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## City of St. Helens COUNCIL AGENDA

**Wednesday, February 1, 2017**

City Council Chambers, 265 Strand Street, St. Helens

### City Council Members

Mayor Rick Scholl  
Council President Doug Morten  
Councilor Keith Locke  
Councilor Susan Conn  
Councilor Ginny Carlson

### **Welcome!**

All persons planning to address the Council, please sign-in at the back of the room. When invited to provide comment regarding items not on tonight's agenda, please raise your hand to be recognized, walk to the podium in the front of the room to the right, and state your name only. You are not required to give your address when speaking to the City Council. If you wish to address a specific item on the agenda, you should make your request known to the Mayor as soon as possible before the item comes up. The Council has the authority to grant or deny your request. Agenda times and order of items are estimated and are subject to change without notice.

1. **6:15PM – PUBLIC HEARING: Comprehensive Plan/Zone Map Amendment – 35090 Pittsburg Road (Weigandt)**
2. **7:00PM - CALL REGULAR SESSION TO ORDER**
3. **PLEDGE OF ALLEGIANCE**
4. **INVITATION TO CITIZENS FOR PUBLIC COMMENT – *Limited to five (5) minutes per speaker.***
5. **DELIBERATIONS: Comprehensive Plan/Zone Map Amendment – 35090 Pittsburg Road (Weigandt)**
6. **ORDINANCES – First Reading**
  - A. **Ordinance No. 3212:** An Ordinance Amending St. Helens Municipal Code Section 2.28 Pertaining to Number of Library Board Members
7. **RESOLUTIONS**
  - A. **Resolution No. 1776:** A Resolution Adopting the St. Helens Public Library Strategic Plan
8. **APPROVE AND/OR AUTHORIZE FOR SIGNATURE**
  - A. First Amendment to Bear Inspection & Consulting LLC for 2MG Reservoir Inspection Services
  - B. Agreement with ECONorthwest for Site Development Consulting Services
  - C. Contract Payments
9. **APPOINTMENTS TO CITY BOARDS & COMMISSIONS**
10. **CONSENT AGENDA FOR ACCEPTANCE**
  - A. Arts & Cultural Commission Minutes dated November 15, 2016
  - B. Accounts Payable Bill List
11. **CONSENT AGENDA FOR APPROVAL**
  - A. Accounts Payable Bill List
12. **MAYOR SCHOLL REPORTS**
13. **COUNCIL MEMBER REPORTS**
14. **DEPARTMENT REPORTS**
15. **ADJOURN**

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**CITY OF ST. HELENS PLANNING DEPARTMENT  
STAFF REPORT  
CPZA.1.16**

**DATE:** January 24, 2017  
**TO:** City Council  
**FROM:** Jacob A. Graichen, AICP, City Planner

**APPLICANT:** Wayne Weigandt  
**OWNER:** Same

**ZONING:** Moderate Residential (R7)  
**LOCATION:** 4N1W-5BC-8400 & 7500, 4N1W-5BD-9100  
35090 Pittsburg Rd.

**PROPOSAL:** Comprehensive Plan Amendment from Suburban Residential (SR) to General Residential (GR). Zone Map Amendment from Moderate Residential (R7) to General Residential (R5).

**The 120-day rule (ORS 227.178) for final action for this land use decision is not applicable.**

**SITE INFORMATION / BACKGROUND**

The approximately 12.57 acre site is primarily undeveloped with one single family dwelling on tax lot 7500 off Pittsburg Road. Tax lot 7500 was annexed with a “developing” overlay, which will affect its density calculations when further development occurs. The subject property has street frontage on N. Vernonia Road along its east side and Pittsburg Road along its north side. In addition, two streets terminate along the south property line: Catarin Street and Camden Street.

**PUBLIC HEARING & NOTICE**

Hearing dates are as follows:

September 13, 2016 before the Planning Commission

Originally scheduled for October 19, 2016 before the City Council. However, the applicant requested that the date be postponed. The new date is February 1, 2017.

Notice of this proposal was sent to surrounding property owners within 300 feet of the subject properties on August 22, 2016 via first class mail. Notice was sent to agencies by mail or e-mail on August 22, 2016. Notice was published in the The Chronicle on August 31, 2016. Notice was sent to the Oregon Department of Land Conservation and Development on August 10, 2016.

For the February 1, 2017 City Council public hearing, Notice of this proposal was sent to surrounding property owners within 300 feet of the subject properties on January 13, 2017 via first class mail. Notice was published in the The Chronicle on January 18, 2017.

## AGENCY REFERRALS & COMMENTS

As of the date of this staff report, no agency referrals/comments have been received that are pertinent to the analysis of this proposal.

## APPLICABLE CRITERIA, ANALYSIS & FINDINGS

### SHMC 17.20.120(1) – Standards for Legislative Decision

(1) The recommendation by the commission and the decision by the council shall be based on consideration of the following factors:

(a) The statewide planning goals and guidelines adopted under ORS Chapter 197, including compliance with the Transportation Planning Rule, as described in SHMC 17.08.060;

(b) Any federal or state statutes or guidelines found applicable;

(c) The applicable comprehensive plan policies, procedures, appendices and maps; and

(d) The applicable provisions of the implementing ordinances.

(2) Consideration may also be given to:

(a) Proof of a change in the neighborhood or community or a mistake or inconsistency in the comprehensive plan or implementing ordinance which is the subject of the application.

**(1) (a) Discussion:** Legislative zoning and Comprehensive Plan changes require compliance with the statewide planning goals, including the Transportation Planning Rule (TPR).

The TPR is addressed below under the analysis of criterion (1)(d). This is statewide planning goal 12 (Transportation). Conditions are necessary for compliance.

As for the other statewide planning goals, no goal exception is proposed.

The applicant addresses these goals starting on page 17 of the January 2017 revised narrative.

Note that on page 20 of said narrative, “no development is proposed concurrent [with this proposal].” This is important as a draft preliminary plat subdivision is included. An approval of this request needs to specifically note that this doesn’t approval anything beyond the Comprehensive Plan map and Zoning map. Any subsequent development requires the applicable review process (e.g., a subdivision would require a subdivision preliminary plat application).

**(1) (a) Finding(s):** The Council may adopt the findings of the applicant in regards to the statewide planning goals. Conditions are necessary for compliance with Goal 12 (see below).

\* \* \*

**(1) (b) Discussion:** Legislative zoning and Comprehensive Plan changes require compliance with any applicable federal or state statutes or guidelines.

**(1) (b) Finding(s):** There are no known applicable federal or state statutes or guidelines.

\* \* \*

**(1) (c) Discussion:** Legislative zoning and Comprehensive Plan changes require compliance with the applicable comprehensive plan policies, procedures, appendices and maps.

The request is to change the property from Comprehensive Plan designation from Suburban Residential (SR) to General Residential (GR), so review of SHMC 19.12.030 and 19.12.020 is important. **This change is necessary for the R5 zone to be possible.**

The applicant addresses some aspects of the Comprehensive Plan in their January 2017 revised narrative, but not SHMC 19.12.030 and 19.12.020.

**19.12.030 Suburban residential category goals and policies.**

(1) Goals. To establish conditions which will maintain attractive, convenient residential living typical of moderate density semi-suburban areas.

(2) Policies. It is the policy of the city of St. Helens to:

(a) Allow for the convenient location of grocery stores by the conditional use process.

(b) Permit a degree of flexibility in residential site design and a mixture of housing, including multi-dwelling units, through the planned development procedures.

(c) Promote the development of homesites at a density and standard consistent with: the level of services that can reasonably be provided and the characteristics of the natural environment.

(d) Review diligently all subdivision plats in the suburban residential category to ensure the establishment of a safe and efficient road system.

(e) *Designate suburban residential lands as R-7, Moderate Residential, or R-10, Suburban Residential, on the city zoning map.*

**19.12.020 General residential category goals and policies.**

(1) Goals. To create conditions suitable for higher concentrations of people in proximity to public services, shopping, transportation and other conveniences.

(2) Policies. It is the policy of the city of St. Helens to:

(a) Require undeveloped public ways of record to be improved to applicable city standards as a condition to the issuance of building permits for lots that front these ways.

(b) Encourage the infilling of areas presently undeveloped due to topographical limitations to achieve a more efficient use of the land.

(c) Allow for the convenient location of grocery stores by the conditional use process.

(d) Develop rules for multifamily dwellings which are consistent with housing policies.

(e) *Designate general residential lands as R-5, General Residential or AR, Apartment Residential on the city zoning map.*

The Comprehensive Map needs to be changed for the desired R-5 zoning to be possible.

The City can scrutinize where R5 and R7 zoning should be. But the mechanism to do so is the underlying Comprehensive Plan. The Goal of the R7 zone is to target “moderate density semi-suburban areas.” The goal of the R5 zone is to target areas intended “for higher concentrations of people in proximity to public services, shopping, transportation and other conveniences.”

If the city was creating a new comprehensive plan map, review would differ. However, in this case, the city is dealing with an existing Comprehensive Plan map. The bulk of the City’s R5 zoning is on the east side of town (East of US30/Columbia River Highway). However, there is a contiguous mass of R5 zoning (and GR comprehensive plan designation) on the west side (approximately 90 acres) and the subject property abuts that.

**(1) (c) Finding(s):** The Comprehensive Plan designation of the subject property needs to change from Suburban Residential (SR) to General Residential (GR) in order for the zoning district to change from Moderate Residential (R7) to General Residential (R5).

The council may find that there is no clear comprehensive plan policies, procedures, appendices and maps, to use as a basis for denial.

\* \* \*

**(1) (d) Discussion:** Legislative zoning and Comprehensive Plan changes require compliance with the applicable provisions of the implementing ordinances.

A key implementing ordinance of the Comprehensive Plan is the Community Development Code (St. Helens Municipal Code Title 17).

There are at least two things to consider: 1) The definition of “spot zoning” and 2) the provisions of Chapter 17.156 SHMC, Traffic Impact Analysis.

The City’s Development Code relies heavily on its definitions for implementation of law. One example that applies here is “spot zoning” defined as follows:

*Rezoning of a lot or parcel of land to benefit an owner for a use incompatible with surrounding uses and not for the purpose or effect of furthering the comprehensive plan.*

Euclidean zoning also known as single-use zoning is a planning tool that helps control land uses in a given jurisdiction. A common practice in North America, including the City of St. Helens, the name comes from of a court case in Euclid, Ohio, which established its

constitutionality, *Village of Euclid, Ohio v. Ambler Realty Co.* (1926). The concept of zoning is to help separate uses that are not compatible.

The definition of “spot zoning” is in the current ordinance (ORD No. 2875, adopted in 2003, as amended) and its predecessor (ORD No. 2785, adopted in 1999). The zoning ordinance that predates that (ORD No. 2616, adopted in 1991) lacks the definition. Since this is a fairly recent addition to the city’s zoning code, its inclusion appears to be purposeful. The purpose is to ensure zoning operates appropriately, which includes changes over time.

Generally, the Commission’s concern of this proposal pertained to compatibility and zoning appropriateness. The Commission felt (on at 4-2 vote for denial of the proposal) that the change was not compatible. This was in part due to the R5 zone allows a wider array of residential uses compared to the R7 zone. For example, attached single-family dwellings and multi-dwelling units (apartment complexes with 3 or more units) are possible in the R5 zone, but not R7. The Commission was also concerned about the zoning pattern in coming to this conclusion.

Given the size of the subject property (i.e., not just a small lot or two), the amount of adjacent R5 zoning and GR comprehensive plan designation (as described above) and that there are attached single-family dwellings within approximately 550 feet to the south (in R5 zoning) of the subject property, and that Pittsburg Road (a Minor Arterial classified street per the City’s Transportation Systems Plan) separates lower density properties to the north (which act as a buffer from the Urban Growth Boundary), an argument that this is not a “spot zoning” can be made.

Note that the subject property, based on review of past zoning maps, was not annexed into the city, until around 1999 or after. However, the 1978 Comprehensive Plan Map shows it being designated as Rural Suburban Unincorporated Residential (RSUR), which per today’s code, would typically allow R10 or R7. Obviously, the decision authority at that time chose R7.

**(1) (d) Finding #1:** The council may find that the proposed zone change is not a “spot zoning.”

**(1) (d) Discussion, continued:** Chapter 17.152 SHMC requires a traffic impact analysis for certain zoning or comprehensive plan map amendments. This is also intended to comply with the Transportation Planning Rule, discussed above.

The applicant had a traffic impact analysis prepared by Lancaster Engineering (dated December 19, 2016), to address this. This analysis compares the potential vehicular trip generation between the current R7 zone and R5 zone. Only one functionality issue is identified in the study. The analysis shows that the change would reduce the operational standard of the Columbia Boulevard/N-S Vernonia Road intersection below the city’s standard. The analysis also indicates two mitigation scenarios to alleviate this:

- Adequate roadway width is available along Columbia Boulevard to accommodate an additional travel lane. By restriping the westbound approach to include a shared left turn/through lane and a right-turn lane the intersection is projected to operate acceptably.

- A trip cap of 92 evening peak hour trips may be conditioned on the site before the study intersection is projected to operate below acceptable standards.

In order to approve the proposal, these need to be conditions of approval. Staff thinks its administratively cleaner to do the intersection improvements. In that case, the improvements should be done within a year (or less as determined by the Council) from the date the ordinance is adopted; otherwise the ordinance becomes void and the zoning map and comprehensive plan map change back to the original.

**(1) (d) Finding #2:** The Council may find that the transportation planning rule and the provisions of Chapter 17.156 SHMC are met with a condition that the intersection improvements identified in the TIA are completed to city standards and as approved by the city within 1 year of the adoption ordinance. Otherwise, the ordinance becomes void and the zoning map and comprehensive plan map change back to their original zoning district and comprehensive plan map designation.

In addition, no development shall occur under the R5 standards until the intersection improvements are completed. Otherwise, development could occur under the R5 zone and if the intersection improvements are not done and the proposal becomes void, the R5 development was done before its impacts were addressed “for free.”

\* \* \*

**(2) (a) Discussion:** Consideration of legislative zoning and Comprehensive Plan changes may also include analysis of a change in the neighborhood or community or a mistake or inconsistency in the comprehensive plan or implementing ordinance.

Staff is not aware of any error.

The applicant’s narrative discusses a change in the community beginning on page 7. Note that the applicant indicates city planning maps from the late 1970’s. The City’s oldest “modern” (post Oregon SB 100) zoning and comprehensive plan maps date back to 1978.

**(2) (a) Finding(s):** The Council may adopt the findings of the applicant in regards to a change in the community to support the proposal.

## CONCLUSION & RECOMMENDATION

**Staff recommends approval of the zoning map and comprehensive plan map amendments with the following conditions:**

- 1) This zoning map and comprehensive plan map amendment do not act to approve any subsequent development of the site. Any subsequent development requires the applicable review process (e.g., a subdivision would require a subdivision preliminary plat application).

- 2) The intersection improvements identified in the TIA are completed to city standards and as approved by the city within 1 year of the adoption ordinance. Otherwise, the ordinance becomes void and the zoning map and comprehensive plan map change back to their original zoning district and comprehensive plan map designation.
- 3) No development of the subject property shall be allowed under the R5 zoning district standards until the intersection improvements per condition 2 are met. The R7 standards apply until the improvements are completed.

**Attachment(s):** Approximate location map

Aerial photo

Zoning map

Comprehensive Plan map

Zoning comparison table

Applicant's narrative (January 2017 revision)

Planning Commission Minutes (September 13, 2016)

Traffic impact study (December 19, 2016)

Emerald Meadows concept subdivision plat



EcoNW Columbia County Housing Analysis (November 14, 2016)

Letter from Dave and Kathy Innocenti (September 12, 2016)



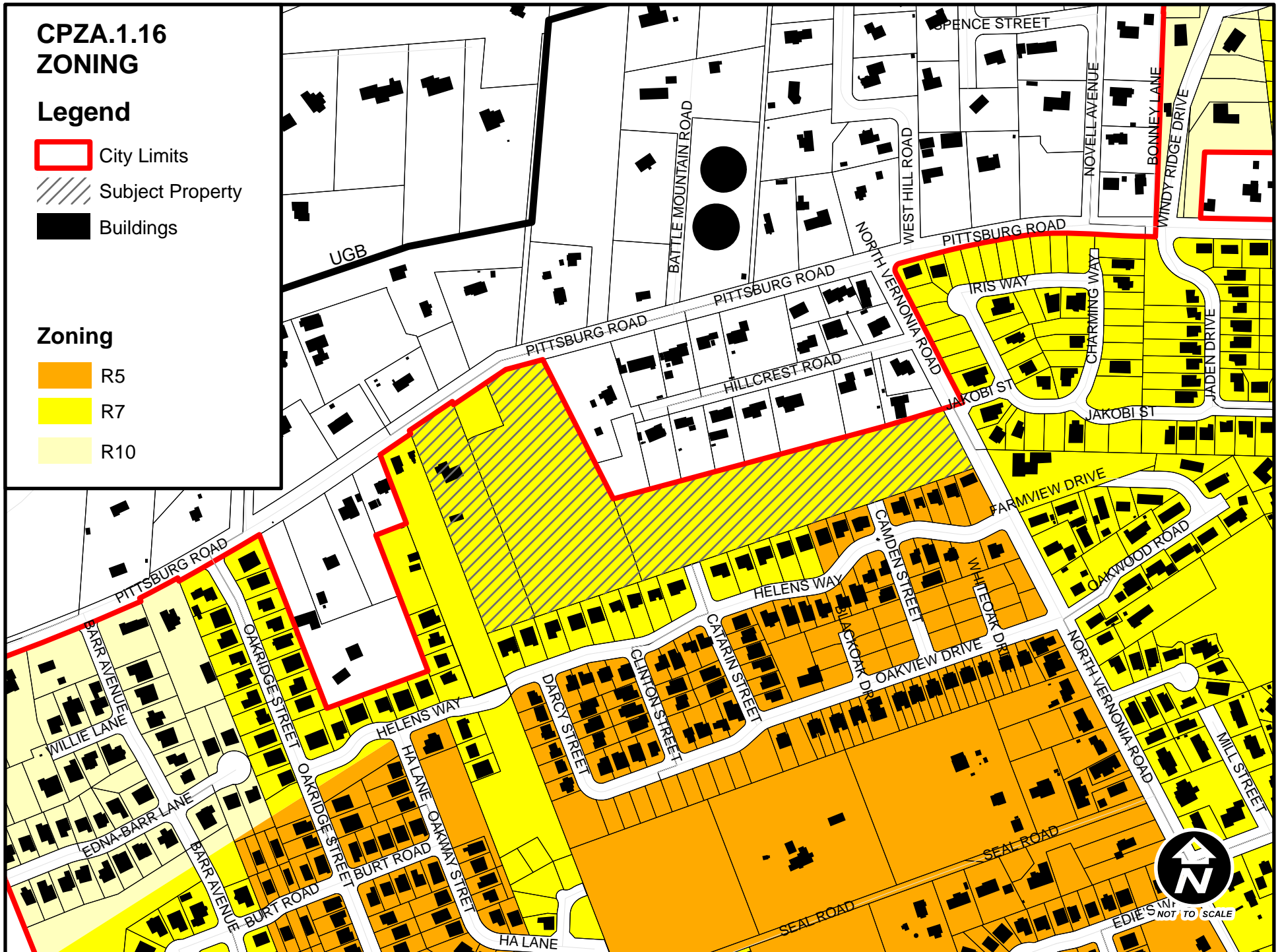
## CPZA.1.16 AERIAL PHOTO

### Legend

-  City Limits
-  Subject Property




Aerial photo from 2009








# CPZA.1.16 COMP PLAN

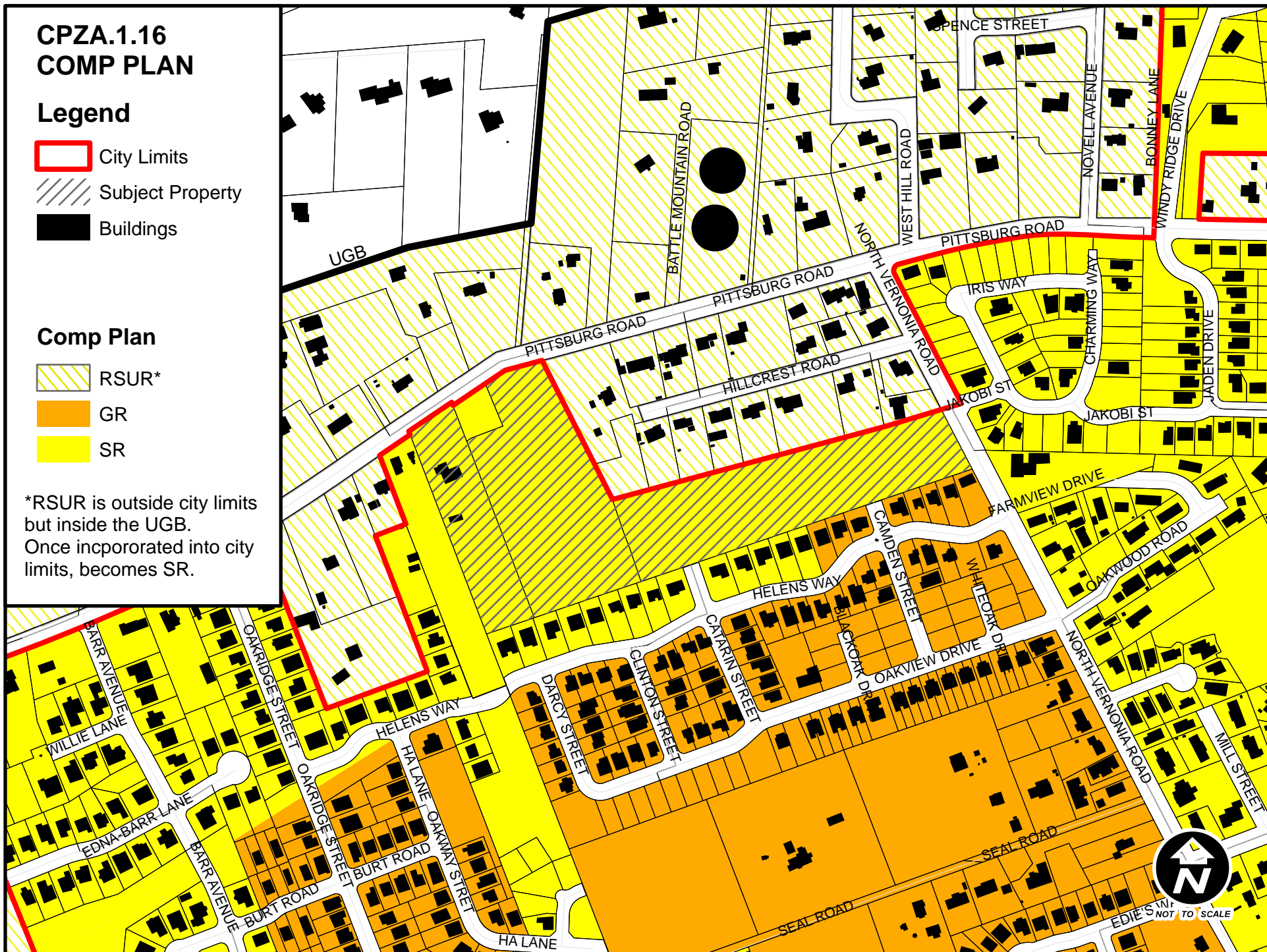
## Legend

-  City Limits
-  Subject Property
-  Buildings

## Comp Plan

-  RSUR\*
-  GR
-  SR

\*RSUR is outside city limits  
but inside the UGB.  
Once incorporated into city  
limits, becomes SR.



## ZONING

## R5

## R7

<b>Density</b>	med	med
<b>Minimum Lot Size for Detached Single Family Dwellings</b>	5000 sq. ft.	7000 sq. ft.
<b>Lot Dimensions</b>	med	med
<b>Max Lot Coverage</b>	35%*	35%
<b>Max Building Height</b>	35'	35'

\*Except for single attached & multidwelling units, which can be 50%

## PERMITTED USES

Duplex	Y	N*
Home Child Care	Y	Y
Home Occupations	Y	Y
Public Facility, Minor	Y	Y
Public Park	Y	Y
Residential Facility	Y	N
Residential Home	Y	Y
Single Family Dwelling, Attached (5 units max)	Y	N
Single Family Dwelling, Detached	Y	Y

\* Allowed as a conditional use in the R7 zone

## CONDITIONAL USES

Auxiliary Dwelling Units	Y	Y
Bed & Breakfast, Homestay, Boarding House	Y	N
Children's Day Care/Day Nursery	Y	Y
Commercial Recreation Facility	Y	N
Cultural Exhibits & Library Services	Y	N
Community Recreation Including Structures	N	Y
Neighborhood Store/Plaza	Y	Y
Multidwelling Units	Y	N
Elderly/Convalescent Home (Care Facility)	Y	Y
Private Park	Y	Y
Public Facility, Major	Y	Y
Public Safety Facility	Y	Y
Religious Assembly	Y	Y

This table is not a substitute for the Development Code and is for general comparison only. August 2016

**APPLICATION FOR A  
POST ACKNOWLEDGEMENT PLAN  
AMENDMENT (“PAPA”)  
AND  
ZONE CHANGE**

RECEIVED  
JAN 23 2017  
CITY OF ST. HELENS

Application Narrative  
(Revised: January 23, 2017)

Wayne Weigandt  
310 Riverside Drive  
St Helens, OR 97051

## **I. PROPOSAL SUMMARY.**

### **A. GENERAL INFORMATION.**

OWNER & APPLICANT: Wayne Weigandt  
310 Riverside Drive  
St Helens, OR 97051

APPLICANT REPRESENTATIVE: Andrew H. Stamp, Esq.  
Andrew H. Stamp, P.C.  
Kruse-Mercantile Professional Offices, Suite 16  
4248 Galewood Street  
Lake Oswego, OR 97035

TAX LOT NUMBERS: 4N1W5BD9100  
4N1W5BC8400  
4N1W5BC7500

TOTAL AREA: Approximately 12.57 acres

CITY COMPREHENSIVE PLAN: Suburban Residential (SR) (Current)  
General Residential (GR) (Proposed)

CITY COUNTY ZONING: R-7 (Current)  
R-5 (Proposed)

### **B. NATURE OF REQUEST**

This application has two objectives:

- (1) Change the Comprehensive Plan Designation for the subject properties from Suburban Residential (SR) to General Residential (GR); and
- (2) Rezone the subject properties from R-7 to R-5.

As Mr. Weigandt explained at the hearing in front of the Planning Commission, he has owned the property since 2006. The City previously approved a preliminary plat for the property consistent with the R-7 zone. However, when the market collapsed in 2007-08, Mr. Weigandt was not able to complete that plat, and it eventually expired. In the interim, the City adopted a new TSP, which requires wider streets than the old TSP. For this reason, the old proposal had to be scrapped. Following staff's suggestion, Mr. Weigandt is pursuing a

zone change to R5 in order to accommodate the new wider road width standards. This application is also being sought because R-5 zoning would allow homes to be built at a price that is more affordable to the Citizens of the City of St. Helens.

It is important to emphasize that this land has been ready for urban development for over 10 years. The streets surrounding this property zone change have sufficient capacity to accommodate a zone change from R-7 to R-5. All utilities are stubbed up to the end of the dead-end streets on the south side of the property, Catarin St. and Camden St. City water is also located in N. Vernonia Road and Pittsburg Road. Additional sanitary sewer and storm drains are located near the furthest southeast corner of the subject property in N. Vernonia Road. Exhibit 1. Thus, the carrying capacity of public services including streets, sewer and water is sufficient for the slightly higher density that is requested, and the subject site is adjacent to existing R-5 zoning.

The proposed rezone better implements the comprehensive plan policies because it will provide slightly more density in an area that will largely be developed at the same densities, provides more affordable housing options, and better responds to growth without an expansion of the UGB.

Rezoning the Subject Property from R-7 to R-5 will allow slightly more density near a major road and will be consistent with numerous other developments in the area, but the density is still considered appropriate. The Subject Property will be developed with adequate urban utilities and services and supporting the rezone will maximize the efficiency of public services and provide for the connection to public sewer and water for proposed and future properties, and help minimize unnecessary urban sprawl.

The rezone also responds to a substantial change in conditions applicable to the area over the past 20 years. This narrative discusses the recent developments of Residential zoned properties in the near vicinity of the Subject Property. While those properties were zoned for that level of development, it is not always a certainty that they will develop to full density and at the same time, until it does occur. The character of the neighborhood is changing.

The applicant respectfully request that the City Council reject the recommendation of the Planning Commission on the basis that the applicant has submitted new evidence which is responsive to the concerns of the Planning Commission.

#### **C. Discussion of Planning Commission Recommendation.**

The Planning Commission voted 4-2 to deny the request for a zone change. No formal findings of denial were prepared. Nonetheless, the following is a summary of bullet points of the deliberations adapted from the minutes of the Planning Commission hearing that perhaps provides insight into their decision making.

- Commissioner Cohen said the Commission needs to consider how well this proposal fits with the Comprehensive Plan and the surrounding area.

- Chair Cary felt that the proposal is in line with the surrounding area.
- Commissioner Webster said that there is plenty of vacant R5 property available elsewhere.
- Commissioner Cohen said he would feel more comfortable if there was a housing needs survey that broke down the housing need by type.
- Chair Cary noted that the zoning map seems to contain the densest property at the center and the least dense on the outskirts. He said if this zone change is approved, it would push the denser properties closer to the edge.
- Commissioner Hubbard pointed out there would still a ring of less dense property in the Urban Growth Boundary.
- Chair Cary understands the need to rezone in order to accommodate the wider road width. Commissioner Hubbard agrees that the site is difficult to develop as R7.
- Commissioner Semling suggested R5 zoning for the eastern lot between Catarin Street and Camden Street to fit the road in, with the rest of the property R7.
- Planning Director Graichen cautioned the Commission not to base their decision based on one use (single-family subdivision). He said ownership could change before development and a completely different proposal with other allowed uses could be submitted. He said there is a high probability it will be developed as a single-family subdivision based on conversations with the applicant, but probable is not 100 percent.

Exhibit 2 (Minutes of Sept 13, 2016 meeting). Although it was not reflected in the minutes, it appears that one of the primary reasons the Planning Commission recommended denial of the zone change application was that they were worried about the theoretical density that could occur if a zone change is approved, as opposed to the density that the applicant is currently proposing. The specific concern that was raised is that duplexes could be built under R-5 zoning.

## II. LEGAL ANALYSIS

### 17.08.020 – Legislative amendments:

***Legislative amendments to this code and to the zoning map shall be in accordance with the procedures and standards as set forth in Chapter 17.20 SHMC.***

**Finding:** The applicant proposes a legislative amendment to both the comprehensive plan map and the zoning map. The term “legislative” is defined as follows:

“Legislative” means any proposed action which would result in a change in city policy including: (a) a change to the comprehensive plan text; (b) a change to the

comprehensive plan map which involves a number of parcels of land; (c) a change to the text of an implementing ordinance; (d) a change to the zoning map which involves a number of parcels of land; and/or (e) a change to any land use plan or map which represents a change in city land use policy.

SHMC 17.16.010. This zone constitutes a “change” to both the comprehensive plan map and zoning map which involves “a number of parcels of land,” and therefore the matter is processed as a legislative matter in accordance with the standards set forth in Chapter 17.20.

**17.08.060 – Transportation Planning Rule compliance:**

***(1) Review of Applications for Effect on Transportation Facilities. A proposed comprehensive plan amendment, zone change or land use regulation change, whether initiated by the city or by a private interest, shall be reviewed to determine whether it significantly affects a transportation facility, in accordance with OAR 660-012-0060 (the Transportation Planning Rule (“TPR”). “Significant” means the proposal would:***

- (a) Change the functional classification of an existing or planned transportation facility (exclusive of correction of map errors in an adopted plan);***
- (b) Change standards implementing a functional classification system; or***
- (c) As measured at the end of the planning period identified in the adopted transportation system plan:***
  - (i) Allow land uses or levels of development that would result in types or levels of travel or access that are inconsistent with the functional classification of an existing or planned transportation facility;***
  - (ii) Reduce the performance of an existing or planned transportation facility below the minimum acceptable performance standard identified in the TSP; or***
  - (iii) Worsen the performance of an existing or planned transportation facility that is otherwise projected to perform below the minimum acceptable performance standard identified in the TSP or comprehensive plan.***

**Finding:** The applicant has submitted a Traffic Impact Analysis (“TIA”) prepared by Lancaster Engineering. Exhibit 3. This TIA concludes that the proposal to change the subject property from R-7 to R-5 will not have a significant effect on the local transportation facilities.

The subject property has frontage on N. Vernonia Road, which is classified as a Collector street in the City's TSP. The property has additional frontage on Helens Way (classified as a local street), and on Pittsburg Road (classified as a Minor Arterial). The proposal will not change the functional classifications of the above-mentioned roadways.

No development is proposed at this time. However, the applicant has included a concept plan showing how the property can be developed via a future land use application. Exhibit 4.

***(2) Amendments That Affect Transportation Facilities. Comprehensive plan amendments, zone changes or land use regulations that significantly affect a transportation facility shall ensure that allowed land uses are consistent with the function, capacity, and level of service of the facility identified in the TSP. This shall be accomplished by one or a combination of the following:***

- (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 OAR 660-012-0060.***
- (c) Altering land use designations, densities, or design requirements to reduce demand for vehicle travel and meet travel needs through other modes of transportation.***
- (d) Amending the TSP to modify the planned function, capacity or performance standards of the transportation facility.***

**Finding:** As noted in the TIA, the proposal to change the subject property from R-7 to R-5 is not expected to have a significant effect on local transportation facilities. One intersection, Columbia Blvd and No. Vernonia, will need to be striped to add a turn lane. In the alternative, the City could impose a trip cap on the zone change.

***(3) Traffic Impact Analysis. A traffic impact analysis shall be submitted with a plan amendment or zone change application, as applicable, pursuant to Chapter 17.156 SHMC.***

**Finding:** Although City Staff indicated that a TIA is not warranted at merely to support a zone change, it did say that a TIA would be required once development is proposed. The applicant has decided to provide the required TIA at this time to assist the City Council in drawing the conclusion that no significant effect on a transportation facility will result from this zone change.

## ***17.20 Procedures for Decision Making - Legislative***

### ***17.20.020 - The application process***

***(1) A request for a legislative change may be initiated by:***

- (a) Order of the council;***
- (b) Resolution of a majority of the commission;***
- (c) The director;***
- (d) Any person or the person's agent authorized in writing to make the application.***

**Finding:** The property owner is initiating the application for zone change.

### ***17.20.120 – The standard of the decision***

***(1) The recommendation by the commission and the decision by the council shall be based on consideration of the following factors:***

- (a) *The statewide planning goals and guidelines adopted under ORS Chapter 197, including compliance with the Transportation Planning Rule, as described in SHMC 17.08.060;*
- (b) *Any federal or state statutes or guidelines found applicable;*
- (c) *The applicable comprehensive plan policies, procedures, appendices and maps; and*
- (d) *The applicable provisions of the implementing ordinances.*

**(2) Consideration may also be given to:**

**(a) Proof of a change in the neighborhood or community or a mistake or inconsistency in the comprehensive plan or implementing ordinance which is the subject of the application.**

**Findings:** This code provision is not an approval standard because it only requires that factors be “considered.” LUBA has often stated that a local code provision requiring that “consideration \* \* \* be given to [certain specified] factors” does not establish mandatory approval standards for local government decisions, but rather merely lists “factors” which the local government must consider. *Frankton Neigh. Assoc. v. Hood River County*, 25 Or LUBA 386 (1993); *Thormahlen v. City of Ashland*, 20 Or LUBA 218 (1990) (Where the local code states that required determinations regarding the compatibility and impacts of proposed developments are to be based on *consideration* of certain listed factors, the factors are not themselves approval standards, and no one factor is conclusive.).

Also, the City Council must be mindful as to what issues may form the basis of an approval or a denial. For example, in a related context, LUBA has found that a city’s decision violates ORS 227.173(1) where the city relies on “factors” or “considerations” unconnected to approval standards in its land use regulations to deny a permit application. *Ashley Manor Care Centers v. City of Grants Pass*, 38 Or LUBA 308 (2000). This case does not involve the issuance of a “permit” per se, but the same general principle applies to PAPAs and zone changes: the decision must be based on standards and criteria, and cannot be approved or denied on factors that are unrelated to applicable Code standards.

The applicable statewide planning goals and guidelines, comprehensive plan policies, and implementing ordinances can be found in the narrative below.

#### Discussion of the Changes in the Community Since 1979.

The land in question was not in the City limits in 1979, but was designated “Rural Subdivision Unincorporated Residential (RS-UR)” on the Comprehensive Plan. As a result, the property was zoned R-& when it was annexed. However, much has changed in St Helens over the past 37 years. As an initial matter, both land and home prices have gone up at a greater rate as compared to wages and income. This mirrors national trends for most of the United States. This, in turn, is making homeownership increasingly difficult for average Americans. As a result, home buyers are spending more of their incomes on housing, leaving less money for other purchases.

The intent of Goal 10 is to ensure provision for the housing needs of citizens of the State; and to ensure that each city accommodates its fair share of regional housing needs. To

this end, Goal 10 requires that cities demonstrate sufficient buildable land that could produce a range of housing types appropriate to meet housing needs. The Goal reads as follows:

*“Goal 10: Housing - To provide for the housing needs of citizens of the state. Buildable lands for residential use shall be inventoried and plans shall encourage the availability of adequate numbers of needed housing units at price ranges and rent levels which are commensurate with the financial capabilities of Oregon households and allow for flexibility of housing location, type and density.”*

Goal 10 defines the phrase “buildable lands” as “lands in urban and urbanizable areas that are suitable, available and necessary for residential use.” In this case, the City has already made a legislative determination that these parcels are buildable and are suitable, available, and necessary for residential use. However, this case presents the question of whether R-5 zoning for the subject property would better meet the needs of the citizens of the City of St. Helens, as compared to the current R-7 zoning.

Implementation Measure 4 of Goal 10 provides:

Ordinances and incentives should be used to increase population densities in urban areas taking into consideration (1) key facilities, (2) the economic, environmental, social and energy consequences of the proposed densities and (3) the optimal use of existing urban land particularly in sections containing significant amounts of unsound substandard structures.

In this case, the overall “economic” and “social” consequences” of zoning land R-7 is negative, because the vast majority of the residents of the City cannot afford to buy homes built to that zoning standard. This is discussed in detail below. Before addressing that point, however, it is important to step back and review more details concerning Statewide Planning Goal 10 and its implementing statutes.

Goal 10 is implemented through several state laws (primarily ORS 197.295 through 197.314), which require that a range of housing types be accommodated within each community. Approval standards for needed housing types and densities must be “clear and objective” and must not have the effect, individually or cumulatively, of discouraging needed housing through unreasonable cost or delay. The problem for St. Helens is that the cost of housing on R-7 zoned land is too high to meet the needs of virtually all residents.

On a historical note, it is worth mentioning that some aspects of Goal 10 stem from actions taken by the City of St. Helens in the 1970s that resulted in the creation of state land use and zoning policy. Prior to 1979, the City of St. Helens attempted to comply with Goal 10 by zoning a substantial amount of land for duplexes and apartments, which is a type of needed housing. However, the city initially only made such development allowed via a

conditional use permit, which, in turn, employed vague subjective standards such as “compatibility with the neighborhood” and “no effect on property values.” *See The Quiet Revolution*, American Land Planning Law, at § 160.23. In response, LCDC issued policy guidance in the form of a paper named “[LCDC] Housing Policy” dated July 12, 1979. The “St Helens Policy,” as it is known, states that the “approval standards, special conditions, and the procedures applicable to both (1) must be clear and objective, and (2), must not have the effect, either of themselves or cumulatively, of discouraging, such as through needless cost and delay, the needed housing type.” This policy was eventually adopted by the legislature at ORS 197.307(4).<sup>1</sup> *See Rogue Valley Ass’n of Realtors v. City of Ashland*, 158 Or App 1, 970 P2d 685 (1999).

### The Need for More Affordable Single-Family Detached Homes in St. Helens, Columbia County & St. Helens.

The Greater Portland (Oregon) Metropolitan Statistical Area, including Columbia, Washington, Multnomah, Clackamas, and Yamhill Counties, continues to enjoy steady population growth while suffering a housing shortage. In particular, Columbia County’s population continues to grow, and the supply of affordable single-family detached homes has not kept pace with the demand. Columbia County’s population in 2016 is estimated to be 49,600.<sup>2</sup> The County’s adopted population forecast shows growth of more than 10,400 people expected in the 2016-2036 period, resulting in a demand for nearly 4,100 new dwelling units.<sup>3</sup> Assuming the popular demand for housing mix (of multifamily, manufactured, and detached single-family homes) remains roughly the same at the 1990-2010 period, then over 75% of the new housing units would be single-family detached homes. The remaining units would be nearly 790 new multifamily units and nearly 100 new single-family attached units (*e.g.* townhouses).<sup>4</sup> In Columbia County, there is currently an unmet housing need for 1,020 “affordable” units. Exhibit 6.

### St. Helens Has Lagged Behind the Rest of Columbia County in Prosperity

Home sales prices have increased faster than real wages for Columbia County residents. The median home sales price in Columbia County increased by 33% (or \$60,000) between 2010 and 2016. Yet Columbia County median incomes grew only 20% (or \$9,153) during this same time period. The median home sale price in Columbia County in September 2016 was \$256,600. For St. Helens, the median home price was \$235,000 in 2016. The city of St. Helens has a housing mixture similar to the state of Oregon as a whole. In St. Helens, 73% of the housing units are single-family detached homes, while the state-wide

<sup>1</sup> ORS 197.307(4) states: Except as provided in subsection (6) of this section, a local government may adopt and apply only clear and objective standards, conditions and procedures regulating the development of needed housing on buildable land described in subsection (3) of this section. The standards, conditions and procedures may not have the effect, either in themselves or cumulatively, of discouraging needed housing through unreasonable cost or delay.

<sup>2</sup> US Census Bureau estimate.

<sup>3</sup> ECONorthwest report to Columbia County Housing Workgroup, “Columbia County Housing Analysis,” Goodman, Beth, November 14, 2016, page 1. Exhibit 5.

<sup>4</sup> *Id.*, page 2.

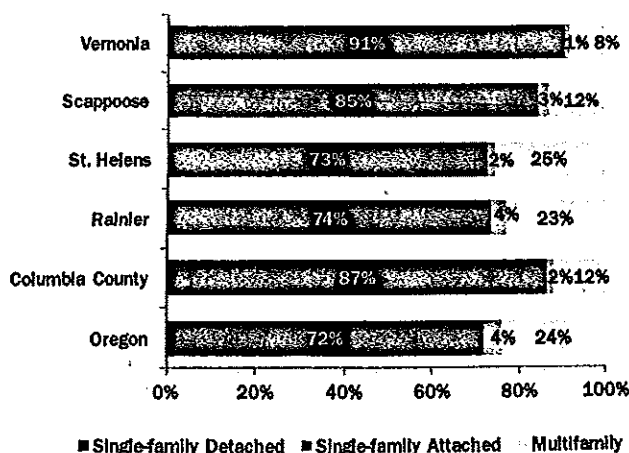
figure is 72%. Columbia County as a whole has an unusually high percentage of single-family detached residences, 87%, which reflects a strong local preference for single-family houses with a yard, for gardening, children playing and outdoor socializing.

**About 87% of Columbia County's housing stock is single-family detached.**

In comparison, about 72% of the housing in Oregon is single-family detached.

**Housing Mix, Columbia County Area Geographies, Oregon, 2010-2014**

Source: U.S. Census Bureau, 2010-2014 ACS Table B25024



The median 2014 household income in the city of St. Helens is \$47,421, which is below the Oregon median income of \$50,521. While Oregonians as a whole enjoyed a 24% increase in median household income from 2000 to 2014, the increase for St. Helens residents was only 17%. Scappoose residents, in contrast, enjoyed a 32% increase in median household income, and that relative prosperity is likely to continue with the development of a Scappoose Portland Community College campus and the Oregon Manufacturing Innovation Center, a Boeing-affiliated project expected to bring many high-wage jobs. It is reasonable to expect some portion of the new PCC/OMIC employees will choose to settle to St. Helens if sufficient affordable single-family homes are available.

**Columbia County's median household income increased by 20% or \$9,153 since 2000.**

**Change in Median Household Income, nominal dollars, 2000 to 2010-2014**

Source: US Census Bureau, 2000 Decennial Census, Tables HCT012 and 2010-2014 ACS, Tables B19013

	2000	2014	Change 2000 - 2010-14	
			Difference	% Change
Oregon	\$40,818	\$50,521	\$9,703	24%
Columbia County	\$45,452	\$54,605	\$9,153	20%
Rainier	\$39,954	\$46,750	\$6,796	17%
St. Helens	\$40,538	\$47,421	\$6,883	17%
Scappoose	\$47,031	\$62,244	\$15,213	32%
Vernonla	\$41,000	\$59,375	\$18,375	45%

Due to this discrepancy between the slow rate of income growth, and the more rapid increase in housing prices, Columbia County homes have become less affordable for average buyers. The ratio of housing value to household incomes shows that home values increased faster than incomes since the year 2000. In Columbia County, the 2014 median home value was 3.8 times the median income, up from 3.2 in 2000. The ratio is consistent with statewide trends, indicating homeownership has become less affordable in the last fifteen years. At a median income of \$47,421, the average Columbia County family seeking to purchase a home can afford to pay roughly \$232,000.<sup>5</sup>

**The ratio of housing value to household income increased for Oregon and all Columbia County area geographies except for Vernonia.**

**Ratio of Housing Value to Household Income (Median to Median), 2000 to 2010-14<sup>1</sup>**

Source: US Census Bureau, 2000 Decennial Census, Tables HCT012 and H085, and 2010-2014 ACS, Tables B19013 and B25077

<b>2000</b>	<b>3.2</b> Columbia County	<b>3.1</b> Rainier	<b>3.1</b> St. Helens	<b>3.2</b> Scappoose	<b>2.8</b> Vernonia	<b>3.6</b> Oregon
<b>2010-14</b>	<b>3.8</b> Columbia County	<b>3.4</b> Rainier	<b>3.5</b> St. Helens	<b>3.6</b> Scappoose	<b>2.8</b> Vernonia	<b>4.6</b> Oregon

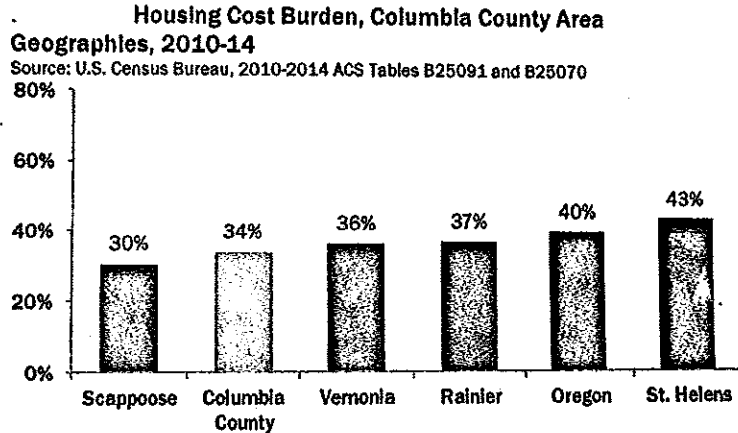
As mentioned above, Oregon Statewide Planning Goal 10 and the St. Helens Comprehensive Plan require the city to provide housing that is affordable to all households in a community. SHMC 19.08.050(2). “Cost burden” is a useful measure of housing affordability. According to federal HUD guidelines, a household that spends more than 30% of its total income on housing is said to be “cost burdened.”

