | 07 | | | | | | | | | | | | | | | | | | | | |
| | | | | NB EXT0 I-205 WB | S | 1 | TRF SIGNAL | N | WET | REAR | PRVTE | 0 | S-N | 01 DRV | NONE | | | OR-Y | | 000 | 00 | | | | | | | | | | | | | | | | | | | | | |
| | | | 9P | | 06 | | | N | DLIT | PDO | PSNGR CAR | | | | | | | OR<25 | | 000 | 07 | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | 02 NONE | 0 | STOP | | | | | OR<25 | | 011 | 00 | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | PRVTE | 0 | S-N | 01 DRV | NONE | 24 | M | OR-Y | OR<25 | 000 | 00 | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | PSNGR CAR | | | | | | | OR<25 | | 000 | 00 | | | | | | | | | | | | | | | | | | | | | |
| 05083 | STATE | Y N N N | 12/30/2013 | PACIFIC HY 99E | INTER | 3-LEG | N | N | CIR | S-ISTOP | 01 NONE | 0 | STRGHT | 01 DRV | NONE | 51 | F | OR-Y | OR<25 | 043,026,047 | 000 | 07,01 | | | | | | | | | | | | | | | | | | | | |
| | | | | NB EXT0 I-205 WB | S | 0 | TRF SIGNAL | N | WET | REAR | PRVTE | 0 | S-N | 01 DRV | NONE | | | OR-Y | | 000 | 00 | | | | | | | | | | | | | | | | | | | | | |
| | | | 7P | | 06 | | | N | DARK | PDO | PSNGR CAR | | | | | | | OR<25 | | 000 | 00 | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | 02 NONE | 0 | STOP | | | | | OR<25 | | 011 | 00 | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | PRVTE | 0 | S-N | 01 DRV | NONE | 50 | M | OR-Y | OR<25 | 000 | 00 | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | PSNGR CAR | | | | | | | OR<25 | | 000 | 00 | | | | | | | | | | | | | | | | | | | | | |
| 00848 | NONE | N N N | 03/10/2011 | PACIFIC HY 99E | INTER | 3-LEG | N | N | RAIN | O-1 L-TURN | 01 NONE | 0 | STRGHT | 01 DRV | NONE | 00 | M | UNK | OR<25 | 000 | 000 | 02 | | | | | | | | | | | | | | | | | | | | |
| | | | | NB EXT0 I-205 WB | CN | 1 | TRF SIGNAL | N | WET | TURN | PRVTE | 0 | S-N | 01 DRV | NONE | | | OR<25 | | 000 | 00 | | | | | | | | | | | | | | | | | | | | | |
| | | | 8P | | 04 | | | N | DUSK | PDO | PSNGR CAR | | | | | | | OR<25 | | 000 | 00 | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | 02 NONE | 0 | TURN-L | | | | | OR<25 | | 000 | 00 | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | PRVTE | 0 | N-E | 01 DRV | NONE | 57 | F | OR-Y | OR<25 | 028,004 | 000 | 02 | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | PSNGR CAR | | | | | | | OR<25 | | 000 | 00 | | | | | | | | | | | | | | | | | | | | | |
| 03084 | STATE | N N N N | 08/23/2011 | PACIFIC HY 99E | INTER | 3-LEG | N | N | CIR | O-1 L-TURN | 01 NONE | 0 | TURN-L | 01 DRV | NONE | 54 | F | OR-Y | OR<25 | 000 | 000 | 04 | | | | | | | | | | | | | | | | | | | | |
| | | | | NB EXT0 I-205 WB | CN | 1 | TRF SIGNAL | N | DRY | TURN | PRVTE | 0 | N-E | 01 DRV | NONE | | | OR-Y | | 000 | 00 | | | | | | | | | | | | | | | | | | | | | |
| | | | 8A | | 04 | | | N | DAY | INJ | PSNGR CAR | | | | | | | OR<25 | | 000 | 00 | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | 02 NONE | 0 | STRGHT | | | | | OR<25 | | 000 | 00 | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | PRVTE | 0 | S-N | 01 DRV | INVA | 52 | F | OR-Y | OR<25 | 020 | 028 | 04 | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | PSNGR CAR | | | | | | | OR<25 | | 000 | 00 | | | | | | | | | | | | | | | | | | | | | |
| 03065 | STATE | N N N N | 08/19/2013 | PACIFIC HY 99E | INTER | 3-LEG | N | N | CIR | O-1 L-TURN | 01 NONE | 0 | STRGHT | 01 DRV | NONE | 19 | F | OR-Y | OR<25 | 016,020 | 000 | 27,04 | | | | | | | | | | | | | | | | | | | | |
| | | | | NB EXT0 I-205 WB | CN | 1 | TRF SIGNAL | N | DRY | TURN | PRVTE | 0 | S-N | 01 DRV | INVB | | | OR-Y | | 038 | 00 | | | | | | | | | | | | | | | | | | | | | |
| | | | 9P | | 04 | | | N | DLIT | INJ | PSNGR CAR | | | | | | | OR<25 | | 000 | 00 | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | 02 NONE | 0 | TURN-L | | | | | OR<25 | | 000 | 00 | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | PRVTE | 0 | N-E | | | | | OR<25 | | 000 | 00 | | | | | | | | | | | | | | | | | | | | | |

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OREGON.. DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT

CDS380
03/01/2017

CITY OF OREGON CITY, CLACKAMAS COUNTY
PACIFIC HY 99E at NB EXTO I-205 WB, city of Oregon City, Clackamas County, 01/01/2011 to 12/31/2015
URBAN NON-SYSTEM CRASH LISTING
Total crash records: 17

| SER# | INVEST | D C S L K TIME | FROM | CLASS | CITY STREET | RD CHAR | INT-TYPE (MEDIAN) | INT-BEL | OFFRD | WTHR | CRASH | SPCL USE | MOVE | PRTC | INJ | A S | E L I C N S | PED | LOC | ERROR | ACT EVENT | CAUSE |
|--------|---------|----------------|------|-------|------------------|---------|----------------------|------------|-------|-------|------------|-----------|-----------|---------|-----------|---------|-------------|-------|-------|---------|-----------|-------|
| | | | | | | LOCIN | LEG (#LANES) | CONTL | DRVMY | LIGHT | SURTY | V# TYPE | TO | P# TYPE | SVRTY | E X RES | M | OR-Y | LOC | 000 | 000 | 00 |
| 00203 | N N N N | N 01/16/2014 | 14 | | PACIFIC HY 99E | INTER | 3-LEG | N | N | CLD | O-1 L-TURN | 01 NONE | 0 | TURN-L | 01 DRIVER | NONE | 26 | M | OR<25 | 000 | 000 | 04 |
| CITY | | TH 11P | | | NB EXTO I-205 WB | CN 04 | 1 | L-GRN-SIG | N | DRY | TURN | UNKN | PSNGR CAR | N -E | 01 DRIVER | NONE | 00 | M | UNK | 003 | 000 | 04 |
| | | | | | | | | | | DLIT | PDO | PSNGR CAR | | | | | | UNK | | | | 04 |
| | | | | | | | | | | | | 02 NONE | 0 | STRGHT | | | | | | | | 00 |
| | | | | | | | | | | | | PRVTE | PSNGR CAR | S -N | 01 DRIVER | NONE | 45 | M | OR-Y | 000 | 000 | 00 |
| | | | | | | | | | | | | PSNGR CAR | | | | | | OR<25 | | | | 00 |
| 04525 | N N N N | N 11/09/2014 | 14 | | PACIFIC HY 99E | INTER | 3-LEG | N | N | CLD | O-1 L-TURN | 01 NONE | 0 | TURN-L | 01 DRIVER | NONE | 28 | F | OTH-Y | 003 | 000 | 04 |
| STATE | | SU 7A | | | NB EXTO I-205 WB | CN 04 | 2 | TRF SIGNAL | N | DRY | TURN | PRVTE | PSNGR CAR | N -E | 01 DRIVER | NONE | 00 | M | N-RES | | | 04 |
| | | | | | | | | | | DLIT | PDO | PSNGR CAR | | | | | | | | | | 04 |
| | | | | | | | | | | | | 02 NONE | 0 | STRGHT | | | | | | | | 00 |
| | | | | | | | | | | | | PRVTE | PSNGR CAR | S -N | 01 DRIVER | NONE | 31 | M | OR-Y | 000 | 000 | 00 |
| | | | | | | | | | | | | PSNGR CAR | | | | | | OR<25 | | | | 00 |
| 02021 | N N N N | N 05/28/2015 | 14 | | PACIFIC HY 99E | INTER | 3-LEG | N | N | CLR | O-1 L-TURN | 01 NONE | 0 | STRGHT | 01 DRIVER | NONE | 29 | M | OR-Y | 000 | 000 | 00 |
| NONE | | TH 9P | | | NB EXTO I-205 WB | CN 04 | 2 | TRF SIGNAL | N | DRY | TURN | PRVTE | PSNGR CAR | S -N | 01 DRIVER | INTB | 29 | M | OR-Y | | | 00 |
| | | | | | | | | | | DLIT | INT | PSNGR CAR | | | | | | OR<25 | | | | 00 |
| | | | | | | | | | | | | 02 NONE | 0 | TURN-L | | | | | | | | 00 |
| | | | | | | | | | | | | PRVTE | PSNGR CAR | N -E | 01 DRIVER | NONE | 19 | F | OR-Y | 028,004 | 000 | 02 |
| | | | | | | | | | | | | PSNGR CAR | | | | | | OR>25 | | | | 02 |
| 04587 | N N N | N 11/03/2015 | 14 | | PACIFIC HY 99E | INTER | 3-LEG | N | N | CLR | O-1 L-TURN | 01 NONE | 0 | STRGHT | 01 DRIVER | NONE | 25 | F | OR-Y | 016,020 | 000 | 27,04 |
| NO RPT | | TU 9P | | | NB EXTO I-205 WB | CN 04 | 0 | TRF SIGNAL | N | DRY | TURN | PRVTE | PSNGR CAR | S -N | 01 DRIVER | INTC | 25 | F | OR-Y | | | 27,04 |
| | | | | | | | | | | DLIT | INT | PSNGR CAR | | | | | | OR<25 | | | | 00 |
| | | | | | | | | | | | | 01 NONE | 0 | STRGHT | | | | | | | | 00 |
| | | | | | | | | | | | | PRVTE | PSNGR CAR | S -N | 02 PSNG | INTC | 05 | F | | 000 | 000 | 00 |
| | | | | | | | | | | | | PSNGR CAR | | | | | | | | | | 00 |
| | | | | | | | | | | | | 02 NONE | 0 | TURN-L | | | | | | | | 00 |
| | | | | | | | | | | | | PRVTE | PSNGR CAR | N -E | 01 DRIVER | NONE | 57 | M | OR-Y | 000 | 000 | 00 |
| | | | | | | | | | | | | PSNGR CAR | | | | | | OR<25 | | | | 00 |
| 05429 | N N N | N 12/17/2015 | 14 | | PACIFIC HY 99E | INTER | 3-LEG | N | N | RAIN | S-1STOP | 01 NONE | 0 | TURN-L | 01 DRIVER | NONE | 25 | F | OR-Y | 026 | 000 | 29 |
| NONE | | TH 1P | | | NB EXTO I-205 WB | CN 01 | 1 | TRF SIGNAL | N | WET | REAR | PRVTE | PSNGR CAR | N -E | 01 DRIVER | NONE | 25 | F | OR-Y | | | 29 |
| | | | | | | | | | | DAY | PDO | PSNGR CAR | | | | | | OR<25 | | | | 00 |
| | | | | | | | | | | | | 02 NONE | 0 | STOP | | | | | | | | 00 |
| | | | | | | | | | | | | PRVTE | PSNGR CAR | N -E | 01 DRIVER | NONE | 64 | M | OR-Y | 000 | 000 | 00 |
| | | | | | | | | | | | | PSNGR CAR | | | | | | OR<25 | | | | 00 |

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

PACIFIC HY 99E at EB EX PAC HY 99E, City of Oregon City, Clackamas County, 01/01/2011 to 12/31/2015

| COLLISION TYPE | FATAL CRASHES | NON- FATAL CRASHES | PROPERTY DAMAGE ONLY | TOTAL CRASHES | PEOPLE KILLED | PEOPLE INJURED | TRUCKS | DRY SURF | WET SURF | DAY | DARK | INTER- SECTION RELATED | INTER- SECTION RELATED | OFF- ROAD |
|------------------------|------------------|--------------------------|----------------------------|------------------|------------------|-------------------|----------|-------------|-------------|----------|----------|------------------------------|------------------------------|--------------|
| | | | | | | | | | | | | | | |
| YEAR: 2015 | | | | | | | | | | | | | | |
| REAR-END | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 0 |
| TURNING MOVEMENTS | 0 | 2 | 0 | 2 | 0 | 3 | 0 | 2 | 0 | 1 | 1 | 2 | 0 | 0 |
| YEAR 2015 TOTAL | 0 | 3 | 0 | 3 | 0 | 4 | 0 | 2 | 1 | 1 | 2 | 3 | 0 | 0 |
| YEAR: 2014 | | | | | | | | | | | | | | |
| REAR-END | 0 | 1 | 3 | 4 | 0 | 1 | 0 | 4 | 0 | 3 | 1 | 4 | 0 | 0 |
| YEAR 2014 TOTAL | 0 | 1 | 3 | 4 | 0 | 1 | 0 | 4 | 0 | 3 | 1 | 4 | 0 | 0 |
| YEAR: 2013 | | | | | | | | | | | | | | |
| REAR-END | 0 | 2 | 1 | 3 | 0 | 2 | 0 | 1 | 1 | 0 | 3 | 3 | 0 | 0 |
| TURNING MOVEMENTS | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | 0 |
| YEAR 2013 TOTAL | 0 | 2 | 2 | 4 | 0 | 2 | 0 | 2 | 1 | 0 | 4 | 4 | 0 | 0 |
| YEAR: 2012 | | | | | | | | | | | | | | |
| REAR-END | 0 | 0 | 5 | 5 | 0 | 0 | 0 | 4 | 1 | 5 | 0 | 5 | 0 | 0 |
| TURNING MOVEMENTS | 0 | 2 | 0 | 2 | 0 | 2 | 0 | 1 | 1 | 1 | 1 | 2 | 0 | 0 |
| YEAR 2012 TOTAL | 0 | 2 | 5 | 7 | 0 | 2 | 0 | 5 | 2 | 6 | 1 | 7 | 0 | 0 |
| YEAR: 2011 | | | | | | | | | | | | | | |
| REAR-END | 0 | 3 | 1 | 4 | 0 | 4 | 0 | 2 | 2 | 3 | 1 | 4 | 0 | 0 |
| TURNING MOVEMENTS | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 0 |
| YEAR 2011 TOTAL | 0 | 3 | 2 | 5 | 0 | 4 | 0 | 2 | 3 | 3 | 2 | 5 | 0 | 0 |

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

PACIFIC HY 99E at EB EX PAC HY 99E, City of Oregon City, Clackamas County, 01/01/2011 to 12/31/2015

| | | | | | | | | | | | | | |
|-------------|----|----|----|---|----|---|----|---|----|----|----|---|---|
| 0 | 11 | 12 | 23 | 0 | 13 | 0 | 15 | 7 | 13 | 10 | 23 | 0 | 0 |
| FINAL TOTAL | | | | | | | | | | | | | |

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OREGON.. DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT

CDS380
03/01/2017

CITY OF OREGON CITY, CLACKAMAS COUNTY

URBAN NON-SYSTEM CRASH LISTING
PACIFIC HY 99E at EB EX PAC HY 99E, city of Oregon City, Clackamas County, 01/01/2011 to 12/31/2015

Total crash records: 23

| S P E R S W | E A U C O D A T E | C L A S S | C I T Y S T R E E T | R D C H A R | I N T - T Y P E (M E D I A N) | O F F R D | W T H R | C R A S H | S P C I A L U S E | M O V E | P R I C I P A L I N J U R Y | P E D E L I C I T Y | A S S E S S M E N T | E X P L A N A T I O N | L O C A T I O N | E R R O R | A C T E V E N T | C A U S E | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|----------------------------|-------------------------------------------|-----------------------|------------------------------------------------|----------------------------|------------------------------------------------------------------------------|-----------------------|------------------|-----------------------|-------------------------------------------|------------------|--------------------------------------------------------------------|------------------------------------------------|------------------------------------------------|-----------------------------------------------------|--------------------------------------|-----------------------|--------------------------------------|-----------------------|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
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OREGON.. DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT

CDS380
03/01/2017

URBAN NON-SYSTEM CRASH LISTING
PACIFIC HY 99E at EB EX PAC HY 99E, city of Oregon City, Clackamas County, 01/01/2011 to 12/31/2015
Total crash records: 23

CITY OF OREGON CITY, CLACKAMAS COUNTY

| SER# | INVEST | D C S L K TIME | FROM | CLASS | CITY STREET | RD CHAR | INT-TYPE (MEDIAN) | INT-BEL | OFFRD | WTHR | CRASH | SPCL USE | MOVE | PRTC | INJ | A S | PED | LOC | RES | OTH-Y | ERROR | ACT EVENT | CAUSE |
|-------|--------|----------------|------|-------|-------------|---------|----------------------|---------|-------|------|-------|----------|------|------|-----|-----|-----|-----|-----|-------|-------|-----------|-------|
| 09 | 09 | 2P | 09 | 09 | 09 | 09 | 09 | 09 | 09 | 09 | 09 | 09 | 09 | 09 | 09 | 09 | 09 | 09 | 09 | 09 | 09 | 09 | 09 |
| 01366 | N N N | 04/22/2013 | 11 | 11 | 11 | 11 | 11 | 11 | 11 | 11 | 11 | 11 | 11 | 11 | 11 | 11 | 11 | 11 | 11 | 11 | 11 | 11 | 11 |
| NONE | NONE | MO | 7P | 7P | 7P | 7P | 7P | 7P | 7P | 7P | 7P | 7P | 7P | 7P | 7P | 7P | 7P | 7P | 7P | 7P | 7P | 7P | 7P |
| 82215 | N N N | 11/12/2013 | 11 | 11 | 11 | 11 | 11 | 11 | 11 | 11 | 11 | 11 | 11 | 11 | 11 | 11 | 11 | 11 | 11 | 11 | 11 | 11 | 11 |
| NONE | NONE | TU | 8A | 8A | 8A | 8A | 8A | 8A | 8A | 8A | 8A | 8A | 8A | 8A | 8A | 8A | 8A | 8A | 8A | 8A | 8A | 8A | 8A |
| 00474 | N N N | 02/04/2014 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 |
| CITY | CITY | TU | 10A | 10A | 10A | 10A | 10A | 10A | 10A | 10A | 10A | 10A | 10A | 10A | 10A | 10A | 10A | 10A | 10A | 10A | 10A | 10A | 10A |
| 00923 | N N N | 03/04/2014 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 |
| NONE | NONE | TU | 8A | 8A | 8A | 8A | 8A | 8A | 8A | 8A | 8A | 8A | 8A | 8A | 8A | 8A | 8A | 8A | 8A | 8A | 8A | 8A | 8A |
| 02990 | N N N | 08/03/2014 | 11 | 11 | 11 | 11 | 11 | 11 | 11 | 11 | 11 | 11 | 11 | 11 | 11 | 11 | 11 | 11 | 11 | 11 | 11 | 11 | 11 |
| NONE | NONE | SU | UNK | UNK | UNK | UNK | UNK | UNK | UNK | UNK | UNK | UNK | UNK | UNK | UNK | UNK | UNK | UNK | UNK | UNK | UNK | UNK | UNK |
| 05025 | N N N | 12/12/2014 | 11 | 11 | 11 | 11 | 11 | 11 | 11 | 11 | 11 | 11 | 11 | 11 | 11 | 11 | 11 | 11 | 11 | 11 | 11 | 11 | 11 |
| NONE | NONE | FR | 2P | 2P | 2P | 2P | 2P | 2P | 2P | 2P | 2P | 2P | 2P | 2P | 2P | 2P | 2P | 2P | 2P | 2P | 2P | 2P | 2P |

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CDS380
03/01/2017OREGON.. DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT

URBAN NON-SYSTEM CRASH LISTING

PACIFIC HY 99E at EB EX PAC HY 99E, city of Oregon City, Clackamas County, 01/01/2011 to 12/31/2015

Total crash records: 23

CITY OF OREGON CITY, CLACKAMAS COUNTY

| SER# | INVEST | D C S L K TIME | FROM | DIST | CLASS | CITY STREET | RD CHAR | INT-TYPE (MEDIAN) | INT-BEL | OFFRD | WTHR | CRASH | SPCL USE | MOVE | FROM | PRTC | INJ | A S | E L I C N S | PED | LOC | ERROR | ACT EVENT | CAUSE |
|--------|--------|----------------|------|------|-------|------------------|---------|----------------------|------------|-------|-------|----------|-----------|--------|------|---------|-------|---------|-------------|-------|-------|---------|-----------|-------|
| | | | | | | FIRST STREET | DIRECT | LEGS | TRAF- | DRVWY | LIGHT | SURVY | V# TYPE | TO | E -N | P# TYPE | SVRTY | E X RES | E L I C N S | PED | LOC | ERROR | ACT EVENT | CAUSE |
| | | | | | | SECOND STREET | LOCIN | (#LANES) | CONTL | DRVWY | LIGHT | SURVY | PRVTE | E -N | 01 | DRVR | INJC | 65 F | OR-Y | OR<25 | 000 | 000 | 00 | 00 |
| 01260 | N N N | 04/15/2011 | 19 | | | PACIFIC HY 99E | INTER | 3-LEG | N | N | RAIN | S-1STOP | 01 NONE | STRGHT | | 01 | DRVR | NONE | 00 | Unk | Unk | 047,026 | 013 | 01 |
| NONE | | FR 12P | | | | EB EX PAC HY 99E | E 06 | 1 | YIELD | N | WET | REAR | UNKN | E -W | | 01 | DRVR | NONE | 00 | Unk | Unk | 000 | 000 | 00 |
| | | | | | | | | | | N | DAY | INJ | UNKNOWN | | | | | | | | | 000 | 000 | 01 |
| | | | | | | | | | | | | | 02 NONE | STOP | | | | | | | | | | |
| | | | | | | | | | | | | | PRVTE | E -W | | 01 | DRVR | NONE | 24 F | OR-Y | OR<25 | 000 | 011 013 | 00 |
| | | | | | | | | | | | | | PSNGR CAR | | | | | | | | | 000 | 000 | 00 |
| | | | | | | | | | | | | | 03 NONE | STOP | | | | | | | | | | |
| | | | | | | | | | | | | | PRVTE | E -W | | 01 | DRVR | INJC | 41 M | OR-Y | OR<25 | 000 | 022 | 00 |
| | | | | | | | | | | | | | PSNGR CAR | | | | | | | | | 000 | 000 | 00 |
| | | | | | | | | | | | | | 03 NONE | STOP | | 02 | PSNG | INJC | 15 F | | | 000 | 022 | 00 |
| | | | | | | | | | | | | | PRVTE | E -W | | | | | | | | 000 | 000 | 00 |
| | | | | | | | | | | | | | PSNGR CAR | | | | | | | | | | | |
| 03326 | N N N | 09/08/2011 | 19 | | | PACIFIC HY 99E | INTER | 3-LEG | N | N | CLR | S-1STOP | 01 NONE | STRGHT | | 01 | DRVR | NONE | 75 M | OR-Y | OR<25 | 026 | 000 | 07 |
| NO RPT | | TH 11A | | | | EB EX PAC HY 99E | E 06 | 1 | TRF SIGNAL | N | DRY | REAR | PRVTE | E -W | | 01 | DRVR | NONE | 75 M | OR-Y | OR<25 | 000 | 000 | 07 |
| | | | | | | | | | | N | DAY | PDO | PSNGR CAR | | | | | | | | | | | |
| | | | | | | | | | | | | | 02 NONE | STOP | | | | | | | | | | |
| | | | | | | | | | | | | | PRVTE | E -W | | 01 | DRVR | NONE | 00 F | OR-Y | OR<25 | 000 | 011 | 00 |
| | | | | | | | | | | | | | PSNGR CAR | | | | | | | | | 000 | 000 | 00 |
| 04032 | N N N | 10/29/2011 | 19 | | | PACIFIC HY 99E | INTER | 3-LEG | N | N | CLR | S-1STOP | 01 NONE | STRGHT | | 01 | DRVR | NONE | 00 F | OR-Y | OR<25 | 012 | 000 | 07 |
| NONE | | SA 10A | | | | EB EX PAC HY 99E | E 06 | 1 | TRF SIGNAL | N | DRY | REAR | UNKN | E -W | | 01 | DRVR | NONE | 00 F | OR-Y | OR<25 | 026 | 000 | 07 |
| | | | | | | | | | | N | DAY | INJ | PSNGR CAR | | | | | | | | | | | |
| | | | | | | | | | | | | | 02 NONE | STOP | | | | | | | | | | |
| | | | | | | | | | | | | | PRVTE | E -W | | 01 | DRVR | INJC | 53 F | OR-Y | OR<25 | 000 | 012 | 00 |
| | | | | | | | | | | | | | PSNGR CAR | | | | | | | | | 000 | 000 | 00 |
| 04751 | N N N | 12/08/2013 | 11 | | | PACIFIC HY 99E | INTER | 3-LEG | N | N | CLR | S-1STOP | 01 NONE | STRGHT | | 01 | DRVR | NONE | 00 M | OR-Y | OR<25 | 026 | 000 | 07 |
| NONE | | SU 5P | | | | EB EX PAC HY 99E | E 06 | 2 | TRF SIGNAL | N | UNK | REAR | PRVTE | E -W | | 01 | DRVR | NONE | 00 M | OR-Y | OR<25 | 026 | 000 | 07 |
| | | | | | | | | | | N | DUSK | INJ | PSNGR CAR | | | | | | | | | | | |
| | | | | | | | | | | | | | 02 NONE | STOP | | | | | | | | | | |
| | | | | | | | | | | | | | PRVTE | E -W | | 01 | DRVR | INJC | 39 F | OR-Y | OR<25 | 000 | 012 | 00 |
| | | | | | | | | | | | | | PSNGR CAR | | | | | | | | | 000 | 000 | 00 |
| 04167 | N N N | 11/05/2011 | 14 | | | PACIFIC HY 99E | INTER | 3-LEG | N | N | RAIN | ANGL-OTH | 01 NONE | TURN-L | | 01 | DRVR | NONE | 61 F | OR-Y | OR<25 | 097 | 000 | 04 |
| NONE | | SA 7A | | | | EB EX PAC HY 99E | CN 03 | 1 | TRF SIGNAL | N | WET | TURN | PRVTE | E -S | | 01 | DRVR | NONE | 61 F | OR-Y | OR<25 | 097 | 000 | 00 |
| | | | | | | | | | | N | DAWN | PDO | PSNGR CAR | | | | | | | | | | | |
| | | | | | | | | | | | | | 02 NONE | STRGHT | | | | | | | | | | |
| | | | | | | | | | | | | | PRVTE | N -S | | 01 | DRVR | NONE | 64 F | OR-Y | OR<25 | 097 | 000 | 00 |
| | | | | | | | | | | | | | PSNGR CAR | | | | | | | | | 000 | 000 | 00 |

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

PACIFIC HY 99E at NB EXTO I-205 EB, City of Oregon City, Clackamas County, 01/01/2011 to 12/31/2015

| COLLISION TYPE | FATAL CRASHES | NON- FATAL CRASHES | PROPERTY DAMAGE ONLY | TOTAL CRASHES | PEOPLE KILLED | PEOPLE INJURED | TRUCKS | DRY SURF | WET SURF | DAY | DARK | INTER- SECTION RELATED | INTER- SECTION RELATED | OFF- ROAD |
|------------------------|------------------|--------------------------|----------------------------|------------------|------------------|-------------------|----------|-------------|-------------|----------|----------|------------------------------|------------------------------|--------------|
| YEAR: 2015 | | | | | | | | | | | | | | |
| REAR-END | 0 | 1 | 0 | 1 | 0 | 2 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 |
| TURNING MOVEMENTS | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 |
| YEAR 2015 TOTAL | 0 | 2 | 0 | 2 | 0 | 3 | 0 | 2 | 0 | 2 | 0 | 2 | 0 | 0 |
| YEAR: 2014 | | | | | | | | | | | | | | |
| REAR-END | 0 | 2 | 1 | 3 | 0 | 2 | 0 | 2 | 1 | 3 | 0 | 3 | 0 | 0 |
| YEAR 2014 TOTAL | 0 | 2 | 1 | 3 | 0 | 2 | 0 | 2 | 1 | 3 | 0 | 3 | 0 | 0 |
| YEAR: 2013 | | | | | | | | | | | | | | |
| REAR-END | 0 | 2 | 2 | 4 | 0 | 2 | 0 | 4 | 0 | 4 | 0 | 4 | 0 | 0 |
| TURNING MOVEMENTS | 0 | 1 | 0 | 1 | 0 | 3 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | 0 |
| YEAR 2013 TOTAL | 0 | 3 | 2 | 5 | 0 | 5 | 0 | 5 | 0 | 4 | 1 | 5 | 0 | 0 |
| YEAR: 2012 | | | | | | | | | | | | | | |
| REAR-END | 0 | 0 | 2 | 2 | 0 | 0 | 0 | 2 | 0 | 2 | 0 | 2 | 0 | 0 |
| TURNING MOVEMENTS | 0 | 1 | 3 | 4 | 0 | 1 | 0 | 3 | 1 | 2 | 2 | 4 | 0 | 0 |
| YEAR 2012 TOTAL | 0 | 1 | 5 | 6 | 0 | 1 | 0 | 5 | 1 | 4 | 2 | 6 | 0 | 0 |
| YEAR: 2011 | | | | | | | | | | | | | | |
| REAR-END | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 |
| TURNING MOVEMENTS | 0 | 0 | 2 | 2 | 0 | 0 | 0 | 2 | 0 | 1 | 1 | 2 | 0 | 0 |
| YEAR 2011 TOTAL | 0 | 0 | 3 | 3 | 0 | 0 | 0 | 3 | 0 | 2 | 1 | 3 | 0 | 0 |

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

PACIFIC HY 99E at NB EXTO I-205 EB, City of Oregon City, Clackamas County, 01/01/2011 to 12/31/2015

| FINAL TOTAL | 0 | 8 | 11 | 19 | 0 | 11 | 0 | 17 | 2 | 15 | 4 | 19 | 0 | 0 |
|-------------|---|---|----|----|---|----|---|----|---|----|---|----|---|---|
| | 0 | 8 | 11 | 19 | 0 | 11 | 0 | 17 | 2 | 15 | 4 | 19 | 0 | 0 |

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OREGON.. DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT

URBAN NON-SYSTEM CRASH LISTING

PACIFIC HY 99E at NB EXTO I-205 EB, City of Oregon City, Clackamas County, 01/01/2011 to 12/31/2015

Total crash records: 19

[illegible]

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OREGON.. DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT

URBAN NON-SYSTEM CRASH LISTING
PACIFIC HY 99E at NB EXTO I-205 EB, City of Oregon City, Clackamas County, 01/01/2011 to 12/31/2015

Total crash records: 19

[illegible]

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OREGON.. DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT

CDS380
03/01/2017

URBAN NON-SYSTEM CRASH LISTING
PACIFIC HY 99E at NB EXT0 I-205 EB, city of Oregon City, Clackamas County, 01/01/2011 to 12/31/2015

CITY OF OREGON CITY, CLACKAMAS COUNTY

Total crash records: 19

| S P R S W | | | CLASS | | CITY STREET | | INT-TYPE (MEDIAN) | | OFFRD | | WTHR | | CRASH | | SPLC USE | | PH TYPE | | PRIC | | INJ | | A S | | PED | | CAUSE | |
|-----------------------|----------------|------------|-------|----|------------------------------------|-------------|----------------------|---------|---------|------------|-------|------|---------------------------|---------|--------------|-----------------|--------------------|---------|-------|---------|------|----------------|-----------|-------|-----|-------|-------|--|
| SER# | E L G H R DAY | DIST | FROM | TO | RD CHAR | DIRECT | LOC | LEGS | TRAFF - | DRVWY | LIGHT | SURF | COLL | SVRTY | MOVE | TRLR QTY | OWNER | PH TYPE | SVRTY | E X RES | LOC | ERROR | ACT EVENT | CAUSE | | | | |
| INVEST | D C S L K TIME | | | | | | | (LANES) | CONT | | | | | | TO | PSNGR CAR | | 01 | DRVR | INJC | 57 F | OR-Y | OR<25 | 000 | 000 | 00 | | |
| 04886 NONE | N N N | 12/17/2013 | 14 | | PACIFIC HY 99E NB EXT0 I-205 EB | INTER S | 06 | 3-LEG | N | TRF SIGNAL | N | CLR | S-1STOP REAR PDO | 01 NONE | 0 | STRGHT S -N | PRVTE PSNGR CAR | 01 | DRVR | NONE | 35 M | OR-Y OR<25 | 026 | 000 | 000 | 07 | | |
| | | TU 3P | | | | | | | | | | | | 02 NONE | STOP S -N | UNKN UNKNOWN | | 01 | DRVR | NONE | 00 | Unk | UNK | 011 | 00 | 00 | | |
| | | | | | | | | | | | | | | | | | | | | | | | 000 | 000 | 00 | | | |
| 03249 STATE | N N N | 09/03/2011 | 14 | | PACIFIC HY 99E NB EXT0 I-205 EB | INTER CN | 04 | 3-LEG | N | L-GRN-SIG | N | FOG | O-1 L-TURN TURN PDO | 01 NONE | 0 | TURN-L N -E | PRVTE PSNGR CAR | 01 | DRVR | NONE | 62 M | OTH-Y N-RES | 000 | 000 | 00 | 04 | | |
| | | SA 8P | | | | | | | | | | | | 02 NONE | 0 | STRGHT S -N | PRVTE PSNGR CAR | 01 | DRVR | NONE | 70 F | OR-Y OR<25 | 020 | 000 | 00 | 04 | | |
| | | | | | | | | | | | | | | | | | | | | | | | 000 | 000 | 00 | | | |
| 00563 CITY | N N N | 02/12/2012 | 14 | | PACIFIC HY 99E NB EXT0 I-205 EB | INTER CN | 02 | 3-LEG | N | TRF SIGNAL | N | RAIN | ANGL-OTH TURN PDO | 01 NONE | 0 | STRGHT S -N | PRVTE PSNGR CAR | 01 | DRVR | NONE | 24 F | OR-Y OR<25 | 021 | 000 | 000 | 04 | | |
| | | SU 10P | | | | | | | | | | | | 02 NONE | 0 | TURN-L E -S | PRVTE PSNGR CAR | 01 | DRVR | NONE | 56 M | OR-Y OR<25 | 000 | 000 | 00 | | | |
| | | | | | | | | | | | | | | | | | | | | | | | 000 | 000 | 00 | | | |
| 02698 NONE | N N N | 07/24/2012 | 14 | | PACIFIC HY 99E NB EXT0 I-205 EB | INTER CN | 04 | 3-LEG | N | TRF SIGNAL | N | CLR | S-1STOP REAR PDO | 01 NONE | 0 | TURN-R S -E | PRVTE PSNGR CAR | 01 | DRVR | NONE | 50 F | SUSP OR<25 | 006,052 | 000 | 000 | 08,32 | | |
| | | TU 4P | | | | | | | | | | | | 02 NONE | 0 | TURN-R S -E | PRVTE PSNGR CAR | 01 | DRVR | NONE | 47 F | OR-Y OR<25 | 000 | 000 | 00 | | | |
| | | | | | | | | | | | | | | | | | | | | | | | 000 | 000 | 00 | | | |
| 03080 NONE | N N N | 08/19/2012 | 14 | | PACIFIC HY 99E NB EXT0 I-205 EB | INTER CN | 04 | 3-LEG | N | TRF SIGNAL | N | CLR | O-1 L-TURN TURN PDO | 01 NONE | 0 | STRGHT S -N | PRVTE PSNGR CAR | 01 | DRVR | NONE | 00 F | OR-Y UNK | 020 | 000 | 000 | 04 | | |
| | | SU 3P | | | | | | | | | | | | 02 NONE | 0 | TURN-L N -E | PRVTE PSNGR CAR | 01 | DRVR | NONE | 29 M | OR-Y OR<25 | 000 | 000 | 00 | | | |
| | | | | | | | | | | | | | | | | | | | | | | | 000 | 000 | 00 | | | |
| 04535 STATE | N N N | 11/22/2012 | 14 | | PACIFIC HY 99E NB EXT0 I-205 EB | INTER CN | 04 | 3-LEG | N | TRF SIGNAL | N | CLR | O-1 L-TURN TURN INJ | 01 NONE | 0 | STRGHT S -N | PRVTE PSNGR CAR | 01 | DRVR | INJC | 18 F | OR-Y OR<25 | 020 | 000 | 000 | 04 | | |
| | | TH 8P | | | | | | | | | | | | 01 NONE | 0 | STRGHT S -N | PRVTE PSNGR CAR | 02 | PSNG | NO<5 | 01 M | | 000 | 000 | 00 | | | |
| | | | | | | | | | | | | | | | | | | | | | | 000 | 000 | 00 | | | | |

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CRASH SUMMARIES BY YEAR BY COLLISION TYPE

PACIFIC HY 99E at 15TH ST, City of Oregon City, Clackamas County, 01/01/2011 to 12/31/2015

| COLLISION TYPE | FATAL CRASHES | NON- FATAL CRASHES | PROPERTY DAMAGE ONLY | TOTAL CRASHES | PEOPLE KILLED | PEOPLE INJURED | TRUCKS | DRY SURF | WET SURF | DAY | DARK | INTER- SECTION RELATED | INTER- SECTION RELATED | OFF- ROAD |
|------------------------|------------------|--------------------------|----------------------------|------------------|------------------|-------------------|--------|-------------|-------------|-----|------|------------------------------|------------------------------|--------------|
| YEAR: 2015 | | | | | | | | | | | | | | |
| REAR-END | 0 | 1 | 1 | 2 | 0 | 1 | 0 | 2 | 0 | 1 | 1 | 2 | 0 | 0 |
| YEAR 2015 TOTAL | 0 | 1 | 1 | 2 | 0 | 1 | 0 | 2 | 0 | 1 | 1 | 2 | 0 | 0 |
| YEAR: 2014 | | | | | | | | | | | | | | |
| REAR-END | 0 | 6 | 0 | 6 | 0 | 7 | 0 | 6 | 0 | 6 | 0 | 6 | 0 | 0 |
| TURNING MOVEMENTS | 0 | 1 | 1 | 2 | 0 | 1 | 0 | 1 | 1 | 2 | 0 | 2 | 0 | 0 |
| YEAR 2014 TOTAL | 0 | 7 | 1 | 8 | 0 | 8 | 0 | 7 | 1 | 8 | 0 | 8 | 0 | 0 |
| YEAR: 2013 | | | | | | | | | | | | | | |
| REAR-END | 0 | 2 | 0 | 2 | 0 | 2 | 0 | 1 | 0 | 1 | 1 | 2 | 0 | 0 |
| TURNING MOVEMENTS | 0 | 0 | 2 | 2 | 0 | 0 | 0 | 1 | 1 | 2 | 0 | 2 | 0 | 0 |
| YEAR 2013 TOTAL | 0 | 2 | 2 | 4 | 0 | 2 | 0 | 2 | 1 | 3 | 1 | 4 | 0 | 0 |
| YEAR: 2012 | | | | | | | | | | | | | | |
| REAR-END | 0 | 1 | 0 | 1 | 0 | 5 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 |
| TURNING MOVEMENTS | 0 | 1 | 1 | 2 | 0 | 1 | 0 | 1 | 1 | 2 | 0 | 2 | 0 | 0 |
| YEAR 2012 TOTAL | 0 | 2 | 1 | 3 | 0 | 6 | 0 | 2 | 1 | 3 | 0 | 3 | 0 | 0 |
| YEAR: 2011 | | | | | | | | | | | | | | |
| REAR-END | 0 | 2 | 1 | 3 | 0 | 2 | 0 | 3 | 0 | 2 | 1 | 3 | 0 | 0 |
| YEAR 2011 TOTAL | 0 | 2 | 1 | 3 | 0 | 2 | 0 | 3 | 0 | 2 | 1 | 3 | 0 | 0 |
| FINAL TOTAL | 0 | 14 | 6 | 20 | 0 | 19 | 0 | 16 | 3 | 17 | 3 | 20 | 0 | 0 |

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OREGON.. DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT

URBAN NON-SYSTEM CRASH LISTING

PACIFIC HY 99E at 15TH ST, City of Oregon City, Clackamas County, 01/01/2011 to 12/31/2015

CITY OF OREGON CITY, CLACKAMAS COUNTY

Total crash records: 20

| SER# | INVEST | NO RPT | P R S W E A U C O DATE E L G H R DAY D C S L K TIME | CLASS | DIST | CITY STREET | RD CHAR | INT-TYPE (MEDIAN) | INT-BEL | OFFRD | WTHR | CRASH | SPCL USE | MOVE | FROM | PRTC | INJ | A S | E L I C N S | PED | LOC | ERROR | ACT EVENT | CAUSE |
|-------|--------|--------|--------------------------------------------------------------|-------|------|---------------------------|-------------------|----------------------|-----------------|--------|-------------|------------------------|-------------------------------|-----------------|-----------|------|------|---------------|-------------|-----|-------------------|-------|-----------------------|-----------------|
| | | | | | | | | | | | | | | | | | | | | | | | | |
| 02478 | | | 07/10/2012 TU 7A | 14 | | PACIFIC HY 99E 15TH ST | INTER SE 06 | 3-LEG 0 | N TRF SIGNAL | N N | CLR DRY | S-1STOP REAR INJ | 01 NONE PRVTE PSNGR CAR | STRGHT SW-NE | 01 DRIVER | INJB | 54 M | OR-Y OR<25 | | | 026 | | 000 000 000 | 013 00 07 |
| | | | | | | | | | | | | | 01 NONE PRVTE PSNGR CAR | STRGHT SW-NE | 02 PSNG | INJB | 48 M | | | | 000 000 000 | | 00 00 00 | |
| | | | | | | | | | | | | | 01 NONE PRVTE PSNGR CAR | STRGHT SW-NE | 03 PSNG | INJC | 45 M | | | | 000 000 000 | | 00 00 00 | |
| | | | | | | | | | | | | | 01 NONE PRVTE PSNGR CAR | STRGHT SW-NE | 04 PSNG | INJC | 24 M | | | | 000 000 000 | | 00 00 00 | |
| | | | | | | | | | | | | | 02 NONE PRVTE PSNGR CAR | STOP SW-NE | 01 DRIVER | NONE | 18 F | OR-Y OR<25 | | | 000 000 000 | | 011 013 00 00 | |
| | | | | | | | | | | | | | 03 NONE PRVTE PSNGR CAR | STOP SW-NE | 01 DRIVER | INJC | 34 F | OR-Y OR<25 | | | 000 000 000 | | 022 013 00 00 | |
| | | | | | | | | | | | | | 04 NONE PRVTE PSNGR CAR | STOP SW-NE | 01 DRIVER | NONE | 32 M | OR-Y OR<25 | | | 000 000 000 | | 022 00 00 | |
| 02162 | | | 06/18/2011 SA 10P | 14 | | PACIFIC HY 99E 15TH ST | INTER SE 06 | 3-LEG 0 | N STOP SIGN | N N | CLR DRY | S-1STOP REAR INJ | 01 NONE PRVTE PSNGR CAR | STRGHT SE-NW | 01 DRIVER | NONE | 49 F | OR-Y OR<25 | | | 026 | | 000 000 000 | 07 00 07 |
| | | | | | | | | | | | | | 02 NONE PRVTE PSNGR CAR | STOP SE-NW | 01 DRIVER | INJC | 28 M | OR-Y OR<25 | | | 000 000 000 | | 011 00 00 | |
| 02450 | | | 07/11/2011 MO 6P | 14 | | PACIFIC HY 99E 15TH ST | INTER SE 06 | 3-LEG 0 | N TRF SIGNAL | N N | CLR DRY | S-1STOP REAR PDO | 01 NONE PRVTE PSNGR CAR | STRGHT SE-NW | 01 DRIVER | NONE | 20 M | OR-Y OR<25 | | | 026 | | 000 000 000 | 07 00 07 |
| | | | | | | | | | | | | | 02 NONE PRVTE PSNGR CAR | STOP SE-NW | 01 DRIVER | NONE | 69 M | OR-Y OR<25 | | | 000 000 000 | | 011 00 00 | |
| 04973 | | | 12/09/2014 TU 12P | 14 | | PACIFIC HY 99E 15TH ST | INTER SE 06 | 3-LEG 0 | N STOP SIGN | N N | RAIN WET | BIKE TURN INJ | 01 NONE PRVTE PSNGR CAR | TURN-R SE-NE | 01 DRIVER | NONE | 44 M | OR-Y OR<25 | | | 027 | | 084 015 000 084 | 02 00 02 |
| | | | | | | | | | | | | | - | STRGHT | 01 BIKE | INJA | 54 F | | | | | 034 | | 00 |

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OREGON.. DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT

CDS380
03/01/2017

CITY OF OREGON CITY, CLACKAMAS COUNTY
URBAN NON-SYSTEM CRASH LISTING
PACIFIC HY 99E at 15TH ST, City of Oregon City, Clackamas County, 01/01/2011 to 12/31/2015
Total crash records: 20

| S P E S R # INVEST | D A U G S T C O N F I D E N T I A L | R E G I O N A L C O D E | S T R E E T N O M E N C L A S S | C I T Y S T R E E T F I R S T S E C O N D S T R E E T | C L A S S D I S T R I B U T I O N | R O A D C H A R A C T E R I S T I C S | I N T - T Y P E (M E D I A N) (L A N E S) | I N T - R E L A T I O N S H I P S I G N | O F F R E D R O A D W I D T H | W E A T H C O N D I T I O N | C R A S H C O L L I S I O N | S P E C I A L U S E T Y P E | M O V E F R O M T O | P E D I N J U R Y T Y P E | A V E R A G E S P E E D | L O C A T I O N | E R R O R | A C T E V E N T | C A U S E | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|--------------------------------------|----------------------------------------------------------------------------------------|----------------------------------------------------------|------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------|--------------------------------------------------------------------|--------------------------------------------------------------------|--------------------------------------------------------------------|------------------------------------------------|---------------------------------------------------------------|----------------------------------------------------------|--------------------------------------|-----------------------|--------------------------------------|-----------------------|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
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CDS380
03/01/2017

OREGON.. DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT

URBAN NON-SYSTEM CRASH LISTING

PACIFIC HY 99E at 15TH ST, City of Oregon City, Clackamas County, 01/01/2011 to 12/31/2015

CITY OF OREGON CITY, CLACKAMAS COUNTY

Total crash records: 20

| SER# | INVEST | D C S L K TIME | CLASS | CITY STREET | RD CHAR | INT-TYPE (MEDIAN) | INT-BEL LEGS (LANES) | OFFRD | WTHR | CRASH | SPCL USE | MOVE | PRTC | INJ | A S | E L I C N S | P E D | ACT EVENT | CAUSE |
|--------|--------|----------------|-------|----------------|---------|----------------------|----------------------------|-------|------|----------|-----------|--------|------|------|------|-------------|-------|-----------|-------|
| | | | | | | | | | | | | | | | | | | | |
| 01975 | N N N | 05/23/2014 | 19 | PACIFIC HY 99E | INTER | 3-LEG | N | N | CLR | S-1STOP | 01 NONE | 0 | 01 | DRVR | NONE | 00 M | UNK | 026 | 29 |
| NONE | | FR 6P | 0 | 15TH ST | SE 06 | 0 | STOP SIGN | N | DRY | REAR INJ | UNKN | SE-NW | 01 | DRVR | NONE | 00 M | UNK | 000 | 00 |
| | | | | | | | | | | | PSNGR CAR | STOP | 01 | DRVR | NONE | 00 M | UNK | 000 | 29 |
| | | | | | | | | | | | 02 NONE | 0 | 01 | DRVR | INJC | 55 F | OR-Y | 011 | 00 |
| | | | | | | | | | | | PSNGR CAR | SE-NW | 01 | DRVR | INJC | 55 F | OR-Y | 000 | 00 |
| | | | | | | | | | | | 02 NONE | 0 | 02 | PSNG | INJC | 20 F | UNK | 011 | 00 |
| | | | | | | | | | | | PSNGR CAR | SE-NW | 02 | PSNG | INJC | 20 F | UNK | 000 | 00 |
| 03302 | N N N | 08/25/2014 | 19 | PACIFIC HY 99E | INTER | 3-LEG | N | N | CLR | S-1STOP | 01 NONE | 0 | 01 | DRVR | NONE | 53 M | OR-Y | 026 | 29 |
| NONE | | MO 1P | 0 | 15TH ST | SE 06 | 0 | STOP SIGN | N | DRY | REAR INJ | PRVTE | SE-NW | 01 | DRVR | NONE | 53 M | OR-Y | 000 | 00 |
| | | | | | | | | | | | PSNGR CAR | SE-NW | 01 | DRVR | NONE | 53 M | OR-Y | 000 | 29 |
| | | | | | | | | | | | 02 NONE | 0 | 02 | DRVR | INJC | 45 F | OR-Y | 011 | 00 |
| | | | | | | | | | | | PSNGR CAR | SE-NW | 02 | DRVR | INJC | 45 F | OR-Y | 000 | 00 |
| 03718 | N N N | 09/22/2014 | 19 | PACIFIC HY 99E | INTER | 3-LEG | N | N | CLR | S-1STOP | 01 NONE | 0 | 01 | DRVR | NONE | 57 M | OR-Y | 026 | 29 |
| NO RPT | | MO 6A | 0 | 15TH ST | SE 06 | 0 | STOP SIGN | N | DRY | REAR INJ | PRVTE | SE-NW | 01 | DRVR | NONE | 57 M | OR-Y | 000 | 00 |
| | | | | | | | | | | | PSNGR CAR | SE-NW | 01 | DRVR | NONE | 57 M | OR-Y | 000 | 29 |
| | | | | | | | | | | | 02 NONE | 0 | 02 | DRVR | INJC | 38 F | OR-Y | 011 | 00 |
| | | | | | | | | | | | PSNGR CAR | SE-NW | 02 | DRVR | INJC | 38 F | OR-Y | 000 | 00 |
| 02082 | N N N | 06/01/2015 | 17 | PACIFIC HY 99E | INTER | 3-LEG | N | N | CLD | S-1STOP | 01 NONE | 0 | 01 | DRVR | NONE | 56 M | OR-Y | 026 | 29 |
| NONE | | MO 4P | 0 | 15TH ST | SE 06 | 0 | STOP SIGN | N | DRY | REAR INJ | PRVTE | SE-NW | 01 | DRVR | NONE | 56 M | OR-Y | 000 | 00 |
| | | | | | | | | | | | PSNGR CAR | SE-NW | 01 | DRVR | NONE | 56 M | OR-Y | 000 | 29 |
| | | | | | | | | | | | 02 NONE | 0 | 02 | DRVR | INJC | 55 F | OR-Y | 011 | 00 |
| | | | | | | | | | | | PSNGR CAR | SE-NW | 02 | DRVR | INJC | 55 F | OR-Y | 000 | 00 |
| 00180 | N N N | 01/15/2015 | 17 | PACIFIC HY 99E | INTER | 3-LEG | N | N | CLR | S-1STOP | 01 NONE | 0 | 01 | DRVR | NONE | 60 M | OR-Y | 026 | 29 |
| NONE | | TH 6P | 0 | 15TH ST | SE 06 | 0 | STOP SIGN | N | DRY | REAR PDO | PRVTE | SE-NW | 01 | DRVR | NONE | 60 M | OR-Y | 000 | 00 |
| | | | | | | | | | | | PSNGR CAR | SE-NW | 01 | DRVR | NONE | 60 M | OR-Y | 000 | 29 |
| | | | | | | | | | | | 02 NONE | 0 | 02 | DRVR | INJC | 51 F | OR-Y | 011 | 00 |
| | | | | | | | | | | | PSNGR CAR | SE-NW | 02 | DRVR | INJC | 51 F | OR-Y | 000 | 00 |
| 00381 | N N N | 01/28/2012 | 14 | PACIFIC HY 99E | INTER | 3-LEG | N | N | CLR | ANGL-OTH | 01 NONE | 0 | 01 | DRVR | NONE | 51 F | OR-Y | 000 | 00 |
| | | | | | | | | | | | TURN-R | TURN-R | 01 | DRVR | NONE | 51 F | OR-Y | 000 | 00 |

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CDS380
03/01/2017

OREGON.. DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT

URBAN NON-SYSTEM CRASH LISTING

CITY OF OREGON CITY, CLACKAMAS COUNTY

PACIFIC HY 99E at 15TH ST, City of Oregon City, Clackamas County, 01/01/2011 to 12/31/2015

Total crash records: 20

| SER# | INVEST | NONE | SA | K | TIME | FROM | CLASS | CITY STREET | RD CHAR | INT-TYPE (MEDIAN) | INT-REL | OFFRD | WTHR | CRASH | SPCL USE | MOVE | FROM | PRTC | INJ | A | S | LOC | RES | E | X | F | OR-Y | UNK | ERROR | ACT_EVENT | CAUSE |
|--------|--------|------|----|---|------------|------|-------|----------------|---------|----------------------|-----------|-------|------|----------|----------|--------|-------|------|------|------|----|-----|------|-------|---|---|------|-----|-------|-----------|-------|
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 03991 | N | N | N | N | 10/24/2012 | 14 | | PACIFIC HY 99E | INTER | 3-LEG | N | N | RAIN | ANGL-OTH | 0 | TURN-R | SE-NE | 0 | DRVR | NONE | 39 | F | OR-Y | OR<25 | | | | 028 | 000 | 00 | 02 |
| NO RPT | | | | | 5P | | | 15TH ST | CN | 0 | STOP SIGN | N | WET | TURN | PRVTE | STRGHT | SW-NE | 01 | DRVR | NONE | 27 | F | OR-Y | OR<25 | | | | 000 | 000 | 00 | 00 |
| 02305 | N | N | N | N | 06/11/2013 | 14 | | PACIFIC HY 99E | INTER | 3-LEG | N | N | UNK | ANGL-OTH | 0 | STRGHT | SW-NE | 01 | DRVR | NONE | 47 | F | OR-Y | OR<25 | | | | 000 | 000 | 00 | 00 |
| NONE | | | | | TU | | | 15TH ST | CN | 0 | STOP SIGN | N | WET | TURN | PRVTE | STRGHT | SW-NE | 01 | DRVR | NONE | 26 | F | OR-Y | OR<25 | | | | 000 | 000 | 00 | 00 |
| 04064 | N | N | N | N | 10/23/2013 | 14 | | PACIFIC HY 99E | INTER | 3-LEG | N | N | CLR | S-OTHER | 0 | TURN-R | SE-NE | 01 | DRVR | NONE | 72 | M | OR-Y | OR<25 | | | | 000 | 000 | 00 | 07 |
| NONE | | | | | 11A | | | 15TH ST | CN | 0 | STOP SIGN | N | DAY | PDO | PRVTE | TURN-R | SE-NE | 01 | DRVR | NONE | 62 | F | OR-Y | OR<25 | | | | 000 | 000 | 00 | 00 |
| 01496 | N | N | N | N | 04/18/2014 | 14 | | PACIFIC HY 99E | INTER | 3-LEG | N | N | CLR | ANGL-OTH | 0 | TURN-R | SE-NE | 01 | DRVR | NONE | 21 | M | OR-Y | OR<25 | | | | 000 | 000 | 00 | 02 |
| NO RPT | | | | | 4P | | | 15TH ST | CN | 0 | STOP SIGN | N | DAY | TURN | PRVTE | STRGHT | SW-NE | 01 | DRVR | NONE | 29 | F | OR-Y | OR<25 | | | | 000 | 000 | 00 | 00 |

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TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT

CRASH SUMMARIES BY YEAR BY COLLISION TYPE

PACIFIC HY 99E at 14TH ST, City of Oregon City, Clackamas County, 01/01/2011 to 12/31/2015

| COLLISION TYPE | FATAL CRASHES | NON- FATAL CRASHES | PROPERTY DAMAGE ONLY | TOTAL CRASHES | PEOPLE KILLED | PEOPLE INJURED | TRUCKS | DRY SURF | WET SURF | DAY | DARK | INTER- SECTION RELATED | INTER- SECTION RELATED | OFF- ROAD |
|------------------------|------------------|--------------------------|----------------------------|------------------|------------------|-------------------|----------|-------------|-------------|----------|----------|------------------------------|------------------------------|--------------|
| | | | | | | | | | | | | | | |
| YEAR: 2015 | | | | | | | | | | | | | | |
| REAR-END | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 |
| TURNING MOVEMENTS | 0 | 1 | 1 | 2 | 0 | 1 | 1 | 2 | 0 | 2 | 0 | 2 | 0 | 0 |
| YEAR 2015 TOTAL | 0 | 1 | 2 | 3 | 0 | 1 | 1 | 3 | 0 | 3 | 0 | 3 | 0 | 0 |
| YEAR: 2014 | | | | | | | | | | | | | | |
| REAR-END | 0 | 2 | 0 | 2 | 0 | 2 | 0 | 1 | 1 | 2 | 0 | 2 | 0 | 0 |
| TURNING MOVEMENTS | 0 | 3 | 2 | 5 | 0 | 3 | 0 | 4 | 1 | 5 | 0 | 5 | 0 | 0 |
| YEAR 2014 TOTAL | 0 | 5 | 2 | 7 | 0 | 5 | 0 | 5 | 2 | 7 | 0 | 7 | 0 | 0 |
| YEAR: 2013 | | | | | | | | | | | | | | |
| REAR-END | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 |
| TURNING MOVEMENTS | 0 | 5 | 4 | 9 | 0 | 12 | 0 | 9 | 0 | 5 | 4 | 9 | 0 | 0 |
| YEAR 2013 TOTAL | 0 | 5 | 5 | 10 | 0 | 12 | 0 | 10 | 0 | 6 | 4 | 10 | 0 | 0 |
| YEAR: 2012 | | | | | | | | | | | | | | |
| REAR-END | 0 | 7 | 0 | 7 | 0 | 9 | 0 | 4 | 3 | 4 | 3 | 7 | 0 | 0 |
| TURNING MOVEMENTS | 0 | 3 | 1 | 4 | 0 | 3 | 0 | 2 | 2 | 1 | 3 | 4 | 0 | 0 |
| YEAR 2012 TOTAL | 0 | 10 | 1 | 11 | 0 | 12 | 0 | 6 | 5 | 5 | 6 | 11 | 0 | 0 |
| YEAR: 2011 | | | | | | | | | | | | | | |
| REAR-END | 0 | 8 | 4 | 12 | 0 | 12 | 0 | 7 | 3 | 8 | 3 | 12 | 0 | 0 |

CRASH SUMMARIES BY YEAR BY COLLISION TYPE

PACIFIC HY 99E at 14TH ST, City of Oregon City, Clackamas County, 01/01/2011 to 12/31/2015

| COLLISION TYPE | FATAL CRASHES | NON-PROPERTY | | TOTAL CRASHES | PEOPLE | | TRUCKS | DRY | | WET SURF | DAY | DARK | | INTER-SECTION | | INTER-SECTION RELATED | OFF-ROAD |
|-------------------|------------------|------------------|----------------|------------------|--------|---------|--------|------|------|-------------|-----|------|----|---------------|---------|--------------------------|----------|
| | | FATAL CRASHES | DAMAGE ONLY | | KILLED | INJURED | | SURF | SURF | | | | | SECTION | SECTION | | |
| TURNING MOVEMENTS | 0 | 5 | 1 | 6 | 0 | 10 | 0 | 4 | 2 | 2 | 3 | 3 | 6 | 6 | 0 | 0 | 0 |
| YEAR 2011 TOTAL | 0 | 13 | 5 | 18 | 0 | 22 | 0 | 11 | 5 | 11 | 11 | 6 | 18 | 18 | 0 | 0 | 0 |
| FINAL TOTAL | 0 | 34 | 15 | 49 | 0 | 52 | 1 | 35 | 12 | 32 | 32 | 16 | 49 | 49 | 0 | 0 | 0 |

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OREGON.. DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT

URBAN NON-SYSTEM CRASH LISTING

PACIFIC HY 99E at 14TH ST, City of Oregon City, Clackamas County, 01/01/2011 to 12/31/2015

Total crash records: 49

CITY OF OREGON CITY, CLACKAMAS COUNTY

[illegible]

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

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TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT

URBAN NON-SYSTEM CRASH LISTING

Total crash records: 49

[illegible]

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CDS380
03/01/2017

OREGON.. DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT

URBAN NON-SYSTEM CRASH LISTING

PACIFIC HW 99E at 14TH ST, City of Oregon City, Clackamas County, 01/01/2011 to 12/31/2015

Total crash records: 49

CITY OF OREGON CITY, CLACKAMAS COUNTY

| SER# | INVEST | D C S L K TIME | CLASS | CITY STREET | RD CHAR | INT-TYPE (MEDIAN) | INT-BEL | OFFRD | WTHR | CRASH | SPCL USE | V# | TO | P# | TYPE | SVRTY | E X RES | LOC | ERROR | ACT EVENT | CAUSE |
|-------|---------|----------------|-------|---------------------------|-------------------|----------------------|---------|-------|------|------------------------|----------|----|------|-------|------|-------|---------|-----|-------|-----------|----------|
| | | | | | | | | | | | | | | | | | | | | | |
| 02271 | N N N | 06/13/2014 | 16 | PACIFIC HW 99E 14TH ST | INTER SE 06 | 3-LEG | N | N | CLR | S-1STOP REAR INJ | 0 | 02 | NONE | 0 | 01 | DRVR | NONE | 35 | F | OR<25 | 07 |
| NONE | | 10A | 0 | | | 0 | | | | | | | STOP | SE-NW | 01 | DRVR | INJC | 61 | M | OR-Y | 00 |
| | | | | | | | | | | | | | | | | | | | | | 00 |
| | | | | | | | | | | | | | | | | | | | | | 00 |
| 00262 | Y N N N | 01/21/2011 | 14 | PACIFIC HW 99E 14TH ST | INTER SW 06 | 3-LEG | N | N | RAIN | S-1STOP REAR PDO | 0 | 02 | NONE | 0 | 01 | DRVR | NONE | 23 | F | OR-Y | 01,07 |
| STATE | | 5A | | | | 0 | | | | | | | STOP | SW-NE | 01 | DRVR | NONE | 42 | F | OR-Y | 00 |
| | | | | | | | | | | | | | | | | | | | | | 00 |
| | | | | | | | | | | | | | | | | | | | | | 00 |
| 00344 | N N N | 01/28/2011 | 14 | PACIFIC HW 99E 14TH ST | INTER SW 06 | 3-LEG | N | N | CLD | S-1STOP REAR INJ | 0 | 02 | NONE | 0 | 01 | DRVR | NONE | 53 | M | OR-Y | 27,07 |
| CITY | | 12P | | | | 0 | | | | | | | STOP | SW-NE | 01 | DRVR | INJC | 20 | F | OR-Y | 00 |
| | | | | | | | | | | | | | | | | | | | | | 00 |
| | | | | | | | | | | | | | | | | | | | | | 00 |
| 01845 | Y N N N | 05/27/2011 | 14 | PACIFIC HW 99E 14TH ST | INTER SW 06 | 3-LEG | N | N | CLD | S-1STOP REAR PDO | 0 | 02 | NONE | 0 | 01 | DRVR | NONE | 21 | M | SUSP | 32,01,07 |
| STATE | | 6P | | | | 0 | | | | | | | STOP | SW-NE | 01 | DRVR | NONE | 39 | M | OR-Y | 00 |
| | | | | | | | | | | | | | | | | | | | | | 00 |
| | | | | | | | | | | | | | | | | | | | | | 00 |
| 01784 | N N N | 05/12/2011 | 14 | PACIFIC HW 99E | INTER | 3-LEG | N | N | UNK | S-1STOP | 0 | 03 | NONE | 0 | 01 | DRVR | NONE | 54 | M | OR-Y | 07 |

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CDS380
03/01/2017

OREGON.. DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT

URBAN NON-SYSTEM CRASH LISTING

PACIFIC HY 99E at 14TH ST, City of Oregon City, Clackamas County, 01/01/2011 to 12/31/2015

CITY OF OREGON CITY, CLACKAMAS COUNTY

Total crash records: 49

| SER# | INVEST | TH | P R S W | CLASS | CITY STREET | RD CHAR | INT-TYPE | | OFFRD | WTHR | CRASH | SPL QTY | MOVE | PH TYPE | INJC | A | S | PED | LOC | ERROR | ACT EVENT | CAUSE |
|------|--------|----|---------|-------|-------------|---------|----------|-------|-------|------|-------|---------|------|---------|------|---|---|-----|-----|-------|-----------|-------|
| | | | | | | | INT-REL | CONTL | | | | | | | | | | | | | | |
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CDS380
03/01/2017

OREGON.. DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT

URBAN NON-SYSTEM CRASH LISTING

PACIFIC HW 99E at 14TH ST, City of Oregon City, Clackamas County, 01/01/2011 to 12/31/2015

CITY OF OREGON CITY, CLACKAMAS COUNTY

Total crash records: 49

| SER# | INVEST | D C S L K TIME | FROM | CLASS | CITY STREET | RD CHAR | INT-TYPE (MEDIAN) | INT-REL | LEGS (LANES) | CONT'L | LOC'TN | DIRVWY | LIGHT | SURF | COLL | CRASH | WTHR | OFFRD | SPCL USE | MOVE | FROM | PRTC | INJ | G E L I C N S | P E D | PH TYPE | SVRTY | E X RES | LOC | ERROR | ACT EVENT | CAUSE |
|-------|---------|----------------|--------|-------|---------------------------|----------------|----------------------|---------|-----------------|--------|--------|------------------------|-------|------|------|-------|------|-------|----------|-----------------|-------|-----------------|---------|---------------|-------|---------|-------|---------|-----|-------|-----------|-------|
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 02893 | N N N N | N 08/06/2012 | MO 5P | 14 | PACIFIC HW 99E 14TH ST | INTER SW 06 | 3-LEG | N | TRF SIGNAL | N | CLR | S-1STOP REAR INJ | N DAY | DRY | DAY | N | N | N | 0 | PRVTE PSNGR CAR | SW-NE | STOP | 01 DRVR | INJC | 51 F | OR-Y | OR>25 | 000 | 011 | 00 | 00 | |
| STATE | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 04802 | N N N | 12/12/2012 | WE 3P | 14 | PACIFIC HW 99E 14TH ST | INTER SW 06 | 3-LEG | N | TRF SIGNAL | N | RAIN | S-1STOP REAR INJ | N DAY | WET | DAY | N | N | N | 0 | PRVTE PSNGR CAR | SW-NE | STOP | 01 DRVR | INJC | 48 F | OR-Y | OR<25 | 026 | 000 | 011 | 00 | 00 |
| NONE | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 04856 | N N N | 12/15/2013 | SU 2P | 14 | PACIFIC HW 99E 14TH ST | INTER SW 06 | 3-LEG | N | TRF SIGNAL | N | CLR | S-1STOP REAR PDO | N DAY | DRY | DAY | N | N | N | 1 | PRVTE PSNGR CAR | SW-NE | STOP | 01 DRVR | INJC | 26 F | OR-Y | OR<25 | 026 | 000 | 011 | 00 | 00 |
| NONE | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 00073 | N N N | 01/05/2011 | WE 11A | 14 | PACIFIC HW 99E 14TH ST | INTER CN 03 | 3-LEG | N | TRF SIGNAL | N | RAIN | O-1 L-TURN TURN INJ | N DAY | WET | DAY | N | N | N | 0 | PRVTE PSNGR CAR | SW-NE | STOP | 01 DRVR | INJC | 32 F | OR-Y | OR<25 | 000 | 000 | 011 | 00 | 00 |
| CITY | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 00909 | N N N N | N 03/14/2011 | MO 8A | 14 | PACIFIC HW 99E 14TH ST | INTER CN 04 | 3-LEG | N | TRF SIGNAL | N | CLD | O-1 L-TURN TURN INJ | N DAY | WET | DAWN | N | N | N | 0 | PRVTE PSNGR CAR | SW-NE | TURN-L NE-SE | 01 DRVR | INJC | 21 F | OR-Y | OR<25 | 000 | 000 | 000 | 00 | 00 |
| STATE | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 02805 | N N N | 08/04/2011 | TH 3P | 14 | PACIFIC HW 99E 14TH ST | INTER CN 01 | 3-LEG | N | TRF SIGNAL | N | CLR | S-STRGHT REAR INJ | N DAY | DRY | DAY | N | N | N | 0 | PRVTE PSNGR CAR | SW-NE | STOP | 01 DRVR | INJC | 27 F | OR-Y | OR<25 | 028,004 | 000 | 000 | 00 | 02 |
| NONE | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

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OREGON.. DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT

URBAN NON-SYSTEM CRASH TESTING

PACIFIC HY 99E at 14TH ST, City of Oregon City, Clackamas County, 01/01/2011 to 12/31/2015

Total crash records: 49

| SER# | S D P R S W | | | CLASS | CITY STREET | | | INT-TYPE | | | RD CHAR | | | INT-(MEDIAN) | | | OFFRD | | | WTHR | | | CRASH | | | SPCL USE | | | MOVE | | | A S | | | PRTC | | | INJ | | | G E LICNS | | | PED | | | PH TYPE | | | SVRTY | | | E X RES | | | LOC | | | ERROR | | | ACT | | | EVENT | | | CAUSE | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| | INVEST | D C S L K TIME | FROM | | DIST | FIRST STREET | SECOND STREET | LOCIN | DIRECT | LOCIN | (PLANES) | CONT'L | LEGS | TRAF- | DRVWY | LIGHT | SVRTY | V# TYPE | OWNER | COLL | SURF | DRY | CLR | O-1 L-TURN | O1 NONE | PRVTE | PSNGR CAR | TURN-L | NE-SE | PRVTE | PSNGR CAR | STOP | NE-SE | PSNGR CAR | TURN-L | NE-SE | PRVTE | PSNGR CAR | O-1 L-TURN | O1 NONE | PRVTE | PSNGR CAR | TURN-L | NE-SE | PRVTE | PSNGR CAR | O-1 L-TURN | O1 NONE | PRVTE | PSNGR CAR | TURN-L | NE-SE | PRVTE | PSNGR CAR | O-1 L-TURN | O1 NONE | PRVTE | PSNGR CAR | TURN-L | NE-SE | PRVTE | PSNGR CAR | O-1 L-TURN | O1 NONE | PRVTE | PSNGR CAR | TURN-L | NE-SE | PRVTE | PSNGR CAR | O-1 L-TURN | O1 NONE | PRVTE | PSNGR CAR | TURN-L | NE-SE | PRVTE | PSNGR CAR | O-1 L-TURN | O1 NONE | PRVTE | PSNGR CAR | TURN-L | NE-SE | PRVTE | PSNGR CAR | O-1 L-TURN | O1 NONE | PRVTE | PSNGR CAR | TURN-L | NE-SE | PRVTE | PSNGR CAR | O-1 L-TURN | O1 NONE | PRVTE | PSNGR CAR | TURN-L | NE-SE | PRVTE | PSNGR CAR | O-1 L-TURN | O1 NONE | PRVTE | PSNGR CAR | TURN-L | NE-SE | PRVTE | PSNGR CAR | O-1 L-TURN | O1 NONE | PRVTE | PSNGR CAR | TURN-L | NE-SE | PRVTE | PSNGR CAR | O-1 L-TURN | O1 NONE | PRVTE | PSNGR CAR | TURN-L | NE-SE | PRVTE | PSNGR CAR | O-1 L-TURN | O1 NONE | PRVTE | PSNGR CAR | TURN-L | NE-SE | PRVTE | PSNGR CAR | O-1 L-TURN | O1 NONE | PRVTE | PSNGR CAR | TURN-L | NE-SE | PRVTE | PSNGR CAR | O-1 L-TURN | O1 NONE | PRVTE | PSNGR CAR | TURN-L | NE-SE | PRVTE | PSNGR CAR | O-1 L-TURN | O1 NONE | PRVTE | PSNGR CAR | TURN-L | NE-SE | PRVTE | PSNGR CAR | O-1 L-TURN | O1 NONE | PRVTE | PSNGR CAR | TURN-L | NE-SE | PRVTE | PSNGR CAR | O-1 L-TURN | O1 NONE | PRVTE | PSNGR CAR | TURN-L | NE-SE | PRVTE | PSNGR CAR | O-1 L-TURN | O1 NONE | PRVTE | PSNGR CAR | TURN-L | NE-SE | PRVTE | PSNGR CAR | O-1 L-TURN | O1 NONE | PRVTE | PSNGR CAR | TURN-L | NE-SE | PRVTE | PSNGR CAR | O-1 L-TURN | O1 NONE | PRVTE | PSNGR CAR | TURN-L | NE-SE | PRVTE | PSNGR CAR | O-1 L-TURN | O1 NONE | PRVTE | PSNGR CAR | TURN-L | NE-SE | PRVTE | PSNGR CAR | O-1 L-TURN | O1 NONE | PRVTE | PSNGR CAR | TURN-L | NE-SE | PRVTE | PSNGR CAR | O-1 L-TURN | O1 NONE | PRVTE | PSNGR CAR | TURN-L | NE-SE | PRVTE | PSNGR CAR | O-1 L-TURN | O1 NONE | PRVTE | PSNGR CAR | TURN-L | NE-SE | PRVTE | PSNGR CAR | O-1 L-TURN | O1 NONE | PRVTE | PSNGR CAR | TURN-L | NE-SE | PRVTE | PSNGR CAR | O-1 L-TURN | O1 NONE | PRVTE | PSNGR CAR | TURN-L | NE-SE | PRVTE | PSNGR CAR | O-1 L-TURN | O1 NONE | PRVTE | PSNGR CAR | TURN-L | NE-SE | PRVTE | PSNGR CAR | O-1 L-TURN | O1 NONE | PRVTE | PSNGR CAR | TURN-L | NE-SE | PRVTE | PSNGR CAR | O-1 L-TURN | O1 NONE | PRVTE | PSNGR CAR | TURN-L | NE-SE | PRVTE | PSNGR CAR | O-1 L-TURN | O1 NONE | PRVTE | PSNGR CAR | TURN-L | NE-SE | PRVTE | PSNGR CAR | O-1 L-TURN | O1 NONE | PRVTE | PSNGR CAR | TURN-L | NE-SE | PRVTE | PSNGR CAR | O-1 L-TURN | O1 NONE | PRVTE | PSNGR CAR | TURN-L | NE-SE | PRVTE | PSNGR CAR | O-1 L-TURN | O1 NONE | PRVTE | PSNGR CAR | TURN-L | NE-SE | PRVTE | PSNGR CAR | O-1 L-TURN | O1 NONE | PRVTE | PSNGR CAR | TURN-L | NE-SE | PRVTE | PSNGR CAR | O-1 L-TURN | O1 NONE | PRVTE | PSNGR CAR | TURN-L | NE-SE | PRVTE | PSNGR CAR | O-1 L-TURN | O1 NONE | PRVTE | PSNGR CAR | TURN-L | NE-SE | PRVTE | PSNGR CAR | O-1 L-TURN | O1 NONE | PRVTE | PSNGR CAR | TURN-L | NE-SE | PRVTE | PSNGR CAR | O-1 L-TURN | O1 NONE | PRVTE | PSNGR CAR | TURN-L | NE-SE | PRVTE | PSNGR CAR | O-1 L-TURN | O1 NONE | PRVTE | PSNGR CAR | TURN-L | NE-SE | PRVTE | PSNGR CAR | O-1 L-TURN | O1 NONE | PRVTE | PSNGR CAR | TURN-L | NE-SE | PRVTE | PSNGR CAR | O-1 L-TURN | O1 NONE | PRVTE | PSNGR CAR | TURN-L | NE-SE | PRVTE | PSNGR CAR | O-1 L-TURN | O1 NONE | PRVTE | PSNGR CAR | TURN-L | NE-SE | PRVTE | PSNGR CAR | O-1 L-TURN | O1 NONE | PRVTE | PSNGR CAR | TURN-L | NE-SE | PRVTE | PSNGR CAR | O-1 L-TURN | O1 NONE | PRVTE | PSNGR CAR | TURN-L | NE-SE | PRVTE | PSNGR CAR | O-1 L-TURN | O1 NONE | PRVTE | PSNGR CAR | TURN-L | NE-SE | PRVTE | PSNGR CAR | O-1 L-TURN | O1 NONE | PRVTE | PSNGR CAR | TURN-L | NE-SE | PRVTE | PSNGR CAR | O-1 L-TURN | O1 NONE | PRVTE | PSNGR CAR | TURN-L | NE-SE | PRVTE | PSNGR CAR | O-1 L-TURN | O1 NONE | PRVTE | PSNGR CAR | TURN-L |

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OREGON.. DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT

PACIFIC HY 99E at 14TH ST, City of Oregon City, Clackamas County, 01/01/2011 to 12/31/2015

Total crash records: 49

[illegible]

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CRASH SUMMARIES BY YEAR BY COLLISION TYPE

ABERNATHY RD at REDLAND RD, City of Oregon City, Clackamas County, 01/01/2011 to 12/31/2015

| COLLISION TYPE | FATAL CRASHES | NON-PROPERTY | | TOTAL CRASHES | PEOPLE | | TRUCKS | DRY SURF | WET SURF | DAY | DARK | INTER-SECTION | | OFF-ROAD |
|-----------------|------------------|------------------|----------------|------------------|--------|---------|--------|-------------|-------------|-----|------|---------------|---------|----------|
| | | FATAL CRASHES | DAMAGE ONLY | | KILLED | INJURED | | | | | | INTER-SECTION | RELATED | |
| YEAR: 2014 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 |
| ANGLE | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 |
| YEAR 2014 TOTAL | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 |
| YEAR: 2011 | 0 | 1 | 0 | 1 | 0 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 |
| REAR-END | 0 | 1 | 0 | 1 | 0 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 |
| YEAR 2011 TOTAL | 0 | 1 | 0 | 1 | 0 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 |
| FINAL TOTAL | 0 | 1 | 1 | 2 | 0 | 3 | 0 | 2 | 0 | 2 | 0 | 2 | 0 | 0 |

CDS380
06/06/2017

OREGON.. DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT

URBAN NON-SYSTEM CRASH LISTING

ABERNATHY RD at REDLAND RD, city of Oregon City, Clackamas County, 01/01/2011 to 12/31/2015

Total crash records: 2

CITY OF OREGON CITY, CLACKAMAS COUNTY

| S P E R S W | E A U C O D A T E | C L A S S | C I T Y S T R E E T | R D C H A R | I N T - T Y P E (M E D I A N) | O F F R D | W T H R | C R A S H | T R L R Q T Y | S P C I A L U S E | M O V E | P H T Y P E | S U R T Y | I N J | A G E | L I C E N S | P E D | L O C | E R R O R | A C T E V E N T | C A U S E | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| | | | | | | | | | | | | | | | | | | | | | | R E F | C O N T I N E R | C O L L | S U R F | D R Y | C L R | S - S T O P | V # | N O N E | N W - S E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E | N O N E |

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TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT

CRASH SUMMARIES BY YEAR BY COLLISION TYPE

REDLAND RD at HOLCOMB BLVD, City of Oregon City, Clackamas County, 01/01/2011 to 12/31/2015

| COLLISION TYPE | FATAL CRASHES | NON- FATAL CRASHES | PROPERTY DAMAGE ONLY | TOTAL CRASHES | PEOPLE KILLED | PEOPLE INJURED | TRUCKS | DRY SURF | WET SURF | DAY | DARK | INTER- SECTION RELATED | INTER- SECTION RELATED | OFF- ROAD |
|------------------------|------------------|--------------------------|----------------------------|------------------|------------------|-------------------|----------|-------------|-------------|----------|----------|------------------------------|------------------------------|--------------|
| YEAR: 2015 | | | | | | | | | | | | | | |
| REAR-END | 0 | 1 | 2 | 3 | 0 | 1 | 0 | 3 | 0 | 2 | 1 | 3 | 0 | 0 |
| TURNING MOVEMENTS | 0 | 1 | 1 | 2 | 0 | 1 | 0 | 1 | 1 | 1 | 1 | 2 | 0 | 0 |
| YEAR 2015 TOTAL | 0 | 2 | 3 | 5 | 0 | 2 | 0 | 4 | 1 | 3 | 2 | 5 | 0 | 0 |
| YEAR: 2014 | | | | | | | | | | | | | | |
| REAR-END | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | 0 |
| TURNING MOVEMENTS | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 |
| YEAR 2014 TOTAL | 0 | 1 | 1 | 2 | 0 | 1 | 0 | 2 | 0 | 1 | 1 | 2 | 0 | 0 |
| YEAR: 2013 | | | | | | | | | | | | | | |
| REAR-END | 0 | 0 | 2 | 2 | 0 | 0 | 0 | 2 | 0 | 2 | 0 | 2 | 0 | 0 |
| TURNING MOVEMENTS | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 0 |
| YEAR 2013 TOTAL | 0 | 1 | 2 | 3 | 0 | 1 | 0 | 2 | 1 | 2 | 1 | 3 | 0 | 0 |
| YEAR: 2012 | | | | | | | | | | | | | | |
| REAR-END | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 1 | 0 | 0 |
| YEAR 2012 TOTAL | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 1 | 0 | 0 |
| YEAR: 2011 | | | | | | | | | | | | | | |
| REAR-END | 0 | 1 | 0 | 1 | 0 | 2 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 |
| TURNING MOVEMENTS | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 |
| YEAR 2011 TOTAL | 0 | 1 | 1 | 2 | 0 | 2 | 0 | 2 | 0 | 2 | 0 | 2 | 0 | 0 |

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

REDLAND RD at HOLCOMB BLVD, City of Oregon City, Clackamas County, 01/01/2011 to 12/31/2015

| | | | | | | | | | | | | | |
|-------------|---|---|----|---|---|---|----|---|---|---|----|---|---|
| 0 | 5 | 8 | 13 | 0 | 6 | 0 | 10 | 3 | 9 | 4 | 13 | 0 | 0 |
| FINAL TOTAL | | | | | | | | | | | | | |

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OREGON.. DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT

URBAN NON-SYSTEM CRASH TESTING

REDLAND RD at HOLCOMB BLVD, City of Oregon City, Clackamas County, 01/01/2011 to 12/31/2015

Total crash records: 13

| SER# | INVEST | D C S L K TIME | P R S W | E A U C O DATE | CLASS | CITY STREET | RD CHAR | INT-TYPE | | OFFRD | WTHR | CRASH | SFCL USE | | MOVE | PRTC | INJ | A S | E L C L C N S | PED | LOC | ERROR | ACT EVENT | CAUSE |
|--------|--------|----------------|------------|----------------|-------|----------------------------|---------|----------|------------|------------|------|------------|-----------|---------|--------|---------|-------|---------|---------------|-----|---------|-------|-----------|-------|
| | | | | | | | | INT-REL | INT-REL | | | | TRF | TRF | | | | | | | | | | |
| SER# | INVEST | D C S L K TIME | P R S W | E A U C O DATE | CLASS | CITY STREET | RD CHAR | INT-REL | INT-REL | OFFRD | WTHR | CRASH | TRLR QTY | OWNER | FROM | PH TYPE | SVRTY | E X RES | E L C L C N S | PED | LOC | ERROR | ACT EVENT | CAUSE |
| 01882 | NONE | N N N | 05/22/2012 | TU 10A | 0 | HOLCOMB BLVD REDLAND RD | INTER | NE | CROSS | N | RAIN | S-ISTOP | 01 NONE | 0 | STRGHT | 01 DRVR | NONE | 00 M | OR-Y | 000 | 026 | 000 | 07 | 07 |
| | | | | | | | NE | 06 | 0 | TRF SIGNAL | N | WET | REAR | PRVTE | NE-SW | NONE | 27 F | OR-Y | 000 | 000 | 00 | 00 | | |
| | | | | | | | 06 | 0 | TRF SIGNAL | N | DAY | PDO | PSNGR CAR | 01 DRVR | NONE | 27 F | OR-Y | 000 | 000 | 00 | 07 | | | |
| 03052 | NONE | N N N | 07/30/2013 | TU 6A | 0 | HOLCOMB BLVD REDLAND RD | INTER | NE | CROSS | N | CLR | S-ISTOP | 01 NONE | 0 | STRGHT | 01 DRVR | NONE | 00 F | OR-Y | 000 | 026 | 000 | 07 | 07 |
| | | | | | | | NE | 06 | 0 | TRF SIGNAL | N | DRY | REAR | PRVTE | NE-SW | NONE | 00 F | OR-Y | 000 | 000 | 00 | 07 | | |
| | | | | | | | 06 | 0 | TRF SIGNAL | N | DAY | PDO | PSNGR CAR | 01 DRVR | NONE | 00 F | OR-Y | 000 | 000 | 00 | 07 | | | |
| 000207 | NONE | N N N | 01/16/2014 | TH 7A | 0 | HOLCOMB BLVD REDLAND RD | INTER | NE | CROSS | N | FOG | S-ISTOP | 01 NONE | 0 | STRGHT | 01 DRVR | NONE | 42 F | OR-Y | 000 | 000 | 000 | 00 | 00 |
| | | | | | | | NE | 06 | 0 | TRF SIGNAL | N | DRY | REAR | PRVTE | NE-SW | NONE | 16 M | OR-Y | 000 | 000 | 00 | 07 | | |
| | | | | | | | 06 | 0 | TRF SIGNAL | N | DLIT | INJ | PSNGR CAR | 01 DRVR | NONE | 16 M | OR-Y | 000 | 000 | 00 | 07 | | | |
| 03773 | COUNTY | N N N N | 09/25/2014 | TH 6P | 0 | HOLCOMB BLVD REDLAND RD | INTER | NE | CROSS | N | CLR | O-1 L-TURN | 01 POLCE | 0 | STRGHT | 01 DRVR | NONE | 37 M | OR-Y | 000 | 000 | 000 | 00 | 02 |
| | | | | | | | NE | 06 | 0 | TRF SIGNAL | N | DAY | TUEN | PUBLIC | NE-SW | NONE | 37 M | OR-Y | 000 | 000 | 00 | 00 | | |
| | | | | | | | 06 | 0 | TRF SIGNAL | N | DAY | PDO | PSNGR CAR | 01 DRVR | NONE | 37 M | OR-Y | 000 | 000 | 00 | 00 | | | |
| 03807 | NONE | N N N | 09/18/2015 | FR 10P | 0 | HOLCOMB BLVD REDLAND RD | INTER | NE | CROSS | N | CLR | S-ISTOP | 01 NONE | 0 | STRGHT | 01 DRVR | NONE | 16 M | OR-Y | 000 | 028,004 | 000 | 00 | 02 |
| | | | | | | | NE | 06 | 0 | TRF SIGNAL | N | DRY | REAR | UNKN | NE-SW | NONE | 16 M | OR-Y | 000 | 000 | 00 | 00 | | |
| | | | | | | | 06 | 0 | TRF SIGNAL | N | DARK | PDO | PSNGR CAR | 01 DRVR | NONE | 16 M | OR-Y | 000 | 000 | 00 | 00 | | | |
| 03807 | NONE | N N N | 09/18/2015 | FR 10P | 0 | HOLCOMB BLVD REDLAND RD | INTER | NE | CROSS | N | CLR | S-ISTOP | 01 NONE | 0 | STRGHT | 01 DRVR | NONE | 00 M | UNK | 000 | 026 | 000 | 00 | 29 |
| | | | | | | | NE | 06 | 0 | TRF SIGNAL | N | DRY | REAR | UNKN | NE-SW | NONE | 00 M | UNK | 000 | 000 | 00 | 29 | | |
| | | | | | | | 06 | 0 | TRF SIGNAL | N | DARK | PDO | PSNGR CAR | 01 DRVR | NONE | 00 M | UNK | 000 | 000 | 00 | 29 | | | |
| 03807 | NONE | N N N | 09/18/2015 | FR 10P | 0 | HOLCOMB BLVD REDLAND RD | INTER | NE | CROSS | N | CLR | S-ISTOP | 01 NONE | 0 | STRGHT | 01 DRVR | NONE | 17 F | OR-Y | 000 | 000 | 000 | 00 | 00 |
| | | | | | | | NE | 06 | 0 | TRF SIGNAL | N | DRY | REAR | UNKN | NE-SW | NONE | 17 F | OR-Y | 000 | 000 | 00 | 00 | | |
| | | | | | | | 06 | 0 | TRF SIGNAL | N | DARK | PDO | PSNGR CAR | 01 DRVR | NONE | 17 F | OR-Y | 000 | 000 | 00 | 00 | | | |

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CDS380

06/06/2017

OREGON.. DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT

URBAN NON-SYSTEM CRASH LISTING

REDLAND RD at HOLCOMB BLVD, city of Oregon City, Clackamas County, 01/01/2011 to 12/31/2015

CITY OF OREGON CITY, CLACKAMAS COUNTY

Total crash records: 13

| S | D | P | R | S | W | CLASS | CITY STREET | RD CHAR | INT-TYPE (MEDIAN) | INT-REL | OFFRD | WTHR | CRASH | SPCL USE | MOVE | FROM | TO | PH TYPE | SVRTY | E X RES | LOC | ERROR | ACT EVENT | CAUSE |
|-------|---------------|----------------|------|--------------|---------------|-------|------------------|---------|----------------------|------------|-----------------|---------|-----------|----------|----------|------|------|---------|-------|-------------|-----|-------|-----------|-------|
| SER# | E L G H R DAY | E A U C O DATE | DIST | FROM | SECOND STREET | LOCN | LEGS (#LANES) | CONTL | DRVWY | LIGHT | SURTY | V# TYPE | PSNGR CAR | OWNER | TRLR QTY | PRTC | INJ | INJB | 19 M | | | | | |
| 05202 | N N N | 12/07/2015 | 16 | HOLCOMB BLVD | INTER | CROSS | N | N | RAIN | O-1 L-TURN | 01 NONE | 0 | TURN-L | SE-SW | 01 | DRVR | NONE | 18 F | OR-Y | 028,004,003 | 000 | 00 | | |
| NONE | | 7A | 0 | REDLAND RD | 01 | 0 | TRF SIGNAL | N | WET DAY | TURN INJ | PRVTE PSNGR CAR | 0 | TURN-L | S -W | 01 | DRVR | INJC | 30 M | OR-Y | 028,004 | 000 | 02 | | |
| | | | | | | | | | | | | 02 NONE | 0 | TURN-L | | | | | | | | | | |
| OR<25 | | | | | | | | | | | | | | | | | | | | | | | | |

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

WASHINGTON ST at ABERNATHY RD, City of Oregon City, Clackamas County, 01/01/2011 to 12/31/2015

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

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

WASHINGTON ST at 17TH ST, City of Oregon City, Clackamas County, 01/01/2011 to 12/31/2015

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

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CRASH SUMMARIES BY YEAR BY COLLISION TYPE

WASHINGTON ST at 15TH ST, City of Oregon City, Clackamas County, 01/01/2011 to 12/31/2015

| COLLISION TYPE | FATAL CRASHES | NON- FATAL CRASHES | PROPERTY DAMAGE ONLY | TOTAL CRASHES | PEOPLE KILLED | PEOPLE INJURED | TRUCKS | DRY SURF | WET SURF | DAY | DARK | INTER- SECTION RELATED | INTER- SECTION RELATED | OFF- ROAD |
|------------------------|------------------|--------------------------|----------------------------|------------------|------------------|-------------------|----------|-------------|-------------|----------|----------|------------------------------|------------------------------|--------------|
| YEAR: 2015 | | | | | | | | | | | | | | |
| ANGLE | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 |
| TURNING MOVEMENTS | 0 | 1 | 1 | 2 | 0 | 1 | 0 | 1 | 1 | 1 | 1 | 2 | 0 | 0 |
| YEAR 2015 TOTAL | 0 | 2 | 1 | 3 | 0 | 2 | 0 | 2 | 1 | 2 | 1 | 3 | 0 | 0 |
| YEAR: 2014 | | | | | | | | | | | | | | |
| ANGLE | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 |
| TURNING MOVEMENTS | 0 | 1 | 2 | 3 | 0 | 1 | 0 | 2 | 1 | 2 | 1 | 3 | 0 | 0 |
| YEAR 2014 TOTAL | 0 | 1 | 3 | 4 | 0 | 1 | 0 | 3 | 1 | 3 | 1 | 4 | 0 | 0 |
| YEAR: 2013 | | | | | | | | | | | | | | |
| ANGLE | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 |
| TURNING MOVEMENTS | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 |
| YEAR 2013 TOTAL | 0 | 2 | 0 | 2 | 0 | 2 | 0 | 2 | 0 | 2 | 0 | 2 | 0 | 0 |
| YEAR: 2012 | | | | | | | | | | | | | | |
| ANGLE | 0 | 1 | 1 | 2 | 0 | 2 | 0 | 1 | 1 | 1 | 1 | 2 | 0 | 0 |
| REAR-END | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 |
| TURNING MOVEMENTS | 0 | 1 | 2 | 3 | 0 | 1 | 0 | 3 | 0 | 3 | 0 | 3 | 0 | 0 |
| YEAR 2012 TOTAL | 0 | 3 | 3 | 6 | 0 | 4 | 0 | 5 | 1 | 5 | 1 | 6 | 0 | 0 |
| YEAR: 2011 | | | | | | | | | | | | | | |
| ANGLE | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 |
| REAR-END | 0 | 2 | 0 | 2 | 0 | 2 | 0 | 2 | 0 | 2 | 0 | 2 | 0 | 0 |

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

WASHINGTON ST at 15TH ST, City of Oregon City, Clackamas County, 01/01/2011 to 12/31/2015

| COLLISION TYPE | FATAL CRASHES | NON- FATAL CRASHES | PROPERTY DAMAGE ONLY | TOTAL CRASHES | PEOPLE KILLED | PEOPLE INJURED | TRUCKS | DRY SURF | WET SURF | DAY | DARK | INTER- | | OFF- ROAD |
|-------------------|------------------|--------------------------|----------------------------|------------------|------------------|-------------------|--------|-------------|-------------|-----|------|---------|---------|--------------|
| | | | | | | | | | | | | SECTION | SECTION | |
| TURNING MOVEMENTS | 0 | 1 | 1 | 2 | 0 | 2 | 0 | 2 | 0 | 1 | 1 | 2 | 0 | 0 |
| YEAR 2011 TOTAL | 0 | 3 | 2 | 5 | 0 | 4 | 0 | 5 | 0 | 4 | 1 | 5 | 0 | 0 |
| FINAL TOTAL | 0 | 11 | 9 | 20 | 0 | 13 | 0 | 17 | 3 | 16 | 4 | 20 | 0 | 0 |

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CDS380
03/01/2017

OREGON.. DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT

URBAN NON-SYSTEM CRASH LISTING

WASHINGTON ST at 15TH ST, City of Oregon City, Clackamas County, 01/01/2011 to 12/31/2015

Total crash records: 20

CITY OF OREGON CITY, CLACKAMAS COUNTY

| SER# | INVEST | D C S L K TIME | FROM | CLASS | CITY STREET | RD CHAR | INT-TYPE (MEDIAN) | INT-BEL | OFFRD | WTHR | CRASH | SPCL USE | MOVE | FROM | PRTC | INJ | A S | E L I C N S | PED | LOC | ERROR | ACT EVENT | CAUSE |
|--------|--------|----------------|------|-------|---------------|---------|-------------------|------------|-------|------|------------|-----------------|-------|--------|-----------|------|------|-------------|-------|---------|-------|-----------|-------|
| 01896 | N N N | 05/23/2012 | 0 | 16 | WASHINGTON ST | INTER | CROSS | N | N | CLR | S-1STOP | 01 NONE | 0 | STRGHT | 01 DRIVER | NONE | 35 M | OR-Y | OR<25 | 026 | 000 | 000 | 07 |
| NONE | | WE 5P | | | 15TH ST | 06 | 0 | TRF SIGNAL | N | DAY | INJ | PRVTE PSNGR CAR | NE-SW | | | | | | | | | | 00 |
| | | | | | | | | | | | | 02 NONE | 0 | STOP | | | | | | | | | 00 |
| | | | | | | | | | | | | PRVTE PSNGR CAR | NE-SW | | | | | | | | | | 00 |
| 00020 | N N N | 01/03/2011 | 16 | | WASHINGTON ST | INTER | CROSS | N | N | CLR | S-1STOP | 01 NONE | 0 | STRGHT | 01 DRIVER | INJC | 48 M | OR-Y | OR<25 | 000 | 000 | 000 | 00 |
| NO RPT | | NO 10A | | | 15TH ST | 06 | 0 | TRF SIGNAL | N | DAY | INJ | PRVTE PSNGR CAR | NW-SE | | | | | | | | | | 07 |
| | | | | | | | | | | | | | | | | | | | | | | | 00 |
| | | | | | | | | | | | | 02 NONE | 0 | STOP | | | | | | | | | 07 |
| | | | | | | | | | | | | PRVTE PSNGR CAR | NW-SE | | | | | | | | | | 00 |
| | | | | | | | | | | | | | | | | | | | | | | | 00 |
| | | | | | | | | | | | | | | | | | | | | | | | 00 |
| 02978 | N N N | 08/12/2011 | 16 | | WASHINGTON ST | INTER | CROSS | N | N | CLR | S-1STOP | 01 NONE | 0 | STRGHT | 01 DRIVER | NONE | 00 M | UNK | UNK | 026 | 000 | 000 | 07 |
| NONE | | FR 3P | | | 15TH ST | 06 | 0 | TRF SIGNAL | N | DAY | INJ | PRVTE PSNGR CAR | NW-SE | | | | | | | | | | 00 |
| | | | | | | | | | | | | | | | | | | | | | | | 07 |
| | | | | | | | | | | | | 02 NONE | 0 | STOP | | | | | | | | | 00 |
| | | | | | | | | | | | | PRVTE PSNGR CAR | NW-SE | | | | | | | | | | 00 |
| | | | | | | | | | | | | | | | | | | | | | | | 00 |
| | | | | | | | | | | | | 03 UNKN | 0 | STOP | | | | | | | | | 00 |
| | | | | | | | | | | | | UNKN | | | | | | | | | | | 00 |
| | | | | | | | | | | | | UNKN | | | | | | | | | | | 00 |
| 00548 | Y N N | 02/07/2014 | 16 | | WASHINGTON ST | INTER | CROSS | N | N | SNOW | ANGL-STP | 01 NONE | 0 | TURN-R | 01 DRIVER | NONE | 00 M | UNK | UNK | 047,001 | 000 | 124 | 01,08 |
| NONE | | FR 3P | | | 15TH ST | 06 | 0 | TRF SIGNAL | N | DAY | PDO | PRVTE PSNGR CAR | NE-NW | | | | | | | | | | 00 |
| | | | | | | | | | | | | | | | | | | | | | | | 00 |
| | | | | | | | | | | | | 02 NONE | 0 | STOP | | | | | | | | | 00 |
| | | | | | | | | | | | | PRVTE PSNGR CAR | NW-SE | | | | | | | | | | 00 |
| | | | | | | | | | | | | | | | | | | | | | | | 00 |
| 01851 | N N N | 05/27/2011 | 16 | | WASHINGTON ST | INTER | CROSS | N | N | CLD | O-1 L-TURN | 01 NONE | 0 | STRGHT | 01 DRIVER | NONE | 30 F | OTH-Y | N-RES | 000 | 000 | 000 | 02 |
| CITY | | FR 10P | | | 15TH ST | 02 | 0 | TRF SIGNAL | N | DLIT | TURN | PRVTE PSNGR CAR | SE-NW | | | | | | | | | | 00 |
| | | | | | | | | | | | | | | | | | | | | | | | 00 |
| | | | | | | | | | | | | 02 NONE | 0 | TURN-L | | | | | | | | | 00 |
| | | | | | | | | | | | | PRVTE PSNGR CAR | NW-NE | | | | | | | | | | 02 |
| | | | | | | | | | | | | | | | | | | | | | | | 00 |
| 02174 | Y N N | 06/19/2011 | 16 | | WASHINGTON ST | INTER | CROSS | N | N | CLR | ANGL-STP | 01 NONE | 0 | TURN-R | 01 DRIVER | NONE | 16 M | OR-Y | OR<25 | 004,028 | 000 | 000 | 32,01 |
| CITY | | SU 12P | | | 15TH ST | 01 | 0 | TRF SIGNAL | N | DAY | INJ | PRVTE PSNGR CAR | SE-NE | | | | | | | | | | 00 |
| | | | | | | | | | | | | | | | | | | | | | | | 00 |
| | | | | | | | | | | | | 02 NONE | 0 | STOP | | | | | | | | | 00 |
| | | | | | | | | | | | | PRVTE PSNGR CAR | NE-SW | | | | | | | | | | 00 |
| | | | | | | | | | | | | | | | | | | | | | | | 00 |
| | | | | | | | | | | | | | | | | | | | | | | | 00 |

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OREGON.. DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT

URBAN NON-SYSTEM CRASH LISTING

WASHINGTON ST at 15TH ST, City of Oregon City, Clackamas County, 01/01/2011 to 12/31/2015

Total crash records: 20

CDS380
03/01/2017

CITY OF OREGON CITY, CLACKAMAS COUNTY

| SER# | INVEST | D C S L K TIME | FROM | CLASS | CITY STREET | RD CHAR | INT-TYPE (MEDIAN) | INT-BEL | OFFRD | WTHR | CRASH | SPCL USE | MOVE | PRTC | INJ | A S | E L I C N S | PED | CAUSE |
|--------|--------|----------------|------|-------|--------------------------|-------------|----------------------|-----------------|-------|------|----------|-----------------------------------|-----------------|---------|------|------|-------------|---------|-------|
| NO RPT | NO RPT | SU 9P | 0 | 16 | WASHINGTON ST 15TH ST | INTER CN | CROSS | N TRF SIGNAL | N | RAIN | ANGL-OTH | 01 NONE 0 PRVTE 0 PSNGR CAR | STRGHT SE-NW | 01 DRVR | NONE | 32 M | OR-Y | 020 | 04 |
| | | | | | | | | | | | | 01 NONE 0 PRVTE 0 PSNGR CAR | STRGHT SE-NW | 02 PSNG | NO<5 | 02 F | OR<25 | 000 | 00 |
| | | | | | | | | | | | | 02 NONE 0 PRVTE 0 PSNGR CAR | STRGHT NE-SW | 01 DRVR | NONE | 57 F | OR-Y | 000 | 00 |
| | | | | | | | | | | | | 01 NONE 0 PRVTE 0 PSNGR CAR | STRGHT NE-SW | 01 DRVR | NONE | 57 F | OR-Y | 000 | 00 |
| | | | | | | | | | | | | 01 NONE 0 PRVTE 0 PSNGR CAR | TURN-L NW-NE | 01 DRVR | NONE | 39 M | OR-Y | 027 | 084 |
| | | | | | | | | | | | | 01 NONE 0 PRVTE 0 PSNGR CAR | STRGHT SE-NW | 01 DRVR | NONE | 45 M | I INRD | 000 | 00 |
| | | | | | | | | | | | | 01 NONE 0 PRVTE 0 PSNGR CAR | STRGHT NE-SW | 01 DRVR | NONE | 23 F | OR-Y | 020 | 04 |
| | | | | | | | | | | | | 02 NONE 0 PRVTE 0 PSNGR CAR | STRGHT NW-SE | 01 DRVR | NONE | 66 F | OR-Y | 000 | 00 |
| | | | | | | | | | | | | 01 NONE 0 PRVTE 0 PSNGR CAR | STRGHT SE-NW | 01 DRVR | NONE | 22 F | OR-Y | 028,004 | 02 |
| | | | | | | | | | | | | 01 NONE 0 PRVTE 0 PSNGR CAR | STRGHT NE-SW | 01 DRVR | NONE | 25 F | OR-Y | 020 | 04 |
| | | | | | | | | | | | | 02 NONE 0 PRVTE 0 PSNGR CAR | STRGHT SE-NW | 01 DRVR | NONE | 62 M | OR-Y | 000 | 00 |
| | | | | | | | | | | | | 01 NONE 0 PRVTE 0 PSNGR CAR | STRGHT SE-NW | 01 DRVR | NONE | 59 F | OR-Y | 000 | 00 |
| | | | | | | | | | | | | 02 NONE 0 PRVTE 0 PSNGR CAR | TURN-L NW-NE | 01 DRVR | NONE | 59 F | OR-Y | 000 | 00 |
| | | | | | | | | | | | | 01 NONE 0 PRVTE 0 PSNGR CAR | STRGHT SE-NW | 01 DRVR | NONE | 59 F | OR-Y | 000 | 00 |
| | | | | | | | | | | | | 01 NONE 0 PRVTE 0 PSNGR CAR | STRGHT SE-NW | 01 DRVR | NONE | 59 F | OR-Y | 000 | 00 |

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CDS380
03/01/2017

OREGON.. DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT

URBAN NON-SYSTEM CRASH LISTING

WASHINGTON ST at 15TH ST, City of Oregon City, Clackamas County, 01/01/2011 to 12/31/2015

CITY OF OREGON CITY, CLACKAMAS COUNTY

Total crash records: 20

| SER# | INVEST | D C S L K TIME | FROM | DIST | CLASS | CITY STREET | RD CHAR | INT-TYPE (MEDIAN) | INT-REL | OFFRD | WTHR | CRASH | COLL | OWNER | MOVE | TO | PH TYPE | SVRTY | E X RES | LOC | ERROR | ACT EVENT | CAUSE | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|------|--------|----------------|------|------|-------|-------------|---------|----------------------|---------|-------|------|-------|------|-------|------|----|---------|-------|---------|-----|-------|-----------|-------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----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| | | | | | | | | | | | | | | | | | | | | | | | | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC |

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CRASH SUMMARIES BY YEAR BY COLLISION TYPE

WASHINGTON ST at 14TH ST, City of Oregon City, Clackamas County, 01/01/2011 to 12/31/2015

| COLLISION TYPE | FATAL CRASHES | NON- FATAL CRASHES | PROPERTY DAMAGE ONLY | TOTAL CRASHES | PEOPLE KILLED | PEOPLE INJURED | TRUCKS | DRY SURF | WET SURF | DAY | DARK | INTER- SECTION RELATED | INTER- SECTION RELATED | OFF- ROAD |
|------------------------|------------------|--------------------------|----------------------------|------------------|------------------|-------------------|----------|-------------|-------------|----------|----------|------------------------------|------------------------------|--------------|
| YEAR: 2015 | | | | | | | | | | | | | | |
| REAR-END | 0 | 2 | 0 | 2 | 0 | 2 | 0 | 2 | 0 | 2 | 0 | 2 | 0 | 0 |
| YEAR 2015 TOTAL | 0 | 2 | 0 | 2 | 0 | 2 | 0 | 2 | 0 | 2 | 0 | 2 | 0 | 0 |
| YEAR: 2014 | | | | | | | | | | | | | | |
| FIXED / OTHER OBJECT | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 1 | 0 | 1 |
| REAR-END | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 |
| YEAR 2014 TOTAL | 0 | 1 | 1 | 2 | 0 | 1 | 1 | 2 | 0 | 1 | 1 | 2 | 0 | 1 |
| YEAR: 2013 | | | | | | | | | | | | | | |
| TURNING MOVEMENTS | 0 | 1 | 1 | 2 | 0 | 5 | 0 | 1 | 1 | 0 | 2 | 2 | 0 | 0 |
| YEAR 2013 TOTAL | 0 | 1 | 1 | 2 | 0 | 5 | 0 | 1 | 1 | 0 | 2 | 2 | 0 | 0 |
| YEAR: 2012 | | | | | | | | | | | | | | |
| ANGLE | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 |
| TURNING MOVEMENTS | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | 1 | 0 | 0 |
| YEAR 2012 TOTAL | 0 | 1 | 1 | 2 | 0 | 1 | 0 | 1 | 1 | 2 | 0 | 2 | 0 | 0 |
| YEAR: 2011 | | | | | | | | | | | | | | |
| TURNING MOVEMENTS | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 |
| YEAR 2011 TOTAL | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 |
| FINAL TOTAL | 0 | 5 | 4 | 9 | 0 | 9 | 1 | 7 | 2 | 6 | 3 | 9 | 0 | 1 |