Of the six populations studied (*i.e.* Oregon as a whole, Columbia County, and the cities of Scappoose, Vernonia, Rainier, and St. Helens), St. Helens has the highest percentage of cost-burdened residents. While only 34% of Columbia County residents and 30% of Scappoose residents are cost-burdened, in St. Helens the percentage is much higher: 43%.

<sup>5</sup> <http://www.realtor.com/mortgage/tools/affordability-calculator/>

**About 34% of all households in Columbia County are cost burdened.**

Of the Columbia County area geographies, St. Helens has the highest share of cost burdened households.



This is a clear indication that the city of St. Helens needs more single-family detached dwelling units affordable to the average Columbia County home-buyer. St. Helens is an attractive community for residential buyers for many reasons, including the small-town atmosphere, good public schools, natural beauty, access to outdoor recreation, and proximity to the Portland metro area. An additional strong attraction is the affordability of a single-family home with a yard for outdoor cooking, socializing, and play areas for children. Such smaller “starter houses” are increasingly unaffordable elsewhere, costing upwards of \$400,000 closer to the city of Portland. St. Helens still offers “more house for the money” than other communities.

#### The Need for More Homes on Parcels Zoned “General Residential” (R-5) in St. Helens

This application requests a zoning change from “Moderate Residential” (R-7) to “General Residential” (R-5) for a 12.57 acre site. The R-7 zone has a 7,000 sq. ft. minimum lot size for a single family home (10,000 sq. ft. for duplexes). The R-5 has a 5,000 sq. ft. minimum lot size for a single family home, and 5,800 sq. ft. for duplexes. Given these regulations, a single-family home built on a 5,000 sq. ft. lot will cost much less for a homebuyer than the same house on a 7000 sq. ft. lot.

From our analysis of the study area, which includes both R-7 and R-5 zoned residential subdivisions, it appears the average newer R-7 home has a fair market value around \$307,000 (with an average 2,250 sq. ft. house), while the nearby R-5 houses sell for \$256,000 (with a 1,610 sq. ft. house). As the analysis of local residential land use patterns shows, there is a strong local preference for detached single-family houses with a moderately-sized yard, among Columbia County homebuyers who can afford them. Granting this proposal will increase the stock of such affordable homes, currently in considerable demand.

The following subdivisions were selected as they are located near the proposed parcel, and they are the newest subdivisions in the area (there was a significant drop-off in housing Columbia County residential construction following the 2008-2009 economic downturn). As

the data show, in this area, the average house on a parcel zoned R-5 is valued around **\$50,000 less** than the average R-7 house:

R-5 Subdivisions:	Average House Size	Average Impr. Market Value	Total Cost
County Meadows (2005)	1607 sq. ft.	\$148,041	\$232,862
Star Heights (2007)	1625 sq. ft.	\$163,620	\$251,745
Oakview (2000)	1608 sq. ft.	\$160,821	\$248,983
R-7 Subdivisions:	Average House Size	Average Impr. Market Value	Total Cost
Elk Ridge (2008)	2040 sq. ft.	\$201,520	\$303,986
Oak Ridge I (2005)	2131 sq. ft.	\$174,272	\$288,215
Oak Ridge II (2006)	2430 sq. ft.	\$221,499	\$311,562

Assuming the average R-5 zoned home parcel (lot and house) sells for \$253,000, and the average R-7 zoned parcel sells for \$306,000, there are far fewer Columbia County families that can afford the R-5 zoned home. To use a real estate phrase, many Columbia County families are “priced out” from purchasing a R-7 zoned house, but could potentially afford a R-5 zoned home.

The National Association of Home Builders created a “Priced Out” metric to measure how many potential buyers are precluded from purchasing as the price of the houses increase. Exhibit 7. Most home buyers take out a mortgage to finance a purchase of a new home, so the Priced Out model uses ability to qualify for a mortgage as an affordability standard. To qualify for conventional loans, housing expenses should not exceed 28 percent of homebuyers’ gross monthly income.<sup>6</sup>

Monthly housing costs include principal and interest on the mortgage, property taxes and homeowner’s Insurance – often abbreviated as “PITI”. The affordability standard is thus a ratio of housing expenses to income, and the number of households that qualify for a mortgage to buy a home of a given price will depend on the income of households in an area and current mortgage rates. Using this standard, how would granting the application improve home affordability for Columbia County residents?

At a median income of \$47,421, the average Columbia County family seeking to purchase a home can afford to pay roughly \$232,000.<sup>7</sup> If the average new R-5 zoned home costs \$253,000, then roughly 45% of Columbia County prospective buyers can afford to buy a home (income needed: \$56,241). For R-7 homes with an average price of \$306,000, however, only 12% of Columbia County prospective buyers could afford a house (income needed:

<sup>6</sup> National Association of Home Builders, *State and Metro Area House Prices: the “Priced Out” Effect*, Natalia S. Siniavskaia, August 1, 2014. Exhibit 7.

<sup>7</sup> <http://www.realtor.com/mortgage/tools/affordability-calculator/>

\$81,023).<sup>8</sup> The difference between 45% of potential buyers who can afford a R-5 home, and 12% of buyers who could afford a R-7 zoned home, is substantial. Assuming Columbia County's adopted population forecast growth of more than 10,400 people expected in the 2016-2036 period, resulting in a demand for nearly 4,100 new dwelling units,<sup>9</sup> then roughly 4,680 of those new residents could afford a R-5 home, while only 1248 potential buyers could buy the R-7 zoned homes. Put another way, changing the zoning from R-7 to R-5 potentially allows 3432 people to afford to be able to move to St. Helens in the next twenty years, 3,432 people who are priced out of the market if the zoning remains R-7.

In summary, given the median family income, house prices and residential development patterns in the city of St. Helens, allowing the subject parcel to be re-zoned from R-7 to R-5 would make homes affordable to *many* more families. Those families would likely not be able to afford homes on parcels zoned R-7, as only 12% of potential Columbia County buyers earn the requisite median family income.

It is also important to note that the availability of new construction affordable housing has a positive secondary effect on the overall housing market. When new homes are purchased by locals who are "upgrading" their living accommodations from rentals, this frees up those rental housing units for other people. In other words, more housing has the effect of helping to alleviate some of the housing shortage. Exhibit 8 & 9. Jim Tierney of Community Action Team (CAT) operates the Hidden Oaks apartment complex, and he says they have nearly a 100-person waiting list.

### **Compatibility.**

Although compatibility is not an approval criteria, it seemed to be a concern of the Planning Commission. The City Council should also not have any concerns that the approval of this PAPA and zone change from "Moderate Residential" (R-7) to "General Residential" (R-5) for this 12.57-acre site will result in incompatible development. The applicant is proposing to construct seventy-eight (78) new single-family residences. These homes will be compatible with the existing development in the community, as follows:

#### *Surrounding Uses*

The surrounding area within the St. Helens city limits includes the land south of Pittsburg Road, bordered by Barr Avenue to the west, Hankey Road to the east, and Columbia Boulevard to the south. The land north of Pittsburgh Road is outside of the city limits of the city of St. Helens.

#### *Characteristics of Surrounding Uses*

Except for those few parcels in public use (e.g McBride Elementary School, Campbell Park), this area is nearly entirely residential, zoned R-7 and R-5, and filled with single-family

<sup>8</sup> *Id.*

<sup>9</sup> ECONorthwest report to Columbia County Housing Workgroup, "Columbia County Housing Analysis," Goodman, Beth, November 14, 2016, page 1. Exhibit 5.

detached homes developed as subdivisions. These are quiet suburban neighborhoods filled with single-family one- and two-story homes, moderately-sized yards and gardens at five to seven thousand square feet, and relatively low-traffic two-way streets, with several loops and cul-de-sacs.

#### *Characteristics of Uses in the Proposed Emerald Meadow Subdivision*

If this application is approved, the proposed Emerald Meadow subdivision will consist of seventy-eight new parcels of moderate size (five to six thousand square feet), each with a single-family one- or two-story home, with a single road and loop connecting to St. Helen Way via Camden Street and Catarin Street. The east-west road is proposed to be named Fairview Drive, and the closed loop Emerald Loop. There will be no direct access onto the busier nearby roads, Pittsburg Road and N. Vernonia Road.

#### *Compatibility of Emerald Meadows with Surrounding Uses*

The proposed Emerald Meadows subdivision will be compatible with the surrounding uses. Approval of this land use application will create one large harmonious tract of residential suburban neighborhoods filled with single-family one- and two-story homes, moderately-sized yards and gardens at five to seven thousand square feet, and relatively low-traffic two-way streets, with loops and cul-de-sacs. Assuming full capacity (*i.e.* all 78 new houses are occupied at all times), at a national average of 2.58 people per household, that would add 201 new residents to St. Helens. Of those 201 new residents, up to forty could be children ages 5 to 18 likely to attend local schools. These modest increases are within the capacity of existing facilities and infrastructure.

As for aesthetic harmony with the existing neighborhoods, the artist diagrams of the proposed model houses indicate, the new Emerald Meadows homes will blend in well with the surrounding homes to the south, east and west (the area north of the subject parcel across Pittsburgh Road is outside city limits). These houses are quite similar in style, size and design, and the scale and density of the houses and parcels is wholly consistent with the residential area. Exhibit 10.

Finally, it is worth mentioning that this zone change represents a natural continuance of the R-5 zones land located to the South. Pittsburg Rd. to the North provides a very natural boundary for the R 5 zone. Larger acreage parcels exist on the North side of Pittsburg road that are more likely developable. to R-7 standard is needed. Vernonia Road is also a natural buffer on the East.

#### **17.32.070 – General residential zone – R-5**

**(1) Purpose.** *The R-5 zone is intended to provide minimum development standards for residential purposes and to establish sites for single-dwelling, detached and attached units for medium density residential developments.*

**(2) Uses Permitted Outright.** *In an R-5 zone, the following uses are permitted outright:*

**(a) Duplex dwelling units.**

- (b) *Home child care.*
- (c) *Home occupation, Types I and II*
- (d) *Public facility, minor.*
- (e) *Public park.*
- (f) *Residential facility.*
- (g) *Residential home.*
- (h) *Single-dwelling units, attached (five units maximum together).*
- (i) *Single-dwelling unit, detached.*

**Finding:** At the time of development, the above list of uses would be permitted outright under the R-5 zone. The applicant is proposing to build single family homes.

### **This PAPA and Zone Change Do Not Represent Impermissible “Spot Zoning.”**

The St Helen’s Municipal Code contain the following definition of “Spot Zoning.”

***“Spot zoning” means rezoning of a lot or parcel of land to benefit an owner for a use incompatible with surrounding uses and not for the purpose or effect of furthering the comprehensive plan.***

As far as we have been able to tell, there is no corresponding approval standard that references the term “spot zoning.” As a result, we are inclined to believe that this is definition is nothing more than a vestige from an older version of the Code.

This definition largely mirrors the definition assigned to the term by the Oregon Supreme Court.

'Spot zoning' is the practice whereby a single lot or area is granted privileges which are not granted or extended to other land in the vicinity in the same use district \* \* \*." 1 Rathkopf, *The Law of Zoning and Planning* 26-1 (3d ed 1966). See also 46 Or L Rev 323 (1967).

*Follmer v. County of Lane*, 5 Or. App. 185,480 P.2d 722 (1971). Yokley, *Zoning Law and Practice*, discusses the concept of spot zoning as follows:

"\* \* \* Cases become 'spot zoning' cases where obviously a particularly small lot or parcel of ground is singled out and placed in an area, the use of which is inconsistent with the small lot or area so placed and whose classification is changed in the ordinance, and in these cases *where special benefits are sought to be conferred on a particular property owner, or special burdens sought to be imposed upon particular property owners, these and these alone, in our way of thinking, become the real 'spot zone' amendments* and they alone constitute the cases that sabotage the

laudable efforts of progressive municipal authorities to comprehensively zone the municipalities and drag down into the dust such praiseworthy undertakings."

All of the Oregon case law addressing "spot zoning" predated *Fasano v. Washington Co. Comm.*, 264 Or 574, 507 P2d 23 (1973), which held that small-scale rezonings are quasi-judicial actions requiring certain procedural safeguards, and the 1973 adoption of new statewide land use legislation. These changes in the law make the concept of "spot zoning" obsolete in Oregon. Since *Fasano*, there have been no judicial or LUBA decisions declaring a rezoning invalid as "spot zoning."

In this case, any decision to change the plan and zone map designations for the subject parcel are being made pursuant to provisions in the Statewide Planning Goals (goals) and the city's comprehensive plan, which has been acknowledged by the Land Conservation and Development Commission (LCDC) as complying with the goals. There can be no spot zoning if the city's decision identifies the applicable criteria and adopts findings to demonstrate those criteria are satisfied. Stated another way, if the proposed plan and zone map amendment are adopted in compliance with the applicable criteria, it cannot be considered arbitrary and, therefore, is not invalid "spot zoning." See *Wallowa Lake Forest Industries v. Wallowa County*, 13 Or LUBA 172, 179 (1985); *Brown & Cole, Inc. v. City of Estacada*, 21 Or. LUBA 392, 408-409 (1991).

This request does not meet any definition of "spot zoning." If granted, this request will not change the overall character of the nearby neighborhoods nor negatively affect these land uses. As can be seen from the attached map, nearly all of the area to the south is already zoned R-5 and developed into subdivisions (*i.e.* County Meadow Estates - 2005, Star Heights - 2007, and Oakview - 2000). Exhibit 11.

## STATEWIDE PLANNING GOALS

### *Citizen Involvement (Goal 1)*

*To develop a citizen involvement program that insures the opportunity for citizens to be involved in all phases of the planning process.*

**Finding:** The intent of Goal 1 is to ensure that citizens have meaningful opportunities to participate in land use planning decisions. As stated in the Goal, the purpose is:

*To develop a citizen involvement program that insures the opportunity for citizens to be involved in all phases of the planning process.*

Goal 1 has five stated objectives that are relevant to a zone change:

*Citizen Involvement -- To provide for widespread citizen involvement.*

*Communication -- To assure effective two-way communication with citizens.*

*Citizen Influence -- To provide the opportunity for citizens to be involved in all phases of the planning process.*

*Technical Information -- To assure that technical information is available in an understandable form.*

*Feedback Mechanisms -- To assure that citizens will receive a response from policy-makers.*

Citizen involvement is always applicable to both quasi-judicial and legislative land use applications. The City's acknowledged Comprehensive Plan and Development Code include citizen involvement procedures with which the review of this application will comply. This process allows for citizens to communicate their input into this application review conducted by the City at public hearings or by submitting written comments. This process complies with this goal.

### ***Land Use Planning (Goal 2)***

***To establish a land use planning process and policy framework as a basis for all decision and actions related to use.***

**Finding:** Goal 2 requires all incorporated cities to establish and maintain comprehensive land use plans and implementing ordinances. It also requires cities to coordinate with other affected government entities in legislative land use processes. The purpose of Goal 2 is:

*To establish a land use planning process and policy framework as a basis for all decision and actions related to use of land and to assure an adequate factual base for such decisions and actions.*

The SHCC and STMC are acknowledged to be in compliance with statewide planning goals and guidelines. Goal 2's coordination obligation will be met because the applicant and County shall seek public comment from any affected unit of government, including and any special district whose boundaries overlap with the site. The procedural requirements for a zone change are contained in the St Helens Municipal Code, which involve assessment of the applications merits, notice to affected parties, and public hearings. The proposal is to change the zoning on the subject property from R-7 to R-5, in compliance with Goal 2. Notice of the zoning map amendment has been provided by the City of St Helens to the Oregon Department of Land Conservation and Development (DLCD), as required. The City's decision is based on findings of fact.

### ***Agricultural Lands (Goal 3)***

***To preserve and maintain agricultural lands.***

**Finding:** This Goal is not applicable since the land is within the City limits, is anticipated to be developed at an urban scale, and no identified agricultural resources are listed on site.

***Forest Lands (Goal 4)***

***To conserve forest lands by maintaining the forest land base and to protect the state's forest economy by making possible economically efficient forest practices that assure the continuous growing and harvesting of forest tree species as the leading use on forest land consistent with sound management of soil, air, water, and fish and wildlife resources and to provide for recreational opportunities and agriculture.***

**Finding:** The subject property does not contain forest land. Therefore, Goal 4 does not apply to this land. This Goal is also not applicable since the land is anticipated to be developed at an urban scale, and no identified forest lands are identified on site.

***Open Spaces, Scenic and Historic Areas and Natural Resources (Goal 5)***

***To protect natural resources and conserve scenic and historic areas and open spaces.***

**Finding:** There are no identified Goal 5 resources on or near the site. The subject property is not designated as an open space, scenic, or historic area and has no Goal 5 natural resources to protect. There are no natural resources located on the subject property at issue. There are no landslide hazard areas. There are no historic resources or cultural areas located or identified on the site. There are no identified mineral or aggregate resources on the site. The site is not located downtown or in a neighborhood conservation district. Therefore, this goal is satisfied.

***Air, Water and Land Resources Quality (Goal 6)***

***To maintain and improve the quality of the air, water, and land resources of the state.***

**Finding:** The site is currently zoned for residential use, and is proposed to remain as residential use. The zone change request will have no impact with regard to this Goal. Development applications submitted in the future will create additional impervious surfaces which will increase storm water effluent unless those impacts are mitigated. However, it is reasonable and likely that engineering solutions exist which can successfully mitigate those impacts, and therefore, compliance with this goal can be deferred to future development proposals.

***Areas Subject to Natural Disasters and Hazards (Goal 7)***

***To protect people and property from natural hazards.***

**Finding:** The subject site is not located within a potential landslide, earthquake, or flooding hazard area. The zoning map amendment proposal is consistent with avoidance of natural disasters and hazards under Goal 7.

***Recreational Needs (Goal 8)***

***To satisfy the recreational needs of the citizens of the state and visitors and, where appropriate, to provide for the siting of necessary recreational facilities including destination resorts.***

**Finding:** Goal 8 requires governmental organizations with responsibilities for providing recreational facilities plan for meet the recreational needs of the community. The City of St. Helens has adopted a Parks and Trails Master Plan (2015) that implements this Goal.

The site is presently zoned R-7, and is proposed to be zoned R-5. The site has not been planned for recreational use. The requested zoning map amendment will not result in a reduction of land planned or reserved for recreational use. Consequently, the requested zoning map amendment is in compliance with this Goal.

***Economic Development (Goal 9)***

***To provide adequate opportunities throughout the state for a variety of economic activities vital to the health, welfare, and prosperity of Oregon's citizens.***

**Finding:** This Goal is applicable to commercial and industrial lands. It is not applicable to lands which are zoned for residential uses and this request.

***Housing (Goal 10)***

***To provide for the housing needs of citizens of the state.***

**Finding:** The site is currently zoned R-7. The proposed zoning map amendment to R-5 would allow more intense development than is currently permitted under R-7 zoning, which would enable the City to provide additional needed housing units once the site is developed for residential use. The proposed zoning map amendment is in compliance with this Goal.

***Public Facilities and Services (Goal 11)***

***To plan and develop a timely, orderly and efficient arrangement of public facilities and services to serve as a framework for urban and rural development.***

**Finding:** Full urban services are available to serve the site and will be constructed/extended at the applicants' expense at the time of development. Attached is a map printed from the City's GIS mapping system, showing water, sanitary sewer, and storm drains in the vicinity around the proposed Emerald Meadow Estates. Water is noted by blue lines, sanitary sewer by green lines with arrows, and storm drains by orange lines. All utilities are stubbed up to the end of the dead-end streets on the south side of the property, Catarin St. and Camden St. City water is also located in N. Vernonia Road and Pittsburg Road. Additional sanitary sewer and storm drains are located near the furthest southeast corner of the subject property in N. Vernonia Road.

Development of the site will trigger requirements for the developer to provide infrastructure, including necessary utilities and street improvements in an orderly and efficient pattern.

***Transportation (Goal 12)***

***To provide and encourage a safe, convenient and economic transportation system.***

**Finding:** This Goal requires the City to prepare and implement a Transportation System Plan (TSP). The City of St Helens completed a TSP update in 2011 and assumed that this site would be developed under the City's current R-7 zoning designation. The proposal to change the subject property from R-7 to R-5 is not expected to have a significant effect on the local transportation facilities. The subject property would have frontage on N. Vernonia Road, classified as a Collector street in the City's TSP, with additional frontage on Helens Way (classified as a Local street), and on Pittsburg Road (classified as a Minor Arterial). The proposal will not change the functional classifications of the above-mentioned roadways. No development is proposed concurrent with this PAPA and zone change request.

Early LUBA cases suggested that a local government could not “pass the buck” by deferring compliance with the TPR until the time of site plan review.<sup>10</sup> However, more recent case law clarifies that conditions of approval can be used to limit new development until such time as the TPR is addressed. For example, in *Citizens for Protection of Neighborhoods v. City of Salem*, 47 Or LUBA 111 (2004) (*Citizens*), the City of Salem approved a zone change to allow mixed residential and commercial use of a 275-acre property. That approval included a condition that prohibited development of the property until later adoption of a master plan for the property. The City of Salem's code criteria applicable during the master plan process included requirements that were substantially identical to the requirements of the TPR. Based on the condition requiring master plan approval, the city found that the zone change did not significantly affect the transportation facility because no development could occur until the subsequent master plan phase. *Id.* at 115, 116. LUBA held that the city could properly conclude that the rezoning of the property did not significantly affect any transportation facility because the condition essentially prohibited development on the property without first showing that any allowed development is consistent with the function, capacity and performance standards of affected transportation facilities. *Id.* at 120.

In another case that the applicant's attorney was involved with, *ODOT v. City of Klamath Falls (Southview Dev'l, LLC)*, 39 Or LUBA 641, 660, *aff'd* 177 Or App 1, 34 P2d 667 (2001), LUBA affirmed that portion of a county decision which approved a zone change with a condition that prevented additional development from impacting a transportation facility until such a time in the future when the TPR is addressed. LUBA found that this condition was sufficient to ensure compliance with the TPR in the interim.

Finally, in *Willamette Oaks, LLC v. City of Eugene*, 59 Or. LUBA 60 (2009), the city approved a zone change, and imposed a condition of approval prohibiting development of the property without approval of a planned unit development (PUD) application and a showing of consistency with the TPR as part of the PUD application and review. LUBA approved this approach, stating as follows:

In sum, with one caveat discussed below,<sup>[11]</sup> we think it is permissible for the city to defer consideration of compliance

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<sup>10</sup> *1000 Friends of Oregon v. City of North Plains*, 27 Or LUBA 372 (1994), *aff'd*, 130 Or App 406 882 P2d 1130 (1994); *Concerned Citizens of the Upper Rogue v. Jackson County*, 33 Or LUBA 70 (1997).

<sup>11</sup> LUBA stated in a footnote that the PAPA procedural requirements would still need to be satisfied as part of the deferred process:

with the TPR to a subsequent review process at the time actual development is proposed, provided that the zone change or plan amendment is effectively conditioned to prohibit traffic or other impacts inconsistent with the TPR's requirements unless and until those requirements are fully addressed. Petitioner offers no reason in the present case why deferring the application of the provisions of the TPR to a later PUD application process is insufficient to ensure that allowed uses of the subject property are consistent with the function, capacity and performance standards of the affected transportation facilities. *ODOT v. City of Klamath Falls*, 39 Or LUBA at 660.

For this reason, the City has the option of imposing a condition of approval to the UGB amendment that prohibits any new development on the subject property until a Comprehensive Plan Map and Zoning Map Amendment are completed.

However, the applicant has provided a TIA prepared by a Licensed Transportation Engineer that demonstrates that the “worst-case development scenario” under R-5 zoning will not violate the TPR. There is one intersection, that will function below the City’s operational standard (LOS D) by 2031 if the zone change is approved. However, that intersection can be made to function with an acceptable level of service (LOS D) with minor mitigation.

### ***Energy Conservation (Goal 13)***

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The caveat mentioned above is that unless the local government takes steps to ensure otherwise, the subsequent review process may not require a comprehensive plan or land use regulation amendment and therefore will not trigger the notice obligations of a post-acknowledgement action under ORS 197.610 *et seq.* Under those statutes, a local government that amends its comprehensive plan or land use regulations, including zone changes, must provide to the Department of Land Conservation and Development (DLCD) timely notice of the hearing on the proposed amendments as well the decision adopting the amendments. DLCD, in turn, provides notice of the proposed amendments and any subsequent adoption to persons or agencies who request such notice. OAR 660-018-0025. The requirement to provide notice of post-acknowledgment plan amendments to DLCD and other parties is a critical component of a statutory and rule-based scheme that is designed to ensure that post-acknowledgment plan and land use amendments comply with the applicable statewide planning goals and rules, including the TPR. *See Oregon City Leasing, Inc. v. Columbia County*, 121 Or App 173, 177, 854 P2d 495 (1993) (failure to provide DLCD the notice required under ORS 197.610 *et seq.* is a substantive, not procedural error). The efficacy of that scheme is undermined if a local government defers consideration of compliance with the TPR to a subsequent review process that does not provide equivalent notice to that required by ORS 197.610 *et seq.* Without such notice, it is possible that DLCD and parties who may rely on DLCD's re-notice, potentially including ODOT, may not learn of the review proceeding or have an opportunity to participate in that proceeding.

***To conserve energy.***

**Finding:** LUBA and the Courts have never given any regulatory affect to this Goal. Despite this, the rezoning of land from R-7 to R-5 will result in more compact urban form, which should have at least a marginal effect on energy efficiency. The site is located immediately adjacent to other residential land. The proposed zoning map amendment would permit development in accordance with the Comprehensive Plan, with the potential to create an energy efficient land use pattern within the City limits of St Helens.

***Urbanization (Goal 14)***

***To provide for an orderly and efficient transition from rural to urban land use.***

**Finding:** The subject property is already located within the City limits, and has been planned for urban land use. Goal 14 does not apply.

***Goals 15 through 19***

**Finding:** The following Goals are not applicable to this application: Willamette River Greenway (Goal 15); Estuarine Resources (Goal 16); Coastal Shorelands (Goal 17); Beaches and Dunes (Goal 18); and Ocean Resources (Goal 19).

**APPLICABLE COMPREHENSIVE PLAN POLICIES**

Determining whether any given Comprehensive Plan policy is an “applicable” approval standard can present vexing questions for practitioners. In some cases, the plan itself will provide a “roadmap” by expressly stating which, if any, of its policies are applicable approval standards. For example, if the comprehensive plan specifies that a particular plan policy is itself an implementing measure, LUBA will conclude that policy applies as an approval criterion for land use decisions. *Murphey v. City of Ashland*, 19 Or LUBA 182 (1990). On the other hand, where the comprehensive plan emphasizes that plan policies are intended to *guide* development actions and decisions, and that the plan must be implemented through the local code to have effect, such plan policies are not approval standards for individual conditional use decisions. *Schellenberg v. Polk County*, 21 Or LUBA 425 (1991). Similarly, statements from introductory findings to a comprehensive plan chapter are not plan policies or approval standards for land use decisions. *19th Street Project v. City of The Dalles*, 20 Or LUBA 440 (1991). Comprehensive plan policies which the plan states are specifically implemented through particular sections of the local code do not constitute independent approval standards for land use actions. *Murphey v. City of Ashland*, 19 Or LUBA 182 (1990). Where the county code explicitly requires that a nonfarm conditional use in an exclusive farm use zone “satisfy” applicable plan goals and policies, and the county plan provides that its goals and policies shall “direct future decisions on land use actions,” the plan

agriculture goals and policies are applicable to approval of the nonfarm conditional use. *Rowan v. Clackamas County*, 19 Or LUBA 163 (1990).

Often, however, no roadmap is provided. In those cases, the key is to look at the nature of the wording of the plan provision at issue. LUBA has often held that some plan policies in the comprehensive plan will constitute mandatory approval criteria applicable to individual land use decisions, depending on their context and how they are worded. See *Stephan v. Yamhill County*, 21 Or LUBA 19 (1991); *Von Lubken v. Hood River County*, 19 Or LUBA 404 (1990). For example, where a comprehensive plan provision is worded in mandatory language – such as when the word “shall” is used – and is applicable to the type of land use request being sought, then LUBA will find the standard to be a mandatory approval standard. Compare *Axon v. City of Lake Oswego*, 20 Or LUBA 108 (1990) (“Comp plan policy that states that “services shall be available or committed prior to approval of development” is a mandatory approval standard); *Friends of Hood River v. City of Hood River*, \_\_\_ Or LUBA \_\_\_ (LUBA No. 2012-050, March 13 2013). Conversely, use of aspirational language such as “encourage” “promote,” or statements to the effect that certain things are “desirable” will generally not be found to be mandatory approval standards. *Id.*; *Neuschwander v. City of Ashland*, 20 Or LUBA 144 (1990); *Citizens for Responsible Growth v. City of Seaside*, 23 Or LUBA 100 (1992), *aff’d w/o op.* 114 Or App 233 (1993).

In some cases, an otherwise applicable plan policy will be fully implemented by the zoning code. Where the text of the comprehensive plan supports a conclusion that a city's land use regulations fully implement the comprehensive plan and displace the comprehensive plan entirely as a potential source of approval criteria, demonstrating that a permit application complies with the city's land use regulations is sufficient to establish consistency/compliance with the comprehensive plan. *Save Our Skyline v. City of Bend*, 48 Or LUBA 211-12; *Murphy v. City of Ashland*, 19 Or LUBA 182, 199 (1990); *Miller v. City of Ashland*, 17 Or LUBA 147, 169 (1988); *Durig v. Washington County*, 35 Or LUBA 196, 202 (1998) (explicit supporting language is required to establish that land use regulations entirely displace the comprehensive plan as a source of potentially applicable approval criteria for land use decisions). However, a local government errs by finding that its acknowledged zoning ordinance fully implements the acknowledged comprehensive plan, thus making it unnecessary to apply comprehensive plan provisions directly to an application for permit approval, where the acknowledged zoning ordinance specifically requires that the application for permit approval must demonstrate compliance with the acknowledged comprehensive plan and the county does not identify any zoning ordinance provisions that implement applicable comprehensive plan policies. *Fessler v. Yamhill County*, 38 Or LUBA 844 (2000).

#### **19.16.010 Amendments to the Comprehensive Plan.**

**(1) Preface. It is the intent of this section to give direction for amending the St. Helens Comprehensive Plan.**

**(2) Goal. To create a process that complies with state and local laws for amending the acknowledged St. Helens Comprehensive Plan.**

**(3) Policy. All proposed amendments to this plan shall follow state laws and local laws. In particular they shall comply with ORS Chapters 195 and 215. See SHMC 17.08.060 for**

**transportation planning rule compliance. (Ord. 3150 § 3 (Att. B), 2011; Ord. 2980 § 2, 2006)**

ORS Chapter 195 does not contain any approval standards for a PAPA or zone change. Perhaps the intended cross-reference is ORS Chapter 197, which sets forth the required procedure for a PAPA, ORS 197.610 *et seq.*, as well as the procedural requirements for conducting a land use hearing. ORS 197.763.

ORS Chapter 215 only applies to counties. This appears to be a typo as well, as the equivalent chapter for cities is ORS Chapter 227.

**19.08.050 Housing goals and policies.**

**(3) Policies. It is the policy of the city of St. Helens to:**

- (a) Maintain adequate development and building codes to achieve the city's housing goals.**
- (b) Encourage the distribution of low income and/or multifamily housing throughout the city rather than limiting them to a few large concentrations.**
- (c) Work with all interested agencies to facilitate housing conservation and construction, and to improve substandard dwellings where cost effective.**
- (d) Encourage and cooperate with all efforts to provide adequate housing for those with special needs.**
- (e) Permit multifamily developments which conform to the following general conditions and criteria:**

- (i) They should not be constructed within areas which are established and recognized as substantially well maintained single-family areas.**
- (ii) They should have safe and appropriate arrangement of buildings, open spaces, and parking access.**
- (iii) They should not be so large or close to single-family homes as to block their view or sunlight or to unduly interfere with an established single-family character; where conditionally used, they thus shall be subject to density criteria.**
- (iv) They should include adequate open space.**
- (v) They should include ample off-street parking.**
- (vi) They should not be located where undue noise or other factors will adversely affect residential living.**
- (vii) They shall be subject to a site design review process and minimum landscaping requirements.**

**(f) Permit mobile home park development which conforms to the following general conditions and criteria:**

- (i) They should not be constructed within areas which are established and recognized as substantially well maintained single-family areas.**
- (ii) They should include adequate open space.**
- (iii) They should include ample off-street parking.**
- (iv) They should not be located where undue noise or other factors will not adversely affect residential living.**
- (v) They shall be subject to a site design review process and minimum landscaping requirements and possibly fencing or screening requirements.**

- (vi) They should provide internal vehicular and pedestrian circulation and landscaping.*
- (g) Re-evaluate city ordinances and, where possible, streamline administration and requirements in order to reduce development costs.*
- (h) Encourage energy-efficient housing patterns in residential developments. (Ord. 2980 § 2, 2006)*

None of the Policies set forth above are worded as mandatory approval standards. There are a few standards that apply to “multi-family developments” and “mobile home parks,” but the applicant in this case is not proposing either of these two development types. But even if he was proposing such development, it is highly likely that “site design review” process would run afoul of the “clear and objective requirement set forth in ORS 197.307(4).

**19.12.160 Rural suburban unincorporated residential category goals and policies**

- (1) Goals: To provide sufficient are for urban development that will accommodate a variety of housing types.**
- (2) Policies: It is the policy of the city of St Helens to:**
  - (a) Work with the county on partition and subdivision applications for these lands to ensure that they are divided in a manner that does not hinder future urbanization.**
  - (b) Zone the rural suburban unincorporated residential as R-7 or R-10 upon annexation to the City unless circumstances listed in subsection (2)(c) of this section exist.**
  - (c) Consider zoning lands with the rural suburban unincorporated residential category for R-5 or AR if the following conditions are found:**
    - (i) The parcel is vacant and larger than two acres in size.**
    - (ii) The carrying capacity of the public services including but not limited to streets, sewer, and water are sufficient for higher density development.**
    - (iii) The county and city determine, due to the pattern of development in the city and within the urban growth area, that other lands are more appropriate for these designations.**

**Finding:** This provision appears to only be applicable when rural land is being considered for future urbanization. The subject site is currently inside City limits, however, so this provision should not apply.

The St. Helens Comprehensive Plan SHMC 19.08.050(2) requires the city:

- (a) To promote safe, adequate, and affordable housing for all current and future members of the community.**
- (b) To locate housing so that it is fully integrated with land use, transportation and public facilities as set forth in the Comprehensive Plan.**

Neither of these two goals are mandatory approval standards. Nonetheless, the proposed PAPA and zone change will fully support this first Comprehensive Plan goal, promoting safe, adequate and affordable housing for St. Helens residents. As previously discussed,

changing the zoning from the current R-7 to the slightly denser R-5 will make the Emerald Meadows houses affordable to many hundreds of people who will remain priced out of the market for homes zoned R-7.

Columbia County's adopted population forecast shows growth of more than 10,400 people expected in the 2016-2036 period, resulting in a demand for nearly 4,100 new dwelling units.<sup>12</sup> Assuming the popular demand for housing mix (of multifamily, manufactured, and detached single-family homes) remains roughly the same at the 1990-2010 period, then over 75% of the new housing units would be single-family detached homes. That means a demand for 3075 new single-family residences. Full construction of Emerald Meadows' 78 new houses would be a small but important step in meeting this demand, providing attractive, affordable newly-constructed houses in an area that has seen little growth since the economic slowdown of 2008-2009.

This concept Emerald Meadows subdivision also meets the second Comprehensive Plan goal, as it will fully integrate with the surrounding residential subdivisions to the east, south, and west, without imposing any additional substantial stress on the nearby road networks or public facilities such as parks, schools, fire or police services. At full occupancy of around 200 people, the Emerald Meadows residents will only add 1.47% to the population of the city of St. Helens (13,060 estimated current population).

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<sup>12</sup> ECO Northwest report to Columbia County Housing Workgroup, "Columbia County Housing Analysis," Goodman, Beth, November 14, 2016, page 1.

**City of St. Helens  
Planning Commission Meeting  
September 13, 2016  
Minutes**

**Members Present:** Dan Cary, Chair  
Al Petersen, Vice Chair  
Greg Cohen, Commissioner  
Sheila Semling, Commissioner  
Audrey Webster, Commissioner  
Kathryn Lawrence, Commissioner  
Russell Hubbard, Commissioner

**Staff Present:** Jacob Graichen, City Planner  
Jennifer Dimsho, Assistant Planner & Planning Secretary

**Councilors Present:** Ginny Carlson, City Council Liaison

**Others Present:** Robert & Muriel Wenner  
Annie & Richard Buell  
John Warneke

The Planning Commission meeting was called to order by Chair Dan Cary at 7:00 p.m. Chair Cary led the flag salute.

**Consent Agenda**

**Approval of Minutes**

Vice Chair Petersen noted that the word "announced" on page two should be "unannounced." Commissioner Cohen said in the first paragraph of deliberations on page three, Chair Cary should be changed to Vice Chair Petersen. Commissioner Webster moved to approve the minutes of the July 12, 2016 Planning Commission meeting with the two corrections as noted. Commissioner Semling seconded the motion. Motion carried with all in favor. Chair Cary did not vote as per operating rules.



**Topics From The Floor**

There were no topics from the floor.



**CLG Historic Preservation Grant Project Summary Report**

Assistant Planner Jenny Dimsho discussed the four projects that were completed, as presented in the memo. Commissioner Cohen asked if this program will continue. Dimsho said as long as the State Historic Preservation Office (SHPO) continues to offer the grant program, we will apply. Commissioner Webster and Commissioner Cohen thanked staff for preparing this summary report.



## **Public Hearing**

**Wayne Weigandt**

**Comprehensive Plan/Zoning Map Amendment / CPZA.1.16  
35090 Pittsburg Rd.**

It is now 7:08 p.m. and Chair Cary opened the public hearing. There were no conflicts of interest or personal bias in this matter.

Graichen entered the following items into the record:

- Staff report packet dated September 6, 2016 with attachments

Graichen provided a letter in opposition to the proposal to the Commission. It was entered into the record last week. Graichen explained the background of the proposal, as presented in the staff report. The applicant is requesting a Comprehensive Plan Amendment from Suburban Residential (SR) to General Residential (GR) and a Zoning Amendment from Moderate Residential (R7) to General Residential (R5). He said the Commission's recommendation to City Council could focus on compatibility with adjacent land uses.

Vice Chair Petersen asked when the property was originally annexed. Graichen said the western tax lot was annexed after the other tax lot, but he did not know exactly when. Commissioner Cohen asked if the City had conducted a housing needs analysis that identified the types of housing we need. Graichen said no, there is only anecdotal evidence of the need for additional housing.

Commissioner Lawrence asked if there are still vacant homes from the recession. Graichen said the building department would have better knowledge about that. Commissioner Cohen noted that houses are on the market for very few days before they are bought, some receiving many offers before selling.

### **IN FAVOR**

**Weigandt, Wayne. Applicant.** Weigandt explained that he has owned the property since 2006. He had a preliminary plat for the property, but then the market collapsed. He would like to resurrect the old proposal. Weigandt explained the approved preliminary plat does not have adequate street widths according to the new Transportation Systems Plan standards. Following staff's suggestion, he is pursuing an R5 zone change in order to accommodate the new wider road width standards. Weigandt also pointed out that there is a BPA easement encumbering some of the southern lots. He doesn't feel this proposal is a spot zone.

Commissioner Hubbard asked if Weigandt plans on developing any multi-family units on the property. Weigandt said R5 does allow some multi-family conditionally, but he does not foresee any in his proposal. He re-iterated that the zone change request isn't for the different uses, but to provide flexibility to accommodate the wider streets.

Commissioner Semling asked how they plan to access the property. Weigandt said they would work with City Engineering to develop an adequate street plan, but they will likely access the property through N. Vernonia Rd. He said Pittsburg Rd. is more dangerous, so it is preferred to access via Vernonia Rd.

### **IN OPPOSITION**

**Wenner, Robert. 510 Hillcrest Rd.** Wenner said that if two and three story homes are built on the subject property, all the residents on Hillcrest Rd. will lose their view.

### **END OF ORAL TESTIMONY**

There were no requests to continue the hearing or leave the record open.

## **CLOSE PUBLIC HEARING & RECORD**

The applicant waived the opportunity to submit final written argument after the close of the record.

## **DELIBERATIONS**

Commissioner Russell asked how many more houses they could potentially develop with R5 versus R7. The Commission estimated it would be about 30-35 more units (purely on a conceptual level). Graichen said it is fairer to use the percentage increase in units, rather than gross numbers.

Vice Chair Petersen asked which property the letter in opposition came from. Graichen pointed to 35186 Pittsburg Rd. on the map.

Commissioner Cohen asked if other departments had been consulted regarding this proposal. Graichen said any development will have to address storm water with a management plan, but there are no obvious deficiencies with storm, sewer, or water at this point. Graichen also said any proposal will have to conduct a traffic impact analysis to determine how the housing density will impact the transportation network.

Commissioner Cohen said the Commission needs to consider how well this proposal fits with the Comprehensive Plan and the surrounding area. Chair Cary feels the proposal is in line with the surrounding area. Commissioner Webster feels there is plenty of vacant R5 property available elsewhere. Commissioner Cohen said he would feel more comfortable if there was a housing needs survey that broke down the housing need by type.

Chair Cary noted that the zoning map seems to contain the densest property at the center and the least dense on the outskirts. He said if this zone change is approved, it would push the denser properties closer to the edge. Commissioner Hubbard pointed out there would still a ring of less dense property in the Urban Growth Boundary. Chair Cary understands the need to rezone in order to accommodate the wider road width. Commissioner Hubbard agrees that the site is difficult to develop as R7.

Commissioner Semling suggested R5 zoning for the eastern lot between Catarin Street and Camden Street to fit the road in, with the rest of the property R7. Graichen cautioned the Commission not to base their decision based on one use (single-family subdivision). He said ownership could change before development and a completely different proposal with other allowed uses could be submitted. He said there is a high probability it will be developed as a single-family subdivision based on conversations with the applicant, but probable is not 100 percent.

Chair Cary asked if *any* development on this property would require that the main access be from Vernonia Rd. Graichen said it is very possible that there will not be access from Vernonia Rd. because of spacing requirements between other roads. He said Pittsburg Rd. and Vernonia Rd. are both higher classified streets and staff would prefer to direct traffic to the lower classified streets of Camden Street, Catarin Street, and Helens Way. However, he noted that a traffic impact analysis would show more detail.

## **MOTION<sub>A</sub>**

Commissioner Semling moved to recommend approval of the Zone Change/Comprehensive Map Amendment to R5 for the eastern tax lot in order to facilitate the wider road width, and to leave the rest of

the property R7. Commissioner Lawrence seconded. Commissioner Lawrence and Commissioner Semling voted in favor; Vice Chair Petersen, Commissioner Webster, Commissioner Hubbard, and Commissioner Cohen opposed; motion fails.

### **MOTION<sub>B</sub>**

Commissioner Semling moved to recommend denial of the Zone Change/Comprehensive Map Amendment. Commissioner Cohen seconded. Commissioner Semling, Commissioner Webster, Commissioner Cohen, and Commissioner Lawrence voted in favor; Vice Chair Petersen and Commissioner Hubbard opposed; motion carries.



### **Term Expirations**

Graichen said Commissioner Cohen and Chair Cary's terms expire in December. If Commissioner Cohen wishes to continue, the City has to advertise for the opening because he has served at least two consecutive terms. Commissioner Cohen and Chair Cary said they would like to continue. Graichen said the advertisement could note that the incumbent wishes to stay.

Councilor Carlson asked if two commissioners and an alternate would like to be on the interview committee with her. Commissioner Semling, Vice Chair Petersen, and Commissioner Lawrence volunteered. Graichen said if there are no applicants, then the incumbents will continue in their roles, assuming the City Council liaison does not want to continue advertising the opening.



### **Ordinance 3209 Review**

Graichen said this ordinance was discussed with City Council in August and they suggested a slight change, as noted in the memo. The Council wants all Commissioners who participate to vote (ex. no abstentions if they have participated in the process).

Commissioner Cohen is concerned about a situation where a commissioner is present at the start of the hearing, but is absent during the decision. He said with the proposed language, it would require a vote, even if they are absent for the decision. Graichen suggested adding "who are present" in the second sentence in the proposed language to fix this. Commissioner Webster suggested adding "in attendance" in the first sentence instead. The Commission likes this change.



### **Planning Director Decisions**

- a. Accessory Structure at 2154 Oregon Street #18 – New storage shed
- b. Home Occupation (Type I) at 244 S. 12<sup>th</sup> St. – Craft creation and online sales
- c. Home Occupation (Type II) at 464 Grey Cliffs Ct. – House cleaning/janitorial business
- d. Home Occupation (Type I) at 34566 Noble Rd. - Custom design glassware and apparel
- e. Accessory Structure at 2154 Oregon Street #26 - New storage shed
- f. Accessory Structure at 2154 Oregon Street #15 - New storage shed

There were no comments.



### **Planning Department Activity Reports**

Vice Chair Petersen suggested allowing the uses Commercial Recreational Facility, Cultural Exhibits & Library Services, and Community Recreation Including Structures in both R5 and R7 zoning districts. Graichen said he will include this topic in the next batch of code changes.



### **For Your Information Items**

Dimsho said the final Waterfront Redevelopment Open House is on Wednesday, October 12. Time and location are still being finalized, but she said it will hopefully be in a tent on the Veneer property around 5 p.m. She encouraged the Commission to watch for information in the October E-Newsletter or on the City's Facebook page. The event will be a celebration of the process and final framework plan product.

Vice Chair Petersen discussed the Seminar Group session fliers. He said they host classes that are very informative and recommends attending or getting the City Council to pay for Commission members to attend.



There being no further business before the Planning Commission, the meeting was adjourned at 8:30 p.m.

Respectfully submitted,

Jennifer Dimsho  
Planning Secretary

### 2016 Planning Commission Attendance Record

*P=Present A=Absent Can=Cancelled*

Date	Petersen	Hubbard	Lawrence	Cohen	Gary	Semling	Webster
01/12/16	P	P	P	A	A	P	P
02/09/16	A	P	P	P	P	P	P
03/08/16	P	P	P	A	P	P	P
04/12/16	P	P	P	P	P	P	P
05/10/16	P	P	A	P	P	P	P
06/14/16	P	P	P	P	P	A	P
07/12/16	P	P	P	P	P	P	P
08/09/16	CAN	CAN	CAN	CAN	CAN	CAN	CAN
09/13/16	P	P	P	P	P	P	P
10/11/16							
11/08/16							
12/13/16							

## EMERALD MEADOWS ESTATES SUBDIVISION TRAFFIC IMPACT STUDY

SAINT HELENS, OREGON

**DATE:**  
December 19, 2016

**PREPARED FOR:**  
Wayne Weigandt

**PREPARED BY:**  
Daniel Stumpf, EI  
William Farley, PE



RENEWS: 12/31/2017



**LANCASTER**  
ENGINEERING



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## EXECUTIVE SUMMARY

1. The proposed Emerald Meadows Estates will include the construction of a 78-lot subdivision located at 35090 Pittsburg Road in Saint Helens, Oregon. The project site is located north of Helens Way, south of Pittsburg Road, east of Oak Ridge Street, and west of N Vernonia Road.
2. In order to accommodate the expected density of the proposed development, a zone change and Comprehensive Plan amendment has been proposed for the properties which are currently zoned as *Moderate Residential* (R-7) to *General Residential* (R-5).
3. The trip generation calculations show that the proposed change in zoning could generate a net increase of 62 site trips during the morning peak hour and 83 site trips during the evening peak hour.
4. The trip generation calculations show that the proposed development of 78 single-family homes is projected to generate a total of 64 site trips during the morning peak hour and 84 site trips during the evening peak hour.
5. All study intersections are currently operating acceptably per City of Saint Helens and ODOT standards and are projected to continue operating acceptably upon build-out of the proposed development through year 2018.
6. The intersection of Columbia Boulevard at N Vernonia Road (Intersection #4) operates at LOS E under the 2031 planning year with the proposed zone change and does not meet the operational standard for all-way stop-controlled intersections as identified in the City's Transportation System Plan. By restriping the westbound approach to include a shared left-turn/through lane and a right-turn lane or by conditioning a trip cap of 92 evening peak hour site trips the intersection is projected to operate acceptably.
7. Upon the restriping of the westbound approach of Columbia Boulevard at N Vernonia Road (Intersection #4) or limiting development on the subject site with a trip cap, the intersection is projected to operate within acceptable capacity per City code by the 2031 planning horizon. The proposed zone change will not degrade the performance of any other existing or planned transportation facility below acceptable City or ODOT standards. Accordingly, the Transportation Planning Rule may be satisfied if the above mitigation is addressed upon development of the site.
8. No significant trends or crash patterns were identified at any of the study intersections and no specific safety mitigation is recommended.
9. Left-turn lane warrants are not projected to be met for any of the applicable study intersections under any of the analysis scenarios through the 2031 planning year. No new turn lanes are necessary or recommended.
10. Due to insufficient main and side-street traffic volumes, traffic signal warrants are not projected to be met for any of the unsignalized study intersections under any of the analysis scenarios.