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OREGON.. DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT

URBAN NON-SYSTEM CRASH LISTING

WASHINGTON ST at 14TH ST, City of Oregon City, Clackamas County, 01/01/2011 to 12/31/2015

Total crash records: 9

CITY OF OREGON CITY, CLACKAMAS COUNTY

[illegible]

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OREGON.. DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT

URBAN NON-SYSTEM CRASH LISTING
WASHINGTON ST at 14TH ST, City of Oregon City, Clackamas County, 01/01/2011 to 12/31/2015
Total crash records: 9

CDS380
03/01/2017

CITY OF OREGON CITY, CLACKAMAS COUNTY

| SER# | INVEST | D C S L K TIME | | | FROM | CLASS | P R S W | | | CITY STREET | RD CHAR | INT-TYPE | | INT-REL | OFFRD | WTHR | CRASH | SPCL USE | | MOVE | FROM | PRTC | INJ | A S | G E LICNS | PED | LOC | OR-Y | ERROR | ACT EVENT | CAUSE | |
|-------|--------|----------------|---|---|------|------------|---------|----|---|---------------|---------|----------|---|------------|-------|------|-------|------------|---------|--------|--------|-------|------|------|-----------|-----|-----|------|-------|-----------|-------|-------|
| | | N | N | N | | | TU | N | N | | | CROSS | N | | N | | | PSNGR CAR | 01 | | | DRVR | NONE | 38 | | | | | | | | |
| 00349 | CITY | N | N | N | N | 01/29/2013 | 0 | 16 | 0 | WASHINGTON ST | INTER | CROSS | N | L-GRN-SIG | N | N | CLD | O-1 L-TURN | 01 NONE | 0 | STRGHT | NE-SW | 01 | DRVR | NONE | 52 | M | OR-Y | 000 | 000 | 00 | 02,14 |
| | | | | | | | 6P | | | 14TH ST | CN | 0 | | | N | WET | TURN | OTH BUS | | | NE-SW | | | | | | | | | | 00 | |
| | | | | | | | | | | | | | | | | DARK | INT | | | | | | | | | | | | | | 00 | |
| | | | | | | | | | | | | | | | | | | 01 NONE | 0 | STRGHT | NE-SW | | | | | | | | | | 00 | |
| | | | | | | | | | | | | | | | | | | PRVTE | | | NE-SW | | | | | | | | | | 00 | |
| | | | | | | | | | | | | | | | | | | OTH BUS | | | NE-SW | | | | | | | | | | 00 | |
| | | | | | | | | | | | | | | | | | | 01 NONE | 0 | STRGHT | NE-SW | | | | | | | | | | 00 | |
| | | | | | | | | | | | | | | | | | | PRVTE | | | NE-SW | | | | | | | | | | 00 | |
| | | | | | | | | | | | | | | | | | | OTH BUS | | | NE-SW | | | | | | | | | | 00 | |
| | | | | | | | | | | | | | | | | | | 01 NONE | 0 | STRGHT | NE-SW | | | | | | | | | | 00 | |
| | | | | | | | | | | | | | | | | | | PRVTE | | | NE-SW | | | | | | | | | | 00 | |
| | | | | | | | | | | | | | | | | | | OTH BUS | | | NE-SW | | | | | | | | | | 00 | |
| | | | | | | | | | | | | | | | | | | 02 NONE | 0 | TURN-L | SW-NW | | | | | | | | | | 00 | |
| | | | | | | | | | | | | | | | | | | PRVTE | | | SW-NW | | | | | | | | | | 00 | |
| | | | | | | | | | | | | | | | | | | PSNGR CAR | | | | | | | | | | | | | 00 | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 02,14 |
| 04816 | CITY | N | N | N | N | 12/13/2013 | 0 | 16 | 0 | WASHINGTON ST | INTER | CROSS | N | TRF SIGNAL | N | N | CLR | O-1 L-TURN | 01 NONE | 0 | TURN-L | SE-SW | | | | | | | | | | 02 |
| | | | | | | | 5P | | | 14TH ST | CN | 0 | | | N | DRY | TURN | UNKN | | | SE-SW | | | | | | | | | | 00 | |
| | | | | | | | | | | | | | | | | | | 03 | | | UNKN | | | | | | | | | | 02 | |
| | | | | | | | | | | | | | | | | | | DLIT | | | UNKN | | | | | | | | | | 00 | |
| | | | | | | | | | | | | | | | | | | 02 NONE | 0 | STRGHT | NW-SE | | | | | | | | | | 00 | |
| | | | | | | | | | | | | | | | | | | PRVTE | | | NW-SE | | | | | | | | | | 00 | |
| | | | | | | | | | | | | | | | | | | PSNGR CAR | | | | | | | | | | | | | 00 | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 00 |

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CRASH SUMMARIES BY YEAR BY COLLISION TYPE

MAIN ST at 14TH ST, City of Oregon City, Clackamas County, 01/01/2011 to 12/31/2015

| COLLISION TYPE | FATAL CRASHES | NON- FATAL CRASHES | PROPERTY DAMAGE ONLY | TOTAL CRASHES | PEOPLE KILLED | PEOPLE INJURED | TRUCKS | DRY SURF | WET SURF | DAY | DARK | INTER- SECTION RELATED | INTER- SECTION RELATED | OFF- ROAD |
|-------------------|------------------|--------------------------|----------------------------|------------------|------------------|-------------------|--------|-------------|-------------|-----|------|------------------------------|------------------------------|--------------|
| | | | | | | | | | | | | | | |
| YEAR: 2015 | | | | | | | | | | | | | | |
| ANGLE | 0 | 2 | 4 | 6 | 0 | 2 | 1 | 3 | 2 | 6 | 0 | 6 | 0 | 0 |
| TURNING MOVEMENTS | 0 | 2 | 1 | 3 | 0 | 2 | 0 | 3 | 0 | 3 | 0 | 3 | 0 | 0 |
| YEAR 2015 TOTAL | 0 | 4 | 5 | 9 | 0 | 4 | 1 | 6 | 2 | 9 | 0 | 9 | 0 | 0 |
| YEAR: 2014 | | | | | | | | | | | | | | |
| ANGLE | 0 | 2 | 4 | 6 | 0 | 3 | 0 | 6 | 0 | 4 | 2 | 6 | 0 | 0 |
| TURNING MOVEMENTS | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 1 | 0 | 0 |
| YEAR 2014 TOTAL | 0 | 2 | 5 | 7 | 0 | 3 | 0 | 6 | 1 | 5 | 2 | 7 | 0 | 0 |
| YEAR: 2013 | | | | | | | | | | | | | | |
| ANGLE | 0 | 1 | 4 | 5 | 0 | 1 | 0 | 5 | 0 | 5 | 0 | 5 | 0 | 0 |
| YEAR 2013 TOTAL | 0 | 1 | 4 | 5 | 0 | 1 | 0 | 5 | 0 | 5 | 0 | 5 | 0 | 0 |
| YEAR: 2012 | | | | | | | | | | | | | | |
| ANGLE | 0 | 4 | 0 | 4 | 0 | 4 | 0 | 3 | 1 | 4 | 0 | 4 | 0 | 0 |
| YEAR 2012 TOTAL | 0 | 4 | 0 | 4 | 0 | 4 | 0 | 3 | 1 | 4 | 0 | 4 | 0 | 0 |
| YEAR: 2011 | | | | | | | | | | | | | | |
| ANGLE | 0 | 2 | 0 | 2 | 0 | 4 | 0 | 2 | 0 | 2 | 0 | 2 | 0 | 0 |
| PEDESTRIAN | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 0 |
| TURNING MOVEMENTS | 0 | 1 | 1 | 2 | 0 | 1 | 0 | 1 | 0 | 2 | 0 | 2 | 0 | 0 |
| YEAR 2011 TOTAL | 0 | 4 | 1 | 5 | 0 | 6 | 0 | 3 | 1 | 4 | 1 | 5 | 0 | 0 |

OREGON DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
 TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT
 CRASH SUMMARIES BY YEAR BY COLLISION TYPE
MAIN ST at 14TH ST, City of Oregon City, Clackamas County, 01/01/2011 to 12/31/2015

| | | | | | | | | | | | | | |
|--------------------|----|----|----|---|----|---|----|---|----|---|----|---|---|
| 0 | 15 | 15 | 30 | 0 | 18 | 1 | 23 | 5 | 27 | 3 | 30 | 0 | 0 |
| FINAL TOTAL | | | | | | | | | | | | | |

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CDS380
03/02/2017

OREGON.. DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT

URBAN NON-SYSTEM CRASH LISTING

MAIN ST at 14TH ST, City of Oregon City, Clackamas County, 01/01/2011 to 12/31/2015

CITY OF OREGON CITY, CLACKAMAS COUNTY

Total crash records: 30

| SER# | INVEST | D C S L K TIME | FROM | CLASS | CITY STREET | RD CHAR | INT-TYPE (MEDIAN) | INT-BEL | OFFRD | WTHR | CRASH | SPCL USE | MOVE | FROM | PRTC | INJ | A S | E L I C N S | PED | LOC | ERROR | ACT EVENT | CAUSE |
|-------|--------|---------------------|------|-------|--------------------|----------------|----------------------|-----------------|--------|------------|-------------------------|-------------------------|------------|---------|-------|---------|------|-------------|--------|---------|-------|-----------|-------|
| | | | | | FIRST STREET | DIRECT | LEGS (PLANES) | CONT'L | DRVWY | LIGHT | SURTY | V# TYPE | TO | P# TYPE | SVRTY | E X RES | | | | OR<25 | | | |
| 02622 | N N N | 07/19/2012 TH 4P | 16 | 0 | MAIN ST 14TH ST | INTER CN 02 | CROSS 0 | N STOP SIGN | N N | CLR DAY | ANGL-OTH ANGL INJ | 0 PRVTE PSNGR CAR | 0 SE-NW | STRGHT | 01 | DRVR | NONE | 88 F | OR-Y | 000 | 000 | 00 | 00 |
| NONE | | | | | | | | | | | | | | | | | | | | OR<25 | | | |
| 03088 | N N N | 08/20/2012 MO 5P | 16 | 0 | MAIN ST 14TH ST | INTER CN 01 | CROSS 0 | N FLASHBCN-R | N N | CLR DAY | BIKE ANGL INJ | 0 PRVTE PSNGR CAR | 0 SE-NW | STRGHT | 01 | BIKE | INJB | 29 M | I XWLK | 039,021 | 000 | 05,03 | 05,03 |
| 03088 | N N N | 08/20/2012 MO 5P | 16 | 0 | MAIN ST 14TH ST | INTER CN 01 | CROSS 0 | N STOP SIGN | N N | CLR DAY | ANGL-OTH ANGL INJ | 0 PRVTE PSNGR CAR | 0 SE-NW | STRGHT | 01 | DRVR | NONE | 58 M | OR-Y | 000 | 110 | 00 | 00 |
| 00573 | N N N | 02/19/2013 TU 5P | 16 | 0 | MAIN ST 14TH ST | INTER CN 03 | CROSS 0 | N FLASHBCN-R | N N | CLR DAY | ANGL-OTH ANGL PDO | 0 PRVTE PSNGR CAR | 0 SE-NW | STRGHT | 01 | DRVR | INJC | 63 F | OR-Y | 000 | 000 | 00 | 00 |
| NONE | | | | | | | | | | | | | | | | | | | | OR<25 | | | |
| 00675 | N N N | 02/26/2013 TU 8A | 16 | 0 | MAIN ST 14TH ST | INTER CN 01 | CROSS 0 | N FLASHBCN-R | N N | CLR DAY | ANGL-OTH ANGL PDO | 0 PRVTE PSNGR CAR | 0 SE-NW | STRGHT | 01 | DRVR | NONE | 20 M | OR-Y | 021 | 000 | 03 | 03 |
| NONE | | | | | | | | | | | | | | | | | | | | OR<25 | | | |
| 01511 | N N N | 05/02/2013 TH | 16 | 0 | MAIN ST 14TH ST | INTER CN | CROSS | N STOP SIGN | N N | CLR DAY | ANGL-OTH ANGL | 0 PRVTE PSNGR CAR | 0 SE-NW | STRGHT | 01 | DRVR | NONE | 56 F | OR-Y | 000 | 015 | 00 | 00 |
| CITY | | | | | | | | | | | | | | | | | | | | OR<25 | | | |

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CDS380
03/02/2017

OREGON.. DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT

URBAN NON-SYSTEM CRASH LISTING

MAIN ST at 14TH ST, City of Oregon City, Clackamas County, 01/01/2011 to 12/31/2015

Total crash records: 30

| SER# | INVEST | D C S L K TIME | 10A | FROM | DIST | CLASS | CITY STREET | RD CHAR | INT-TYPE (MEDIAN) | INT-BEL | OFFRD | WTHR | CRASH | SPCL USE | TRLR QTY | OWNER | V# | SVTY | DAY | INJ | PSNGR CAR | 02 NONE | 0 | STRGHT | NW-SE | 01 DRIVER | INJC | 40 M | OR-Y | OR<25 | ERROR | ACT EVENT | CAUSE |
|-------|--------|----------------|------------|------|------|---------|-------------|---------|----------------------|---------|-------|------|------------|----------|----------|--------|-------|-----------|------|------|-----------|---------|-----|--------|-------|-----------|------|------|------|-------|-------|-----------|-------|
| 02357 | CITY | N N N N | 07/02/2013 | 0 | 16 | MAIN ST | 14TH ST | INTER | CROSS | N | N | CLR | ANGL-OTH | 01 NONE | 0 | STRGHT | NE-SW | 01 DRIVER | NONE | 24 F | OR-Y | OR<25 | 000 | 000 | 000 | 000 | 000 | 000 | 000 | 000 | 000 | 000 | 000 |
| 03983 | NONE | N N N | 10/18/2013 | 0 | 16 | MAIN ST | 14TH ST | INTER | CROSS | N | N | CLR | ANGL-OTH | 01 NONE | 0 | STRGHT | SE-NW | 01 DRIVER | NONE | 21 F | UNK | OR<25 | 000 | 000 | 000 | 000 | 000 | 000 | 000 | 000 | 000 | 000 | 000 |
| 00647 | NONE | N N N | 02/13/2014 | 0 | 16 | MAIN ST | 14TH ST | INTER | CROSS | N | N | CLR | ANGL-OTH | 01 NONE | 0 | STRGHT | SW-NE | 01 DRIVER | NONE | 41 F | OR-Y | OR<25 | 000 | 000 | 000 | 000 | 000 | 000 | 000 | 000 | 000 | 000 | 000 |
| 00942 | NONE | N N N | 03/06/2014 | 0 | 16 | MAIN ST | 14TH ST | INTER | CROSS | N | N | RAIN | O-1 L-TURN | 01 NONE | 0 | STRGHT | SE-NW | 01 DRIVER | NONE | 45 M | OR-Y | OR<25 | 000 | 000 | 000 | 000 | 000 | 000 | 000 | 000 | 000 | 000 | 000 |
| 02048 | CITY | N N N N | 05/29/2014 | 0 | 16 | MAIN ST | 14TH ST | INTER | CROSS | N | N | CLR | BIKE | 01 NONE | 0 | STRGHT | NE-SW | 01 DRIVER | NONE | 65 M | OR-Y | OR<25 | 000 | 000 | 000 | 000 | 000 | 000 | 000 | 000 | 000 | 000 | 000 |
| 02751 | NO RPT | N N N | 07/17/2014 | 0 | 16 | MAIN ST | 14TH ST | INTER | CROSS | N | N | CLR | ANGL-OTH | 01 NONE | 0 | STRGHT | NW-SE | 01 DRIVER | NONE | 30 M | OR-Y | OR<25 | 000 | 000 | 000 | 000 | 000 | 000 | 000 | 000 | 000 | 000 | 000 |

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OREGON.. DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT

URBAN NON-SYSTEM CRASH LISTING

MAIN ST at 14TH ST, City of Oregon City, Clackamas County, 01/01/2011 to 12/31/2015

Total crash records: 30

CITY OF OREGON CITY, CLACKAMAS COUNTY

| SER# | INVEST | P R S W | E A U C O D A T E | CLASS | CITY STREET | RD CHAR | INT-TYPE (MEDIAN) | | INT-REL | OFFRD | WTHR | CRASH | SECL USE | MOVE | FROM | PRTC | INJ | G E L I C E S | A S | PED | CAUSE | |
|-------|--------|------------------|-------------------------------------------|-------|--------------------|-------------|----------------------|--------|------------|-------|------|-------|---------------------------|---------------------------------|-----------------|---------|------|---------------------------------|---------------|------------|----------------|-------|
| | | | | | | | LEG (PLANES) | CONT'L | | | | | | | | | | | | | | TRAF- |
| | | | | | | | | | | | | | | | | | | | | | | |
| 03506 | NONE | N N N | 09/08/2014 | 16 | MAIN ST 14TH ST | INTER CN | CROSS | N | STOP SIGN | N | N | CLR | ANGL-OTH ANGL PDO | 01 NONE 0 PRVTE PSNGR CAR | STRGHT SE-NW | 01 DRVR | NONE | 24 M | OR-Y | OR<25 | 03 00 00 | |
| | | | 5P | | | 02 | 0 | | | N | N | DAY | | 02 NONE 0 UNKN PSNGR CAR | STRGHT SW-NE | 01 DRVR | NONE | 00 F | UNK UNK | 000 000 | 00 03 | |
| | | | | | | | | | | | | | | | | | | | | | | |
| 04665 | NONE | N N N | 11/17/2014 | 16 | MAIN ST 14TH ST | INTER CN | CROSS | N | FLASHBCN-R | N | N | CLR | ANGL-OTH ANGL PDO | 01 NONE 0 PRVTE PSNGR CAR | STRGHT NE-SW | 01 DRVR | NONE | 66 M | OR-Y | OR<25 | 02 00 02 | |
| | | | 10A | | | 01 | 0 | | | N | N | DAY | | 02 NONE 0 PRVTE PSNGR CAR | STRGHT SE-NW | 01 DRVR | NONE | 16 F | OR-Y OR<25 | 000 000 | 00 00 | |
| | | | | | | | | | | | | | | | | | | | | | | |
| 04069 | NONE | N N N | 10/13/2014 | 16 | MAIN ST 14TH ST | INTER CN | CROSS | N | STOP SIGN | N | N | CLR | ANGL-OTH ANGL INJ | 01 NONE 0 PRVTE PSNGR CAR | STRGHT NW-SE | 01 DRVR | INJB | 20 M | OTH-Y | OR<25 | 02 00 02 | |
| | | | 6P | | | 04 | 0 | | | N | N | DUSK | | 01 NONE 0 PRVTE PSNGR CAR | STRGHT NW-SE | 02 PSNG | INJB | 40 F | | 000 000 | 00 00 | |
| | | | | | | | | | | | | | | | | | | | | | | |
| 00432 | NONE | N N N | 02/03/2015 | 16 | MAIN ST 14TH ST | INTER CN | CROSS | N | FLASHBCN-R | N | N | UNK | ANGL-OTH ANGL INJ | 01 NONE 0 PRVTE TRUCK | STRGHT NW-SE | 01 DRVR | NONE | 38 M | OTH-Y | N-RES | 02 00 00 | |
| | | | 11A | | | 03 | 0 | | | N | N | DAY | | 02 NONE 0 PRVTE PSNGR CAR | STRGHT NE-SW | 01 DRVR | INJC | 79 F | OR-Y OR<25 | 015 000 | 00 02 | |
| | | | | | | | | | | | | | | | | | | | | | | |
| 01732 | NONE | N N N | 05/08/2015 | 17 | MAIN ST 14TH ST | INTER CN | CROSS | N | FLASHBCN-R | N | N | CLR | O-1 L-TURN TURN INJ | 01 NONE 0 PRVTE PSNGR CAR | STRGHT NW-SE | 01 DRVR | INJC | 40 M | OR-Y | OR<25 | 02 00 00 | |
| | | | 6P | | | 03 | 0 | | | N | N | DAY | | 02 NONE 0 PRVTE PSNGR CAR | TURN-L SE-SW | 01 DRVR | NONE | 65 M | OR-Y OR<25 | 015 000 | 00 02 | |
| | | | | | | | | | | | | | | | | | | | | | | |
| 03374 | NONE | N N N | 08/18/2015 | 17 | MAIN ST 14TH ST | INTER CN | CROSS | N | FLASHBCN-R | N | N | CLR | ANGL-OTH TURN INJ | 01 NONE 0 PRVTE PSNGR CAR | TURN-L SW-NW | 01 DRVR | INJC | 55 M | OTH-Y | | 03 00 03 | |
| | | | 5P | | | 01 | 0 | | | N | N | DAY | | | | 01 DRVR | INJC | 55 M | OTH-Y | 021 000 | 03 00 03 | |

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OREGON.. DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT

URBAN NON-SYSTEM CRASH TESTING

MAIN ST at 14TH ST, City of Oregon City, Clackamas County, 01/01/2011 to 12/31/2015

Total crash records: 30

[illegible]

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OREGON.. DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT

URBAN NON-SYSTEM CRASH LISTING

MAIN ST at 14TH ST, City of Oregon City, Clackamas County, 01/01/2011 to 12/31/2015

Total crash records: 30

CITY OF OREGON CITY, CLACKAMAS COUNTY

| S D | | P R S W | | CLASS | CITY STREET | | RD CHAR | INT-TYPE | | OFFRD WTHR | | CRASH | | SPCL USE | | MOVE | | A S | | PRTC INJ | | SVRTY E X RES | | LOC | | ACT EVENT | | CAUSE | | |
|------|--------|----------------|------|-------|-------------|--------------|---------------|----------|-------|------------|----------|-------|-------|----------|------|---------|-------|---------|----------|----------|----|---------------|------|------|------|-----------|-----|-------|----|--|
| SER# | INVEST | D C S L K TIME | FROM | | DIST | FIRST STREET | SECOND STREET | LOCTN | LEGS | TRAP- | CONTL | DRVMY | LIGHT | SURF | COLL | V# TYPE | OWNER | TLR QTY | SPCL USE | FROM | TO | P# TYPE | NONE | 48 F | OR-Y | 000 | 000 | 00 | 00 | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 02 NONE | | 0 | STRGHT | | NW-SE | | PRVTE | | PNGR CAR | | OR<25 | | | | | | | | | | | | | | | | | |

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

WASHINGTON ST at CASCADE HY SOUTH, City of Oregon City, Clackamas County, 01/01/2011 to 12/31/2015

| COLLISION TYPE | FATAL CRASHES | NON- FATAL CRASHES | PROPERTY DAMAGE ONLY | TOTAL CRASHES | PEOPLE KILLED | PEOPLE INJURED | TRUCKS | DRY SURF | WET SURF | DAY | DARK | INTER- SECTION RELATED | INTER- SECTION RELATED | OFF- ROAD |
|------------------------|------------------|--------------------------|----------------------------|------------------|------------------|-------------------|----------|-------------|-------------|-----------|----------|------------------------------|------------------------------|--------------|
| YEAR: 2012 | | | | | | | | | | | | | | |
| ANGLE | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 |
| REAR-END | 0 | 2 | 4 | 6 | 0 | 3 | 0 | 4 | 1 | 5 | 1 | 6 | 0 | 0 |
| SIDESWIPE - OVERTAKING | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | 1 | 0 | 0 |
| YEAR 2012 TOTAL | 0 | 3 | 5 | 8 | 0 | 4 | 0 | 5 | 2 | 7 | 1 | 8 | 0 | 0 |
| YEAR: 2011 | | | | | | | | | | | | | | |
| ANGLE | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 1 | 0 | 0 |
| REAR-END | 0 | 3 | 3 | 6 | 0 | 6 | 0 | 4 | 1 | 4 | 2 | 6 | 0 | 0 |
| TURNING MOVEMENTS | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 |
| YEAR 2011 TOTAL | 0 | 3 | 5 | 8 | 0 | 6 | 0 | 5 | 2 | 6 | 2 | 8 | 0 | 0 |
| FINAL TOTAL | 0 | 6 | 10 | 16 | 0 | 10 | 0 | 10 | 4 | 13 | 3 | 16 | 0 | 0 |

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OREGON.. DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT

URBAN NON-SYSTEM CRASH LISTING
WASHINGTON ST at CASCADE HY SOUTH, City of Oregon City, Clackamas County, 01/01/2011 to 12/31/2015

Total crash records: 16

[illegible]

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CDS380
03/01/2017

OREGON.. DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT

URBAN NON-SYSTEM CRASH LISTING

WASHINGTON ST at CASCADE HY SOUTH, City of Oregon City, Clackamas County, 01/01/2011 to 12/31/2015

Total crash records: 16

CITY OF OREGON CITY, CLACKAMAS COUNTY

| SER# | INVEST | D C S L K TIME | FROM | CLASS | CITY STREET | RD CHAR | INT-TYPE (MEDIAN) | INT-BEL LEGS (LANES) | OFFRD | WTHR | CRASH SURF COLL | SPCL USE TLRL QTY | OWNER | V# TYPE | TO | P# TYPE | SVRTY | E X RES | LOC | ERROR | ACT EVENT | CAUSE |
|-----------------|--------|------------------------|------|-----------------------------------|----------------|------------|----------------------|----------------------------|-------|--------------------|-------------------------|---------------------------------|---------------------------------|---------------------------------|---------------|---------|-------|---------------|-----|------------|------------|----------|
| | | | | | | | | | | | | | | | | | | | | | | |
| 01563 NONE | N N N | 05/06/2011 FR 6P | 14 | CASCADE HY SOUTH WASHINGTON ST | INTER SW 06 | CROSS 1 | N | TRF SIGNAL | N | RAIN | WET DAY | S-1STOP REAR PDO | 01 NONE 0 PRVTE PSNGR CAR | 02 NONE 0 PRVTE PSNGR CAR | STOP SW-NE | 05 PSNG | NO<5 | 03 F | | 000 | 011 000 | 00 00 |
| | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | |
| 00651 NO RPT | N N N | 02/19/2012 SU 4P | 14 | CASCADE HY SOUTH WASHINGTON ST | INTER SW 06 | CROSS 1 | N | TRF SIGNAL | N | CLR UNK DUSK | S-1STOP REAR PDO | 01 NONE 0 PRVTE PSNGR CAR | 02 NONE 0 PRVTE PSNGR CAR | STOP SW-NE | 01 DRVR | NONE | 00 F | UNK UNK | 000 | 011 000 | 00 00 | 07 07 |
| | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | |
| 03589 NONE | N N N | 09/29/2011 TH 12P | 14 | CASCADE HY SOUTH WASHINGTON ST | INTER NW 06 | CROSS 0 | N | TRF SIGNAL | N | CLR DRY DAY | S-1STOP REAR INJ | 01 NONE 0 PRVTE PSNGR CAR | 02 NONE 0 PRVTE PSNGR CAR | STOP NW-SE | 01 DRVR | NONE | 19 M | OR-Y OR>25 | 026 | 000 000 | 07 07 | 07 07 |
| | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | |
| 04398 CITY | N Y N | Y 11/19/2011 SA 10P | 14 | CASCADE HY SOUTH WASHINGTON ST | INTER NW 06 | CROSS 1 | N | TRF SIGNAL | N | CLD DRY DLIT | S-1STOP REAR INJ | 01 NONE 0 PRVTE PSNGR CAR | 02 NONE 0 PRVTE PSNGR CAR | STOP NW-SE | 01 DRVR | NONE | 45 F | SUSP OR<25 | 026 | 000 000 | 013 07 | 07 07 |
| | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | |
| 00612 NONE | N N N | Y 02/17/2012 FR 12P | 14 | CASCADE HY SOUTH WASHINGTON ST | INTER NW 06 | CROSS 1 | N | TRF SIGNAL | N | RAIN WET DAY | S-STRGHT SS-O INJ | 01 NONE 0 PRVTE PSNGR CAR | 02 NONE 0 PRVTE PSNGR CAR | STOP NW-SE | 02 PSNG | INJC | 33 M | | 000 | 022 000 | 00 00 | 13 00 |
| | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | |

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OREGON.. DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT

CITY OF OREGON CITY, CLACKAMAS COUNTY

WASHINGTON ST at CASCADE HY SOUTH, City of Oregon City, Clackamas County, 01/01/2011 to 12/31/2015

URBAN NON-SYSTEM CRASH LISTING

Total crash records: 16

[illegible]

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

CLACKAMAS RIVER DR at CASCADE HY SOUTH, City of Oregon City, Clackamas County, 01/01/2011 to 12/31/2015

| COLLISION TYPE | FATAL CRASHES | NON- FATAL CRASHES | PROPERTY DAMAGE ONLY | TOTAL CRASHES | PEOPLE KILLED | PEOPLE INJURED | TRUCKS | DRY SURF | WET SURF | DAY | DARK | INTER- SECTION RELATED | INTER- SECTION RELATED | OFF- ROAD |
|------------------------|------------------|--------------------------|----------------------------|------------------|------------------|-------------------|----------|-------------|-------------|-----------|----------|------------------------------|------------------------------|--------------|
| YEAR: 2015 | | | | | | | | | | | | | | |
| FIXED / OTHER OBJECT | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | 1 |
| REAR-END | 0 | 4 | 0 | 4 | 0 | 7 | 0 | 4 | 0 | 4 | 0 | 4 | 0 | 0 |
| TURNING MOVEMENTS | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 1 | 0 | 1 | 0 | 1 | 0 | 0 |
| YEAR 2015 TOTAL | 0 | 4 | 2 | 6 | 0 | 7 | 1 | 6 | 0 | 5 | 1 | 6 | 0 | 1 |
| YEAR: 2014 | | | | | | | | | | | | | | |
| ANGLE | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 |
| MISCELLANEOUS | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 |
| REAR-END | 0 | 2 | 0 | 2 | 0 | 3 | 0 | 2 | 0 | 2 | 0 | 2 | 0 | 0 |
| TURNING MOVEMENTS | 0 | 1 | 0 | 1 | 0 | 2 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 |
| YEAR 2014 TOTAL | 0 | 4 | 1 | 5 | 0 | 6 | 0 | 4 | 0 | 4 | 0 | 5 | 0 | 0 |
| YEAR: 2013 | | | | | | | | | | | | | | |
| MISCELLANEOUS | 0 | 1 | 0 | 1 | 0 | 2 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | 0 |
| REAR-END | 0 | 1 | 1 | 2 | 0 | 1 | 0 | 1 | 1 | 2 | 0 | 2 | 0 | 0 |
| SIDESWIPE - OVERTAKING | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 |
| YEAR 2013 TOTAL | 0 | 3 | 1 | 4 | 0 | 4 | 0 | 3 | 1 | 3 | 1 | 4 | 0 | 0 |
| YEAR: 2012 | | | | | | | | | | | | | | |
| BACKING | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 |
| REAR-END | 0 | 2 | 0 | 2 | 0 | 2 | 0 | 2 | 0 | 2 | 0 | 2 | 0 | 0 |
| YEAR 2012 TOTAL | 0 | 2 | 1 | 3 | 0 | 2 | 0 | 3 | 0 | 3 | 0 | 3 | 0 | 0 |
| FINAL TOTAL | 0 | 13 | 5 | 18 | 0 | 19 | 1 | 16 | 1 | 15 | 2 | 18 | 0 | 1 |

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CDS380
03/01/2017

OREGON.. DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT

URBAN NON-SYSTEM CRASH LISTING

CLACKAMAS RIVER DR at CASCADE HY SOUTH, City of Oregon City, Clackamas County, 01/01/2011 to 12/31/2015

Total crash records: 18

| SER# | INVEST | CITY | P R S W E A U C O DATE E L G H R DAY D C S L K TIME | CLASS | DIST | CITY STREET | RD CHAR | INT-TYPE (MEDIAN) | INT-BEL LEGS (#LANES) | OFFRD | WTHR | CRASH | SPCL USE TLR QTY OWNER | MOVE FROM TO | P# | TYPE | SVRTY | A S E L I C N S E X R E S | LOC | ERROR | ACT EVENT | CAUSE |
|-------|---------|-------|--------------------------------------------------------------|-------|------|----------------------------------------|-------------------|----------------------|-----------------------------|-----------------|--------------------|------------------------|-----------------------------------|--------------------|----|------|-------|---------------------------------|-----|---------|-----------|-------|
| | | | | | | | | | | | | | | | | | | | | | | |
| 00824 | Y N N N | N N N | 03/10/2013 SU 3A | 14 | | CLACKAMAS RIVER DR CASCADE HY SOUTH | INTER NE 05 | CROSS 1 | CROSS N | TRF SIGNAL N | CLD DRY DLIT | OVERTURN OTH INJ | TURN-R 0 PRVTE PSNGR CAR | SE-NE | 01 | DRVR | INJC | 21 F OR-Y OR<25 | | 047,051 | 000 | 33,01 |
| | | | | | | | | | | | | | 01 NONE PRVTE PSNGR CAR | TURN-R SE-NE | 02 | PSNG | INJC | 24 F | | 000 | 000 | 00 |
| 02192 | N N N | N N N | 06/18/2012 NO 9A | 16 | | CLACKAMAS RIVER DR CASCADE HY SOUTH | INTER NE 06 | CROSS 0 | CROSS N | L-GRN-SIG N | CLR DRY DAY | O-1STOP BACK PDO | 01 NONE PRVTE PSNGR CAR | BACK SW-NE | 01 | DRVR | NONE | 58 M OR-Y OR<25 | | 011 | 000 | 10 |
| | | | | | | | | | | | | | 02 NONE PRVTE PSNGR CAR | STOP NE-SW | 01 | DRVR | NONE | 60 F OR-Y OR<25 | | 011 | 000 | 00 |
| 00300 | N N N | N N N | 01/25/2013 FR 3P | 14 | | CLACKAMAS RIVER DR CASCADE HY SOUTH | INTER SE 06 | CROSS 1 | CROSS N | TRF SIGNAL N | CLR DRY DAY | S-1STOP REAR INJ | 01 NONE PRVTE PSNGR CAR | STRGHT SE-NW | 01 | DRVR | NONE | 23 M OR-Y OR<25 | | 026 | 000 | 07 |
| | | | | | | | | | | | | | 02 NONE PRVTE MOTHRONE | STOP SE-NW | 01 | DRVR | INJC | 55 F OR-Y OR<25 | | 011 | 000 | 00 |
| 02119 | N N N | N N N | 06/02/2014 MO 6A | 14 | | CLACKAMAS RIVER DR CASCADE HY SOUTH | INTER SE 06 | CROSS 0 | CROSS N | TRF SIGNAL N | CLR DRY UNK | OVERTURN OTH INJ | 01 NONE PRVTE PSNGR CAR | STRGHT S -N | 01 | DRVR | INJB | 48 M OR-Y OR<25 | | 083 | 000 | 10 |
| 00563 | N N N | N N N | 02/13/2015 FR 8A | 14 | | CLACKAMAS RIVER DR CASCADE HY SOUTH | INTER SE 06 | CROSS 1 | CROSS N | TRF SIGNAL N | CLR DRY DAY | S-1STOP REAR INJ | 01 NONE PRVTE PSNGR CAR | STRGHT SE-NW | 01 | DRVR | NONE | 18 F OTH-Y N-RES | | 026 | 000 | 29 |
| | | | | | | | | | | | | | 02 NONE PRVTE PSNGR CAR | STOP SE-NW | 01 | DRVR | INJC | 33 F OR-Y OR<25 | | 011 | 000 | 00 |
| 00636 | N N N | N N N | 02/18/2015 WE 8A | 14 | | CLACKAMAS RIVER DR CASCADE HY SOUTH | INTER SE 06 | CROSS 2 | CROSS N | TRF SIGNAL N | CLR DRY DAY | S-1STOP REAR INJ | 01 NONE UNK PSNGR CAR | STRGHT SE-NW | 01 | DRVR | NONE | 00 M UNK UNK | | 026 | 000 | 29 |
| | | | | | | | | | | | | | 02 NONE PRVTE PSNGR CAR | STOP SE-NW | 01 | DRVR | INJC | 16 M OR-Y OR<25 | | 011 | 000 | 00 |
| 05141 | N N N | N N N | 12/04/2015 FR 3P | 14 | | CLACKAMAS RIVER DR CASCADE HY SOUTH | INTER SE 06 | CROSS 0 | CROSS N | TRF SIGNAL N | CLR DRY DAY | S-1STOP REAR INJ | 01 NONE PRVTE PSNGR CAR | STRGHT SE-NW | 01 | DRVR | NONE | 28 F OR-Y OR<25 | | 026 | 000 | 29 |
| | | | | | | | | | | | | | 02 NONE PRVTE PSNGR CAR | STOP SE-NW | 01 | DRVR | INJC | 00 OR-Y OR<25 | | 011 | 000 | 00 |

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OREGON.. DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT

URBAN NON-SYSTEM CRASH LISTING

CLACKAMAS RIVER DR at CASCADE HY SOUTH, City of Oregon City, Clackamas County, 01/01/2011 to 12/31/2015

Total crash records: 18

[illegible]

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

TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT

CRASH SUMMARIES BY YEAR BY COLLISION TYPE

CASCADE HY SOUTH at REDLAND RD, City of Oregon City, Clackamas County, 01/01/2011 to 12/31/2015

| COLLISION TYPE | FATAL CRASHES | NON- FATAL CRASHES | PROPERTY DAMAGE ONLY | TOTAL CRASHES | PEOPLE KILLED | PEOPLE INJURED | TRUCKS | DRY SURF | WET SURF | DAY | DARK | INTER- SECTION RELATED | INTER- SECTION RELATED | OFF- ROAD |
|------------------------|------------------|--------------------------|----------------------------|------------------|------------------|-------------------|----------|-------------|-------------|----------|----------|------------------------------|------------------------------|--------------|
| YEAR: 2015 | | | | | | | | | | | | | | |
| REAR-END | 0 | 6 | 2 | 8 | 0 | 11 | 0 | 6 | 2 | 4 | 4 | 8 | 0 | 0 |
| TURNING MOVEMENTS | 0 | 2 | 0 | 2 | 0 | 3 | 1 | 2 | 0 | 2 | 0 | 2 | 0 | 0 |
| YEAR 2015 TOTAL | 0 | 8 | 2 | 10 | 0 | 14 | 1 | 8 | 2 | 6 | 4 | 10 | 0 | 0 |
| YEAR: 2014 | | | | | | | | | | | | | | |
| REAR-END | 0 | 3 | 2 | 5 | 0 | 4 | 0 | 3 | 2 | 5 | 0 | 5 | 0 | 0 |
| TURNING MOVEMENTS | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 |
| YEAR 2014 TOTAL | 0 | 3 | 3 | 6 | 0 | 4 | 0 | 4 | 2 | 6 | 0 | 6 | 0 | 0 |
| YEAR: 2013 | | | | | | | | | | | | | | |
| REAR-END | 0 | 7 | 2 | 9 | 0 | 8 | 0 | 6 | 2 | 8 | 1 | 9 | 0 | 0 |
| SIDESWIPE - OVERTAKING | 0 | 0 | 1 | 1 | 0 | 0 | 2 | 0 | 1 | 0 | 1 | 1 | 0 | 0 |
| TURNING MOVEMENTS | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | 1 | 0 | 0 |
| YEAR 2013 TOTAL | 0 | 8 | 3 | 11 | 0 | 9 | 2 | 6 | 4 | 9 | 2 | 11 | 0 | 0 |
| YEAR: 2012 | | | | | | | | | | | | | | |
| REAR-END | 0 | 2 | 1 | 3 | 0 | 5 | 0 | 2 | 0 | 3 | 0 | 3 | 0 | 0 |
| TURNING MOVEMENTS | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | 0 |
| YEAR 2012 TOTAL | 0 | 2 | 2 | 4 | 0 | 5 | 0 | 3 | 0 | 3 | 1 | 4 | 0 | 0 |
| YEAR: 2011 | | | | | | | | | | | | | | |
| REAR-END | 0 | 3 | 0 | 3 | 0 | 4 | 0 | 2 | 1 | 3 | 0 | 3 | 0 | 0 |

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

CASCADE HY SOUTH at REDLAND RD, City of Oregon City, Clackamas County, 01/01/2011 to 12/31/2015

| COLLISION TYPE | FATAL CRASHES | NON- FATAL CRASHES | PROPERTY DAMAGE ONLY | TOTAL CRASHES | PEOPLE KILLED | PEOPLE INJURED | TRUCKS | DRY SURF | WET SURF | DAY | DARK | INTER- | | OFF- ROAD |
|-------------------|------------------|--------------------------|----------------------------|------------------|------------------|-------------------|--------|-------------|-------------|-----|------|--------------------|---------|--------------|
| | | | | | | | | | | | | SECTION RELATED | SECTION | |
| TURNING MOVEMENTS | 0 | 2 | 0 | 2 | 0 | 3 | 0 | 1 | 1 | 2 | 0 | 2 | 0 | 0 |
| YEAR 2011 TOTAL | 0 | 5 | 0 | 5 | 0 | 7 | 0 | 3 | 2 | 5 | 0 | 5 | 0 | 0 |
| FINAL TOTAL | 0 | 26 | 10 | 36 | 0 | 39 | 3 | 24 | 10 | 29 | 7 | 36 | 0 | 0 |

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CDS380
06/07/2017

OREGON.. DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT

URBAN NON-SYSTEM CRASH LISTING

CASCADE HY SOUTH at REDLAND RD, city of Oregon City, Clackamas County, 01/01/2011 to 12/31/2015

CITY OF OREGON CITY, CLACKAMAS COUNTY

Total crash records: 36

| SER# | INVEST | D C S L K TIME | Y N N N | MO | STATE | CLASS | CITY STREET | DIST | RD CHAR | INT-TYPE | | | RD CHARTN | DIRECT | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC |
|------|--------|----------------|---------|----|-------|-------|-------------|------|---------|----------|--|--|-----------|--------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
|------|--------|----------------|---------|----|-------|-------|-------------|------|---------|----------|--|--|-----------|--------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|

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OREGON.. DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT

CDS380
06/07/2017

CITY OF OREGON CITY, CLACKAMAS COUNTY
CASCADE HY SOUTH at REDLAND RD, city of Oregon City, Clackamas County, 01/01/2011 to 12/31/2015
URBAN NON-SYSTEM CRASH LISTING
Total crash records: 36

| SER# | INVEST | D C S L K | TIME | FROM | CLASS | CITY STREET | RD CHAR | INT-TYPE (MEDIAN) | INT-BEL | OFFRD | WTHR | CRASH | SPCL USE | MOVE | FROM | PRTC | INJ | G E LICNS | PED | LOC | ERROR | ACT EVENT | CAUSE |
|--------|--------|-----------|------------|------|--------------------------------|--------------|---------|----------------------|------------|-------|-------|-----------------|------------------|--------|------|------|-------|-----------|--------|------|---------|-----------|-------|
| | | | | | | FIRST STREET | LOCN | LEGS (LANES) | CONTL | DRVMY | LIGHT | SURF | OWNER | TO | P# | TYPE | SVRTY | E X RES | | | | | |
| 02925 | N N N | N N N | 07/20/2015 | 14 | CASCADE HY SOUTH REDLAND RD | INTER | S | 3-LEG | N | N | CLR | S-1STOP REAR | 01 NONE PRVTE | STRGHT | N -S | 01 | DRVR | NONE | 44 F | OR-Y | 000 | 011 | 00 |
| NONE | | | MO 3P | | | 06 | | 0 | TRF SIGNAL | N | DAY | PDO | PSNGR CAR | N -S | | | | 35 F | OR-Y | 026 | 000 | 000 | 29 |
| | | | | | | | | | | | | | 02 NONE PRVTE | STOP | N -S | | | | | | | 011 | 00 |
| | | | | | | | | | | | | | PSNGR CAR | N -S | | 01 | DRVR | NONE | 19 M | OR-Y | 000 | 000 | 00 |
| 00947 | N N N | N N N | 03/17/2011 | 14 | CASCADE HY SOUTH REDLAND RD | INTER | S | 3-LEG | N | N | RAIN | S-1STOP REAR | 01 NONE PRVTE | STRGHT | S -N | | | | | | | | 07 |
| NO RPT | | | TH 2P | | | 06 | | 0 | TRF SIGNAL | N | DAY | INJ | PSNGR CAR | S -N | | 01 | DRVR | NONE | 74 F | OR-Y | 026 | 000 | 07 |
| | | | | | | | | | | | | | 02 NONE PRVTE | STOP | S -N | | | | | | | 011 | 00 |
| | | | | | | | | | | | | | PSNGR CAR | S -N | | 01 | DRVR | INJC | 46 M | OR-Y | 000 | 000 | 00 |
| 02552 | N N N | N N N | 07/18/2011 | 14 | CASCADE HY SOUTH REDLAND RD | INTER | S | 3-LEG | N | N | CLR | S-1STOP REAR | 01 NONE PRVTE | STRGHT | S -N | | | | | | | | 013 |
| STATE | | | MO 6A | | | 06 | | 0 | TRF SIGNAL | N | DAY | INJ | PSNGR CAR | S -N | | 01 | DRVR | NONE | 16 M | OR-Y | 043,026 | 000 | 07 |
| | | | | | | | | | | | | | 02 NONE PRVTE | STOP | S -N | | | | | | | 011 | 00 |
| | | | | | | | | | | | | | PSNGR CAR | S -N | | 01 | DRVR | INJC | 48 M | OR-Y | 000 | 000 | 00 |
| | | | | | | | | | | | | | 03 NONE PRVTE | STOP | S -N | | | | | | | 022 | 00 |
| | | | | | | | | | | | | | PSNGR CAR | S -N | | 01 | DRVR | NONE | 52 F | OR-Y | 000 | 000 | 00 |
| 04021 | N N N | N N N | 10/26/2012 | 14 | CASCADE HY SOUTH REDLAND RD | INTER | S | 3-LEG | N | N | CLR | S-1STOP REAR | 01 NONE PRVTE | STRGHT | S -N | | | | | | | | 07 |
| NONE | | | FR 5P | | | 06 | | 0 | TRF SIGNAL | N | DAY | PDO | PSNGR CAR | S -N | | 01 | DRVR | NONE | 41 M | OR-Y | 026 | 000 | 07 |
| | | | | | | | | | | | | | 02 NONE UNKN | STOP | S -N | | | | | | | 011 | 00 |
| | | | | | | | | | | | | | UNKNOWN | S -N | | 01 | DRVR | NONE | 00 Unk | UNK | 000 | 000 | 00 |
| 00947 | N N N | N N N | 03/19/2013 | 14 | CASCADE HY SOUTH REDLAND RD | INTER | S | 3-LEG | N | N | RAIN | S-1STOP REAR | 01 NONE UNKN | STRGHT | S -N | | | | | | | | 07 |
| NONE | | | TU 1P | | | 06 | | 0 | TRF SIGNAL | N | DAY | PDO | PSNGR CAR | S -N | | 01 | DRVR | NONE | 00 M | OR-Y | 026 | 000 | 07 |
| | | | | | | | | | | | | | 02 NONE PRVTE | STOP | S -N | | | | | | | 011 | 00 |
| | | | | | | | | | | | | | PSNGR CAR | S -N | | 01 | DRVR | NONE | 18 F | OR-Y | 000 | 000 | 00 |
| 02451 | N N N | N N N | 07/09/2013 | 14 | CASCADE HY SOUTH REDLAND RD | INTER | S | 3-LEG | N | N | CLR | S-1STOP REAR | 01 NONE PRVTE | STRGHT | S -N | | | | | | | | 013 |
| CITY | | | TU | | | | | | | | | | PSNGR CAR | S -N | | | | | | | | 000 | 27,07 |

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CDS380

06/07/2017

OREGON.. DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT

URBAN NON-SYSTEM CRASH LISTING

CASCADE HY SOUTH at REDLAND RD, city of Oregon City, Clackamas County, 01/01/2011 to 12/31/2015

Total crash records: 36

| SER# | INVEST | D C S L K | TIME | FROM | CLASS | CITY STREET | RD CHAR | INT-TYPE (MEDIAN) | INT-REL | TRAFF- LEGS | CONTRL (LANES) | 0 | OFFRD | WTHR | CRASH | SPCL USE | MOVE | FROM | PRTC | INJ | A | S | E | LIONS | PED | LOC | RES | ERROR | ACT EVENT | CAUSE | | | |
|--------|--------|-----------|------------|------|-------|--------------------------------|------------|----------------------|---------|----------------|-------------------|------|------------------------|------|-------------|----------|---------------------------------|--------------|---------|------|----|---|------|-------|-----|---------|-----|-------|-----------|-------|----|----|----|
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 03817 | N N N | N N N | 09/29/2014 | 14 | | CASCADE HY SOUTH REDLAND RD | INTER S | 3-LEG | N | TRF SIGNAL | N | RAIN | S-1STOP REAR PDO | N | WET DAY | 0 | 01 NONE 0 PRVTE PSNGR CAR | STOP S -N | 01 DRVR | NONE | 46 | F | OR-Y | OR<25 | 000 | 011 013 | 00 | 00 | 00 | 00 | 00 | | |
| NO RPT | | | MO 3P | | | | 06 | 0 | | | | | | | | | 03 NONE 0 PRVTE PSNGR CAR | STOP S -N | 01 DRVR | INJC | 35 | M | OR-Y | OR<25 | 000 | 022 | 00 | 00 | 00 | 00 | 00 | | |
| | | | | | | | | | | | | | | | | | 03 NONE 0 PRVTE PSNGR CAR | STOP S -N | 02 PSNG | NO<5 | 04 | M | | 000 | 022 | 00 | 00 | 00 | 00 | 00 | 00 | | |
| 04185 | N N N | N N N | 10/21/2014 | 14 | | CASCADE HY SOUTH REDLAND RD | INTER S | 3-LEG | N | TRF SIGNAL | N | CLR | S-1STOP REAR INJ | N | DRY DAY | 0 | 01 NONE 0 PRVTE PSNGR CAR | STOP S -N | 01 DRVR | NONE | 19 | F | OR-Y | OR<25 | 000 | 011 | 00 | 00 | 00 | 00 | 00 | 00 | |
| NONE | | | TU UNK | | | | 06 | 0 | | | | | | | | | 02 NONE 0 PRVTE PSNGR CAR | STOP S -N | 01 DRVR | INJC | 44 | M | OR-Y | OR<25 | 000 | 011 | 00 | 00 | 00 | 00 | 00 | 00 | |
| 01123 | N N N | N N N | 03/31/2015 | 14 | | CASCADE HY SOUTH REDLAND RD | INTER S | 3-LEG | N | TRF SIGNAL | N | UNK | S-1STOP REAR INJ | N | WET DAMN | 0 | 01 NONE 0 PRVTE PSNGR CAR | STOP S -N | 01 DRVR | NONE | 44 | F | OR-Y | OR<25 | 026 | 000 | 000 | 00 | 00 | 00 | 00 | 00 | |
| NONE | | | TU 6A | | | | 06 | 0 | | | | | | | | | 02 NONE 0 PRVTE PSNGR CAR | STOP S -N | 01 DRVR | INJC | 35 | M | OR-Y | OR<25 | 000 | 011 | 00 | 00 | 00 | 00 | 00 | 00 | |
| | | | | | | | | | | | | | | | | | 02 NONE 0 PRVTE PSNGR CAR | STOP S -N | 02 PSNG | INJC | 34 | F | | 000 | 011 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | |
| 02150 | N N N | N N N | 06/04/2015 | 14 | | CASCADE HY SOUTH REDLAND RD | INTER S | 3-LEG | N | TRF SIGNAL | N | CLR | S-1STOP REAR INJ | N | DRY DAY | 0 | 01 NONE 0 PRVTE PSNGR CAR | STOP S -N | 01 DRVR | INJC | 55 | M | OR-Y | OR<25 | 026 | 000 | 000 | 00 | 00 | 00 | 00 | 00 | 00 |
| NO RPT | | | TH 10A | | | | 06 | 0 | | | | | | | | | 02 NONE 0 PRVTE PSNGR CAR | STOP S -N | 01 DRVR | INJC | 62 | F | OR-Y | OR<25 | 000 | 011 | 00 | 00 | 00 | 00 | 00 | 00 | |
| 04080 | N N N | N N N | 10/04/2015 | 14 | | CASCADE HY SOUTH | INTER | 3-LEG | N | | N | CLR | S-1STOP | N | CLR | 0 | 01 NONE 0 PRVTE PSNGR CAR | STOP S -N | 01 DRVR | INJC | 0 | | | | | | | | | | | | 29 |

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CDS380
06/07/2017

OREGON.. DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT

URBAN NON-SYSTEM CRASH LISTING

CASCADE HY SOUTH at REDLAND RD, city of Oregon City, Clackamas County, 01/01/2011 to 12/31/2015