## PROJECT DESCRIPTION & LOCATION

### *INTRODUCTION*

The proposed Emerald Meadows Estates will include the construction of a 78-lot subdivision located at 35090 Pittsburg Road in Saint Helens, Oregon. The site includes tax lots 7500, 8400, and 9100 which encompass an approximate total of 12.6 acres and currently has one single-family house constructed on-site.

In order to accommodate the expected density of the proposed development, a zone change and Comprehensive Plan amendment has been proposed for the properties which are currently zoned as *Moderate Residential (R-7)* to *General Residential (R-5)*.

This report addresses the impacts of the proposed change in zoning designation and subsequent development on the nearby street system. Based on correspondence with City of Saint Helens staff, the report conducts safety and capacity / level-of-service analyses at the following intersections:

1. Pittsburg Road at N Vernonia Road;
2. Helens Way/Farmview Drive at N Vernonia Road;
3. Oakwood Drive at N Vernonia Road;
4. Columbia Boulevard at N Vernonia Road;
5. S Vernonia Road at S Columbia River Highway (US-30);
6. Columbia Boulevard at US-30; and

The purpose of this study is to determine whether the transportation system in the vicinity of the site is capable of safely and efficiently supporting the existing and proposed uses and to determine any mitigation that may be necessary to do so. Detailed information on traffic counts, trip generation calculations, safety analyses, and level-of-service calculations is included in the appendix to this report.

### *LOCATION DESCRIPTION*

The project site is located north of Helens Way, south of Pittsburg Road, east of Oak Ridge Street, and west of N Vernonia Road in Saint Helens, Oregon. The subject site is located within a residential area with single-family detached homes surrounding the site in all directions. Notable developments located within a one-mile walking/biking distance of the site include McBride Elementary School, Saint Helens Head Start Preschool, and Creekside Junior Academy to the south.

### *VICINITY STREETS*

US-30 is classified by the City of Saint Helens as a Major Arterial and by the Oregon Department of Transportation (ODOT) as a Statewide Highway. The roadway has a five-lane cross-section, with two-travel lanes in each direction and a center two-way left-turn lane, and has a posted speed of 35 mph south of Howard Street, 40 mph between Howard Street and Pittsburg Road, and 45 mph north



of Pittsburg Road. Curbs and bicycle lanes are provided along both sides of the roadway while sidewalks are intermittently provided along both sides.

Vernonia Road is classified by the City of Saint Helens 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 where adequate space is provided. Curbs and sidewalks are intermittently provided along both sides of the roadway.

Pittsburg Road is classified by the City of Saint Helens as a Minor Arterial. The roadway has a two-lane cross-section and has a posted speed of 35 mph. Curbs and sidewalks are intermittently provided along both sides of the roadway.

The roadways of Helens Way, Farmview Drive, and Oakwood Drive are classified by the City of Saint Helens as Local Streets. Each roadway has a two-lane cross-section, without centerline striping, and have statutory residential speeds of 25 mph. On-street parking is permitted along both sides of each roadway. Curbs and sidewalks are generally provided along both sides of each roadway.

Columbia Boulevard is classified by the City of Saint Helens as a Minor Arterial east and a Proposed Collector west of US-30. East of US-30, the roadway has a two-lane cross-section, allowing only one-way eastbound traffic, and has a posted speed of 20 mph. West of US-30, the roadway has a two-lane cross-section and has a posted speed of 25 mph. On-street parking is generally permitted along both sides of the roadway. Sidewalks are provided along both sides of the roadway while curbs are provided on both sides east and intermittently west of N Vernonia Road. Bicycle lanes are provided along the south side of the roadway east of US-30.

### ***STUDY INTERSECTIONS***

The intersection of Pittsburg Road at N Vernonia Road (Intersection #1) is a three-legged intersection that is stop-controlled for the northbound approach of N Vernonia Road. All three intersection approaches each have one shared lane for all turning movements. Crosswalks are unmarked across all intersection legs.

The intersection of Helens Way/Farmview Drive at N Vernonia Road (Intersection #2) is a four-legged intersection that is stop-controlled for the eastbound approach of Helens Way and the westbound approach of Farmview Drive. All four intersection approaches each have one shared lane for all turning movements. Crosswalks are unmarked across all intersection legs.

The intersection of Oakwood Drive at N Vernonia Road (Intersection #3) is a four-legged intersection that is stop-controlled for the eastbound and westbound approaches of Oakwood Drive. All four intersection approaches each have one shared lane for all turning movements. Crosswalks are unmarked across all intersection legs.

The intersection of Columbia Boulevard at N Vernonia Road (Intersection #4) is a four-legged intersection that is all-way stop-controlled. All four intersection approaches each have one shared lane for all turning movements. Crosswalks are marked across all four intersection legs.



The intersection of S Vernonia Road at US-30 (Intersection #5) is a three legged-intersection that is stop-controlled for the southeast-bound approach of S Vernonia Road. The northeast-bound approach has one left-turn lane, two through lanes, and a bicycle lane to the right of the outermost standard travel lane. The southwest-bound approach has one right-turn lane, two through lanes, and a bicycle lane situated between the right-turn lane and outermost through lanes. The southeast-bound approach has one left-turn lane and one right-turn lane. Crosswalks are unmarked across all intersection legs.

The intersection of Columbia Boulevard at US-30 (Intersection #6) is a four-legged intersection that is controlled by a traffic signal. The northbound and southbound approaches of US-30 each have one left-turn lane served by permitted phasing, two through lanes, a right-turn lane, and a bicycle lane situated between the right-turn and outermost through lanes. The eastbound approach has one shared left-turn/through lane, one through lane, and one channelized right-turn lane the operates under yield control. Crosswalks are marked across all four 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 7.

### ***TRAFFIC COUNTS***

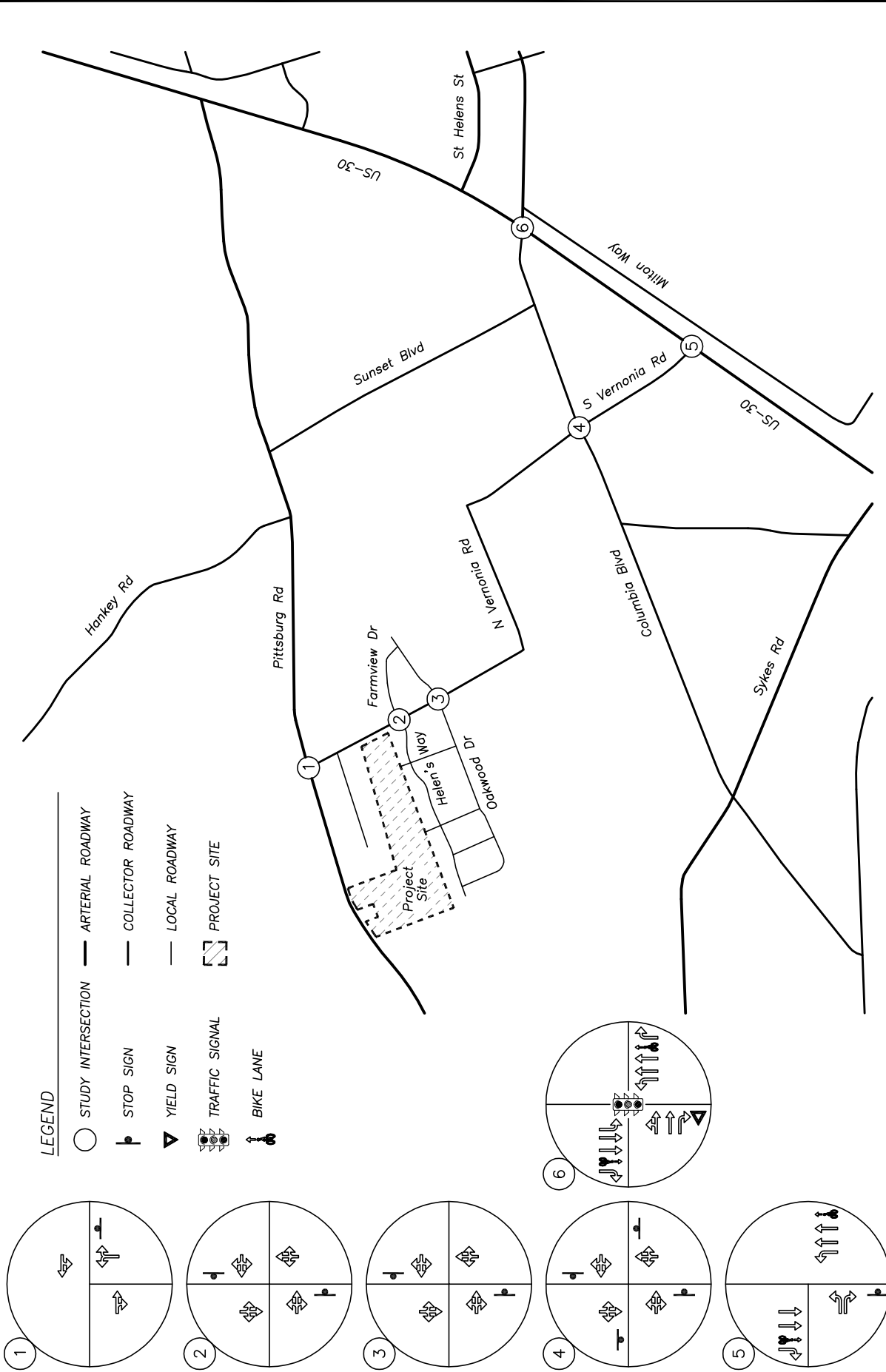
Traffic counts were conducted at the study intersections on Tuesday, October 25<sup>th</sup>, 2016, from 7:00 AM to 9:00 AM and from 4:00 PM to 6:00 PM. Data was used from each intersection's respective morning and evening peak hours.

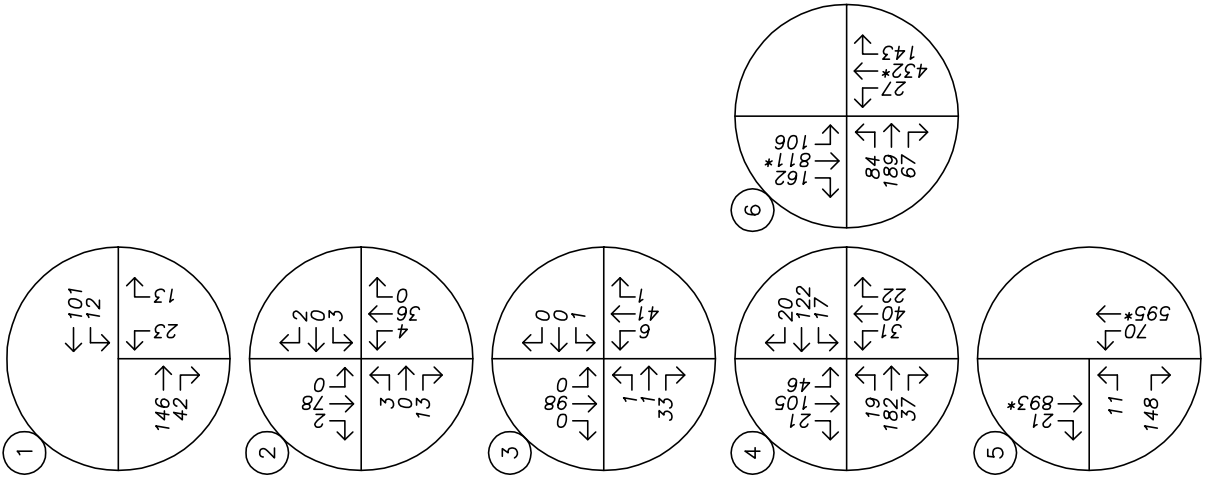
Per requirements established in ODOT's Analysis Procedures Manual, a seasonal adjustment factor of 1.049 based on commuter seasonal trends was applied to the highway's through movement traffic volumes at intersections along US-30 in order to reflect the 30<sup>th</sup> highest hour volumes along the ODOT facility.

Figure 2 on page 8 and Figure 3 on page 9 shows the existing morning and evening peak hour traffic volumes at the study intersections, respectively.

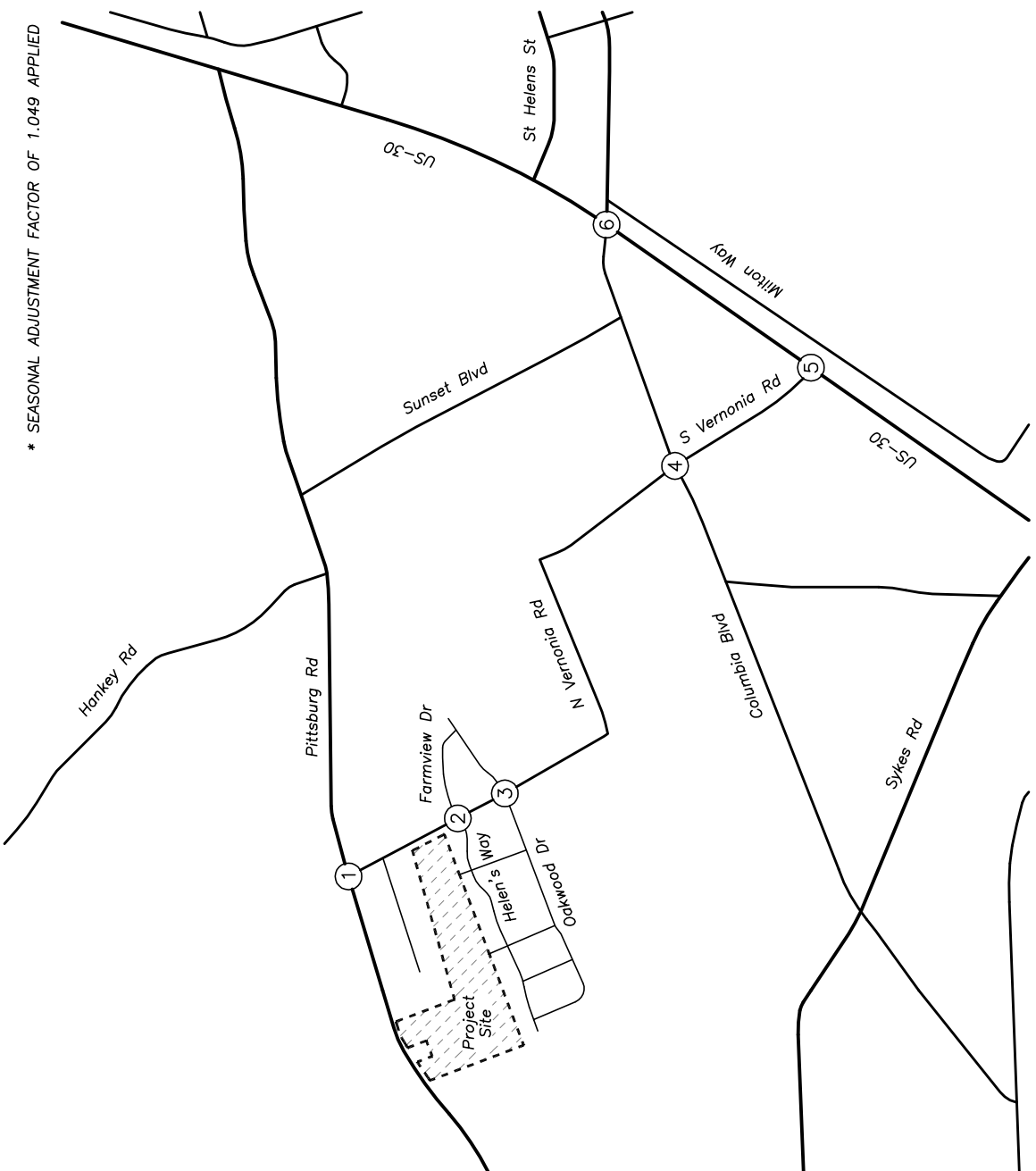


VICINITY MAP



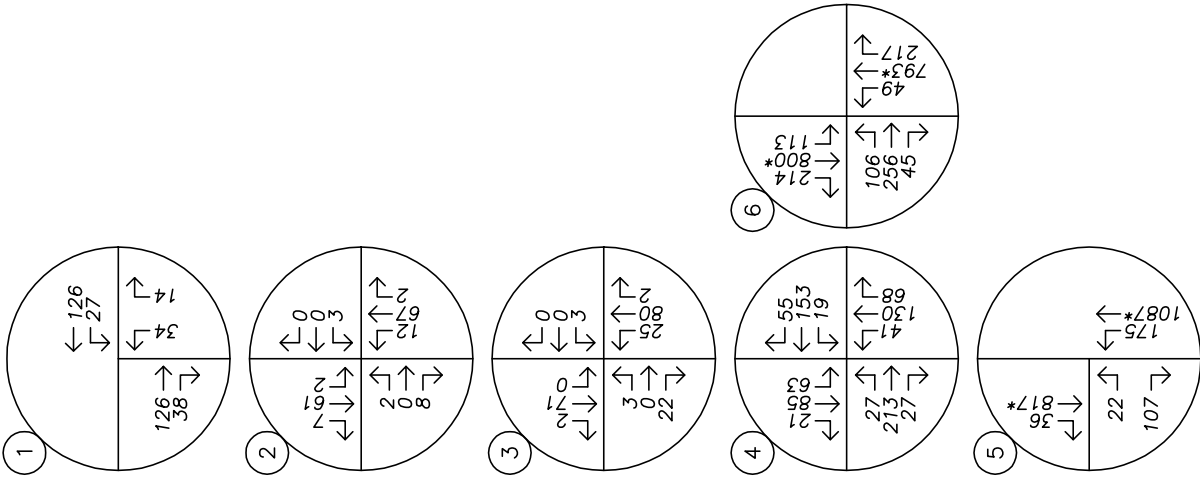


\* SEASONAL ADJUSTMENT FACTOR OF 1.049 APPLIED

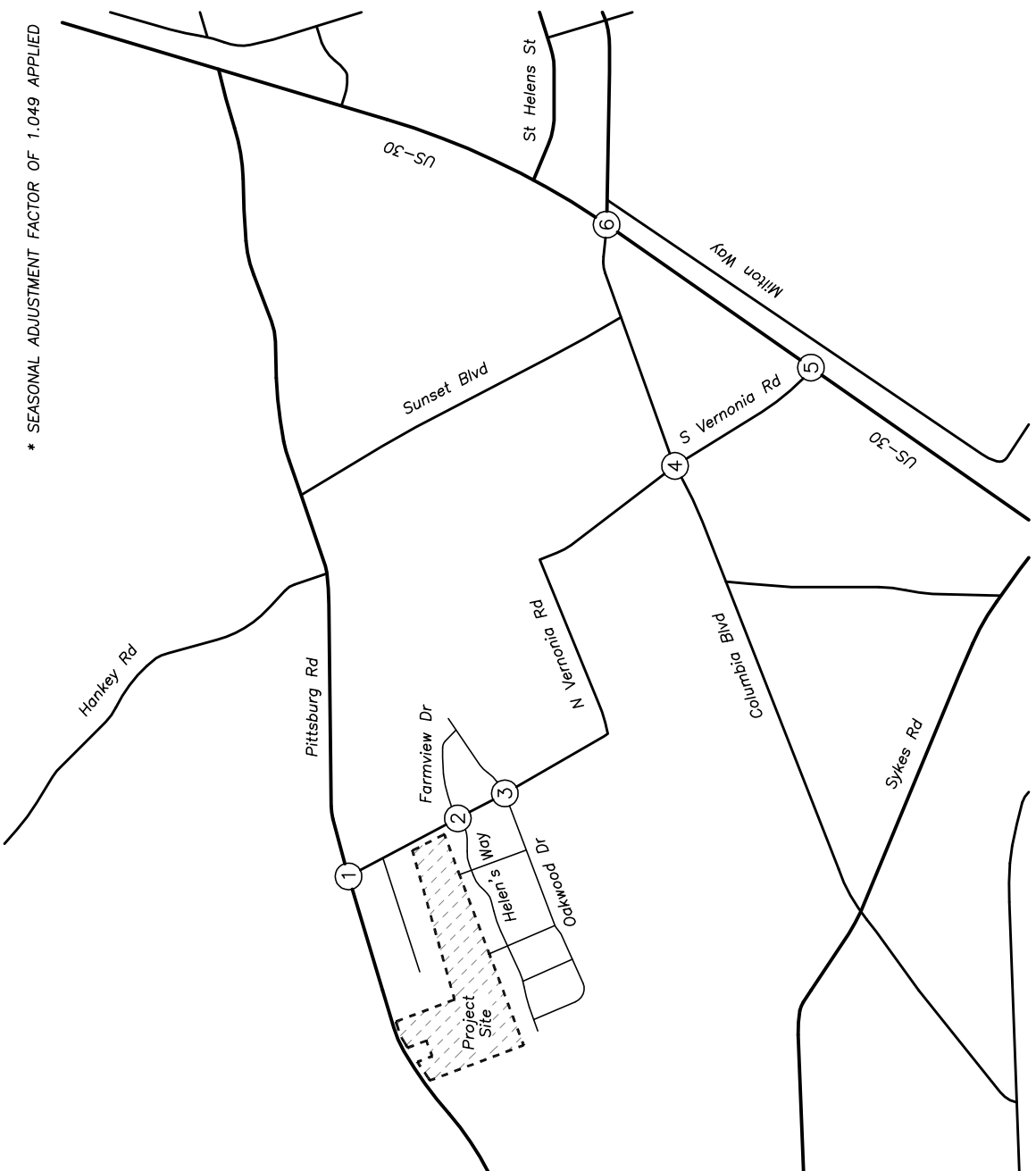


TRAFFIC VOLUMES  
Existing Conditions  
AM Peak Hour





\* SEASONAL ADJUSTMENT FACTOR OF 1.049 APPLIED



TRAFFIC VOLUMES  
Existing Conditions  
PM Peak Hour





## SITE TRIPS

### *TRIP GENERATION – ZONE CHANGE*

Currently, the subject site is zoned as *Moderate Residential* (R-7) and is proposed for a change in zoning to *General Residential* (R-5). According to the City of Saint Helens' Code Sections 17.32.060 and 17.32.070, reasonable worst-case development scenarios under existing and proposed zoning were determined utilizing permitted land-uses that are comparatively different between the two zones.

Under existing R-7 zoning and per Section 17.32.060, each single-family dwelling requires a minimum lot size of 7,000 square-feet. Based on the square-footage of the site, assuming a conservative 20 percent reduction in site build-able area, the existing R-7 zone could include the construction of up to 62 single-family detached dwellings. Utilizing data from land-use code 210, *Single-Family Detached Housing*, of the *TRIP GENERATION MANUAL*<sup>1</sup>, the project site could generate up to 53 site trips during the morning peak hour and 68 site trips during the evening peak hour.

Per Section 17.32.060, three potential trip generation scenarios under proposed R-5 zoning were analyzed:

- Single-family detached houses requiring a minimum lot size of 5,000 square-feet;
- Duplexes requiring a minimum lot size of 5,800 square-feet; and
- Multiplexes requiring a minimum lot size of 5,800 square-feet per duplex plus an additional 2,500 square-feet per attached dwelling (maximum of five-attached dwelling units per lot).

Utilizing data from land-use code 210, *Single-Family Detached Housing*, for single-family dwellings and duplexes and code 220, *Apartments*, for multiplexes, the reasonable worst-case development scenario was assumed to be the construction of duplexes. Based on this assumption the project site could generate up to 115 site trips during the morning peak hour and 151 site trips during the evening peak hour. It should be noted that a duplex does not completely match the descriptions of either *Single-Family Detached Housing* or *Apartments* and would likely exhibit trip generation characteristics in between the two land-uses. However, utilizing the *Single-Family Detached Housing* rates provides higher generation estimates and accordingly provides a more conservative analysis of net trip generation.

The trip generation calculations show that the proposed change in zoning could generate a net increase of 62 site trips during the morning peak hour and 83 site trips during the evening peak hour. The trip generation estimates of the proposed change in zoning are summarized in Table 1 on the following page. Detailed trip generation calculations are included in the technical appendix to this report

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<sup>1</sup> Institute of Transportation Engineers (ITE), *TRIP GENERATION MANUAL*, 9<sup>th</sup> Edition, 2012.

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<b>Table 1 - Proposed Zone Change Trip Generation Summary</b>									
	<b>ITE Code</b>	<b>Size</b>	<b>Morning Peak Hour</b>			<b>Evening Peak Hour</b>			<b>Weekday Total</b>
			<b>In</b>	<b>Out</b>	<b>Total</b>	<b>In</b>	<b>Out</b>	<b>Total</b>	
Existing R-7 Zone	210	62 units	13	40	53	43	25	68	676
Proposed R-5 Zone	210	150 units	29	86	115	95	56	151	1,526
<b>Net Increase</b>			<b>16</b>	<b>46</b>	<b>62</b>	<b>52</b>	<b>31</b>	<b>83</b>	<b>850</b>

### ***TRIP GENERATION - PROPOSED DEVELOPMENT***

The proposed Emerald Meadows Estates Subdivision includes the construction of 77 single-family houses while maintaining one existing on-site single-family home for a total of 78 houses. To estimate the number of trips that will be generated by the proposed development, trip rates from the *TRIP GENERATION MANUAL* were used. Data from land-use code 210, *Single-Family Detached Housing*, was used to estimate the proposed development's trip generation based on the number of dwelling units.

The existing on-site house currently takes access to Pittsburg Road; however, upon development of the site, trips to/from the existing house will be rerouted to Helens Way/Oakwood Drive. For the purposes of simplicity as well as maintaining a conservative analysis, trips were not rerouted from this existing house and the additional site trip generation was assumed based on projected trip generation of 78 single-family homes instead of the 77 additional new homes.

The trip generation calculations show that the proposed development is projected to generate a total of 64 site trips during the morning peak hour and 84 site trips during the evening peak hour. The trip generation estimates of the proposed development are summarized in Table 2 below. Detailed trip generation calculations are included in the technical appendix to this report.

<b>Table 2 - Proposed Development Trip Generation Summary</b>									
	<b>ITE Code</b>	<b>Size</b>	<b>Morning Peak Hour</b>			<b>Evening Peak Hour</b>			<b>Weekday Total</b>
			<b>In</b>	<b>Out</b>	<b>Total</b>	<b>In</b>	<b>Out</b>	<b>Total</b>	
Proposed Subdivision	210	78 units	16	48	64	53	31	84	836



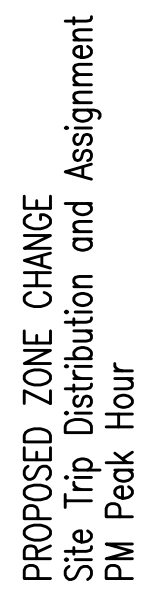
### ***TRIP DISTRIBUTION***

The directional distribution of site trips to/from the project site was estimated based on locations of likely trip destinations, locations of major transportation facilities in the site vicinity, and existing travel patterns at study intersections.

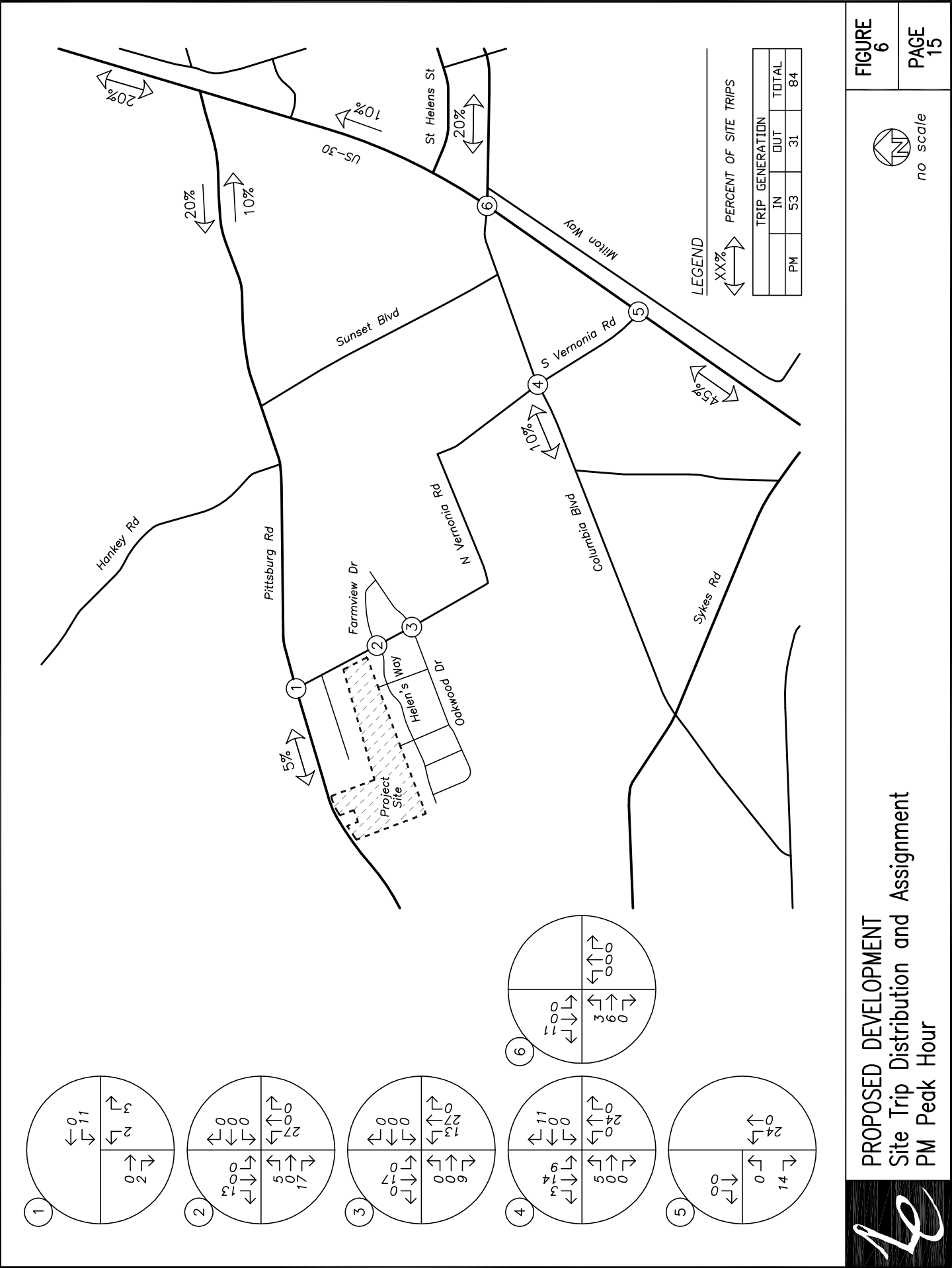
The following trip distribution was estimated and used for analysis:

- Approximately 45 percent of site trips will travel to/from the southwest along US-30;
- Approximately 20 percent of site trips will travel to/from the north along US-30;
- Approximately 20 percent of site trips will travel to/from the east along Columbia Boulevard/Saint Helens Street;
- Approximately 10 percent of site trips will travel to/from the west along Columbia Boulevard; and
- Approximately 5 percent of site trips will travel to/from the west along Pittsburg Road.

The trip assignment for the net additional site trips that could be generated as a result of the proposed change in zoning during the evening peak hour are shown in Figure 4 on page 13. 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 14 and Figure 6 on page 15, respectively.

PAGE  
13







## **OPERATIONAL ANALYSIS**

### ***BACKGROUND VOLUMES***

To provide analysis of the impact of the proposed development on the nearby transportation facilities, an estimate of future traffic volumes is required.

In order to calculate the future traffic volumes for non-ODOT facilities, a compounded growth rate of two percent per year for an assumed build-out condition of two years was applied to the measured existing traffic volumes to approximate year 2018 background conditions.

To estimate the future traffic volumes for ODOT facilities, a linear growth rate of one percent per year was calculated for the traffic volumes along US-30 using ODOT's 2035 Future Volume Tables. This growth rate was applied to the measured existing traffic volumes over a two-year period to determine year 2018 background traffic volumes for the through traffic traveling along US-30. A compounded growth rate of two percent per year for an assumed build-out condition of two years was applied to all other turning movement traffic volumes.

In addition to the traffic volume growth described above, City of Saint Helens' staff have indicated that there is one in-process project currently approved for development near the site vicinity. The Elk Ridge Subdivision is located northeast of the project site and is currently not contributing trips to the transportation system but is anticipated to by the 2018 build-out year of the proposed development. Additional trips corresponding to the Elk Ridge Subdivision were added to the existing year traffic volumes plus the additional two-years of traffic growth at each of the study intersections.

Figure 7 on page 18 and Figure 8 on page 19 show the projected year 2018 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 2018 background traffic volumes to obtain the expected 2018 background volumes plus site trips.

Figure 9 on page 20 and Figure 10 on page 21 shows the projected year 2018 peak hour background traffic volumes plus proposed development site trips at the study intersections during the morning and evening peak hours, respectively.

### ***YEAR 2031 PLANNING HORIZON VOLUMES PLUS NET CHANGE IN SITE TRIPS***

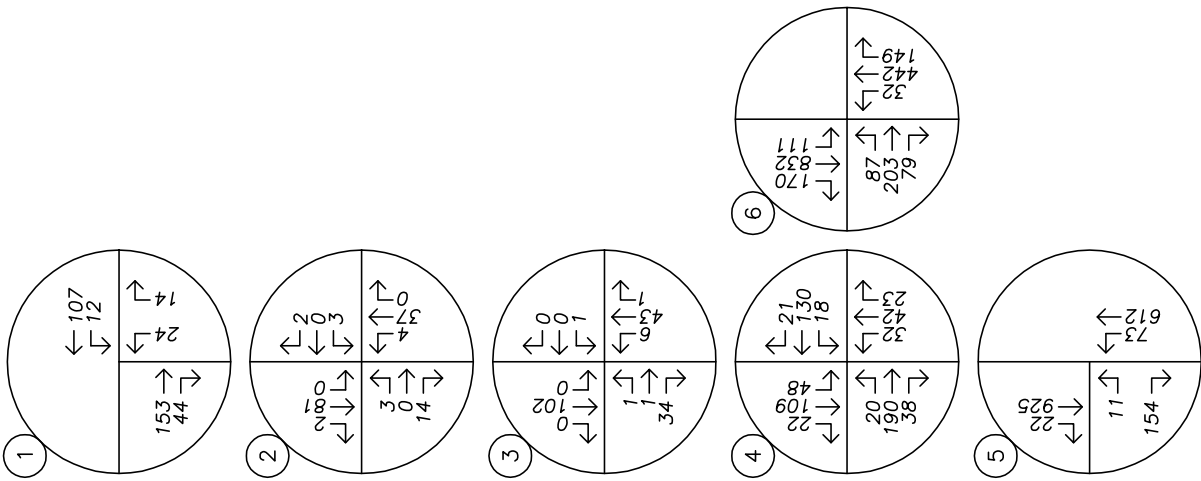
Year 2031 traffic volumes were determined utilizing evening peak hour volumes presented in Figure 5-1 – *Forecast Traffic Conditions* of the City of Saint Helens' Transportation System Plan (TSP). For intersections that are not included within the Figure 5-1, a compounded growth rate of two



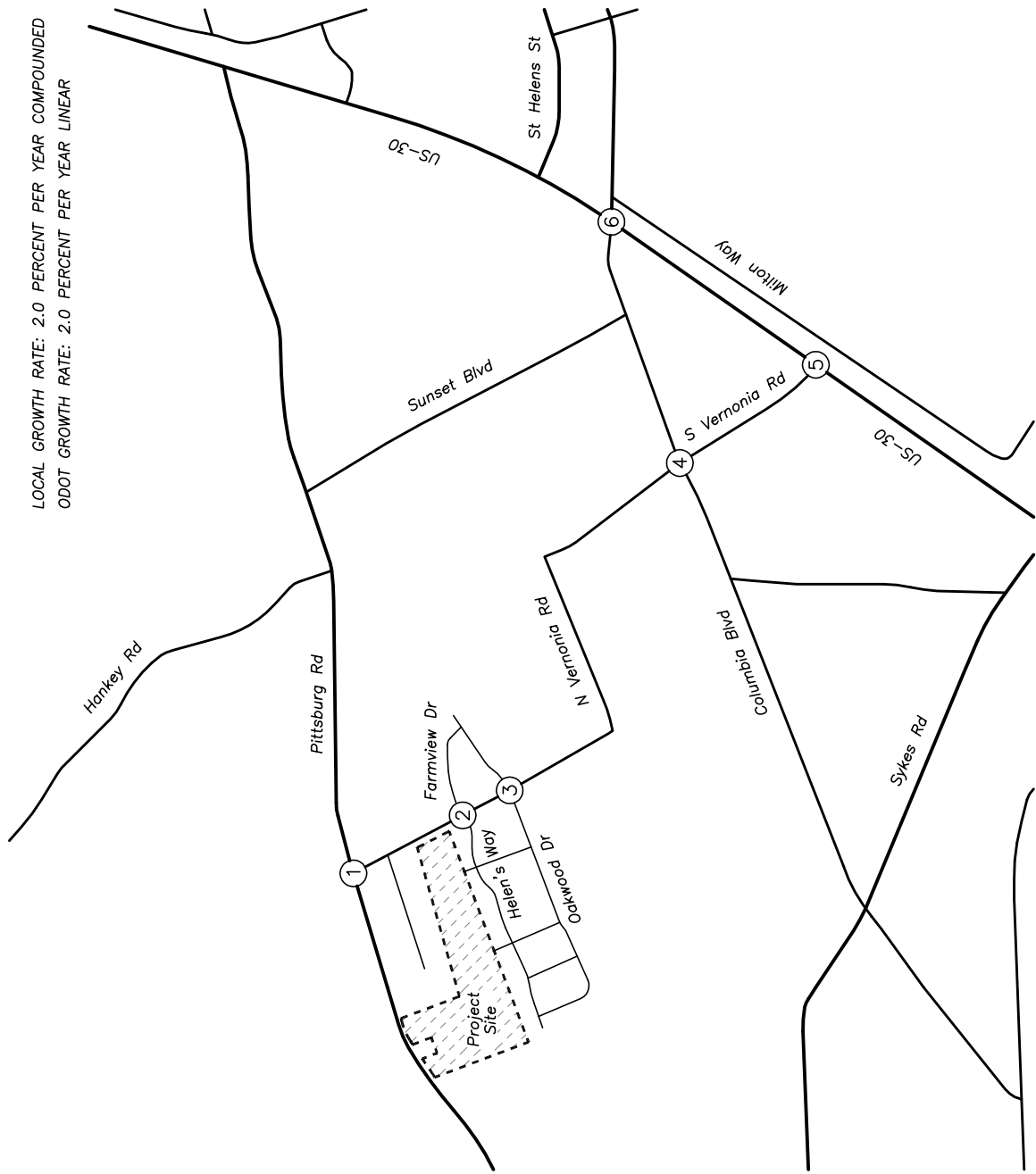
percent per year over a 15-year growth period were applied to the measured evening peak hour existing traffic volumes to approximate year 2031 planning horizon volumes.

The net change in potential evening peak hour trips, as a result of the proposed change in zoning, were added to the 2031 planning horizon volumes to obtain the expected 2031 planning horizon volumes plus net change in potential site trips.

Figure 11 on page 22 and Figure 12 on page 23 show the year 2031 planning horizon peak hour traffic volumes with and without the net change in potential site trips at the study intersections, respectively, during the evening peak hour.

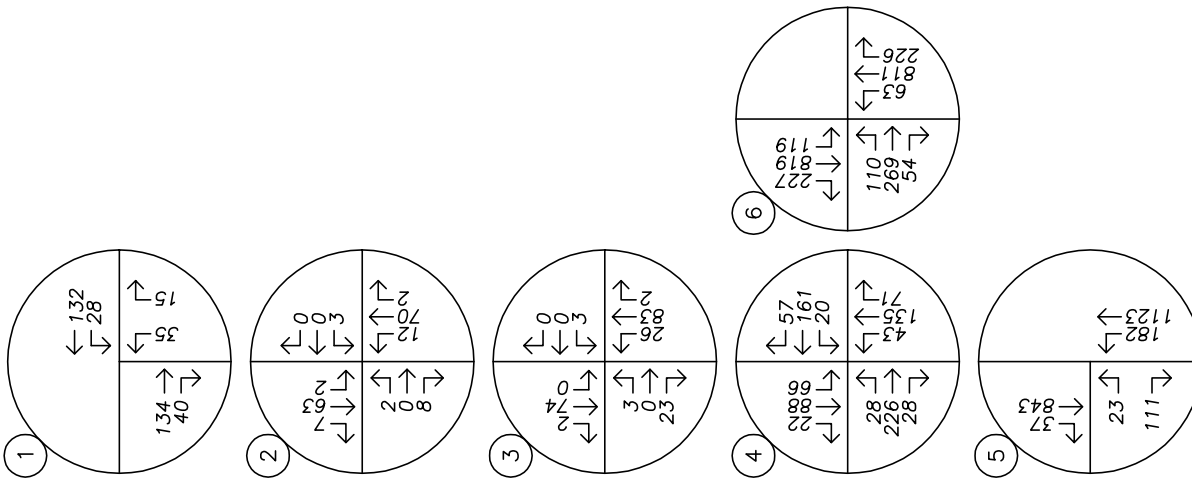


LOCAL GROWTH RATE: 2.0 PERCENT PER YEAR COMPOUNDED  
ODOT GROWTH RATE: 2.0 PERCENT PER YEAR LINEAR

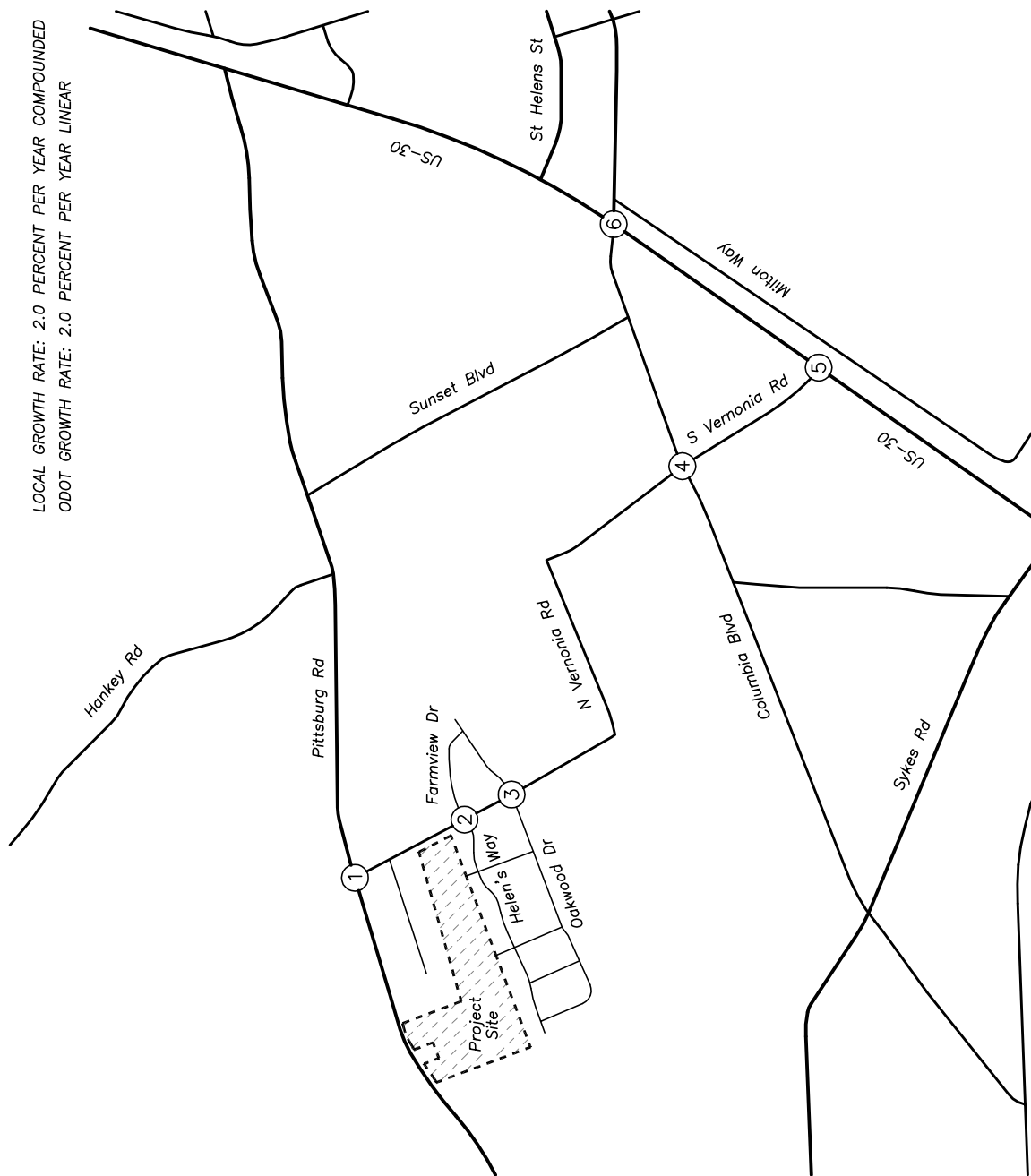


TRAFFIC VOLUMES  
Year 2018 Background Conditions  
AM Peak Hour



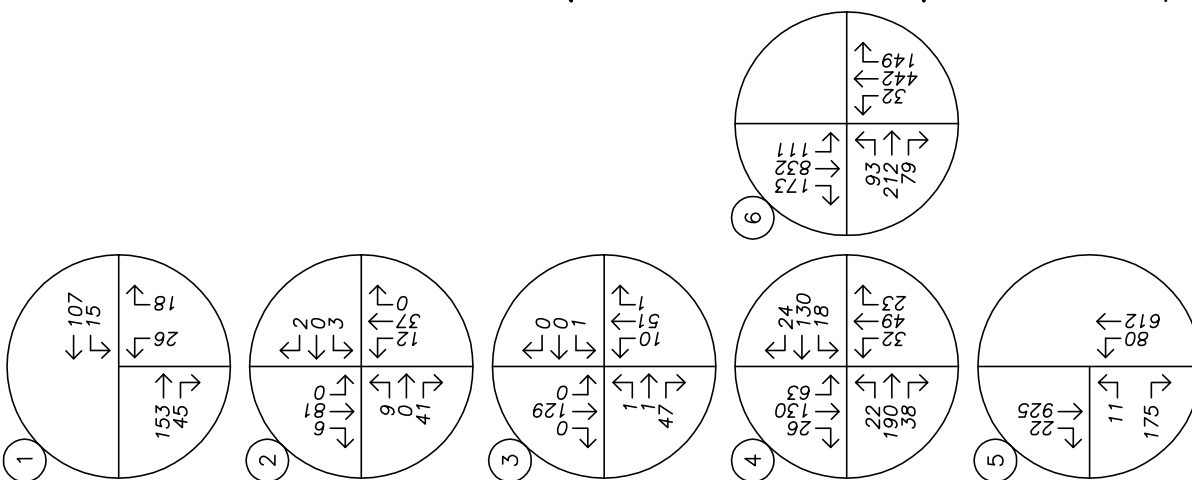


LOCAL GROWTH RATE: 2.0 PERCENT PER YEAR COMPOUNDED  
ODOT GROWTH RATE: 2.0 PERCENT PER YEAR LINEAR



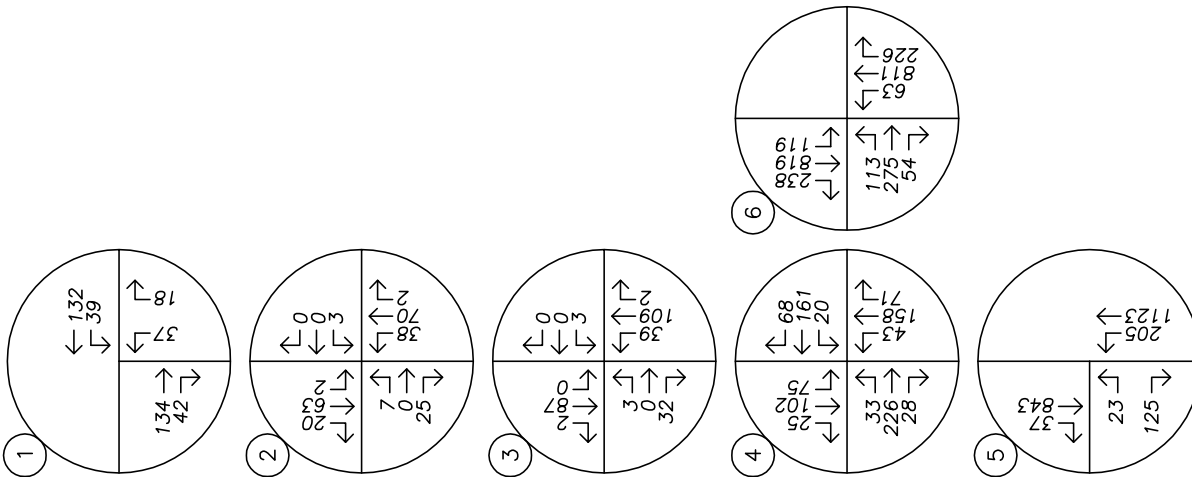
TRAFFIC VOLUMES  
Year 2018 Background Conditions  
PM Peak Hour





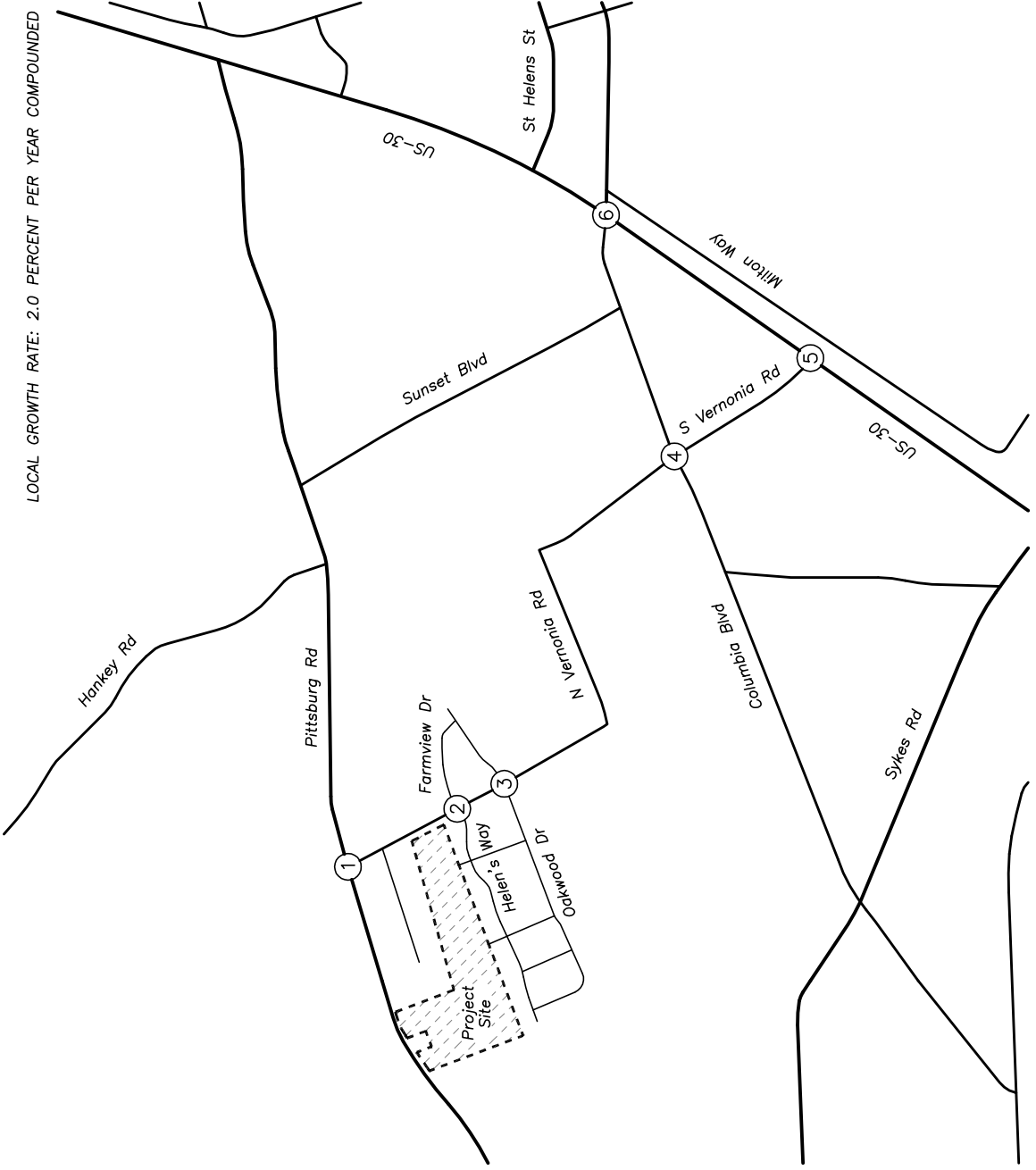
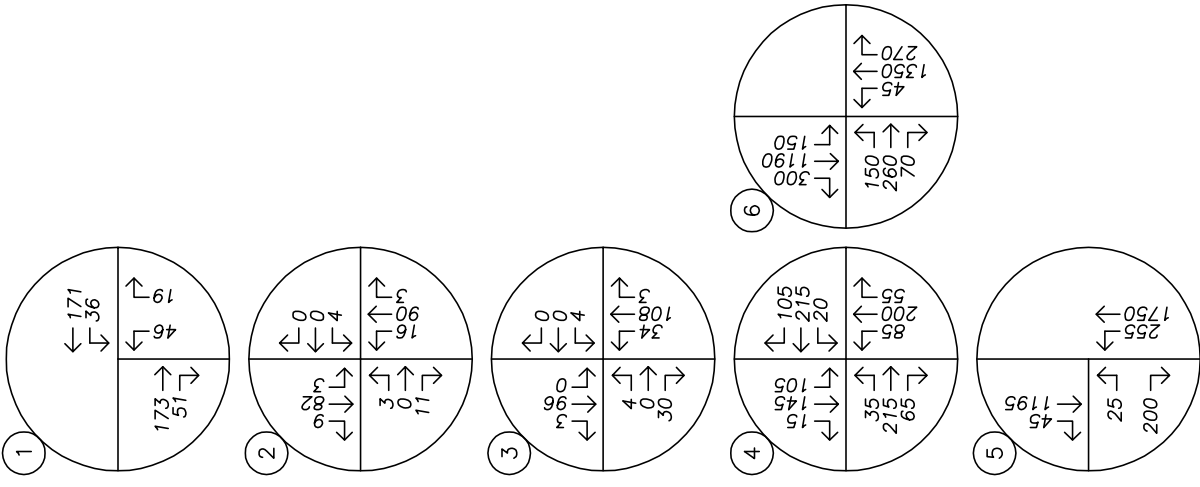
TRAFFIC VOLUMES  
Year 2018 Background plus Development Site Trips  
AM Peak Hour





TRAFFIC VOLUMES  
Year 2018 Background plus Development Site Trips  
PM Peak Hour

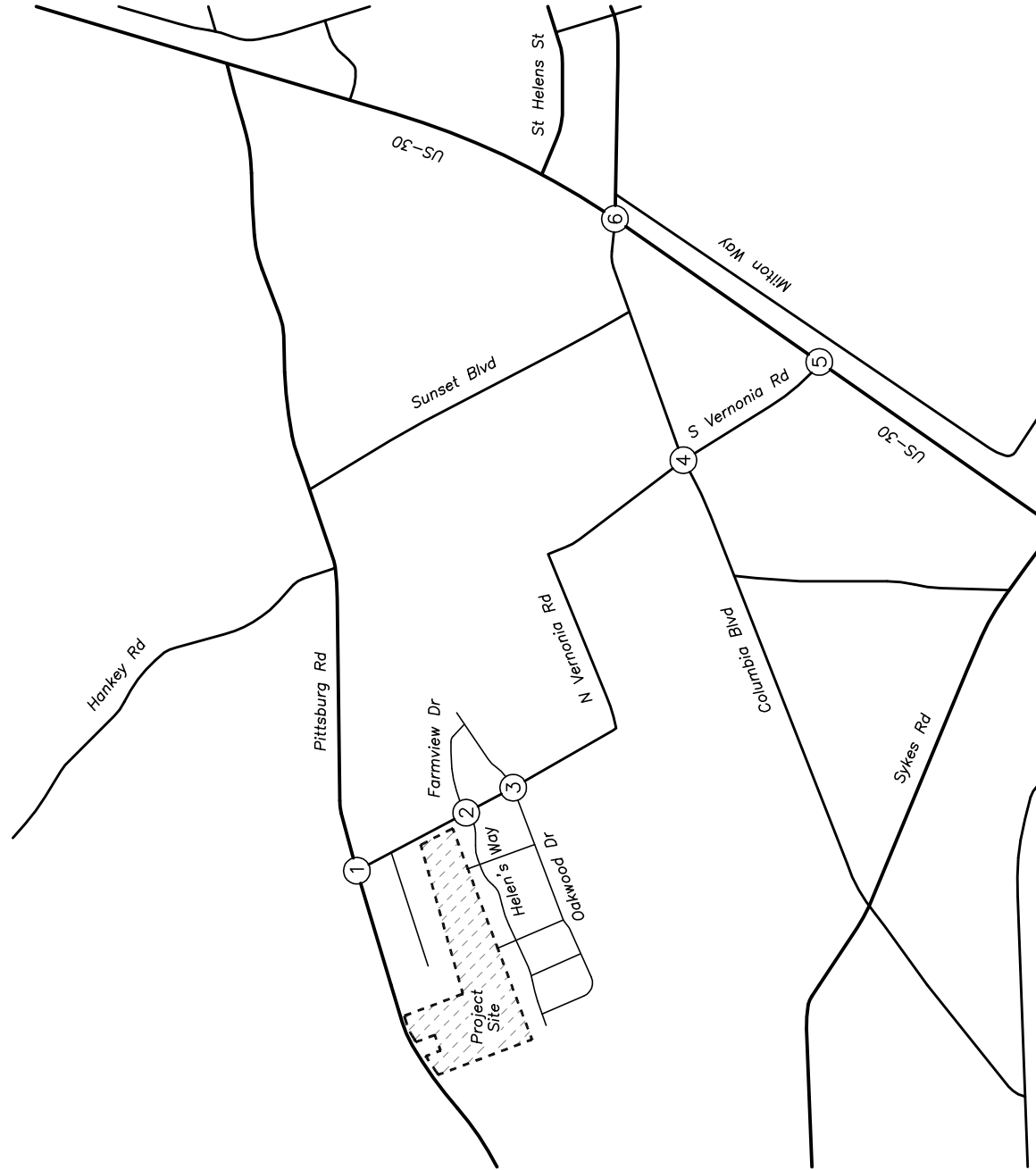
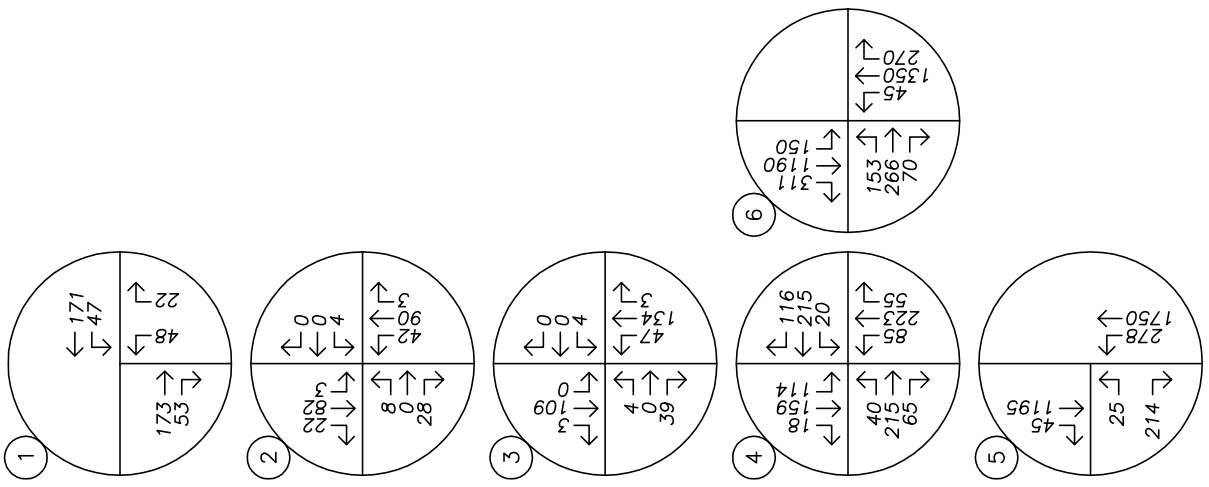




TRAFFIC VOLUMES  
Year 2031 Planning Horizon  
PM Peak Hour



TRAFFIC VOLUMES  
Year 2031 Planning Horizon plus Zone Change Site Trips  
PM Peak Hour



## **CAPACITY ANALYSIS**

A capacity and delay analysis was conducted for each of the study intersections. The analysis was conducted according to the signalized and unsignalized intersection analysis methodologies in the *HIGHWAY CAPACITY MANUAL*<sup>2</sup> (HCM). 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 v/c ratio is a measure that compares the traffic volumes (demand) against the available capacity of an intersection.

Per the City of Saint Helens' Municipal Code Section 17.156.020 and the City's Transportation System Plan (TSP) Chapter 4 – *Current Intersection Operations*, the following minimum operation standards apply at intersections under City jurisdiction:

- LOS D or better is considered acceptable at signalized and all-way stop controlled intersections given the v/c ratio does not exceed 1.0 for the sum of critical movements;
- LOS E or better is considered acceptable for the poorest operating approach at two-way stop-controlled intersections; and
- LOS F is allowed in situations where a traffic signal is not warranted at a two-way stop-controlled intersection.

Study intersections along US-30 are under the jurisdiction of ODOT and must operate according to standards established in the *OREGON HIGHWAY PLAN*. Based on the classification of US-30 as a Freight Route on a Statewide Highway, intersections are required to operate with a v/c ratio of 0.85 or less when located along a segment of US-30 having a posted speed of 35 mph within the City's urban growth boundary.

The intersection of Pittsburg Road at N Vernonia Road (Intersection #1) operates at LOS B with a v/c ratio of 0.16 or less during the morning and evening peak hours for all analysis scenarios through year 2018. Under planning year 2031 conditions, the intersection is projected to operate at LOS B with a v/c ratio of 0.14 during the evening peak hour regardless of additional potential zone change trips.

The intersection of Helens Way/Farmview Drive at N Vernonia Road (Intersection #2) operates at LOS B or better with a v/c ratio of 0.08 or less during the morning and evening peak hours for all analysis scenarios through year 2018. Under planning year 2031 conditions, the intersection is projected to operate at LOS B with a v/c ratio of 0.05 or less during the evening peak hour regardless of additional potential zone change trips.

The intersection of Oakwood Drive at N Vernonia Road (Intersection #3) operates at LOS B or better with a v/c ratio of 0.07 or less during the morning and evening peak hours for all analysis scenarios through year 2018. Under planning year 2031 conditions, the intersection is projected to operate at LOS B with a v/c ratio of 0.06 or less during the evening peak hour regardless of additional potential zone change trips.

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<sup>2</sup> Transportation Research Board, *HIGHWAY CAPACITY MANUAL 2000*, 2000.



The intersection of Columbia Boulevard at N Vernonia Road (Intersection #4) operates at LOS B with a v/c ratio of 0.51 or less during the morning and evening peak hours for all analysis scenarios through year 2018. Under planning year 2031 conditions, the intersection is projected to operate at LOS E or better with a v/c ratio of 0.62 or less during the evening peak hour regardless of additional potential zone change trips.

The intersection of S Vernonia Road at US-30 (Intersection #5) operates at LOS C or better with a v/c ratio of 0.40 or less during the morning and evening peak hours for all analysis scenarios through year 2018. Under planning year 2031 conditions, the intersection is projected to operate at LOS D with a v/c ratio of 0.56 or less during the evening peak hour regardless of additional potential zone change trips.

The intersection of Columbia Boulevard at US-30 (Intersection #6) operates at LOS B with a v/c ratio of 0.65 or less during the morning and evening peak hours for all analysis scenarios through year 2018. Under planning year 2031 conditions, the intersection is projected to operate at LOS C with a v/c ratio of 0.85 or less during the evening peak hour regardless of additional potential zone change trips.

The v/c, delay, and LOS results of the capacity analysis are shown in Table 3 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.

2e

<b>Table 3 - Capacity Analysis Summary</b>						
	<b>Morning Peak Hour</b>			<b>Evening Peak Hour</b>		
	<b>LOS</b>	<b>Delay</b>	<b>V/C</b>	<b>In</b>	<b>Out</b>	<b>Total</b>
<b>1. Pittsburg Rd at N Vernonia Rd</b>						
Existing Conditions	B	11	0.15	B	11	0.10
2018 Background Conditions	B	11	0.15	B	11	0.11
2018 Background plus Site Conditions	B	11	0.16	B	11	0.11
2031 Planning Horizon	-	-	-	B	12	0.14
2031 Planning Horizon plus Zone Change	-	-	-	B	12	0.14
<b>2. Helens Way/Farmview Dr at N Vernonia Rd</b>						
Existing Conditions	A	10	0.03	A	10	0.01
2018 Background Conditions	A	10	0.03	A	10	0.01
2018 Background plus Site Conditions	B	10	0.08	B	11	0.04
2031 Planning Horizon	-	-	-	B	10	0.02
2031 Planning Horizon plus Zone Change	-	-	-	B	11	0.05
<b>3. Oakwood Dr at N Vernonia Rd</b>						
Existing Conditions	A	10	0.05	B	10	0.03
2018 Background Conditions	A	10	0.05	B	10	0.04
2018 Background plus Site Conditions	B	10	0.07	B	11	0.05
2031 Planning Horizon	-	-	-	B	11	0.05
2031 Planning Horizon plus Zone Change	-	-	-	B	12	0.06
<b>4. Columbia Blvd at N Vernonia Rd*</b>						
Existing Conditions	B	11	0.34	B	13	0.44
2018 Background Conditions	B	11	0.35	B	13	0.46
2018 Background plus Site Conditions	B	12	0.39	B	15	0.51
2031 Planning Horizon	-	-	-	D	31	0.57
2031 Planning Horizon plus Zone Change	-	-	-	E	49	0.62
2031 Mitigated Conditions	-	-	-	D	32	0.67
<b>5. N Vernonia Rd at US-30</b>						
Existing Conditions	C	16	0.33	B	15	0.33
2018 Background Conditions	C	16	0.35	C	15	0.34
2018 Background plus Site Conditions	C	17	0.40	C	16	0.34
2031 Planning Horizon	-	-	-	D	27	0.54
2031 Planning Horizon plus Zone Change	-	-	-	D	29	0.56
<b>6. Columbia Boulevard at US-30</b>						
Existing Conditions	B	12	0.59	B	15	0.63
2018 Background Conditions	B	13	0.61	B	16	0.64
2018 Background plus Site Conditions	B	13	0.62	B	16	0.65
2031 Planning Horizon	-	-	-	C	21	0.84
2031 Planning Horizon plus Zone Change	-	-	-	C	22	0.85

\* Intersection Capacity Utilization reported in place of v/c ratio.



Based on the results of the operational analysis, all study intersections are currently operating acceptably per City of Saint Helens and ODOT standards and are projected to continue operating acceptably upon build-out of the proposed development through year 2018.

The intersection of Columbia Boulevard at N Vernonia Road is projected to operate at LOS E under the 2031 planning year with the proposed zone change and does not meet the operational standard for all-way stop-controlled intersections as identified in the City's TSP. Two mitigation scenarios were analyzed:

- Adequate roadway width is available along Columbia Boulevard to accommodate an additional travel lane. By restriping the westbound approach to include a shared left-turn/through lane and a right-turn lane the intersection is projected to operate acceptably.
- A trip cap of 92 evening peak hour trips may be conditioned on the site before the study intersection is projected to operate below acceptable standards.

No other operational mitigation is necessary or recommended.

#### **TRANSPORTATION PLANNING RULE**

The Transportation Planning Rule (TPR) is in place to ensure that the transportation system is capable of supporting possible increases in traffic intensity that could result from changes to adopted plans and land-use regulations. The applicable elements of the TPR are each quoted directly in *italics* below, with a response 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);*
  - (b) Change standards implementing a functional classification system; or*
  - (c) Result in any of the effects listed in paragraphs (A) through (C) of this subsection based on projected conditions measured at the end of the planning period identified in the adopted TSP. As part of evaluating projected conditions, the amount of traffic projected to be generated within the area of the amendment may be reduced if the amendment includes an enforceable, ongoing requirement that would demonstrably limit traffic generation, including, but not limited to, transportation demand management. This reduction may diminish or completely eliminate the significant effect of the amendment.*



- (A) Types or levels of travel or access that are inconsistent with the functional classification of an existing or planned transportation facility;*
- (B) Degrade the performance of an existing or planned transportation facility such that it would not meet the performance standards identified in the TSP or comprehensive plan; or*
- (C) Degrade the performance of an existing or planned transportation facility that is otherwise projected to not meet the performance standards identified in the TSP or comprehensive plan.*

In the case of this report, subsections (a) and (b) are not triggered, since the proposed zone change will not impact or alter the functional classification of any existing or planned facility and the proposal does not include a change to any functional classification standards.

Upon rezoning of the site the study intersection of Columbia Boulevard at N Vernonia Road (Intersection #4) is projected to operate at LOS E under the 2031 planning year, which does not meet the City of Saint Helens' operational standard of LOS D as identified in the City's TSP. However, the intersection may be mitigated to meet the LOS D standard by either restriping the westbound approach to include a shared left-turn/through lane and a right-turn lane or by conditioning a trip cap of 92 evening peak hour trips on the site.

The proposed zone change will not degrade the performance of any other existing or planned transportation facility below acceptable City or ODOT standards. Accordingly, the Transportation Planning Rule may be satisfied if the above mitigation is addressed upon development of the site.



## 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.

The intersection of Columbia Boulevard at N Vernonia Road (Intersection #4) had six reported crashes during the analysis period. The crashes consisted of five angle-type collisions and one turning-movement collision. All six reported crashes were classified as "Property Damage Only" (*PDO*). The crash rate at the intersection was calculated to be 0.36 CMEV.

The intersection of S Vernonia Road at US-30 (Intersection #5) had four reported crashes during the analysis period. The crashes were all turning-movement collisions that were classified as "Possible Injury – Complaint of Pain" (*Injury C*). The crash rate at the intersection was calculated to be 0.10 CMEV.

The intersection of Columbia Boulevard at US-30 (Intersection #6) had 19 reported crashes during the analysis period. The crashes consisted of nine rear-end collisions, three angle-type collisions, three collisions involving a bicyclist, two turning-movement collisions, and two collisions involving a pedestrian. Of the crashes reported, eight were classified as *PDO*, seven were classified as *Injury C*, and four were classified as "Non-Incapacitating Injury" (*Injury B*). The crash rate at the intersection was calculated to be 0.40 CMEV.

Five of the reported crashes at the intersection of Columbia Boulevard at US-30 involved either a pedestrian or a bicyclist:

- One of the bicycle related crashes occurred when the driver of a northbound right-turning passenger car was driving carelessly and failed to yield right-of-way to a westbound bicyclist who was utilizing an intersection crosswalk. The bicyclist sustained injuries consistent with *Injury C* classification.
- The second bicycle related crash occurred when the driver of an eastbound right-turning passenger car was inattentive and failed to yield right-of-way to two northbound bicyclists who were utilizing an intersection crosswalk. One of the bicyclists sustained injuries consistent with *Injury B* classification.



- The third bicycle related crash occurred when a westbound bicyclist disregarded the traffic signal and collided with a southbound passenger car. The bicyclist sustained injuries consistent with *Injury B* classification.
- One of the pedestrian related crashes occurred when the driver of a northbound right-turning passenger car was inattentive (distracted by a cell phone) and failed to yield right-of-way to a westbound pedestrian who was utilizing an intersection crosswalk. The pedestrian sustained injuries consistent with *Injury B* classification.
- The second pedestrian related crash occurred when the driver of an eastbound left-turning passenger car failed to yield right-of-way to a westbound pedestrian who was utilizing an intersection crosswalk and traveling by means of another form of pedestrian conveyance. The pedestrian sustained injuries consistent with *Injury C* classification. It should be noted that the driver of the vehicle was blinded by the sun.

All other study intersections had no reported crashes during the analysis period.

Based on the most recent five years of crash data, no significant trends or crash patterns were identified at any of the study intersections and no specific safety mitigation is recommended.

#### **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 not projected to be met for any of the applicable study intersections under any of the analysis scenarios through the 2031 planning year. No new turn lanes are necessary or recommended.

Traffic signal warrants were examined for 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 and change in zoning. Due to insufficient main and side-street traffic volumes, traffic signal warrants are not projected to be met for any of the unsignalized study intersections under any of the analysis scenarios.



## CONCLUSIONS

All study intersections are currently operating acceptably per City of Saint Helens and ODOT standards and are projected to continue operating acceptably upon build-out of the proposed development through year 2018.

The intersection of Columbia Boulevard at N Vernonia Road (Intersection #4) operates at LOS E under the 2031 planning year with the proposed zone change and does not meet the operational standard for all-way stop-controlled intersections as identified in the City's Transportation System Plan. By restriping the westbound approach to include a shared left-turn/through lane and a right-turn lane or by conditioning a trip cap of 92 evening peak hour site trips the intersection is projected to operate acceptably. No other operational mitigation is necessary or recommended.

Upon the restriping of the westbound approach of Columbia Boulevard at N Vernonia Road (Intersection #4) or limiting development on the subject site with a trip cap, the intersection is projected to operate within acceptable capacity per City code by the 2031 planning horizon. The proposed zone change will not degrade the performance of any other existing or planned transportation facility below acceptable City or ODOT standards. Accordingly, the Transportation Planning Rule may be satisfied if the above mitigation is addressed upon development of the site.

No significant trends or crash patterns were identified at any of the study intersections and no specific safety mitigation is recommended.

Left-turn lane warrants are not projected to be met for any of the applicable study intersections under any of the analysis scenarios through the 2031 planning year. No new turn lanes are necessary or recommended.

Due to insufficient main and side-street traffic volumes, traffic signal warrants are not projected to be met for any of the unsignalized study intersections under any of the analysis scenarios.



## APPENDIX

# EMERALD MEADOW SUBDIVISION



- (1) STANDARDS IN THE R-4 ZONE THE FOLLOWING STANDARDS SHALL APPLY:
- (A) FOR PARCELS THE MINIMUM LOT SIZE SHALL BE 5,000 SQUARE FEET FOR THE SINGLE-FAMILY DETACHED DWELLING TYPE, 10,000 SQUARE FEET FOR THE TWO-FAMILY DETACHED DWELLING TYPE, AND 2,000 SQUARE FEET FOR THE MULTIFAMILY UNIT TYPE. THE MINIMUM LOT WIDTH SHALL BE 30 FEET FOR THE SINGLE-FAMILY DETACHED DWELLING TYPE, 40 FEET FOR THE TWO-FAMILY DETACHED DWELLING TYPE, AND 20 FEET FOR THE MULTIFAMILY UNIT TYPE. THE MINIMUM LOT DEPTH SHALL BE 30 FEET.
- (B) THE MINIMUM BUILDING HEIGHT SHALL BE 35 FEET EXCEPT AS REQUIRED IN SMC 17.64.030.
- (C) THE MINIMUM LOT WIDTH AT THE BUILDING LINE AND STREET SHALL BE 50 FEET FOR DETACHED SINGLE-FAMILY DWELLING UNITS, 60 FEET FOR TWO-FAMILY DETACHED DWELLING UNITS, AND 30 FEET FOR MULTIFAMILY UNITS. THE MINIMUM LOT DEPTH AT THE STREET FOR DETACHED SINGLE-FAMILY DWELLING UNITS SHALL BE 30 FEET, FOR TWO-FAMILY DETACHED DWELLING UNITS SHALL BE 40 FEET, AND FOR MULTIFAMILY UNITS SHALL BE 20 FEET.
- (D) THE MINIMUM LOT DEPTH SHALL BE 30 FEET.
- (E) THE MINIMUM FRONT YARD SHALL BE 20 FEET; SEE SMC 17.64.030.
- (F) NO SIDE YARD SHALL BE LESS THAN 10 FEET FOR DETACHED SINGLE-FAMILY DWELLING UNITS, 15 FEET FOR TWO-FAMILY DETACHED DWELLING UNITS, AND 10 FEET FOR MULTIFAMILY UNITS. (SEE SMC 17.64.030 ON MULTIFAMILY UNITS.)
- (G) THE MINIMUM REAR YARD DEPTH SHALL BE 10 FEET; (SEE SMC 17.64.030 ON MULTIFAMILY UNITS.)
- (H) THE MINIMUM FRONT AND SIDE YARDS OR OTHER SETBACKS AS STATED HEREON SHALL BE ENLARGED BY THE PLANNING COMMISSION SHALL DETERMINE THE NECESSARY SETBACK REQUIREMENTS.
- (I) BUILDINGS AND STRUCTURES SHALL NOT OCCUPY MORE THAN 35 PERCENT OF THE LOT AREA EXCEPT FOR SINGLE ATTACHED AND MULTIFAMILY UNITS, WHICH CAN BE UP TO 50 PERCENT.
- (J) NO LOT SHALL HAVE MORE THAN ONE PRINCIPAL BUILDING CONSTRUCTED THEREON, EXCEPT FOR MULTIFAMILY STRUCTURES.
- (K) MULTIFAMILIES SHALL BE SUBJECT TO THE SPECIAL STANDARDS OF SMC 17.64.030.
- (L) THE MINIMUM LANDSCAPING FOR DWELLINGS OTHER THAN MULTIFAMILIES SHALL BE 25 PERCENT OF THE LOT AREA.
- (M) ADDITIONAL REQUIREMENTS:
- (A) RESIDENTIAL DENSITY TRANSITION, SMC 17.64.040.

PROPERTY INFO:  
LOT 10 & 11, SECTION NO. 22-27, T108, R09-00070  
ZONING DISTRICT: R-4  
PROJECT NO. 17-00000000000000000000  
PRODUCT AREA: 12.96 ACRES

APPLICANT & CONTACT PERSON:  
JAMES KESSI  
6400 NE HWY 99, #2-169  
VANCOUVER, WA 98665  
PHONE: 360-401-2000  
EMAIL: james.kessi@gmail.com

OWNER:  
N. KESSI  
310 HUNTERS DRIVE  
ST. HELENS, OR 97061

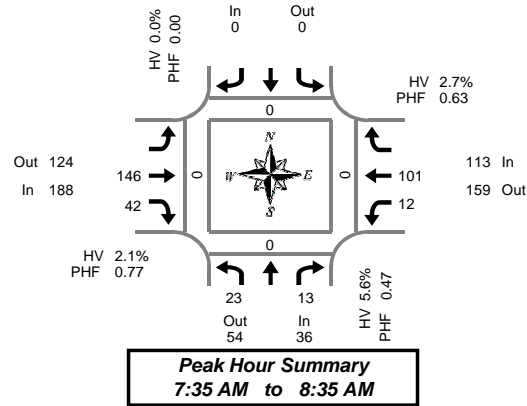
## Total Vehicle Summary



## N Vernonia Rd & Pittsburg Rd

Tuesday, October 25, 2016

7:00 AM to 9:00 AM



### 5-Minute Interval Summary

7:00 AM to 9:00 AM

Interval Start Time	Northbound N Vernonia Rd				Southbound N Vernonia Rd				Eastbound Pittsburg Rd				Westbound Pittsburg Rd				Interval Total	Pedestrians Crosswalk			
	L	R	Bikes		L	R	Bikes		T	R	Bikes		L	T	Bikes			North	South	East	West
7:00 AM	0	0	0		0	0	0		3	5	0		0	1	0		9	0	0	0	0
7:05 AM	0	0	0		0	0	0		7	0	0		0	1	0		8	0	0	0	0
7:10 AM	1	1	0		0	0	0		3	2	0		1	4	0		12	0	0	0	0
7:15 AM	0	2	0		0	0	0		3	0	0		1	1	0		7	0	0	0	0
7:20 AM	1	0	0		0	0	0		9	4	0		0	2	0		16	0	0	0	0
7:25 AM	3	0	0		0	0	0		8	2	0		0	2	0		15	0	0	0	0
7:30 AM	0	0	0		0	0	0		4	7	0		1	4	0		16	0	0	0	0
7:35 AM	2	0	0		0	0	0		14	4	0		2	3	0		25	0	0	0	0
7:40 AM	2	0	0		0	0	0		13	3	0		0	9	0		27	0	0	0	0
7:45 AM	5	3	0		0	0	0		6	3	0		2	7	0		26	0	0	0	0
7:50 AM	1	1	0		0	0	0		11	6	0		1	13	0		33	0	0	0	0
7:55 AM	5	4	0		0	0	0		13	3	0		4	16	0		45	0	0	0	0
8:00 AM	3	1	0		0	0	0		14	2	0		0	11	0		31	0	0	0	0
8:05 AM	2	2	0		0	0	0		15	4	0		2	11	0		36	0	0	0	0
8:10 AM	1	0	0		0	0	0		18	5	0		0	9	0		33	0	0	0	0
8:15 AM	1	1	0		0	0	0		16	3	1		0	5	0		26	0	0	0	0
8:20 AM	0	0	0		0	0	0		13	1	0		0	4	0		18	0	0	0	0
8:25 AM	0	1	0		0	0	0		8	4	0		0	7	0		20	0	0	0	0
8:30 AM	1	0	0		0	0	0		5	4	0		1	6	0		17	0	0	0	0
8:35 AM	1	1	0		0	0	0		6	0	0		1	2	0		11	0	0	0	0
8:40 AM	2	0	0		0	0	0		3	2	0		0	1	0		8	0	0	0	0
8:45 AM	2	2	0		0	0	0		1	3	0		1	3	0		12	0	0	0	0
8:50 AM	0	2	0		0	0	0		11	4	0		2	2	0		21	0	0	0	0
8:55 AM	2	0	0		0	0	0		3	2	0		0	8	0		15	0	0	0	0
Total Survey	35	21	0		0	0	0		207	73	1		19	132	0		487	0	0	0	0

### 15-Minute Interval Summary

7:00 AM to 9:00 AM

Interval Start Time	Northbound N Vernonia Rd				Southbound N Vernonia Rd				Eastbound Pittsburg Rd				Westbound Pittsburg Rd				Interval Total	Pedestrians Crosswalk			
	L	R	Bikes		L	R	Bikes		T	R	Bikes		L	T	Bikes			North	South	East	West
7:00 AM	1	1	0		0	0	0		13	7	0		1	6	0		29	0	0	0	0
7:15 AM	4	2	0		0	0	0		20	6	0		1	5	0		38	0	0	0	0
7:30 AM	4	0	0		0	0	0		31	14	0		3	16	0		68	0	0	0	0
7:45 AM	11	8	0		0	0	0		30	12	0		7	36	0		104	0	0	0	0
8:00 AM	6	3	0		0	0	0		47	11	0		2	31	0		100	0	0	0	0
8:15 AM	1	2	0		0	0	0		37	8	1		0	16	0		64	0	0	0	0
8:30 AM	4	1	0		0	0	0		14	6	0		2	9	0		36	0	0	0	0
8:45 AM	4	4	0		0	0	0		15	9	0		3	13	0		48	0	0	0	0
Total Survey	35	21	0		0	0	0		207	73	1		19	132	0		487	0	0	0	0

### Peak Hour Summary

7:35 AM to 8:35 AM

By Approach	Northbound N Vernonia Rd				Southbound N Vernonia Rd				Eastbound Pittsburg Rd				Westbound Pittsburg 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	36	54	90	0	0	0	0	0	188	124	312	1	113	159	272	0	337	0	0	0	0
%HV	5.6%				0.0%				2.1%				2.7%				2.7%				
PHF	0.47				0.00				0.77				0.63				0.75				

By Movement	Northbound N Vernonia Rd				Southbound N Vernonia Rd				Eastbound Pittsburg Rd				Westbound Pittsburg Rd				Total
	L	R	Total		L	R	Total		T	R	Total		L	T	Total		
Volume	23	13	36				0		146	42	188		12	63	113		337
%HV	4.3%	NA	7.7%	5.6%	NA	NA	NA	0.0%	NA	2.7%	0.0%	2.1%	0.0%	3.0%	NA	2.7%	2.7%
PHF	0.52		0.41	0.47			0.00		0.74	0.88	0.77		0.43	0.63	0.63		0.75

### Rolling Hour Summary

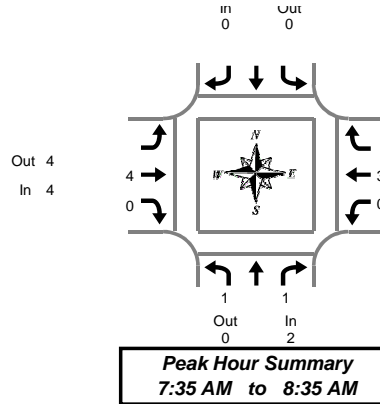
7:00 AM to 9:00 AM

Interval Start Time	Northbound N Vernonia Rd				Southbound N Vernonia Rd				Eastbound Pittsburg Rd				Westbound Pittsburg Rd				Interval Total	Pedestrians Crosswalk			
	L	R	Bikes		L	R	Bikes		T	R	Bikes		L	T	Bikes			North	South	East	West
7:00 AM	20	11	0		0	0	0		94	39	0		12	63	0		239	0	0	0	0
7:15 AM	25	13	0		0	0	0		128	43	0		13	88	0		310	0	0	0	0
7:30 AM	22	13	0		0	0	0		145	45	1		12	99	0		336	0	0	0	0
7:45 AM	22	14	0		0	0	0		128	37	1		11	92	0		304	0	0	0	0
8:00 AM	15	10	0		0	0	0		113	34	1		7	69	0		248	0	0	0	0

## Heavy Vehicle Summary



Clay Carney  
(503) 833-2740



## N Vernonia Rd & Pittsburg Rd

Tuesday, October 25, 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 N Vernonia Rd			Southbound N Vernonia Rd			Eastbound Pittsburg Rd			Westbound Pittsburg Rd			Interval Total
	L	R	Total			Total	T	R	Total	L	T	Total	
7:00 AM	0	0	0			0	0	0	0	0	0	0	0
7:05 AM	0	0	0			0	0	0	0	0	0	0	0
7:10 AM	0	0	0			0	0	0	0	2		2	2
7:15 AM	0	0	0			0	1	0	1	0	0	0	1
7:20 AM	0	0	0			0	1	2	3	0	0	0	3
7:25 AM	0	0	0			0	0	0	0	0	0	0	0
7:30 AM	0	0	0			0	0	0	0	0	0	0	0
7:35 AM	0	0	0			0	1	0	1	0	0	0	1
7:40 AM	0	0	0			0	0	0	0	0	0	0	0
7:45 AM	1	0	1			0	0	0	0	0	1	1	2
7:50 AM	0	0	0			0	0	0	0	0	1	1	1
7:55 AM	0	1	1			0	1	0	1	0	1	1	3
8:00 AM	0	0	0			0	1	0	1	0	0	0	1
8:05 AM	0	0	0			0	0	0	0	0	0	0	0
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	1	0	1	0	0	0	1
8:25 AM	0	0	0			0	0	0	0	0	0	0	0
8:30 AM	0	0	0			0	0	0	0	0	0	0	0
8:35 AM	0	0	0			0	0	0	0	1	1	2	2
8:40 AM	1	0	1			0	0	0	0	0	0	0	1
8:45 AM	0	0	0			0	0	0	0	0	0	0	0
8:50 AM	0	0	0			0	0	0	0	0	1	1	1
8:55 AM	0	0	0			0	0	0	0	0	0	0	0
Total Survey	2	1	3			0	6	2	8	1	7	8	19

### Heavy Vehicle 15-Minute Interval Summary

7:00 AM to 9:00 AM

Interval Start Time	Northbound N Vernonia Rd				Southbound N Vernonia Rd				Eastbound Pittsburg Rd				Westbound Pittsburg Rd				Interval Total
	L		R	Total				Total	T	R	Total	L	T		Total		
7:00 AM	0		0	0				0	0	0	0	0	2		2	2	
7:15 AM	0		0	0				0	2	2	4	0	0		0	4	
7:30 AM	0		0	0				0	1	0	1	0	0		0	1	
7:45 AM	1		1	2				0	1	0	1	0	3		3	6	
8:00 AM	0		0	0				0	1	0	1	0	0		0	1	
8:15 AM	0		0	0				0	1	0	1	0	0		0	1	
8:30 AM	1		0	1				0	0	0	0	1	1		2	3	
8:45 AM	0		0	0				0	0	0	0	0	1		1	1	
Total Survey	2		1	3				0	6	2	8	1	7		8	19	

### Heavy Vehicle Peak Hour Summary

7:35 AM to 8:35 AM

By Approach	Northbound N Vernonia Rd			Southbound N Vernonia Rd			Eastbound Pittsburg Rd			Westbound Pittsburg Rd			Total
	In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total	
Volume	2	0	2	0	0	0	4	4	8	3	5	8	9
PHF	0.25			0.00			0.50			0.25			0.38

By Movement	Northbound N Vernonia Rd			Southbound N Vernonia Rd			Eastbound Pittsburg Rd			Westbound Pittsburg Rd			Total	
	L	R	Total			Total	T	R	Total	L	T	Total		
Volume	1	1	2			0	4	0	4	0	3		3	9
PHF	0.25	0.25	0.25			0.00	0.50	0.00	0.50	0.00	0.25		0.25	0.38

### Heavy Vehicle Rolling Hour Summary

7:00 AM to 9:00 AM

Interval Start Time	Northbound N Vernonia Rd				Southbound N Vernonia Rd				Eastbound Pittsburg Rd				Westbound Pittsburg Rd				Interval Total
	L		R	Total				Total	T	R	Total	L	T		Total		
7:00 AM	1		1	2				0	4	2	6	0	5		5	13	
7:15 AM	1		1	2				0	5	2	7	0	3		3	12	
7:30 AM	1		1	2				0	4	0	4	0	3		3	9	
7:45 AM	2		1	3				0	3	0	3	1	4		5	11	
8:00 AM	1		0	1				0	2	0	2	1	2		3	6	

## Peak Hour Summary



Clay Carney  
(503) 833-2740

### N Vernonia Rd & Pittsburg Rd

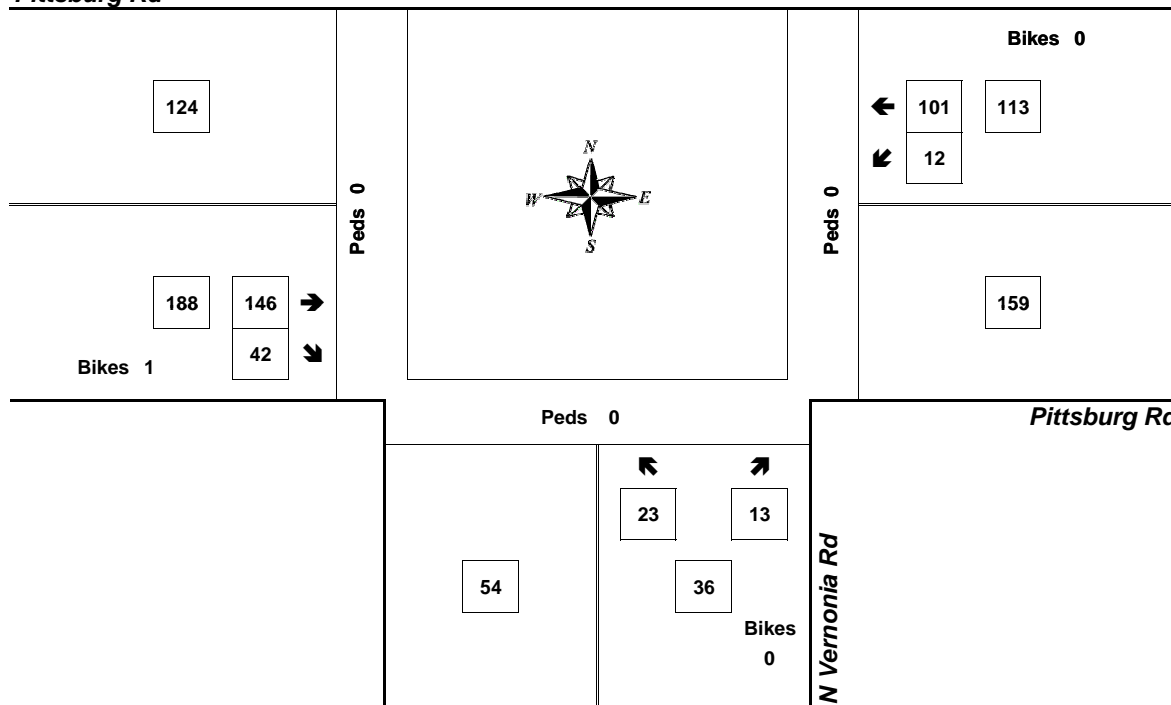
7:35 AM to 8:35 AM

Tuesday, October 25, 2016

Bikes  
0

**Pittsburg Rd**

Peds 0



Approach	PHF	HV%	Volume
EB	0.77	2.1%	188
WB	0.63	2.7%	113
NB	0.47	5.6%	36
SB	0.00	0.0%	0
<b>Intersection</b>	<b>0.75</b>	<b>2.7%</b>	<b>337</b>