CITY OF OREGON CITY, CLACKAMAS COUNTY

Total crash records: 36

| SER# | INVEST | D C S L K TIME | FROM | CLASS | CITY STREET | RD CHAR | INT-TYPE (MEDIAN) | INT-BEL LEGS (PLANES) | CONTL | DRVWY LIGHT | CRASH COLL | OFFRD WTHR | SPCL USE TLR QTY | OWNER | MOVE | P# | P TYPE | SVRTY | E X RES | LOC | ERROR | ACT EVENT | CAUSE |
|--------|--------|----------------|------|-------|--------------------------------|------------------|----------------------|-----------------------------|------------|-------------|-------------------|--------------------------|-------------------------------|-------------------------------|-----------------------|-------------------|--------|-------|---------|-----|-------|------------|----------------|
| NO RPT | N N N | 06/06/2015 | 14 | | CASCADE HY SOUTH REDLAND RD | INTER W 06 | 3-LEG | N | TRF SIGNAL | N | CLR DRY DAY | ANGL-STOP TURN INT | 01 NONE PRVTE PSNGR CAR | 01 NONE PRVTE PSNGR CAR | TURN-R N -W | 01 DRIVER NONE | 50 M | OR-Y | OR<25 | | 000 | 012 000 | 00 00 |
| 02177 | N N N | 06/06/2015 | 14 | | CASCADE HY SOUTH REDLAND RD | INTER W 06 | 3-LEG | N | TRF SIGNAL | N | CLR DRY DAY | ANGL-STOP TURN INT | 01 NONE PRVTE PSNGR CAR | 01 NONE PRVTE PSNGR CAR | TURN-R N -W | 01 DRIVER NONE | 32 M | OR-Y | OR<25 | | 001 | 000 000 | 08 00 08 |
| 03192 | N N N | 08/29/2012 | 16 | | CASCADE HY SOUTH REDLAND RD | INTER W 06 | 3-LEG | N | TRF SIGNAL | N | CLR DRY DAY | S-1STOP REAR INT | 02 NONE PRVTE PSNGR CAR | 02 NONE PRVTE PSNGR CAR | STOP W -E TRUCK | 01 DRIVER NONE | 35 M | OR-Y | OR<25 | | 000 | 012 000 | 00 00 |
| 00282 | N N N | 01/22/2012 | 14 | | CASCADE HY SOUTH REDLAND RD | INTER W 06 | 3-LEG | N | TRF SIGNAL | N | UNK UNK DAY | S-1STOP REAR INT | 01 NONE PRVTE PSNGR CAR | 01 NONE PRVTE PSNGR CAR | STRGHT W -E | 01 DRIVER NONE | 32 M | OR-Y | OR<25 | | 026 | 000 000 | 07 00 07 |
| 03192 | N N N | 08/29/2012 | 16 | | CASCADE HY SOUTH REDLAND RD | INTER W 06 | 3-LEG | N | TRF SIGNAL | N | CLR DRY DAY | S-1STOP REAR INT | 01 NONE PRVTE PSNGR CAR | 01 NONE PRVTE PSNGR CAR | STRGHT W -E | 01 DRIVER NONE | 34 F | OR-Y | OR<25 | | 026 | 000 000 | 07 00 07 |
| 00301 | N N N | 01/25/2013 | 16 | | CASCADE HY SOUTH REDLAND RD | INTER W 06 | 3-LEG | N | P-GRN-SIG | N | UNK WET DAY | S-1STOP REAR PDO | 01 NONE PRVTE PSNGR CAR | 01 NONE PRVTE PSNGR CAR | TURN-R W -S | 01 DRIVER NONE | 59 M | OR-Y | OR<25 | | 006 | 000 000 | 08 00 08 |
| 00847 | N N N | 03/12/2013 | 16 | | CASCADE HY SOUTH REDLAND RD | INTER W 06 | 3-LEG | N | L-GRN-SIG | N | CLR DRY DAY | S-1STOP REAR INT | 01 NONE PRVTE PSNGR CAR | 01 NONE PRVTE PSNGR CAR | TURN-R W -S | 01 DRIVER NONE | 40 F | OR-Y | OR<25 | | 000 | 000 000 | 00 00 00 |

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CDS380
06/07/2017

CITY OF OREGON CITY, CLACKAMAS COUNTY

CASCADE HY SOUTH at REDLAND RD, city of Oregon City, Clackamas County, 01/01/2011 to 12/31/2015

URBAN NON-SYSTEM CRASH LISTING

Total crash records: 36

| SER# | INVEST | D C S L K TIME | FROM | CITY STREET | CLASS | RD CHAR | INT-TYPE (MEDIAN) | INT-BEL LEGS | OFFRD | WTHR | CRASH | SPCL USE | MOVE | PRTC | INJ | A S | E L I C N S | PED | LOC | ERROR | ACT EVENT | CAUSE |
|-------|--------|----------------|------|--------------------------------|-------|------------|----------------------|-----------------|-------|-------|-----------------|---------------------------------|--------------|---------|-------|---------|-------------|------|-----|-------|-----------|-------|
| | | | | SECOND STREET | DIST | LOCN | (#LANES) | CONTL | DRVWY | LIGHT | SURTY | V# TYPE | TO | P# TYPE | SVRTY | E X RES | LOC | | | | | |
| 02290 | N N N | 06/28/2013 | 16 | CASCADE HY SOUTH REDLAND RD | 0 | INTER W | 06 | 0 | N | CLR | S-1STOP REAR | 01 NONE 0 PRVTE PSNGR CAR | STOP W -E | 01 | DRVR | INJC | 74 F | OR-Y | 000 | 000 | 012 | 00 |
| | NONE | 8A | | | | | | | N | DAY | INI | PSNGR CAR | | | | | OR<25 | | | | 000 | 00 |
| | | | | | | | | | N | DAY | | PSNGR CAR | | | | | OR<25 | | | | 000 | 00 |
| | | | | | | | | | N | DAY | | PSNGR CAR | | | | | OR<25 | | | | 012 | 00 |
| | | | | | | | | | N | DAY | | PSNGR CAR | | | | | OR<25 | | | | 000 | 00 |
| 03843 | N N N | 10/09/2013 | 16 | CASCADE HY SOUTH REDLAND RD | 0 | INTER W | 06 | 0 | N | CLR | S-1STOP REAR | 01 NONE 0 PRVTE PSNGR CAR | STOP W -E | 01 | DRVR | INJC | 43 M | OR-Y | 000 | 000 | 011 013 | 00 |
| | NONE | 9A | | | | | | | N | DAY | INI | PSNGR CAR | | | | | OR<25 | | | | 000 | 00 |
| | | | | | | | | | N | DAY | | PSNGR CAR | | | | | OR<25 | | | | 022 | 00 |
| | | | | | | | | | N | DAY | | PSNGR CAR | | | | | OR<25 | | | | 000 | 00 |
| | | | | | | | | | N | DAY | | PSNGR CAR | | | | | OR<25 | | | | 000 | 00 |
| 04583 | N N N | 11/25/2013 | 16 | CASCADE HY SOUTH REDLAND RD | 0 | INTER W | 06 | 0 | N | CLR | S-1STOP REAR | 01 NONE 0 PRVTE PSNGR CAR | STOP W -E | 01 | DRVR | INJC | 56 F | OR-Y | 000 | 000 | 012 | 00 |
| | NONE | 4P | | | | | | | N | DAY | INI | PSNGR CAR | | | | | OR<25 | | | | 000 | 00 |
| | | | | | | | | | N | DAY | | PSNGR CAR | | | | | OR<25 | | | | 000 | 00 |
| | | | | | | | | | N | DAY | | PSNGR CAR | | | | | OR<25 | | | | 000 | 00 |
| 00188 | N N N | 01/14/2014 | 16 | CASCADE HY SOUTH REDLAND RD | 0 | INTER W | 06 | 0 | N | CLR | S-1STOP REAR | 01 NONE 0 PRVTE PSNGR CAR | STOP W -E | 01 | DRVR | INJC | 51 F | OR-Y | 000 | 000 | 012 | 00 |
| | NONE | 4P | | | | | | | N | DAY | INI | PSNGR CAR | | | | | OR<25 | | | | 000 | 00 |
| | | | | | | | | | N | DAY | | PSNGR CAR | | | | | OR<25 | | | | 000 | 00 |
| | | | | | | | | | N | DAY | | PSNGR CAR | | | | | OR<25 | | | | 000 | 00 |
| 04409 | N N N | 11/02/2014 | 16 | CASCADE HY SOUTH REDLAND RD | 0 | INTER W | | | N | UNK | S-1STOP REAR | 01 NONE 0 PRVTE PSNGR CAR | STOP W -E | 02 | PSNG | NO<5 | 01 M | | 000 | 000 | 011 | 00 |
| | NONE | SU | | | | | | | N | WET | | PSNGR CAR | | | | | | | | | 000 | 00 |

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CITY OF OREGON CITY, CLACKAMAS COUNTY

CASCADE HY SOUTH at REDLAND RD, City of Oregon City, Clackamas County, 01/01/2011 to 12/31/2015

Total crash records: 36

| S | D | P | R | S | W | CLASS | CITY STREET | RD CHAR | INT-TYPE (MEDIAN) | INT-REL | OFFRD | WTHR | CRASH | SPCL USE | TRLR QTY | MOVE | TO | PH TYPE | SVTRY | E | X | RES | LOC | ERROR | ACT | EVENT | CAUSE |
|--------|---|---|---|---|---|-------|---------------|---------|----------------------|------------|-------|-------|-------|-----------|----------|-------|--------|---------|-------|------|----|-------|--------|-------|-----|-------|-------|
| SER# | E | L | G | H | P | DATE | FIRST STREET | DIRECT | LEGS | TRAF- | ENDST | SURF | COLL | OWNER | FROM | FROM | PRTC | INJ | INJ | G | E | LIONS | PED | | | | |
| INVEST | D | C | S | L | K | TIME | SECOND STREET | LOCIN | (H/LANES) | CONFL | DRVMY | LIGHT | SVTRY | V# | TYPE | N - S | N - S | 01 | DRVR | INJC | 80 | F | OR - Y | OR<25 | | | |
| NO RPT | | | | | | SU | REDLAND RD | CN | 0 | TRF SIGNAL | N | DAY | TURN | PRVTE | | | | | | | | | | | 000 | 00 | |
| 10A | | | | | | | | 03 | | | N | DAY | INJ | PSNGR CAR | | | | | | | | | | 038 | 04 | | |
| | | | | | | | | | | | | | | 02 | NONE | 0 | TURN-L | | | | | | | | | 000 | 00 |
| | | | | | | | | | | | | | | PRVTE | W - N | | | | | | | | | | 000 | 00 | |
| | | | | | | | | | | | | | | PSNGR CAR | | | | 01 | DRVR | NONE | 64 | F | OR - Y | OR<25 | | 000 | 00 |

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TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT

CRASH SUMMARIES BY YEAR BY COLLISION TYPE

CASCADE HY SOUTH at s BEAVERCREEK RD, City of Oregon City, Clackamas County, 01/01/2011 to 12/31/2015

| COLLISION TYPE | FATAL CRASHES | NON- FATAL CRASHES | PROPERTY DAMAGE ONLY | TOTAL CRASHES | PEOPLE KILLED | PEOPLE INJURED | TRUCKS | DRY SURF | WET SURF | DAY | DARK | INTER- SECTION RELATED | INTER- SECTION RELATED | OFF- ROAD |
|------------------------|------------------|--------------------------|----------------------------|------------------|------------------|-------------------|--------|-------------|-------------|-----|------|------------------------------|------------------------------|--------------|
| | | | | | | | | | | | | | | |
| YEAR: 2015 | | | | | | | | | | | | | | |
| REAR-END | 0 | 10 | 17 | 27 | 0 | 13 | 0 | 17 | 9 | 14 | 13 | 27 | 0 | 0 |
| SIDESWIPE – OVERTAKING | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 |
| TURNING MOVEMENTS | 0 | 1 | 1 | 2 | 0 | 1 | 0 | 2 | 0 | 0 | 2 | 2 | 0 | 0 |
| YEAR 2015 TOTAL | 0 | 12 | 18 | 30 | 0 | 15 | 0 | 20 | 9 | 15 | 15 | 30 | 0 | 0 |
| YEAR: 2014 | | | | | | | | | | | | | | |
| REAR-END | 0 | 9 | 10 | 19 | 0 | 11 | 0 | 16 | 2 | 11 | 7 | 19 | 0 | 0 |
| SIDESWIPE – OVERTAKING | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 1 | 0 | 0 |
| TURNING MOVEMENTS | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 0 |
| YEAR 2014 TOTAL | 0 | 9 | 12 | 21 | 0 | 11 | 0 | 16 | 4 | 12 | 8 | 21 | 0 | 0 |
| YEAR: 2013 | | | | | | | | | | | | | | |
| ANGLE | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 0 |
| BACKING | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 |
| REAR-END | 0 | 17 | 11 | 28 | 0 | 18 | 0 | 22 | 5 | 20 | 8 | 28 | 0 | 0 |
| SIDESWIPE – OVERTAKING | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 |
| TURNING MOVEMENTS | 0 | 2 | 0 | 2 | 0 | 3 | 1 | 2 | 0 | 1 | 1 | 2 | 0 | 0 |
| YEAR 2013 TOTAL | 0 | 19 | 14 | 33 | 0 | 21 | 1 | 25 | 7 | 22 | 10 | 33 | 0 | 0 |
| YEAR: 2012 | | | | | | | | | | | | | | |
| ANGLE | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 |
| FIXED / OTHER OBJECT | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 |
| PEDESTRIAN | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 |
| REAR-END | 0 | 18 | 6 | 24 | 0 | 24 | 0 | 16 | 6 | 16 | 8 | 24 | 0 | 0 |

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

CASCADE HY SOUTH at s BEAVERCREEK RD, City of Oregon City, Clackamas County, 01/01/2011 to 12/31/2015

| COLLISION TYPE | FATAL CRASHES | NON- FATAL CRASHES | PROPERTY DAMAGE ONLY | TOTAL CRASHES | PEOPLE KILLED | PEOPLE INJURED | TRUCKS | DRY SURF | WET SURF | DAY | DARK | INTER- SECTION RELATED | INTER- SECTION RELATED | OFF- ROAD |
|------------------------|------------------|--------------------------|----------------------------|------------------|------------------|-------------------|----------|-------------|-------------|-----------|-----------|------------------------------|------------------------------|--------------|
| | | | | | | | | | | | | | | |
| TURNING MOVEMENTS | 0 | 2 | 0 | 2 | 0 | 3 | 0 | 2 | 0 | 0 | 2 | 2 | 0 | 0 |
| YEAR 2012 TOTAL | 0 | 22 | 7 | 29 | 0 | 29 | 0 | 21 | 6 | 19 | 10 | 29 | 0 | 1 |
| YEAR: 2011 | | | | | | | | | | | | | | |
| ANGLE | 1 | 0 | 2 | 3 | 1 | 2 | 1 | 1 | 2 | 2 | 1 | 3 | 0 | 0 |
| REAR-END | 0 | 12 | 13 | 25 | 0 | 13 | 0 | 19 | 6 | 18 | 7 | 25 | 0 | 0 |
| TURNING MOVEMENTS | 0 | 2 | 0 | 2 | 0 | 3 | 0 | 0 | 2 | 0 | 2 | 2 | 0 | 0 |
| YEAR 2011 TOTAL | 1 | 14 | 15 | 30 | 1 | 18 | 1 | 20 | 10 | 20 | 10 | 30 | 0 | 0 |
| FINAL TOTAL | 1 | 76 | 66 | 143 | 1 | 94 | 2 | 102 | 36 | 88 | 53 | 143 | 0 | 1 |

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CASCADE HY SOUTH at S BEAVERCREEK RD, City of Oregon City, Clackamas County, 01/01/2011 to 12/31/2015

URBAN NON-SYSTEM CRASH LISTING

Total crash records: 143

| S P E R S E L G H R D A Y D I S T F R O M I N V E S T M O N E T H D A T E T I M E | CITY STREET | RD CHAR | INT-TYPE (MEDIAN) | OFFRD | WTHR | CRASH | SPCL USE | MOVE | PRTC | INJ | A | S | CAUSE | | | | | | | |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|---------|----------------------|------------|------|---------|-----------|-------|----------|------|----|-----|-------|-------|--------|---------|------|-------|-------|-------|
| | | | | | | | | | | | | | | LOCIN | DIRECT | INT-REL | LEGS | TRAF- | CONTL | CROSS |
| 004839 | S BEAVERCREEK RD | UN | CROSS | N | UNK | S-1STOP | 01 NONE | 0 | 01 DRVVR | NONE | 39 | F | OR-Y | 29 | | | | | | |
| NO RPT | CASCADE HY SOUTH | UN | 3 | TRF SIGNAL | N | UNK | PSNGR CAR | UN-UN | 01 DRVVR | NONE | | | OR<25 | 00 | | | | | | |
| | | 06 | | | | PDO | 02 NONE | 0 | | | | | | 00 | | | | | | |
| | | | | | | | PRVTE | UN-UN | 01 DRVVR | NONE | 27 | M | OR-Y | 00 | | | | | | |
| | | | | | | | PSNGR CAR | | | | | | | 00 | | | | | | |
| 01828 | S BEAVERCREEK RD | INTER | CROSS | N | RAIN | S-1STOP | 01 NONE | 0 | 01 DRVVR | NONE | 76 | M | OR-Y | 07 | | | | | | |
| NONE | CASCADE HY SOUTH | N | 0 | TRF SIGNAL | N | WET | PRVTE | N-S | 01 DRVVR | NONE | | | | 00 | | | | | | |
| | | 06 | | | DAY | PDO | PSNGR CAR | | | | | | | 00 | | | | | | |
| | | | | | | | 02 NONE | 0 | | | | | | 00 | | | | | | |
| | | | | | | | PRVTE | N-S | 01 DRVVR | NONE | 00 | M | OR-Y | 011 | | | | | | |
| | | | | | | | PSNGR CAR | | | | | | UNK | 00 | | | | | | |
| | | | | | | | 03 NONE | 0 | | | | | | 00 | | | | | | |
| | | | | | | | PRVTE | N-S | 01 DRVVR | NONE | 00 | UNK | UNK | 022 | | | | | | |
| | | | | | | | PSNGR CAR | | | | | | | 00 | | | | | | |
| | | | | | | | | | | | | | | 00 | | | | | | |
| 02674 | S BEAVERCREEK RD | INTER | CROSS | N | CLR | S-1STOP | 01 NONE | 0 | 01 DRVVR | NONE | 29 | M | OR-Y | 07 | | | | | | |
| NONE | CASCADE HY SOUTH | N | 2 | TRF SIGNAL | N | DRY | PRVTE | N-S | 01 DRVVR | NONE | | | | 00 | | | | | | |
| | | 06 | | | DAY | INJ | PSNGR CAR | | | | | | | 00 | | | | | | |
| | | | | | | | 02 NONE | 0 | | | | | | 00 | | | | | | |
| | | | | | | | PRVTE | N-S | 01 DRVVR | NONE | 27 | M | OR-Y | 011 | | | | | | |
| | | | | | | | PSNGR CAR | | | | | | | 00 | | | | | | |
| | | | | | | | 02 NONE | 0 | | | | | | 00 | | | | | | |
| | | | | | | | PRVTE | N-S | 02 PSNG | INJC | 05 | F | | 011 | | | | | | |
| | | | | | | | PSNGR CAR | | | | | | | 00 | | | | | | |
| | | | | | | | | | | | | | | 00 | | | | | | |
| 01982 | S BEAVERCREEK RD | INTER | CROSS | N | CLR | PED | 01 NONE | 0 | 01 DRVVR | NONE | 32 | F | OR-Y | 18,14 | | | | | | |
| STATE | CASCADE HY SOUTH | N | 2 | TRF SIGNAL | N | DRY | PRVTE | N-S | 01 DRVVR | NONE | | | | 00 | | | | | | |
| | | 06 | | | DAY | INJ | PSNGR CAR | | | | | | | 00 | | | | | | |
| | | | | | | | | | | | | | | 00 | | | | | | |
| | | | | | | | | | | | | | | 00 | | | | | | |
| | | | | | | | | | | | | | | 00 | | | | | | |
| | | | | | | | | | | | | | | 00 | | | | | | |
| 00662 | S BEAVERCREEK RD | INTER | CROSS | N | CLR | O-1STOP | 01 NONE | 0 | 01 DRVVR | NONE | 34 | F | SUSP | 10 | | | | | | |
| CITY | CASCADE HY SOUTH | N | 3 | TRF SIGNAL | N | SNO | PRVTE | S-N | 01 DRVVR | NONE | | | | 00 | | | | | | |
| | | 06 | | | UNK | PDO | PSNGR CAR | | | | | | | 00 | | | | | | |
| | | | | | | | 02 NONE | 0 | | | | | | 10 | | | | | | |
| | | | | | | | PRVTE | N-S | 01 DRVVR | NONE | 31 | F | OR-Y | 011 | | | | | | |
| | | | | | | | PSNGR CAR | | | | | | | 00 | | | | | | |
| | | | | | | | | | | | | | | 00 | | | | | | |

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OREGON.. DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT

CDS380
06/07/2017

CITY OF OREGON CITY, CLACKAMAS COUNTY
URBAN NON-SYSTEM CRASH LISTING
CASCADE HY SOUTH at s BEAVERCREEK RD, City of Oregon City, Clackamas County, 01/01/2011 to 12/31/2015
Total crash records: 143

| SER# | INVEST | D C S L K TIME | FROM | CLASS | CITY STREET | RD CHAR | INT-TYPE (MEDIAN) | INT-BEL | OFFRD | WTHR | CRASH | SPCL USE | MOVE | PRTC | INJ | A S | PED | LOC | ERROR | ACT EVENT | CAUSE |
|--------|----------------|----------------|---------------|-------|--------------|---------|----------------------|---------|-------|-------|-------|---------------------------------|----------------|---------|-------|---------|-------------|-----|-------|-----------|-------|
| INVEST | D C S L K TIME | FROM | SECOND STREET | DIST | FIRST STREET | LOCIN | (LANES) | CONTL | DRVWY | LIGHT | SURTY | V# TYPE | TO | P# TYPE | SVRTY | E X RES | E L L C N S | LOC | ERROR | ACT EVENT | CAUSE |
| | | | | | | | | | | | | 02 NONE 0 PRVTE PSNGR CAR | STOP N -S | 01 DRVR | NONE | 87 F | OR-Y | 000 | 000 | 011 | 00 |
| | | | | | | | | | | | | 01 NONE 0 PRVTE PSNGR CAR | STRGHT N -S | 01 DRVR | NONE | 39 F | OR-Y | 026 | 000 | 000 | 07 |
| | | | | | | | | | | | | 02 NONE 0 PUBLC PSNGR CAR | STOP N -S | 01 DRVR | NONE | 00 M | OR-Y | 000 | 000 | 011 | 00 |
| | | | | | | | | | | | | 01 NONE 0 PSNGR CAR | STRGHT N -S | 01 DRVR | NONE | 52 M | OR-Y | 000 | 000 | 011 | 00 |
| | | | | | | | | | | | | 01 NONE 0 UNKN PSNGR CAR | STRGHT N -S | 01 DRVR | NONE | 00 F | UNK | 026 | 000 | 000 | 07 |
| | | | | | | | | | | | | 02 NONE 0 PRVTE PSNGR CAR | STOP N -S | 01 DRVR | NONE | 00 F | UNK | 000 | 000 | 011 | 00 |
| | | | | | | | | | | | | 01 NONE 0 PSNGR CAR | STRGHT N -S | 01 DRVR | NONE | 64 M | OR-Y | 026 | 000 | 000 | 07 |
| | | | | | | | | | | | | 02 NONE 0 PRVTE PSNGR CAR | STOP N -S | 01 DRVR | INJC | 58 M | OR-Y | 000 | 000 | 011 | 00 |
| | | | | | | | | | | | | 01 NONE 0 PRVTE PSNGR CAR | STRGHT N -S | 01 DRVR | NONE | 00 M | OR-Y | 026 | 000 | 000 | 07 |
| | | | | | | | | | | | | 02 NONE 0 PRVTE PSNGR CAR | STOP N -S | 01 DRVR | NONE | 00 M | OR-Y | 000 | 000 | 011 | 00 |
| | | | | | | | | | | | | 01 NONE 0 PSNGR CAR | STRGHT N -S | 01 DRVR | NONE | 22 F | OR-Y | 026 | 000 | 000 | 29 |
| | | | | | | | | | | | | 02 NONE 0 PRVTE PSNGR CAR | STOP N -S | 01 DRVR | NONE | 65 F | OR-Y | 000 | 000 | 011 | 00 |
| | | | | | | | | | | | | 01 NONE 0 PRVTE PSNGR CAR | STRGHT N -S | 01 DRVR | NONE | 28 F | OR-Y | 000 | 000 | 011 | 00 |
| | | | | | | | | | | | | 01 NONE 0 UNKN PSNGR CAR | STRGHT N -S | 01 DRVR | NONE | 00 F | OR-Y | 045 | 000 | 000 | 13 |
| | | | | | | | | | | | | 02 NONE 0 PRVTE | STRGHT N -S | 01 DRVR | NONE | 00 F | UNK | 000 | 000 | 000 | 00 |

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OREGON.. DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT

URBAN NON-SYSTEM CRASH LISTING

Total crash records: 143

| S P E R I E S I D | P R O J E C T N O | C O N T R A C T N O | C L A S S I F I C A T I O N | C I T Y S T R E E T | R O A D C H A R A C T E R I S T I C S | I N T - T Y P E (M E D I A N) | O F F R O W D I N T E R S E C T I O N | C R A S H C O L L I S I O N | M O V E M E N T | S P C I A L U S E | C A U S E | | | | | | | | | | | | | | | | |
|-------------------------------------------|-------------------------------------------|------------------------------------------------|--------------------------------------------------------------------|------------------------------------------------|---------------------------------------------------------------------------------------------|----------------------------------------------------------------------|---------------------------------------------------------------------------------------------|--------------------------------------------------------------------|--------------------------------------|-------------------------------------------|------------------------------------------------|---------------------------------------------------------------------------------------------|----------------------------------------------------------------------|---------------------------------------------------------------------------------------------|--------------------------------------------------------------------|--------------------------------------|-------------------------------------------|---------------------------------|-----------------------|-------------|-------------|------------------|-------------------------------------------|-----------------------|-------------|-------------|------------------|
| | | | | | | | | | | | C I T Y S T R E E T | R O A D C H A R A C T E R I S T I C S | I N T - T Y P E (M E D I A N) | O F F R O W D I N T E R S E C T I O N | C R A S H C O L L I S I O N | M O V E M E N T | S P C I A L U S E | P R I M A R Y | | | | | S E C O N D A R Y | | | | |
| | | | | | | | | | | | | | | | | | | W H E N | W H E R E | W H Y | W H O | W H A T | W H E N | W H E R E | W H Y | W H O | W H A T |
| INVEST | DATE | TIME | FROM | DIST | CLASS | RD | CHAR | INT-REL | OFFRD | WTHR | CRASH | TRFLR | QTY | MOVE | FROM | TO | PH | TYPE | SVRTY | E | X | RES | LOC | ERROR | ACT | EVENT | CAUSE |
| NO | NO | NO | NO | NO | NO | NO | NO | NO | NO | NO | NO | NO | NO | NO | NO | NO | NO | NO | NO | NO | NO | NO | NO | NO | NO | NO | NO |
| 01497 | N | N | N | 04/21/2015 | 14 | S BEAVERCREEK RD | INTER | CROSS | N | CLR | S-1STOP | 01 | NONE | 0 | STRGHT | N -S | 01 | DRVR | INJB | 54 | M | OR-Y | 026 | 000 | 000 | 000 | 29 |
| NONE | | | | 10P | | CASCADE HY SOUTH | 06 | 3 | N | DRY | REAR | PRVTE | FSNGR | CAR | | | | | | | OR-Y | | | | | 00 | |
| | | | | | | | | | | DARK | INJ | FSNGR | CAR | | | | | | | | OR-Y | 026 | 000 | 000 | 000 | 29 | |
| | | | | | | | | | | | | 02 | NONE | 0 | STOP | N -S | | | | | OR-Y | | | | | 00 | |
| | | | | | | | | | | | | UNKN | | | | | | | | | OR-Y | 000 | 000 | 000 | 000 | 00 | |
| | | | | | | | | | | | | FSNGR | CAR | | | | | | | | OR-Y | 000 | 000 | 000 | 000 | 00 | |
| | | | | | | | | | | | | | | | | | | | | | UNK | | | | | | |
| 01876 | N | N | N | 05/21/2015 | 14 | S BEAVERCREEK RD | INTER | CROSS | N | CLR | S-STRGHT | 01 | NONE | 0 | STRGHT | N -S | 01 | DRVR | NONE | 78 | F | OR-Y | 080 | 000 | 000 | 000 | 10 |
| NO RPT | | | | 4P | | CASCADE HY SOUTH | 06 | 3 | N | DRY | SS-O | PRVTE | FSNGR | CAR | | | | | | | OR-Y | | | | | 00 | |
| | | | | | | | | | | DAY | INJ | FSNGR | CAR | | | | | | | | OR-Y | 080 | 000 | 000 | 000 | 10 | |
| | | | | | | | | | | | | 02 | NONE | 0 | STRGHT | N -S | | | | | OR-Y | | | | | 00 | |
| | | | | | | | | | | | | PRVTE | FSNGR | CAR | | | | | | | OR-Y | 000 | 000 | 000 | 000 | 00 | |
| | | | | | | | | | | | | FSNGR | CAR | | | | | | | | OR-Y | 000 | 000 | 000 | 000 | 00 | |
| | | | | | | | | | | | | 03 | NONE | 0 | STRGHT | N -S | | | | | OR-Y | | | | | 00 | |
| | | | | | | | | | | | | PRVTE | | | | | | | | | OR-Y | 000 | 000 | 000 | 000 | 00 | |
| | | | | | | | | | | | | FSNGR | CAR | | | | | | | | OR-Y | 000 | 000 | 000 | 000 | 00 | |
| | | | | | | | | | | | | | | | | | | | | | OR-Y | | | | | | |
| 02710 | N | N | N | 07/04/2015 | 14 | S BEAVERCREEK RD | INTER | CROSS | N | CLR | S-1STOP | 01 | NONE | 0 | STRGHT | N -S | 01 | DRVR | NONE | 63 | F | OR-Y | 026 | 000 | 000 | 000 | 16,29 |
| NO RPT | | | | 3P | | CASCADE HY SOUTH | 06 | 3 | N | DRY | REAR | PRVTE | FSNGR | CAR | | | | | | | OR-Y | | | | | 00 | |
| | | | | | | | | | | DAY | PDO | FSNGR | CAR | | | | | | | | OR-Y | 026 | 000 | 000 | 000 | 16,29 | |
| | | | | | | | | | | | | 02 | NONE | 0 | STOP | N -S | | | | | OR-Y | | | | | 00 | |
| | | | | | | | | | | | | PRVTE | | | | | | | | | OR-Y | 000 | 000 | 000 | 000 | 00 | |
| | | | | | | | | | | | | FSNGR | CAR | | | | | | | | OR-Y | | | | | 00 | |
| | | | | | | | | | | | | | | | | | | | | | OR-Y | | | | | | |
| 03650 | N | N | N | 09/02/2015 | 14 | S BEAVERCREEK RD | INTER | CROSS | N | CLR | S-1STOP | 01 | NONE | 0 | STRGHT | N -S | 01 | DRVR | NONE | 43 | F | OR-Y | 026 | 000 | 000 | 000 | 29 |
| NONE | | | | 2P | | CASCADE HY SOUTH | 06 | 3 | N | DRY | REAR | PRVTE | FSNGR | CAR | | | | | | | OR-Y | | | | | 00 | |
| | | | | | | | | | | DAY | PDO | FSNGR | CAR | | | | | | | | OR-Y | 026 | 000 | 000 | 000 | 29 | |
| | | | | | | | | | | | | 02 | NONE | 0 | STOP | N -S | | | | | OR-Y | | | | | 00 | |
| | | | | | | | | | | | | PRVTE | | | | | | | | | OR-Y | 000 | 000 | 000 | 000 | 00 | |
| | | | | | | | | | | | | FSNGR | CAR | | | | | | | | OR-Y | 000 | 000 | 000 | 000 | 00 | |
| | | | | | | | | | | | | | | | | | | | | | OR-Y | | | | | | |
| 05088 | N | N | N | 12/01/2015 | 14 | S BEAVERCREEK RD | INTER | CROSS | N | RAIN | S-1STOP | 01 | NONE | 0 | STRGHT | N -S | 01 | DRVR | NONE | 20 | M | OR-Y | 026 | 000 | 000 | 000 | 29 |
| NONE | | | | 5P | | CASCADE HY SOUTH | 06 | 3 | N | WET | REAR | PRVTE | FSNGR | CAR | | | | | | | OR-Y | | | | | 00 | |
| | | | | | | | | | | DUSK | PDO | FSNGR | CAR | | | | | | | | OR-Y | 026 | 000 | 000 | 000 | 29 | |
| | | | | | | | | | | | | 02 | NONE | 0 | STOP | N -S | | | | | OR-Y | | | | | 00 | |
| | | | | | | | | | | | | PRVTE | | | | | | | | | OR-Y | 000 | 000 | 000 | 000 | 00 | |
| | | | | | | | | | | | | FSNGR | CAR | | | | | | | | OR-Y | 000 | 000 | 000 | 000 | 00 | |
| | | | | | | | | | | | | | | | | | | | | | OR-Y | | | | | | |
| 00115 | N | N | N | 01/10/2011 | 14 | S BEAVERCREEK RD | INTER | CROSS | N | CLR | S-1STOP | 01 | NONE | 0 | STRGHT | NF-SW | 01 | DRVR | NONE | 44 | M | OR-Y | 000 | 000 | 000 | 00 | 07 |
| NO RPT | | | | 5P | | CASCADE HY SOUTH | 06 | 2 | N | DRY | REAR | PRVTE | FSNGR | CAR | | | | | | | OR-Y | 026 | 000 | 000 | 000 | 00 | |
| | | | | | | | | | | DLIT | PDO | FSNGR | CAR | | | | | | | | OR-Y | 026 | 000 | 000 | 000 | 07 | |
| | | | | | | | | | | | | 02 | NONE | 0 | STOP | N -S | | | | | OR-Y | | | | | 00 | |
| | | | | | | | | | | | | PRVTE | | | | | | | | | OR-Y | 000 | 000 | 000 | 000 | 00 | |
| | | | | | | | | | | | | FSNGR | CAR | | | | | | | | OR-Y | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | OR-Y | | | | | | |

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[illegible]

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OREGON.. DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT

CDS380
06/07/2017

URBAN NON-SYSTEM CRASH LISTING
CASCAD E HY SOUTH at s BEAVERCREEK RD, City of Oregon City, Clackamas County, 01/01/2011 to 12/31/2015
Total crash records: 143

CITY OF OREGON CITY, CLACKAMAS COUNTY

| SER# | INVEST | D C S L K TIME | FROM | CLASS | CITY STREET | RD CHAR | INT-TYPE (MEDIAN) | INT-BEL | OFFRD | WTHR | CRASH | SPCL USE | TRLR QTY | OWNER | MOVE | FROM | PRTC | INJ | A S | E L I C N S | PED | LOC | ERROR | ACT EVENT | CAUSE |
|-------|--------|----------------|------|------------------|-------------|---------|-------------------|---------|-------|-------|--------------|-----------|----------|-------|------------|--------------|---------|------|------|-------------|-----|-----|-------|-----------|-------|
| | | | | | | LOCN | (#LANES) | CONTL | DRVWY | LIGHT | SURTY | PSNGR CAR | V# TYPE | TO | 02 PSNG | NO<5 | 01 F | | | | | | 000 | 000 | 00 |
| 01694 | N N N | 05/08/2012 | 14 | S BEAVERCREEK RD | INTER | NE 09 | CROSS | N | N | CLR | S-1STOP REAR | 0 | 02 NONE | 0 | STOP SE-NW | 01 PSNGR CAR | 01 PSNG | NO<5 | 01 F | | | | 000 | 000 | 00 |
| NONE | | | | | | | | | | | | | | | | | | | | | | | | | |
| 02190 | N N N | 06/18/2012 | 14 | S BEAVERCREEK RD | INTER | NE 09 | CROSS | N | N | CLR | S-1STOP REAR | 1 | 01 NONE | 0 | STOP SE-NW | 01 PSNGR CAR | 01 PSNG | NO<5 | 01 F | | | | 000 | 000 | 00 |
| NONE | | | | | | | | | | | | | | | | | | | | | | | | | |
| 02429 | N N N | 07/06/2012 | 14 | S BEAVERCREEK RD | INTER | NE 09 | CROSS | N | N | CLR | S-1STOP REAR | 0 | 01 NONE | 0 | STOP SE-NW | 01 PSNGR CAR | 01 PSNG | NO<5 | 01 F | | | | 000 | 000 | 00 |
| NONE | | | | | | | | | | | | | | | | | | | | | | | | | |
| 02909 | N N N | 08/07/2012 | 14 | S BEAVERCREEK RD | INTER | NE 09 | CROSS | N | N | CLR | S-1STOP REAR | 0 | 01 NONE | 0 | STOP SE-NW | 01 PSNGR CAR | 01 PSNG | NO<5 | 01 F | | | | 000 | 000 | 00 |
| NONE | | | | | | | | | | | | | | | | | | | | | | | | | |
| 04569 | N N N | 11/26/2012 | 14 | S BEAVERCREEK RD | INTER | NE 09 | CROSS | N | N | CLR | S-1STOP REAR | 0 | 01 NONE | 0 | STOP SE-NW | 01 PSNGR CAR | 01 PSNG | NO<5 | 01 F | | | | 000 | 000 | 00 |
| NONE | | | | | | | | | | | | | | | | | | | | | | | | | |

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OREGON.. DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT

CDS380
06/07/2017

URBAN NON-SYSTEM CRASH LISTING

CASCADE HY SOUTH at s BEAVERCREEK RD, City of Oregon City, Clackamas County, 01/01/2011 to 12/31/2015

Total crash records: 143

| SER# | INVEST | D C S L K TIME | CLASS | CITY STREET | RD CHAR | INT-TYPE (MEDIAN) | | | INT-REL | OFFRD | | | WTHR | | CRASH | | SPLC USE | | MOVE | FROM | PRTC | INJ | A S | E LICNS | PED | LOC | ERROR | ACT EVENT | CAUSE | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|-------|--------|----------------|------------|-------------|------------------|-------------------|---------|-------|---------|-------|-------|-------|---------|-------|----------|---------|----------|---------|------|------|------|-----|-----|---------|-----|-----|-------|-----------|-------|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
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| 04072 | NONE | N N N | 10/24/2013 | 14 | S BEAVERCREEK RD | INTER | CROSS | N | YIELD | N | N | FOG | S-1STOP | 0 | STRGHT | 01 NONE | SE-NW | 01 DRVR | NONE | 00 | UNK | UNK | 026 | 000 | 000 | 00 | 07 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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OREGON.. DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT

CDS380
06/07/2017

CITY OF OREGON CITY, CLACKAMAS COUNTY
URBAN NON-SYSTEM CRASH LISTING
CASCAD E HY SOUTH at S BEAVERCREEK RD, City of Oregon City, Clackamas County, 01/01/2011 to 12/31/2015
Total crash records: 143

| SER# | INVEST | D C S L K TIME | FROM | CLASS | CITY STREET | RD CHAR | INT-TYPE (MEDIAN) | INT-BEL LEGS | OFFRD | WTHR | CRASH | SPCL USE TLR QTY | MOVE | PRTC | INJ | A S | E X RES | LOC | ERROR | ACT EVENT | CAUSE |
|-------|-----------|----------------|------|-------|------------------|---------|----------------------|-----------------|-------|------|----------|---------------------|------|--------|------|-----------|---------|------|-------|-------------|-------|
| | | | | | | | | | | | | | | | | | | | | | |
| 01893 | N N N | 04/20/2015 | 14 | | S BEAVERCREEK RD | INTER | CROSS | N | N | CL | S-1STOP | 01 NONE | 0 | STRGHT | E -W | 01 DRIVER | NONE | 17 F | OR-Y | 026 | 000 |
| NONE | | MO 3P | | | CASCADE HY SOUTH | 06 | 3 | | | DAY | INJ | PSNGR CAR | | | | | OR<25 | | | 000 | 29 |
| | | | | | | | | | | | | 02 NONE | 0 | STOP | E -W | 01 DRIVER | INJC | 47 F | OR-Y | 000 | 00 |
| | | | | | | | | | | | | PSNGR CAR | | | | | OR<25 | | | 000 | 00 |
| 04437 | N N N | 10/27/2015 | 14 | | S BEAVERCREEK RD | INTER | 4-LEG | N | N | CL | S-STRGHT | 01 NONE | 0 | STRGHT | E -W | 01 DRIVER | NONE | 17 M | OR-Y | 042 | 000 |
| NONE | | TU 5P | | | CASCADE HY SOUTH | 06 | 3 | | | DAY | PDO | PSNGR CAR | | | | | OR<25 | | | 000 | 29 |
| | | | | | | | | | | | | 02 NONE | 0 | STRGHT | E -W | 01 DRIVER | NONE | 53 F | OR-Y | 000 | 00 |
| | | | | | | | | | | | | PSNGR CAR | | | | | OR<25 | | | 000 | 00 |
| 00355 | Y N Y N N | 01/30/2011 | 16 | | S BEAVERCREEK RD | INTER | CROSS | N | N | CLD | S-1STOP | 01 NONE | 0 | STRGHT | E -W | 01 DRIVER | NONE | 72 F | OR-Y | 053,026,011 | 025 |
| CITY | | SU 3P | 0 | | CASCADE HY SOUTH | 06 | 2 | | | DAY | INJ | PSNGR CAR | | | | | OR<25 | | | 000 | 16,32 |
| | | | | | | | | | | | | 02 NONE | 0 | STOP | E -W | 01 DRIVER | INJB | 51 F | OR-Y | 000 | 00 |
| | | | | | | | | | | | | PSNGR CAR | | | | | OR<25 | | | 000 | 00 |
| | | | | | | | | | | | | 03 NONE | 0 | STOP | E -W | 01 DRIVER | NONE | 54 M | OR-Y | 000 | 00 |
| | | | | | | | | | | | | PSNGR CAR | | | | | OR<25 | | | 000 | 00 |
| 01217 | N N N | 04/11/2011 | 16 | | S BEAVERCREEK RD | INTER | CROSS | N | N | CL | S-OTHER | 01 NONE | 0 | STRGHT | E -W | 01 DRIVER | NONE | 47 F | OTH-Y | 042 | 000 |
| NONE | | MO 8P | 0 | | CASCADE HY SOUTH | 06 | 0 | | | DLIT | INJ | PSNGR CAR | | | | | N-RES | | | 000 | 07 |
| | | | | | | | | | | | | 02 NONE | 0 | STRGHT | E -W | 01 DRIVER | NONE | 56 F | OR-Y | 000 | 00 |
| | | | | | | | | | | | | PSNGR CAR | | | | | OR<25 | | | 000 | 00 |
| | | | | | | | | | | | | 02 NONE | 0 | STRGHT | E -W | 02 PSNG | INJC | 18 F | | 000 | 00 |
| | | | | | | | | | | | | PSNGR CAR | | | | | | | | 000 | 00 |
| 01368 | Y N N N N | 04/22/2011 | 16 | | S BEAVERCREEK RD | INTER | CROSS | N | N | CL | S-1STOP | 01 NONE | 0 | STRGHT | S -N | 01 DRIVER | INJC | 41 F | OR-Y | 047,026 | 000 |
| STATE | | FR 2P | 0 | | CASCADE HY SOUTH | 06 | 0 | | | DAY | INJ | PSNGR CAR | | | | | OR<25 | | | 000 | 01 |
| | | | | | | | | | | | | 02 NONE | 0 | STOP | S -N | 01 DRIVER | NONE | 17 F | OR-Y | 000 | 00 |
| | | | | | | | | | | | | PSNGR CAR | | | | | OR<25 | | | 000 | 00 |
| | | | | | | | | | | | | 03 NONE | 0 | STOP | S -N | 01 DRIVER | NONE | 22 M | OR-Y | 000 | 00 |
| | | | | | | | | | | | | PSNGR CAR | | | | | | | | 000 | 00 |

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OREGON.. DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT

URBAN NON-SYSTEM CRASH LISTING

CASCADE HY SOUTH at S BEAVERCREEK RD, City of Oregon City, Clackamas County, 01/01/2011 to 12/31/2015

Total crash records: 143

CDS380
06/07/2017

CITY OF OREGON CITY, CLACKAMAS COUNTY

| S P R S W | | | E A U C O D A T E | | | C L A S S | | C I T Y S T R E E T | | R D C H A R | | I N T - T Y P E (M E D I A N) | | O F F R D | | W T H R | | C R A S H | | S P C I A L U S E | | M O V E | | | | | | | | | | | | | | |
|-----------------------|-------------------------------------------|------------------|-----------------------------------------------------|----------------------------------------------------------|------------------|-----------------------|----------------------------|------------------------------------------------|---------------------------------|-----------------------------------------------------|---------------------------------|----------------------------------------------------------------------------------|------------------|-----------------------|-----------------------|---------------------------------|------|-----------------------|-------|-------------------------------------------|---------|------------------|------|------|-----|-----|-----|----|----|----|----|----|----|----|--|--|
| SER# | E L G H R D A Y | D I S T | F I R S T S T R E E T | S E C O N D S T R E E T | F R O M | C L A S S | R D C H A R | (M E D I A N) | I N T - R E L | T R A F - S I G N A L | D R Y W I T H | L I G H T | S U R F | C O L L | O W N E R | T R L R Q T Y | | | | | | | | | | | | | | | | | | | | |
| INVEST | D C S L K T I M E | | | | | | LOCIN | | CONTI | | DRVWY | | SVRTY | | | V# TYPE | | | | | | | | | | | | | | | | | | | | |
| OR<25 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 04115 | N N N | 11/03/2011 | 16 | S BEAVERCREEK RD | INTER | CROSS | N | TRF SIGNAL | N | CLR | S-1STOP | 01 NONE | 0 | STRGHT | E -W | 01 DRVR | NONE | 00 M | UNK | UNK | 026 | 000 | 000 | 07 | 07 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | | |
| NONE | | TH 11A | | CASCADE HY SOUTH | E 06 | 0 | | | | N | DAY | REAR | PNNGR CAR | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | 02 NONE | 0 | STOP | E -W | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | PNNGR CAR | | | | | 01 DRVR | INJC | 25 F | OR-Y | 000 | 011 | 000 | 00 | 00 | 00 | 00 | 00 | 00 | | | |
| OR<25 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 00750 | N N N | 02/27/2012 | 16 | S BEAVERCREEK RD | INTER | CROSS | N | TRF SIGNAL | N | UNK | S-1STOP | 01 NONE | 0 | STRGHT | E -W | 01 DRVR | NONE | 19 M | OR-Y | 026 | 000 | 000 | 07 | 07 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | | |
| NONE | | MO 2P | | CASCADE HY SOUTH | E 06 | 3 | | | | N | DAY | REAR | PNNGR CAR | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | 02 NONE | 0 | STOP | E -W | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | PNNGR CAR | | | | | 01 DRVR | INJC | 33 M | OR-Y | 000 | 011 | 000 | 00 | 00 | 00 | 00 | 00 | 00 | | | |
| OR<25 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 05319 | N N N | 12/31/2014 | 16 | S BEAVERCREEK RD | INTER | CROSS | N | TRF SIGNAL | N | CLR | S-1STOP | 01 NONE | 0 | STRGHT | UN-UN | 01 DRVR | NONE | 00 | UNK | 026 | 000 | 000 | 29 | 29 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | | |
| NONE | | WE 9P | | CASCADE HY SOUTH | E 06 | 3 | | | | N | DLIT | REAR | PNNGR CAR | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | 02 NONE | 0 | STOP | UN-UN | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | PNNGR CAR | | | | | 01 DRVR | INJC | 16 F | OR-Y | 000 | 011 | 000 | 00 | 00 | 00 | 00 | 00 | 00 | | | |
| OR<25 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | 02 NONE | 0 | STOP | UN-UN | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | PNNGR CAR | | | | | 02 PSNG | INJC | 18 F | OR-Y | 000 | 011 | 000 | 00 | 00 | 00 | 00 | 00 | 00 | | | |
| OR<25 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 03287 | N N N | 08/13/2015 | 16 | S BEAVERCREEK RD | INTER | CROSS | N | TRF SIGNAL | N | UNK | S-1STOP | 01 NONE | 0 | STRGHT | E -W | 01 DRVR | NONE | 00 F | OR-Y | 026 | 000 | 000 | 29 | 29 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | | |
| NO RPT | | TH 3P | | CASCADE HY SOUTH | E 06 | 3 | | | | N | DAY | REAR | PNNGR CAR | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | 02 NONE | 0 | STOP | E -W | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | PNNGR CAR | | | | | 01 DRVR | NONE | 65 F | OR-Y | 000 | 011 | 000 | 00 | 00 | 00 | 00 | 00 | 00 | | | |
| OR<25 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 00353 | N N N | 01/25/2012 | 14 | S BEAVERCREEK RD | INTER | CROSS | N | YIELD | N | RAIN | S-1STOP | 01 NONE | 0 | STRGHT | SW-NE | 01 DRVR | NONE | 18 M | OR-Y | 026 | 000 | 000 | 07 | 07 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | | |
| NONE | | WE 7P | | CASCADE HY SOUTH | SE 09 | 2 | | | | N | WET | REAR | PNNGR CAR | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | 02 NONE | 0 | STOP | SW-NE | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | PNNGR CAR | | | | | 01 DRVR | INJC | 50 F | OR-Y | 000 | 011 | 000 | 00 | 00 | 00 | 00 | 00 | 00 | | | |
| OR<25 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 02025 | N N N | 06/03/2012 | 14 | S BEAVERCREEK RD | INTER | CROSS | N | YIELD | N | UNK | S-1STOP | 01 NONE | 0 | STRGHT | SW-NE | 01 DRVR | NONE | 00 M | OR-Y | 026 | 000 | 000 | 07 | 07 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | | |
| NONE | | SU 5P | | CASCADE HY SOUTH | SE 09 | 3 | | | | N | DAY | REAR | PNNGR CAR | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | 02 NONE | 0 | STOP | SW-NE | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | PNNGR CAR | | | | | | | | | | | | | | | | | | | | |
| OR<25 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | 02 NONE | 0 | STOP | SW-NE | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | PNNGR CAR | | | | | | | | | | | | | | | | | | | | |
| OR<25 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

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OREGON.. DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT

URBAN NON-SYSTEM CRASH LISTING
CASCADE HW SOUTH at s BEAVERCREEK RD, City of Oregon City, Clackamas County, 01/01/2011 to 12/31/2015
Total crash records: 143

CDS360
06/07/2017

CITY OF OREGON CITY, CLACKAMAS COUNTY

| SER# | INVEST | D C S L K TIME | FROM | CLASS | CITY STREET | RD CHAR | INT-TYPE (MEDIAN) | INT-BEL LEGS | OFFRD | WTHR | CRASH | COLL | SPL USE TRLR QTY | MOVE | PRTC | INJ | A S | P# TYPE | SVRTY | E X RES | LOC | ERROR | ACT EVENT | CAUSE |
|--------|--------|----------------|------|------------------|-------------|---------|----------------------|-----------------|-------|------|----------|------|---------------------|-----------|-----------|------|------|---------|-------|---------|-----|-------|-----------|-------|
| | | | | | | | | | | | | | | | | | | | | | | | | |
| 03609 | N N N | 09/29/2012 | 14 | S BEAVERCREEK RD | INTER | SE | CROSS | N | N | CLR | S-1STOP | REAR | 01 NONE | 0 | 01 DRIVER | NONE | 46 M | OR<25 | 000 | 000 | 000 | 000 | 00 | 07 |
| NO RPT | | SA 8A | | CASCADE HW SOUTH | SE | 09 | 3 | YIELD | N | DRY | REAR | INT | PRVTE | PSNGR CAR | 01 DRIVER | NONE | 38 M | OR-Y | 026 | 000 | 000 | 000 | 00 | 07 |
| | | | | | | | | | | | | | 02 NONE | 0 | | | | OR<25 | | | | | | |
| | | | | | | | | | | | | | PRVTE | PSNGR CAR | 01 DRIVER | INJC | 24 M | OR-Y | 000 | 000 | 000 | 000 | 00 | 00 |
| | | | | | | | | | | | | | 02 NONE | 0 | | | | OR<25 | | | | | | |
| | | | | | | | | | | | | | PRVTE | PSNGR CAR | 02 PSNG | INJC | 24 F | | 011 | 000 | 000 | 000 | 00 | 00 |
| 00303 | N N N | 01/25/2013 | 14 | S BEAVERCREEK RD | INTER | SE | CROSS | N | N | CLD | S-1STOP | REAR | 01 NONE | 0 | 01 DRIVER | NONE | 00 M | OR-Y | 004 | 000 | 000 | 000 | 00 | 07 |
| NONE | | FR 11A | | CASCADE HW SOUTH | SE | 09 | 3 | YIELD | N | DRY | REAR | PDO | PRVTE | PSNGR CAR | 01 DRIVER | NONE | 00 M | OR-Y | 026 | 000 | 000 | 000 | 00 | 07 |
| | | | | | | | | | | | | | 02 NONE | 0 | | | | OR<25 | | | | | | |
| | | | | | | | | | | | | | PRVTE | PSNGR CAR | 01 DRIVER | NONE | 73 M | OR-Y | 000 | 000 | 000 | 000 | 00 | 00 |
| 01066 | N N N | 03/29/2013 | 14 | S BEAVERCREEK RD | INTER | SE | CROSS | N | N | CLR | S-1STOP | REAR | 01 NONE | 0 | 01 DRIVER | NONE | 53 M | OR-Y | 000 | 000 | 000 | 000 | 00 | 07 |
| NONE | | FR 5P | | CASCADE HW SOUTH | SE | 09 | 3 | YIELD | N | DRY | REAR | INT | PRVTE | PSNGR CAR | 01 DRIVER | NONE | 53 M | OR-Y | 026 | 000 | 000 | 000 | 00 | 07 |
| | | | | | | | | | | | | | 02 NONE | 0 | | | | OR<25 | | | | | | |
| | | | | | | | | | | | | | PRVTE | PSNGR CAR | 01 DRIVER | INJC | 32 F | OR-Y | 000 | 000 | 000 | 000 | 00 | 00 |
| 03374 | N N N | 09/11/2013 | 14 | S BEAVERCREEK RD | INTER | SE | CROSS | N | N | CLR | S-1STOP | REAR | 01 NONE | 0 | 01 DRIVER | NONE | 32 F | OR-Y | 000 | 000 | 000 | 000 | 00 | 07 |
| NONE | | WE 8A | | CASCADE HW SOUTH | SE | 09 | 3 | YIELD | N | DRY | REAR | INT | PRVTE | PSNGR CAR | 01 DRIVER | NONE | 32 F | OR-Y | 026 | 000 | 000 | 000 | 00 | 07 |
| | | | | | | | | | | | | | 02 NONE | 0 | | | | OR<25 | | | | | | |
| | | | | | | | | | | | | | PRVTE | PSNGR CAR | 01 DRIVER | INJC | 74 M | OR-Y | 000 | 000 | 000 | 000 | 00 | 00 |
| 04298 | N N N | 11/05/2013 | 14 | S BEAVERCREEK RD | INTER | SE | CROSS | N | N | RAIN | S-1STOP | REAR | 01 NONE | 0 | 01 DRIVER | NONE | 22 F | OR-Y | 026 | 000 | 000 | 000 | 00 | 07 |
| NONE | | TU 5P | | CASCADE HW SOUTH | SE | 09 | 3 | YIELD | N | WET | REAR | PDO | PRVTE | PSNGR CAR | 01 DRIVER | NONE | 22 F | OR-Y | 026 | 000 | 000 | 000 | 00 | 07 |
| | | | | | | | | | | | | | 02 NONE | 0 | | | | OR<25 | | | | | | |
| | | | | | | | | | | | | | PRVTE | PSNGR CAR | 01 DRIVER | NONE | 59 F | OR-Y | 000 | 000 | 000 | 000 | 00 | 00 |
| 00483 | N N N | 02/06/2014 | 14 | S BEAVERCREEK RD | INTER | SE | CROSS | N | N | SNOW | S-STRGHT | REAR | 01 NONE | 0 | 01 DRIVER | NONE | 00 M | UNK | 042 | 000 | 000 | 000 | 00 | 07 |
| CITY | | TH 10P | | CASCADE HW SOUTH | SE | 09 | 3 | YIELD | N | SNO | REAR | PDO | UNKN | PSNGR CAR | 01 DRIVER | NONE | 00 M | UNK | 042 | 000 | 000 | 000 | 00 | 07 |
| | | | | | | | | | | | | | 02 NONE | 0 | | | | UNK | | | | | | |