Count Period: 7:00 AM to 9:00 AM

## Total Vehicle Summary

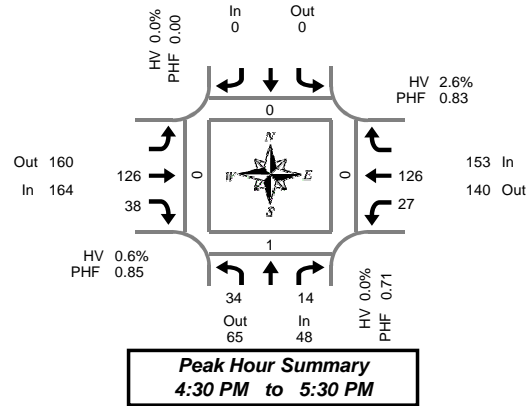


Clay Carney  
(503) 833-2740

## N Vernonia Rd & Pittsburg Rd

Tuesday, October 25, 2016

4:00 PM to 6:00 PM



### 5-Minute Interval Summary

4:00 PM to 6:00 PM

Interval Start Time	Northbound N Vernonia Rd				Southbound N Vernonia Rd				Eastbound Pittsburg Rd			Westbound Pittsburg Rd			Interval Total	Pedestrians Crosswalk			
	L	R	Bikes		L	R	Bikes		T	R	Bikes	L	T	Bikes		North	South	East	West
4:00 PM	2	0	0				0		6	2	0	1	11	0	22	0	0	0	0
4:05 PM	3	2	0				0		7	4	0	1	8	0	25	0	0	0	0
4:10 PM	3	1	0				0		5	5	0	0	7	0	21	0	0	0	0
4:15 PM	2	0	0				0		7	1	0	1	13	0	24	0	0	0	0
4:20 PM	3	0	0				0		12	0	0	2	8	0	25	0	0	0	0
4:25 PM	2	3	0				0		8	0	0	0	5	0	18	0	0	0	0
4:30 PM	3	0	0				0		11	1	0	2	12	0	29	0	0	0	0
4:35 PM	2	0	0				0		10	6	0	3	9	0	30	0	0	0	0
4:40 PM	4	0	0				0		10	3	0	1	9	0	27	0	0	0	0
4:45 PM	3	1	0				0		11	2	1	5	6	0	28	0	0	0	0
4:50 PM	1	3	0				0		15	4	0	1	8	0	32	0	0	0	0
4:55 PM	4	0	0				0		12	4	0	3	11	0	34	0	0	0	0
5:00 PM	4	1	0				0		10	2	0	3	12	0	32	0	0	0	0
5:05 PM	2	1	0				0		7	4	0	1	14	0	29	0	0	0	0
5:10 PM	2	4	0				0		9	5	0	3	13	0	36	0	0	0	0
5:15 PM	2	0	0				0		11	6	0	2	13	0	34	0	0	0	0
5:20 PM	5	4	0				0		9	0	0	1	8	0	27	0	0	0	0
5:25 PM	2	0	0				0		11	1	0	2	11	0	27	0	1	0	0
5:30 PM	1	1	0				0		4	1	0	4	8	0	19	0	0	0	0
5:35 PM	2	0	0				0		6	1	0	3	10	0	22	0	0	0	0
5:40 PM	3	2	0				0		6	1	0	3	10	0	25	0	0	0	0
5:45 PM	3	0	0				0		4	4	0	2	12	0	25	0	0	0	0
5:50 PM	5	2	0				0		8	1	0	4	10	0	30	0	0	0	0
5:55 PM	5	1	0				0		4	2	0	2	7	0	21	0	0	0	0
Total Survey	68	26	0				0		203	60	1	50	235	0	642	0	1	0	0

### 15-Minute Interval Summary

4:00 PM to 6:00 PM

Interval Start Time	Northbound N Vernonia Rd				Southbound N Vernonia Rd				Eastbound Pittsburg Rd			Westbound Pittsburg Rd			Interval Total	Pedestrians Crosswalk			
	L	R	Bikes		L	R	Bikes		T	R	Bikes	L	T	Bikes		North	South	East	West
4:00 PM	8	3	0				0		18	11	0	2	26	0	68	0	0	0	0
4:15 PM	7	3	0				0		27	1	0	3	26	0	67	0	0	0	0
4:30 PM	9	0	0				0		31	10	0	6	30	0	86	0	0	0	0
4:45 PM	8	4	0				0		38	10	1	9	25	0	94	0	0	0	0
5:00 PM	8	6	0				0		26	11	0	7	39	0	97	0	0	0	0
5:15 PM	9	4	0				0		31	7	0	5	32	0	88	0	1	0	0
5:30 PM	6	3	0				0		16	3	0	10	28	0	66	0	0	0	0
5:45 PM	13	3	0				0		16	7	0	8	29	0	76	0	0	0	0
Total Survey	68	26	0				0		203	60	1	50	235	0	642	0	1	0	0

### Peak Hour Summary

4:30 PM to 5:30 PM

By Approach	Northbound N Vernonia Rd				Southbound N Vernonia Rd				Eastbound Pittsburg Rd				Westbound Pittsburg 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	48	65	113	0	0	0	0	0	164	160	324	1	153	140	293	0	365	0	1	0	0
%HV	0.0%				0.0%				0.6%				2.6%				1.4%				
PHF	0.71				0.00				0.85				0.83				0.92				

By Movement	Northbound N Vernonia Rd				Southbound N Vernonia Rd				Eastbound Pittsburg Rd				Westbound Pittsburg Rd				Total
	L	R	Total		L	R	Total		T	R	Total		L	T	Total		
Volume	34	14	48				0		126	38	164		27	126	153		365
%HV	0.0%	NA	0.0%	0.0%	NA	NA	NA	0.0%	NA	0.8%	0.0%	0.6%	3.7%	2.4%	NA	2.6%	1.4%
PHF	0.85	0.44	0.71				0.00		0.83	0.63	0.85		0.75	0.79	0.83		0.92

### Rolling Hour Summary

4:00 PM to 6:00 PM

Interval Start Time	Northbound N Vernonia Rd				Southbound N Vernonia Rd				Eastbound Pittsburg Rd			Westbound Pittsburg Rd			Interval Total	Pedestrians Crosswalk			
	L	R	Bikes		L	R	Bikes		T	R	Bikes	L	T	Bikes		North	South	East	West
4:00 PM	32	10	0				0		114	32	1	20	107	0	315	0	0	0	0
4:15 PM	32	13	0				0		122	32	1	25	120	0	344	0	0	0	0
4:30 PM	34	14	0				0		126	38	1	27	126	0	365	0	1	0	0
4:45 PM	31	17	0				0		111	31	1	31	124	0	345	0	1	0	0
5:00 PM	36	16	0				0		89	28	0	30	128	0	327	0	1	0	0

## Heavy Vehicle Summary

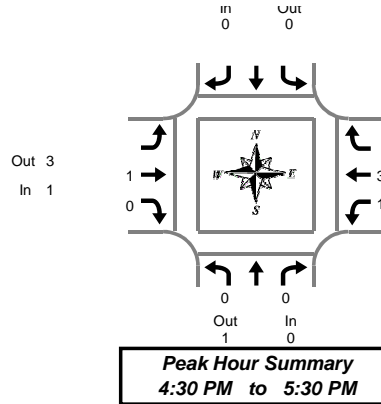


Clay Carney  
(503) 833-2740

### N Vernonia Rd & Pittsburg Rd

Tuesday, October 25, 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 N Vernonia Rd				Southbound N Vernonia Rd				Eastbound Pittsburg Rd			Westbound Pittsburg Rd			Interval Total
	L		R	Total				Total	T	R	Total	L	T		Total
4:00 PM	0		0	0				0	0	0	0	0	0		0
4:05 PM	0		0	0				0	0	0	0	0	0		0
4:10 PM	0		0	0				0	1	0	1	0	0		1
4:15 PM	0		0	0				0	1	1	2	0	0		2
4:20 PM	0		0	0				0	0	0	0	1	0		1
4:25 PM	0		1	1				0	0	0	0	0	0		1
4:30 PM	0		0	0				0	0	0	0	0	1		1
4:35 PM	0		0	0				0	1	0	1	0	0		1
4:40 PM	0		0	0				0	0	0	0	1	0		1
4:45 PM	0		0	0				0	0	0	0	0	1		1
4:50 PM	0		0	0				0	0	0	0	0	0		0
4:55 PM	0		0	0				0	0	0	0	0	1		1
5:00 PM	0		0	0				0	0	0	0	0	0		0
5:05 PM	0		0	0				0	0	0	0	0	0		0
5:10 PM	0		0	0				0	0	0	0	0	0		0
5:15 PM	0		0	0				0	0	0	0	0	0		0
5:20 PM	0		0	0				0	0	0	0	0	0		0
5:25 PM	0		0	0				0	0	0	0	0	0		0
5:30 PM	0		0	0				0	0	0	0	0	0		0
5:35 PM	0		0	0				0	0	0	0	0	0		0
5:40 PM	0		0	0				0	0	0	0	0	0		0
5:45 PM	0		0	0				0	0	0	0	0	0		0
5:50 PM	0		0	0				0	1	0	1	0	0		1
5:55 PM	0		0	0				0	0	0	0	0	0		0
Total Survey	0		1	1				0	4	1	5	2	3		5

#### Heavy Vehicle 15-Minute Interval Summary

4:00 PM to 6:00 PM

Interval Start Time	Northbound N Vernonia Rd				Southbound N Vernonia Rd				Eastbound Pittsburg Rd			Westbound Pittsburg Rd			Interval Total
	L		R	Total				Total	T	R	Total	L	T		Total
4:00 PM	0		0	0				0	1	0	1	0	0		1
4:15 PM	0		1	1				0	1	1	2	1	0		4
4:30 PM	0		0	0				0	1	0	1	1	1		3
4:45 PM	0		0	0				0	0	0	0	0	2		2
5:00 PM	0		0	0				0	0	0	0	0	0		0
5:15 PM	0		0	0				0	0	0	0	0	0		0
5:30 PM	0		0	0				0	0	0	0	0	0		0
5:45 PM	0		0	0				0	1	0	1	0	0		1
Total Survey	0		1	1				0	4	1	5	2	3		5

#### Heavy Vehicle Peak Hour Summary

4:30 PM to 5:30 PM

By Approach	Northbound N Vernonia Rd				Southbound N Vernonia Rd				Eastbound Pittsburg Rd			Westbound Pittsburg Rd			Total
	In	Out	Total		In	Out	Total		In	Out	Total	In	Out	Total	
Volume	0	1	1		0	0	0		1	3	4	4	1	5	5
PHF	0.00				0.00				0.25			0.50			0.42

By Movement	Northbound N Vernonia Rd				Southbound N Vernonia Rd				Eastbound Pittsburg Rd			Westbound Pittsburg Rd			Total
	L		R	Total				Total	T	R	Total	L	T		Total
Volume	0		0	0				0	1	0	1	1	3		5
PHF	0.00		0.00	0.00				0.00	0.25	0.00	0.25	0.25	0.38		0.50

#### Heavy Vehicle Rolling Hour Summary

4:00 PM to 6:00 PM

Interval Start Time	Northbound N Vernonia Rd				Southbound N Vernonia Rd				Eastbound Pittsburg Rd			Westbound Pittsburg Rd			Interval Total
	L		R	Total				Total	T	R	Total	L	T		Total
4:00 PM	0		1	1				0	3	1	4	2	3		10
4:15 PM	0		1	1				0	2	1	3	2	3		9
4:30 PM	0		0	0				0	1	0	1	1	3		5
4:45 PM	0		0	0				0	0	0	0	0	2		2
5:00 PM	0		0	0				0	1	0	1	0	0		1

## Peak Hour Summary



Clay Carney  
(503) 833-2740

### N Vernonia Rd & Pittsburg Rd

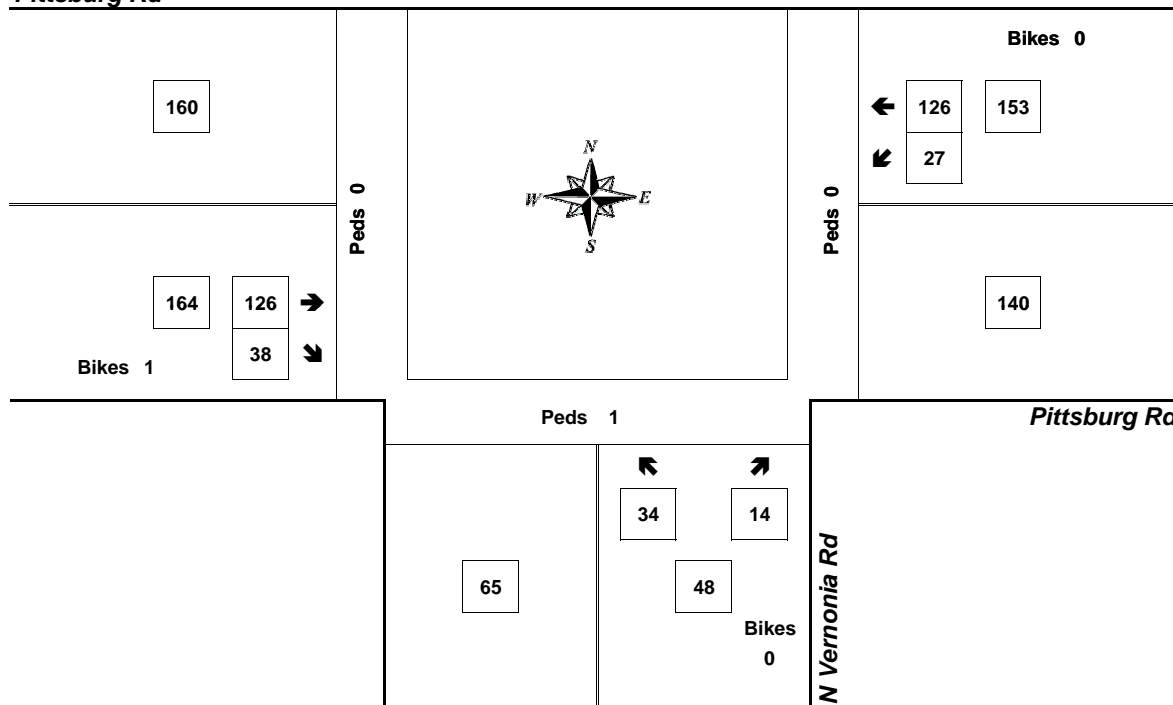
4:30 PM to 5:30 PM

Tuesday, October 25, 2016

Bikes  
0

**Pittsburg Rd**

Peds 0



Approach	PHF	HV%	Volume
EB	0.85	0.6%	164
WB	0.83	2.6%	153
NB	0.71	0.0%	48
SB	0.00	0.0%	0
<b>Intersection</b>	<b>0.92</b>	<b>1.4%</b>	<b>365</b>

Count Period: 4:00 PM to 6:00 PM

## Total Vehicle Summary

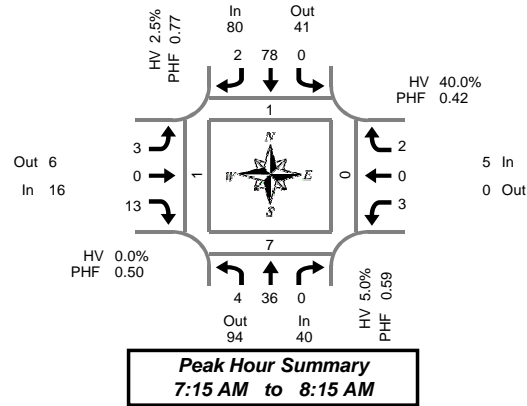


Clay Carney  
(503) 833-2740

## N Vernonia Rd & Farmview Dr

Tuesday, October 25, 2016

7:00 AM to 9:00 AM



### 5-Minute Interval Summary

7:00 AM to 9:00 AM

Interval Start Time	Northbound N Vernonia Rd				Southbound N Vernonia Rd				Eastbound Farmview Dr				Westbound Farmview 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	0	0	0	0	7	0	0	0	0	0	0	0	0	0	0	7	0	0	0	0
7:05 AM	0	1	0	0	0	1	0	0	0	0	1	0	0	0	0	0	3	0	0	0	0
7:10 AM	0	0	0	0	0	4	0	0	1	0	2	0	0	0	0	0	7	0	0	0	0
7:15 AM	0	2	0	0	0	4	0	0	0	0	2	0	0	0	0	0	8	0	0	0	0
7:20 AM	1	2	0	0	0	3	0	0	0	0	0	0	1	0	0	0	7	0	0	0	0
7:25 AM	0	1	0	0	0	8	0	0	1	0	0	0	0	0	0	0	10	0	0	0	0
7:30 AM	0	3	0	0	0	9	0	0	0	0	0	0	1	0	0	0	13	0	0	0	0
7:35 AM	1	1	0	0	0	9	0	0	1	0	0	0	0	0	0	0	12	0	0	0	0
7:40 AM	0	5	0	0	0	5	0	0	0	0	4	0	0	0	0	0	14	1	0	0	1
7:45 AM	1	5	0	0	0	6	0	0	0	0	3	0	0	0	2	0	17	0	0	0	0
7:50 AM	1	3	0	0	0	5	1	0	0	0	1	0	0	0	0	0	11	0	7	0	0
7:55 AM	0	7	0	0	0	10	1	0	0	0	1	0	1	0	0	0	20	0	0	0	0
8:00 AM	0	3	0	0	0	5	0	0	1	0	0	0	0	0	0	0	9	0	0	0	0
8:05 AM	0	2	0	0	0	7	0	0	0	0	0	0	0	0	0	0	9	0	0	0	0
8:10 AM	0	2	0	0	0	7	0	0	0	0	2	0	0	0	0	0	11	0	0	0	0
8:15 AM	0	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0
8:20 AM	1	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0
8:25 AM	0	1	0	0	0	6	0	0	0	0	0	0	0	0	0	0	7	0	0	0	0
8:30 AM	0	1	0	0	0	4	0	0	0	0	1	0	0	0	0	0	6	0	0	0	0
8:35 AM	0	4	0	0	0	2	0	0	0	0	0	0	0	0	0	0	6	0	0	0	0
8:40 AM	0	1	0	0	0	3	0	0	0	0	2	0	0	0	0	0	6	0	0	1	0
8:45 AM	0	2	0	0	0	4	0	0	1	0	0	0	1	0	0	0	8	0	0	0	0
8:50 AM	0	2	0	0	0	5	1	0	0	0	1	0	0	0	0	0	9	0	0	0	0
8:55 AM	0	1	1	0	0	3	0	0	0	0	0	0	0	0	0	0	5	0	0	0	0
Total Survey	5	51	1	0	0	121	3	0	5	0	20	0	4	0	2	0	212	1	7	1	1

### 15-Minute Interval Summary

7:00 AM to 9:00 AM

Interval Start Time	Northbound N Vernonia Rd				Southbound N Vernonia Rd				Eastbound Farmview Dr				Westbound Farmview 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	1	0	0	0	12	0	0	1	0	3	0	0	0	0	0	17	0	0	0	0
7:15 AM	1	5	0	0	0	15	0	0	1	0	2	0	1	0	0	0	25	0	0	0	0
7:30 AM	1	9	0	0	0	23	0	0	1	0	4	0	1	0	0	0	39	1	0	0	1
7:45 AM	2	15	0	0	0	21	2	0	0	0	5	0	1	0	2	0	48	0	7	0	0
8:00 AM	0	7	0	0	0	19	0	0	1	0	2	0	0	0	0	0	29	0	0	0	0
8:15 AM	1	3	0	0	0	10	0	0	0	0	0	0	0	0	0	0	14	0	0	0	0
8:30 AM	0	6	0	0	0	9	0	0	0	0	3	0	0	0	0	0	18	0	0	1	0
8:45 AM	0	5	1	0	0	12	1	0	1	0	1	0	1	0	0	0	22	0	0	0	0
Total Survey	5	51	1	0	0	121	3	0	5	0	20	0	4	0	2	0	212	1	7	1	1

### Peak Hour Summary

7:15 AM to 8:15 AM

By Approach	Northbound N Vernonia Rd				Southbound N Vernonia Rd				Eastbound Farmview Dr				Westbound Farmview 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	40	94	134	0	80	41	121	0	16	6	22	0	5	0	5	0	141	1	7	0	1
%HV	5.0%				2.5%				0.0%				40.0%				4.3%				
PHF	0.59				0.77				0.50				0.42				0.73				

By Movement	Northbound N Vernonia Rd				Southbound N Vernonia Rd				Eastbound Farmview Dr				Westbound Farmview Dr				Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
Volume	4	36	0	40	0	78	2	80	3	0	13	16	3	0	2	5	141
%HV	25.0%	2.8%	0.0%	5.0%	0.0%	2.6%	0.0%	2.5%	0.0%	0.0%	0.0%	0.0%	33.3%	0.0%	50.0%	40.0%	4.3%
PHF	0.50	0.60	0.00	0.59	0.00	0.75	0.25	0.77	0.38	0.00	0.41	0.50	0.38	0.00	0.25	0.42	0.73

### Rolling Hour Summary

7:00 AM to 9:00 AM

Interval Start Time	Northbound N Vernonia Rd				Southbound N Vernonia Rd				Eastbound Farmview Dr				Westbound Farmview 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	4	30	0	0	0	71	2	0	3	0	14	0	3	0	2	0	129	1	7	0	1
7:15 AM	4	36	0	0	0	78	2	0	3	0	13	0	3	0	2	0	141	1	7	0	1
7:30 AM	4	34	0	0	0	73	2	0	2	0	11	0	2	0	2	0	130	1	7	0	1
7:45 AM	3	31	0	0	0	59	2	0	1	0	10	0	1	0	2	0	109	0	7	1	0
8:00 AM	1	21	1	0	0	50	1	0	2	0	6	0	1	0	0	0	83	0	0	1	0



## Peak Hour Summary

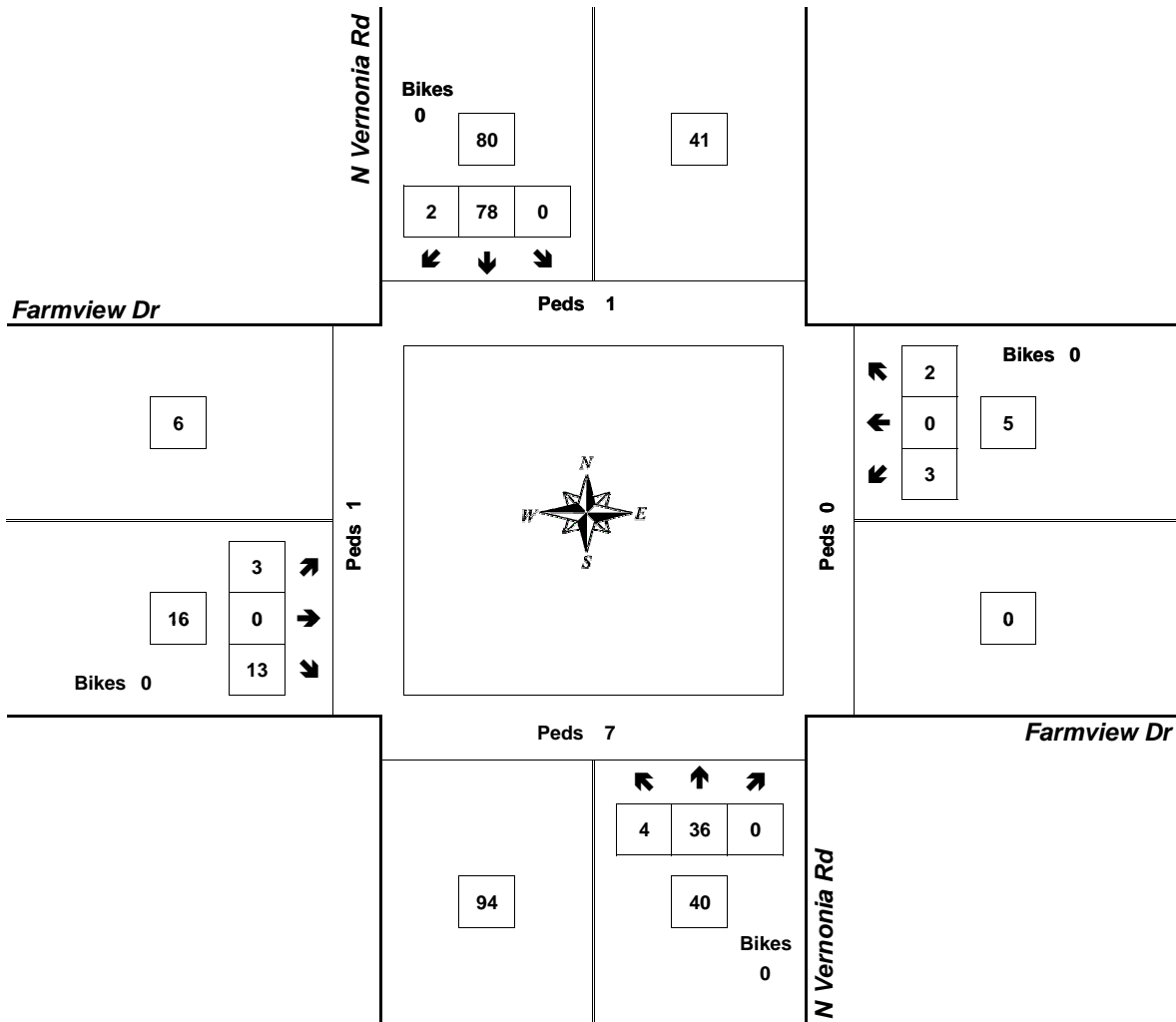


Clay Carney  
(503) 833-2740

### N Vernonia Rd & Farmview Dr

7:15 AM to 8:15 AM

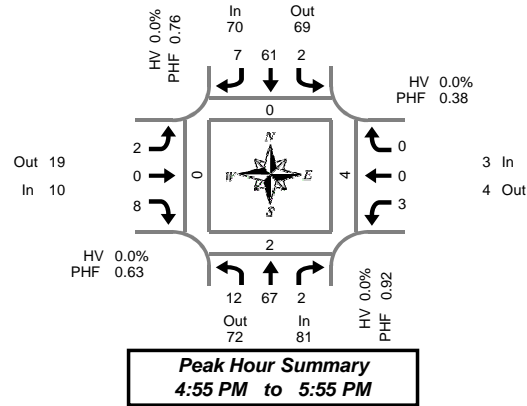
Tuesday, October 25, 2016



Approach	PHF	HV%	Volume
EB	0.50	0.0%	16
WB	0.42	40.0%	5
NB	0.59	5.0%	40
SB	0.77	2.5%	80
<b>Intersection</b>	<b>0.73</b>	<b>4.3%</b>	<b>141</b>

Count Period: 7:00 AM to 9:00 AM

## Total Vehicle Summary



## N Vernonia Rd & Farmview Dr

Tuesday, October 25, 2016

4:00 PM to 6:00 PM

### 5-Minute Interval Summary

4:00 PM to 6:00 PM

Interval Start Time	Northbound N Vernonia Rd				Southbound N Vernonia Rd				Eastbound Farmview Dr				Westbound Farmview 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	4	0	0	0	5	0	0	0	0	0	0	0	0	0	0	9	0	0	0	0
4:05 PM	3	5	0	0	0	3	2	0	0	0	1	0	0	0	0	0	14	0	0	0	0
4:10 PM	0	3	1	0	0	5	0	0	0	0	1	0	0	0	0	0	10	0	0	0	0
4:15 PM	1	4	0	0	0	3	0	0	0	0	0	0	1	0	0	0	9	0	0	0	0
4:20 PM	0	4	1	0	0	2	1	0	1	0	0	0	0	0	0	0	9	0	0	0	0
4:25 PM	0	7	0	0	0	1	0	0	0	0	0	0	0	0	0	0	8	0	0	0	0
4:30 PM	0	4	0	0	0	4	0	0	0	0	1	0	0	0	0	0	9	1	0	0	0
4:35 PM	2	4	0	0	1	6	0	0	0	0	0	0	0	0	0	0	13	0	0	0	0
4:40 PM	0	7	0	0	1	3	0	0	0	0	0	0	0	0	0	0	11	0	0	0	1
4:45 PM	0	5	1	0	0	7	1	0	0	0	1	0	0	0	0	0	15	1	0	0	0
4:50 PM	0	4	0	0	1	6	0	0	0	0	0	0	1	0	0	0	12	0	0	0	0
4:55 PM	0	5	0	0	0	6	1	0	0	0	1	0	0	0	0	0	13	0	0	0	0
5:00 PM	1	5	0	0	0	7	0	0	0	0	0	0	0	0	0	0	13	0	1	0	0
5:05 PM	2	6	0	0	0	4	1	0	0	0	1	0	0	0	0	0	14	0	0	0	0
5:10 PM	0	6	1	0	1	8	0	0	0	0	0	0	0	0	0	0	16	0	0	1	0
5:15 PM	2	3	1	0	0	8	1	2	0	0	2	0	1	0	0	0	18	0	0	1	0
5:20 PM	0	9	0	0	0	1	0	0	1	0	0	0	0	0	0	0	11	0	1	2	0
5:25 PM	0	6	0	0	0	3	1	0	0	0	0	0	0	0	0	0	10	0	0	0	0
5:30 PM	1	5	0	0	0	3	1	0	0	0	2	0	0	0	0	0	12	0	0	0	0
5:35 PM	1	6	0	0	0	6	0	0	0	0	2	0	0	0	0	0	15	0	0	0	0
5:40 PM	1	4	0	0	0	6	1	0	0	0	0	0	0	0	0	0	12	0	0	0	0
5:45 PM	1	4	0	0	0	6	0	0	0	0	0	0	2	0	0	0	13	0	0	0	0
5:50 PM	3	8	0	0	1	3	1	0	1	0	0	0	0	0	0	0	17	0	0	0	0
5:55 PM	1	6	0	0	0	4	0	0	0	0	0	0	0	0	0	0	11	0	0	0	0
Total Survey	19	124	5	0	5	110	11	2	3	0	12	0	5	0	0	0	294	2	2	4	1

### 15-Minute Interval Summary

4:00 PM to 6:00 PM

Interval Start Time	Northbound N Vernonia Rd				Southbound N Vernonia Rd				Eastbound Farmview Dr				Westbound Farmview 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	3	12	1	0	0	13	2	0	0	0	2	0	0	0	0	0	33	0	0	0	0
4:15 PM	1	15	1	0	0	6	1	0	1	0	0	0	1	0	0	0	26	0	0	0	0
4:30 PM	2	15	0	0	2	13	0	0	0	0	1	0	0	0	0	0	33	1	0	0	1
4:45 PM	0	14	1	0	1	19	2	0	0	0	2	0	1	0	0	0	40	1	0	0	0
5:00 PM	3	17	1	0	1	19	1	0	0	0	1	0	0	0	0	0	43	0	1	1	0
5:15 PM	2	18	1	0	0	12	2	2	1	0	2	0	1	0	0	0	39	0	1	3	0
5:30 PM	3	15	0	0	0	15	2	0	0	0	4	0	0	0	0	0	39	0	0	0	0
5:45 PM	5	18	0	0	1	13	1	0	1	0	0	0	2	0	0	0	41	0	0	0	0
Total Survey	19	124	5	0	5	110	11	2	3	0	12	0	5	0	0	0	294	2	2	4	1

### Peak Hour Summary

4:55 PM to 5:55 PM

By Approach	Northbound N Vernonia Rd				Southbound N Vernonia Rd				Eastbound Farmview Dr				Westbound Farmview 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	81	72	153	0	70	69	139	2	10	19	29	0	3	4	7	0	164	0	2	4	0
%HV	0.0%				0.0%				0.0%				0.0%				0.0%				
PHF	0.92				0.76				0.63				0.38				0.85				

By Movement	Northbound N Vernonia Rd				Southbound N Vernonia Rd				Eastbound Farmview Dr				Westbound Farmview Dr				Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
Volume	12	67	2	81	2	61	7	70	2	0	8	10	3	0	0	3	164
%HV	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
PHF	0.60	0.84	0.25	0.92	0.50	0.76	0.88	0.76	0.50	0.00	0.50	0.63	0.38	0.00	0.00	0.38	0.85

### Rolling Hour Summary

4:00 PM to 6:00 PM

Interval Start Time	Northbound N Vernonia Rd				Southbound N Vernonia Rd				Eastbound Farmview Dr				Westbound Farmview 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	6	56	3	0	3	51	5	0	1	0	5	0	2	0	0	0	132	2	0	0	1
4:15 PM	6	61	3	0	4	57	4	0	1	0	4	0	2	0	0	0	142	2	1	1	1
4:30 PM	7	64	3	0	4	63	5	2	1	0	6	0	2	0	0	0	155	2	2	4	1
4:45 PM	8	64	3	0	2	65	7	2	1	0	9	0	2	0	0	0	161	1	2	4	0
5:00 PM	13	68	2	0	2	59	6	2	2	0	7	0	3	0	0	0	162	0	2	4	0



## Peak Hour Summary

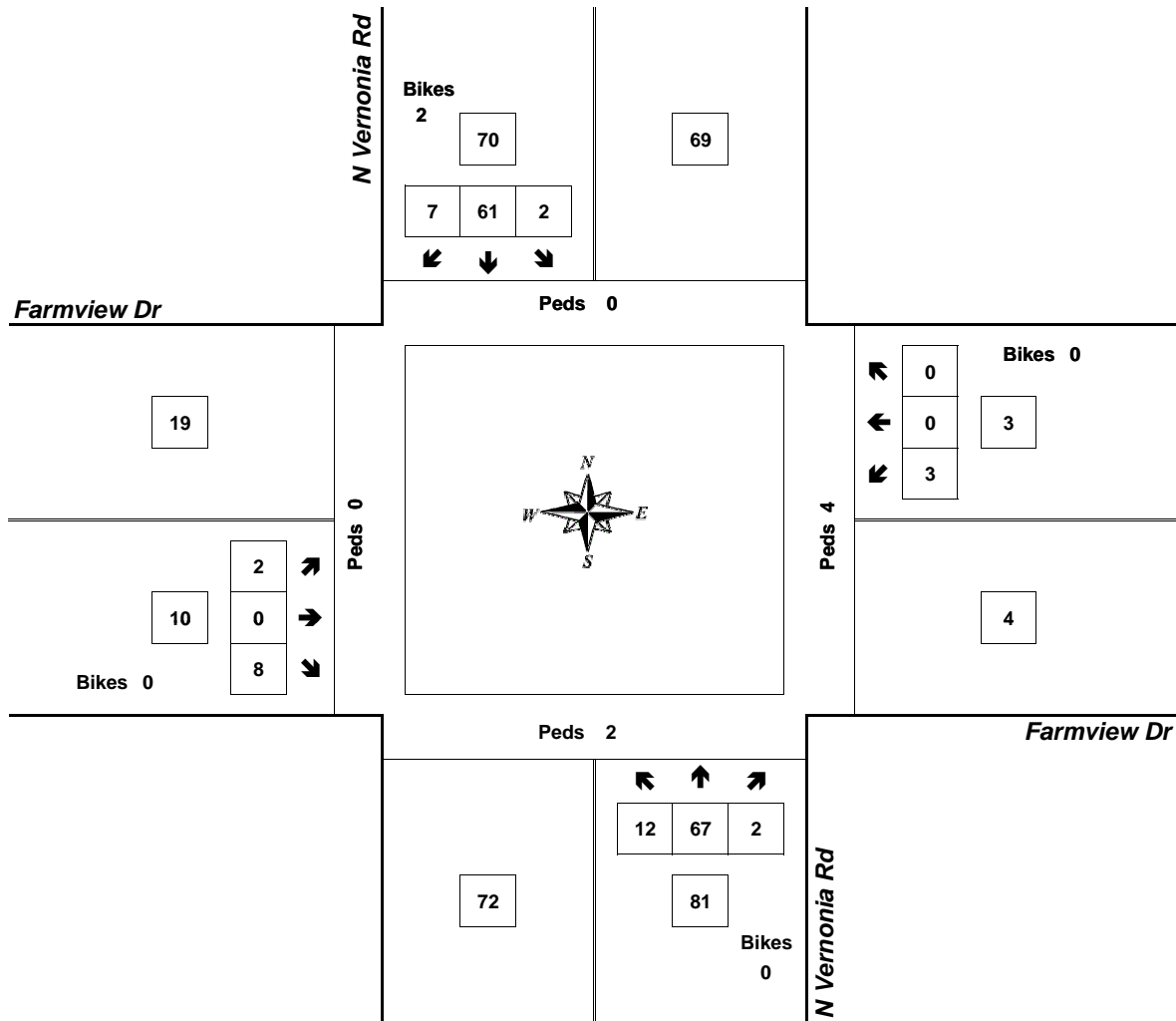


Clay Carney  
(503) 833-2740

### N Vernonia Rd & Farmview Dr

4:55 PM to 5:55 PM

Tuesday, October 25, 2016



Approach	PHF	HV%	Volume
EB	0.63	0.0%	10
WB	0.38	0.0%	3
NB	0.92	0.0%	81
SB	0.76	0.0%	70
<b>Intersection</b>	<b>0.85</b>	<b>0.0%</b>	<b>164</b>

Count Period: 4:00 PM to 6:00 PM

## Total Vehicle Summary

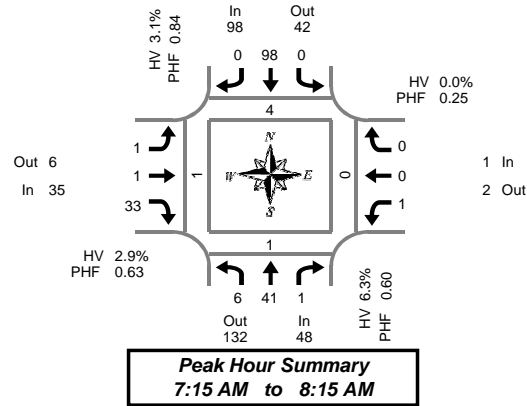


Clay Carney  
(503) 833-2740

## N Vernonia Rd & Oakwood Dr

Tuesday, October 25, 2016

7:00 AM to 9:00 AM



### 5-Minute Interval Summary

7:00 AM to 9:00 AM

Interval Start Time	Northbound N Vernonia Rd				Southbound N Vernonia Rd				Eastbound Oakwood Dr				Westbound Oakwood 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	0	0	0	0	7	0	0	0	0	0	0	0	0	0	0	7	0	0	0	0
7:05 AM	1	1	0	0	0	2	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0
7:10 AM	0	0	0	0	0	6	0	0	0	0	2	0	0	0	0	0	8	1	0	0	0
7:15 AM	0	0	0	0	0	6	0	0	0	0	1	0	1	0	0	0	8	3	1	0	0
7:20 AM	1	3	0	0	0	5	0	0	0	0	2	0	0	0	0	0	11	1	0	0	0
7:25 AM	0	1	0	0	0	10	0	0	0	0	2	0	0	0	0	0	13	0	0	0	0
7:30 AM	0	3	0	0	0	9	0	0	0	0	0	0	0	0	0	0	12	0	0	0	0
7:35 AM	0	3	0	0	0	10	0	0	0	0	4	0	0	0	0	0	17	0	0	0	0
7:40 AM	0	6	1	0	0	8	0	0	1	0	2	0	0	0	0	0	18	0	0	0	0
7:45 AM	0	7	0	0	0	10	0	0	0	0	4	0	0	0	0	0	21	0	0	0	0
7:50 AM	1	3	0	0	0	8	0	0	0	1	1	0	0	0	0	0	14	0	0	0	1
7:55 AM	2	7	0	0	0	10	0	0	0	0	6	0	0	0	0	0	25	0	0	0	0
8:00 AM	0	3	0	0	0	5	0	0	0	0	6	0	0	0	0	0	14	0	0	0	0
8:05 AM	1	2	0	0	0	8	0	0	0	0	2	0	0	0	0	0	13	0	0	0	0
8:10 AM	1	3	0	0	0	9	0	0	0	0	3	0	0	0	0	0	16	0	0	0	0
8:15 AM	2	2	0	0	0	3	0	0	0	0	1	0	0	0	0	0	8	0	1	0	0
8:20 AM	2	3	0	0	0	1	0	0	0	0	1	0	0	0	0	0	7	0	0	0	0
8:25 AM	3	2	0	0	0	8	0	0	0	0	4	0	0	0	0	0	17	0	0	0	0
8:30 AM	1	0	0	0	0	4	0	0	0	0	2	0	0	0	0	0	7	0	0	0	0
8:35 AM	0	4	0	0	0	2	0	0	0	0	2	0	0	0	0	0	8	0	0	0	0
8:40 AM	0	1	0	0	0	5	0	0	0	0	0	0	0	0	0	0	6	0	0	1	0
8:45 AM	0	1	0	0	0	7	0	0	1	0	3	0	0	0	0	0	12	0	0	0	0
8:50 AM	0	2	0	0	0	5	0	0	0	0	2	0	0	0	0	0	9	0	0	0	0
8:55 AM	1	2	0	0	0	3	0	0	0	0	0	0	0	0	0	0	6	0	1	1	0
Total Survey	16	59	1	0	0	151	0	0	2	1	50	0	1	0	0	0	281	5	3	2	1

### 15-Minute Interval Summary

7:00 AM to 9:00 AM

Interval Start Time	Northbound N Vernonia Rd				Southbound N Vernonia Rd				Eastbound Oakwood Dr				Westbound Oakwood 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	1	1	0	0	0	15	0	0	0	0	2	0	0	0	0	0	19	1	0	0	0
7:15 AM	1	4	0	0	0	21	0	0	0	0	5	0	1	0	0	0	32	4	1	0	0
7:30 AM	0	12	1	0	0	27	0	0	1	0	6	0	0	0	0	0	47	0	0	0	0
7:45 AM	3	17	0	0	0	28	0	0	0	1	11	0	0	0	0	0	60	0	0	0	1
8:00 AM	2	8	0	0	0	22	0	0	0	0	11	0	0	0	0	0	43	0	0	0	0
8:15 AM	7	7	0	0	0	12	0	0	0	0	6	0	0	0	0	0	32	0	1	0	0
8:30 AM	1	5	0	0	0	11	0	0	0	0	4	0	0	0	0	0	21	0	0	1	0
8:45 AM	1	5	0	0	0	15	0	0	1	0	5	0	0	0	0	0	27	0	1	1	0
Total Survey	16	59	1	0	0	151	0	0	2	1	50	0	1	0	0	0	281	5	3	2	1

### Peak Hour Summary

7:15 AM to 8:15 AM

By Approach	Northbound N Vernonia Rd				Southbound N Vernonia Rd				Eastbound Oakwood Dr				Westbound Oakwood 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	48	132	180	0	98	42	140	0	35	6	41	0	1	2	3	0	182	4	1	0	1
%HV	6.3%				3.1%				2.9%				0.0%				3.8%				
PHF	0.60				0.84				0.63				0.25				0.76				

By Movement	Northbound N Vernonia Rd				Southbound N Vernonia Rd				Eastbound Oakwood Dr				Westbound Oakwood Dr				Total				
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total					
Volume	6	41	1	48	0	98	0	98	1	1	33	35	1	0	0	1	182				
%HV	0.0%	4.9%	###	6.3%	0.0%	3.1%	0.0%	3.1%	0.0%	###	0.0%	2.9%	0.0%	0.0%	0.0%	0.0%	3.8%				
PHF	0.50	0.60	0.25	0.60	0.00	0.84	0.00	0.84	0.25	0.25	0.59	0.63	0.25	0.00	0.00	0.25	0.76				

### Rolling Hour Summary

7:00 AM to 9:00 AM

Interval Start Time	Northbound N Vernonia Rd				Southbound N Vernonia Rd				Eastbound Oakwood Dr				Westbound Oakwood 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	5	34	1	0	0	91	0	0	1	1	24	0	1	0	0	0	158	5	1	0	1
7:15 AM	6	41	1	0	0	98	0	0	1	1	33	0	1	0	0	0	182	4	1	0	1
7:30 AM	12	44	1	0	0	89	0	0	1	1	34	0	0	0	0	0	182	0	1	0	1
7:45 AM	13	37	0	0	0	73	0	0	0	1	32	0	0	0	0	0	156	0	1	1	1
8:00 AM	11	25	0	0	0	60	0	0	1	0	26	0	0	0	0	0	123	0	2	2	0



## Peak Hour Summary

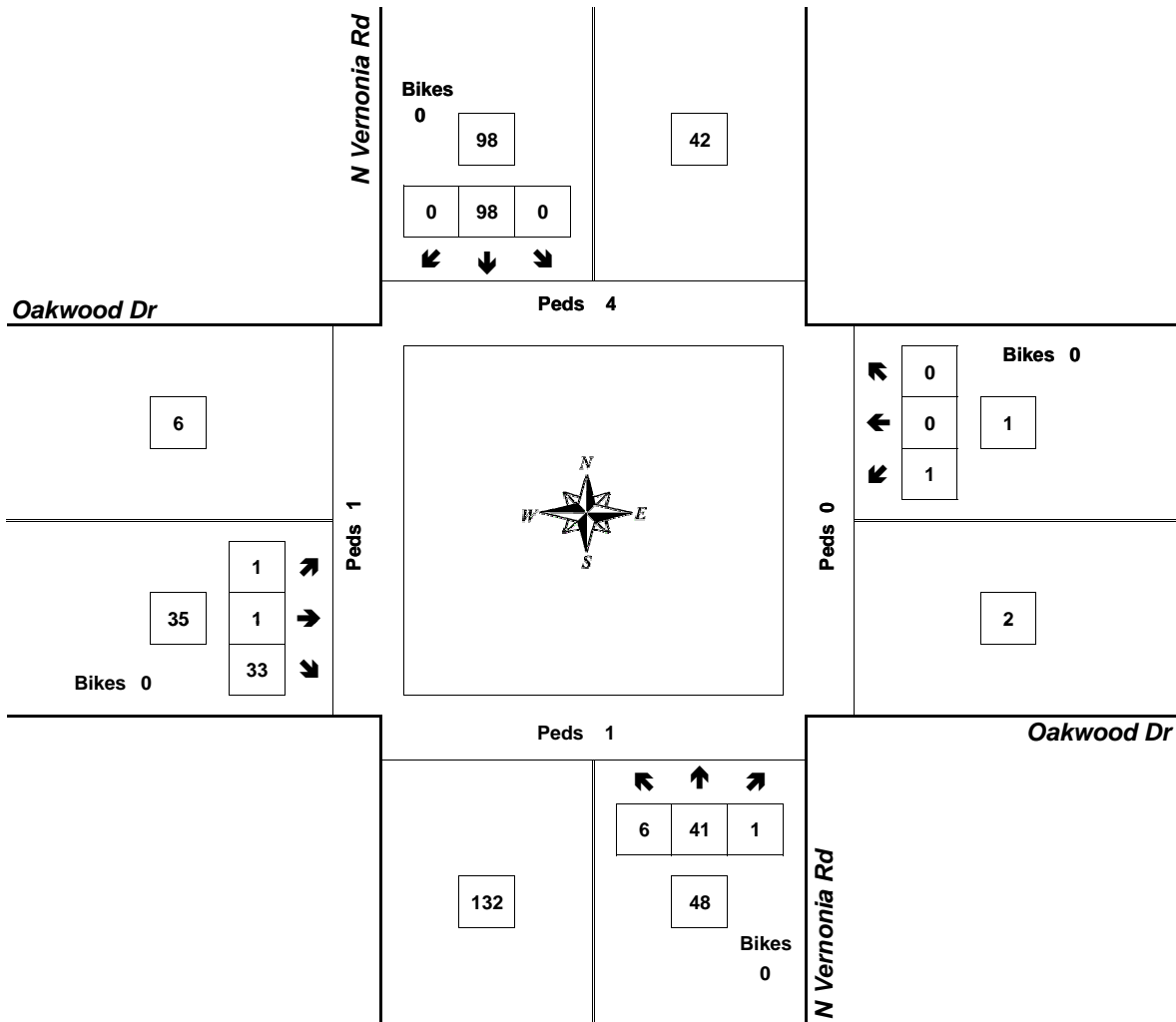


Clay Carney  
(503) 833-2740

### N Vernonia Rd & Oakwood Dr

7:15 AM to 8:15 AM

Tuesday, October 25, 2016



Count Period: 7:00 AM to 9:00 AM

## Total Vehicle Summary

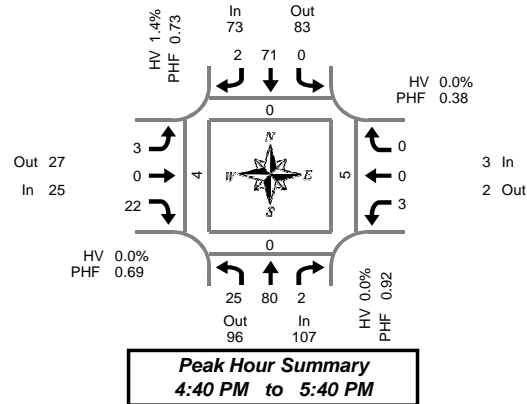


Clay Carney  
(503) 833-2740

## N Vernonia Rd & Oakwood Dr

Tuesday, October 25, 2016

4:00 PM to 6:00 PM



### 5-Minute Interval Summary

4:00 PM to 6:00 PM

Interval Start Time	Northbound N Vernonia Rd				Southbound N Vernonia Rd				Eastbound Oakwood Dr				Westbound Oakwood 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	5	1	0	0	4	1	0	0	0	2	0	0	0	0	0	13	0	0	0	0
4:05 PM	1	6	0	0	0	5	0	0	0	0	3	0	0	0	0	0	15	0	0	0	1
4:10 PM	0	6	0	0	0	5	0	0	0	0	2	0	1	0	0	0	14	0	0	0	0
4:15 PM	1	3	0	0	0	4	0	0	0	0	1	0	0	0	0	0	9	0	0	0	0
4:20 PM	0	6	0	0	0	1	1	0	0	0	0	0	1	0	0	0	9	0	0	0	0
4:25 PM	0	9	0	0	0	2	0	0	0	0	0	0	0	0	0	0	11	0	0	0	0
4:30 PM	2	4	0	0	0	4	1	0	0	0	0	0	0	0	0	0	11	0	0	0	0
4:35 PM	2	5	0	0	0	6	0	0	0	0	1	0	0	0	0	0	14	0	0	0	0
4:40 PM	2	8	0	0	0	3	0	0	0	0	2	0	1	0	0	0	16	0	0	0	1
4:45 PM	2	6	0	0	0	8	0	0	0	0	2	0	0	0	0	0	18	0	0	0	0
4:50 PM	4	4	0	0	0	7	0	0	0	0	1	0	1	0	0	0	17	0	0	0	0
4:55 PM	1	4	0	0	0	5	1	0	1	0	2	0	0	0	0	0	14	0	0	0	0
5:00 PM	3	8	0	0	0	7	0	0	0	0	1	0	0	0	0	0	19	0	0	0	1
5:05 PM	3	8	0	0	0	6	0	0	1	0	2	0	1	0	0	0	21	0	0	2	0
5:10 PM	1	6	0	0	0	8	0	0	1	0	2	0	0	0	0	0	18	0	0	1	0
5:15 PM	2	7	0	0	0	11	0	0	0	0	3	0	0	0	0	0	23	0	0	2	0
5:20 PM	2	8	0	0	0	1	0	0	0	0	3	0	0	0	0	0	14	0	0	0	2
5:25 PM	2	6	0	0	0	3	0	0	0	0	1	0	0	0	0	0	12	0	0	0	0
5:30 PM	3	6	1	0	0	4	1	0	0	0	2	0	0	0	0	0	17	0	0	0	0
5:35 PM	0	9	1	0	0	8	0	0	0	0	1	0	0	0	0	0	19	0	0	0	0
5:40 PM	0	4	0	0	0	8	0	0	0	0	0	0	0	0	0	0	12	0	0	0	0
5:45 PM	1	6	0	0	0	6	0	0	0	0	1	0	1	0	0	0	15	0	0	1	0
5:50 PM	4	9	1	0	0	2	1	0	0	0	4	0	0	0	1	0	22	0	0	0	0
5:55 PM	5	6	0	0	0	4	0	0	0	0	1	0	0	0	0	0	16	0	0	0	0
Total Survey	41	149	4	0	0	122	6	0	3	0	37	0	6	0	1	0	369	0	0	6	5