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CDS380
06/07/2017

OREGON.. DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT

URBAN NON-SYSTEM CRASH LISTING

CASCADE HW SOUTH at S BEAVERCREEK RD, City of Oregon City, Clackamas County, 01/01/2011 to 12/31/2015

CITY OF OREGON CITY, CLACKAMAS COUNTY

Total crash records: 143

| SER# | INVEST | P R S W | D C S L K T I M E | E A U C O D E | CLASS | CITY STREET | RD CHAR | INT-TYPE | | INT-REL | OFFRD | WTHR | CRASH | SPL USE | | MOVE | PH TYPE | SVRTY | A S | E L I C I T S | P E D | CAUSE | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|------|--------|------------------|-------------------------------------------|---------------------------------|-------|-------------|---------|----------|-----|---------|-------|------|-------|---------|-----|------|---------|-------|--------|---------------------------------|-------------|-------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|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| | | | | | | | | LOC | LOC | | | | | LOC | LOC | | | | | | | | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | 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| LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC | LOC |

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OREGON.. DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT

URBAN NON-SYSTEM CRASH LISTING

CASCADE HY SOUTH at s BEAVERCREEK RD, City of Oregon City, Clackamas County, 01/01/2011 to 12/31/2015

Total crash records: 143

CDS380
06/07/2017

CITY OF OREGON CITY, CLACKAMAS COUNTY

| SER# | INVEST | D C S L K TIME | FROM | CITY STREET | RD CHAR | INT-TYPE (MEDIAN) | INT-BEL LEGS | OFFRD | WTHR | CRASH | SPCL USE | MOVE | FROM | PRTC | INJ | G E LICNS | PED | LOC | ERROR | ACT EVENT | CAUSE |
|-------|--------|----------------|------|------------------|---------|----------------------|-----------------|-------|-------|---------|-----------|------|--------|------|------|-----------|---------|-------|---------|-----------|-------|
| | | | | FIRST STREET | LOCIN | CONTL | DRVY | LIGHT | SURTY | V# | 02 NONE | 0 | STOP | P# | TYPE | SVRTY | E X RES | LOC | ERROR | ACT EVENT | CAUSE |
| | | | | SECOND STREET | | | | | | | 02 NONE | 0 | STOP | | | | | | | | |
| | | | | | | | | | | | PRVTE | S -N | | | | | | | | | |
| | | | | | | | | | | | PSNGR CAR | | | | | | | | | | |
| 01684 | N N N | 05/16/2011 | 14 | S BEAVERCREEK RD | INTER | CROSS | N | N | CLR | S-1STOP | 01 NONE | 0 | STRGHT | 01 | DRVR | INJC | 51 M | OR-Y | OR<25 | 012 | 00 |
| NONE | | NO | | CASCADE HY SOUTH | S | 0 | TRF SIGNAL | N | DRY | REAR | PRVTE | S -N | | | | | | | 000 | 000 | 00 |
| | | 8A | | | 06 | 0 | | N | DAY | INJ | PSNGR CAR | | | 01 | DRVR | INJC | 24 F | OR-Y | 026 | 000 | 07 |
| | | | | | | | | | | | 02 NONE | 0 | STOP | | | | | OR<25 | | | |
| | | | | | | | | | | | PRVTE | S -N | | | | | | | 011 | 000 | 00 |
| | | | | | | | | | | | PSNGR CAR | | | 01 | DRVR | NONE | 39 M | OR-Y | 000 | 000 | 00 |
| | | | | | | | | | | | | | | | | | | OR>25 | | | |
| 03992 | N N N | 10/25/2011 | 14 | S BEAVERCREEK RD | INTER | CROSS | N | N | CLR | S-1STOP | 01 NONE | 0 | STRGHT | 01 | DRVR | INJC | 57 M | OR-Y | 026 | 000 | 07 |
| NONE | | TU | | CASCADE HY SOUTH | S | 2 | TRF SIGNAL | N | DRY | REAR | PRVTE | S -N | | | | | | | 000 | 000 | 00 |
| | | 10A | | | 06 | | | N | DAY | PDO | PSNGR CAR | | | 01 | DRVR | NONE | 24 F | OR-Y | 026 | 000 | 07 |
| | | | | | | | | | | | 02 NONE | 0 | STOP | | | | | OR<25 | | | |
| | | | | | | | | | | | PRVTE | S -N | | | | | | | 011 | 000 | 00 |
| | | | | | | | | | | | PSNGR CAR | | | 01 | DRVR | NONE | 32 F | OR-Y | 000 | 000 | 00 |
| | | | | | | | | | | | | | | | | | | OR<25 | | | |
| 04652 | N N N | 12/03/2011 | 14 | S BEAVERCREEK RD | INTER | CROSS | N | N | FOG | S-1STOP | 01 NONE | 0 | STRGHT | 01 | DRVR | INJC | 45 M | OR-Y | 016,026 | 000 | 27,07 |
| NONE | | SA | | CASCADE HY SOUTH | S | 2 | TRF SIGNAL | N | DRY | REAR | PRVTE | S -N | | | | | | | 000 | 000 | 00 |
| | | 9A | | | 06 | | | N | DAY | INJ | PSNGR CAR | | | 01 | DRVR | NONE | 45 M | OR-Y | 016,026 | 000 | 27,07 |
| | | | | | | | | | | | 02 NONE | 0 | STOP | | | | | OR<25 | | | |
| | | | | | | | | | | | PRVTE | S -N | | | | | | | 011 | 000 | 00 |
| | | | | | | | | | | | PSNGR CAR | | | 01 | DRVR | INJC | 73 M | OR-Y | 000 | 000 | 00 |
| | | | | | | | | | | | | | | | | | | OR<25 | | | |
| 00069 | N N N | 01/06/2012 | 14 | S BEAVERCREEK RD | INTER | CROSS | N | N | RAIN | S-1STOP | 01 NONE | 0 | STRGHT | 01 | DRVR | INJC | 16 F | OR-Y | 043,026 | 000 | 07 |
| STATE | | FR | | CASCADE HY SOUTH | S | 3 | TRF SIGNAL | N | WET | REAR | PRVTE | S -N | | | | | | | 000 | 000 | 07 |
| | | 2P | | | 06 | | | N | DAY | INJ | PSNGR CAR | | | 01 | DRVR | NONE | 16 F | OR-Y | 043,026 | 000 | 07 |
| | | | | | | | | | | | 02 NONE | 0 | STOP | | | | | OR<25 | | | |
| | | | | | | | | | | | PRVTE | S -N | | | | | | | 011 | 004 | 00 |
| | | | | | | | | | | | PSNGR CAR | | | 01 | DRVR | INJC | 55 F | OR-Y | 000 | 000 | 00 |
| | | | | | | | | | | | | | | | | | | OR<25 | | | |
| 02327 | N N N | 06/29/2012 | 14 | S BEAVERCREEK RD | INTER | CROSS | N | N | CLD | S-1STOP | 01 NONE | 0 | STRGHT | 01 | DRVR | INJC | 53 M | OR-Y | 026,016 | 038 | 07,27 |
| UNK | | FR | | CASCADE HY SOUTH | S | 2 | TRF SIGNAL | N | DRY | REAR | PRVTE | S -N | | | | | | | 000 | 000 | 00 |
| | | 7A | | | 06 | | | N | DAY | INJ | PSNGR CAR | | | 01 | DRVR | NONE | 53 M | OR-Y | 026,016 | 038 | 07,27 |
| | | | | | | | | | | | 02 NONE | 0 | STOP | | | | | OR<25 | | | |
| | | | | | | | | | | | PRVTE | S -N | | | | | | | 011 | 000 | 00 |
| | | | | | | | | | | | PSNGR CAR | | | 01 | DRVR | INJC | 44 F | OR-Y | 000 | 000 | 00 |
| | | | | | | | | | | | | | | | | | | OR<25 | | | |
| 03411 | N N N | 09/13/2013 | 14 | S BEAVERCREEK RD | INTER | CROSS | N | N | CLR | S-1STOP | 01 NONE | 0 | STRGHT | 01 | DRVR | INJC | 63 F | OR-Y | 026 | 000 | 07 |
| NONE | | FR | | CASCADE HY SOUTH | S | 3 | TRF SIGNAL | N | DRY | REAR | PRVTE | S -N | | | | | | | 000 | 000 | 00 |
| | | 11A | | | 06 | | | N | DAY | PDO | PSNGR CAR | | | 01 | DRVR | NONE | 63 F | OR-Y | 026 | 000 | 07 |
| | | | | | | | | | | | 02 NONE | 0 | STOP | | | | | OR<25 | | | |
| | | | | | | | | | | | PRVTE | S -N | | | | | | | 011 | 000 | 00 |
| | | | | | | | | | | | PSNGR CAR | | | 01 | DRVR | NONE | 00 M | UNK | 000 | 000 | 00 |

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OREGON.. DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT

CDS380
06/07/2017

CITY OF OREGON CITY, CLACKAMAS COUNTY
URBAN NON-SYSTEM CRASH LISTING
CASCADE HY SOUTH at s BEAVERCREEK RD, City of Oregon City, Clackamas County, 01/01/2011 to 12/31/2015
Total crash records: 143

| SER# | INVEST | D C S L K TIME | FROM | CLASS | CITY STREET | RD CHAR | INT-TYPE (MEDIAN) | INT-BEL | OFFRD | WTHR | CRASH | SPCL USE | MOVE | PRTC | INJ | A S | E L I C N S | PED | LOC | ERROR | ACT EVENT | CAUSE |
|--------|---------|----------------|------|------------------|---------------|---------|----------------------|------------|-------|-------|---------|-----------|------|------|------|-------|-------------|-------|---------|-------|-----------|-------|
| | | | | | SECOND STREET | LOCIN | LEGS (#LANES) | CONTL | DRVWY | LIGHT | SOLL | OWNER | TO | P# | TYPE | SVRTY | E X RES | | | | | |
| 03520 | N N N | 09/20/2013 | 14 | S BEAVERCREEK RD | INTER | CROSS | N | TRF SIGNAL | N | CLR | S-1STOP | 01 NONE | 0 | 01 | DRVR | NONE | 37 M | OR-Y | 026 | 000 | 07 | 07 |
| NONE | | FR 6A | | CASCADE HY SOUTH | S 06 | 3 | | | N | DRY | REAR | PRVTE | S -N | | | | OR-Y | | | | | 00 |
| | | | | | | | | | N | DAWN | INJ | PSNGR CAR | | | | | OR<25 | | | | | 07 |
| | | | | | | | | | | | | 02 NONE | 0 | | | | OR-Y | | | | | 00 |
| | | | | | | | | | | | | PRVTE | S -N | | | | OR-Y | | | | | 00 |
| | | | | | | | | | | | | PSNGR CAR | | | | | OR<25 | | | | | 00 |
| 03630 | N N N | 09/27/2013 | 14 | S BEAVERCREEK RD | INTER | CROSS | N | TRF SIGNAL | N | CLR | S-1STOP | 01 NONE | 0 | 01 | DRVR | NONE | 34 F | OR-Y | 026 | 000 | 07 | 07 |
| NONE | | FR 5A | | CASCADE HY SOUTH | S 06 | 3 | | | N | DRY | REAR | PRVTE | S -N | | | | OR-Y | | | | | 00 |
| | | | | | | | | | N | DAWN | PDO | PSNGR CAR | | | | | OR<25 | | | | | 07 |
| | | | | | | | | | | | | 02 NONE | 0 | | | | OR-Y | | | | | 00 |
| | | | | | | | | | | | | PRVTE | S -N | | | | OR-Y | | | | | 00 |
| | | | | | | | | | | | | PSNGR CAR | | | | | OR<25 | | | | | 00 |
| 00463 | Y N N N | 02/05/2014 | 14 | S BEAVERCREEK RD | INTER | CROSS | N | TRF SIGNAL | N | CLR | S-1STOP | 01 NONE | 0 | 01 | DRVR | NONE | 19 M | OTH-Y | 026,047 | 000 | 07,01 | 07,01 |
| COUNTY | | WE 5A | | CASCADE HY SOUTH | S 06 | 3 | | | N | DRY | REAR | PRVTE | S -N | | | | OTH-Y | | | | | 00 |
| | | | | | | | | | N | DLIT | INJ | PSNGR CAR | | | | | N-RES | | | | | 07,01 |
| | | | | | | | | | | | | 02 NONE | 0 | | | | OR-Y | | | | | 00 |
| | | | | | | | | | | | | PRVTE | S -N | | | | OR-Y | | | | | 00 |
| | | | | | | | | | | | | PSNGR CAR | | | | | OR<25 | | | | | 00 |
| 00709 | N N N | 02/17/2014 | 14 | S BEAVERCREEK RD | INTER | CROSS | N | TRF SIGNAL | N | RAIN | S-1STOP | 01 NONE | 0 | 01 | DRVR | NONE | 00 M | UNK | 026 | 000 | 07 | 07 |
| NONE | | MO 5A | | CASCADE HY SOUTH | S 06 | 3 | | | N | WET | REAR | UNKN | S -N | | | | UNK | | | | | 00 |
| | | | | | | | | | N | DLIT | INJ | PSNGR CAR | | | | | UNK | | | | | 07 |
| | | | | | | | | | | | | 02 NONE | 0 | | | | UNK | | | | | 00 |
| | | | | | | | | | | | | PRVTE | S -N | | | | OR-Y | | | | | 00 |
| | | | | | | | | | | | | PSNGR CAR | | | | | OR<25 | | | | | 00 |
| 01295 | N N N | 04/03/2014 | 14 | S BEAVERCREEK RD | INTER | CROSS | N | TRF SIGNAL | N | CLR | S-1STOP | 01 NONE | 0 | 01 | DRVR | NONE | 55 M | OR-Y | 000 | 000 | 00 | 07 |
| NONE | | TH 9A | | CASCADE HY SOUTH | S 06 | 3 | | | N | DRY | REAR | PRVTE | S -N | | | | OR-Y | | | | | 00 |
| | | | | | | | | | N | DAY | PDO | PSNGR CAR | | | | | OR<25 | | | | | 07 |
| | | | | | | | | | | | | 02 NONE | 0 | | | | OR<25 | | | | | 00 |
| | | | | | | | | | | | | UNKN | S -N | | | | UNK | | | | | 00 |
| | | | | | | | | | | | | PSNGR CAR | | | | | UNK | | | | | 00 |
| 02651 | N N N | 06/26/2014 | 14 | S BEAVERCREEK RD | INTER | CROSS | N | TRF SIGNAL | N | CLR | S-1STOP | 01 NONE | 0 | 01 | DRVR | NONE | 00 F | UNK | 026 | 000 | 29 | 29 |
| NO RPT | | TH 2P | | CASCADE HY SOUTH | S 06 | 3 | | | N | DRY | REAR | PRVTE | S -N | | | | UNK | | | | | 00 |
| | | | | | | | | | N | DAY | PDO | PSNGR CAR | | | | | OR<25 | | | | | 29 |
| | | | | | | | | | | | | 02 NONE | 0 | | | | OR<25 | | | | | 00 |
| | | | | | | | | | | | | PRVTE | S -N | | | | OR-Y | | | | | 00 |
| | | | | | | | | | | | | PSNGR CAR | | | | | OR<25 | | | | | 00 |
| 02801 | N N N | 07/21/2014 | 14 | S BEAVERCREEK RD | INTER | CROSS | N | TRF SIGNAL | N | CLR | S-1STOP | 01 NONE | 0 | 01 | DRVR | NONE | 22 M | OR-Y | 000 | 000 | 00 | 29 |
| | | | | | | | | | N | DAY | PDO | PSNGR CAR | | | | | OR<25 | | | | | 00 |

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OREGON.. DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT

URBAN NON-SYSTEM CRASH LISTING

CASCADE HY SOUTH at S BEAVERCREEK RD, City of Oregon City, Clackamas County, 01/01/2011 to 12/31/2015

Total crash records: 143

| SER# | INVEST | D C S L K | TIME | CLASS | CITY STREET | RD CHAR | INT-TYPE (MEDIAN) | INT-BEL | OFFRD | WTHR | CRASH | SPCL USE | MOVE | FROM | PRTC | INJ | A S | E L I C N S | PED | LOC | ERROR | ACT EVENT | CAUSE |
|-------|--------|------------|------|------------------|-------------|---------|----------------------|------------|-------|------|---------|-----------------|--------|------|---------|------|--------|-------------|-------|-----|-------|-----------|-------|
| 000 | 000 | 000 | 000 | 000 | 000 | 000 | 000 | 000 | 000 | 000 | 000 | 000 | 000 | 000 | 000 | 000 | 000 | 000 | 000 | 000 | 000 | 000 | 000 |
| 04596 | N N N | 11/04/2015 | 14 | S BEAVERCREEK RD | INTER | CROSS | N | TRF SIGNAL | N | CLR | S-1STOP | 01 NONE 0 | STRGHT | S -N | 01 DRVR | NONE | 76 M | OR-Y | OR<25 | 026 | 000 | 000 | 29 |
| NONE | | WE 5P | | CASCADE HY SOUTH | 06 | 3 | | | N | DRY | REAR | PRVTE PSNGR CAR | S -N | | | | | | | | | | |
| 04973 | N N N | 11/23/2015 | 14 | S BEAVERCREEK RD | INTER | CROSS | N | TRF SIGNAL | N | RAIN | S-1STOP | 01 NONE 0 | STRGHT | S -N | 01 DRVR | NONE | 00 Unk | UNK | 026 | 000 | 000 | 000 | 29 |
| NONE | | MO 6P | | CASCADE HY SOUTH | 06 | 3 | | | N | WET | REAR | UNKN | S -N | | | | | | | | | | |
| 01378 | N N N | 01/12/2011 | 14 | S BEAVERCREEK RD | INTER | CROSS | N | TRF SIGNAL | N | RAIN | S-1STOP | 01 NONE 0 | STRGHT | W -E | 01 DRVR | NONE | 23 F | OR-Y | OR<25 | 026 | 000 | 000 | 07 |
| NONE | | WE 12P | | CASCADE HY SOUTH | 06 | 2 | | | N | WET | REAR | PRVTE PSNGR CAR | W -E | | | | | | | | | | |
| 03959 | N N N | 10/07/2014 | 14 | S BEAVERCREEK RD | INTER | CROSS | N | TRF SIGNAL | N | CLR | S-1STOP | 01 NONE 0 | STRGHT | W -E | 01 DRVR | NONE | 18 M | OR-Y | OR<25 | 026 | 000 | 000 | 29 |
| NONE | | TU 7A | | CASCADE HY SOUTH | 06 | 3 | | | N | DRY | REAR | PRVTE PSNGR CAR | W -E | | | | | | | | | | |
| 04748 | N N N | 11/12/2015 | 14 | S BEAVERCREEK RD | INTER | CROSS | N | TRF SIGNAL | N | RAIN | S-1STOP | 01 NONE 0 | STRGHT | W -E | 01 DRVR | NONE | 20 F | OR-Y | OR<25 | 026 | 000 | 000 | 29 |
| NONE | | TH 1P | | CASCADE HY SOUTH | 06 | 3 | | | N | WET | REAR | PRVTE PSNGR CAR | W -E | | | | | | | | | | |
| | | | | | | | | | N | DAY | INT | 01 NONE 0 | STRGHT | W -E | 02 PSNG | INTC | 18 F | | | 000 | 000 | 000 | 00 |

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OREGON.. DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT

CDS380
06/07/2017

URBAN NON-SYSTEM CRASH LISTING

CASCADE HY SOUTH at s BEAVERCREEK RD, City of Oregon City, Clackamas County, 01/01/2011 to 12/31/2015

Total crash records: 143

CITY OF OREGON CITY, CLACKAMAS COUNTY

| SER# | INVEST | D C S L K TIME | FROM | CITY STREET | RD CHAR | INT-TYPE (MEDIAN) | INT-BEL | OFFRD | WTHR | CRASH | SPCL USE | MOVE | FROM | PRTC | INJ | A S | E L I C N S | PED | LOC | ERROR | ACT EVENT | CAUSE |
|-------|--------|----------------|------|------------------|---------|-------------------|------------|-------|-------|---------|-----------|------|--------|---------|-------|---------|-------------|-------|-----|-------|-----------|-------|
| | | | | | LOCIN | | CONTL | DRVY | LIGHT | SURTY | V# TYPE | TO | STOP | P# TYPE | SVRTY | E X RES | | | | | | |
| 05677 | N N N | 12/29/2015 | 14 | S BEAVERCREEK RD | INTER | CROSS | N | N | RAIN | S-1STOP | 01 NONE | 0 | STRGHT | 01 DRVR | NONE | 17 M | OR-Y | OR<25 | | 000 | 011 | 00 |
| NONE | | TU 5P | | CASCADE HY SOUTH | W 06 | | TRF SIGNAL | N | WET | REAR | PRVTE | W -E | | | | | | | | | 000 | 00 |
| | | | | | | 3 | | N | DLIT | INJ | PSNGR CAR | | | 01 DRVR | NONE | 80 M | OR-Y | OR<25 | 026 | 000 | 000 | 29 |
| | | | | | | | | | | | 02 NONE | 0 | STOP | | | | | | | | 011 | 00 |
| | | | | | | | | | | | PRVTE | W -E | | 01 DRVR | INJC | 27 M | OR-Y | OR<25 | 000 | 000 | 000 | 00 |
| 04873 | N N N | 12/19/2011 | 16 | S BEAVERCREEK RD | INTER | CROSS | N | N | CLR | S-1STOP | 01 NONE | 0 | STRGHT | 01 DRVR | NONE | 00 M | OR-Y | OR<25 | 026 | 000 | 000 | 07 |
| NONE | | MO 2P | 0 | CASCADE HY SOUTH | W 06 | 1 | TRF SIGNAL | N | DRY | REAR | PRVTE | W -E | | | | | | | | | 000 | 00 |
| | | | | | | | | N | DAY | PDO | PSNGR CAR | | | 01 DRVR | NONE | 00 M | OR-Y | OR<25 | 026 | 000 | 000 | 07 |
| | | | | | | | | | | | 02 NONE | 0 | STOP | | | | | | | | 011 | 00 |
| | | | | | | | | | | | PRVTE | W -E | | 01 DRVR | NONE | 30 F | OR-Y | OR<25 | 000 | 000 | 000 | 00 |
| 02778 | N N N | 07/29/2012 | 16 | S BEAVERCREEK RD | INTER | CROSS | N | N | CLR | S-1STOP | 01 NONE | 0 | STRGHT | 01 DRVR | NONE | 37 F | OR-Y | OR<25 | 026 | 000 | 000 | 07 |
| NONE | | SU 10A | 0 | CASCADE HY SOUTH | W 06 | 2 | L-TURN REF | N | DRY | REAR | PRVTE | W -E | | | | | | | | | 000 | 00 |
| | | | | | | | | N | DAY | PDO | PSNGR CAR | | | 01 DRVR | NONE | 00 M | OR-Y | OR<25 | 026 | 000 | 000 | 07 |
| | | | | | | | | | | | 02 NONE | 0 | STOP | | | | | | | | 012 | 00 |
| | | | | | | | | | | | PRVTE | W -E | | 01 DRVR | NONE | 51 F | OR-Y | OR<25 | 000 | 000 | 000 | 00 |
| 02536 | N N N | 07/15/2013 | 16 | S BEAVERCREEK RD | INTER | CROSS | N | N | CLR | S-1STOP | 01 NONE | 0 | STRGHT | 01 DRVR | NONE | 44 M | OR-Y | OR<25 | 026 | 000 | 000 | 07 |
| NONE | | MO 6P | 0 | CASCADE HY SOUTH | W 06 | 3 | TRF SIGNAL | N | DRY | REAR | PRVTE | W -E | | | | | | | | | 000 | 00 |
| | | | | | | | | N | DAY | PDO | PSNGR CAR | | | | | | | | | | 000 | 07 |
| | | | | | | | | | | | 02 NONE | 0 | STOP | | | | | | | | 011 | 00 |
| | | | | | | | | | | | PRVTE | W -E | | 01 DRVR | NONE | 60 F | OR-Y | OR<25 | 000 | 000 | 000 | 00 |
| 04147 | N N N | 10/29/2013 | 16 | S BEAVERCREEK RD | INTER | CROSS | N | N | CLR | S-1STOP | 01 NONE | 0 | STRGHT | 01 DRVR | NONE | 20 F | OR-Y | OR<25 | 026 | 000 | 000 | 07 |
| NONE | | TU 3P | 0 | CASCADE HY SOUTH | W 06 | 3 | TRF SIGNAL | N | DRY | REAR | PRVTE | W -E | | | | | | | | | 000 | 00 |
| | | | | | | | | N | DAY | INJ | PSNGR CAR | | | 01 DRVR | NONE | 20 F | OR-Y | OR<25 | 026 | 000 | 000 | 07 |
| | | | | | | | | | | | 02 NONE | 0 | STOP | | | | | | | | 011 | 00 |
| | | | | | | | | | | | PRVTE | W -E | | 01 DRVR | INJC | 34 F | OR-Y | OR<25 | 000 | 000 | 000 | 00 |
| 00273 | N N N | 01/01/2014 | 16 | S BEAVERCREEK RD | INTER | CROSS | N | N | CLR | S-1STOP | 01 NONE | 0 | STRGHT | 01 DRVR | NONE | 65 F | SUSP | OR<25 | 026 | 000 | 000 | 07 |
| CITY | | WE 9A | 0 | CASCADE HY SOUTH | W 06 | 3 | TRF SIGNAL | N | DRY | REAR | PRVTE | W -E | | | | | | | | | 000 | 00 |
| | | | | | | | | N | DAY | INJ | PSNGR CAR | | | 01 DRVR | NONE | 65 F | SUSP | OR<25 | 026 | 000 | 000 | 07 |
| | | | | | | | | | | | 02 NONE | 0 | STOP | | | | | | | | 011 | 00 |
| | | | | | | | | | | | PRVTE | W -E | | 01 DRVR | INJC | 21 F | OR-Y | OR<25 | 000 | 000 | 000 | 00 |

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06/07/2017

OREGON.. DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT

URBAN NON-SYSTEM CRASH LISTING

CASCADE HW SOUTH at S BEAVERCREEK RD, City of Oregon City, Clackamas County, 01/01/2011 to 12/31/2015

Total crash records: 143

CITY OF OREGON CITY, CLACKAMAS COUNTY

| SER# | INVEST | D C S L K TIME | FROM | CLASS | CITY STREET | RD CHAR | INT-TYPE | | OFFRD | WTHR | CRASH | SPCL USE | | MOVE | PH TYPE | SVRTY | E X RES | LOC | ERROR | ACT EVENT | CAUSE | | | | | |
|-------|--------|----------------|------------|-------|------------------|---------|----------|------------|-------|------|---------|-----------------|--------|------|---------|-------|---------|-------|-------|-----------|-------|------|-------|------------|------------|-----|
| | | | | | | | INT-REL | INT-REASON | | | | TRAF - | CONT'L | | | | | | | | | LEG | PLANE | TRF SIGNAL | TRF SIGNAL | DRY |
| 00762 | NONE | N N N | 03/02/2015 | 16 | S BEAVERCREEK RD | INTER | CROSS | N | N | CLR | S-1STOP | 01 | NONE | 0 | STRGHT | W -E | 01 | DRVR | NONE | 65 | M | OR-Y | 026 | 000 | 00 | 29 |
| | | | MO 2P | 0 | CASCADE HW SOUTH | W 06 | 2 | TRF SIGNAL | N | DAY | REAR | PRVTE PSNGR CAR | | | | | | OR<25 | | | 000 | 000 | 00 | 29 | | |
| | | | | | | | | | | | | 02 | NONE | 0 | STOP | W -E | | | | | 011 | 000 | 00 | 00 | | |
| | | | | | | | | | | | | PRVTE PSNGR CAR | | | 01 | DRVR | INJC | 54 | F | OR-Y | 000 | 000 | 00 | 00 | | |
| | | | | | | | | | | | | | | | | | | OR<25 | | | | | | | | |
| 04147 | NONE | N N N | 10/08/2015 | 14 | S BEAVERCREEK RD | INTER | CROSS | N | N | CLR | S-1STOP | 01 | NONE | 0 | STRGHT | W -E | 01 | DRVR | NONE | 00 | M | OR-Y | 026 | 000 | 00 | 29 |
| | | | TH 10A | 0 | CASCADE HW SOUTH | W 06 | 3 | TRF SIGNAL | N | DAY | REAR | PRVTE PSNGR CAR | | | | | | OR<25 | | | 000 | 000 | 00 | 29 | | |
| | | | | | | | | | | | | 02 | NONE | 0 | STOP | W -E | | | | | 011 | 000 | 00 | 00 | | |
| | | | | | | | | | | | | PRVTE PSNGR CAR | | | 01 | DRVR | NONE | 59 | F | OR-Y | 000 | 000 | 00 | 00 | | |
| | | | | | | | | | | | | 02 | NONE | 0 | STOP | W -E | | | | | 011 | 000 | 00 | 00 | | |
| | | | | | | | | | | | | PRVTE PSNGR CAR | | | 02 | PSNG | NO<5 | 03 | F | 000 | 000 | 00 | 00 | 00 | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 04654 | NONE | N N N | 11/08/2015 | 14 | S BEAVERCREEK RD | INTER | CROSS | N | N | RAIN | S-1STOP | 01 | NONE | 0 | STRGHT | W -E | 01 | DRVR | NONE | 00 | F | OR-Y | 026 | 000 | 00 | 29 |
| | | | SU 5P | 0 | CASCADE HW SOUTH | W 06 | 3 | TRF SIGNAL | N | WET | REAR | PRVTE PSNGR CAR | | | | | | OR<25 | | | 000 | 000 | 00 | 29 | | |
| | | | | | | | | | | | | 02 | NONE | 0 | STOP | W -E | | | | | 011 | 000 | 00 | 00 | | |
| | | | | | | | | | | | | PRVTE PSNGR CAR | | | 01 | DRVR | NONE | 64 | M | OR-Y | 000 | 000 | 00 | 00 | | |
| | | | | | | | | | | | | | | | | | | OR<25 | | | | | | | | |
| 01141 | NONE | N N N | 04/04/2011 | 14 | S BEAVERCREEK RD | INTER | CROSS | N | N | RAIN | S-1STOP | 01 | NONE | 0 | STRGHT | NE-SW | 01 | DRVR | NONE | 00 | F | OR-Y | 026 | 000 | 00 | 07 |
| | | | MO 11A | | CASCADE HW SOUTH | NW 09 | 2 | YIELD | N | WET | REAR | PRVTE PSNGR CAR | | | | | | UNK | | | 000 | 000 | 00 | 07 | | |
| | | | | | | | | | | | | 02 | NONE | 0 | STOP | NE-SW | | | | | 011 | 000 | 00 | 00 | | |
| | | | | | | | | | | | | PRVTE PSNGR CAR | | | 01 | DRVR | NONE | 44 | M | OR-Y | 000 | 000 | 00 | 00 | | |
| | | | | | | | | | | | | | | | | | | OR<25 | | | | | | | | |
| 04735 | NONE | N N N | 12/08/2011 | 14 | S BEAVERCREEK RD | INTER | CROSS | N | N | CLR | S-1STOP | 01 | NONE | 0 | STRGHT | NE-SW | 01 | DRVR | NONE | 70 | M | OR-Y | 026 | 000 | 00 | 07 |
| | | | TH 1P | | CASCADE HW SOUTH | NW 09 | 3 | YIELD | N | DAY | REAR | PRVTE PSNGR CAR | | | | | | OR<25 | | | 000 | 000 | 00 | 07 | | |
| | | | | | | | | | | | | 02 | NONE | 0 | STOP | NE-SW | | | | | 011 | 000 | 00 | 00 | | |
| | | | | | | | | | | | | PRVTE PSNGR CAR | | | 01 | DRVR | NONE | 64 | F | OR-Y | 000 | 000 | 00 | 00 | | |
| | | | | | | | | | | | | | | | | | | OR<25 | | | | | | | | |
| 03846 | NONE | N N N | 10/15/2012 | 14 | S BEAVERCREEK RD | INTER | CROSS | N | N | RAIN | S-1STOP | 01 | NONE | 0 | STRGHT | NE-SW | 01 | DRVR | NONE | 46 | M | OR-Y | 026 | 000 | 00 | 07 |
| | | | MO 5P | | CASCADE HW SOUTH | NW 09 | 3 | YIELD | N | WET | REAR | PRVTE PSNGR CAR | | | | | | OR<25 | | | 000 | 000 | 00 | 07 | | |
| | | | | | | | | | | | | 02 | NONE | 0 | STOP | NE-SW | | | | | 011 | 000 | 00 | 00 | | |
| | | | | | | | | | | | | PRVTE PSNGR CAR | | | 01 | DRVR | NONE | 64 | F | OR-Y | 000 | 000 | 00 | 00 | | |
| | | | | | | | | | | | | | | | | | | OR<25 | | | | | | | | |

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OREGON.. DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT

CDS380
06/07/2017

URBAN NON-SYSTEM CRASH LISTING
CASCADE HY SOUTH at s BEAVERCREEK RD, City of Oregon City, Clackamas County, 01/01/2011 to 12/31/2015

Total crash records: 143

CITY OF OREGON CITY, CLACKAMAS COUNTY

| SER# | INVEST | D C S L K TIME | FROM | CLASS | CITY STREET | RD CHAR | INT-TYPE (MEDIAN) | INT-BEL LEGS | OFFRD | WTHR | CRASH | COLL | SURF | DRVWY | LIGHT | SVRTY | TO | V# TYPE | PSNGR CAR | MOVE | PRTC | INJ | A S | E LICNS | PED | LOC | ERROR | ACT EVENT | CAUSE |
|-------|--------|----------------|------|------------------|-------------|---------|----------------------|-----------------|-------|------|---------|------|------|-------|-------|-------|-----------|-----------|-----------|--------|-----------|------|------|---------|---------|-----|-------|-----------|-------|
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 04066 | N N N | 10/29/2012 | 14 | S BEAVERCREEK RD | INTER | NW | CROSS | N | N | CLR | S-1STOP | REAR | DRY | N | DAY | INJ | 01 NONE | 0 | 0 | STRGHT | 01 DRIVER | NONE | 00 F | OR-Y | 000 | 000 | 000 | 00 | 07 |
| NONE | | MO 12P | | CASCADE HY SOUTH | 09 | | 3 | YIELD | N | DRY | REAR | INJ | DAY | N | | | 01 DRIVER | PSNGR CAR | NE-SW | | | | 24 M | OR-Y | 000 | 000 | 000 | 07 | 00 |
| | | | | | | | | | | | | | | | | | 02 NONE | 0 | 0 | STOP | | | | OR<25 | | | | 00 | 00 |
| | | | | | | | | | | | | | | | | | PRVTE | PSNGR CAR | NE-SW | | | | 52 F | OR-Y | 000 | 000 | 011 | 00 | 00 |
| 04076 | N N N | 10/29/2012 | 14 | S BEAVERCREEK RD | INTER | NW | CROSS | N | N | CLR | S-1STOP | REAR | DRY | N | DAY | INJ | 01 NONE | 0 | 0 | STRGHT | 01 DRIVER | NONE | 00 F | OR-Y | 000 | 000 | 000 | 07 | 00 |
| NONE | | MO 4P | | CASCADE HY SOUTH | 09 | | 3 | YIELD | N | DRY | REAR | INJ | DAY | N | | | 01 DRIVER | PSNGR CAR | NE-SW | | | | 50 M | OR-Y | 000 | 000 | 000 | 07 | 00 |
| | | | | | | | | | | | | | | | | | 02 NONE | 0 | 0 | STOP | | | | OR<25 | | | | 00 | 00 |
| | | | | | | | | | | | | | | | | | PRVTE | PSNGR CAR | NE-SW | | | | 46 M | OR-Y | 000 | 000 | 011 | 00 | 00 |
| 04216 | Y N N | 11/08/2012 | 14 | S BEAVERCREEK RD | INTER | NW | CROSS | N | Y | CLD | FIX OBJ | FIX | DRY | N | DAY | INJ | 01 NONE | 0 | 0 | STRGHT | 01 DRIVER | NONE | 00 F | OR-Y | 000 | 000 | 000 | 01 | 01 |
| CITY | | TH 2P | | CASCADE HY SOUTH | 09 | | 3 | YIELD | N | DRY | FIX | INJ | DAY | N | | | 01 DRIVER | PSNGR CAR | NE-SW | | | | 51 F | OR-Y | 047,081 | 000 | 000 | 055 | 00 |
| | | | | | | | | | | | | | | | | | 02 NONE | 0 | 0 | STOP | | | | OR<25 | | | | 00 | 01 |
| 02430 | N N N | 07/07/2013 | 14 | S BEAVERCREEK RD | INTER | NW | CROSS | N | N | CLR | S-1STOP | REAR | DRY | N | DAY | INJ | 01 NONE | 0 | 0 | STRGHT | 01 DRIVER | NONE | 00 F | UNK | 000 | 000 | 000 | 07 | 00 |
| NONE | | SU 12P | | CASCADE HY SOUTH | 09 | | 3 | YIELD | N | DRY | REAR | INJ | DAY | N | | | 01 DRIVER | PSNGR CAR | NE-SW | | | | | OR<25 | 026 | 000 | 000 | 07 | 00 |
| | | | | | | | | | | | | | | | | | 02 NONE | 0 | 0 | STOP | | | | OR<25 | | | | 00 | 00 |
| | | | | | | | | | | | | | | | | | PRVTE | PSNGR CAR | NE-SW | | | | 36 M | OR-Y | 000 | 000 | 011 | 00 | 00 |
| 03349 | N N N | 09/10/2013 | 14 | S BEAVERCREEK RD | INTER | NW | CROSS | N | N | CLR | S-1STOP | REAR | DRY | N | DAY | INJ | 01 NONE | 0 | 0 | STRGHT | 01 DRIVER | NONE | 00 F | OR-Y | 000 | 000 | 000 | 07 | 00 |
| CITY | | TU 1P | | CASCADE HY SOUTH | 09 | | 3 | YIELD | N | DRY | REAR | INJ | DAY | N | | | 01 DRIVER | PSNGR CAR | NE-SW | | | | | OR<25 | 043,026 | 000 | 000 | 07 | 00 |
| | | | | | | | | | | | | | | | | | 02 NONE | 0 | 0 | STOP | | | | OR<25 | | | | 00 | 00 |
| | | | | | | | | | | | | | | | | | PRVTE | PSNGR CAR | NE-SW | | | | 30 F | OR-Y | 000 | 000 | 011 | 00 | 00 |
| 04790 | N N N | 12/12/2013 | 14 | S BEAVERCREEK RD | INTER | NW | CROSS | N | N | CLR | S-1STOP | REAR | DRY | N | DAY | INJ | 01 NONE | 0 | 0 | STRGHT | 01 DRIVER | NONE | 00 F | OR-Y | 000 | 000 | 000 | 07 | 00 |
| NONE | | TH 2P | | CASCADE HY SOUTH | 09 | | 3 | YIELD | N | DRY | REAR | INJ | DAY | N | | | 01 DRIVER | PSNGR CAR | NE-SW | | | | | OR<25 | 026 | 000 | 000 | 07 | 00 |
| | | | | | | | | | | | | | | | | | 02 NONE | 0 | 0 | STOP | | | | OR<25 | | | | 00 | 00 |
| | | | | | | | | | | | | | | | | | PRVTE | PSNGR CAR | NE-SW | | | | 56 F | OR-Y | 000 | 000 | 011 | 00 | 00 |
| 00348 | N N N | 01/26/2014 | 14 | S BEAVERCREEK RD | INTER | NW | CROSS | N | N | CLR | S-1STOP | REAR | DRY | N | DAY | FOO | 01 NONE | 0 | 0 | STRGHT | 01 DRIVER | NONE | 00 F | UNK | 000 | 000 | 000 | 07 | 00 |
| NONE | | SU 4P | | CASCADE HY SOUTH | 09 | | 3 | YIELD | N | DRY | REAR | FOO | DAY | N | | | 01 DRIVER | PSNGR CAR | NE-SW | | | | | OR<25 | 026 | 000 | 000 | 07 | 00 |
| | | | | | | | | | | | | | | | | | 02 NONE | 0 | 0 | STOP | | | | OR<25 | | | | 00 | 00 |

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CDS380
06/07/2017

OREGON.. DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT

URBAN NON-SYSTEM CRASH LISTING

CASCADE HW SOUTH at S BEAVERCREEK RD, City of Oregon City, Clackamas County, 01/01/2011 to 12/31/2015

Total crash records: 143

| SER# | INVEST | D C S L K TIME | FROM | CLASS | CITY STREET | RD CHAR | INT-TYPE (MEDIAN) | INT-BEL | OFFRD | WTHR | CRASH | SPCL USE | MOVE | FROM | PRTC | INJ | A S | E LICNS | PED | LOC | ERROR | ACT EVENT | CAUSE |
|-------|--------|----------------|------|-------|------------------|---------|----------------------|---------|-------|-------|------------|-------------------------------|-----------------|---------|---------|---------|------|---------|-----|---------|-------|------------|----------------|
| | | | | | | LOCIN | (LANES) | CONTL | DRVWY | LIGHT | SURTY | V# TYPE | TO | P# TYPE | SVRTY | E X RES | | | | OR<25 | | | |
| | | | | | | | | | | | | 02 NONE PRVTE PSNGR CAR | STOP NE-SW | | 01 DRVR | NONE | 60 F | OR-Y | | 000 | | 011 000 | 00 00 |
| 04738 | N N N | 11/09/2015 | 14 | | S BEAVERCREEK RD | INTER | CROSS | N | N | RAIN | S-1STOP | 01 NONE PRVTE PSNGR CAR | STRGHT NE-SW | | 01 DRVR | NONE | 00 M | OR-Y | | 026 | | 000 000 | 29 29 |
| | | | | | | | | | | | | 02 NONE PRVTE PSNGR CAR | STOP NE-SW | | 01 DRVR | NONE | 59 F | OR-Y | | 000 | | 011 000 | 00 00 |
| 00286 | N N N | 01/23/2011 | 14 | | S BEAVERCREEK RD | INTER | CROSS | N | N | CLD | O-1 L-TURN | 01 NONE PRVTE PSNGR CAR | TURN-L SW-NW | | 01 DRVR | NONE | 65 F | OR-Y | | 028,003 | | 000 000 | 02,04 02,04 |
| | | | | | | | | | | | | 02 NONE PRVTE PSNGR CAR | STRGHT NE-SW | | 01 DRVR | NONE | 21 M | OR-Y | | 000 | | 000 000 | 00 00 |
| | | | | | | | | | | | | 02 NONE PRVTE PSNGR CAR | STRGHT NE-SW | | 02 PSNG | INJC | 27 F | OR<25 | | 000 | | 000 000 | 00 00 |
| 00804 | N N N | 03/07/2011 | 14 | | S BEAVERCREEK RD | INTER | CROSS | N | N | CLR | ANGL-OTH | 01 NONE PRVTE PSNGR CAR | STRGHT S -N | | 01 DRVR | NONE | 00 F | UNK | | 020 | | 000 000 | 04 04 |
| | | | | | | | | | | | | 02 NONE PRVTE PSNGR CAR | STRGHT W -E | | 01 DRVR | NONE | 67 M | OR-Y | | 000 | | 000 000 | 00 00 |
| 00825 | N Y N | 03/09/2011 | 14 | | S BEAVERCREEK RD | INTER | CROSS | N | N | RAIN | O-OTHER | 01 NONE PRVTE PSNGR CAR | TURN-L N -E | | 01 DRVR | INJC | 46 M | OR-Y | | 001 | | 000 000 | 08 08 |
| | | | | | | | | | | | | 02 NONE PRVTE PSNGR CAR | TURN-L S -W | | 01 DRVR | NONE | 21 M | OR-Y | | 000 | | 000 000 | 00 00 |
| | | | | | | | | | | | | 02 NONE PRVTE PSNGR CAR | TURN-L S -W | | 02 PSNG | INJC | 21 M | OR<25 | | 000 | | 000 000 | 00 00 |
| 03843 | N Y N | 09/18/2011 | 14 | | S BEAVERCREEK RD | INTER | CROSS | N | N | RAIN | ANGL-OTH | 01 NONE PRVTE PSNGR CAR | STRGHT N -S | | 01 DRVR | INJC | 58 M | OR-Y | | 000 | | 000 000 | 04 00 |
| | | | | | | | | | | | | 02 NONE PRVTE | STRGHT W -E | | | | | OR<25 | | | | 000 | 00 |

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Left-Turn Lane Warrant Analysis

Le

Project: 17038 - Park Place Annexation
 Intersection: 14th Street at Main Street
 Date: 7/19/2017
 Scenario: Existing Conditions - AM Peak Hour (NWB)

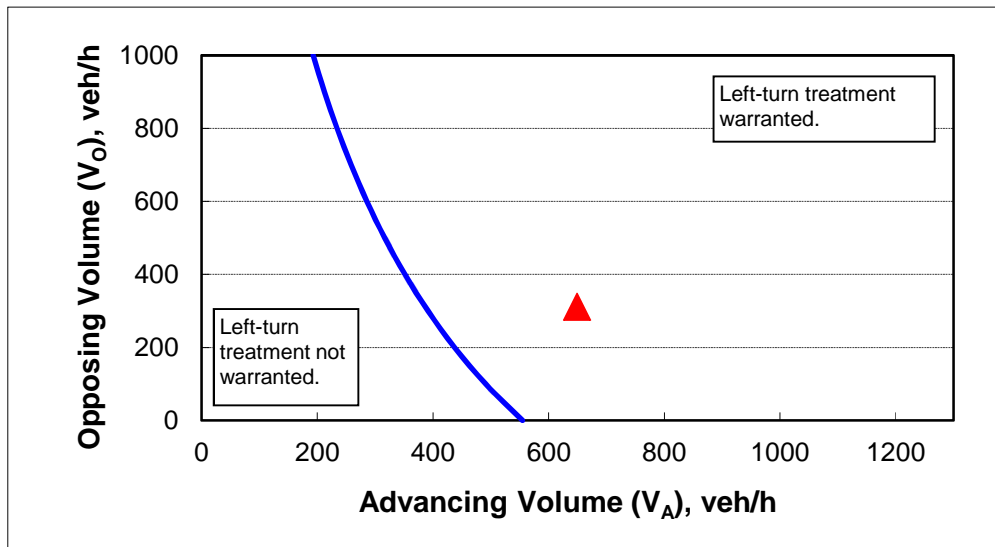
2-lane roadway (English)

INPUT

| Variable | Value |
|------------------------------------------------------------|-------|
| 85 th percentile speed, mph: | 20 |
| Number of left-turns in advancing volume (V_A), veh/h: | 117 |
| Advancing volume (V_A), veh/h: | 649 |
| Opposing volume (V_O), veh/h: | 311 |

OUTPUT

| Variable | Value |
|--------------------------------------------------------------------------|-------|
| Limiting advancing volume (V_A), veh/h: | 387 |
| Guidance for determining the need for a major-road left-turn bay: | |
| Left-turn treatment warranted. | |



CALIBRATION CONSTANTS

| Variable | Value |
|--------------------------------------------------------------------|-------|
| Average time for making left-turn, s: | 3.0 |
| Critical headway, s: | 5.0 |
| Average time for left-turn vehicle to clear the advancing lane, s: | 1.9 |

Left-Turn Lane Warrant Analysis

Le

Project: 17038 - Park Place Annexation
 Intersection: 14th Street at Main Street
 Date: 7/19/2017
 Scenario: Existing Conditions - PM Peak Hour (NWB)

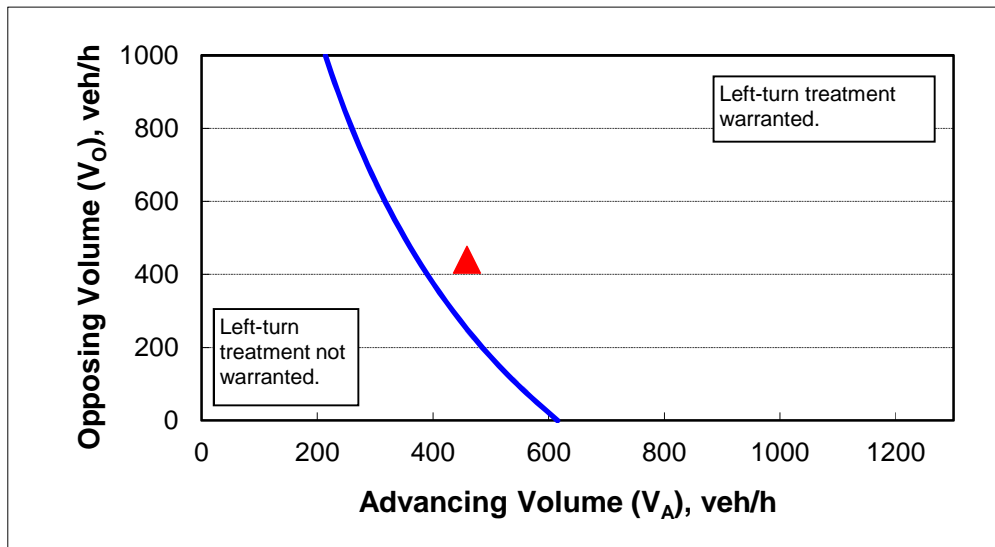
2-lane roadway (English)

INPUT

| Variable | Value |
|------------------------------------------------------------|-------|
| 85 th percentile speed, mph: | 20 |
| Number of left-turns in advancing volume (V_A), veh/h: | 64 |
| Advancing volume (V_A), veh/h: | 459 |
| Opposing volume (V_O), veh/h: | 440 |

OUTPUT

| Variable | Value |
|--------------------------------------------------------------------------|-------|
| Limiting advancing volume (V_A), veh/h: | 374 |
| Guidance for determining the need for a major-road left-turn bay: | |
| Left-turn treatment warranted. | |



CALIBRATION CONSTANTS

| Variable | Value |
|--------------------------------------------------------------------|-------|
| Average time for making left-turn, s: | 3.0 |
| Critical headway, s: | 5.0 |
| Average time for left-turn vehicle to clear the advancing lane, s: | 1.9 |

Left-Turn Lane Warrant Analysis

Le

Project: 17038 - Park Place Annexation
 Intersection: Holly Lane at S Holcomb Boulevard
 Date: 7/19/2017
 Scenario: 2035 Planning Horizon w/ Annexation - AM Peak Hour (WB)

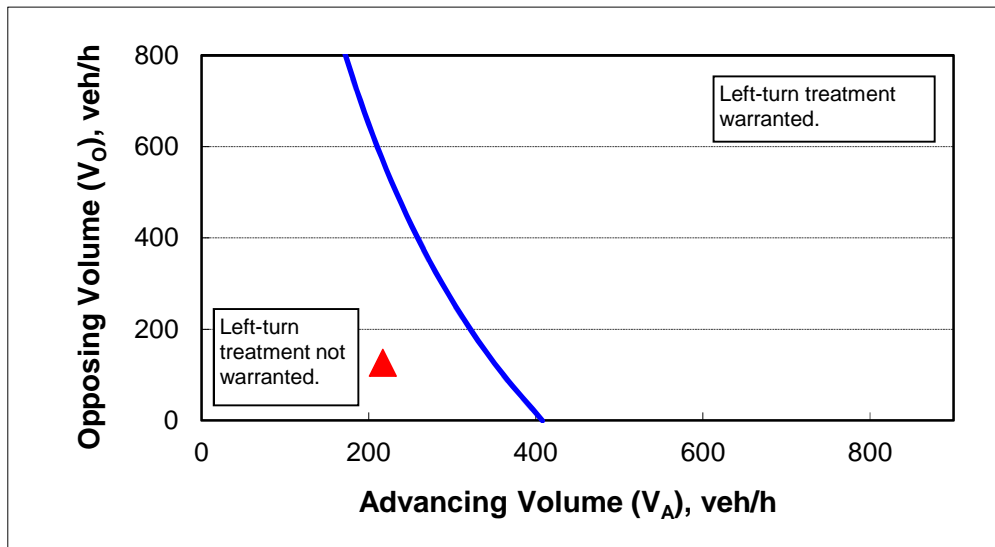
2-lane roadway (English)

INPUT

| Variable | Value |
|------------------------------------------------------------|-------|
| 85 th percentile speed, mph: | 40 |
| Number of left-turns in advancing volume (V_A), veh/h: | 52 |
| Advancing volume (V_A), veh/h: | 217 |
| Opposing volume (V_O), veh/h: | 126 |

OUTPUT

| Variable | Value |
|--------------------------------------------------------------------------|-------|
| Limiting advancing volume (V_A), veh/h: | 350 |
| Guidance for determining the need for a major-road left-turn bay: | |
| Left-turn treatment NOT warranted. | |



CALIBRATION CONSTANTS

| Variable | Value |
|--------------------------------------------------------------------|-------|
| Average time for making left-turn, s: | 3.0 |
| Critical headway, s: | 5.0 |
| Average time for left-turn vehicle to clear the advancing lane, s: | 1.9 |

Left-Turn Lane Warrant Analysis

Le

Project: 17038 - Park Place Annexation
 Intersection: Holly Lane at S Holcomb Boulevard
 Date: 7/19/2017
 Scenario: 2035 Planning Horizon w/ Annexation - PM Peak Hour (WB)

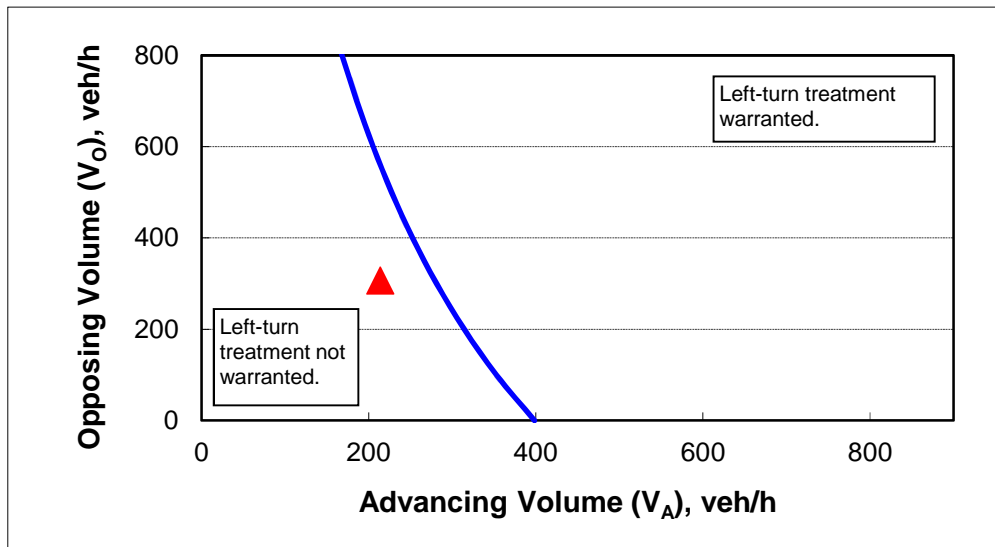
2-lane roadway (English)

INPUT

| Variable | Value |
|------------------------------------------------------------|-------|
| 85 th percentile speed, mph: | 40 |
| Number of left-turns in advancing volume (V_A), veh/h: | 55 |
| Advancing volume (V_A), veh/h: | 214 |
| Opposing volume (V_O), veh/h: | 306 |

OUTPUT

| Variable | Value |
|--------------------------------------------------------------------------|-------|
| Limiting advancing volume (V_A), veh/h: | 279 |
| Guidance for determining the need for a major-road left-turn bay: | |
| Left-turn treatment NOT warranted. | |



CALIBRATION CONSTANTS

| Variable | Value |
|--------------------------------------------------------------------|-------|
| Average time for making left-turn, s: | 3.0 |
| Critical headway, s: | 5.0 |
| Average time for left-turn vehicle to clear the advancing lane, s: | 1.9 |

Left-Turn Lane Warrant Analysis

Le

Project: 17038 - Park Place Annexation
Intersection: Holly Lane at S Redland Road
Date: 7/19/2017
Scenario: 2035 Planning Horizon w/ Annexation - AM Peak Hour (EB)

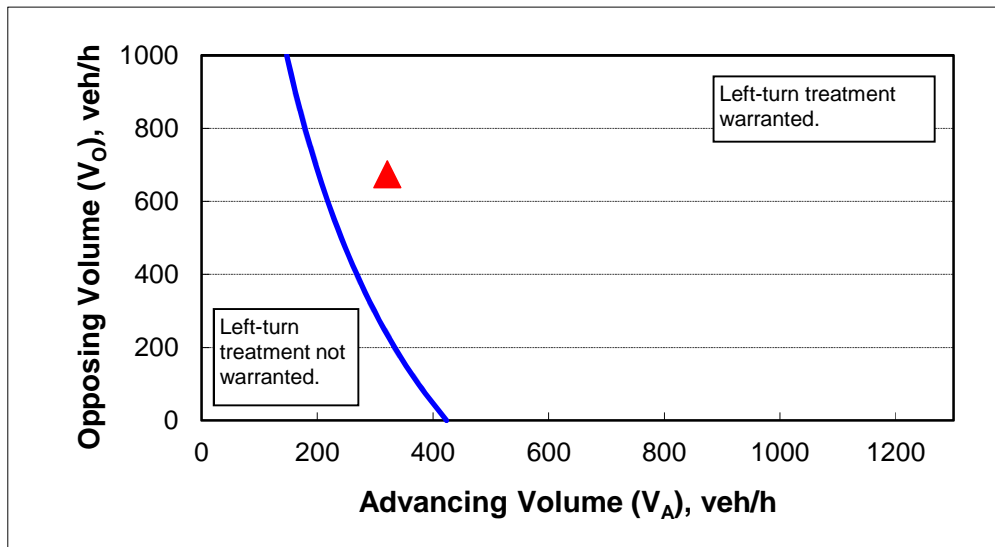
2-lane roadway (English)

INPUT

| Variable | Value |
|------------------------------------------------------------|-------|
| 85 th percentile speed, mph: | 45 |
| Number of left-turns in advancing volume (V_A), veh/h: | 58 |
| Advancing volume (V_A), veh/h: | 321 |
| Opposing volume (V_O), veh/h: | 674 |

OUTPUT

| Variable | Value |
|--------------------------------------------------------------------------|-------|
| Limiting advancing volume (V_A), veh/h: | 203 |
| Guidance for determining the need for a major-road left-turn bay: | |
| Left-turn treatment warranted. | |



CALIBRATION CONSTANTS

| Variable | Value |
|--------------------------------------------------------------------|-------|
| Average time for making left-turn, s: | 3.0 |
| Critical headway, s: | 5.0 |
| Average time for left-turn vehicle to clear the advancing lane, s: | 1.9 |

Left-Turn Lane Warrant Analysis

Le

Project: 17038 - Park Place Annexation
 Intersection: Holly Lane at S Redland Road
 Date: 7/19/2017
 Scenario: 2035 Planning Horizon w/ Annexation - PM Peak Hour (EB)

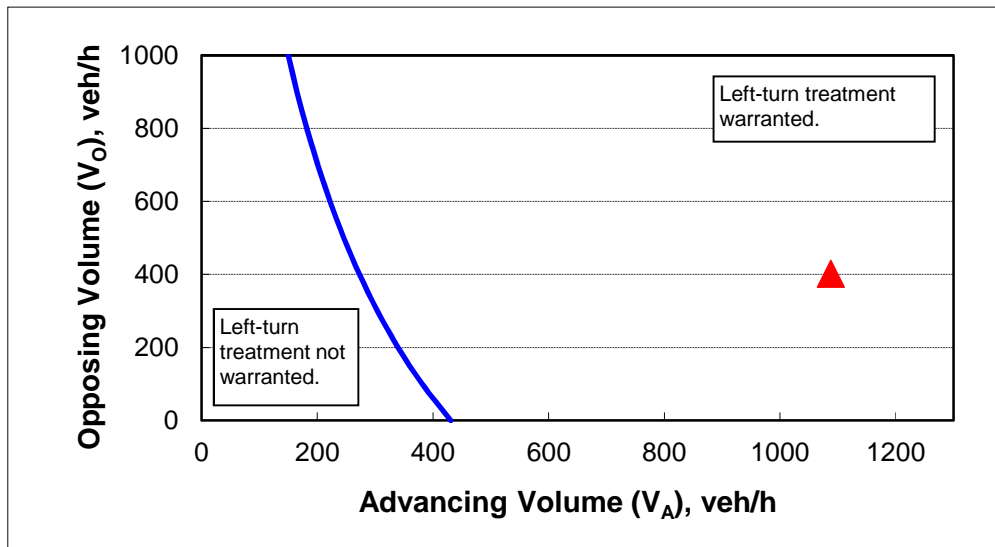
2-lane roadway (English)

INPUT

| Variable | Value |
|------------------------------------------------------------|-------|
| 85 th percentile speed, mph: | 45 |
| Number of left-turns in advancing volume (V_A), veh/h: | 188 |
| Advancing volume (V_A), veh/h: | 1088 |
| Opposing volume (V_O), veh/h: | 401 |

OUTPUT

| Variable | Value |
|--------------------------------------------------------------------------|-------|
| Limiting advancing volume (V_A), veh/h: | 273 |
| Guidance for determining the need for a major-road left-turn bay: | |
| Left-turn treatment warranted. | |



CALIBRATION CONSTANTS

| Variable | Value |
|--------------------------------------------------------------------|-------|
| Average time for making left-turn, s: | 3.0 |
| Critical headway, s: | 5.0 |
| Average time for left-turn vehicle to clear the advancing lane, s: | 1.9 |

Left-Turn Lane Warrant Analysis

Le

Project: 17038 - Park Place Annexation
 Intersection: Holly Lane at S Redland Road
 Date: 7/19/2017
 Scenario: Existing Conditions - AM Peak Hour (WB)

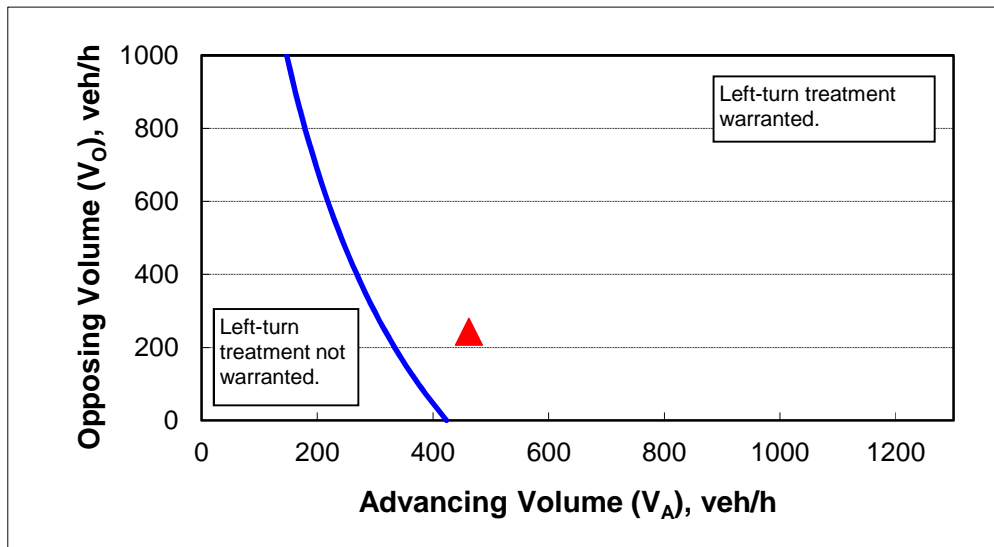
2-lane roadway (English)

INPUT

| Variable | Value |
|------------------------------------------------------------|-------|
| 85 th percentile speed, mph: | 45 |
| Number of left-turns in advancing volume (V_A), veh/h: | 58 |
| Advancing volume (V_A), veh/h: | 462 |
| Opposing volume (V_O), veh/h: | 243 |

OUTPUT

| Variable | Value |
|--------------------------------------------------------------------------|-------|
| Limiting advancing volume (V_A), veh/h: | 203 |
| Guidance for determining the need for a major-road left-turn bay: | |
| Left-turn treatment warranted. | |



CALIBRATION CONSTANTS

| Variable | Value |
|--------------------------------------------------------------------|-------|
| Average time for making left-turn, s: | 3.0 |
| Critical headway, s: | 5.0 |
| Average time for left-turn vehicle to clear the advancing lane, s: | 1.9 |

Left-Turn Lane Warrant Analysis

Le

Project: 17038 - Park Place Annexation
 Intersection: Holly Lane at S Redland Road
 Date: 7/19/2017
 Scenario: 2035 Planning Horizon w/o Annexation - PM Peak Hour (WB)

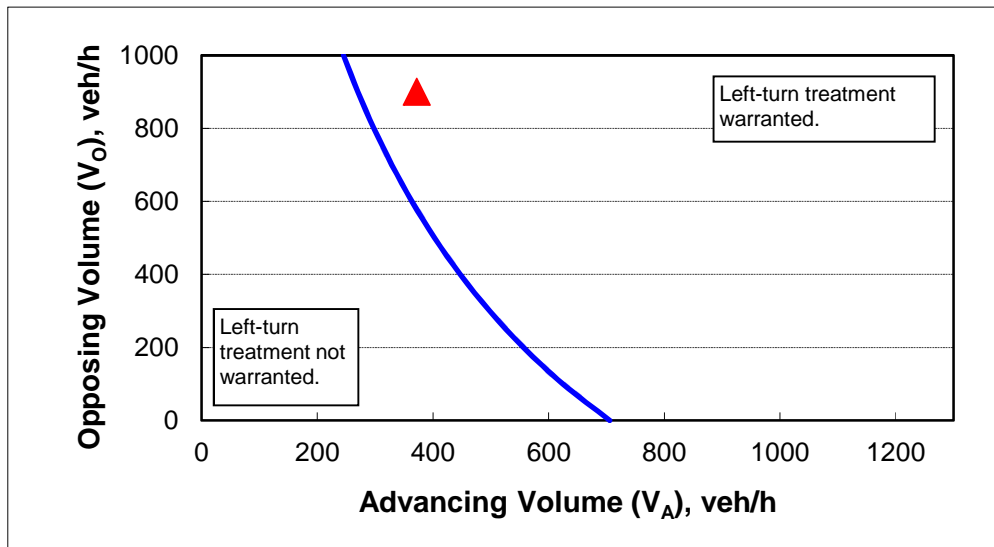
2-lane roadway (English)

INPUT

| Variable | Value |
|------------------------------------------------------------|-------|
| 85 th percentile speed, mph: | 45 |
| Number of left-turns in advancing volume (V_A), veh/h: | 21 |
| Advancing volume (V_A), veh/h: | 372 |
| Opposing volume (V_O), veh/h: | 900 |

OUTPUT

| Variable | Value |
|--------------------------------------------------------------------------|-------|
| Limiting advancing volume (V_A), veh/h: | 270 |
| Guidance for determining the need for a major-road left-turn bay: | |
| Left-turn treatment warranted. | |



CALIBRATION CONSTANTS

| Variable | Value |
|--------------------------------------------------------------------|-------|
| Average time for making left-turn, s: | 3.0 |
| Critical headway, s: | 5.0 |
| Average time for left-turn vehicle to clear the advancing lane, s: | 1.9 |

Traffic Signal Warrant Analysis

Project: 17038 - Park Place Annexation
 Date: 7/19/2017
 Scenario: Year 2035 Planning Horizon plus Annexation

| | | | |
|-----------------------|--------|-----------------------|-------------|
| Major Street: | OR-99E | Minor Street: | 15th Street |
| Number of Lanes: | 2 | Number of Lanes: | 1 |
| PM Peak Hour Volumes: | 4854 | PM Peak Hour Volumes: | 0 |

Warrant Used:

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

| Number of Lanes for Moving Traffic on Each Approach: | | ADT on Major St. (total of both approaches) | | ADT on Minor St. (higher-volume approach) | |
|------------------------------------------------------|------------------|------------------------------------------------|-----------------|----------------------------------------------|-----------------|
| | | 100% | 70% | 100% | 70% |
| <u>Major St.</u> | <u>Minor St.</u> | <u>Warrants</u> | <u>Warrants</u> | <u>Warrants</u> | <u>Warrants</u> |
| 1 | 1 | 8,850 | 6,200 | 2,650 | 1,850 |
| 2 or more | 1 | 10,600 | 7,400 | 2,650 | 1,850 |
| 2 or more | 2 or more | 10,600 | 7,400 | 3,550 | 2,500 |
| 1 | 2 or more | 8,850 | 6,200 | 3,550 | 2,500 |

| <u>WARRANT 1, CONDITION B</u> | | | | | |
|-------------------------------|-----------|--------|--------|-------|-------|
| 1 | 1 | 13,300 | 9,300 | 1,350 | 950 |
| 2 or more | 1 | 15,900 | 11,100 | 1,350 | 950 |
| 2 or more | 2 or more | 15,900 | 11,100 | 1,750 | 1,250 |
| 1 | 2 or more | 13,300 | 9,300 | 1,750 | 1,250 |

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

| | Approach Volumes | Minimum Volumes | Is Signal Warrant Met? |
|--------------------------------------------------------|------------------|-----------------|------------------------|
| <i>Warrant 1</i> | | | |
| <i>Condition A: Minimum Vehicular Volume</i> | | | |
| Major Street | 48,540 | 10,600 | |
| Minor Street* | 0 | 2,650 | No |
| <i>Condition B: Interruption of Continuous Traffic</i> | | | |
| Major Street | 48,540 | 15,900 | |
| Minor Street* | 0 | 1,350 | No |
| <i>Combination Warrant</i> | | | |
| Major Street | 48,540 | 12,720 | |
| Minor Street* | 0 | 2,120 | No |

* Minor street right-turning traffic volumes reduced by 85% of the right-turn capacity.

Traffic Signal Warrant Analysis

Project: 17038 - Park Place Annexation
 Date: 7/19/2017
 Scenario: Year 2035 Planning Horizon plus Annexation

| | | | |
|-----------------------|-------------|-----------------------|-------------|
| Major Street: | 14th Street | Minor Street: | Main Street |
| Number of Lanes: | 1 | Number of Lanes: | 1 |
| PM Peak Hour Volumes: | 1289 | PM Peak Hour Volumes: | 211 |

Warrant Used:

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

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

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

| | Approach Volumes | Minimum Volumes | Is Signal Warrant Met? |
|--------------------------------------------------------|------------------|-----------------|------------------------|
| <i>Warrant 1</i> | | | |
| <i>Condition A: Minimum Vehicular Volume</i> | | | |
| Major Street | 12,890 | 8,850 | |
| Minor Street* | 2,110 | 2,650 | No |
| <i>Condition B: Interruption of Continuous Traffic</i> | | | |
| Major Street | 12,890 | 13,300 | |
| Minor Street* | 2,110 | 1,350 | No |
| <i>Combination Warrant</i> | | | |
| Major Street | 12,890 | 10,640 | |
| Minor Street* | 2,110 | 2,120 | No |

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

Traffic Signal Warrant Analysis

Project: 17038 - Park Place Annexation
 Date: 7/19/2017
 Scenario: Year 2035 Planning Horizon plus Annexation

| | | | |
|-----------------------|---------------------|-----------------------|------------|
| Major Street: | S Holcomb Boulevard | Minor Street: | Holly Lane |
| Number of Lanes: | 1 | Number of Lanes: | 1 |
| PM Peak Hour Volumes: | 520 | PM Peak Hour Volumes: | 112 |

Warrant Used:

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

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

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

| | Approach Volumes | Minimum Volumes | Is Signal Warrant Met? |
|--------------------------------------------------------|------------------|-----------------|------------------------|
| <i>Warrant 1</i> | | | |
| <i>Condition A: Minimum Vehicular Volume</i> | | | |
| Major Street | 5,200 | 8,850 | |
| Minor Street* | 1,120 | 2,650 | No |
| <i>Condition B: Interruption of Continuous Traffic</i> | | | |
| Major Street | 5,200 | 13,300 | |
| Minor Street* | 1,120 | 1,350 | No |
| <i>Combination Warrant</i> | | | |
| Major Street | 5,200 | 10,640 | |
| Minor Street* | 1,120 | 2,120 | No |

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

Traffic Signal Warrant Analysis

Project: 17038 - Park Place Annexation
 Date: 7/19/2017
 Scenario: Year 2035 Planning Horizon plus Annexation

| | | | |
|-----------------------|----------------|-----------------------|------------|
| Major Street: | S Redland Road | Minor Street: | Holly Lane |
| Number of Lanes: | 1 | Number of Lanes: | 1 |
| PM Peak Hour Volumes: | 1489 | PM Peak Hour Volumes: | 182 |

Warrant Used:

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

| Number of Lanes for Moving Traffic on Each Approach: | | ADT on Major St. (total of both approaches) | | ADT on Minor St. (higher-volume approach) | |
|------------------------------------------------------|------------------|------------------------------------------------|-----------------|----------------------------------------------|-----------------|
| | | 100% | 70% | 100% | 70% |
| <u>Major St.</u> | <u>Minor St.</u> | <u>Warrants</u> | <u>Warrants</u> | <u>Warrants</u> | <u>Warrants</u> |
| 1 | 1 | 8,850 | 6,200 | 2,650 | 1,850 |
| 2 or more | 1 | 10,600 | 7,400 | 2,650 | 1,850 |
| 2 or more | 2 or more | 10,600 | 7,400 | 3,550 | 2,500 |
| 1 | 2 or more | 8,850 | 6,200 | 3,550 | 2,500 |

| <u>WARRANT 1, CONDITION B</u> | | | | | |
|-------------------------------|-----------|--------|--------|-------|-------|
| 1 | 1 | 13,300 | 9,300 | 1,350 | 950 |
| 2 or more | 1 | 15,900 | 11,100 | 1,350 | 950 |
| 2 or more | 2 or more | 15,900 | 11,100 | 1,750 | 1,250 |
| 1 | 2 or more | 13,300 | 9,300 | 1,750 | 1,250 |

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

| | Approach Volumes | Minimum Volumes | Is Signal Warrant Met? |
|--------------------------------------------------------|------------------|-----------------|------------------------|
| <i>Warrant 1</i> | | | |
| <i>Condition A: Minimum Vehicular Volume</i> | | | |
| Major Street | 14,890 | 6,200 | |
| Minor Street* | 1,820 | 1,850 | No |
| <i>Condition B: Interruption of Continuous Traffic</i> | | | |
| Major Street | 14,890 | 9,300 | |
| Minor Street* | 1,820 | 950 | Yes |
| <i>Combination Warrant</i> | | | |
| Major Street | 14,890 | 7,440 | |
| Minor Street* | 1,820 | 1,480 | Yes |

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



PRE-APPLICATION MEETING NOTES

Date: November 29, 2016

Notes Prepared: November 30, 2016.

Pre-App Number: PA 16-57
Addresses: AN-16-0005
Multiple
16472 Livesay Road & 15110 Holcomb Boulevard & others
Map Number(s): 2-2E-27B, 2-2E-28D
Tax Lot(s): 1000 and 2000 of 2-2E-27B, 100, 190, 300, 301, 302, 303, 400, 500, 502, 3700 & 3701 of 2-2E-28D

Addresses: AN-16-0004
Address: NO SITUS ADDRESSES
Clackamas Map Number(s): 2-2E-28A -00580, 2-2E-28A -00590, 2-2E-21D -02190, 2-2E-21D -02100, 2-2E-21D -02200, 2-2E-28A -00500

Project Name: Park Place Annexation Zone Changes
Meeting Date: November 29, 2016
Reviewer: Pete Walter, AICP, Associate Planner

Parties present

City Staff

P. Walter, AICP, Planner
W. Marshall, PE, Public Works
A. Froman-Goodrich, PE, City Engineer
C. Richter, City Attorney
J. Replinger, PE, Transportation Consultant

Applicants

Rick Givens, Consultant
Mark Handris, ICON
Darren Gusdorf, ICON
Dan Serres, Owner
Mike Robinson, Attorney

ODOT

Avi Tayar, PE, Development Review Team Leader
Seth Brumley, Planner

OC School District

Wes Rogers, Director of Operations



PA-16-57: These notes are intended to update the Pre-application Conference Notes for two annexations which are under review and which are being revised to include formal requests for zone change.

One of the proposed zone changes is for the annexation of approximately 92 acres in the Park Place Concept Plan area (AN-16-0005) which is south of Holcomb Blvd. Prior pre-app number PA 16-40.

The other zone change is for the annexation of approximately 35 acres that is north of Holcomb Blvd (AN-16-0004). This area is not within the PPCP area. Prior pre-app number PA 16-20.

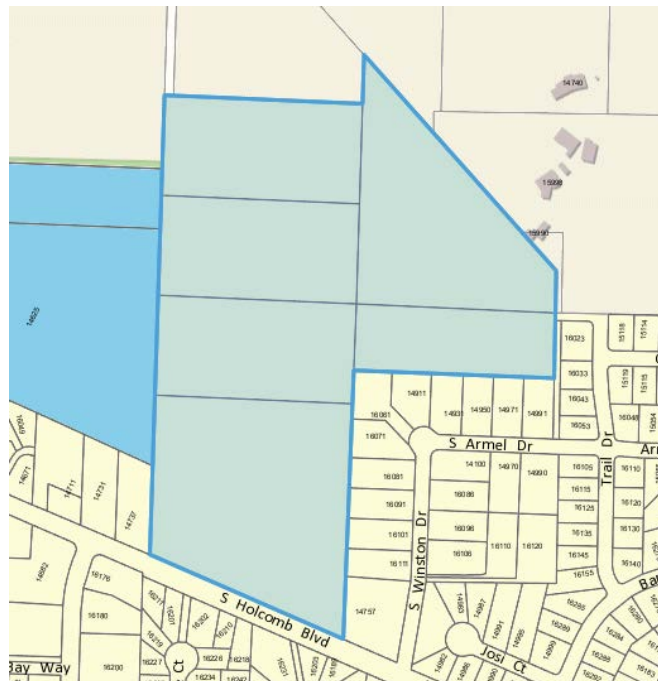
Please note that AN-16-0004 is under review by the Planning Commission which has continued the public hearing to January 9, 2017. The City Commission hearing will be continued to February 1st, 2017.

Please note that AN-16-0005 has been deemed incomplete as of the date of the pre-application conference and the applicant also needs to address the items listed in the City's determination of incompleteness for AN-16-0005.

Comprehensive Plan Designations

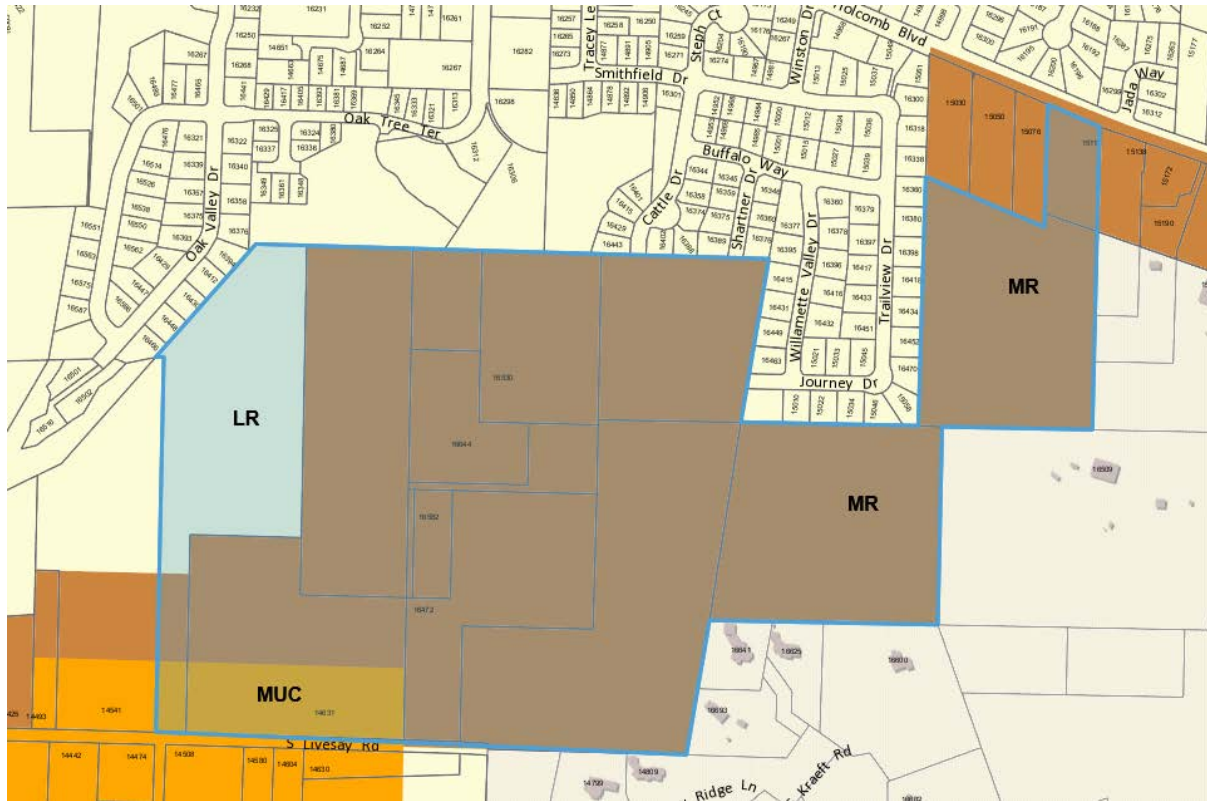
The Comprehensive Plan designations for the subject properties are shown below.

AN-16-0004 –all Low Density Residential





AN-16-0005 – has three Comp. Plan Designations: LR, MR and MUC



Approval Criteria to Address in Narrative:

The items required to be submitted for annexation were covered in the prior two pre-application conferences and are not repeated here. The following items are required in order to supplement the submitted annexation materials and to address the zone change.

1. Zone Change

Staff understands that the applicant is proposing to revise the annexation applications to include a separate zone change. The submitted pre-application materials do not specify the specific zone district(s) that the applicant intends to apply for, however staff anticipates that the Serres Farm application AN-16-0004 will be for a change from the County FU-10 zone to the City R-10 Single-Family Zone.

The application for the zone change should address the following code sections.

- *OCMC 17.06.030 - Zoning of annexed areas.*



Applicant should address section (A) which provides that a public hearing be held by both the planning commission and city commission in accordance with the procedures outlined in Chapter 17.68 (except for the provisions of Section 17.68.025) for those instances in which more than one zoning designation carries out a city plan classification.

Table [17.06.030](#)

| CITY LAND USE CLASSIFICATIONS | |
|----------------------------------------|-----------------------------|
| | |
| <i>Residential Plan Classification</i> | <i>City Zone</i> |
| <i>Low-Density Residential</i> | <i>R-10, R-8, R-6</i> |
| <i>Medium-Density Residential</i> | <i>R-3.5, R-5</i> |
| <i>High-Density Residential</i> | <i>R-2</i> |
| | |
| <i>Commercial Plan Classification</i> | <i>City Zone</i> |
| <i>General Commercial</i> | <i>C</i> |
| <i>Mixed-Use Downtown</i> | <i>MUD, WFDD</i> |
| <i>Mixed-Use Corridor</i> | <i>MUC I, MUC 2, NC, HC</i> |
| <i>Mixed-Use Employment</i> | <i>MUE</i> |
| | |
| <i>Industrial Plan Classification</i> | <i>City Zone</i> |
| <i>Industrial</i> | <i>CI, GI</i> |

In those cases where only a single city zoning designation corresponds to the comprehensive plan designation and thus the rezoning decision does not require the exercise of legal or policy judgment on the part of the community development director, [Chapter 17.68](#) shall control. The decision in these cases shall be a ministerial decision of the community development director made without notice or any opportunity for a hearing.

A. A public hearing shall be held by both the planning commission and city commission in accordance with the procedures outlined in [Chapter 17.68](#) (except for the provisions of [Section 17.68.025](#)) for those instances in which more than one zoning designation carries out a city plan classification.

- *OCMC 17.68 - Zoning Changes and Amendments*
- *OCMC 17.68.025 - Zoning changes for land annexed into the city.*

A. Notwithstanding any other section of this chapter, when property is annexed into the city from the city/county dual interest area with any of the following comprehensive plan designations, the property shall be rezoned upon annexation to the corresponding city zoning designation as follows:



| <i>Plan Designation</i> | <i>Zone</i> |
|-----------------------------------|-----------------------------|
| | |
| <i>Low-Density Residential</i> | <i>R-10</i> |
| <i>Medium-Density Residential</i> | <i>R-5</i> |
| <i>High-Density Residential</i> | <i>R-2</i> |
| <i>General Commercial</i> | <i>C</i> |
| <i>Industrial</i> | <i>CI-Campus Industrial</i> |
| <i>Mixed-Use Downtown</i> | <i>MUD</i> |
| <i>Mixed-Use Employment</i> | <i>MUE</i> |
| <i>Mixed-Use Commercial</i> | <i>- NC</i> |
| <i>Future Urban</i> | <i>FU-10</i> |

- [*OCMC 17.50 Administration and Procedures*](#)

With respect to compliance with other titles of the code, the applicant should address *OCMC 17.50.230 – Interpretation* and how the proposed rezoning will address the separate requirements of *OCMC chapter 12.04.205 – Mobility Standards*.

17.68.020 - Criteria.

The criteria for a zone change are set forth as follows:

A. The proposal shall be consistent with the goals and policies of the comprehensive plan.

- Address the Park Place Concept Plan – See Item 2 below.
- Address the following goals and policies of the Oregon City Comprehensive Plan.
 - Goal 1: Citizen Involvement
 - Goal 1.1 - Policy 1.1.1, Goal 1.4 - Policy 1.4.1
 - Goal 2: Land Use
 - Goal 2.1 – Policy 2.1.3
 - Goal 2.4 – Policy 2.4.1, 2.4.2, 2.4.3, 2.4.4
 - Goal 2.5 – Policy 2.5.1, 2.5.2, 2.5.3, 2.5.4, 2.5.5 (applies along Livesay Road, design standards implemented by OCMC 17.21)
 - Goal 2.7 – Policy 2.7.2
 - Goal 5: Open Spaces, Scenic and Historic Areas, and Natural Resources
 - Goal 5.1 – Policies 5.1.1, 5.1.2



- Goal 5.2 – Policy 5.2.1, 5.2.2
- Goal 5.3 – Policy 5.3.3, 5.3.8
- Goal 5.4 – Policy 5.4.1, 5.4.5, 5.4.9, 5.4.12, 5.4.13, 5.4.16, 5.4.18
- Goal 6: Quality of Air, Water, and Land Resources
 - Goal 6.1- Policy 6.1.1
 - Goal 6.2 – Policy 6.2.1, 6.2.2
 - Goal 6.3 – Policy 6.3.2
 - Goal 6.4 – Policy 6.4.1
- Goal 7: Natural Hazards
 - Goal 7.1 – Policy 7.1.1, 7.1.8, 7.1.9, 7.1.11
- Goal 8: Parks and Recreation
 - Goal 8.1 – Policy 8.1.1, 8.1.5, 8.1.6, 8.1.9, 8.1.12, 8.1.14
- Goal 10: Housing
 - Goal 10.1 – Policy 10.1.1, 10.1.3, 10.1.4, 10.1.7
 - Goal 10.2 – Policy 10.2.2
- Goal 11: Public Facilities
 - Goal 11.1 – Policy 11.1.1, 11.1.2, 11.1.3, 11.1.5, 11.1.6
 - Goal 11.2 – Policy 11.2.4
 - Goal 11.3 – Policy 11.3.3
 - Goal 11.4 – Policy 11.4.1, 11.4.2, 11.4.4, 11.4.5
- Goal 12: Transportation
 - See also Transportation System Plan Goals and Policies
 - Goal 12.1 – Policy 12.1.1, 12.1.2, 12.1.3, 12.1.4
 - Goal 12.3 – Policy 12.3.1, 12.3.2, 12.3.3, 12.3.4, 12.3.5, 12.3.6, 12.3.9
 - Goal 12.6 – Policy 12.6.1, 12.6.2, 12.6.3, 12.6.4
- Goal 13 – Energy
 - Goal 13.1 – Policy 13.1.2
 - Goal 13.2 – Policy 13.2.1, 13.2.2, 13.2.3
- Goal 14 – Urbanization
 - This should already have been covered in the Annexation narrative, but the applicant should cross reference or repeat those sections here.

B. That public facilities and services (water, sewer, storm drainage, transportation, schools, police and fire protection) are presently capable of supporting the uses allowed by the zone, or can be made available prior to issuing a certificate of occupancy. Service shall be sufficient to support the range of uses and development allowed by the zone.



- The applicant should address the existing and proposed public facilities and services to serve the proposed zoning.

C. The land uses authorized by the proposal are consistent with the existing or planned function, capacity and level of service of the transportation system serving the proposed zoning district.

- The applicant should address the existing and proposed transportation facilities to serve the proposed zoning.

D. Statewide planning goals shall be addressed if the comprehensive plan does not contain specific policies or provisions which control the amendment.

Comments:

- Consider and address provisions relating to zone changes upon annexation set forth in OCMC 17.06.030 and 17.68.025, and the zone change criteria of OCMC 17.68.020.
- An application for zone change will at some point need to show compliance with the Transportation Planning Rule by the time it becomes effective. The applicant should address this in responding to OCMC 12.04.205.
- Address in more detail the off-site improvements that are required in order to serve and develop the properties and their surroundings in the long term.
- Address water system concerns related to fire flow pressure issues discussed by Clackamas River Water at pre-application conference (PA-16-0040)
- Address timing of water system improvements associated with development of Nielson property (TP-16-0001).

2. Park Place Concept Plan (PPCP) Goals and Policies (AN-16-0005)

The proposed zone change for AN-16-0005 should address the following:

- Address Vision, Goals and Policies
- Specifically address how the Zone Change is consistent with the North Village concept
- Specifically address how this Zone Change is consistent with the conceptual transportation network in the PPCP.
- Address how the Zone Change will implement the Core Values and Concept Plan Elements.

3. Transportation

- Traffic Impact Analysis is required. John Replinger reviewed the pre-applications PA-16-20 and 16-40 and had the following comments;



For the proposed annexation (PA 16-40), it appears the following actions will be necessary to fully develop the property:

- Annexation process
- Rezoning of the parcels from their existing (County) zoning to city zoning consistent with the Comprehensive Plan
- Transportation analyses for 1) a specific development as required by city code and 2) showing compliance with the Transportation Planning Rule (TPR)

For annexation alone – without a zone change – neither a transportation impact analysis nor an analysis of compliance with the TPR will be required.

For most land use actions involving a specific development proposal, such as creation of a subdivision, a transportation impact analysis consistent with Oregon City's *Guidelines for Transportation Impact Analysis* will be required. For development to occur at the densities specified in the Comprehensive Plan, the parcels will need to be changed from county to city zoning. To support this zone change, an analysis indicating compliance with the TPR will be required in addition to the required transportation impact analysis consistent with Oregon City's *Guidelines for Transportation Impact Analysis*. The argument in support of the zone change should include information about consistency between the planned land use and the development assumptions in Oregon City's *Transportation System Plan* (TSP). Showing that the planned development was accounted for in the development assumptions of the TSP is important, but is not likely to be considered sufficient to demonstrate compliance with the TPR.

One particular issue that must be addressed in any zone change is the impact on the intersections specified in OCMC 12.04.205(D) [I-205 / OR 99E Interchange; I-205 / OR 213 Interchange; and OR 213 / Beavercreek Road intersection.] Under OCMC 12.04.205, these three specified locations are exempted from the TSP mobility standards, but only for development that is permitted, either conditionally, outright, or through detailed development master plan approval.

The applicant should also address 12.04.205(D)(2) which states:

Development which does not comply with the mobility standards for the intersections identified in [Section] 12.04.205.D shall provide for the improvements identified in the Transportation System Plan (TSP) in an effort to improve intersection mobility as necessary to offset the impact caused by development. Where required by other provisions of the Code, the applicant shall provide a traffic impact study that includes an assessment of the development's impact on the intersections identified in this exemption and shall construct the intersection improvements listed in the TSP or required by the Code.



4. Fees (will apply to each zone change proposed)

[2016 Planning Fee Schedule](#)

| | |
|------------------------------|---------|
| Zone Change / Text Amendment | \$2,764 |
| Mailing Labels | \$15 |

[2017 Planning Fee Schedule](#)

| | |
|------------------------------|---------|
| Zone Change / Text Amendment | \$2,798 |
| Mailing Labels | \$15 |

5. Neighborhood Association Meeting Required

Per OCMC [17.50.055 - Neighborhood association meeting](#). Documentation of the meeting with the Park Place Neighborhood Association is required for a complete application. See <http://www.orcity.org/community/park-place-neighborhood-association> for contact and meeting information.

Code Responses and Narrative

Staff can provide you with previous annexation Staff Reports and electronic versions of the applicable plans, policies and approval criteria above to assist in the preparation of your application.

Checklists and Application Forms

[Land Use Application Form \(682 KB\)](#)

[Planning Fee Schedule \(482 KB\)](#)

17.50.050 - Preapplication conference.

A. Preapplication Conference. Prior to submitting an application for any form of permit, the applicant shall schedule and attend a preapplication conference with City staff to discuss the proposal. To schedule a preapplication conference, the applicant shall contact the Planning Division, submit the required materials, and pay the appropriate conference fee. At a minimum, an applicant should submit a short narrative describing the proposal and a proposed site plan, drawn to a scale acceptable to the City, which identifies the proposed land uses, traffic circulation, and public rights-of-way and all other required plans. The purpose of the preapplication conference is to provide an opportunity for staff to provide the applicant with information on the likely impacts, limitations, requirements, approval standards, fees and other information that may affect the proposal. The Planning Division shall provide the applicant(s) with the identity and contact persons for all affected neighborhood associations as well as a written summary of the preapplication conference. Notwithstanding any representations by City staff at a preapplication conference, staff is not authorized to waive any requirements of this code, and any omission or failure by staff to recite to an applicant all relevant applicable land use requirements shall not constitute a waiver by the City of any standard or requirement.



OREGON CITY

Community Development Department

221 Molalla Ave. Suite 200 | Oregon City OR 97045

Ph (503) 722-3789 | Fax (503) 722-3880

B. A preapplication conference shall be valid for a period of six months from the date it is held. If no application is filed within six months of the conference or meeting, the applicant must schedule and attend another conference before the city will accept a permit application. The community development director may waive the preapplication requirement if, in the Director's opinion, the development does not warrant this step. In no case shall a preapplication conference be valid for more than one year.

PARK PLACE NEIGHBORHOOD ASSOCIATION

SIGN IN SHEET

DATE: 06-07-2016

Special

| NAME | ADDRESS | PHONE | E-MAIL |
|--------------------------|--------------------|----------------|-------------------------|
| Troy Lavoie | 15114 OYER | 503 744 0007 | TroyLavoie@gmail.com |
| Corey Lann | 16285 Barber | 808-499-5491 | corey.lann@live.com |
| Danyelle Lann | 16285 Barber | 808-499-9182 | danyelle.lann@live.com |
| Bill & Mary Erickson | 15740 Harley Ave | 503 656 6566 | |
| Jerry & Molly Buck | 14456 Ames St | 503-722-9354 | mollybuck@q.com |
| Shirley & Sanifer Retzke | Valley Dr | 503-539-2413 | dr@retzke.com |
| John Ambrose | 16179 W. Ames Ct | | |
| Nick Dreethman | 16273 Barber Dr | | |
| Gary & Marti Moody | 16551 Oak Tree Tr | 503 305 8000 | MartiL9123@gmail.com |
| Frank Durkes | 15817 Astor Way | 503 816 3088 | durkes4@gmail.com |
| Kathy Haydon | 14991 ARNOLD DR | 503 722 7083 | |
| Steve & Lorna Miller | 15875 Altona Lane | (503) 387-5544 | clomemiller@gmail.com |
| Dan & Vicki Donelan | 15831 Stables Rd | 503-710-5564 | vandaneland@comcast.net |
| Phyllis Gustaf | 1742 19th St. W.L. | 503-657-0466 | |
| Gay MAEHL | 15843 Altona Ln | 503 881 4156 | Martingale@comcast.net |
| John & Les Pedersen | 16081 Windsor Dr | 503 656 9990 | |

PARK PLACE NEIGHBORHOOD ASSOCIATION

SIGN IN SHEET

DATE: 06-07-2016

| NAME | ADDRESS | PHONE | E-MAIL |
|--------------------------|--------------------------|--------------|-----------------------------|
| Misa DORAK | 14234 HOLCOMB BLVD | 847-340-4423 | novak0229@gmail.com |
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| Josh Seneak | 16432 Williams Valley Dr | 971-526-7586 | josh.seneak@comcast.net |
| Mike & Jan Garas | 15621 Journey Dr | 503-551-2993 | myg1976@msn.com |
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| Bob Tershel | 54331 Livestay | 503-344-3077 | bobtershel@comcast.net |
| Shirley & Bill Hill | 16633 Trail Dr | 503-655-0839 | car PO. BOX |
| Shirley & Bill Hill | 16340 Oak Valley Dr | 937-722-2391 | carol.hill@comcast.net |
| Nancy Ide | 16333 Oakview Ter | 503-758-6363 | nancyide@hotmail.com |
| Michelle & Kirk Tolstrup | | | |
| Michelle Reddick | 15990 Ames St. | 503-636-6645 | michellereddick@comcast.net |

PARK PLACE NEIGHBORHOOD ASSOCIATION

SIGN IN SHEET

DATE: 6-7-16

| NAME | ADDRESS | PHONE | E-MAIL |
|---------------------|--------------------------------------|-------|---------------------------|
| Levi Johnson | 14911 SAREME DR | | uncledaddy2@msn.com |
| PAUL LARSON | 14911 S Arnel Dr | | uncledaddy2@msn.com |
| Amy White | GLNA | | |
| Don Slack | 16163 Cedar Ct | | |
| Debra Frey | 16251 Susan Ave. | | cellar1993@aol.com |
| Carol Caporaso | 14986 Esic Ct | | |
| Mary Ann Johnson | 14986 Esic Ct | | |
| Bill & Sue Rother | 14950 S. Arnel Dr | | |
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| Sheila & Ken Hauke | 70 Box 2526 | | |
| Pete Walter | Oregon City Planning | | |
| Tim Carrier | 15998 So. Timber Creek Lane | | |
| Mark Harris | 1780 Williamsite Trails Dr West Lind | | Marc@1conconstruction.net |
| Paulette Merrill | 16390 S. Hiram Stoe | | cam66@comcast.net |
| Frank Freley | 15798 Cherokee Court | | bfrey@igmail.com |
| Jack & Barbara | 13727 Hickory Blvd. | | Victoria@earthlink.net |

Wichter

Ann Jensen

14666-5- Holcomb Blvd
203-651-2744

formail.com



Oregon City Public Schools

Learning to be our Best

P.O. Box 2110 (1417 12TH St.), Oregon City, Oregon 97045-5010

Wesley Rogers, Director of Operations • Telephone: (503) 785-8426 • FAX: (503) 657-2492

March 13, 2017

Planning Commission
City of Oregon City
625 Center Street
Oregon City, OR 97045

Re: File AN-16-0004, ZC-16-0001

Members of the Planning Commission,

The Oregon City School District was contacted via e-mail by Pete Walter, AICP, Planner to respond to testimony and exhibits presented at the February 27, 2017 Planning Commission meeting concerning File AN-16-0004/ZC-16-0001, annexation of 35.65 acres north of Holcomb Boulevard. I believe the Planning Commission has requested the District formally respond to "perceived capacity of Holcomb Elementary and schools in Park Place." Pete included in his e-mail 3 attachments as follows: a letter dated February 24, 2017 from Rick Givens to myself (Attachment A); a copy of the Holcomb Elementary webpage that includes enrollment info (Attachment B); and a copy of the District's 2012 Enrollment Forecast (Title page Attachment C). Let me respond.

We have recently completed our annual enrollment forecast update by the Center for Population Research at Portland State University. The above mentioned 2012 Enrollment Forecast has now been updated with the 2017 Enrollment Forecast. However the 2017 Enrollment Forecast does not include either Park Place/Holcomb annexation request presently before the City of Oregon City. I have listed current enrollment/capacity information for Holcomb Elementary:

| | |
|--------------------------------------------|-----|
| Current March 10, 2017 Enrollment | 498 |
| Current Total Capacity (2016 study) | 564 |
| 2021-22 Forecasted Enrollment (2017 Study) | 483 |
| 2026-27 Forecasted Enrollment (2017 Study) | 534 |

As shown without consideration of the annexation requests, Holcomb Elementary will not exceed capacity in the next 10 years.

As to the impact of the 35.65 acre annexation request File AN-16-0004/ZC-16-0001, the grade level district-wide average ratio information contained in Attachment A Givens letter was reviewed by our demographer and found to be accurate for forecasting purposes. The district has adequate secondary school enrollment capacity to accommodate the forecasted middle and high school students generated by this annexation. However, in 2026-27, assuming 35 new elementary students, Holcomb Elementary would be slightly above capacity at 569. For impact of current developments on Holcomb Elementary I can share that the school has yet to enroll any students from the almost completed Sunnybrook Ridge development to the west of the school. This is why annual

updates to our enrollment forecasts are so important so as to reflect current trends.

As to the larger 92 acre Park Place/Holcomb annexation mentioned by Mr. Givens but is not a direct part of this file, the District has always known that as the Park Place Concept Plan was significantly developed, additional elementary and middle school capacity would have to be constructed. Currently the elementary school of attendance for this area would be Redland Elementary.

Forecasted enrollment growth is not new to the District and the Oregon City School Board and administration have been studying facility needs for the past several years. Although well maintained, District facilities do not support current educational practice and all District facilities are in need of serious renovation or replacement and in some cases minor expansion. Preliminary plans to ask for a school construction bond have not been finalized but the current draft scenario shows that the District (with voter support) would have additional middle school capacity within 5 years and additional elementary school capacity within 5-10 years. In the meantime the District has several other tools to help with over capacities by installing semi-permanent buildings and/or redrawing attendance boundaries.

Sincerely,

A handwritten signature in blue ink, appearing to read 'Wes Rogers', is positioned above the typed name.

Wes Rogers
Director of Operations
Oregon City School District
PO Box 2110
Oregon City, OR 97045
503-785-8426



OREGON CITY

Police Department

320 Warner Milne Road | PO Box 3040 | Oregon City OR 97045
Ph (503) 657-4964 | Fax (503) 655-0530 | Non Emergency Police Dispatch: (503) 655-8211

January 31, 2018

The Oregon City Police Department appreciates the opportunity to comment on the Park Place Annexation. OCPD already provides police services within and adjacent to the area.

When land within the Park Place Annexation area is annexed to Oregon City, the properties will be removed from the jurisdiction of the Clackamas County Enhanced Law Enforcement District and served by the Oregon City Police Department.

Currently our officer force is 47 and our reserve officer force is 3, providing a ratio of 1.31 officers/per 1000 population.

OCPD does not anticipate any problems being able to patrol and serve this area with police officers as development occurs. We anticipate that as urbanization occurs, our response times will remain within acceptable industry standards.

OCPD already works closely with the Planning Division to review new development applications to assure continued public safety.

Sincerely,

Jim Band, Chief
Oregon City Police Department

City of Oregon City
Planning Commission meeting of February 12th, 2018

RE: AN 17-0004 Annexation 92 Acres
ZC 17-0005 Zone Change

2018 FEB -2 PM 1:36

RECEIVED

Testimony of: Christine Kosinski, Unincorporated Clackamas County

I remain concerned over the City's plan to consider annexation of 92 acres, South of Holcomb Blvd and North of S. Livesay Road in the Park Place area due to unstable slopes, poor soil conditions, a plethora of landslides existing on slopes of as little as 5%, the homeowners inability to understand they are living in a landslide risk area where landslide insurance will be extremely difficult to obtain. Lastly, weak City regulations over steep slopes and landslides.

I have been an active participant in the Park Place Concept Plan from the beginning. I attended the PAC meetings, the Urban-Rural Reserve meetings, City and County meetings and so many others. I've personally testified to the City on numerous occasions, trying my best to represent the many concerns of the people of Holly Lane where many homeowners have lived here more than 50-60 years and had hoped to remain in their homes on Holly Lane to live out the rest of their lives. Their concerns are well known to you, through hundreds of testimonies from myself and from the people who live here. They remain highly concerned about the safety and livability for the people of Holly Lane. As the city has developed, these people have endured several years of heavy and speeding traffic, the area is noisy with traffic where the people find it difficult to have the peace and serenity in their lives that they once had here, after all, this is why they moved here.