### 15-Minute Interval Summary

4:00 PM to 6:00 PM

Interval Start Time	Northbound N Vernonia Rd				Southbound N Vernonia Rd				Eastbound Oakwood Dr				Westbound Oakwood 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	1	17	1	0	0	14	1	0	0	0	7	0	1	0	0	0	42	0	0	0	1
4:15 PM	1	18	0	0	0	7	1	0	0	0	1	0	1	0	0	0	29	0	0	0	0
4:30 PM	6	17	0	0	0	13	1	0	0	0	3	0	1	0	0	0	41	0	0	0	1
4:45 PM	7	14	0	0	0	20	1	0	1	0	5	0	1	0	0	0	49	0	0	0	0
5:00 PM	7	22	0	0	0	21	0	0	2	0	5	0	1	0	0	0	58	0	0	3	1
5:15 PM	6	21	0	0	0	15	0	0	0	0	7	0	0	0	0	0	49	0	0	2	2
5:30 PM	3	19	2	0	0	20	1	0	0	0	3	0	0	0	0	0	48	0	0	0	0
5:45 PM	10	21	1	0	0	12	1	0	0	0	6	0	1	0	1	0	53	0	0	1	0
Total Survey	41	149	4	0	0	122	6	0	3	0	37	0	6	0	1	0	369	0	0	6	5

### Peak Hour Summary

4:40 PM to 5:40 PM

By Approach	Northbound N Vernonia Rd				Southbound N Vernonia Rd				Eastbound Oakwood Dr				Westbound Oakwood 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	107	96	203	0	73	83	156	0	25	27	52	0	3	2	5	0	208	0	0	5	4
%HV	0.0%				1.4%				0.0%				0.0%				0.5%				
PHF	0.92				0.73				0.69				0.38				0.84				

By Movement	Northbound N Vernonia Rd				Southbound N Vernonia Rd				Eastbound Oakwood Dr				Westbound Oakwood Dr				Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
Volume	25	80	2	107	0	71	2	73	3	0	22	25	3	0	0	3	208
%HV	0.0%	0.0%	0.0%	0.0%	0.0%	1.4%	0.0%	1.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.5%
PHF	0.78	0.91	0.25	0.92	0.00	0.71	0.50	0.73	0.38	0.00	0.69	0.69	0.38	0.00	0.00	0.38	0.84

### Rolling Hour Summary

4:00 PM to 6:00 PM

Interval Start Time	Northbound N Vernonia Rd				Southbound N Vernonia Rd				Eastbound Oakwood Dr				Westbound Oakwood 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	15	66	1	0	0	54	4	0	1	0	16	0	4	0	0	0	161	0	0	0	2
4:15 PM	21	71	0	0	0	61	3	0	3	0	14	0	4	0	0	0	177	0	0	3	2
4:30 PM	26	74	0	0	0	69	2	0	3	0	20	0	3	0	0	0	197	0	0	5	4
4:45 PM	23	76	2	0	0	76	2	0	3	0	20	0	2	0	0	0	204	0	0	5	3
5:00 PM	26	83	3	0	0	68	2	0	2	0	21	0	2	0	1	0	208	0	0	6	3



## Peak Hour Summary

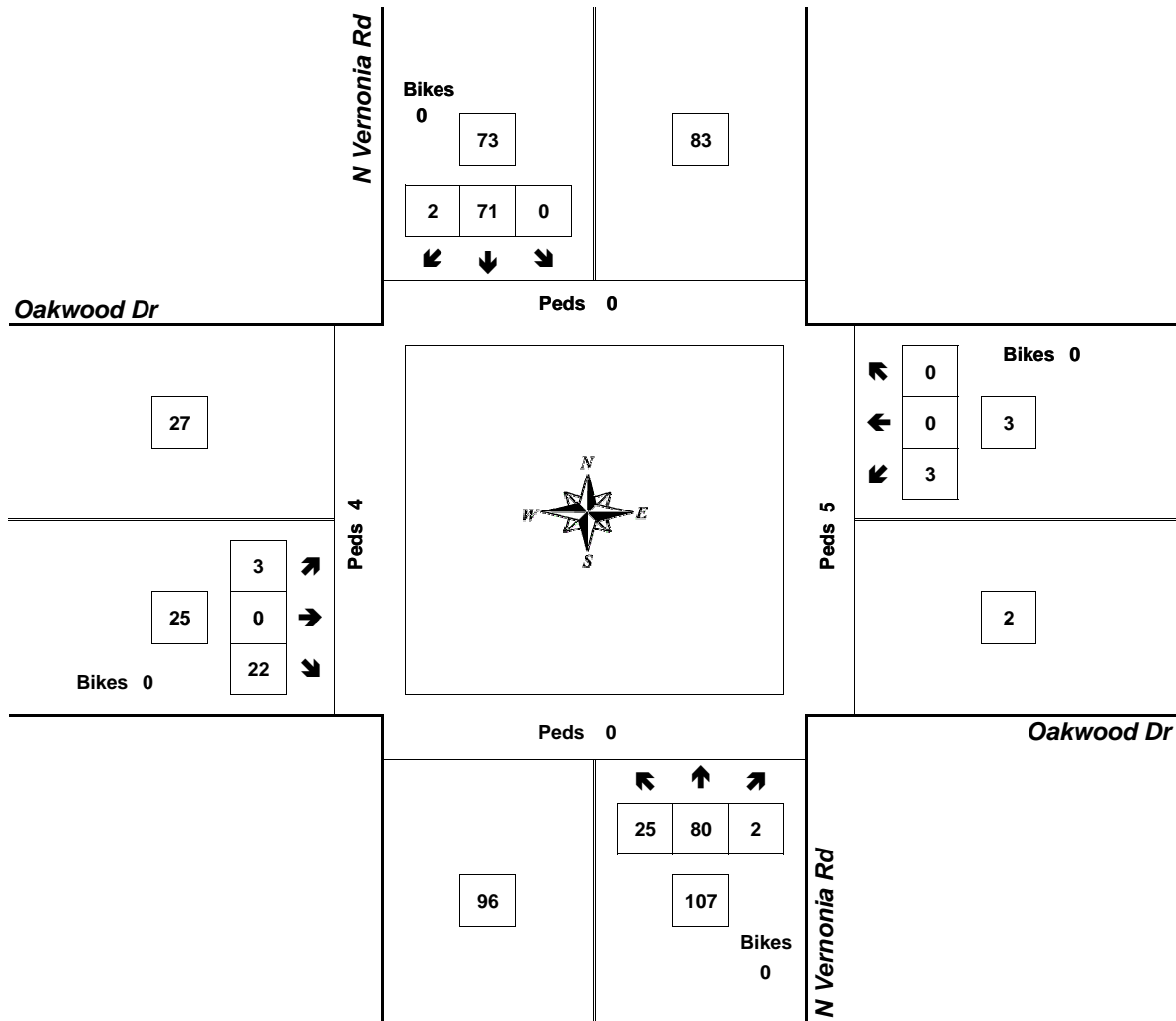


Clay Carney  
(503) 833-2740

### N Vernonia Rd & Oakwood Dr

4:40 PM to 5:40 PM

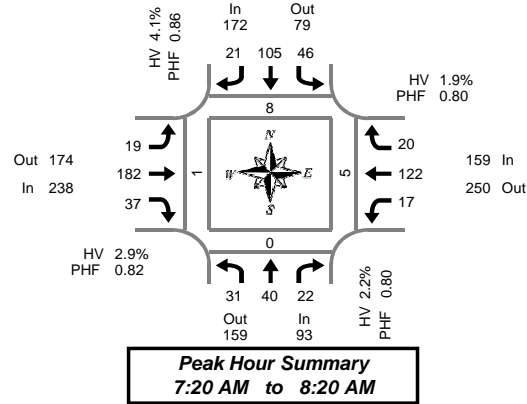
Tuesday, October 25, 2016



Approach	PHF	HV%	Volume
EB	0.69	0.0%	25
WB	0.38	0.0%	3
NB	0.92	0.0%	107
SB	0.73	1.4%	73
<b>Intersection</b>	<b>0.84</b>	<b>0.5%</b>	<b>208</b>

Count Period: 4:00 PM to 6:00 PM

## Total Vehicle Summary



## N Vernonia Rd & Columbia Blvd

Tuesday, October 25, 2016

7:00 AM to 9:00 AM

### 5-Minute Interval Summary

7:00 AM to 9:00 AM

Interval Start Time	Northbound N Vernonia Rd				Southbound N Vernonia Rd				Eastbound Columbia Blvd				Westbound Columbia 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	0	0	3	0	4	11	0	0	0	8	0	0	2	2	0	0	30	0	0	0	0
7:05 AM	0	2	0	0	1	1	1	0	0	5	1	0	3	1	0	0	15	0	0	0	5
7:10 AM	0	1	1	0	0	3	2	0	0	7	0	0	2	8	1	0	25	2	1	0	2
7:15 AM	1	0	0	0	0	11	1	0	1	2	0	0	0	5	3	0	24	0	0	0	2
7:20 AM	2	2	1	0	5	7	1	0	0	13	2	0	1	8	2	1	44	0	0	0	0
7:25 AM	6	1	0	0	2	9	6	0	2	14	4	0	0	11	1	0	56	1	0	0	0
7:30 AM	5	6	2	0	5	5	3	0	1	16	4	1	0	20	0	0	67	1	0	0	0
7:35 AM	3	1	2	0	4	13	3	0	1	20	3	0	2	13	1	0	66	1	0	3	0
7:40 AM	3	4	3	0	5	9	0	0	4	19	5	0	0	11	3	0	66	1	0	0	0
7:45 AM	1	3	1	0	4	4	4	0	3	11	3	0	4	14	1	0	53	2	0	1	1
7:50 AM	1	3	4	0	4	11	0	0	2	14	5	0	1	8	2	0	55	0	0	0	0
7:55 AM	1	4	2	0	4	13	0	0	2	18	6	0	2	8	1	0	61	1	0	0	0
8:00 AM	4	5	0	0	3	10	2	0	1	14	2	0	1	8	1	0	51	0	0	0	0
8:05 AM	3	4	3	0	3	7	1	0	1	8	0	0	4	10	1	0	45	0	0	0	0
8:10 AM	0	4	0	0	4	10	1	0	0	13	2	0	2	5	2	0	43	0	0	0	0
8:15 AM	2	3	4	0	3	7	0	0	2	22	1	0	0	6	5	0	55	1	0	1	0
8:20 AM	1	2	4	0	1	6	1	0	0	17	0	0	1	9	1	0	43	0	0	0	0
8:25 AM	2	4	3	0	5	3	3	1	3	11	3	0	2	8	2	0	49	0	0	0	0
8:30 AM	1	3	3	0	5	8	1	0	1	6	3	0	1	4	1	0	37	0	0	0	0
8:35 AM	0	1	3	0	4	5	0	0	1	10	2	0	1	7	3	0	37	0	0	0	1
8:40 AM	0	4	2	0	3	5	1	0	1	9	1	0	0	5	1	0	32	0	0	0	0
8:45 AM	2	1	1	0	3	6	1	0	1	5	1	0	1	3	1	0	26	0	0	0	0
8:50 AM	0	2	1	0	6	7	0	0	1	18	1	0	1	7	1	0	45	0	0	0	0
8:55 AM	2	3	1	0	4	3	1	0	0	6	1	0	1	4	3	0	29	0	0	0	0
Total Survey	40	63	44	0	82	174	33	1	28	286	50	1	32	185	37	1	1,054	10	1	5	11

### 15-Minute Interval Summary

7:00 AM to 9:00 AM

Interval Start Time	Northbound N Vernonia Rd				Southbound N Vernonia Rd				Eastbound Columbia Blvd				Westbound Columbia 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	0	3	4	0	5	15	3	0	0	20	1	0	7	11	1	0	70	2	1	0	7
7:15 AM	9	3	1	0	7	27	8	0	3	29	6	0	1	24	6	1	124	1	0	0	2
7:30 AM	11	11	7	0	14	27	6	0	6	55	12	1	2	44	4	0	199	3	0	3	0
7:45 AM	3	10	7	0	12	28	4	0	7	43	14	0	7	30	4	0	169	3	0	1	1
8:00 AM	7	13	3	0	10	27	4	0	2	35	4	0	7	23	4	0	139	0	0	0	0
8:15 AM	5	9	11	0	9	16	4	1	5	50	4	0	3	23	8	0	147	1	0	1	0
8:30 AM	1	8	8	0	12	18	2	0	3	25	6	0	2	16	5	0	106	0	0	0	1
8:45 AM	4	6	3	0	13	16	2	0	2	29	3	0	3	14	5	0	100	0	0	0	0
Total Survey	40	63	44	0	82	174	33	1	28	286	50	1	32	185	37	1	1,054	10	1	5	11

### Peak Hour Summary

7:20 AM to 8:20 AM

By Approach	Northbound N Vernonia Rd				Southbound N Vernonia Rd				Eastbound Columbia Blvd				Westbound Columbia 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	93	159	252	0	172	79	251	0	238	174	412	1	159	250	409	1	662	8	0	5	1
%HV	2.2%				4.1%				2.9%				1.9%				2.9%				
PHF	0.80				0.86				0.82				0.80				0.83				

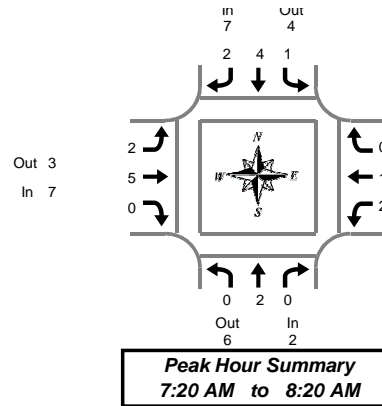
By Movement	Northbound N Vernonia Rd				Southbound N Vernonia Rd				Eastbound Columbia Blvd				Westbound Columbia Blvd				Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
Volume	31	40	22	93	46	105	21	172	19	182	37	238	17	122	20	159	662
%HV	0.0%	5.0%	0.0%	2.2%	2.2%	3.8%	9.5%	4.1%	10.5%	2.7%	0.0%	2.9%	11.8%	0.8%	0.0%	1.9%	2.9%
PHF	0.55	0.77	0.69	0.80	0.82	0.77	0.44	0.86	0.53	0.83	0.66	0.82	0.61	0.69	0.63	0.80	0.83

### Rolling Hour Summary

7:00 AM to 9:00 AM

Interval Start Time	Northbound N Vernonia Rd				Southbound N Vernonia Rd				Eastbound Columbia Blvd				Westbound Columbia 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	23	27	19	0	38	97	21	0	16	147	33	1	17	109	15	1	562	9	1	4	10
7:15 AM	30	37	18	0	43	109	22	0	18	162	36	1	17	121	18	1	631	7	0	4	3
7:30 AM	26	43	28	0	45	98	18	1	20	183	34	1	19	120	20	0	654	7	0	5	1
7:45 AM	16	40	29	0	43	89	14	1	17	153	28	0	19	92	21	0	561	4	0	2	2
8:00 AM	17	36	25	0	44	77	12	1	12	139	17	0	15	76	22	0	492	1	0	1	1

## Heavy Vehicle Summary



## N Vernonia Rd & Columbia Blvd

Tuesday, October 25, 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 N Vernonia Rd				Southbound N Vernonia Rd				Eastbound Columbia Blvd				Westbound Columbia Blvd				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	0	0	0	0	0	0	0	0	1
7:05 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:10 AM	0	0	0	0	0	0	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	0	0	1	0	1	1
7:20 AM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
7:25 AM	0	0	0	0	0	1	2	3	0	0	0	0	0	0	0	0	3
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:35 AM	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	1
7:40 AM	0	0	0	0	0	0	0	0	1	1	0	2	0	0	0	0	2
7:45 AM	0	1	0	1	0	0	0	0	1	2	0	3	1	0	0	1	5
7:50 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:55 AM	0	0	0	0	0	1	0	1	0	0	0	0	0	1	0	1	2
8:00 AM	0	1	0	1	1	0	0	1	0	0	0	0	0	0	0	0	2
8:05 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:10 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	2	0	2	0	1	0	1	0	0	0	0	3
8:20 AM	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	1
8:25 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:35 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:40 AM	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
8:45 AM	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	1
8:50 AM	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	1
8:55 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Survey	0	3	0	3	1	5	2	8	2	8	0	10	2	2	0	4	25

### Heavy Vehicle 15-Minute Interval Summary

7:00 AM to 9:00 AM

Interval Start Time	Northbound N Vernonia Rd				Southbound N Vernonia Rd				Eastbound Columbia Blvd				Westbound Columbia Blvd				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	0	0	0	0	0	0	0	0	1
7:15 AM	0	0	0	0	0	1	2	3	0	0	0	0	1	1	0	2	5
7:30 AM	0	0	0	0	0	0	0	0	1	2	0	3	0	0	0	0	3
7:45 AM	0	1	0	1	0	1	0	1	1	2	0	3	1	1	0	2	7
8:00 AM	0	1	0	1	1	0	0	1	0	0	0	0	0	0	0	0	2
8:15 AM	0	0	0	0	0	2	0	2	0	2	0	2	0	0	0	0	4
8:30 AM	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
8:45 AM	0	0	0	0	0	0	0	0	0	2	0	2	0	0	0	0	2
Total Survey	0	3	0	3	1	5	2	8	2	8	0	10	2	2	0	4	25

### Heavy Vehicle Peak Hour Summary

7:20 AM to 8:20 AM

By Approach	Northbound N Vernonia Rd			Southbound N Vernonia Rd			Eastbound Columbia Blvd			Westbound Columbia Blvd			Total
	In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total	
Volume	2	6	8	7	4	11	7	3	10	3	6	9	19
PHF	0.50			0.58			0.29			0.38			0.59

By Movement	Northbound N Vernonia Rd				Southbound N Vernonia Rd				Eastbound Columbia Blvd				Westbound Columbia Blvd				Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
Volume	0	2	0	2	1	4	2	7	2	5	0	7	2	1	0	3	19
PHF	0.00	0.50	0.00	0.50	0.25	0.50	0.25	0.58	0.25	0.31	0.00	0.29	0.50	0.25	0.00	0.38	0.59

### Heavy Vehicle Rolling Hour Summary

7:00 AM to 9:00 AM

Interval Start Time	Northbound N Vernonia Rd				Southbound N Vernonia Rd				Eastbound Columbia Blvd				Westbound Columbia 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	0	3	2	5	2	4	0	6	2	2	0	4	16
7:15 AM	0	2	0	2	1	2	2	5	2	4	0	6	2	2	0	4	17
7:30 AM	0	2	0	2	1	3	0	4	2	6	0	8	1	1	0	2	16
7:45 AM	0	3	0	3	1	3	0	4	1	4	0	5	1	1	0	2	14
8:00 AM	0	2	0	2	1	2	0	3	0	4	0	4	0	0	0	0	9

## Peak Hour Summary

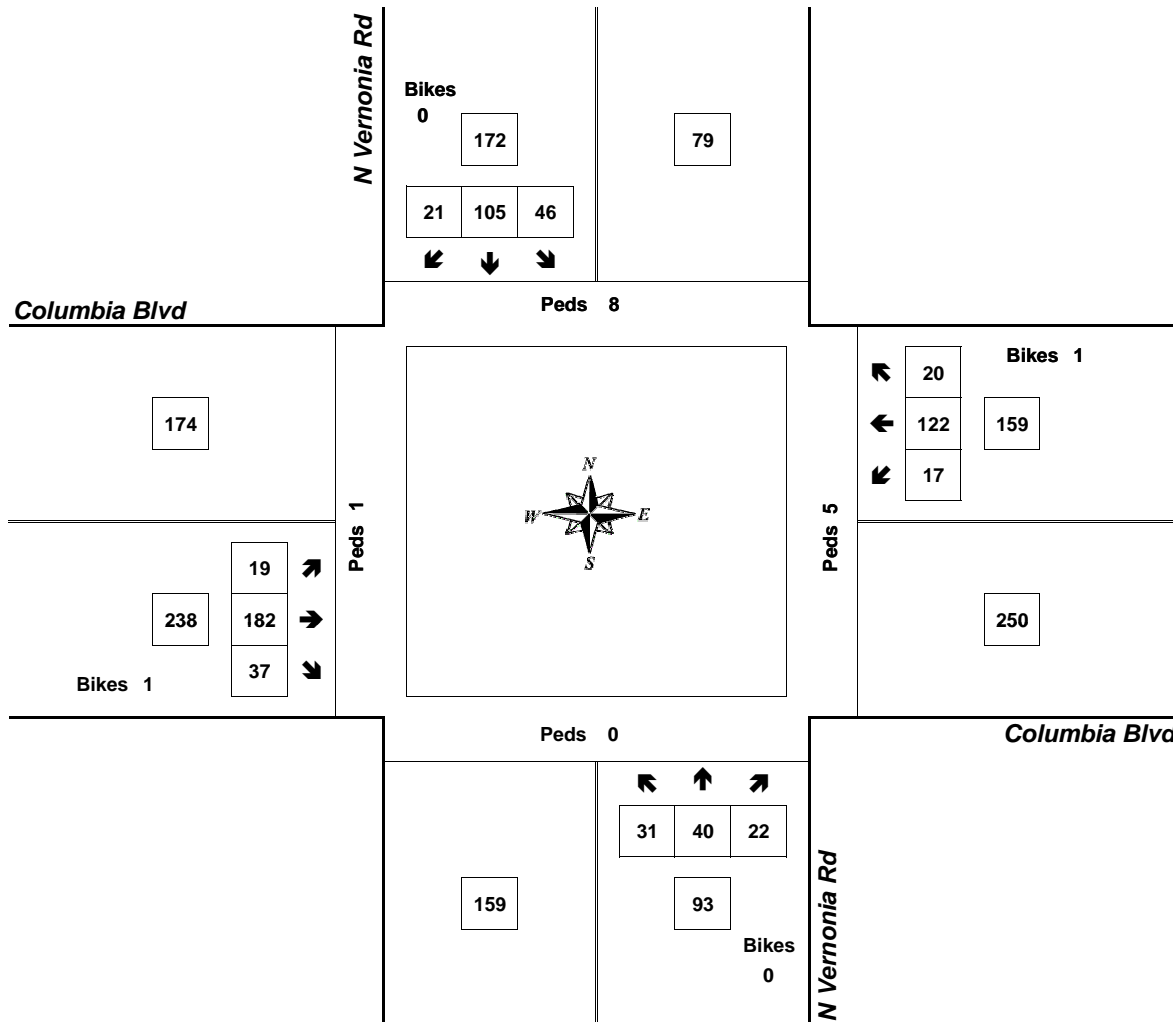


Clay Carney  
(503) 833-2740

### N Vernonia Rd & Columbia Blvd

7:20 AM to 8:20 AM

Tuesday, October 25, 2016



Approach	PHF	HV%	Volume
EB	0.82	2.9%	238
WB	0.80	1.9%	159
NB	0.80	2.2%	93
SB	0.86	4.1%	172
<b>Intersection</b>	<b>0.83</b>	<b>2.9%</b>	<b>662</b>

Count Period: 7:00 AM to 9:00 AM

## Total Vehicle Summary

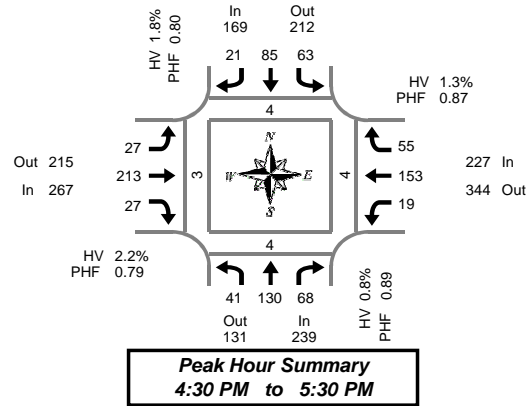


Clay Carney  
(503) 833-2740

## N Vernonia Rd & Columbia Blvd

Tuesday, October 25, 2016

4:00 PM to 6:00 PM



### 5-Minute Interval Summary

4:00 PM to 6:00 PM

Interval Start Time	Northbound N Vernonia Rd				Southbound N Vernonia Rd				Eastbound Columbia Blvd				Westbound Columbia 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	1	6	6	0	2	8	0	0	3	15	1	0	3	6	3	1	54	0	0	0	1
4:05 PM	1	7	3	0	4	6	0	0	2	4	1	0	1	12	2	1	43	0	0	0	0
4:10 PM	6	11	5	0	4	8	0	0	3	17	2	0	0	11	3	0	70	0	0	0	0
4:15 PM	2	8	4	0	3	10	2	0	0	18	1	0	2	10	5	0	65	0	0	1	3
4:20 PM	4	7	5	0	2	0	2	0	3	20	2	0	1	11	4	1	61	0	1	0	0
4:25 PM	1	11	4	0	5	4	0	0	1	14	2	0	0	6	3	0	51	0	0	0	0
4:30 PM	9	10	8	0	3	2	1	0	1	13	0	0	2	10	5	0	64	1	0	1	0
4:35 PM	3	9	4	0	6	4	2	0	1	16	4	0	1	13	7	0	70	0	0	0	0
4:40 PM	3	4	5	0	6	7	3	1	3	13	5	0	0	15	4	0	68	1	1	0	0
4:45 PM	2	13	9	0	3	7	3	0	1	21	2	0	1	12	1	0	75	0	0	0	0
4:50 PM	4	11	3	0	3	10	1	0	2	25	6	0	0	9	7	0	81	0	2	1	0
4:55 PM	2	14	4	0	7	15	1	0	1	26	1	0	2	10	2	0	85	0	0	0	0
5:00 PM	1	13	7	1	5	4	2	0	2	14	1	0	4	12	7	0	72	0	0	2	1
5:05 PM	3	18	5	1	6	7	1	0	3	12	2	0	2	12	5	0	76	0	0	0	0
5:10 PM	3	9	7	0	7	6	1	0	3	10	0	0	2	12	5	0	65	1	0	0	0
5:15 PM	5	9	7	0	7	16	0	0	5	24	3	0	0	11	5	0	92	1	0	0	0
5:20 PM	4	12	7	1	8	4	4	0	4	22	1	1	4	14	2	0	86	0	1	0	2
5:25 PM	2	8	2	0	2	3	2	0	1	17	2	0	1	23	5	0	68	0	0	0	0
5:30 PM	0	8	3	0	2	4	1	0	4	17	3	0	0	12	4	0	58	0	2	0	0
5:35 PM	3	7	4	0	1	8	3	0	3	16	3	0	0	14	3	0	65	1	0	0	0
5:40 PM	4	11	4	0	3	4	1	0	2	10	2	0	0	12	3	0	56	0	0	0	1
5:45 PM	2	6	5	0	8	6	0	0	2	16	4	0	1	14	5	0	69	0	0	0	0
5:50 PM	2	14	2	1	3	6	0	0	4	15	4	0	1	12	7	0	70	0	0	0	0
5:55 PM	1	11	4	0	5	3	4	0	3	15	1	0	4	5	4	0	60	0	0	0	0
Total Survey	68	237	117	4	105	152	34	1	57	390	53	1	32	278	101	3	1,624	5	7	5	8

### 15-Minute Interval Summary

4:00 PM to 6:00 PM

Interval Start Time	Northbound N Vernonia Rd				Southbound N Vernonia Rd				Eastbound Columbia Blvd				Westbound Columbia 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	8	24	14	0	10	22	0	0	8	36	4	0	4	29	8	2	167	0	0	0	1
4:15 PM	7	26	13	0	10	14	4	0	4	52	5	0	3	27	12	1	177	0	1	1	3
4:30 PM	15	23	17	0	15	13	6	1	5	42	9	0	3	38	16	0	202	2	1	1	0
4:45 PM	8	38	16	0	13	32	5	0	4	72	9	0	3	31	10	0	241	0	2	1	0
5:00 PM	7	40	19	2	18	17	4	0	8	36	3	0	8	36	17	0	213	1	0	2	1
5:15 PM	11	29	16	1	17	23	6	0	10	63	6	1	5	48	12	0	246	1	1	0	2
5:30 PM	7	26	11	0	6	16	5	0	9	43	8	0	0	38	10	0	179	1	2	0	1
5:45 PM	5	31	11	1	16	15	4	0	9	46	9	0	6	31	16	0	199	0	0	0	0
Total Survey	68	237	117	4	105	152	34	1	57	390	53	1	32	278	101	3	1,624	5	7	5	8

### Peak Hour Summary

4:30 PM to 5:30 PM

By Approach	Northbound N Vernonia Rd				Southbound N Vernonia Rd				Eastbound Columbia Blvd				Westbound Columbia 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	239	131	370	3	169	212	381	1	267	215	482	1	227	344	571	0	902	4	4	4	3
%HV	0.8%				1.8%				2.2%				1.3%				1.6%				
PHF	0.89				0.80				0.79				0.87				0.92				

By Movement	Northbound N Vernonia Rd				Southbound N Vernonia Rd				Eastbound Columbia Blvd				Westbound Columbia Blvd				Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
Volume	41	130	68	239	63	85	21	169	27	213	27	267	19	153	55	227	902
%HV	0.0%	0.8%	1.5%	0.8%	1.6%	2.4%	0.0%	1.8%	0.0%	1.9%	7.4%	2.2%	0.0%	1.3%	1.8%	1.3%	1.6%
PHF	0.68	0.72	0.81	0.89	0.72	0.66	0.66	0.80	0.56	0.74	0.52	0.79	0.59	0.80	0.81	0.87	0.92

### Rolling Hour Summary

4:00 PM to 6:00 PM

Interval Start Time	Northbound N Vernonia Rd				Southbound N Vernonia Rd				Eastbound Columbia Blvd				Westbound Columbia 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	38	111	60	0	48	81	15	1	21	202	27	0	13	125	46	3	787	2	4	3	4
4:15 PM	37	127	65	2	56	76	19	1	21	202	26	0	17	132	55	1	833	3	4	5	4
4:30 PM	41	130	68	3	63	85	21	1	27	213	27	1	19	153	55	0	902	4	4	4	3
4:45 PM	33	133	62	3	54	88	20	0	31	214	26	1	16	153	49	0	879	3	5	3	4
5:00 PM	30	126	57	4	57	71	19	0	36	188	26	1	19	153	55	0	837	3	3	2	4

## Heavy Vehicle Summary

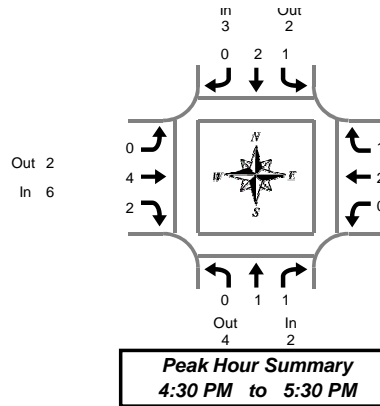


Clay Carney  
(503) 833-2740

### N Vernonia Rd & Columbia Blvd

Tuesday, October 25, 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 N Vernonia Rd				Southbound N Vernonia Rd				Eastbound Columbia Blvd				Westbound Columbia Blvd				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	0	0	0	0	0	0	0	0	0	0	0
4:05 PM	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
4:10 PM	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	1
4:15 PM	0	1	0	1	0	1	0	1	0	0	0	0	0	0	0	0	2
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	0	0	0	0	0	0	0	0
4:30 PM	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	1
4:35 PM	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	2
4:40 PM	0	0	0	0	0	0	0	0	0	3	0	3	0	0	0	0	3
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	0	0	0	0	0	0	0	0	0	1	1	1
4:55 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	1
5:05 PM	0	0	0	0	1	1	0	2	0	0	1	1	0	0	0	0	3
5:10 PM	0	0	0	0	0	0	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	0	0	0	0	0	0
5:20 PM	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	1
5:25 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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	0	0	0	0	0	0	0	0	0
5:50 PM	0	1	1	2	0	0	0	0	0	0	0	0	0	0	0	0	2
5:55 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1
Total Survey	1	3	2	6	1	3	0	4	0	5	2	7	0	3	1	4	21

#### Heavy Vehicle 15-Minute Interval Summary

4:00 PM to 6:00 PM

Interval Start Time	Northbound N Vernonia Rd				Southbound N Vernonia Rd				Eastbound Columbia Blvd				Westbound Columbia Blvd				Interval Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
4:00 PM	1	0	0	1	0	0	0	0	0	1	0	1	0	0	0	0	2
4:15 PM	0	1	0	1	0	1	0	1	0	0	0	0	0	0	0	0	2
4:30 PM	0	0	1	1	0	0	0	0	0	3	0	3	0	2	0	2	6
4:45 PM	0	1	0	1	0	1	0	1	0	0	0	0	0	0	1	1	3
5:00 PM	0	0	0	0	1	1	0	2	0	2	2	0	0	0	0	0	4
5:15 PM	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	1
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	1	1	2	0	0	0	0	0	0	0	0	0	1	0	1	3
Total Survey	1	3	2	6	1	3	0	4	0	5	2	7	0	3	1	4	21

#### Heavy Vehicle Peak Hour Summary

4:30 PM to 5:30 PM

By Approach	Northbound N Vernonia Rd			Southbound N Vernonia Rd			Eastbound Columbia Blvd			Westbound Columbia Blvd			Total
	In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total	
Volume	2	4	6	3	2	5	6	2	8	3	6	9	14
PHF	0.50			0.38			0.50			0.38			0.50

By Movement	Northbound N Vernonia Rd				Southbound N Vernonia Rd				Eastbound Columbia Blvd				Westbound Columbia Blvd				Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
Volume	0	1	1	2	1	2	0	3	0	4	2	6	0	2	1	3	14
PHF	0.00	0.25	0.25	0.50	0.25	0.50	0.00	0.38	0.00	0.33	0.25	0.50	0.00	0.25	0.25	0.38	0.50

#### Heavy Vehicle Rolling Hour Summary

4:00 PM to 6:00 PM

Interval Start Time	Northbound N Vernonia Rd				Southbound N Vernonia Rd				Eastbound Columbia Blvd				Westbound Columbia Blvd				Interval Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
4:00 PM	1	2	1	4	0	2	0	2	0	4	0	4	0	2	1	3	13
4:15 PM	0	2	1	3	1	3	0	4	0	3	2	5	0	2	1	3	15
4:30 PM	0	1	1	2	1	2	0	3	0	4	2	6	0	2	1	3	14
4:45 PM	0	1	0	1	1	2	0	3	0	1	2	3	0	0	1	1	8
5:00 PM	0	1	1	2	1	1	0	2	0	1	2	3	0	1	0	1	8

## Peak Hour Summary

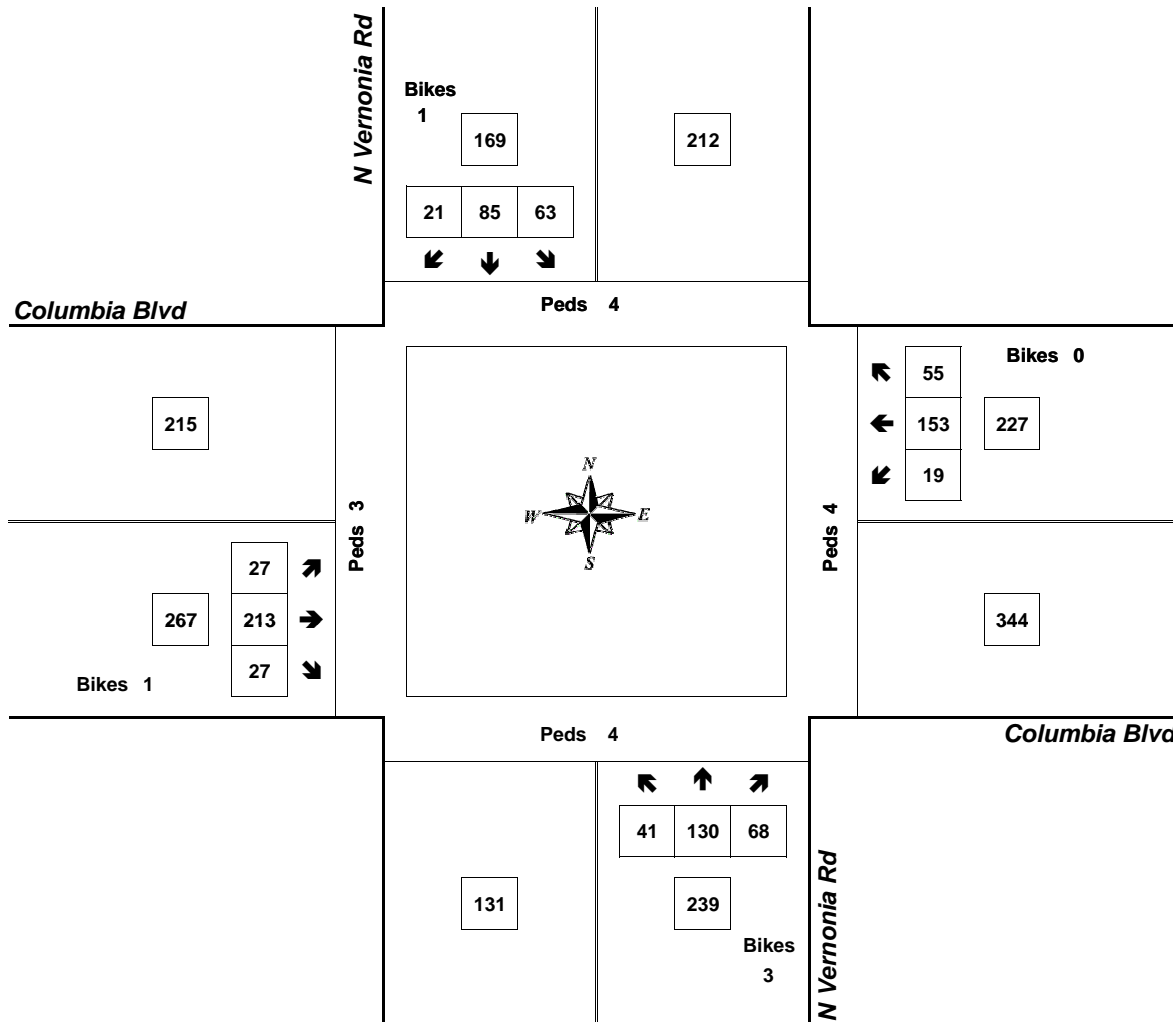


Clay Carney  
(503) 833-2740

### N Vernonia Rd & Columbia Blvd

4:30 PM to 5:30 PM

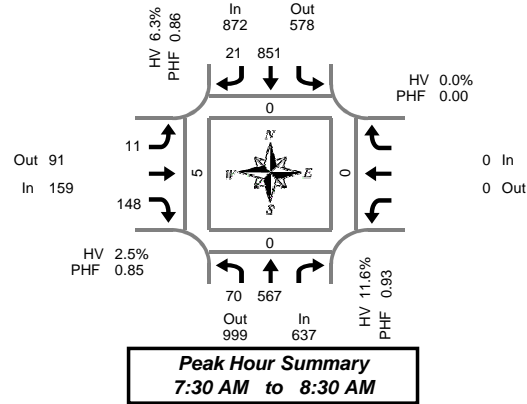
Tuesday, October 25, 2016



Approach	PHF	HV%	Volume
EB	0.79	2.2%	267
WB	0.87	1.3%	227
NB	0.89	0.8%	239
SB	0.80	1.8%	169
Intersection	0.92	1.6%	902

Count Period: 4:00 PM to 6:00 PM

## Total Vehicle Summary



## Hwy 30 & S Vernonia Rd

Tuesday, October 25, 2016

7:00 AM to 9:00 AM

### 5-Minute Interval Summary

7:00 AM to 9:00 AM

Interval Start Time	Northbound Hwy 30				Southbound Hwy 30				Eastbound S Vernonia Rd				Westbound S Vernonia Rd				Interval Total	Pedestrians Crosswalk			
	L	T		Bikes	T	R	Bikes		L	R	Bikes				Bikes			North	South	East	West
7:00 AM	1	25		0	65	0	0	0	16	0					0		107	0	0	0	0
7:05 AM	4	13		0	58	0	0	1	6	0					0		82	0	0	0	1
7:10 AM	2	23		0	71	2	0	0	7	0					0		105	0	0	0	0
7:15 AM	1	26		0	64	0	0	0	16	0					0		107	0	0	0	0
7:20 AM	3	26		0	39	2	0	2	11	0					0		83	0	0	0	0
7:25 AM	3	23		0	65	0	0	0	13	0					0		104	0	0	0	0
7:30 AM	8	37		0	56	1	0	0	5	0					0		107	0	0	0	0
7:35 AM	6	38		0	64	2	0	0	17	0					0		127	0	0	0	0
7:40 AM	6	47		0	69	0	0	1	15	0					0		138	0	0	0	0
7:45 AM	4	51		0	73	2	0	0	8	0					0		138	0	0	0	1
7:50 AM	6	54		0	82	0	0	1	15	0					0		158	0	0	0	2
7:55 AM	4	47		0	81	1	0	1	19	0					0		153	0	0	0	1
8:00 AM	4	49		0	76	1	0	0	11	0					0		141	0	0	0	1
8:05 AM	8	50		0	86	2	0	1	13	0					0		160	0	0	0	0
8:10 AM	5	51		0	64	5	0	3	13	0					0		141	0	0	0	0
8:15 AM	6	49		0	90	6	0	0	15	0					0		166	0	0	0	0
8:20 AM	8	53		0	58	0	0	1	10	0					0		130	0	0	0	0
8:25 AM	5	41		0	52	1	0	3	7	0					0		109	0	0	0	0
8:30 AM	5	44		0	44	1	0	3	10	0					0		107	0	0	0	1
8:35 AM	2	29		0	52	3	0	3	10	0					0		99	0	0	0	0
8:40 AM	2	35		0	46	2	0	0	7	0					0		92	0	0	0	2
8:45 AM	3	46		0	44	0	0	2	9	0					0		104	0	0	0	1
8:50 AM	7	46		0	43	2	0	0	9	0					0		107	0	0	0	2
8:55 AM	4	27		0	47	3	0	1	5	0					0		87	0	0	0	1
Total Survey	107	930		0	1,489	36	0	23	267	0					0		2,852	0	0	0	13

### 15-Minute Interval Summary

7:00 AM to 9:00 AM

Interval Start Time	Northbound Hwy 30				Southbound Hwy 30				Eastbound S Vernonia Rd				Westbound S Vernonia Rd				Interval Total	Pedestrians Crosswalk			
	L	T		Bikes	T	R	Bikes		L	R	Bikes				Bikes			North	South	East	West
7:00 AM	7	61		0	194	2	0	1	29	0					0		294	0	0	0	1
7:15 AM	7	75		0	168	2	0	2	40	0					0		294	0	0	0	0
7:30 AM	20	122		0	189	3	0	1	37	0					0		372	0	0	0	0
7:45 AM	14	152		0	236	3	0	2	42	0					0		449	0	0	0	4
8:00 AM	17	150		0	226	8	0	4	37	0					0		442	0	0	0	1
8:15 AM	19	143		0	200	7	0	4	32	0					0		405	0	0	0	0
8:30 AM	9	108		0	142	6	0	6	27	0					0		298	0	0	0	3
8:45 AM	14	119		0	134	5	0	3	23	0					0		298	0	0	0	4
Total Survey	107	930		0	1,489	36	0	23	267	0					0		2,852	0	0	0	13

### Peak Hour Summary

7:30 AM to 8:30 AM

By Approach	Northbound Hwy 30				Southbound Hwy 30				Eastbound S Vernonia Rd				Westbound S Vernonia 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	637	999	1,636	0	872	578	1,450	0	159	91	250	0	0	0	0	0	1,668	0	0	0	5
%HV	11.6%				6.3%				2.5%				0.0%				8.0%				
PHF	0.93				0.86				0.85				0.00				0.89				

By Movement	Northbound Hwy 30				Southbound Hwy 30				Eastbound S Vernonia Rd				Westbound S Vernonia Rd				Total				
	L	T		Total	T	R	Total		L	R	Total					Total					
Volume	70	567		637	851	21	872	11	148	159						0	1,668				
%HV	4.3%	12.5%		NA	6.5%	0.0%	6.3%	9.1%	NA	2.0%	2.5%	NA	NA	NA		0.0%	8.0%				
PHF	0.88	0.93		0.93	0.88	0.40	0.86	0.69	0.82	0.85						0.00	0.89				