As I have testified in the past, the land is unstable here, filled with many landslides and sink holes. Homes have been destroyed or heavily damaged on Holly Lane due to landslides, placing heavy financial burdens on some.

Please understand, the landslides on Holly Lane occurred on **Only 11% Slope!**. Several landslides, within the boundary of the 92 acres you propose to annex are only **10-15% Slope**, the Street of Dream homes, in close proximity to these 92 acres, occurred on as little as 5% and some on less, per DOGAMI. The entire Park Place Plan area contains quite a few landslides of only **5-10-15-20%**, and yet the City **Only regulates steep slopes of 25% or greater!** I ask, why isn't the City regulating slopes that are less than 25%? It makes one wonder if the City truly wants to regulate landslides.

Following is information to help you understand our concerns for considering these 92 acres for annexation and future development of as many as 522 homes.

See **Exhibit 1**, news article from 2003 about 20 acres Mark Handris tried to develop. The developer was fined for continuing to work without taking adequate steps to stop the slides, and as well, the project was shut down by Oregon City due to all of the slopes failing and slipping. This project is close to the 92 acres you are considering for annexation. Can the City have trust in this same developer for 92 acres and is the proposed Park Place Plan also in a same area of failing and slipping slopes?

See **Exhibit 2 Marked Draft Report** GRI Geotechnical and Environmental Consultants report of their "Preliminary geologic and geotechnical evaluation for proposed Park Place Concept Plan".

See **Exhibit 3 GRI Report – Not Marked**

One of GRI's reports has been stamped **DRAFT** while the other report has not. On Page 5 of the draft report, second paragraph under Conclusions and recommendations, it is stated "We also recommend that the City require a geotechnical evaluation/investigation as part of any future development in areas **with slopes of 15% or steeper.**

Now compare to the report that is not marked "draft." (exhibit 3) On the second page, first paragraph, it is stated "we also recommend that the City require a geotechnical evaluation/investigation as part of any future development in areas **with slopes of 25% or steeper.**

I ask, **which report is correct** and why didn't the City change it's hazard regulations to regulate slopes of 15% or steeper if this is the correct report from GRI?

In the Draft report, see Page 2 under Previous Work "This report identified **slopes of 10% to more than 50% within the study area**". Also, see Page 4, first paragraph of this report, "Several small roads intersect Redland Road and extend northward into residential developments. These residential developments are generally low density and established on **slopes of 5 to 15%**".

This validates previous remarks "that slopes in both the Park Place Plan and Holly Lane" are much less than the 25% slopes that the City is currently regulating.

In this same Draft report, see Page 4, third paragraph from the top, "development has occurred immediately outside the study area, in the Oak Valley area. Evidence of **soil creep** observed during the reconnaissance includes tilted and bowed trees around the perimeter slopes of the development". In this area, on Oak Tree Terrace, a new home was purchased in 2004. A few years later the back yard of this home began to sink, drifting towards a cliff. The value of the home took a huge drop until repairs were done, the home went back on the market at a much lower cost. This continues the concerns for the instability of this area for development, and when considering the fact that homeowners will find it almost impossible to get landslide insurance, should the government allow development in such a hazardous area, **Goal 7 says NO!**

The City cannot meet the **requirements of Land Use Goal 7,** as your current regulations "Do not protect people and property from natural hazards". As well, the City has not formally adopted Goal 7 requirements.

Planning Commissioners: I am enclosing the complete GRI Geotechnical and Environmental Consultants Preliminary Geologic and Geotechnical Evaluation for your review (Draft Report). I have highlighted sections of the report that I feel are extremely important.

See Exhibit 4 – Within the boundaries of the 92 acres, proposed for annexation, please note that the largest percentage of land is comprised of Slopes of 0-10 and 10-25% and yet the City only regulates slopes of 25% or more. I ask why?

See Exhibit 5 – There were a series of e-mails exchanged by the people of Holly Lane and Nancy Kraushaar. Question, was the second stage of the Geologic Hazards code ever re-written? If not, will these be in place before approving the 92 acre annexation for the Park Place Plan and will the template from the City of Salem be used (as developed by FEMA)?

See Exhibit 6 - For your review, I am enclosing the most important pages from an “Application for Landslide Insurance”. On the first page you will note the question “Is the building in a known landslide area or have there been any incidents of landslide within 1 mile of the property?”. It really does not matter if the applicant answers Yes or No since the underwriting agency uses Lidar Landslide maps to locate whether your property is within 1 mile of a previous slide. Therefore, every homeowner on Holly and every prospective buyer of a new home in the Park Place Concept Plan, will probably be denied Landslide Insurance and therefore will have to bear all losses personally. There are so many exclusions that these plans virtually do not pay. Again, I have highlighted important sections. I have included this exhibit in my testimony as I feel it is very important that our Planning Commission understand that landslide insurance pretty much does not exist, and yet Oregon City continues to build in these hazardous areas knowing the homeowners are purchasing homes in an area that is risking their lives and the lives of their families. Oregon City has the DOGAMI Lidar Maps, they know what lies beneath the ground homes are built on. The new homeowner does not have this knowledge, they cannot see beneath their new homes, but you can. Where is your responsibility to these homeowners?

See Exhibit 7 – Landslide in 2008 in Burlingame. First picture shows home before it slid down a slope onto another home and was destroyed. Although the homeowners took legal action, none of their insurance coverage would pay and they were not covered by Landslide Insurance. Total losses.

See Exhibit 8 - “Insurance won't pay” for landslide damage in Corvallis, OR home. Please see Pg 2. The homeowners had \$2 million dollars worth of insurance, it won't do any good as standard insurance will not cover landslides. Also, see Pg 2, last paragraph, “Homeowners insurance covers a whole lot of stuff, but earth movement isn't in there”. This is stated by Oregon's own, Ron Fredrickson who manages the consumer advocacy team for the Oregon Insurance Division. “It's specifically excluded, as are earthquake and flood”. Pg 3, first paragraph, Mr. Fredrickson states “landslide insurance is almost unheard of, it can be purchased only from highly specialized carriers and it's liable to come with a hefty premium. I've yet to come across anybody who has it!”.

Professor Scott Burns was interviewed by KUOW News after the devastating OSO, WA landslide. Dr. Burns states “It is rare that people will get landslide insurance. You can buy it through Lloyd's of London. They're the ultimate insurers, but it's so expensive, a minimum of \$1000 a year and it goes up from there. All those people who lost their houses in the Oso landslide have **lost everything, and there's NO INSURANCE covering them. We lost lives. That is the worst thing. But then property is the second thing**”.

These are just a few examples to help you understand the huge financial losses, and losses of life, people endure after landslides hit their homes. I have many, many more cases, just like these that I can give to you if you want to read more. I also have news articles from other States showing that homeowners are beginning to take local governments to task. They are asking, why weren't we told? They state the developer didn't warn them, sellers and real estate agents also never disclosed landslide problems.

There is much for the Planning Commission to consider regarding this proposal to annex and change zoning in an area where "susceptibility for landslides is "HIGH" and likely to occur", per DOGAMI Lidar Mapping. Consider as well that a home on Holly Lane remains **condemned due to landslides** and this is in an area where the City proposes to build the Swan Rd extension! Consider that in the Country Village Estates, some homes have been removed where water and mud invaded. Certain parts of Country Village are banned from future development. I also want you to consider the City's Hazard/Landslide regulations. Many other communities are strictly regulating steep slopes and landslide areas. **There is a City not too far from Oregon City** with a larger population. It's interesting to read their Landslide Regulations which are, for slopes of 25% or more, there will be absolutely no development. They regulate slopes of 15% and greater and they have in their regulations that their City supports the requirements of Goal 7 and that protecting their citizens is of the utmost importance to their government. Even Portland regulates slopes of 20% or more, so why is Oregon City only regulating slopes of 25% or more.

I do not believe Oregon City can continue to develop in hazardous landslide areas until their regulations are changed. Regulating slopes of 25% or more places the City in great jeopardy. Oregon City's topography is very difficult, there will be more landslides, will the homeowners take the City to task? Will they ask you, why weren't we told our property is in a landslide area and why weren't we told, before signing final papers, that we should check with our Insurance Agent to see if we would be covered for losses due to landslides?

For all the reasons I have given to you, for the protection and safety of the people and their families, for not meeting the requirements of **Goal 7**, for putting people and their property in harm's way, I cannot find it within myself to support this 92 acre annexation and zone change located in a dangerous and unsafe landslide area, where State Land Use **Goal 7** clearly states "Local governments shall adopt comprehensive plans to reduce risk to people and property from natural hazards." This cannot be accomplished by just regulating slopes of 25% or more when landslides are occurring on 5-10-15-20% and by withholding landslide information from the people.

Enclosing Exhibits 1-8

Enclosing my **denial for landslide insurance** because my property is within one mile of previous landslides

From: Jackie Goodman <jackie@huggins.com>

To: britenshin <britenshin@aol.com>

Subject: RE: Landslide and earthquake quote

Date: Wed, Oct 28, 2015 11:20 am

Hello Christine and John,

I received a response from the Underwriter and I am sorry to tell you that your application has been denied. Unfortunately you are ineligible for landslide coverage at this time. The comments from the Underwriter indicate the risk is surrounded by 6 large landslides and a recent fan of debris. The Catcoverage.com market is the only market that we have available for this type of coverage.

I am so sorry that I am unable to assist you. If you have any questions or concerns, please let me know.

Kindly,

Jackie Goodman

Account Manager

Huggins Insurance Services

jackie@huggins.com

South

MetroSouth News Bureau.....503-656-0083
Calendar and information.....503-294-5913
News tips.....503-294-5920
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Newspaper delivery.....503-221-8240
Classified ads.....503-221-8000
On the Web.....www.oregonlive.com/oregonian

Oregon City halts Holcomb Ridge project

The city stops construction at the subdivision because of landslides; the developer says he's making fixes

BY STEVE MAYES
 THE OREGONIAN

OREGON CITY — Concerns about erosion and landslides have prompted the city to shut down construction at a controversial subdivision.

The city issued a stop-work order on the 20-acre Holcomb Ridge subdivision on Nov. 25 and fined developer Mark Handris for continuing work without taking adequate steps to stop the slides or cover dirt piles.

Last summer, critics of the project warned that clearing trees and plants, cutting into hillsides and developing the sloped site could be risky. The 40-lot project is on South Holcomb Boulevard near South Longview Way.

"Pretty much all the slopes have started to fail," said John Burrell, Oregon City associate engineer.

When the project was approved earlier this year — over the objections of the Park Place Neighborhood Association — the city imposed conditions intended to limit erosion.

Handris complied, but the measures proved insufficient.

On Nov. 20, the city notified Handris that he needed to address the landslides and dirt piles, which had started to wash into a small

creek. When the work wasn't done by Nov. 25 and more slides appeared, the city shut down the project, said Burrell, who estimated about a half-mile of slope could slip.

Handris said the city has blown the situation out of proportion. The problem is "insignificant," he said.

Some people who live nearby don't see it that way.

"It's gone over the barrier and into the creek in some spots," said Tam Seasholtz, a neighbor who counted seven Holcomb Ridge landslides from her kitchen window.

The hillsides are stable, Handris said. The recent earth movement resulted largely from a loose layer of dirt, grass and plant material

that a contractor spread on top of compacted dirt, he said.

"Some of our silt fencing and jute netting on some of our slopes has started to wash away, so that's being repaired," Handris said.

Handris said the city-required work should be done by the end of the week. "We're out there making a heck of an effort to correct the problem," he said.

The city has fined Handris \$3,600, said Nancy Busch, an Oregon City code enforcement officer. Handris said he will fight the penalty.

Those who live around the project are skeptical that fences, matting and straw can stop the soil movement.

"It's not terrible yet, but there's still another four months of rain,"

said Tim Williams, who has lived in the neighborhood since 1990.

Oregon City Commissioner Doug Neeley said he has been concerned about the development since he first viewed the site last summer.

"I thought, 'Man, that was a steep area they've scooped out,'" Neeley said.

"I was hoping the developer would take appropriate erosion-control actions. Apparently, that didn't happen," said Neeley, who wants the city to adopt stricter standards for development on some slopes.

Steve Mayes: 503-294-5916;
 stevemayes@news.oregonian.com

EXM 1



Geotechnical & Environmental Consultants

9725 SW Beaverton Hillsdale Hwy, Ste 140

Portland, Oregon 97005-3364

PHONE 503/641/3478 FAX 503/644/8034

February 7, 2007

4584 PRELIM GEOTECH EVALUATION

SERA Architects
338 NW 5th Avenue
Portland, OR 97209

DRAFT

Attention: David Berniker

**SUBJECT: Preliminary Geologic and Geotechnical Evaluation
Park Place Concept Plan
Oregon City, Oregon**

At your request, GRI has completed a preliminary geologic and geotechnical evaluation for the proposed Park Place Concept Plan project in Oregon City, Oregon. This evaluation addressed the Park Place study area, which is shown on the Vicinity Map, Figure 1. The Park Place Concept Plan is being developed to identify the preferred long-term land use of the study area. The Concept Plan was developed by the design team and local community during a design charrette and series of community meetings.

The purpose of the evaluation was to identify, on a preliminary basis, the potential geologic hazards within the study area and provide geotechnical considerations for future development, to be included in the Concept Plan document for the City of Oregon City (City). This includes recommendations for site-specific geotechnical evaluations prior to development and general slope hazard management. The conclusions and recommendations provided in this report are based on a review of the previous work completed in the study area by others and other sources of information described herein.

The evaluation consisted of limited field reconnaissance; review of published geologic reports and maps, readily available geotechnical reports and subsurface information, and water well records on file with the Oregon Water Resources Department (OWRD); and examination of aerial photographs. The intent of this document is to serve as a practical guide to assist the City in their understanding and management of the short- and long-term geologic risks associated with future development in the Park Place Concept Plan study area.

PROJECT DESCRIPTION

The study area is located in Clackamas County, Oregon, east of Highway 213 and south of Redland and Holcomb roads. The total study area is approximately 470 acres; 180 acres of the study area are located immediately adjacent to Oregon City limits in the vicinity of Livesay Road, but have not been annexed as part of the City, and 300 acres were brought into the Urban Growth Boundary in 2002. The study area is composed of 138 individual property owners. The largest property under one ownership is approximately 48 acres, and nearly half the parcels in the study area are 1 acre or less.

EXH 2

The Park Place Concept Plan was developed to identify the preferred long-term land use of the study area. The Concept Plan identifies the general areas of different housing densities, commercial and industrial land uses, parks, open spaces, and schools.

The study area includes existing residential developments and a public middle school, but is generally rural and distinguished by steep slopes, several creeks, marsh areas, and wooded areas. The general topography of the study area is shown on the Slope Map, Figure 2, and the Landslide Geomorphology Map, Figure 3. The long-term development outlined in the proposed Concept Plan includes new mixed-use and residential development, new roads between Holly Lane and Highway 213 and Redland and Holcomb roads, and improvements to existing roadways. We understand the proposed Concept Plan has identified open space areas located in conjunction with environmentally constrained and natural areas, which will serve as undeveloped parks and natural resource areas for the study area. These open spaces include all areas with slopes of 25% or steeper within the Concept Plan study area.

GEOLOGIC SETTING

The study area is located in the Abernathy Creek drainage of the Willamette Valley. The Abernathy Creek drainage consists of a narrow meandering creek, fed by Newell and Holcomb creeks, which flows directly into the Willamette River immediately northwest of the study area. The drainage is characterized by steep canyons subject to ongoing slope processes. The local geology is dominated by the fine-grained facies of the Missoula Flood deposits (Madin, in press) primarily comprised of silt, sand, and gravel of late Pleistocene age, as shown on the Geologic Map, Figure 4. These deposits generally form terraces at the lower extent of the local creeks and mantle slopes up to about elevation 200 to 250 ft. In the low-lying areas within the floodplain of Abernathy Creek is alluvium and Pleistocene-age Willamette Silt, which consists of fine-grained sands, silt and clay with scattered lenses of fine- to medium-grained sand. At the north edge of the study area (along Holcomb Road, at the south end along Holly Lane and at the southwest edge, adjacent to Newell Creek Canyon), mudstone, claystone, and sandstone of the Troutdale Formation are present, typically in steep canyons and ridges. Geomorphic and geologic evidence indicates these tributary canyons of Abernathy Creek have been modified by ongoing, large-scale landslides. The Oregon Department of Geology and Mineral Industries' (DOGAMI) preliminary geologic map of the area indicates an inferred trace of the Oatfield Fault may extend into the northwest portion of the study area; however there is no direct evidence that the fault exists in this area (Madin, in press).

PREVIOUS WORK

Due to the presence of landslides in the Oregon City area, a number of geologic maps and geotechnical studies have been completed in the vicinity of the Concept Plan study area. DOGAMI Bulletin 99, "Geology and Geologic Hazards of Northwestern Clackamas County, Oregon," documents the initial study focusing on the geology and geologic hazards of the area (Schlicker & Finlayson, 1979). This report identified slopes of 10 to more than 50% within the study area. The report also identified hazards associated with flooding along Abernathy Creek and the potential for a high water table near Ogden Middle School, west of Holly Lane. Bulletin 99 did not identify landslide-specific hazards within the Concept Plan study area, but

identified landslide topography, local slumping, earthflow, mudflow, and debris flow in Newell Creek Canyon, immediately west of the study area, and in canyons on both sides of Holly Lane, south and east of the study area. Most of the landslide topography identified on the Bulletin 99 "Geologic Hazards Map of the Canby and Oregon City Quadrangles, Oregon" occurs on slopes of 10 to 20%.

Subsequent to Bulletin 99, Portland State University (PSU) evaluated geologic constraints for future development of Newell Creek Canyon (Burns and others, 1993). The study area included in this report is immediately adjacent to the Concept Plan study area, to the west. The report included evaluation of geologic, soil, and groundwater conditions within the canyon and included a landslide susceptibility map for the canyon, which identified existing landslides as high risk, and exposures of Troutdale Formation with slopes of 8° or more as having a moderate risk of landslides. The report identified over 50 existing landslides in Newell Creek Canyon and noted that 73% of the project area was at moderate risk for landslides. Several other site-specific geologic and geotechnical investigations have been conducted within Newell Creek Canyon to assess landslide hazards associated with residential development. In addition, two studies have been published following storm-induced landslides in 1996 and 1997, documenting landslides immediately adjacent to the study area (Burns and others, 1998; Hofmeister, 2000).

In 2006, DOGAMI developed a map identifying landslide geomorphology in the vicinity of Oregon City, including the Concept Plan study area, using light detection and ranging (LIDAR) surveys and air photos (Madin and Burns, 2006). This map identifies over 35 existing landslides and debris fans within the Concept Plan study area, as shown in Figure 3. DOGAMI is currently completing a geologic map of the Oregon City vicinity (Madin, in press). A draft version of this map is shown on Figure 4. At this time, the 2006 map is the most up-to-date source of information concerning landslides in the study area.

SITE RECONNAISSANCE

Methodology

A certified engineering geologist (CEG) and registered geologist (RG) from GRI conducted a general reconnaissance of the study area on November 29, 2006. The ground-level reconnaissance consisted of viewing the majority of the study area from roadway rights-of-way. Visual reconnaissance was limited to areas and facilities that were readily observable from streets or other public areas.

Study Area Observations

The study area lies on both sides of Redland Road, extending north toward Holcomb Road and south toward Maple Lane, primarily along adjacent creek canyons. Redland Road bisects the study area from east to west, and Holly Lane extends from Redland to the south end of the study area. There are no north-south connecting roads from Redland Road to Holcomb Boulevard. Between Redland Road and Holcomb Boulevard there are a number of separate residential developments with discontinuous streets. Significant portions of the study area include steep, wooded creek canyons and generally rural property.

Redland Road is a two-lane, minor arterial linking Highway 213 to residential areas to the east of Oregon City. Redland Road transects the Abernathy Creek valley and crosses Abernathy Creek four times within the study area. As shown on Figure 2, the slopes at creek crossings are typically steeper than 25%. We observed localized slumping and raveling along these stream banks. In addition, slopes greater than 25% were observed along much of Redland Road, as road cuts on the north side of the road and sloping toward the creek on the south side of the road. Several small roads intersect Redland Road and extend northward into residential developments. These residential developments are generally low density and established on slopes of 5 to 15%. Readily apparent and obvious indications of recent large-scale, deep seated slope instability were not observed in these developments.

Holly Lane is a local street that runs south from Redland Road to Maplelane Road and has steep grades and very narrow shoulders. There is a steep canyon to the east of Holly Lane and steep slopes (greater than 25%) along Holly Lane between Redland Road and Donovan Lane. Based on personal communication with property owners, GRI understands that localized slope failures have occurred at residential properties on the south east side of Holly Lane, just outside the Concept Plan study area (Moxley, personal communication, 2006).

There are no connecting roads between Redland Road and Holcomb Boulevard in the north portion of the study area. Development in this area is composed of isolated residential developments that have been constructed over the past 50 years. Swan Avenue and Livesay Road are residential streets that extend east-west through this portion of the study area. These residential developments occur on the relatively flat plateau above Redland Road. We did not observe any development adjacent to the canyon at the north edge of the study area; however, development has occurred immediately outside the study area, in the Oak Valley area. Evidence of soil creep observed during the reconnaissance includes tilted and bowed trees around the perimeter slopes of the development.

SUBSURFACE CONDITIONS

To provide a preliminary characterization of subsurface materials and conditions within the study area, GRI reviewed water well logs available through OWRD and available boring logs for sites adjacent to the project area. There are limited well logs available for the study area, as shown on Figures 2 through 4. Review of well logs indicates the study area is generally mantled with silt, which is underlain by weathered sedimentary rocks. This characterization is consistent with the conditions described in boring logs included in the study by PSU (1993) and in the preliminary mapping by Madin (in press).

Groundwater

It is anticipated that the groundwater level in low-lying areas of the study area, in the Abernathy Creek drainage, will fluctuate according to seasonal rainfall and may occur near the ground surface during wet, winter and spring months and during periods of prolonged or intense rainfall, and within several feet of the ground surface during drier months.

It is anticipated the regional water table occurs at depth in areas of higher elevation; however, shallow perched water can occur in and over the weathered sedimentary rock and fine-grained soil, particularly following intense and/or prolonged precipitation.

CONCLUSIONS AND RECOMMENDATIONS

Landslides have occurred within the study area and in adjacent areas with similar topography, geology, and groundwater conditions. With regard to slope instability, most of the known slope instability has occurred on the steeper slopes on ravines along streams and drainages. We understand the recommended Concept Plan developed by the design team identifies areas with slopes of 25% or more as open space that will remain undeveloped. Limiting development in these areas is an appropriate measure to limit the risk of slope instability and landslides impacting future development. In addition, for the purpose of this Concept Plan, GRI recommends further site-specific study be conducted for future developments, in accordance with the City's municipal code Chapter 17.44, for managing geologic hazards and in accordance with following recommendations.

It would be prudent for the City to expand the definitions included in the City of Oregon City Municipal Code, Chapter 17.44.020, to include the Portland State University study, "Landslides in the Portland, Oregon, Metropolitan Area Resulting from the Storm of February 1996: Inventory Map, Database and Evaluation" (Burns and others, 1998); the DOGAMI Open File Report O-06-27, "Map of Landslide Geomorphology of Oregon City, Oregon, and Vicinity Interpreted from LIDAR Imagery and Aerial Photographs" (Madin and Burns, 2006); and the upcoming "Preliminary Geologic Map of the Oregon City Quadrangle, Clackamas County, Oregon" (Madin, in press), as references for identifying "landslide areas," "unstable slopes," "unstable soils," and debris fans. We also recommend that the City require a geotechnical evaluation/investigation as part of any future development in areas with slopes of 15% or steeper. This would include all new construction, including additions to existing homes such as swimming pools and retaining walls, installation of underground utilities, new access driveways and/or roadways, and similar types of projects that require significant earthwork. The geotechnical evaluation/investigation should address the slope hazards in the development and specifically address how the proposed development will limit the risk of future slope instability, prior to issuing a building permit. The geotechnical evaluation/investigation should also address setbacks from existing slopes and recommendations for cut and fill and on-site stormwater management, as described in more detail below. In addition, the City should require special inspection by the geotechnical engineer during construction of soil- and foundation-related elements and a summary letter of compliance upon completion of the work.

The actual scope of the geotechnical evaluation/investigation will depend somewhat on the location within the study area and the proposed development. For example, for development in areas that will likely require little if any earthwork, a reconnaissance-level site evaluation may be adequate prior to issuing a building permit. However, if the new development requires cuts deeper than about 5 ft into the existing hillsides, the geotechnical engineer may need to consider performing subsurface explorations, such as test pit excavations and/or shallow borings, as part of their evaluation/investigation. For any

development within or adjacent to mapped landslide areas or debris fans, or any development that requires excavations deeper than about 10 ft into the existing hillside, it would be prudent to perform a more-detailed, comprehensive geotechnical investigation prior to issuing a building permit. An engineering geologist should provide site-specific geologic input for any development with proposed cuts deeper than about 10 ft and all evaluations within the limits of mapped landslide areas and debris fans.

To assist the City, GRI has prepared the following geotechnical-related considerations for future development in the Park Place Concept Plan area.

- 1) Require a development- and/or lot-specific evaluation/investigation and report by a Professional Engineer, registered in the State of Oregon, who by training, education, and experience is qualified in the practice of geotechnical engineering. The engineer should be assisted in the evaluation of mapped landslide areas and debris fans by a Certified Engineering Geologist (CEG) certified in the State of Oregon. The evaluation/investigation and report should include, but not be limited to, the following type of considerations, as appropriate for the type of proposed development:

General earthwork considerations, including recommendations for temporary and permanent cut and fill slopes and placement of structural fill,

Location of residence on lot,

Building setbacks from slopes,

Subdrainage and/or management of groundwater seepage,

Foundations,

Embedded/retaining walls,

Management of surface water and irrigation water, and

Impact of the development on the slope stability of the lot and the adjacent properties

- 2) The geotechnical engineer of record should review final grading, drainage, and foundation plans and specifications and confirm in writing that they are in conformance with the recommendations provided in their report.
- 3) For large complex developments on sites with challenging conditions, at the City's discretion, it may be appropriate to obtain a peer review of the geotechnical evaluation/investigation report for the development and/or

lot plans. Based on the finding of the peer review, the applicant's geotechnical engineer will need to respond to written comments provided by the City's peer review prior to issuance of building permit.

- 4 The applicant's geotechnical engineer should provide special inspection during construction to confirm that the subsurface conditions/assumptions made as part of their geotechnical evaluation/investigation are appropriate. This will allow for timely design changes if site conditions are encountered that are different from those anticipated. In addition, prior to issuing an occupancy permit, the City should require the geotechnical engineer to prepare a summary letter stating that the soils- and foundation-related project elements were accomplished in substantial conformance with their recommendations.

Concluding Remarks and Limitations

This report has been prepared to identify geologic hazards and geotechnical considerations associated with future development in the Park Place Concept Plan study area.

The opinions and recommendations stated in this report are based on a review of the previous work completed in the study area by others and other sources of information described herein. With respect to the work performed by others, GRI did not participate in the implementation of the work and did not independently verify the accuracy or completeness of the information provided. GRI makes no representations or warranty regarding instruments of service completed by others. The information presented in this report was developed by GRI in a manner consistent with that level of care and skill ordinarily exercised by members of the profession currently practicing under similar conditions. No other warranty, expressed or implied, is made.

It is important to note that GRI's work evaluated the study area as a whole and did not address individual properties. For this reason, property owners/developers should retain qualified engineers and geologists to assist in the evaluation of specific properties and to prepare associated development plans and designs.

This evaluation has been prepared to aid SERA Architects in the completion of the Park Place Concept Plan. The scope is limited by the fact that the actual plans for the study area are indefinite; hence, only preliminary opinions are presented.

Submitted for GRI,



Geotechnical & Environmental Consultants

9725 SW Beaverton Hillsdale Hwy, Ste 140
Portland, Oregon 97005-3364
PHONE 503/641/3478 FAX 503/644/8034

February 7, 2007

4584 PRELIM GEOTECH EVALUATION
(ISSUED 3-28-07)

SERA Architects
338 NW 5th Avenue
Portland, OR 97209

Attention: David Berniker

**SUBJECT: Preliminary Geologic and Geotechnical Evaluation
Park Place Concept Plan
Oregon City, Oregon**

At your request, GRI has completed a preliminary geologic and geotechnical evaluation for the proposed Park Place Concept Plan project in Oregon City, Oregon. This evaluation addressed the Park Place study area, which is shown on the Vicinity Map, Figure 1. The Park Place Concept Plan is being developed to identify the preferred long-term land use of the study area. The Concept Plan was developed by the design team and local community during a design charrette and series of community meetings.

The purpose of the evaluation was to identify, on a preliminary basis, the potential geologic hazards within the study area and provide geotechnical considerations for future development, to be included in the Concept Plan document for the City of Oregon City (City). This includes recommendations for site-specific geotechnical evaluations prior to development and general slope hazard management. The conclusions and recommendations provided in this report are based on a review of the previous work completed in the study area by others and other sources of information described herein.

The evaluation consisted of limited field reconnaissance; review of published geologic reports and maps, readily available geotechnical reports and subsurface information, and water well records on file with the Oregon Water Resources Department (OWRD); and examination of aerial photographs. The intent of this document is to serve as a practical guide to assist the City in their understanding and management of the short- and long-term geologic risks associated with future development in the Park Place Concept Plan study area.

PROJECT DESCRIPTION

The study area is located in Clackamas County, Oregon, east of Highway 213 and south of Redland and Holcomb roads. The total study area is approximately 470 acres; 180 acres of the study area are located immediately adjacent to Oregon City limits in the vicinity of Livesay Road, but have not been annexed as part of the City, and 300 acres were brought into the Urban Growth Boundary in 2002. The study area is composed of 138 individual property owners. The largest property under one ownership is approximately 48 acres, and nearly half the parcels in the study area are 1 acre or less.

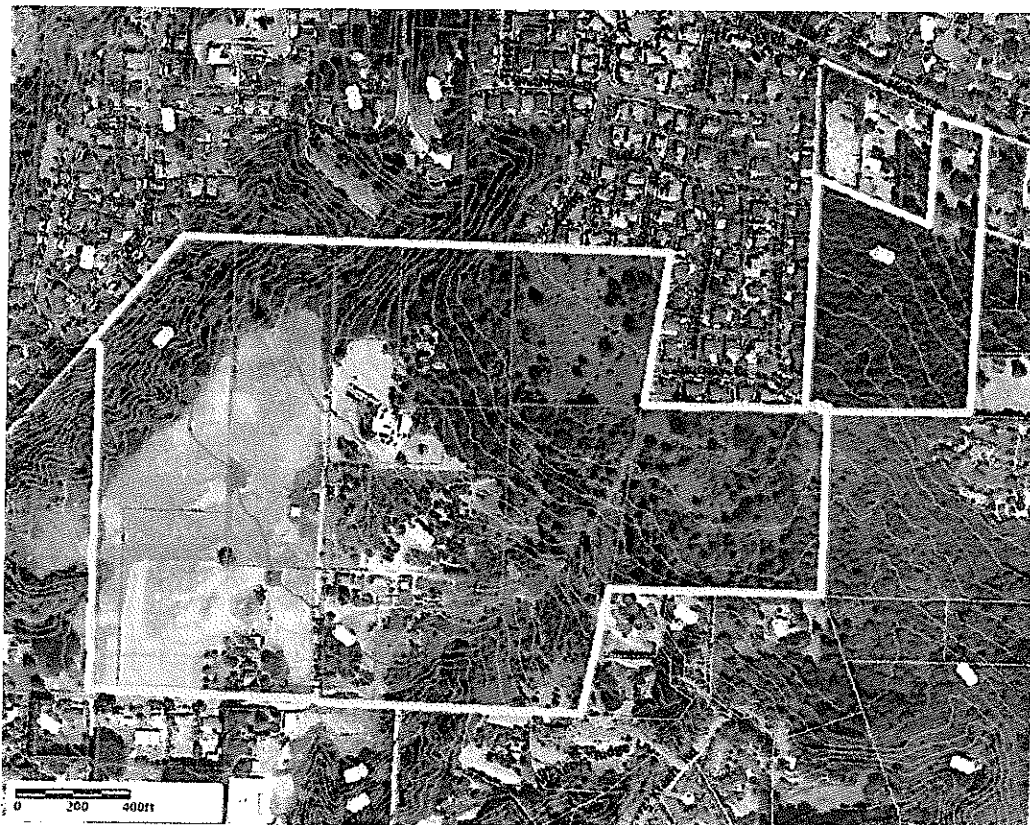
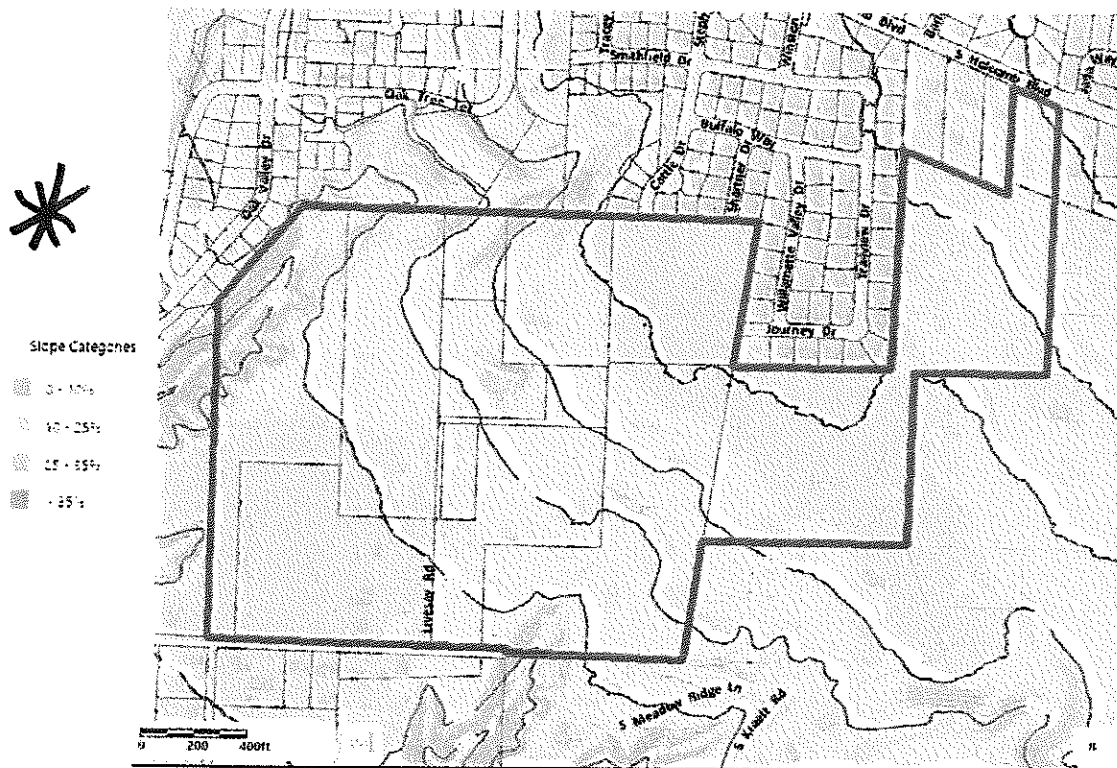
EXH 3

It would be prudent for the City to expand the definitions included in the City of Oregon City Municipal Code, Chapter 17.44.020, to include the Portland State University study, "Landslides in the Portland, Oregon, Metropolitan Area Resulting from the Storm of February 1996: Inventory Map, Database and Evaluation" (Burns and others, 1998); the DOGAMI Open File Report O-06-27, "Map of Landslide Geomorphology of Oregon City, Oregon, and Vicinity Interpreted from LIDAR Imagery and Aerial Photographs" (Madin and Burns, 2006); and the upcoming "Preliminary Geologic Map of the Oregon City Quadrangle, Clackamas County, Oregon" (Madin, in press), as references for identifying mapped landslides and landslide materials, "landslide areas," "unstable slopes," "unstable soils," and debris fans. We also recommend that the City require a geotechnical evaluation/investigation as part of any future development in areas with slopes of 25% or steeper and within a 200-ft setback of the crest and toe of these slopes, and in areas previously mapped as landslides. This would include all new construction, including additions to existing homes such as swimming pools and retaining walls, installation of underground utilities, new access driveways and/or roadways, and similar types of projects that require significant earthwork. The geotechnical evaluation/investigation should address the slope hazards in the development and specifically address how the proposed development will limit the risk of future slope instability, prior to issuing a building permit. The geotechnical evaluation/investigation should also address setbacks from existing slopes and recommendations for cut and fill and on-site stormwater management, as described in more detail below. In addition, the City should require special inspection by the geotechnical engineer during construction of soil- and foundation-related elements and a summary letter of compliance upon completion of the work.

The actual scope of the geotechnical evaluation/investigation will depend somewhat on the location within the study area and the proposed development. For example, for development in areas that will likely require little if any earthwork, a reconnaissance-level site evaluation may be adequate prior to issuing a building permit. However, if the new development requires cuts deeper than about 5 ft into the existing hillsides, the geotechnical engineer may need to consider performing subsurface explorations, such as test pit excavations and/or shallow borings, as part of their evaluation/investigation. For any development within or adjacent to mapped landslide areas or debris fans, or any development that requires excavations deeper than about 10 ft into the existing hillside, it would be prudent to perform a more-detailed, comprehensive geotechnical investigation prior to issuing a building permit. An engineering geologist should provide site-specific geologic input for any development with proposed cuts deeper than about 10 ft and all evaluations within the limits of mapped landslide areas and debris fans.

To assist the City, GRI has prepared the following geotechnical-related considerations for future development in the Park Place Concept Plan area.

- 1) Require a development- and/or lot-specific evaluation/investigation and report by a Professional Engineer, registered in the State of Oregon, who by training, education, and experience is qualified in the practice of geotechnical engineering. The engineer should be assisted in the evaluation of mapped landslide areas and debris fans by a Certified Engineering Geologist (CEG) certified in the State of Oregon. The evaluation/investigation and report should include, but not be limited to, the following type of considerations, as appropriate for the type of proposed development:



EXH 4

Nancy J.T. Kraushaar, PE
City Engineer/Public Works Director
City of Oregon City
320 Warner Milne Road, PO Box 3040
Oregon City, OR 97045

Phone: 503-496-1545

Fax: 503-657-7892

E-mail: nkraushaar@ci.oregon-city.or.us

From: Britenshin@aol.com [mailto:Britenshin@aol.com]

Sent: Tuesday, February 19, 2008 4:29 PM

To: Nancy Kraushaar; Alice Norris; Damon Mabee; Daphne Wuest; Trent Tidwell; Doug Neeley; Larry Patterson; Pete Walter; Christina Robertson-Gardiner; Tony Konkol; Dan Drentlaw; kat2kami@yahoo.com; rodmoxley@comcast.net; bigcozz@comcast.net; bobn2b@msn.com; gardengifts@juno.com; paintfx@juno.com; tgeil@comcast.net; steve@vanhaverbeke.org; Britenshin@aol.com; pauloedgar@qwest.net; HOGANSBLUFF@aol.com; rlp@hevanet.com; sha-z@earthlink.net; johnwilliams38@gmail.com

Subject: Steep Slope/Landslide Regulations

Nancy: Citizens of our neighborhood would like to be updated on the proposed policy changes for Steep Slopes and Landslides. When do you anticipate the new policy to be finalized and in effect, and will the new regulations be city wide?

We had hoped these would be in place prior to the adoption of the Concept Plan as it is felt difficult by the community to pass the Plan without having the knowledge of these new regulations. The City of Salem's Hazard/Steep Slope/Landslide policy (adopted in conjunction with FEMA) is considered to be the most comprehensive in the State if not in the entire Nation. A question I have.....Would it save you work to simply adopt these same criteria and codes thus keeping continuity within the State and being in alignment with FEMA regulations? Your Thoughts please.

Thank You
Christine Kosinski
Holly Lane
e-mail:britenshin@aol.com

Delicious ideas to please the pickiest eaters. Watch the video on AOL Living.

EXH 5

Subj: RE: Steep Slope/Landslide Regulations
Date: 2/20/2008 11:34:39 A.M. Pacific Standard Time
From: nkraushaar@ci.oregon-city.or.us
To: Britenshin@aol.com, anorris@ci.oregon-city.or.us, dmabee@ci.oregon-city.or.us, dwuest@ci.oregon-city.or.us, ttidwell@ci.oregon-city.or.us, dneeley@ci.oregon-city.or.us, lpatterson@ci.oregon-city.or.us, pwalter@ci.oregon-city.or.us, crobertson@ci.oregon-city.or.us, tkonkol@ci.oregon-city.or.us, ddrentlaw@ci.oregon-city.or.us, kat2kami@yahoo.com, rodmoxy@comcast.net, bigcozz@comcast.net, bobn2b@msn.com, gardengifts@juno.com, paintfx@juno.com, tgeil@comcast.net, steve@vanhaverbeke.org, pauloedgar@qwest.net, HOGANSBLUFF@aol.com, rlp@hevanet.com, sha-z@earthlink.net, johnwilliams38@gmail.com

Christine:

Below you will find a summary of what staff *will be proposing* to the City Commission for their adoption. What is finally adopted may look a little different, but I have no way of knowing that now. What the City Commission ultimately adopts is their decision.

The public should expect two stages of code changes that will govern Geologic Hazards (or Steep Slopes).

The first stage will be included in the packet of code language changes that Planning has been working on. The primary revision to our existing code for Geologic Hazards (OCMC 17.44) will be to redefine "geologic hazard areas" to include area within 200 feet of the crest or toe of a slope that is 25% or greater. This expands the areas for which an approved permit is required before development is authorized. The permit could be obtained after a developer has submitted geotechnical and geologic reports and comprehensive documentation pertaining to the proposed development and the site geology. Another significant change to the existing code will be that the reports and documentation for the development will be subject to peer review. The peer reviewer will be selected by the City and shall have expertise in regional and Oregon City geology, slope stability analysis, landslides, and engineering mitigation for hazardous sites.

The second stage will be a re-write of the Geologic Hazards code to implement the new risk-based maps that DOGAMI is developing. We will be using the City of Salem's code as the template for our code. I agree that Salem's code will provide a very good model for us to use. We will not be able to propose this code for adoption until the DOGAMI maps are complete and can be adopted by the City Commission.

Regarding the DOGAMI maps - I met with Bill Burns about two weeks ago and he showed me the work he has completed so far. We are preparing to provide an in-house review of the work he has completed. He will also have others reviewing his work (I believe others from DOGAMI and Scott Burns).

Let me know if you have additional questions regarding this information.

Thank you for your inquiry.

-Nancy

Nancy J.T. Kraushaar, PE
 City Engineer/Public Works Director
 City of Oregon City
 320 Warner Milne Road, PO Box 3040
 Oregon City, OR 97045

Phone: 503-496-1545
 Fax: 503-657-7892
 E-mail: nkraushaar@ci.oregon-city.or.us

Building Information

| | |
|-----------------------------------------------------|----------------------------------|
| Foundation Type: | Crawl Space |
| Dwelling Type: | Owner Occupied Primary Residence |
| Year Built: | 1971 |
| Roof Update: | 1998 |
| Construction Type: | Wood Frame |
| Dwelling Value Declared at 100% Replacement Cost: | \$200,000.00 |
| Total Square Footage: | 1,410 |
| Do you own this property? | Yes |
| Select the option that best describes the building: | Single-Family |
| Is this a split level home? | No |

General Questions

| | |
|-------------------------------------------------------------------------------------|------|
| Does the building have additions or extensions supported by posts, piers, or beams? | No |
| Is there existing cracking of wall or foundation? | No |
| Is there a garage attached to the building? | Yes |
| Is the sill plate permanently bolted to the foundation of the building? | No |
| What year was the roof last updated? | 1998 |

Earthquake Questions

| | |
|--------------------------------------------------------------------------------------------------------------------|----|
| Have any buildings or personal property located on the premises been damaged from an incident of Earthquake Shock? | No |
|--------------------------------------------------------------------------------------------------------------------|----|

Landslide Questions

| | |
|-------------------------------------------------------------------------------------------------------------------------------------------------|-----|
| Is the building in a known landslide area or have there been any incidents of landslide within 1 mile of the property? | Yes |
| Have any buildings or personal property located on the premises been damaged from an incident of landslide, earth movement, or land subsidence? | No |

EXH 6

Surplus Lines Disclosure

The Insurance policy that you have purchased or are applying to purchase is being issued by Certain Underwriters at Lloyd's, London (Lloyd's). Lloyd's is a Nonadmitted Surplus Lines Alien Insurer. A Nonadmitted insurer is an insurance company is licensed and domiciled outside of the borders of state where the subject of insurance is located.

The Nonadmitted Insurance title of the Dodd-Frank Wall Street Reform and Consumer Protection Act, identifies Nonadmitted insurers domiciled outside the U.S. as eligible and otherwise approved to conduct business in any state in the U.S. so long as they are shown on National Association of Insurance Commissioners (NAIC) Quarterly Listing of Alien Insurers. Dodd-Frank Act, Title V, Subtitle B (§§ 511 et seq.)

In accordance with state law we are obliged to inform you that:

This evidence of insurance was procured and developed under the Oregon Surplus Lines laws. It is NOT covered by the provisions of ORS 734.510 to 734.710 relating to the Oregon Insurance Guaranty Association. If the insurer issuing this insurance becomes insolvent, the Oregon Insurance Guaranty Association has no obligation to pay claims under this evidence of insurance. (ORS § 735.435)

**Confirmation and Signature**

By signing below, I acknowledge:

This application is for underwriting purposes only. This application is subject to final underwriting approval. Coverage will not become effective until the application has been approved by underwriting and the full total annual cost has been received by Poulton Associates, Inc. Applications approved by underwriting are valid for 30 days. The inception date of coverage may not predate payment of premium.

We reserve the right to change the rate and any resulting premium at any time. Payment of premium does not automatically attach coverage. There are waiting periods, as described in the insurance contract that applies. Coverage is not in effect until confirmed by an authorized representative. The terms of this application do not in any way alter the terms of any policy delivered. Please closely examine this application and contact your insurance producer immediately to request any needed corrections. If payment is tendered and is subsequently dishonored by the issuing financial institution, coverage will terminate on the date of inception.

To the best of my knowledge, the above questions are answered truthfully. I understand that any contract issued will be in full reliance upon statements and representations made in this application. This application will be made a part of the policy. False or misleading answers to questions could result in the policy being null and void.

Signature of Applicant

Date

Signature of Producer

Date

- b. Residential structures with basements that satisfy FEMA's standard published in the Code of Federal Regulations [44 CFR 60.6 (b) or (c)].
2. Limit of Liability. We will pay up to \$30,000 under this coverage Increased Cost of Compliance, which only applies to policies with **building** coverage as designated on the coverage declaration. Our payment of claims is in addition to the amount of coverage shown on the coverage declarations page under **building**. But the maximum you can collect under this Policy for both **building** and Increased Cost of Compliance coverage cannot exceed the limit of liability shown for **building** coverage. A separate deductible does not apply
3. Nothing contained in this Clause shall override any Seepage and/or Pollution and/or Contamination Exclusion or any Radioactive Contamination Exclusion or any other Exclusion applicable to this Policy.
4. Any provision within this Policy (or within any Endorsement which forms part of this Policy) which insures Debris Removal is cancelled and replaced by the above.

II. Definitions


A. ACT:

1. Refers to the The National Flood Insurance Act of 1968, as amended, and The Flood Disaster Protection Act of 1973, as amended, 42 U.S.C. 4001 et. seq. in effect as of the effective date of this Policy as evidenced on the Coverage Declarations.

B. Building(s) means:


1. The Dwelling where you principally reside, or your secondary residence and
2. Appurtenant Structures, being other permanent **buildings** or structures, with walls and a roof, on the **premises**.

C. **Catastrophic ground collapse** means geological activity that result in an abrupt collapse of ground cover causing a depression in the ground cover clearly visible to the naked eye that causes structural damage to the **building**, including the foundation.

D. **Earthquake shock** means physical damage caused by earth movement including landslide, mudflow, earth sinking or earth rising or shifting, only as a direct and immediate result of **earthquake shock**, but shall not include any consequential loss or damage from any other ensuing peril. 

Each loss by **earthquake shock** shall constitute a single loss hereunder, provided, if more than one **earthquake shock** shall occur within any period of 72 hours commencing during the term of this Policy, such **earthquake shocks** shall be deemed to be a single earthquake within the meaning hereof. Underwriters shall not be liable for any loss caused by any **earthquake shock** occurring before the effective date and time of this Policy, nor for any loss occurring after the expiration date and time of this Policy. The insured may select the time from which any such period shall commence but no two selected periods may overlap.

E. **Flood** means physical damage caused by a general and temporary condition of partial or complete inundation of normally dry land areas from surface water, waves, tidal water, overflow of a body of water, mudflow or spray from any of these whether or not driven by wind arising during any one period of 72 consecutive hours during the period of this Policy. Underwriters shall not be liable for any loss caused by any **flood** occurring before the effective date and time of this Policy, nor for any loss occurring after the expiration date and time of this Policy. The insured may select the time from which any such period shall commence but no two selected periods may overlap.

F. **Landslide** except landslide as covered by **earthquake shock** definition above, means physical damage caused by the sudden movement of earth and/or rock ("land"), including sliding of land, mudflow except mudflow as covered by the **earthquake shock** and **flood** definitions above, land sinking, rising or shifting but excluding normal settling, gradual subsidence, gradual slippage and processes of erosion that take place over time. 

G. Personal property means:




1. **Personal property** usual to the occupancy of the Dwelling and owned or used by you or permanent members of your household while such **personal property** is on the **premises**. We will also cover personal effects owned by a guest or servant while such personal effects are on the **premises**.
2. Materials, and supplies for use in the construction, structural alteration, alteration, maintenance or repair of the **premises** while such materials, and supplies are at the **premises**.
3. Foodstuffs, bedding, tack and other equipment while at the **premises**, which is used for the maintenance and care of pets and livestock, provided such pets or livestock are not kept for commercial or business purposes.

H.Premises means the real property at the address shown on the Coverage Declarations.

- I. Sinkhole** collapse means the settlement or systematic weakening of the land supporting the **building(s)**, when such settlement or systematic weakening results from movement or ravelling of soils, sediments, or rock materials into subterranean voids created by the effect of water on a limestone or similar rock formation.

III. Losses Excluded

A. This Policy does not insure against:

1. Loss or damage arising directly or indirectly out of nuclear reaction, nuclear radiation or radioactive contamination, however such nuclear reaction, nuclear radiation or radioactive contamination may have been caused.
 2. Loss or damage arising directly or indirectly out of war, invasion, acts of foreign enemies, hostilities (whether war be declared or not) civil war, rebellion, revolution, insurrection, military or usurped power or martial law or confiscation or nationalization or requisition or destruction of or damage to property by or under the order of any government or public or local authority.
 3. Loss, damage or increased cost arising directly or indirectly out of enforcement of any ordinance or law regulating the use, reconstruction, repair or demolition of any **building(s)** insured hereunder, nor any loss, damage, cost, expense, fine or penalty which is incurred, or sustained by or imposed on you at the order of any governmental agency, court or other authority arising from any cause whatsoever.
 4. Loss or damage arising out of acts or decisions, including the failure to act or decide, of any person, group, organization or governmental body relating to faulty, inadequate or defective:
 - a. Planning, zoning, development, surveying, siting; 
 - b. Design, specifications, workmanship, repair, construction, renovation, remodelling, grading, compaction;
 - c. Materials used in repair, construction, renovation or remodelling; or
 - d. Maintenance of all or part of any property on or off the **premises**. 
 5. Loss or damage arising out of normal settling, shrinking or expansion of land, **buildings**, structures or foundations; or erosion, gradual subsidence or the processes of erosion that take place over time, or any other gradually occurring loss or damage whether caused by **earthquake shock, flood or landslide** or not, or any loss or damage which commenced prior to the inception of this Policy.
 6. Loss or damage arising out of fire regardless of any other event which contributes concurrently or in any sequence to the loss or damage. 
 7. Loss or damage arising out of exposure to weather conditions where any **personal property** is left in the open or not contained in **buildings** which are on permanent foundations and capable of secure storage.
 8. Mysterious disappearance or inventory shortage, theft, fraud, or any kind of wrongful conversion or abstraction.
 9. The costs for reconstruction of electronic data or other data.
 10. Loss or damage arising out of cessation, fluctuation or variation in, or insufficiency of, water, gas or electricity supplies, or other public utility service supplying the **premises**.
 11. Reduction in rental value, reduction in market value or the saleability of property insured by this Policy, or any costs or expenses related thereto.
- B. Notwithstanding any provision in this Policy to the contrary (or within any Endorsement which forms part of this Policy), this Policy does not insure:**
1. Any loss, damage, costs or expense, or
 2. Any increase in insured loss, damage, cost or expense, or
 3. Any loss, damage, cost, expense, fine or penalty, which is incurred, sustained or imposed by order, direction, instruction or request of, or by any agreement with, any court, government agency or any public, civil or military authority, or threat thereof, (and whether or not as a result of public or private litigation) which arises from "any kind of seepage or any kind of pollution and/or contamination," or threat thereof, whether or not caused by or resulting from a peril insured, or from

This exclusion applies regardless whether there is (i) any physical loss or damage to insured property; (ii) any insured peril or cause, whether or not contributing concurrently or in any sequence; (iii) any loss of use, occupancy, or functionality; or (iv) any action required, including but not limited to repair, replacement, removal, clean-up, abatement, disposal, relocation, or steps taken to address medical or legal concerns.

This exclusion replaces and supersedes any provision in the Policy that provides insurance, in whole or in part, for these matters.

- I. This Policy does not cover any costs and expenses, whether preventative, remedial or otherwise, arising out of or relating to change, alteration or modification of any computer system, hardware, program or software and/or any microchip, integrated circuit or similar device in computer equipment or non-computer equipment, whether the property of the insured or not.
- J. Notwithstanding any provision to the contrary within this insurance or any endorsement thereto it is agreed that this insurance excludes loss, damage, cost or expense of whatsoever nature directly or indirectly caused by, resulting from or in connection with any act of terrorism regardless of any other cause or event contributing concurrently or in any other sequence to the loss.

For the purpose of this Policy an act of terrorism means an act, including but not limited to the use of force or violence and/or the threat thereof, of any person or group(s) of persons, whether acting alone or on behalf of or in connection with any organization(s) or government(s), committed for political, religious, ideological or similar purposes including the intention to influence any government and/or to put the public, or any section of the public, in fear.


This also excludes loss, damage, cost or expense of whatsoever nature directly or indirectly caused by, resulting from or in connection with any action taken in controlling, preventing, suppressing or in any way relating to any act of terrorism.

If the underwriters allege that by reason of this exclusion, any loss, damage, cost or expense is not covered by this insurance the burden of proving the contrary shall be upon the insured.

In the event any portion of this endorsement is found to be invalid or unenforceable, the remainder shall remain in full force and effect.

IV. Property Excluded

A. This Policy does not cover:

1. Land, land values, soil, water, air, or any interest or right therein.
2. **Building(s)** and other structures used in whole or in part for any commercial, farming or manufacturing purposes, other than residences on the **premises** held for rental.
3. Mobile homes; but this exclusion does not apply to modular or manufactured housing permanently attached to foundations.
4. Paved areas, including but not limited to parking lots, terraces, driveways, walkways, sidewalks, pavements, paths, curbing and swimming pools. 
5. Bridges, steps and stairs; wharves, piers and jetties, unless physically attached to any **building(s)**.
6. Retaining walls whether or not necessary for the continuing stability of any part of the **premises**, and whether or not attached to any **building(s)**.
7. Fences; embankments and earthen structures, tanks, wells, ponds, dams, and dikes.
8. Trees, shrubs, lawns, plants, landscaping costs, animals, birds or fish.
9. Any aircraft or other aerial device, watercraft and their trailers, motorized and non-motorized vehicles other than motorized equipment used to maintain the **premises**.
10. Accounts, bills, currency, money, medals, notes, credit cards, securities, deeds, bullion, books of account, evidences of debt or title, manuscripts, passports, tickets, stamps and valuable papers.
11. Jewellery, watches, precious stones, precious metals, silverware, silver-plated ware, gold-ware, gold-plated ware, and pewter ware, fine art, objects d'art, firearms, sculpture and statuary, furs and garments trimmed with fur.
12. Loss or damage to the basement and/or real property and **personal property** suffering loss or damage within the basement where the basement has not been declared within the Policy Application for this insurance.

3/25/2011

6436 SW Burlingame Pl, Portland, OR, United States
Address is approximate

Before

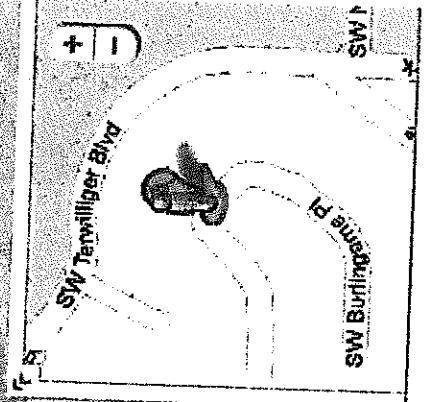
No Insurance!



SW Burlingame Pl

Report a concern

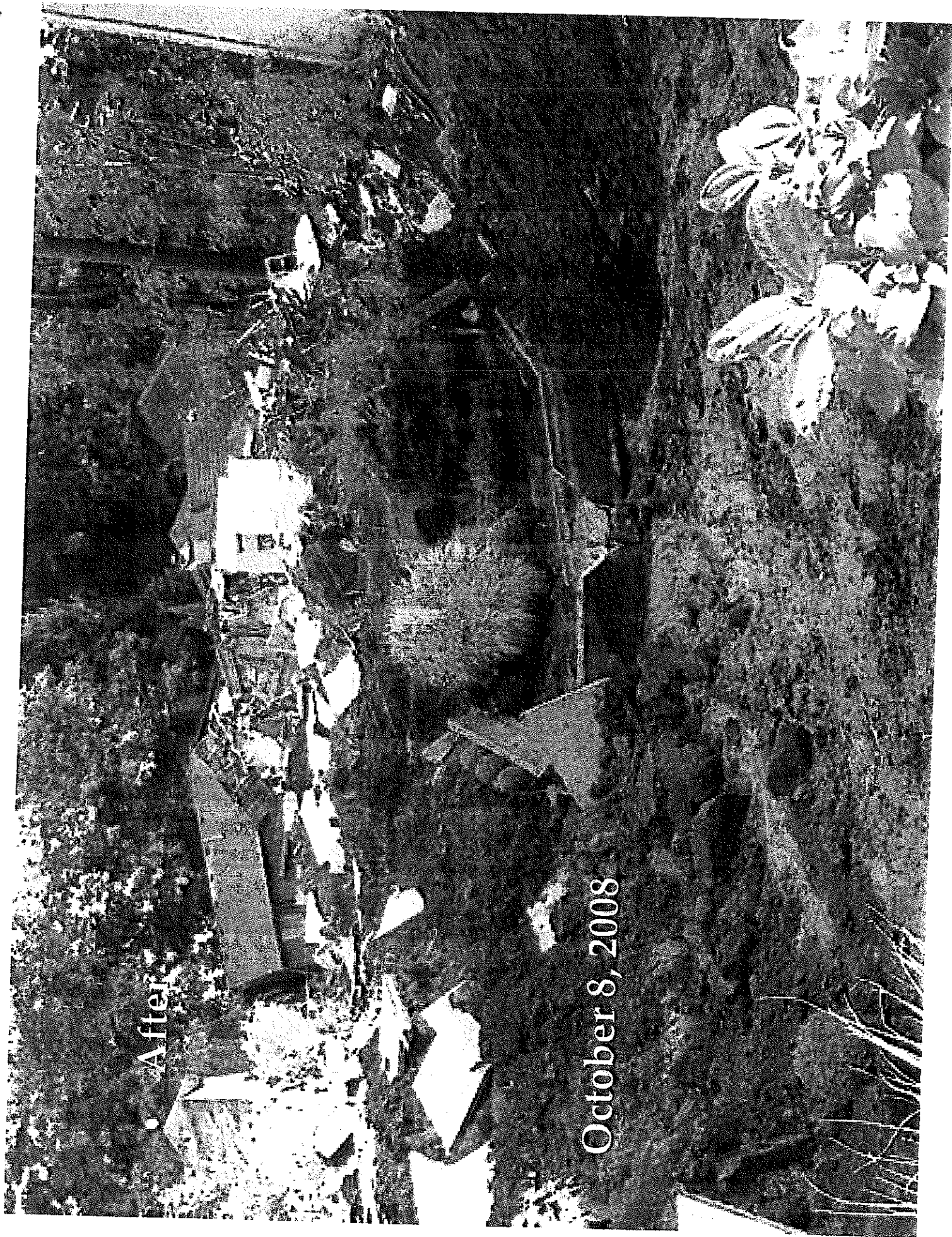
EXH 7



SW Burlingame Pl

After

October 8, 2008



http://www.gazettetimes.com/news/local/insurance-won-t-pay-for-landslide-damage/article_10c17900-5216-11e1-80fe-0019bb2963f4.html

Insurance won't pay for landslide damage

By Bennett Hall, Corvallis Gazette-Times Feb 8, 2012



A house on Vineyard Mountain shifted down the hillside Thursday morning. (Jesse Skoubo | Corvallis Gazette-Times)



Like most homeowners, Bob and Gayna Flake had no coverage slide that wrecked their house

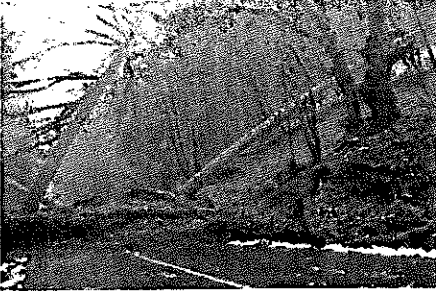
The owners of a Corvallis-area house knocked off its

EXH 8

12/6/2016 3:07 PM



Neighbors question drainage



Rains send earth moving

foundations by a landslide last month have plenty of insurance but that doesn't mean they're covered.

"We have the same exclusion as everybody else," Bob Flake said. "At this point it looks like it's just a total loss."

Flake and his wife, Gayna, were awakened in the predawn hours of Jan. 19 by a call from their security company informing them that a sliding glass door was broken. A quick inspection revealed cracks in the walls, and soon the house at 5994 N. Rosewood Drive was breaking apart.

The couple got out before the structure failed completely, but now it's uninhabitable. The Flakes are staying at their daughter's house and wondering what they're going to do next.

"We have \$2 million worth of insurance, and it's not doing us any good," Bob Flake said. "And we've still got to pay the mortgage."

At first the Flakes, like many people, assumed their homeowners insurance would help them rebuild. As it turns out, however, landslides aren't covered by standard policies.

"Homeowners insurance covers a whole lot of stuff, but earth movement isn't in there," said Ron Fredrickson, who manages the consumer advocacy team for the Oregon Insurance Division. "It's specifically excluded, as are earthquake and flood."

And while it's possible to buy additional coverage to protect against loss from flooding or earthquakes, landslide insurance is almost unheard of. It can be purchased only from highly specialized carriers called surplus lines companies, and it's liable to come with a hefty premium.

"I've yet to come across anybody who has it," Fredrickson said.

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The reason landslide coverage is so hard to come by — and pricey — is simple, Fredrickson said. Relatively few homeowners are ever likely to need it, but when they do, the damage is apt to be catastrophic — meaning the individual claims could be quite high.

Not the kind of odds that appeal to underwriters.

"The chance of loss is very great for a small number of people," he said.

For the Flakes, the loss has been devastating, and they've retained an attorney to explore the possibility of a lawsuit to recover some of their investment. The couple believe Bento County should shoulder at least some of the blame for a drainage system that routed runoff from the January storm directly onto their property.

County officials say the drainage system was designed by a private developer and was built years before the county assumed responsibility for the road that runs through the

REPLINGER & ASSOCIATES LLC
TRANSPORTATION ENGINEERING

February 5, 2018

Mr. Pete Walter
City of Oregon City
PO Box 3040
Oregon City, OR 97045

**SUBJECT: REVIEW OF TRAFFIC IMPACT STUDY – PARK PLACE ANNEXATION
AND REZONING – AN17-04 & ZC17-05**

Dear Mr. Walter:

In response to your request, I have reviewed the materials submitted in support of the proposed Park Place annexation to the city and rezoning. The relevant materials consisted of the Traffic Impact Study (TIS), dated August 2, 2017. It was prepared under the direction of Michael T. Ard, PE of Lancaster Engineering.

The proposed annexation and rezoning is for 92 acres located to the north and west of S Livesay Road and south of Holcomb Boulevard. Upon annexation, 87.5 acres of the property will be rezoned to R-5 zoning and 4.5 acres of the property will be rezoned to Neighborhood Commercial, in conformance with the city's Comprehensive Plan. The development scenario evaluated in this TIS was for 533 single-family dwellings and 49,000 of community commercial space.

The TIS provides a comparison of the future traffic operations for key intersections both with and without the proposed rezoning as a basis for assessing compliance with the Transportation Planning Rule. Current county zoning is calculated to allow 11 single-family dwellings.

The TIS provides a basis upon which the annexation and rezoning proposal can be evaluated.

Comments

1. Study Area. The study addresses the appropriate intersections. The engineer evaluated traffic patterns and traffic volumes and evaluated sixteen locations. The key intersections were:

1. Interstate 205 (I-205) southbound ramps at McLoughlin Boulevard (OR-99E);
2. I-205 northbound ramps at OR-99E;
3. 15th Street at OR-99E;
4. 14th Street at OR-99E;

5. Abernethy Road/S Holcomb Boulevard at Redland Road;
6. Abernethy Road at Washington Street;
7. 15th Street at Washington Street;
8. 14th Street at Washington Street;
9. 14th Street at Main Street;
10. I-205 southbound ramps at Trails End Highway (OR-213);
11. I-205 northbound ramps at OR-213;
12. Prairie Schooner Way/Clackamas River Drive at OR-213;
13. Redland Road at OR-213;
14. Beavercreek Road at OR-213;
15. Holly Lane at S Holcomb Boulevard (future intersection); and
16. Holly Lane at S Redland Road.

These intersections were identified for the study in consultation with city staff and the Oregon Department of Transportation (ODOT). The study area is appropriate.

2. **Traffic Counts.** Most of the traffic counts were conducted in January 2017 and May 2017. Some intersections were counted during 2015 and 2016 but were adjusted to 2017 conditions based on the difference observed at nearby intersections to account for regional growth during the intervening period. The adjustments appear adequate to account for base year 2017 conditions at the intersections in #1, above. Traffic counts were conducted during the AM and PM peak periods. The base year traffic volumes appear reasonable.
3. **Trip Generation.** The TIS presents information on trip generation under both current and proposed zoning. Under current county zoning, the engineer calculated 8 AM peak hour trips; 11 PM peak hour trips; and 104 total weekday trips. Under the proposed zoning, the engineer calculated trips from the construction of 533 new single-family dwellings and 49,000 square feet of neighborhood commercial establishments. The trip generation rates were taken from the Institute of Transportation Engineers' *Trip Generation Manual – 9th Edition*. The engineer calculated the neighborhood commercial development using the trip generation rate for shopping centers using ITE land use code 820. He accounted for internal trips (those that remain within the zone, and pass-by trips for the neighborhood commercial area. The engineer calculated the combination of residences and neighborhood commercial would produce 393 AM peak hour trips; 542 PM peak hour trips; and 5,712 total weekday trips that need to be accounted for on the major street network.

The Oregon Department of Transportation has raised concerns that the amount and type of development analyzed for the neighborhood commercial area does not represent the reasonable worst case development scenario. Further analysis of a more intense development scenario for the 4.5 acres of neighborhood commercial land will be necessary to fully assess compliance with the Transportation Planning Rule.

4. Trip Distribution. The engineer's trip distribution shows traffic using a variety of routes and distribution to major regional facilities as follows:

- Approximately 25 percent of site trips will travel to/from the northeast along I-205;
- Approximately 15 percent of site trips will travel to/from the southwest along I-205;
- Approximately 13 percent of site trips will travel to/from the southwest along Washington Street;
- Approximately 9 percent of site trips will travel to/from the east along S Holcomb Boulevard;
- Approximately 9 percent of site trips will travel to/from the east along S Redland Road;
- Approximately 8 percent of site trips will travel to/from the north along OR-99E;
- Approximately 4 percent of site trips will travel to/from the south along S Holly Lane;
- Approximately 3 percent of site trips will travel to/from the southwest along Main Street;
- Approximately 3 percent of site trips will travel to/from the southwest along S Anchor Way;
- Approximately 2 percent of site trips will travel to/from the south along OR-213;
- Approximately 1.5 percent of site trips will travel to/from the west along Beavercreek Road;
- Approximately 1 percent of site trips will travel to/from the southwest along OR-99E;
- Approximately 0.5 percent of site trips will travel to/from the east along Beavercreek Road; and
- Approximately 6 percent of site trips will travel to/from locales within the immediate vicinity, including surrounding residential areas, Holcomb Elementary School, and other land-uses such as Steve's Marketplace and the Quick Stop Market.

For traffic to and from the subject area, Redland Road is calculated to be the most heavily utilized route with a lesser amount of traffic using Holcomb Boulevard.

The trip distribution seems reasonable.

5. Traffic Growth. The engineer calculated 2035 traffic volumes using several factors. The predicted increase in total peak hour trips specified in the Transportation System

Plan (TSP) were used to develop an annual traffic volume increase applicable to local streets. ODOT's Future Volume Tables were used to calculate increases in traffic on Highway 213 and Highway 99E. This methodology is likely to produce somewhat different future year volumes than those developed from a regional transportation model, as used in the TSP, for example, but the methodology does allow a good assessment of the impact of the proposed zone change with assumed development of the subject property.

The engineer also accounted for the effect of the North Holly Lane Extension between Holcomb Boulevard and Redland Road, project D48 in the TSP. This new facility is predicted to cause some adjustment to existing traffic patterns by allowing traffic from Holcomb Boulevard to go south to Redland Road and beyond.

It is worth noting that transportation analysis zone (TAZ) 726, which includes the subject property, is predicted in the TSP to experience an increase of 397 dwelling units prior to 2035. The development of the subject property as assumed in the TIS is somewhat more intense than assumed in the TSP.

- 6. Analysis.** Traffic volumes were calculated for the intersections described in #1, above. At each location, the level of service (LOS), delay calculations, and the volume-to-capacity ratio (v/c) were provided to assess operations relative to the ODOT and city's operational standards. The analysis was undertaken for the AM and PM peak hours and included year 2017 existing conditions, 2035 background conditions, and year 2035 traffic conditions with the proposed zone change.

According to the analysis, six intersections are predicted to fail to meet the applicable performance standards by 2035, the TSP planning horizon year. At some intersections, the predicted failure is attributable to growth in background traffic with minimal effect from the proposed rezoning. In other cases, some degradation in performance is significant and is attributable to the rezoning. Each of these is discussed below.

At the I-205/99E interchange, both the northbound and southbound ramp terminals are predicted to fail to meet ODOT performance standards by 2035 with or without the proposed rezoning and development. This prediction is consistent with the TSP, which included projects to improve the southbound ramp terminal (TSP Project D75) and the northbound ramp terminal (TSP Project D76). The TIS predicts that the v/c at the southbound ramp terminal would be 1.21 during the AM peak hour and 1.13 during the PM peak hour with or without the annexation and rezoning. The TIS predicts that the v/c at the northbound ramp terminal would be 1.33 during the AM peak hour and 1.17 during the PM peak hour with or without the annexation and rezoning. With dual turn lanes and ramp widening, both ramp terminals are predicted to operate within adopted performance standards.

In its current configuration, the intersection of Highway 213/Redland Road is also predicted to fail to meet intersection performance standards during the PM peak hour in 2035 with or without the proposed rezoning. The predicted performance is worse with the rezoning. The calculated v/c during the PM peak hour is 1.19 under background conditions and 1.23 with the annexation. The TSP proposed a solution for the predicted failure to achieve operational standards at the intersection of Highway 213/Redland Road. The principal capacity-increasing feature of this project was increasing the number of through lanes on Highway 213 in both the northbound and southbound directions. The engineer calculated that the PM peak hour v/c would decrease to 0.94, easily meeting the adopted performance standard. The Highway 213/Redland Road project, identified in the TSP as project D79, was listed among the “not likely to be funded” category. It is, however, listed in the financially-constrained project list in the Regional Transportation Plan.

According to the analysis, the impact of the zone change and development of the subject property has virtually no effect on the intersection of Highway 213/Beavercreek Road. The predicted increase in traffic volumes from potential development of the 92 acres is only 15 trips during the AM peak hour and 21 trips during the PM peak hour. These volume changes are insignificant in comparison to the current volumes – over 4500 during the AM peak hour and over 6000 during the PM peak hour. The calculated v/c for the 2035 background condition and the 2035 total traffic condition with the annexation and development is the same using the standard level of precision of calculating the v/c to two decimal points, which is the customary approach. The city’s *Guidelines for Transportation Impact Analyses* specify a threshold value of 20 peak hour trips to trigger analysis of an intersection. Since this value is exceeded during the PM peak hour, it is appropriate for the applicant to share in the cost of a project to improve the intersection’s performance. A project to improve the operation of this intersection was identified in the 2017 Highway 213 Corridor Alternative Mobility Targets study. The project cost was estimated to be \$1.5 million. Inclusion of this project in the TSP is anticipated with an amendment planned for 2018.

The intersection of Highway 99E/14th Street is also predicted to operate below adopted performance standards in 2035. Under both 2035 background conditions and 2035 with the annexation, the intersection is predicted to operate at a v/c of 1.14 during the AM peak hour. The long delays and lengthy queues impact adjacent intersections including Main Street/14th Street. Washington Street/14th Street is also predicted to fail to meet operational standard and is calculated to operate at 1.06 and 1.17 under 2035 background conditions during the AM and PM peak hours respectively. With the increased traffic associated with the annexation, the performance is expected to degrade to v/c of 1.12 and 1.26 for the AM and PM peak hours respectively. To address the operational problems at these intersections, the TSP identified Projects D7, D8, and D13. These involve reconfiguration of several streets including 14th Street and 15th Street and signal modifications.

In addition to the six intersections identified above that are predicted to fail to meet operational standards, the intersection of Abernethy/Holcomb/Redland Road was predicted to operate at a v/c of 1.08 during the PM peak hour. Since this intersection is within the regional center, the applicable v/c standard is 1.10, but motorists using intersections operating at a v/c greater than 1.0 will experience poor performance. In the TIS, the engineer explored mitigation concepts that could be used to improve the performance of the Redland Road/Holcomb Boulevard/Abernethy Road intersection. He concludes that adding an eastbound right turn lane to the Abernethy Road approach would improve the intersection's performance to a v/c of 0.93 during the PM peak hour. This offers a feasible, potential solution that would allow the intersection operate better than it would in its current configuration. Additional analysis of this concept could lead to inclusion of a project at this location in the TSP.

The engineer also analyzed two other intersections that are important: Redland Road/Holly Lane and Holcomb Boulevard/Holly Lane. The former is currently a three-leg, T-intersection; the second does not exist. Both are identified in the TSP for future roundabouts. The Redland/Holly intersection is identified as TSP Project D36; the Holcomb/Holly intersection is TSP Project D43. The engineer calculated that the Holcomb/Holly intersection would operate acceptably as a stop-controlled intersection or as a roundabout. He calculated that the Redland/Holly intersection would meet warrants for left-turn lanes on both Redland approaches and it would meet warrants for installation of a traffic signal by 2035. He also calculated that it would operate acceptably either as a signal-controlled intersection or as a roundabout as specified in the TSP.

The engineer's operational analysis and explanation of potential mitigation measures appears appropriate.

- 7. Crash Information.** The TIS provides crash information for the five-year period from 2011 through 2015. Two intersections experienced a crash rate in excess of 1.0 crashes per million entering vehicles. These two intersections are discussed below.

The crash history at the intersection of Highway 213/Beavercreek Road puts it in the top ten percent of high crash locations in the state. The engineer summarizes the crash history. Rear-end crashes are the most common type. The engineer recommended installation of a queue warning system and notes that the TSP includes a project (D14) that would involve a queue warning system. This project is in the likely to be funded category. The very few numbers of vehicles added to the intersection from the subject annexation and development have no measurable effect on the need for implementation of this project or any other safety mitigation measures at the Highway 213/Beavercreek Road intersection.

The intersection of Main Street and 14th Street experienced a crash rate of just under 1.5 reported crashes per million entering vehicles. The high crash rate at this intersection has been previously documented. Many of the crashes at this intersection are susceptible to correction by conversion to all-way stop-control. As noted above, TSP projects D7 and D8 would involve modification of this intersection.

The engineer supports the implementation of the queue warning system at Beavercreek/213 (TSP Project D14) and conversion of Main Street/14th Street (TSP Project D7). There is no reason to expect that the proposed annexation would have a disproportionate effect on the safety of the transportation system.

8. Transportation Planning Rule Analysis. Because the proposed annexation also involves rezoning of the property to R-10, a TPR analysis is also included. The analysis is predicated on the development of the land at a density that would allow 533 single-family dwellings and 4.5 acres of neighborhood commercial establishments. The engineer states that the proposal does not change the functional classification of any existing or planned transportation facility and does not alter the standards for implementing the functional classification system.

As discussed in #6, above, the annexation and development of the subject property is predicted to degrade the performance at key intersections such that these intersections would not meet applicable performance standards. The applicant's participation in the funding of projects identified in the TSP or from other analyses area proposed to mitigate for these impacts.

A new analysis of a more intense development scenario will be needed to adjust the applicant's share for funding of projects. A more intense development scenario can be expected to slightly increase the applicant's share of projects needed to serve the development.

9. Conclusions and Recommendations. As stated in the TIS, several intersections are predicted to fail to meet applicable performance standards. The engineer recognizes that conditions may be necessary to limit development to that allowed under current zoning or development agreements provide for mitigation in proportion to the development's impacts.

Conclusions Recommendations

I find that the TIS provides an adequate basis upon which to assess the impacts of the proposed annexation and rezoning. I agree that the proposal does not cause the need for change in the functional classification of any existing or planned facility. I concur with the engineer's analysis concluding that key intersections will fail to meet adopted performance standards at the following intersections:

- I-205/99E Northbound Ramp Terminal
- I-205/99E Southbound Ramp Terminal
- Highway 213/Redland Road
- Highway 99E/14th Street
- 14th Street/Washington Street
- Beavercreek/Highway 213

Two intersections critical to the development of the subject property will need to be created or significantly modified to serve their role in the city's transportation network: Holcomb Boulevard/Holly Lane and Redland Road/Holly Lane.

In addition, poor operating performance is predicted at the intersection of Redland Road/Holcomb Boulevard/Abernethy Road. The engineer's analysis indicates that the addition of an eastbound right-turn lane would significantly improve the performance of the intersection.

Recommendations

To verify the engineer's conclusion that the proposed action is in compliance with the TPR, the applicant needs to revise and update the TIS using a more intense development scenario that in ODOT's judgment represents a reasonable worst case development scenario for the 4.5 acres of neighborhood commercial land.

With regard to the proposed annexation and zone change, I recommend that as a condition of approval the following be included:

At such time as a detailed development plan is prepared or in connection with development of a master plan, the applicant will need to submit additional materials to address specific requirements outlined in the city's *Guidelines for Transportation Impact Analyses*. These include, but are not limited to requirements associated with intersection spacing and sight distance. The applicant will also need to address trip generation associated with the specific uses proposed in such developments, especially as it relates to the 4.5-acre community commercial property, which for this TIS was evaluated using the generic "shopping center" category.

With regard to the mitigation for off-site transportation impacts of proposed development, I recommend the following conditions of approval:

At the time that a General Development Plan or Detailed Development Plan for the subject property is approved the following conditions shall apply:

The developer shall participate in the funding of improvements for the I-205/OR-99E ramp terminal projects (TSP Projects D75 and D76) in proportion to the development's traffic volumes as a percentage of total year 2035 intersection volumes from the TSP. The project cost for D75 is \$3,000,000. Based on this methodology and the preliminary PM peak hour trip generation from the proposed development, the development accounts for 0.76 percent of the 2035 volume and the development's share of the project is \$22,800. The project cost of D76 is \$3,000,000. The development accounts for 0.70 percent of the 2035 volume and the development's share is \$21,000.

The developer shall participate in the funding of improvements for the Main Street/14th Street improvements (TSP Projects D7 and D8) in proportion to the development's traffic volume as a percentage of the predicted 2035 traffic volume at the intersection calculated in the TSP. The higher cost option in the TSP is listed at \$670,000. Based on this methodology and the preliminary PM peak hour trip generation from the proposed development, the development accounts for 2.98 percent of the 2035 volume and the development's share of the project is \$19,966.

The developer shall participate in the funding of improvements for the Abernethy/Holcomb/Redland intersection in proportion to the development's traffic volume as a percentage of the predicted 2035 traffic volume. No project is currently identified in the TSP. The project concept is to provide an additional lane on the eastbound approach; it may involve restriping or widening and signal modifications. No project cost is available at this time. Based on this methodology and the preliminary PM peak hour trip generation from the proposed development, the development accounts for 13.34 percent of the 2035 volume.

The developer shall participate in the funding of improvements for the intersection of OR213/Redland Road (TSP Project D79) in proportion to the development's traffic volume as a percentage of the predicted 2035 traffic volume at the intersection calculated in the TSP. The TSP project cost is listed at \$10,060,000. Based on this methodology and the preliminary PM peak hour trip generation from the proposed development, the development accounts for 3.58 percent of the 2035 volume and the development's share of the project is \$360,148.

The developer shall participate in the funding of improvements for the Holly Lane/Holcomb Boulevard intersection (TSP Project D43) in proportion to the development's traffic volume as a percentage of the predicted 2035 traffic volume. Project D43 is a roundabout with an estimated project cost in the TSP of \$505,000. Based on this methodology and the preliminary PM peak hour trip generation from the proposed development, the development accounts for 22.67 percent of the 2035 volume and the development's share of the project is \$114,484.

The developer shall participate in the funding of improvements for the Holly Lane/Redland Road intersection (TSP Project D36) in proportion to the development's traffic volume as a percentage of the predicted 2035 traffic volume. Project D36 is a roundabout with an estimated project cost in the TSP of \$515,000. Based on this methodology and the preliminary PM peak hour trip generation from the proposed development, the development accounts for 21.33 percent of the 2035 volume and the development's share of the project is \$109,850.

The developer shall participate in the funding of improvements for the Highway 213/Beavercreek Road intersection in proportion to the development's traffic volume as a percentage of the predicted 2035 traffic volume. A project to add a right-turn lane on westbound Beavercreek Road and a merge lane on northbound Highway 213 was identified in the July 2017 Highway 213 Corridor Alternative Mobility Study. The project's cost was estimated at \$1.5 million. Inclusion of this project in the TSP is anticipated by an amendment planned during 2018. Based on this methodology and the preliminary PM peak hour trip generation from the proposed development, the development accounts for 0.30 percent of the 2035 volume and the development's share of the project is \$4,500.

The applicant's preliminary proportionate share for project listed above as conditions of approval are based on the assumption that the 4.5 acre commercial development is developed as a shopping center. A more intense development is likely to increase the applicant's share of projects as calculated above.

The applicant's final share of project costs may be modified as necessary when a Master Plan is approved to reflect any a modification of the development's trip generation or a change in project costs resulting from revisions to project costs associated with an updates to the City's Transportation System Plan or Capital Improvement Program.

If you have any questions or need any further information concerning this review, please contact me at replinger-associates@comcast.net.

Sincerely,

A handwritten signature in cursive script that reads "John Replinger".

John Replinger, PE
Principal

AN 16-05 Fiscal impact to provide public services, over typical project cost

Note: The easterly off-site sewer mains shown on the map below (12" & 21") are NOT needed to serve the annexation area. Those costs would be borne by the future annexation of property south of Livesay Road.

SANITARY SEWER:

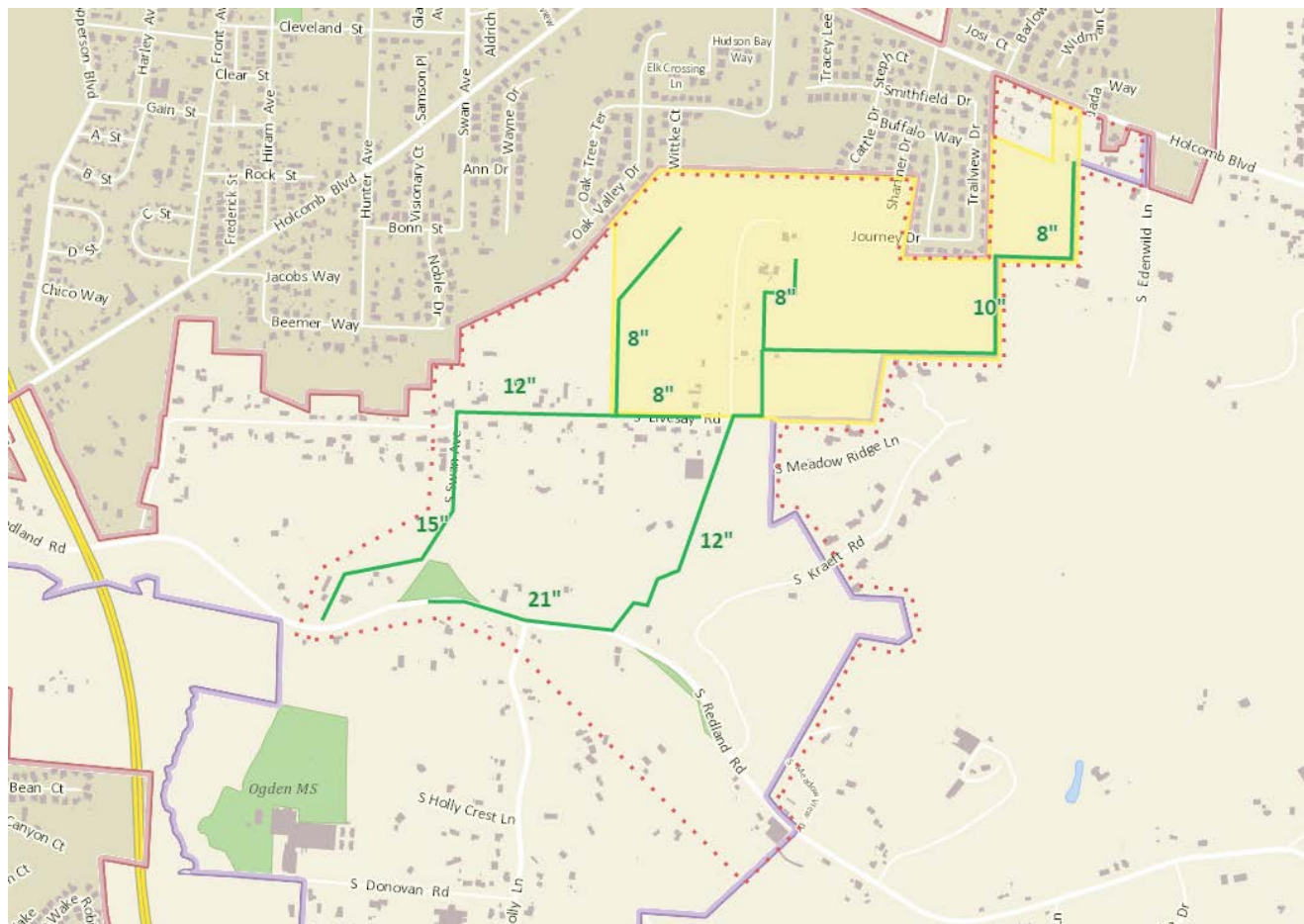
Oregon City Sanitary Master Plan 2014 and Park Place Concept Plan

Green = mains to be constructed per master plan

Yellow = AN 16-05

Red dotted line = approximate total boundary of basin to lower convergence point on Redland Road

1. Within Site Boundary: In yellow area, AN 16-05 derives 100% of benefit from sanitary mains lying within boundaries. These mains are the minimum size needed to serve the development, and should not be included in the fiscal impact figure.
2. Offsite Improvements: Outside yellow area, within red dotted line, AN 16-05 derives a portion of the benefit from sanitary mains lying between site boundary and total basin boundary, or 91 acres/265 acres = 34%
3,000 LF x \$225 /LF x 34% = \$ 229,500
3. Offsite easement or right-of-way: 30,000 SF x \$ 2.50 /SF land acquisition cost = \$ 75,000
4. No SDC Credits anticipated at this time.
5. **Approximate fiscal impact of providing public sanitary service, over typical project cost = \$ 304,500**



WATER:

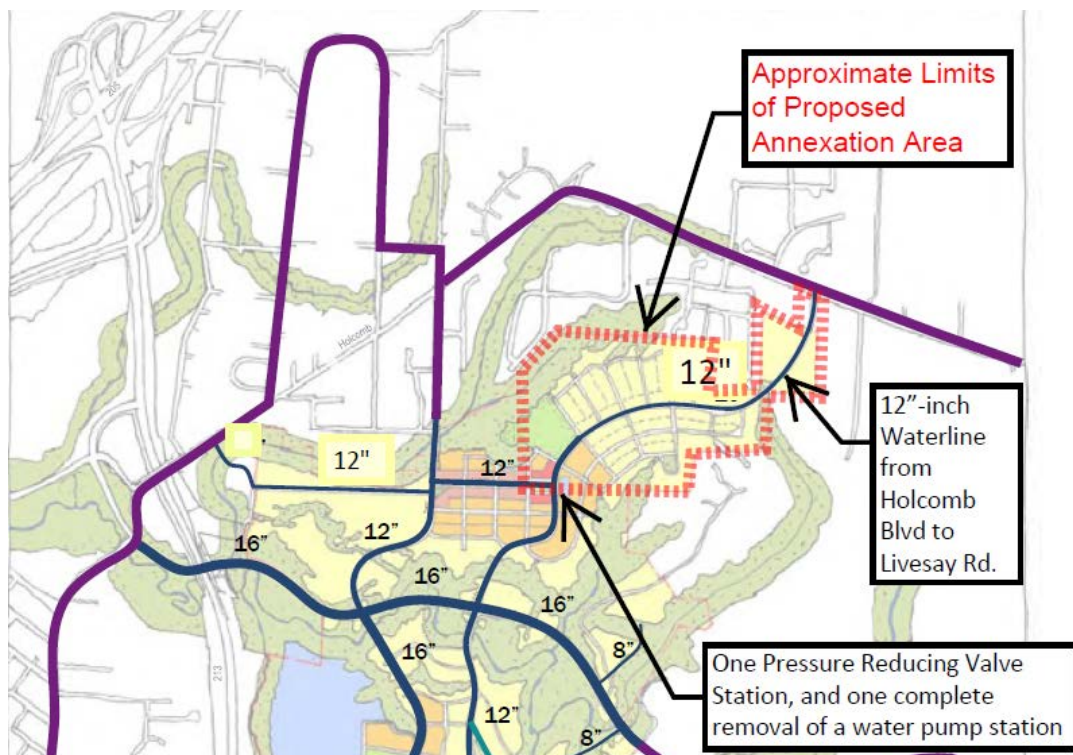
Oregon City Water Master Plan 2012 and Park Place Concept Plan

Red dashed area = approximate limits of AN 16-05

- Proposed annexation area appears to be located within the Park Place Intermediate pressure zone, Park Place Upper pressure zone, and Park Place Livesay Road pressure zone.
 - Upper Zone is served by Clackamas River Water (CRW) through HOPP Agreement.
 - Intermediate zone is served by Oregon City.
 - Livesay Road Zone is a sub-zone that will be rezoned with the development of the annexation area.
- Water Infrastructure required:
 - 12"-inch waterline required through annexation area providing transmission/distribution main from Holcomb Boulevard to Livesay Road.
 - One pressure reducing valve station between Park Place Intermediate zone and Park Place Lower zone.
 - Removal of one water pump station at Livesay Road when Livesay Road zone is rezoned to Intermediate zone.

Within limits of annexation Site Boundary: AN 16-05 needs 100% of 12" water main from Holcomb Boulevard to Livesay Road, one pressure reducing valve station, and removal of one water pump station.

1. (4,000 LF of 12-inch waterline and all appurtenances) x \$ 170 /LF x 100% = \$ 680,000
2. (one pressure reducing valve station) x \$20,000 Lump Sum x 100% = \$20,000
3. (one complete removal of water pump station) x \$15,000 Lump Sum x 100% = \$15,000
4. No SDC Credits anticipated at this time.
5. **Approximate fiscal impact of providing public water service, over typical project cost = \$715,000**



Tri City Service District Annexation Packet

Contact: Rob Hungerford
Technical Services Specialist
Water Environment Services
150 Beavercreek Road
Oregon City, OR 97045

Ph# 503-742-4576
Dept. Ph# 503-742-4567

Revised June 2017

ANNEXATION FEES

The elections office will require two checks with boundary change applications: one to Clackamas County for the application fee, and the second to Metro for the "mapping fee". The former will be deposited by the County, and the latter sent along to Metro’s Boundary Commission’s agent with the application materials.

ANNEXATION OR WITHDRAWAL FROM THE SEWER DISTRICT INSIDE THE REGIONAL URBAN GROWTH BOUNDARY:

(Check payable to Clackamas County)

- 1. Consisting of 1 acre or less.....\$225
- 2. Consisting or more than 1 acre, but less than 2 acres.....\$395
- 3. Consisting of at least 2 acres, but less than 5 acres..... \$605
- 4. Consisting of at least 5 acres, but less than 10 acres..... \$895
- 5. Consisting of at least 10 acres, but less than 20 acres..... \$1160
- 6. Consisting of at least 20 acres, but less than 40 acres..... \$1535
- 7. Consisting of 40 acres or more.....\$1835

MAPPING FEE

(An additional mapping fee will be charged for all applications according to the schedule below, check payable Metro 3/15/2000).

- 1. Single tax lot of less than 1 acre.....\$150
- 2. 1 – 5 acres.....\$250
- 3. 5 – 40 acres.....\$300
- 4. Greater than 40 acres.....\$400

Annexation Instruction Information

Water Environment Services
A Department of Clackamas County
(On Behalf of Tri City Service District)
150 Beavercreek Road
Oregon City, Oregon 97045
PHONE: 503-742-4567
FAX: 503-742-4565

The Annexation Packet needs to be filled out in order to process the annexation request.

You need to fill out the following forms:

- ☐ (1) PETITION OF ALL LAND OWNERS (Please include Exhibit A with legal description and Exhibit B with map of proposed area if possible)
- ☐ (2) PETITION for ANNEXATION of TERRITORY to TRI CITY SERVICE DISTRICT
- ☐ (5) LIST OF LANDOWNER(S)
- ☐ (6) LIST OF SURROUNDING LANDOWNER(S) & MAILING LABELS
- ☐ (7) BOUNDARY CHANGE DATA SHEET
- ☐ (8) Attachments, surveys, deeds, records, plats (if necessary)
- ☐ (9) Tax lot Map with boundary change highlighted

After you complete the above forms submit the uncompleted packet and the required checks (One to Clackamas County for the application fee and One to Metro for the mapping fee) to Water Environment Services (WES).

WES will complete forms listed below.

The District will complete the following form:

- ☐ (3) CERTIFICATION OF PETITION OF LAND OWNER(S)
- ☐ (4) CERTIFICATION OF LEGAL DESCRIPTION AND MAP
- ☐ (11) ENDORSEMENT OF ANNEXATION OF TERRITORY TO TRI CITY SERVICE DISTRICT
- ☐ (12) AFFIDAVIT OF POSTING

Once all the forms are completed, the packet is taken to Clackamas County Election Division, along with the two checks. The Election Division takes the packet and forwards the County check to County Finance, and submits the completed annexation packet along with the check made out to Metro to Clackamas County Boundary Consultant.

Annexation Checklist for WES

Date / Initials

- ☐ **1)** Petition of Landowners, with Legal Description Attached & Area Map
- ☐ **2)** Petition - Signature Form
- ☐ **3)** Certification of Property Ownership & Certification of Legal Description
- ☐ **4)** Notice List (Property Owners Info) and Mailing Labels
- ☐ **5)** Boundary Change Data Sheet
- ☐ **6)** Attachments, surveys, deeds, records, plats
- ☐ **7)** Taxlot Map with boundary change highlighted.
- ☐ **8)** WES Director's recommendation to annex

- ☐ **A)** Compliance Review (Submit to County Clerk w/ Fees)
- ☐ **B)** Public Hearing Date
- ☐ **C)** Public Hearing Notice
- ☐ **D)** Staff Report
- ☐ **E)** Public Hearing
- ☐ **F)** Board Approval / Denial

**PETITION OF LAND OWNER(S)
FOR A DISTRICT ANNEXATION**

PETITION FOR ANNEXATION TO THE: Tri City Service District, a district organized under ORS 451. This petition is filed pursuant to ORS 198.705 to 198.955.

TO: The Board of Commissioners of Clackamas County

We, the undersigned land owner(s) in the territory proposed to be annexed, as described below, hereby petition for, and give our consent to, annexation of the area to the Tri City Service District.

The area to be annexed is inhabited.

Other affected districts (if any), and the principal Act of each are: _____

The affected county is: Clackamas County

The proposed annexation is subject to the following terms and conditions (if any):

We request that the Board of Commissioners, the governing body of Tri City Service District, undertake annexations proceedings pursuant to ORS 198.850 to 198.869.

The Chief Petitioners are: _____
(name)

(name)

(name)

The property to be annexed is described as follows:

See Exhibit A for description
See Exhibit B for map

ANNEXATION PETITION - LANDOWNER SIGNERS

To: The Board of Commissioners of Clackamas County

We, the undersigned land owners in the area described below, hereby petition for, and give our consent to, annexation of the area to the Tri City Service District.

| Land Owner Signature(s) | Printed Name | Mailing Address | Land Address, or Taxlot No. | Date |
|-------------------------|--------------|-----------------|-----------------------------|------|
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| | | | | |
| | | | | |

I, _____, certify that every person who signed this petition did so in my presence.

CERTIFICATION OF LAND OWNERS

ORS 198.855(3) If the annexation petition is signed by all of the owners of all land in the territory proposed to be annexed or is signed by a majority of the electors registered in the territory proposed to be annexed and by the owners of more than half of the land in the territory, an election in the territory and district shall be dispensed with. After the hearing on the petition, if the county board approves the petition as presented or as modified or, if an election is held, if the electors approve the annexation, the county board shall enter an order describing the boundaries of the territory annexed and declaring it annexed to the district (<https://www.oregonlaws.org/ors/198.855>)

Petition signed by all landowners (100%)

I hereby certify that the attached petition for a proposed boundary change involving the territory described in the petition contains the names of the owners* of all land in the territory proposed to be annexed within the area described in the petition, as shown on the last available complete assessment roll.

NAME_____

TITLE_____

DEPARTMENT_____

COUNTY OF CLACKAMAS

DATE_____

*“Landowner” or “owner of land” means any person shown as the owner of land on the last available assessment roll; however, where such person no longer holds the title to the property, then the terms mean any person entitled to be shown as owner of land on the next assessment roll; or, where land is subject to a written agreement of sale, the terms mean any person shown in the agreement as purchaser to the exclusion of the seller; and the terms include any public agency owning land.

CERTIFICATION OF LEGAL DESCRIPTION AND MAP

I hereby certify that the description of the property included within the attached petition (located on Assessor's Map _____) has been checked by me and it is a true and exact description of the property under consideration, and the description corresponds to the attached map indicating the property under consideration.

NAME _____

TITLE _____

DEPARTMENT _____

COUNTY OF CLACKAMAS

DATE _____

LIST OF LAND OWNERS
(This form is NOT the petition)

LIST ALL LAND OWNERS OF PROPERTY INCLUDED IN BOUNDARY OF THE AREA
PROPOSED TO BE ANNEXED.

(Only those land owners within the area of annexation)

| NAME OF OWNER | ADDRESS | PROPERTY DESIGNATION (Indicate tax lot, section number township and range) |
|---------------|---------|----------------------------------------------------------------------------------|
|---------------|---------|----------------------------------------------------------------------------------|

(1) _____

(2) _____

(3) _____

(4) _____

(5) _____

(6) _____

(7) _____

(Attached additional sheets if necessary)

NOTICE LIST FOR SURROUNDING PROPERTY OWNERS

(This form is NOT the petition)

LIST ALL LAND OWNERS OF PROPERTY WITHIN **100 FEET** OF THE OUTSIDE BOUNDARY OF THE AREA TO BE ANNEXED. IF THE TERRITORY TO BE ANNEXED IS OUTSIDE AN URBAN GROWTH BOUNDARY, THE DISTANCE IS **250-FEET**, OR **500-FEET** IF THE TERRITORY TO BE ANNEXED WITHIN A FARM OR FOREST ZONE.

| NAME OF OWNER | ADDRESS | PROPERTY DESIGNATION (Indicate township and range, section, tax lot number) |
|---------------|---------|-----------------------------------------------------------------------------------|
|---------------|---------|-----------------------------------------------------------------------------------|

| | | |
|-----|-------|-------|
| (1) | _____ | _____ |
| | _____ | _____ |

| | | |
|-----|-------|-------|
| (2) | _____ | _____ |
| | _____ | _____ |

| | | |
|-----|-------|-------|
| (3) | _____ | _____ |
| | _____ | _____ |

| | | |
|-----|-------|-------|
| (4) | _____ | _____ |
| | _____ | _____ |

| | | |
|-----|-------|-------|
| (5) | _____ | _____ |
| | _____ | _____ |

| | | |
|-----|-------|-------|
| (6) | _____ | _____ |
| | _____ | _____ |

(Attach additional sheets if necessary)

BOUNDARY CHANGE DATA SHEET

I. EXISTING CONDITIONS IN AREA TO BE ANNEXED OR WITHDRAWN

- A. General location _____
- B. Land Area: Acres ____ or Square Miles _____
- C. General Description of Territory. (Include topographic features such as slopes, vegetation, drainage basins, floodplain areas, which are pertinent to this proposal.)
- _____
- _____
- D. Describe land uses on surrounding parcels. Use tax lots as reference points.
- North: _____
- East: _____
- South: _____
- West: _____
- E. Existing Land Use:
- Number of single family units:_____ Number of multi-family units:_____
- Number commercial structures:_____ Number industrial structures:_____
- Public facilities or other uses:_____
- What is the current use of the land proposed to be annexed:
- _____
- F. Current year total Assessed Value: \$ _____
- G. Total existing population: _____

II. REASON FOR BOUNDARY CHANGE

A. The County Board is required to utilize the criteria spelled out in ORS 199.462 to determine if the area can be benefited by annexation to the District. That statute says the County " . . . shall consider local comprehensive planning for the area, economic, demographic, and sociological projections pertinent to the proposal, and past and prospective physical developments of land that would directly or indirectly be affected by the proposed boundary change . . . " The Metro Code spells out additional criteria for consideration (Metro Code 3.09.050):

1. Consistency with directly applicable provisions in an urban service provider agreement or annexation plan adopted pursuant to ORS 195.065. [Urban service provider agreements are agreements between various service providers about who will provide which services where. Annexation plans are timelines for annexation, which can only be done after all required 195 agreements are in place and which must have been voted on by the City residents and the residents of the area to be annexed.]
2. Consistency with directly applicable provisions of urban planning or other agreements, other than agreements adopted pursuant to ORS 195.065, between the affected entity and a necessary party.
3. Consistency with specific directly applicable standards or criteria for boundary changes contained in comprehensive land use plans and public facility plans.
4. Consistency with specific directly applicable standards for boundary changes contained in the Regional Framework Plan or any functional plan.
5. Whether the proposed boundary change will promote or not interfere with the timely, orderly and economic provision of public facilities and services.
6. The territory lies within the Urban Growth Boundary.
7. Consistency with other applicable criteria for the boundary change in question under state and local law.

You may wish to provide additional information on all or any of these considerations.
Use additional pages if necessary.

III. LAND USE AND PLANNING

- A. If the property to be served is entirely or substantially undeveloped, what are the plans for future development? Be specific. Describe type (residential, industrial, commercial, etc.), density, etc.

- B. Is the subject territory inside or outside the Metro Regional Urban Growth Boundary? _____

- C. Do agreements pursuant to ORS 195.065 exist for this area and if so how does this proposal measure up to those agreements?

- D. What is the applicable County Planning Designation? _____ Or City Planning Designation? _____
Does the proposed development comply with applicable regional, county or city comprehensive plans? Please describe.

- E. What is the zoning on the territory to be served?

- F. Can the proposed development be accomplished under current county zoning?

☐ Yes ☐ No

If No, ---has a zone change been sought from the county either formally or informally.

☐ Yes ☐ No

- G. Please describe outcome of zone change request if answer to previous question was Yes.

- H. Is the proposed development compatible with the city's comprehensive land use plan for the area?

☐ Yes ☐ No ☐ City has no Plan for the area

Has the proposed development been discussed either formally or informally with any of the following? (Please indicate)

- ☐ City Planning Commission ☐ City Planning Staff
☐ City Council ☐ City Manager

Please describe the reaction to the proposed development from the persons or agencies indicated above.

- I. Please indicate all permits and/or approvals from a City, County, or Regional Government that will be needed for the proposed development. If already granted, please indicate date of approval and identifying number:

| APPROVAL | PROJECT FILE# | DATE OF APPROVAL | FUTURE REQUIREMENT |
|------------------------------------------|------------------|---------------------|-----------------------|
| Metro UGB Amendment | | | |
| City or County Plan Amendment | | | |
| Pre-Application Hearing (City or County) | | | |
| Preliminary Subdivision Approval | | | |
| Final Plat Approval | | | |
| Land Partition | | | |
| Conditional Use | | | |
| Variance | | | |
| Sub-Surface Sewage Disposal | | | |
| Building Permit | | | |

Please submit copies of proceedings relating to any of the above permits or approvals which are pertinent to the annexation.

- J. If a city and/or county-sanctioned citizens' group exists in the area of the annexation, please list its name and the name and address of the contact person.

IV. SERVICES AND UTILITIES

A. Please indicate the following:

1. Location and size of nearest water line which can serve the subject area.

2. Location and size of nearest sewer line which can serve the subject area.

3. Proximity of other facilities (storm drains, fire engine companies, etc.) which can serve the subject area.

4. The time at which services can be reasonably provided by the district.

5. The estimated cost of extending such facilities and/or services and what is to be the method of financing? (Attach any supporting documents.)

6. Availability of the desired service from any other unit of local government. (Please indicate the government.)

7. What other assurances exist that demonstrate that urban services are now or can be made available?

- B. If the territory described in the proposal is presently included within the boundaries of or being served extraterritorially or contractually by any of the following types of governmental units, please so indicate by stating the name or names of the governmental units involved:

City _____ Rural Fire Dist. _____
County Service Dist. _____ Sanitary District _____
Hwy Lighting Dist. _____ Water District _____
Grade School Dist. _____ Drainage District _____
High School Dist. _____ Diking District _____
Library Dist. _____ Park & Rec District _____
Special Road Dist. _____ Other Dist. Supplying Water
Service _____

- C. If any of the above units are presently servicing the territory (for instance, are residences in the territory hooked up to a public sewer or water system), please so describe.

APPLICANT'S NAME: _____

MAILING ADDRESS: _____

TELEPHONE NO.: _____ (work)

_____ (Res.)

REPRESENTING: _____

DATE: _____