### Rolling Hour Summary

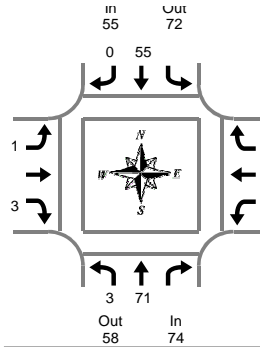
7:00 AM to 9:00 AM

Interval Start Time	Northbound Hwy 30				Southbound Hwy 30				Eastbound S Vernonia Rd				Westbound S Vernonia Rd				Interval Total	Pedestrians Crosswalk			
	L	T		Bikes	T	R	Bikes		L	R	Bikes				Bikes			North	South	East	West
7:00 AM	48	410		0	787	10	0	6	148	0					0		1,409	0	0	0	5
7:15 AM	58	499		0	819	16	0	9	156	0					0		1,557	0	0	0	5
7:30 AM	70	567		0	851	21	0	11	148	0					0		1,668	0	0	0	5
7:45 AM	59	553		0	804	24	0	16	138	0					0		1,594	0	0	0	8
8:00 AM	59	520		0	702	26	0	17	119	0					0		1,443	0	0	0	8

## Heavy Vehicle Summary



Out 3  
In 4



## Hwy 30 & S Vernonia Rd

Tuesday, October 25, 2016

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 Hwy 30			Southbound Hwy 30			Eastbound S Vernonia Rd			Westbound S Vernonia Rd			Interval Total
	L	T	Total	T	R	Total	L	R	Total			Total	
7:00 AM	0	1	1	6	0	6	0	1	1			0	8
7:05 AM	0	4	4	1	0	1	0	0	0			0	5
7:10 AM	0	2	2	10	0	10	0	0	0			0	12
7:15 AM	0	4	4	9	0	9	0	0	0			0	13
7:20 AM	0	1	1	3	1	4	1	1	2			0	7
7:25 AM	0	3	3	4	0	4	0	1	1			0	8
7:30 AM	0	7	7	6	0	6	0	0	0			0	13
7:35 AM	0	6	6	2	0	2	0	0	0			0	8
7:40 AM	1	2	3	8	0	8	0	0	0			0	11
7:45 AM	1	5	6	3	0	3	0	0	0			0	9
7:50 AM	1	6	7	4	0	4	0	0	0			0	11
7:55 AM	0	7	7	9	0	9	0	1	1			0	17
8:00 AM	0	4	4	4	0	4	0	0	0			0	8
8:05 AM	0	6	6	4	0	4	0	1	1			0	11
8:10 AM	0	10	10	7	0	7	0	0	0			0	17
8:15 AM	0	5	5	1	0	1	0	1	1			0	7
8:20 AM	0	8	8	2	0	2	1	0	1			0	11
8:25 AM	0	5	5	5	0	5	0	0	0			0	10
8:30 AM	0	9	9	4	0	4	0	0	0			0	13
8:35 AM	0	5	5	4	0	4	0	0	0			0	9
8:40 AM	0	8	8	4	1	5	0	0	0			0	13
8:45 AM	0	9	9	6	0	6	0	0	0			0	15
8:50 AM	0	4	4	5	0	5	0	0	0			0	9
8:55 AM	0	3	3	3	0	3	0	0	0			0	6
Total Survey	3	124	127	114	2	116	2	6	8			0	251

### Heavy Vehicle 15-Minute Interval Summary 7:00 AM to 9:00 AM

Interval Start Time	Northbound Hwy 30			Southbound Hwy 30			Eastbound S Vernonia Rd			Westbound S Vernonia Rd			Interval Total
	L	T	Total	T	R	Total	L	R	Total			Total	
7:00 AM	0	7	7	17	0	17	0	1	1			0	25
7:15 AM	0	8	8	16	1	17	1	2	3			0	28
7:30 AM	1	15	16	16	0	16	0	0	0			0	32
7:45 AM	2	18	20	16	0	16	0	1	1			0	37
8:00 AM	0	20	20	15	0	15	0	1	1			0	36
8:15 AM	0	18	18	8	0	8	1	1	2			0	28
8:30 AM	0	22	22	12	1	13	0	0	0			0	35
8:45 AM	0	16	16	14	0	14	0	0	0			0	30
Total Survey	3	124	127	114	2	116	2	6	8			0	251

### Heavy Vehicle Peak Hour Summary 7:30 AM to 8:30 AM

By Approach	Northbound Hwy 30			Southbound Hwy 30			Eastbound S Vernonia Rd			Westbound S Vernonia Rd			Total
	In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total	
Volume	74	58	132	55	72	127	4	3	7	0	0	0	133
PHF	0.80			0.81			0.50			0.00			0.90

By Movement	Northbound Hwy 30			Southbound Hwy 30			Eastbound S Vernonia Rd			Westbound S Vernonia Rd			Total
	L	T	Total	T	R	Total	L	R	Total			Total	
Volume	3	71	74	55	0	55	1	3	4			0	133
PHF	0.25	0.77	0.80	0.81	0.00	0.81	0.25	0.38	0.50			0.00	0.90

### Heavy Vehicle Rolling Hour Summary 7:00 AM to 9:00 AM

Interval Start Time	Northbound Hwy 30			Southbound Hwy 30			Eastbound S Vernonia Rd			Westbound S Vernonia Rd			Interval Total
	L	T	Total	T	R	Total	L	R	Total			Total	
7:00 AM	3	48	51	65	1	66	1	4	5			0	122
7:15 AM	3	61	64	63	1	64	1	4	5			0	133
7:30 AM	3	71	74	55	0	55	1	3	4			0	133
7:45 AM	2	78	80	51	1	52	1	3	4			0	136
8:00 AM	0	76	76	49	1	50	1	2	3			0	129



## Total Vehicle Summary

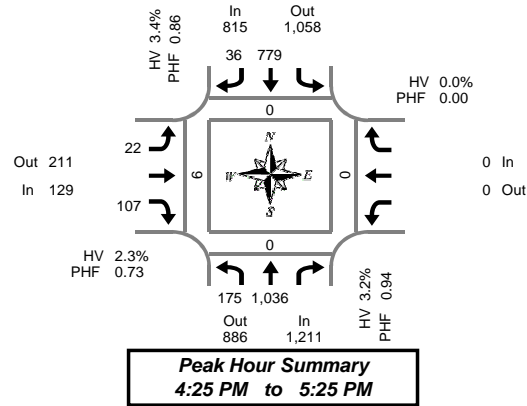


Clay Carney  
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## Hwy 30 & S Vernonia Rd

Tuesday, October 25, 2016

4:00 PM to 6:00 PM



### 5-Minute Interval Summary

4:00 PM to 6:00 PM

Interval Start Time	Northbound Hwy 30				Southbound Hwy 30				Eastbound S Vernonia Rd				Westbound S Vernonia Rd				Interval Total	Pedestrians Crosswalk			
	L	T		Bikes	T	R		Bikes	L		R	Bikes				Bikes		North	South	East	West
4:00 PM	6	62		0	66	1	0	2			9	0				0	146	0	0	0	0
4:05 PM	12	92		0	64	4	0	1			9	0				0	182	0	0	0	1
4:10 PM	14	86		0	59	1	0	1			5	0				0	166	0	0	0	2
4:15 PM	13	75		0	44	2	0	3			13	0				0	150	0	0	0	0
4:20 PM	7	97		0	64	2	0	0			2	0				0	172	0	0	0	0
4:25 PM	13	93		0	52	4	0	1			4	0				0	167	0	0	0	0
4:30 PM	19	96		0	76	2	0	0			6	0				0	199	0	0	0	2
4:35 PM	15	76		0	70	4	1	4			9	0				0	178	0	0	0	0
4:40 PM	14	76		0	61	4	0	4			7	0				0	166	0	0	0	0
4:45 PM	11	89		0	59	2	0	1			9	0				0	171	0	0	0	0
4:50 PM	10	91		0	75	2	0	1			10	0				0	189	0	0	0	0
4:55 PM	18	83		0	49	1	0	5			18	0				0	174	0	0	0	0
5:00 PM	21	99		0	54	1	0	1			7	0				0	183	0	0	0	1
5:05 PM	14	76		0	88	10	0	2			6	0				0	196	0	0	0	2
5:10 PM	14	77		0	78	0	0	1			11	0				0	181	0	0	0	0
5:15 PM	13	90		0	56	5	0	1			11	0				0	176	0	0	0	1
5:20 PM	13	90		0	61	1	0	1			9	0				0	175	0	0	0	0
5:25 PM	9	54		0	61	2	0	0			7	0				0	133	0	0	0	0
5:30 PM	11	70		0	57	3	0	1			8	0				0	150	0	0	0	0
5:35 PM	4	71		0	53	3	0	0			8	0				0	139	0	0	0	2
5:40 PM	14	94		0	51	4	0	2			11	0				0	176	0	0	0	1
5:45 PM	9	69		0	45	2	0	5			8	0				0	138	0	0	0	1
5:50 PM	16	78		0	49	3	0	0			10	0				0	156	0	0	0	0
5:55 PM	18	77		0	44	2	0	1			8	0				0	150	0	0	0	0
Total Survey	308	1,961		0	1,436	65	1	38			205	0				0	4,013	0	0	0	13

### 15-Minute Interval Summary

4:00 PM to 6:00 PM

Interval Start Time	Northbound Hwy 30				Southbound Hwy 30				Eastbound S Vernonia Rd				Westbound S Vernonia Rd				Interval Total	Pedestrians Crosswalk			
	L	T		Bikes	T	R		Bikes	L		R	Bikes				Bikes		North	South	East	West
4:00 PM	32	240		0	189	6	0	4			23	0				0	494	0	0	0	3
4:15 PM	33	265		0	160	8	0	4			19	0				0	489	0	0	0	0
4:30 PM	48	248		0	207	10	1	8			22	0				0	543	0	0	0	2
4:45 PM	39	263		0	183	5	0	7			37	0				0	534	0	0	0	0
5:00 PM	49	252		0	220	11	0	4			24	0				0	560	0	0	0	3
5:15 PM	35	234		0	178	8	0	2			27	0				0	484	0	0	0	1
5:30 PM	29	235		0	161	10	0	3			27	0				0	465	0	0	0	3
5:45 PM	43	224		0	138	7	0	6			26	0				0	444	0	0	0	1
Total Survey	308	1,961		0	1,436	65	1	38			205	0				0	4,013	0	0	0	13

### Peak Hour Summary

4:25 PM to 5:25 PM

By Approach	Northbound Hwy 30				Southbound Hwy 30				Eastbound S Vernonia Rd				Westbound S Vernonia 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	1,211	886	2,097	0	815	1,058	1,873	1	129	211	340	0	0	0	0	0	2,155	0	0	0	6
%HV	3.2%				3.4%				2.3%				0.0%				3.2%				
PHF	0.94				0.86				0.73				0.00				0.96				

By Movement	Northbound Hwy 30				Southbound Hwy 30				Eastbound S Vernonia Rd				Westbound S Vernonia Rd				Total				
	L	T		Total	T	R		Total	L		R	Total				Total					
Volume	175	1,036		1,211	779	36		815	22		107	129				0	2,155				
%HV	1.1%	3.6%		NA	3.6%	0.0%		3.4%	0.0%		2.8%	2.3%		NA	NA	NA	0.0%				
PHF	0.83	0.95		0.94	0.88	0.60		0.86	0.61		0.72	0.73				0.00	0.96				

### Rolling Hour Summary

4:00 PM to 6:00 PM

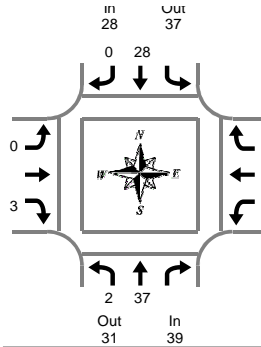
Interval Start Time	Northbound Hwy 30				Southbound Hwy 30				Eastbound S Vernonia Rd				Westbound S Vernonia Rd				Interval Total	Pedestrians Crosswalk			
	L	T		Bikes	T	R		Bikes	L		R	Bikes				Bikes		North	South	East	West
4:00 PM	152	1,016		0	739	29	1	23			101	0				0	2,060	0	0	0	5
4:15 PM	169	1,028		0	770	34	1	23			102	0				0	2,126	0	0	0	5
4:30 PM	171	997		0	788	34	1	21			110	0				0	2,121	0	0	0	6
4:45 PM	152	984		0	742	34	0	16			115	0				0	2,043	0	0	0	7
5:00 PM	156	945		0	697	36	0	15			104	0				0	1,953	0	0	0	8

## Heavy Vehicle Summary



Clay Carney  
(503) 833-2740

Out 2  
In 3



## Hwy 30 & S Vernonia Rd

Tuesday, October 25, 2016

4:00 PM to 6:00 PM

**Peak Hour Summary**  
4:25 PM to 5:25 PM

### Heavy Vehicle 5-Minute Interval Summary

4:00 PM to 6:00 PM

Interval Start Time	Northbound Hwy 30			Southbound Hwy 30			Eastbound S Vernonia Rd			Westbound S Vernonia Rd			Interval Total
	L	T	Total	T	R	Total	L	R	Total			Total	
4:00 PM	0	2	2	5	0	5	0	0	0			0	7
4:05 PM	1	2	3	1	0	1	0	0	0			0	4
4:10 PM	0	3	3	3	0	3	0	0	0			0	6
4:15 PM	0	2	2	4	0	4	0	0	0			0	6
4:20 PM	0	1	1	0	0	0	0	1	1			0	2
4:25 PM	0	7	7	4	0	4	0	0	0			0	11
4:30 PM	1	5	6	2	0	2	0	0	0			0	8
4:35 PM	0	4	4	4	0	4	0	0	0			0	8
4:40 PM	0	3	3	1	0	1	0	0	0			0	4
4:45 PM	1	1	2	1	0	1	0	2	2			0	5
4:50 PM	0	5	5	6	0	6	0	0	0			0	11
4:55 PM	0	3	3	1	0	1	0	0	0			0	4
5:00 PM	0	3	3	3	0	3	0	1	1			0	7
5:05 PM	0	1	1	1	0	1	0	0	0			0	2
5:10 PM	0	2	2	2	0	2	0	0	0			0	4
5:15 PM	0	2	2	2	0	2	0	0	0			0	4
5:20 PM	0	1	1	1	0	1	0	0	0			0	2
5:25 PM	0	2	2	4	0	4	0	0	0			0	6
5:30 PM	0	3	3	3	0	3	0	0	0			0	6
5:35 PM	0	2	2	2	0	2	0	0	0			0	4
5:40 PM	0	6	6	2	0	2	0	0	0			0	8
5:45 PM	0	2	2	0	1	1	0	0	0			0	3
5:50 PM	1	1	2	0	0	0	0	0	0			0	2
5:55 PM	0	1	1	1	0	1	0	0	0			0	2
Total Survey	4	64	68	53	1	54	0	4	4			0	126

### Heavy Vehicle 15-Minute Interval Summary

4:00 PM to 6:00 PM

Interval Start Time	Northbound Hwy 30			Southbound Hwy 30			Eastbound S Vernonia Rd			Westbound S Vernonia Rd			Interval Total
	L	T	Total	T	R	Total	L	R	Total			Total	
4:00 PM	1	7	8	9	0	9	0	0	0			0	17
4:15 PM	0	10	10	8	0	8	0	1	1			0	19
4:30 PM	1	12	13	7	0	7	0	0	0			0	20
4:45 PM	1	9	10	8	0	8	0	2	2			0	20
5:00 PM	0	6	6	6	0	6	0	1	1			0	13
5:15 PM	0	5	5	7	0	7	0	0	0			0	12
5:30 PM	0	11	11	7	0	7	0	0	0			0	18
5:45 PM	1	4	5	1	1	2	0	0	0			0	7
Total Survey	4	64	68	53	1	54	0	4	4			0	126

### Heavy Vehicle Peak Hour Summary

4:25 PM to 5:25 PM

By Approach	Northbound Hwy 30			Southbound Hwy 30			Eastbound S Vernonia Rd			Westbound S Vernonia Rd			Total
	In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total	
Volume	39	31	70	28	37	65	3	2	5	0	0	0	70
PHF	0.57			0.70			0.38			0.00			0.65

By Movement	Northbound Hwy 30			Southbound Hwy 30			Eastbound S Vernonia Rd			Westbound S Vernonia Rd			Total
	L	T	Total	T	R	Total	L	R	Total			Total	
Volume	2	37	39	28	0	28	0	3	3			0	70
PHF	0.50	0.58	0.57	0.70	0.00	0.70	0.00	0.38	0.38			0.00	0.65

### Heavy Vehicle Rolling Hour Summary

4:00 PM to 6:00 PM

Interval Start Time	Northbound Hwy 30			Southbound Hwy 30			Eastbound S Vernonia Rd			Westbound S Vernonia Rd			Interval Total
	L	T	Total	T	R	Total	L	R	Total			Total	
4:00 PM	3	38	41	32	0	32	0	3	3			0	76
4:15 PM	2	37	39	29	0	29	0	4	4			0	72
4:30 PM	2	32	34	28	0	28	0	3	3			0	65
4:45 PM	1	31	32	28	0	28	0	3	3			0	63
5:00 PM	1	26	27	21	1	22	0	1	1			0	50

## Peak Hour Summary

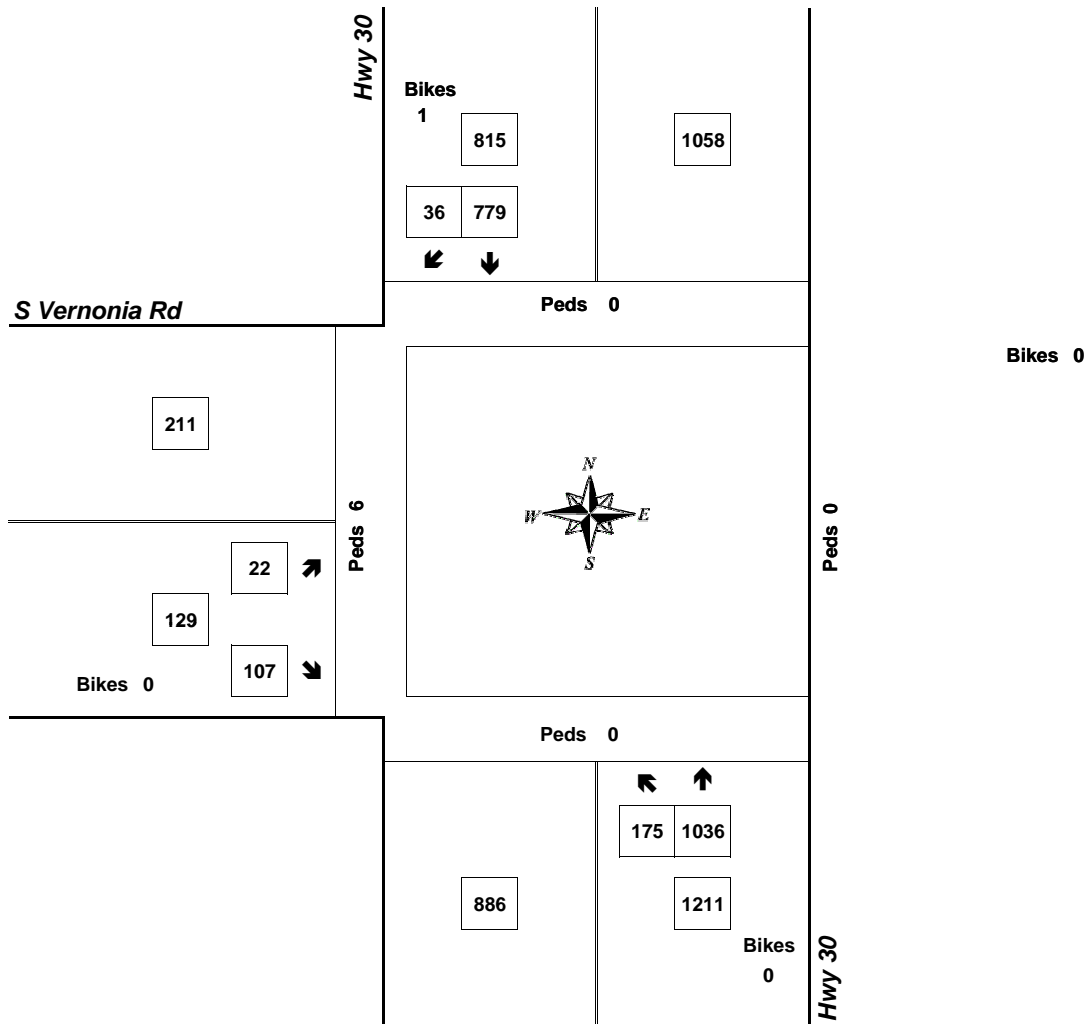


Clay Carney  
(503) 833-2740

### Hwy 30 & S Vernonia Rd

4:25 PM to 5:25 PM

Tuesday, October 25, 2016



Approach	PHF	HV%	Volume
EB	0.73	2.3%	129
WB	0.00	0.0%	0
NB	0.94	3.2%	1,211
SB	0.86	3.4%	815
<b>Intersection</b>	<b>0.96</b>	<b>3.2%</b>	<b>2,155</b>

Count Period: 4:00 PM to 6:00 PM

## Total Vehicle Summary

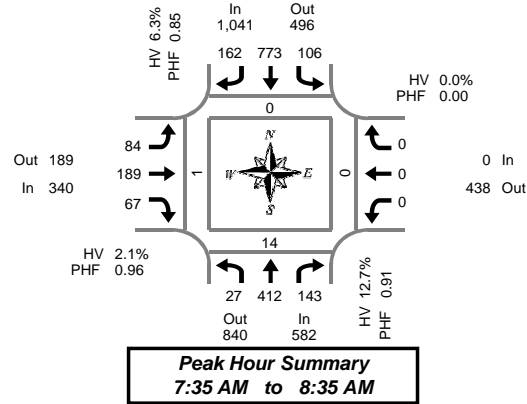


Clay Carney  
(503) 833-2740

## Hwy 30 & Columbia Blvd

Tuesday, October 25, 2016

7:00 AM to 9:00 AM



### 5-Minute Interval Summary

7:00 AM to 9:00 AM

Interval Start Time	Northbound Hwy 30				Southbound Hwy 30				Eastbound Columbia Blvd				Westbound Columbia 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	1	27	3	0	2	61	3	0	0	10	6	0	0	0	0	0	0	1	0	0	0
7:05 AM	0	10	3	0	6	52	7	0	3	12	7	0	0	0	0	0	0	0	1	0	0
7:10 AM	2	14	4	0	3	68	7	0	1	3	4	0	0	0	0	0	0	0	1	0	0
7:15 AM	1	24	5	0	5	55	9	0	0	5	6	0	0	0	0	0	0	1	0	1	0
7:20 AM	2	21	8	0	9	43	13	0	4	8	0	0	0	0	0	0	0	0	0	0	0
7:25 AM	2	15	11	0	16	58	14	0	5	13	6	1	0	0	0	0	0	1	0	0	0
7:30 AM	3	19	8	0	10	46	11	0	4	15	6	0	0	0	0	0	0	1	0	0	1
7:35 AM	2	24	8	0	5	54	17	0	7	12	11	0	0	0	0	0	0	0	1	0	0
7:40 AM	2	31	14	0	10	64	17	0	12	17	10	0	0	0	0	0	0	0	2	0	0
7:45 AM	3	36	9	0	14	69	17	0	6	10	4	0	0	0	0	0	0	0	3	0	0
7:50 AM	2	34	13	0	12	71	13	0	7	18	4	0	0	0	0	0	0	0	0	0	0
7:55 AM	4	37	16	0	17	76	18	0	9	21	4	0	0	0	0	0	0	0	2	0	0
8:00 AM	2	39	8	0	8	71	9	0	2	16	6	0	0	0	0	0	0	0	1	0	0
8:05 AM	3	37	14	0	5	74	13	0	4	19	7	0	0	0	0	0	0	0	0	0	0
8:10 AM	3	33	10	0	4	58	14	0	12	10	5	0	0	0	0	0	0	0	3	0	1
8:15 AM	1	40	13	0	11	93	12	0	11	8	4	0	0	0	0	0	0	0	0	0	0
8:20 AM	2	40	9	0	8	52	11	0	5	19	3	0	0	0	0	0	0	0	0	0	0
8:25 AM	3	24	17	0	8	49	11	0	4	25	7	0	0	0	0	0	0	0	2	0	0
8:30 AM	0	37	12	0	4	42	10	0	5	14	2	0	0	0	0	0	0	0	0	0	0
8:35 AM	1	14	12	0	2	44	12	0	5	17	6	0	0	0	0	0	0	0	0	0	0
8:40 AM	0	25	10	0	11	49	6	0	6	13	5	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	35	15	0	9	37	5	0	4	8	2	0	0	0	0	0	0	1	2	0	0
8:50 AM	1	36	10	0	4	48	13	0	4	18	1	0	0	0	0	0	0	0	3	0	0
8:55 AM	2	18	8	0	8	51	6	0	6	15	1	0	0	0	0	0	0	0	2	0	1
Total Survey	42	670	240	0	191	1,385	268	0	126	326	117	1	0	0	0	0	3,365	5	23	1	3

### 15-Minute Interval Summary

7:00 AM to 9:00 AM

Interval Start Time	Northbound Hwy 30				Southbound Hwy 30				Eastbound Columbia Blvd				Westbound Columbia 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	3	51	10	0	11	181	17	0	4	25	17	0	0	0	0	0	0	1	2	0	0
7:15 AM	5	60	24	0	30	156	36	0	9	26	12	1	0	0	0	0	0	2	0	1	0
7:30 AM	7	74	30	0	25	164	45	0	23	44	27	0	0	0	0	0	0	1	3	0	1
7:45 AM	9	107	38	0	43	216	48	0	22	49	12	0	0	0	0	0	0	0	5	0	0
8:00 AM	8	109	32	0	17	203	36	0	18	45	18	0	0	0	0	0	0	0	4	0	1
8:15 AM	6	104	39	0	27	194	34	0	20	52	14	0	0	0	0	0	0	0	2	0	0
8:30 AM	1	76	34	0	17	135	28	0	16	44	13	0	0	0	0	0	0	0	0	0	0
8:45 AM	3	89	33	0	21	136	24	0	14	41	4	0	0	0	0	0	0	1	7	0	1
Total Survey	42	670	240	0	191	1,385	268	0	126	326	117	1	0	0	0	0	3,365	5	23	1	3

### Peak Hour Summary

7:35 AM to 8:35 AM

By Approach	Northbound Hwy 30				Southbound Hwy 30				Eastbound Columbia Blvd				Westbound Columbia 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	582	840	1,422	0	1,041	496	1,537	0	340	189	529	0	0	438	438	0	1,963	0	14	0	1
%HV	12.7%				6.3%				2.1%				0.0%				7.5%				
PHF	0.91				0.85				0.96				0.00				0.90				

By Movement	Northbound Hwy 30				Southbound Hwy 30				Eastbound Columbia Blvd				Westbound Columbia Blvd				Total				
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total					
Volume	27	412	143	582	106	773	162	1,041	84	189	67	340	0	0	0	0	1,963				
%HV	0.0%	15.3%	7.7%	12.7%	7.5%	7.0%	2.5%	6.3%	3.6%	1.1%	3.0%	2.1%	0.0%	0.0%	0.0%	0.0%	7.5%				
PHF	0.75	0.91	0.92	0.91	0.62	0.86	0.79	0.85	0.75	0.81	0.67	0.96	0.00	0.00	0.00	0.00	0.90				

### Rolling Hour Summary

7:00 AM to 9:00 AM

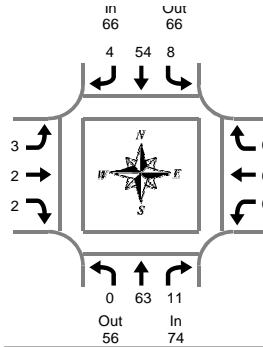
Interval Start Time	Northbound Hwy 30				Southbound Hwy 30				Eastbound Columbia Blvd				Westbound Columbia Blvd				Interval Total	Pedestrians Crosswalk			
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes		North	South	East	West
7:00 AM	24	292	102	0	109	717	146	0	58	144	68	1	0	0	0	0	1,660	4	10	1	1
7:15 AM	29	350	124	0	115	739	165	0	72	164	69	1	0	0	0	0	1,827	3	12	1	2
7:30 AM	30	394	139	0	112	777	163	0	83	190	71	0	0	0	0	0	1,959	1	14	0	2
7:45 AM	24	396	143	0	104	748	146	0	76	190	57	0	0	0	0	0	1,884	0	11	0	1
8:00 AM	18	378	138	0	82	668	122	0	68	182	49	0	0	0	0	0	1,705	1	13	0	2

## Heavy Vehicle Summary



Clay Carney  
(503) 833-2740

Out 4  
In 7



**Peak Hour Summary**  
7:35 AM to 8:35 AM

## Hwy 30 & Columbia Blvd

Tuesday, October 25, 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 Hwy 30				Southbound Hwy 30				Eastbound Columbia Blvd				Westbound Columbia 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	0	5	0	5	0	1	0	1	0	0	0	0	7
7:05 AM	0	2	0	2	1	1	0	2	0	0	0	0	0	0	0	0	4
7:10 AM	0	3	0	3	0	11	1	12	0	0	1	1	0	0	0	0	16
7:15 AM	0	5	0	5	1	6	0	7	0	0	0	0	0	0	0	0	12
7:20 AM	0	5	0	5	2	4	2	8	0	0	0	0	0	0	0	0	13
7:25 AM	0	4	1	5	2	3	0	5	0	0	1	1	0	0	0	0	11
7:30 AM	1	5	0	6	1	5	0	6	0	0	0	0	0	0	0	0	12
7:35 AM	0	4	0	4	1	2	1	4	0	0	0	0	0	0	0	0	8
7:40 AM	0	4	0	4	0	7	1	8	1	0	0	1	0	0	0	0	13
7:45 AM	0	3	0	3	0	3	1	4	0	1	0	1	0	0	0	0	8
7:50 AM	0	5	3	8	1	5	0	6	0	0	0	0	0	0	0	0	14
7:55 AM	0	6	1	7	2	10	1	13	0	0	0	0	0	0	0	0	20
8:00 AM	0	4	1	5	1	4	0	5	0	0	0	0	0	0	0	0	10
8:05 AM	0	3	1	4	0	4	0	4	0	1	1	2	0	0	0	0	10
8:10 AM	0	4	1	5	0	7	0	7	0	0	1	1	0	0	0	0	13
8:15 AM	0	9	2	11	1	1	0	2	1	0	0	1	0	0	0	0	14
8:20 AM	0	9	0	9	1	2	0	3	1	0	0	1	0	0	0	0	13
8:25 AM	0	3	2	5	1	5	0	6	0	0	0	0	0	0	0	0	11
8:30 AM	0	9	0	9	0	4	0	4	0	0	0	0	0	0	0	0	13
8:35 AM	0	1	0	1	2	3	0	5	0	0	0	0	0	0	0	0	6
8:40 AM	0	11	1	12	3	5	0	8	0	0	0	0	0	0	0	0	20
8:45 AM	0	6	3	9	0	6	0	6	0	0	0	0	0	0	0	0	15
8:50 AM	0	4	0	4	0	5	0	5	0	0	0	0	0	0	0	0	9
8:55 AM	1	3	0	4	0	4	0	4	0	0	0	0	0	0	0	0	8
Total Survey	2	113	16	131	20	112	7	139	3	3	4	10	0	0	0	0	280

### Heavy Vehicle 15-Minute Interval Summary 7:00 AM to 9:00 AM

Interval Start Time	Northbound Hwy 30				Southbound Hwy 30				Eastbound Columbia Blvd				Westbound Columbia Blvd				Interval Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
7:00 AM	0	6	0	6	1	17	1	19	0	1	1	2	0	0	0	0	27
7:15 AM	0	14	1	15	5	13	2	20	0	0	1	1	0	0	0	0	36
7:30 AM	1	13	0	14	2	14	2	18	1	0	0	1	0	0	0	0	33
7:45 AM	0	14	4	18	3	18	2	23	0	1	0	1	0	0	0	0	42
8:00 AM	0	11	3	14	1	15	0	16	0	1	2	3	0	0	0	0	33
8:15 AM	0	21	4	25	3	8	0	11	2	0	0	2	0	0	0	0	38
8:30 AM	0	21	1	22	5	12	0	17	0	0	0	0	0	0	0	0	39
8:45 AM	1	13	3	17	0	15	0	15	0	0	0	0	0	0	0	0	32
Total Survey	2	113	16	131	20	112	7	139	3	3	4	10	0	0	0	0	280

### Heavy Vehicle Peak Hour Summary 7:35 AM to 8:35 AM

By Approach	Northbound Hwy 30			Southbound Hwy 30			Eastbound Columbia Blvd			Westbound Columbia Blvd			Total
	In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total	
Volume	74	56	130	66	66	132	7	4	11	0	21	21	147
PHF	0.74			0.69			0.44			0.00			0.84

By Movement	Northbound Hwy 30				Southbound Hwy 30				Eastbound Columbia Blvd				Westbound Columbia Blvd				Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
Volume	0	63	11	74	8	54	4	66	3	2	2	7	0	0	0	0	147
PHF	0.00	0.72	0.55	0.74	0.50	0.71	0.33	0.69	0.38	0.50	0.25	0.44	0.00	0.00	0.00	0.00	0.84

### Heavy Vehicle Rolling Hour Summary 7:00 AM to 9:00 AM

Interval Start Time	Northbound Hwy 30				Southbound Hwy 30				Eastbound Columbia Blvd				Westbound Columbia Blvd				Interval Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
7:00 AM	1	47	5	53	11	62	7	80	1	2	2	5	0	0	0	0	138
7:15 AM	1	52	8	61	11	60	6	77	1	2	3	6	0	0	0	0	144
7:30 AM	1	59	11	71	9	55	4	68	3	2	2	7	0	0	0	0	146
7:45 AM	0	67	12	79	12	53	2	67	2	2	2	6	0	0	0	0	152
8:00 AM	1	66	11	78	9	50	0	59	2	1	2	5	0	0	0	0	142

## Peak Hour Summary

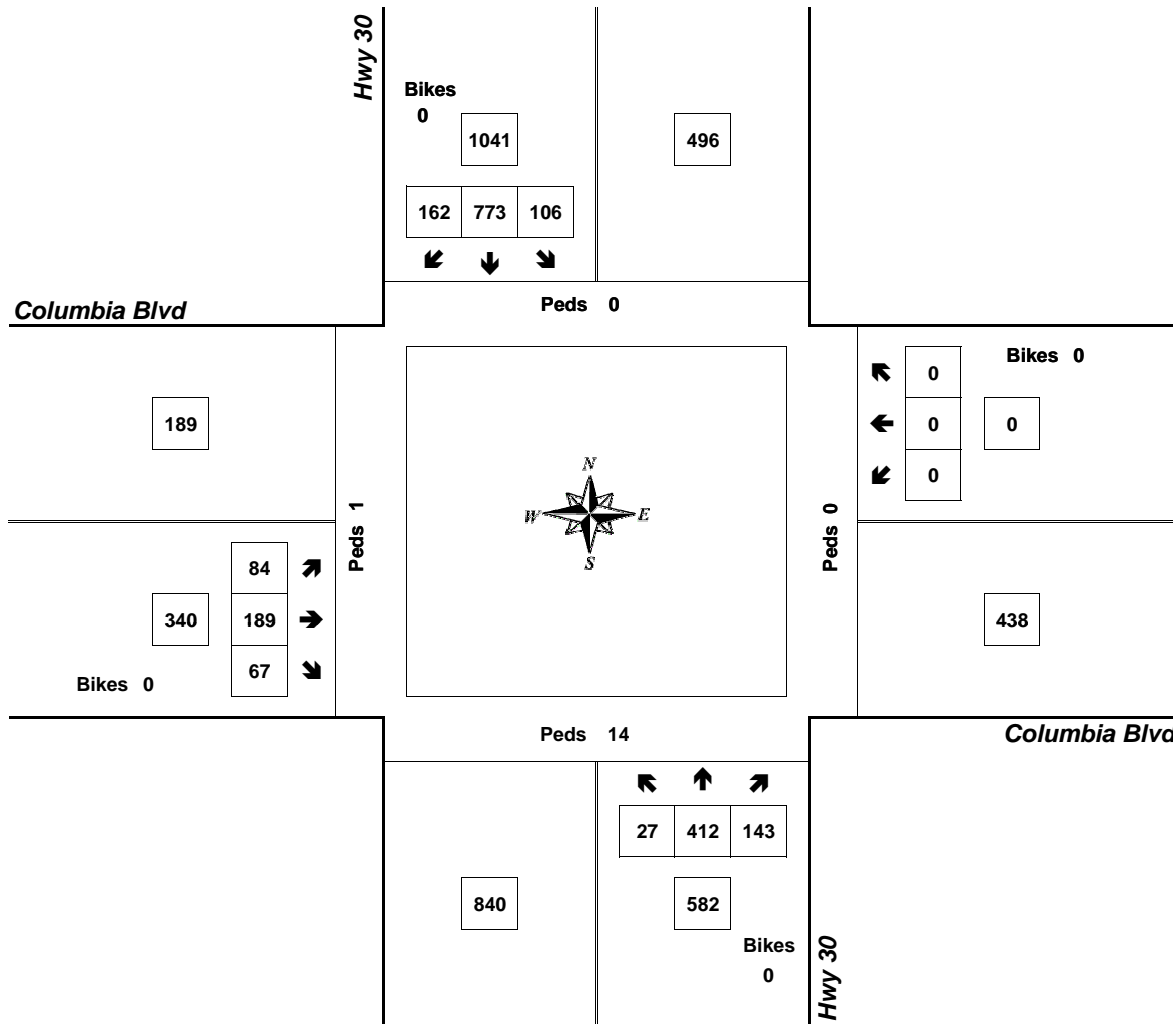


Clay Carney  
(503) 833-2740

### Hwy 30 & Columbia Blvd

7:35 AM to 8:35 AM

Tuesday, October 25, 2016



Approach	PHF	HV%	Volume
EB	0.96	2.1%	340
WB	0.00	0.0%	0
NB	0.91	12.7%	582
SB	0.85	6.3%	1,041
<b>Intersection</b>	<b>0.90</b>	<b>7.5%</b>	<b>1,963</b>

Count Period: 7:00 AM to 9:00 AM

## Total Vehicle Summary



Clay Carney  
(503) 833-2740

## Hwy 30 & Columbia Blvd

Tuesday, October 25, 2016

4:00 PM to 6:00 PM

### 5-Minute Interval Summary

4:00 PM to 6:00 PM

Interval Start Time	Northbound Hwy 30				Southbound Hwy 30				Eastbound Columbia Blvd				Westbound Columbia 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	6	49	15	0	5	55	13	0	1	14	4	0	0	0	0	0	162	0	1	0	0
4:05 PM	4	67	16	0	6	62	12	0	7	9	2	0	0	0	0	1	185	1	3	0	0
4:10 PM	0	64	17	0	10	56	17	0	10	17	4	1	0	0	0	0	195	0	1	0	1
4:15 PM	7	57	19	0	9	49	13	0	5	16	3	1	0	0	0	0	178	1	3	0	0
4:20 PM	2	67	16	0	6	56	20	0	7	19	1	0	0	0	0	0	194	4	2	0	0
4:25 PM	2	54	16	0	4	45	12	0	15	21	6	0	0	0	0	0	175	1	3	0	1
4:30 PM	3	76	23	0	17	82	14	0	6	10	3	0	0	0	0	0	234	0	4	0	3
4:35 PM	7	60	19	0	9	63	16	0	10	22	3	0	0	0	0	0	209	0	2	0	1
4:40 PM	2	43	15	0	4	54	19	0	11	21	4	0	0	0	0	0	173	0	2	0	1
4:45 PM	5	67	18	0	22	69	14	0	10	21	2	0	0	0	0	0	228	0	3	0	0
4:50 PM	2	60	30	0	12	63	20	0	5	22	6	0	0	0	0	0	220	0	1	0	0
4:55 PM	5	61	12	0	3	40	18	0	17	34	5	0	0	0	0	0	195	1	0	0	1
5:00 PM	4	69	18	0	9	62	16	0	6	22	4	0	0	0	0	0	210	0	0	0	0
5:05 PM	3	61	21	0	6	87	26	0	5	22	4	0	0	0	0	0	235	0	1	0	1
5:10 PM	4	62	12	0	8	78	21	0	6	23	4	0	0	0	0	0	218	1	4	0	0
5:15 PM	10	76	17	0	13	64	18	0	8	19	3	0	0	0	0	0	228	0	0	0	0
5:20 PM	3	50	8	0	2	63	19	0	7	22	5	0	0	0	0	0	179	0	2	0	0
5:25 PM	2	50	18	0	3	55	27	0	11	16	8	0	0	0	0	0	190	1	4	0	4
5:30 PM	4	70	13	0	3	56	15	0	7	14	5	0	0	0	0	0	187	1	2	0	0
5:35 PM	1	53	8	0	1	53	12	0	8	10	5	0	0	0	0	0	151	0	0	0	0
5:40 PM	5	78	9	0	4	56	12	0	9	14	2	0	0	0	0	0	189	0	3	0	0
5:45 PM	3	51	21	0	7	45	17	0	10	15	7	0	0	0	0	0	176	0	2	0	2
5:50 PM	2	64	17	0	8	45	17	0	11	20	6	0	0	0	0	0	190	0	1	0	0
5:55 PM	3	37	16	0	8	42	10	0	6	27	2	0	0	0	0	0	151	0	0	0	0
Total Survey	89	1,446	394	0	179	1,400	398	0	198	450	98	2	0	0	0	1	4,652	11	44	0	15

### 15-Minute Interval Summary

4:00 PM to 6:00 PM

Interval Start Time	Northbound Hwy 30				Southbound Hwy 30				Eastbound Columbia Blvd				Westbound Columbia 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	10	180	48	0	21	173	42	0	18	40	10	1	0	0	0	1	542	1	5	0	1
4:15 PM	11	178	51	0	19	150	45	0	27	56	10	1	0	0	0	0	547	6	8	0	1
4:30 PM	12	179	57	0	30	199	49	0	27	53	10	0	0	0	0	0	616	0	8	0	5
4:45 PM	12	188	60	0	37	172	52	0	32	77	13	0	0	0	0	0	643	1	4	0	1
5:00 PM	11	192	51	0	23	227	63	0	17	67	12	0	0	0	0	0	663	1	5	0	1
5:15 PM	15	176	43	0	18	182	64	0	26	57	16	0	0	0	0	0	597	1	6	0	4
5:30 PM	10	201	30	0	8	165	39	0	24	38	12	0	0	0	0	0	527	1	5	0	0
5:45 PM	8	152	54	0	23	132	44	0	27	62	15	0	0	0	0	0	517	0	3	0	2
Total Survey	89	1,446	394	0	179	1,400	398	0	198	450	98	2	0	0	0	1	4,652	11	44	0	15

### Peak Hour Summary

4:20 PM to 5:20 PM

By Approach	Northbound Hwy 30				Southbound Hwy 30				Eastbound Columbia Blvd				Westbound Columbia 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	1,022	808	1,830	0	1,090	862	1,952	0	407	263	670	0	0	586	586	0	2,519	7	22	0	8
%HV	3.7%				3.1%				1.2%				0.0%				3.1%				
PHF	0.96				0.85				0.83				0.00				0.92				

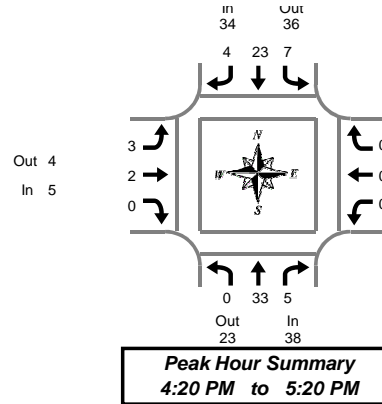
By Movement	Northbound Hwy 30				Southbound Hwy 30				Eastbound Columbia Blvd				Westbound Columbia Blvd				Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
Volume	49	756	217	1,022	113	763	214	1,090	106	256	45	407	0	0	0	0	2,519
%HV	0.0%	4.4%	2.3%	3.7%	6.2%	3.0%	1.9%	3.1%	2.8%	0.8%	0.0%	1.2%	0.0%	0.0%	0.0%	0.0%	3.1%
PHF	0.72	0.95	0.86	0.96	0.74	0.83	0.82	0.85	0.83	0.82	0.75	0.83	0.00	0.00	0.00	0.00	0.92

### Rolling Hour Summary

4:00 PM to 6:00 PM

Interval Start Time	Northbound Hwy 30				Southbound Hwy 30				Eastbound Columbia Blvd				Westbound Columbia 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	45	725	216	0	107	694	188	0	104	226	43	2	0	0	0	1	2,348	8	25	0	8
4:15 PM	46	737	219	0	109	748	209	0	103	253	45	1	0	0	0	0	2,469	8	25	0	8
4:30 PM	50	735	211	0	108	780	228	0	102	254	51	0	0	0	0	0	2,519	3	23	0	11
4:45 PM	48	757	184	0	86	746	218	0	99	239	53	0	0	0	0	0	2,430	4	20	0	6
5:00 PM	44	721	178	0	72	706	210	0	94	224	55	0	0	0	0	0	2,304	3	19	0	7

## Heavy Vehicle Summary



## Hwy 30 & Columbia Blvd

Tuesday, October 25, 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 Hwy 30				Southbound Hwy 30				Eastbound Columbia Blvd				Westbound Columbia 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	2	5	0	7	0	0	0	0	0	0	0	0	10
4:05 PM	0	2	0	2	0	3	0	3	1	0	0	1	0	0	0	0	6
4:10 PM	0	1	2	3	2	3	0	5	0	1	0	1	0	0	0	0	9
4:15 PM	0	2	0	2	2	3	0	5	0	1	1	2	0	0	0	0	9
4:20 PM	0	2	0	2	1	0	0	1	0	0	0	0	0	0	0	0	3
4:25 PM	0	2	1	3	0	4	0	4	0	0	0	0	0	0	0	0	7
4:30 PM	0	6	1	7	1	2	1	4	0	0	0	0	0	0	0	0	11
4:35 PM	0	3	0	3	2	5	0	7	0	0	0	0	0	0	0	0	10
4:40 PM	0	2	0	2	0	0	1	1	2	1	0	3	0	0	0	0	6
4:45 PM	0	3	0	3	0	1	0	1	0	0	0	0	0	0	0	0	4
4:50 PM	0	4	1	5	2	5	2	9	0	0	0	0	0	0	0	0	14
4:55 PM	0	3	0	3	0	1	0	1	1	0	0	1	0	0	0	0	5
5:00 PM	0	3	2	5	0	2	0	2	0	0	0	0	0	0	0	0	7
5:05 PM	0	1	0	1	1	0	0	1	0	1	0	1	0	0	0	0	3
5:10 PM	0	2	0	2	0	1	0	1	0	0	0	0	0	0	0	0	3
5:15 PM	0	2	0	2	0	2	0	2	0	0	0	0	0	0	0	0	4
5:20 PM	0	1	0	1	0	1	0	1	0	0	0	0	0	0	0	0	2
5:25 PM	0	1	0	1	0	3	0	3	1	0	1	2	0	0	0	0	6
5:30 PM	0	4	0	4	0	3	0	3	0	1	0	1	0	0	0	0	8
5:35 PM	0	2	0	2	0	1	0	1	0	0	0	0	0	0	0	0	3
5:40 PM	0	6	0	6	0	2	0	2	0	0	0	0	0	0	0	0	8
5:45 PM	0	2	2	4	0	1	0	1	0	0	0	0	0	0	0	0	5
5:50 PM	0	1	1	2	0	0	0	0	0	0	0	0	0	0	0	0	2
5:55 PM	0	1	0	1	0	0	0	0	0	1	0	1	0	0	0	0	2
Total Survey	1	58	10	69	13	48	4	65	5	6	2	13	0	0	0	0	147

### Heavy Vehicle 15-Minute Interval Summary

4:00 PM to 6:00 PM

Interval Start Time	Northbound Hwy 30				Southbound Hwy 30				Eastbound Columbia Blvd				Westbound Columbia Blvd				Interval Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
4:00 PM	1	5	2	8	4	11	0	15	1	1	0	2	0	0	0	0	25
4:15 PM	0	6	1	7	3	7	0	10	0	1	1	2	0	0	0	0	19
4:30 PM	0	11	1	12	3	7	2	12	2	1	0	3	0	0	0	0	27
4:45 PM	0	10	1	11	2	7	2	11	1	0	0	1	0	0	0	0	23
5:00 PM	0	6	2	8	1	3	0	4	0	1	0	1	0	0	0	0	13
5:15 PM	0	4	0	4	0	6	0	6	1	0	1	2	0	0	0	0	12
5:30 PM	0	12	0	12	0	6	0	6	0	1	0	1	0	0	0	0	19
5:45 PM	0	4	3	7	0	1	0	1	0	1	0	1	0	0	0	0	9
Total Survey	1	58	10	69	13	48	4	65	5	6	2	13	0	0	0	0	147

### Heavy Vehicle Peak Hour Summary

4:20 PM to 5:20 PM

By Approach	Northbound Hwy 30			Southbound Hwy 30			Eastbound Columbia Blvd			Westbound Columbia Blvd			Total
	In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total	
Volume	38	23	61	34	36	70	5	4	9	0	14	14	77
PHF	0.73			0.57			0.42			0.00			0.69

By Movement	Northbound Hwy 30				Southbound Hwy 30				Eastbound Columbia Blvd				Westbound Columbia Blvd				Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
Volume	0	33	5	38	7	23	4	34	3	2	0	5	0	0	0	0	77
PHF	0.00	0.75	0.42	0.73	0.58	0.52	0.33	0.57	0.38	0.50	0.00	0.42	0.00	0.00	0.00	0.00	0.69

### Heavy Vehicle Rolling Hour Summary

4:00 PM to 6:00 PM

Interval Start Time	Northbound Hwy 30				Southbound Hwy 30				Eastbound Columbia Blvd				Westbound Columbia Blvd				Interval Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
4:00 PM	1	32	5	38	12	32	4	48	4	3	1	8	0	0	0	0	94
4:15 PM	0	33	5	38	9	24	4	37	3	3	1	7	0	0	0	0	82
4:30 PM	0	31	4	35	6	23	4	33	4	2	1	7	0	0	0	0	75
4:45 PM	0	32	3	35	3	22	2	27	2	2	1	5	0	0	0	0	67
5:00 PM	0	26	5	31	1	16	0	17	1	3	1	5	0	0	0	0	53

## Peak Hour Summary

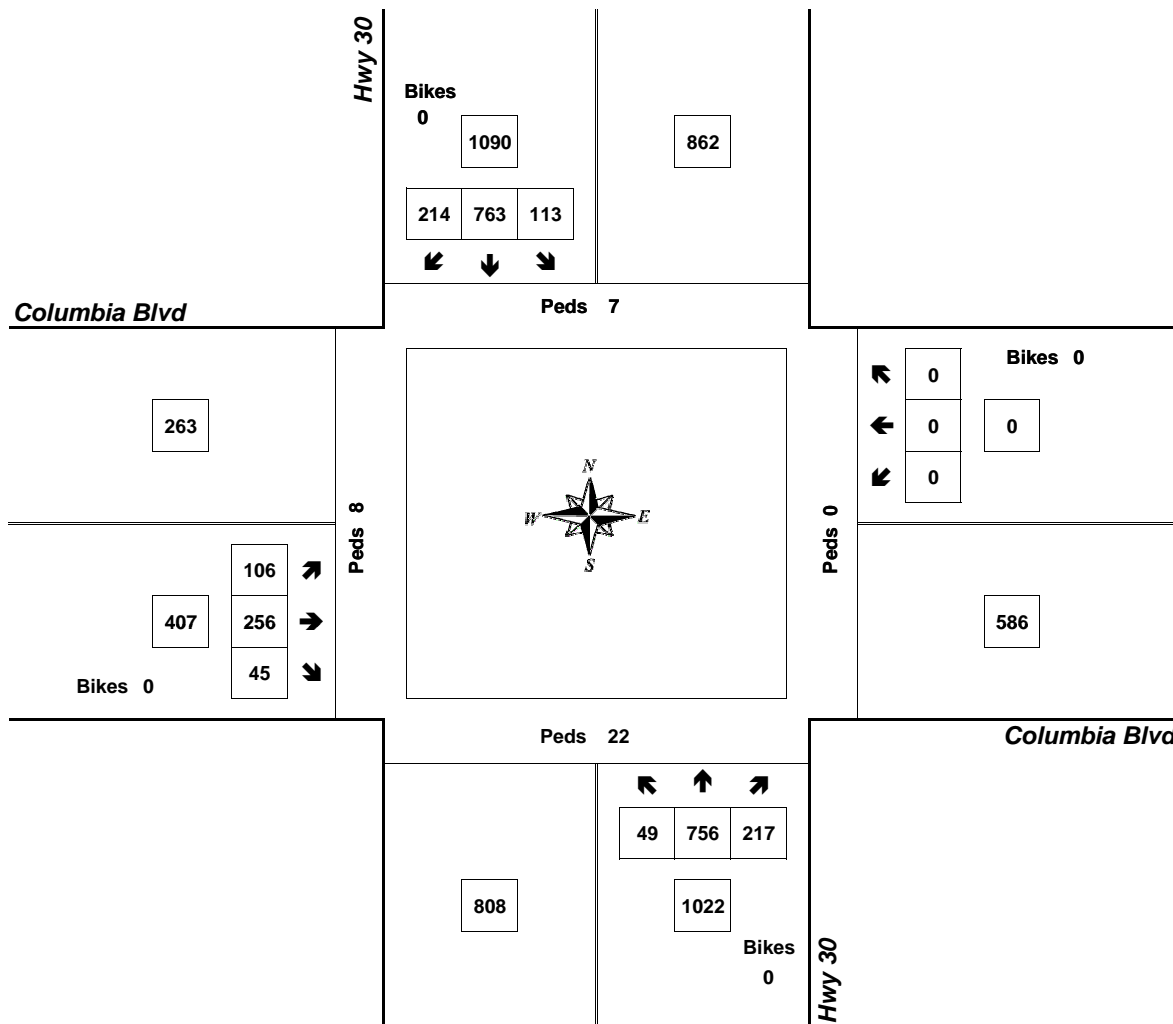


Clay Carney  
(503) 833-2740

### Hwy 30 & Columbia Blvd

4:20 PM to 5:20 PM

Tuesday, October 25, 2016



Approach	PHF	HV%	Volume
EB	0.83	1.2%	407
WB	0.00	0.0%	0
NB	0.96	3.7%	1,022
SB	0.85	3.1%	1,090
<b>Intersection</b>	<b>0.92</b>	<b>3.1%</b>	<b>2,519</b>

Count Period: 4:00 PM to 6:00 PM



## TRIP GENERATION CALCULATIONS

*Land Use:* Single-Family Detached Housing  
*Land Use Code:* 210  
*Variable:* Dwelling Units  
*Variable Value:* 62

### AM PEAK HOUR

*Trip Equation:*  $T = 0.70(X) + 9.74$

	Enter	Exit	Total
Directional Distribution	25%	75%	
Trip Ends	<b>13</b>	<b>40</b>	<b>53</b>

### PM PEAK HOUR

*Trip Equation:*  $\ln(T) = 0.90\ln(X) + 0.51$

	Enter	Exit	Total
Directional Distribution	63%	37%	
Trip Ends	<b>43</b>	<b>25</b>	<b>68</b>

### WEEKDAY

*Trip Equation:*  $\ln(T) = 0.92\ln(X) + 2.72$

	Enter	Exit	Total
Directional Distribution	50%	50%	
Trip Ends	<b>338</b>	<b>338</b>	<b>676</b>

### SATURDAY

*Trip Equation:*  $\ln(T) = 0.93\ln(X) + 2.64$

	Enter	Exit	Total
Directional Distribution	50%	50%	
Trip Ends	<b>325</b>	<b>325</b>	<b>650</b>



## TRIP GENERATION CALCULATIONS

*Land Use:* Single-Family Detached Housing  
*Land Use Code:* 210  
*Variable:* Dwelling Units  
*Variable Value:* 150

### AM PEAK HOUR

*Trip Equation:*  $T = 0.70(X) + 9.74$

	Enter	Exit	Total
Directional Distribution	25%	75%	
Trip Ends	<b>29</b>	<b>86</b>	<b>115</b>

### PM PEAK HOUR

*Trip Equation:*  $\ln(T) = 0.90\ln(X) + 0.51$

	Enter	Exit	Total
Directional Distribution	63%	37%	
Trip Ends	<b>95</b>	<b>56</b>	<b>151</b>

### WEEKDAY

*Trip Equation:*  $\ln(T) = 0.92\ln(X) + 2.72$

	Enter	Exit	Total
Directional Distribution	50%	50%	
Trip Ends	<b>763</b>	<b>763</b>	<b>1,526</b>

### SATURDAY

*Trip Equation:*  $\ln(T) = 0.93\ln(X) + 2.64$

	Enter	Exit	Total
Directional Distribution	50%	50%	
Trip Ends	<b>740</b>	<b>740</b>	<b>1,480</b>



## TRIP GENERATION CALCULATIONS

*Land Use:* Single-Family Detached Housing  
*Land Use Code:* 210  
*Variable:* Dwelling Units  
*Variable Value:* 78

### AM PEAK HOUR

*Trip Equation:*  $T = 0.70(X) + 9.74$

	Enter	Exit	Total
Directional Distribution	25%	75%	
Trip Ends	<b>16</b>	<b>48</b>	<b>64</b>

### PM PEAK HOUR

*Trip Equation:*  $\ln(T) = 0.90\ln(X) + 0.51$

	Enter	Exit	Total
Directional Distribution	63%	37%	
Trip Ends	<b>53</b>	<b>31</b>	<b>84</b>

### WEEKDAY

*Trip Equation:*  $\ln(T) = 0.92\ln(X) + 2.72$

	Enter	Exit	Total
Directional Distribution	50%	50%	
Trip Ends	<b>418</b>	<b>418</b>	<b>836</b>

### SATURDAY

*Trip Equation:*  $\ln(T) = 0.93\ln(X) + 2.64$

	Enter	Exit	Total
Directional Distribution	50%	50%	
Trip Ends	<b>403</b>	<b>403</b>	<b>806</b>



## TRIP GENERATION CALCULATIONS

*Land Use:* Single-Family Detached Housing  
*Land Use Code:* 210  
*Variable:* Dwelling Units  
*Variable Value:* 86

### AM PEAK HOUR

*Trip Equation:*  $T = 0.70(X) + 9.74$

	Enter	Exit	Total
Directional Distribution	25%	75%	
Trip Ends	<b>18</b>	<b>52</b>	<b>70</b>

### PM PEAK HOUR

*Trip Equation:*  $\ln(T) = 0.90\ln(X) + 0.51$

	Enter	Exit	Total
Directional Distribution	63%	37%	
Trip Ends	<b>58</b>	<b>34</b>	<b>92</b>

### WEEKDAY

*Trip Equation:*  $\ln(T) = 0.92\ln(X) + 2.72$

	Enter	Exit	Total
Directional Distribution	50%	50%	
Trip Ends	<b>457</b>	<b>457</b>	<b>914</b>

### SATURDAY

*Trip Equation:*  $\ln(T) = 0.93\ln(X) + 2.64$

	Enter	Exit	Total
Directional Distribution	50%	50%	
Trip Ends	<b>441</b>	<b>441</b>	<b>882</b>



## 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 Unsignalized Intersection Capacity Analysis

## 1: N Vernonia Rd & Pittsburg Rd

















12/08/2016

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	146	42	12	101	23	13
Future Volume (Veh/h)	146	42	12	101	23	13
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75
Hourly flow rate (vph)	195	56	16	135	31	17
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			251		390	223
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			251		390	223
tC, single (s)			4.1		6.5	6.3
tC, 2 stage (s)						
tF (s)			2.2		3.6	3.4
p0 queue free %			99		95	98
cM capacity (veh/h)			1309		599	807
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	251	151	48			
Volume Left	0	16	31			
Volume Right	56	0	17			
cSH	1700	1309	659			
Volume to Capacity	0.15	0.01	0.07			
Queue Length 95th (ft)	0	1	6			
Control Delay (s)	0.0	0.9	10.9			
Lane LOS		A	B			
Approach Delay (s)	0.0	0.9	10.9			
Approach LOS			B			
Intersection Summary						
Average Delay			1.5			
Intersection Capacity Utilization			25.4%	ICU Level of Service		A
Analysis Period (min)			15			

# HCM Unsignalized Intersection Capacity Analysis

## 2: N Vernonia Rd & Helens Way/Farmview Dr

















12/08/2016

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	3	1	13	3	1	2	4	36	1	1	78	2
Future Volume (Veh/h)	3	1	13	3	1	2	4	36	1	1	78	2
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73
Hourly flow rate (vph)	4	1	18	4	1	3	5	49	1	1	107	3
Pedestrians		1						7			1	
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)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	176	172	116	196	172	50	111			50		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	176	172	116	196	172	50	111			50		
tC, single (s)	7.1	6.5	6.2	7.5	6.9	6.6	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.9	4.4	3.7	2.2			2.2		
p0 queue free %	99	100	98	99	100	100	100			100		
cM capacity (veh/h)	783	722	934	667	654	919	1459			1550		
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	23	8	55	111								
Volume Left	4	4	5	1								
Volume Right	18	3	1	3								
cSH	893	741	1459	1550								
Volume to Capacity	0.03	0.01	0.00	0.00								
Queue Length 95th (ft)	2	1	0	0								
Control Delay (s)	9.1	9.9	0.7	0.1								
Lane LOS	A	A	A	A								
Approach Delay (s)	9.1	9.9	0.7	0.1								
Approach LOS	A	A										
Intersection Summary												
Average Delay			1.7									
Intersection Capacity Utilization			16.8%		ICU Level of Service				A			
Analysis Period (min)			15									

# HCM Unsignalized Intersection Capacity Analysis

## 3: N Vernonia Rd & Oakwood Dr

















12/08/2016

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1	1	33	1	1	1	6	41	1	1	98	1
Future Volume (Veh/h)	1	1	33	1	1	1	6	41	1	1	98	1
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76
Hourly flow rate (vph)	1	1	43	1	1	1	8	54	1	1	129	1
Pedestrians		1						1			4	
Lane Width (ft)		12.0						12.0			12.0	
Walking Speed (ft/s)		3.5						3.5			3.5	
Percent Blockage		0						0			0	
Right turn flare (veh)												
Median type								None			None	
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	208	204	132	246	204	58	131			55		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	208	204	132	246	204	58	131			55		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.2			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.3			2.2		
p0 queue free %	100	100	95	100	100	100	99			100		
cM capacity (veh/h)	738	686	914	673	691	1009	1429			1544		
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	45	3	63	131								
Volume Left	1	1	8	1								
Volume Right	43	1	1	1								
cSH	902	765	1429	1544								
Volume to Capacity	0.05	0.00	0.01	0.00								
Queue Length 95th (ft)	4	0	0	0								
Control Delay (s)	9.2	9.7	1.0	0.1								
Lane LOS	A	A	A	A								
Approach Delay (s)	9.2	9.7	1.0	0.1								
Approach LOS	A	A										
Intersection Summary												
Average Delay			2.1									
Intersection Capacity Utilization			17.5%		ICU Level of Service					A		
Analysis Period (min)			15									

# HCM Unsignalized Intersection Capacity Analysis

## 4: N Vernonia Rd & Columbia Blvd

12/08/2016







												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	19	182	37	17	122	20	31	40	22	46	105	21
Future Volume (vph)	19	182	37	17	122	20	31	40	22	46	105	21
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Hourly flow rate (vph)	23	219	45	20	147	24	37	48	27	55	127	25
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total (vph)	287	191	112	207								
Volume Left (vph)	23	20	37	55								
Volume Right (vph)	45	24	27	25								
Hadj (s)	-0.03	-0.02	-0.04	0.05								
Departure Headway (s)	5.1	5.2	5.5	5.4								
Degree Utilization, x	0.40	0.28	0.17	0.31								
Capacity (veh/h)	667	638	580	612								
Control Delay (s)	11.5	10.2	9.6	10.8								
Approach Delay (s)	11.5	10.2	9.6	10.8								
Approach LOS	B	B	A	B								
Intersection Summary												
Delay				10.7								
Level of Service				B								
Intersection Capacity Utilization				34.1%	ICU Level of Service	A						
Analysis Period (min)				15								

# HCM Unsignalized Intersection Capacity Analysis

## 5: US-30 & N Vernonia Rd

12/08/2016























Movement	EBL	EBR	NEL	NET	SWT	SWR	
Lane Configurations							
Traffic Volume (veh/h)	11	148	70	595	893	21	
Future Volume (Veh/h)	11	148	70	595	893	21	
Sign Control	Stop			Free	Free		
Grade	0%			0%	0%		
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	
Hourly flow rate (vph)	12	166	79	669	1003	24	
Pedestrians	5						
Lane Width (ft)	12.0						
Walking Speed (ft/s)	3.5						
Percent Blockage	0						
Right turn flare (veh)		9					
Median type				TWLTL	TWLTL		
Median storage veh				2	2		
Upstream signal (ft)							
pX, platoon unblocked							
vC, conflicting volume	1500	506	1032				
vC1, stage 1 conf vol	1008						
vC2, stage 2 conf vol	492						
vCu, unblocked vol	1500	506	1032				
tC, single (s)	6.9	7.0	4.3				
tC, 2 stage (s)	5.9						
tF (s)	3.5	3.3	2.3				
p0 queue free %	96	67	87				
cM capacity (veh/h)	270	506	609				
Direction, Lane #	EB 1	NE 1	NE 2	NE 3	SW 1	SW 2	SW 3
Volume Total	178	79	334	334	502	502	24
Volume Left	12	79	0	0	0	0	0
Volume Right	166	0	0	0	0	0	24
cSH	543	609	1700	1700	1700	1700	1700
Volume to Capacity	0.33	0.13	0.20	0.20	0.29	0.29	0.01
Queue Length 95th (ft)	35	11	0	0	0	0	0
Control Delay (s)	15.8	11.8	0.0	0.0	0.0	0.0	0.0
Lane LOS	C	B					
Approach Delay (s)	15.8	1.2			0.0		
Approach LOS	C						
Intersection Summary							
Average Delay			1.9				
Intersection Capacity Utilization			44.3%		ICU Level of Service		A
Analysis Period (min)			15				

# HCM Signalized Intersection Capacity Analysis

## 6: US-30 & Columbia Blvd










12/08/2016

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	84	189	67	0	0	0	27	432	143	106	811	162
Future Volume (vph)	84	189	67	0	0	0	27	432	143	106	811	162
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		4.5	4.5				4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor		0.95	1.00				1.00	0.95	1.00	1.00	0.95	1.00
Frpb, ped/bikes		1.00	0.98				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	1.00	1.00
Frt		1.00	0.85				1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected		0.98	1.00				0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		3211	1425				1471	2942	1316	1568	3137	1373
Flt Permitted		0.98	1.00				0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)		3211	1425				1471	2942	1316	1568	3137	1373
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)	93	210	74	0	0	0	30	480	159	118	901	180
RTOR Reduction (vph)	0	0	58	0	0	0	0	0	99	0	0	95
Lane Group Flow (vph)	0	303	16	0	0	0	30	480	60	118	901	85
Confl. Peds. (#/hr)			14	14			1					1
Heavy Vehicles (%)	2%	2%	2%	0%	0%	0%	13%	13%	13%	6%	6%	6%
Turn Type	Perm	NA	Perm				Prot	NA	Perm	Prot	NA	Perm
Protected Phases		4					5	2		1	6	
Permitted Phases	4		4						2			6
Actuated Green, G (s)		10.3	10.3				1.8	18.4	18.4	6.2	22.8	22.8
Effective Green, g (s)		10.3	10.3				1.8	18.4	18.4	6.2	22.8	22.8
Actuated g/C Ratio		0.21	0.21				0.04	0.38	0.38	0.13	0.47	0.47
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)		683	303				54	1118	500	200	1477	646
v/s Ratio Prot							0.02	0.16		c0.08	c0.29	
v/s Ratio Perm		0.09	0.01						0.05			0.06
v/c Ratio		0.44	0.05				0.56	0.43	0.12	0.59	0.61	0.13
Uniform Delay, d1		16.6	15.2				22.9	11.1	9.7	19.9	9.5	7.2
Progression Factor		1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2		0.5	0.1				11.8	0.3	0.1	4.4	0.8	0.1
Delay (s)		17.0	15.2				34.7	11.4	9.9	24.3	10.3	7.3
Level of Service		B	B				C	B	A	C	B	A
Approach Delay (s)		16.7			0.0			12.1			11.2	
Approach LOS		B			A			B			B	
<b>Intersection Summary</b>												
HCM 2000 Control Delay			12.4				HCM 2000 Level of Service			B		
HCM 2000 Volume to Capacity ratio			0.59									
Actuated Cycle Length (s)			48.4				Sum of lost time (s)			13.5		
Intersection Capacity Utilization			50.6%				ICU Level of Service			A		
Analysis Period (min)			15									
c Critical Lane Group												

# HCM Unsignalized Intersection Capacity Analysis

## 1: N Vernonia Rd & Pittsburg Rd

















12/08/2016

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	126	38	27	126	34	14
Future Volume (Veh/h)	126	38	27	126	34	14
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	137	41	29	137	37	15
Pedestrians					1	
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)						
pX, platoon unblocked						
vC, conflicting volume			179		354	158
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			179		354	158
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		94	98
cM capacity (veh/h)			1389		634	891
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	178	166	52			
Volume Left	0	29	37			
Volume Right	41	0	15			
cSH	1700	1389	692			
Volume to Capacity	0.10	0.02	0.08			
Queue Length 95th (ft)	0	2	6			
Control Delay (s)	0.0	1.5	10.6			
Lane LOS		A	B			
Approach Delay (s)	0.0	1.5	10.6			
Approach LOS			B			
Intersection Summary						
Average Delay			2.0			
Intersection Capacity Utilization			30.6%	ICU Level of Service	A	
Analysis Period (min)			15			

# HCM Unsignalized Intersection Capacity Analysis

## 2: N Vernonia Rd & Helens Way/Farmview Dr

















12/08/2016

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	2	1	8	3	1	1	12	67	2	2	61	7
Future Volume (Veh/h)	2	1	8	3	1	1	12	67	2	2	61	7
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Hourly flow rate (vph)	2	1	9	4	1	1	14	79	2	2	72	8
Pedestrians					4			2				
Lane Width (ft)					12.0			12.0				
Walking Speed (ft/s)					3.5			3.5				
Percent Blockage					0			0				
Right turn flare (veh)												
Median type								None			None	
Median storage veh												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	190	193	78	204	196	84	80			85		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	190	193	78	204	196	84	80			85		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	99	99	100	100	99			100		
cM capacity (veh/h)	765	696	986	739	693	977	1531			1518		
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	12	6	95	82								
Volume Left	2	4	14	2								
Volume Right	9	1	2	8								
cSH	911	761	1531	1518								
Volume to Capacity	0.01	0.01	0.01	0.00								
Queue Length 95th (ft)	1	1	1	0								
Control Delay (s)	9.0	9.8	1.1	0.2								
Lane LOS	A	A	A	A								
Approach Delay (s)	9.0	9.8	1.1	0.2								
Approach LOS	A	A										
Intersection Summary												
Average Delay			1.5									
Intersection Capacity Utilization			20.6%		ICU Level of Service				A			
Analysis Period (min)			15									

# HCM Unsignalized Intersection Capacity Analysis

## 3: N Vernonia Rd & Oakwood Dr

















12/08/2016

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	3	1	22	3	1	1	25	80	2	1	71	2
Future Volume (Veh/h)	3	1	22	3	1	1	25	80	2	1	71	2
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Hourly flow rate (vph)	4	1	26	4	1	1	30	95	2	1	85	2
Pedestrians		4			5							
Lane Width (ft)		12.0			12.0							
Walking Speed (ft/s)		3.5			3.5							
Percent Blockage		0			0							
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	250	254	90	276	254	101	91			102		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	250	254	90	276	254	101	91			102		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	99	100	97	99	100	100	98			100		
cM capacity (veh/h)	688	634	970	644	634	955	1511			1489		
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	31	6	127	88								
Volume Left	4	4	30	1								
Volume Right	26	1	2	2								
cSH	906	679	1511	1489								
Volume to Capacity	0.03	0.01	0.02	0.00								
Queue Length 95th (ft)	3	1	2	0								
Control Delay (s)	9.1	10.3	1.9	0.1								
Lane LOS	A	B	A	A								
Approach Delay (s)	9.1	10.3	1.9	0.1								
Approach LOS	A	B										
Intersection Summary												
Average Delay			2.3									
Intersection Capacity Utilization			22.5%	ICU Level of Service					A			
Analysis Period (min)			15									

# HCM Unsignalized Intersection Capacity Analysis

### 4: N Vernonia Rd & Columbia Blvd

12/08/2016









												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	27	213	27	19	153	55	41	130	68	63	85	21
Future Volume (vph)	27	213	27	19	153	55	41	130	68	63	85	21
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	29	232	29	21	166	60	45	141	74	68	92	23
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total (vph)	290	247	260	183								
Volume Left (vph)	29	21	45	68								
Volume Right (vph)	29	60	74	23								
Hadj (s)	-0.01	-0.11	-0.12	0.03								
Departure Headway (s)	5.7	5.6	5.7	6.0								
Degree Utilization, x	0.46	0.39	0.41	0.30								
Capacity (veh/h)	588	580	572	523								
Control Delay (s)	13.3	12.2	12.6	11.6								
Approach Delay (s)	13.3	12.2	12.6	11.6								
Approach LOS	B	B	B	B								
Intersection Summary												
Delay			12.5									
Level of Service			B									
Intersection Capacity Utilization			44.4%	ICU Level of Service		A						
Analysis Period (min)			15									

# HCM Unsignalized Intersection Capacity Analysis

## 5: US-30 & N Vernonia Rd

12/08/2016























Movement	EBL	EBR	NEL	NET	SWT	SWR	
Lane Configurations				 	 		
Traffic Volume (veh/h)	22	107	175	1087	817	36	
Future Volume (Veh/h)	22	107	175	1087	817	36	
Sign Control	Stop			Free	Free		
Grade	0%			0%	0%		
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	
Hourly flow rate (vph)	23	111	182	1132	851	38	
Pedestrians	6						
Lane Width (ft)	12.0						
Walking Speed (ft/s)	3.5						
Percent Blockage	1						
Right turn flare (veh)		9					
Median type				TWLT	TWLT		
Median storage veh)				2	2		
Upstream signal (ft)							
pX, platoon unblocked							
vC, conflicting volume	1787	432	895				
vC1, stage 1 conf vol	857						
vC2, stage 2 conf vol	930						
vCu, unblocked vol	1787	432	895				
tC, single (s)	6.8	6.9	4.2				
tC, 2 stage (s)	5.8						
tF (s)	3.5	3.3	2.2				
p0 queue free %	89	80	76				
cM capacity (veh/h)	214	569	743				
Direction, Lane #	EB 1	NE 1	NE 2	NE 3	SW 1	SW 2	SW 3
Volume Total	134	182	566	566	426	426	38
Volume Left	23	182	0	0	0	0	0
Volume Right	111	0	0	0	0	0	38
cSH	687	743	1700	1700	1700	1700	1700
Volume to Capacity	0.20	0.24	0.33	0.33	0.25	0.25	0.02
Queue Length 95th (ft)	18	24	0	0	0	0	0
Control Delay (s)	14.7	11.4	0.0	0.0	0.0	0.0	0.0
Lane LOS	B	B					
Approach Delay (s)	14.7	1.6			0.0		
Approach LOS	B						
Intersection Summary							
Average Delay			1.7				
Intersection Capacity Utilization			48.4%		ICU Level of Service		A
Analysis Period (min)			15				

# HCM Signalized Intersection Capacity Analysis

## 6: US-30 & Columbia Blvd










12/08/2016

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	106	256	45	0	0	0	49	793	217	113	800	214
Future Volume (vph)	106	256	45	0	0	0	49	793	217	113	800	214
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		4.5	4.5				4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor		0.95	1.00				1.00	0.95	1.00	1.00	0.95	1.00
Frpb, ped/bikes		1.00	0.97				1.00	1.00	1.00	1.00	1.00	0.97
Flpb, ped/bikes		1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Frt		1.00	0.85				1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected		0.99	1.00				0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		3239	1428				1599	3197	1430	1614	3228	1399
Flt Permitted		0.99	1.00				0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)		3239	1428				1599	3197	1430	1614	3228	1399
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)	115	278	49	0	0	0	53	862	236	123	870	233
RTOR Reduction (vph)	0	0	37	0	0	0	0	0	145	0	0	130
Lane Group Flow (vph)	0	393	12	0	0	0	53	862	91	123	870	103
Confl. Peds. (#/hr)	7		22	22		7	8					8
Heavy Vehicles (%)	1%	1%	1%	0%	0%	0%	4%	4%	4%	3%	3%	3%
Turn Type	Perm	NA	Perm				Prot	NA	Perm	Prot	NA	Perm
Protected Phases		4					5	2		1	6	
Permitted Phases	4		4						2			6
Actuated Green, G (s)		12.3	12.3				2.6	19.7	19.7	5.4	22.5	22.5
Effective Green, g (s)		12.3	12.3				2.6	19.7	19.7	5.4	22.5	22.5
Actuated g/C Ratio		0.24	0.24				0.05	0.39	0.39	0.11	0.44	0.44
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)		782	345				81	1237	553	171	1426	618
v/s Ratio Prot							0.03	c0.27		c0.08	c0.27	
v/s Ratio Perm		0.12	0.01						0.06			0.07
v/c Ratio		0.50	0.03				0.65	0.70	0.17	0.72	0.61	0.17
Uniform Delay, d1		16.7	14.8				23.7	13.1	10.2	22.0	10.8	8.6
Progression Factor		1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2		0.5	0.0				17.4	1.7	0.1	13.5	0.8	0.1
Delay (s)		17.2	14.8				41.1	14.8	10.4	35.5	11.6	8.7
Level of Service		B	B				D	B	B	D	B	A
Approach Delay (s)		16.9			0.0			15.1			13.5	
Approach LOS		B			A			B			B	
<b>Intersection Summary</b>												
HCM 2000 Control Delay			14.7				HCM 2000 Level of Service			B		
HCM 2000 Volume to Capacity ratio			0.63									
Actuated Cycle Length (s)			50.9				Sum of lost time (s)			13.5		
Intersection Capacity Utilization			56.5%				ICU Level of Service			B		
Analysis Period (min)			15									
c Critical Lane Group												

# HCM Unsignalized Intersection Capacity Analysis

## 1: N Vernonia Rd & Pittsburg Rd

















12/08/2016

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	153	44	12	107	24	14
Future Volume (Veh/h)	153	44	12	107	24	14
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75
Hourly flow rate (vph)	204	59	16	143	32	19
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			263		408	234
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			263		408	234
tC, single (s)			4.1		6.5	6.3
tC, 2 stage (s)						
tF (s)			2.2		3.6	3.4
p0 queue free %			99		95	98
cM capacity (veh/h)			1295		584	796
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	263	159	51			
Volume Left	0	16	32			
Volume Right	59	0	19			
cSH	1700	1295	648			
Volume to Capacity	0.15	0.01	0.08			
Queue Length 95th (ft)	0	1	6			
Control Delay (s)	0.0	0.9	11.0			
Lane LOS		A	B			
Approach Delay (s)	0.0	0.9	11.0			
Approach LOS			B			
<b>Intersection Summary</b>						
Average Delay			1.5			
Intersection Capacity Utilization			25.7%	ICU Level of Service		A
Analysis Period (min)			15			

# HCM Unsignalized Intersection Capacity Analysis

## 2: N Vernonia Rd & Helens Way/Farmview Dr

















12/08/2016

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	3	1	14	3	1	2	4	37	1	1	81	2
Future Volume (Veh/h)	3	1	14	3	1	2	4	37	1	1	81	2
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73
Hourly flow rate (vph)	4	1	19	4	1	3	5	51	1	1	111	3
Pedestrians		1						7			1	
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)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	182	178	120	202	178	52	115			52		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	182	178	120	202	178	52	115			52		
tC, single (s)	7.1	6.5	6.2	7.5	6.9	6.6	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.9	4.4	3.7	2.2			2.2		
p0 queue free %	99	100	98	99	100	100	100			100		
cM capacity (veh/h)	776	716	929	659	649	917	1454			1548		
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	24	8	57	115								
Volume Left	4	4	5	1								
Volume Right	19	3	1	3								
cSH	889	735	1454	1548								
Volume to Capacity	0.03	0.01	0.00	0.00								
Queue Length 95th (ft)	2	1	0	0								
Control Delay (s)	9.2	10.0	0.7	0.1								
Lane LOS	A	A	A	A								
Approach Delay (s)	9.2	10.0	0.7	0.1								
Approach LOS	A	A										
Intersection Summary												
Average Delay			1.7									
Intersection Capacity Utilization			17.0%		ICU Level of Service					A		
Analysis Period (min)			15									

# HCM Unsignalized Intersection Capacity Analysis

## 3: N Vernonia Rd & Oakwood Dr

















12/08/2016

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1	1	34	1	1	1	6	43	1	1	102	1
Future Volume (Veh/h)	1	1	34	1	1	1	6	43	1	1	102	1
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76
Hourly flow rate (vph)	1	1	45	1	1	1	8	57	1	1	134	1
Pedestrians		1						1			4	
Lane Width (ft)		12.0						12.0			12.0	
Walking Speed (ft/s)		3.5						3.5			3.5	
Percent Blockage		0						0			0	
Right turn flare (veh)												
Median type								None			None	
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	216	212	136	256	212	62	136			58		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	216	212	136	256	212	62	136			58		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.2			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.3			2.2		
p0 queue free %	100	100	95	100	100	100	99			100		
cM capacity (veh/h)	729	679	908	661	684	1005	1422			1540		
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	47	3	66	136								
Volume Left	1	1	8	1								
Volume Right	45	1	1	1								
cSH	897	756	1422	1540								
Volume to Capacity	0.05	0.00	0.01	0.00								
Queue Length 95th (ft)	4	0	0	0								
Control Delay (s)	9.2	9.8	1.0	0.1								
Lane LOS	A	A	A	A								
Approach Delay (s)	9.2	9.8	1.0	0.1								
Approach LOS	A	A										
Intersection Summary												
Average Delay			2.1									
Intersection Capacity Utilization			17.6%		ICU Level of Service					A		
Analysis Period (min)			15									

# HCM Unsignalized Intersection Capacity Analysis

## 4: N Vernonia Rd & Columbia Blvd

12/08/2016







												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	20	190	38	18	130	21	32	42	23	48	109	22
Future Volume (vph)	20	190	38	18	130	21	32	42	23	48	109	22
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Hourly flow rate (vph)	24	229	46	22	157	25	39	51	28	58	131	27
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total (vph)	299	204	118	216								
Volume Left (vph)	24	22	39	58								
Volume Right (vph)	46	25	28	27								
Hadj (s)	-0.03	-0.02	-0.04	0.05								
Departure Headway (s)	5.2	5.3	5.6	5.5								
Degree Utilization, x	0.43	0.30	0.18	0.33								
Capacity (veh/h)	656	626	566	600								
Control Delay (s)	12.0	10.6	9.8	11.2								
Approach Delay (s)	12.0	10.6	9.8	11.2								
Approach LOS	B	B	A	B								
Intersection Summary												
Delay				11.1								
Level of Service				B								
Intersection Capacity Utilization				35.3%	ICU Level of Service		A					
Analysis Period (min)				15								

# HCM Unsignalized Intersection Capacity Analysis

## 5: US-30 & N Vernonia Rd

12/08/2016























Movement	EBL	EBR	NEL	NET	SWT	SWR	
Lane Configurations							
Traffic Volume (veh/h)	11	154	73	612	925	22	
Future Volume (Veh/h)	11	154	73	612	925	22	
Sign Control	Stop			Free	Free		
Grade	0%			0%	0%		
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	
Hourly flow rate (vph)	12	173	82	688	1039	25	
Pedestrians	5						
Lane Width (ft)	12.0						
Walking Speed (ft/s)	3.5						
Percent Blockage	0						
Right turn flare (veh)		9					
Median type				TWLT	TWLT		
Median storage veh				2	2		
Upstream signal (ft)							
pX, platoon unblocked							
vC, conflicting volume	1552	524	1069				
vC1, stage 1 conf vol	1044						
vC2, stage 2 conf vol	508						
vCu, unblocked vol	1552	524	1069				
tC, single (s)	6.9	7.0	4.3				
tC, 2 stage (s)	5.9						
tF (s)	3.5	3.3	2.3				
p0 queue free %	95	65	86				
cM capacity (veh/h)	259	493	589				
Direction, Lane #	EB 1	NE 1	NE 2	NE 3	SW 1	SW 2	SW 3
Volume Total	185	82	344	344	520	520	25
Volume Left	12	82	0	0	0	0	0
Volume Right	173	0	0	0	0	0	25
cSH	527	589	1700	1700	1700	1700	1700
Volume to Capacity	0.35	0.14	0.20	0.20	0.31	0.31	0.01
Queue Length 95th (ft)	39	12	0	0	0	0	0
Control Delay (s)	16.4	12.1	0.0	0.0	0.0	0.0	0.0
Lane LOS	C	B					
Approach Delay (s)	16.4	1.3			0.0		
Approach LOS	C						
Intersection Summary							
Average Delay			2.0				
Intersection Capacity Utilization			45.5%		ICU Level of Service		A
Analysis Period (min)			15				

# HCM Signalized Intersection Capacity Analysis

## 6: US-30 & Columbia Blvd










12/08/2016

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	87	203	79	0	0	0	32	442	149	111	832	170
Future Volume (vph)	87	203	79	0	0	0	32	442	149	111	832	170
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		4.5	4.5				4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor		0.95	1.00				1.00	0.95	1.00	1.00	0.95	1.00
Frpb, ped/bikes		1.00	0.98				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	1.00	1.00
Frt		1.00	0.85				1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected		0.99	1.00				0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		3212	1425				1471	2942	1316	1568	3137	1373
Flt Permitted		0.99	1.00				0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)		3212	1425				1471	2942	1316	1568	3137	1373
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)	97	226	88	0	0	0	36	491	166	123	924	189
RTOR Reduction (vph)	0	0	69	0	0	0	0	0	103	0	0	101
Lane Group Flow (vph)	0	323	19	0	0	0	36	491	63	123	924	88
Confl. Peds. (#/hr)			14	14			1					1
Heavy Vehicles (%)	2%	2%	2%	0%	0%	0%	13%	13%	13%	6%	6%	6%
Turn Type	Perm	NA	Perm				Prot	NA	Perm	Prot	NA	Perm
Protected Phases		4					5	2		1	6	
Permitted Phases	4		4						2			6
Actuated Green, G (s)		10.6	10.6				1.8	18.3	18.3	6.2	22.7	22.7
Effective Green, g (s)		10.6	10.6				1.8	18.3	18.3	6.2	22.7	22.7
Actuated g/C Ratio		0.22	0.22				0.04	0.38	0.38	0.13	0.47	0.47
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)		700	310				54	1107	495	200	1465	641
v/s Ratio Prot							0.02	0.17		c0.08	c0.29	
v/s Ratio Perm		0.10	0.01						0.05			0.06
v/c Ratio		0.46	0.06				0.67	0.44	0.13	0.61	0.63	0.14
Uniform Delay, d1		16.5	15.1				23.1	11.3	9.9	20.1	9.8	7.4
Progression Factor		1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2		0.5	0.1				26.9	0.3	0.1	5.5	0.9	0.1
Delay (s)		17.0	15.1				50.0	11.6	10.0	25.6	10.7	7.5
Level of Service		B	B				D	B	B	C	B	A
Approach Delay (s)		16.6			0.0			13.2			11.7	
Approach LOS		B			A			B			B	
<b>Intersection Summary</b>												
HCM 2000 Control Delay			13.0				HCM 2000 Level of Service			B		
HCM 2000 Volume to Capacity ratio			0.61									
Actuated Cycle Length (s)			48.6				Sum of lost time (s)			13.5		
Intersection Capacity Utilization			51.5%				ICU Level of Service			A		
Analysis Period (min)			15									
c Critical Lane Group												

# HCM Unsignalized Intersection Capacity Analysis

## 1: N Vernonia Rd & Pittsburg Rd

















12/08/2016

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	134	40	28	132	35	15
Future Volume (Veh/h)	134	40	28	132	35	15
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	146	43	30	143	38	16
Pedestrians					1	
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)						
pX, platoon unblocked						
vC, conflicting volume			190		372	168
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			190		372	168
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		94	98
cM capacity (veh/h)			1377		619	880
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	189	173	54			
Volume Left	0	30	38			
Volume Right	43	0	16			
cSH	1700	1377	678			
Volume to Capacity	0.11	0.02	0.08			
Queue Length 95th (ft)	0	2	6			
Control Delay (s)	0.0	1.5	10.8			
Lane LOS		A	B			
Approach Delay (s)	0.0	1.5	10.8			
Approach LOS			B			
Intersection Summary						
Average Delay			2.0			
Intersection Capacity Utilization			31.5%	ICU Level of Service	A	
Analysis Period (min)			15			

# HCM Unsignalized Intersection Capacity Analysis

## 2: N Vernonia Rd & Helens Way/Farmview Dr

















12/08/2016

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	2	1	8	3	1	1	12	70	2	2	63	7
Future Volume (Veh/h)	2	1	8	3	1	1	12	70	2	2	63	7
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Hourly flow rate (vph)	2	1	9	4	1	1	14	82	2	2	74	8
Pedestrians					4			2				
Lane Width (ft)					12.0			12.0				
Walking Speed (ft/s)					3.5			3.5				
Percent Blockage					0			0				
Right turn flare (veh)												
Median type								None			None	
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	194	198	80	208	201	87	82			88		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	194	198	80	208	201	87	82			88		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	99	99	100	100	99			100		
cM capacity (veh/h)	759	691	984	733	689	973	1528			1515		
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	12	6	98	84								
Volume Left	2	4	14	2								
Volume Right	9	1	2	8								
cSH	907	756	1528	1515								
Volume to Capacity	0.01	0.01	0.01	0.00								
Queue Length 95th (ft)	1	1	1	0								
Control Delay (s)	9.0	9.8	1.1	0.2								
Lane LOS	A	A	A	A								
Approach Delay (s)	9.0	9.8	1.1	0.2								
Approach LOS	A	A										
Intersection Summary												
Average Delay			1.5									
Intersection Capacity Utilization			20.8%	ICU Level of Service					A			
Analysis Period (min)			15									

# HCM Unsignalized Intersection Capacity Analysis

### 3: N Vernonia Rd & Oakwood Dr

















12/08/2016

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	3	1	23	3	1	1	26	83	2	1	74	2
Future Volume (Veh/h)	3	1	23	3	1	1	26	83	2	1	74	2
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Hourly flow rate (vph)	4	1	27	4	1	1	31	99	2	1	88	2
Pedestrians		4			5							
Lane Width (ft)		12.0			12.0							
Walking Speed (ft/s)		3.5			3.5							
Percent Blockage		0			0							
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	258	263	93	286	263	105	94			106		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	258	263	93	286	263	105	94			106		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	99	100	97	99	100	100	98			100		
cM capacity (veh/h)	679	626	966	633	626	950	1507			1484		
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	32	6	132	91								
Volume Left	4	4	31	1								
Volume Right	27	1	2	2								
cSH	903	669	1507	1484								
Volume to Capacity	0.04	0.01	0.02	0.00								
Queue Length 95th (ft)	3	1	2	0								
Control Delay (s)	9.1	10.4	1.9	0.1								
Lane LOS	A	B	A	A								
Approach Delay (s)	9.1	10.4	1.9	0.1								
Approach LOS	A	B										
Intersection Summary												
Average Delay			2.3									
Intersection Capacity Utilization			22.7%		ICU Level of Service				A			
Analysis Period (min)			15									

# HCM Unsignalized Intersection Capacity Analysis

### 4: N Vernonia Rd & Columbia Blvd

12/08/2016









												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	28	226	28	20	161	57	43	135	71	66	88	22
Future Volume (vph)	28	226	28	20	161	57	43	135	71	66	88	22
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	30	246	30	22	175	62	47	147	77	72	96	24
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total (vph)	306	259	271	192								
Volume Left (vph)	30	22	47	72								
Volume Right (vph)	30	62	77	24								
Hadj (s)	-0.01	-0.11	-0.12	0.03								
Departure Headway (s)	5.8	5.8	5.8	6.2								
Degree Utilization, x	0.49	0.42	0.44	0.33								
Capacity (veh/h)	572	554	556	506								
Control Delay (s)	14.3	12.9	13.4	12.1								
Approach Delay (s)	14.3	12.9	13.4	12.1								
Approach LOS	B	B	B	B								
Intersection Summary												
Delay				13.3								
Level of Service				B								
Intersection Capacity Utilization				46.1%	ICU Level of Service				A			
Analysis Period (min)				15								

# HCM Unsignalized Intersection Capacity Analysis

## 5: US-30 & N Vernonia Rd

12/08/2016























Movement	EBL	EBR	NEL	NET	SWT	SWR	
Lane Configurations				 	 		
Traffic Volume (veh/h)	23	111	182	1123	843	37	
Future Volume (Veh/h)	23	111	182	1123	843	37	
Sign Control	Stop			Free	Free		
Grade	0%			0%	0%		
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	
Hourly flow rate (vph)	24	116	190	1170	878	39	
Pedestrians	6						
Lane Width (ft)	12.0						
Walking Speed (ft/s)	3.5						
Percent Blockage	1						
Right turn flare (veh)		9					
Median type				TWLTL	TWLTL		
Median storage veh)				2	2		
Upstream signal (ft)							
pX, platoon unblocked							
vC, conflicting volume	1849	445	923				
vC1, stage 1 conf vol	884						
vC2, stage 2 conf vol	965						
vCu, unblocked vol	1849	445	923				
tC, single (s)	6.8	6.9	4.2				
tC, 2 stage (s)	5.8						
tF (s)	3.5	3.3	2.2				
p0 queue free %	88	79	74				
cM capacity (veh/h)	201	557	725				
Direction, Lane #	EB 1	NE 1	NE 2	NE 3	SW 1	SW 2	SW 3
Volume Total	140	190	585	585	439	439	39
Volume Left	24	190	0	0	0	0	0
Volume Right	116	0	0	0	0	0	39
cSH	673	725	1700	1700	1700	1700	1700
Volume to Capacity	0.21	0.26	0.34	0.34	0.26	0.26	0.02
Queue Length 95th (ft)	19	26	0	0	0	0	0
Control Delay (s)	15.2	11.7	0.0	0.0	0.0	0.0	0.0
Lane LOS	C	B					
Approach Delay (s)	15.2	1.6			0.0		
Approach LOS	C						
Intersection Summary							
Average Delay			1.8				
Intersection Capacity Utilization			49.6%		ICU Level of Service		A
Analysis Period (min)			15				

# HCM Signalized Intersection Capacity Analysis

## 6: US-30 & Columbia Blvd










12/08/2016

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	110	269	54	0	0	0	63	811	226	119	819	227
Future Volume (vph)	110	269	54	0	0	0	63	811	226	119	819	227
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		4.5	4.5				4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor		0.95	1.00				1.00	0.95	1.00	1.00	0.95	1.00
Frpb, ped/bikes		1.00	0.97				1.00	1.00	1.00	1.00	1.00	0.97
Flpb, ped/bikes		1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Frt		1.00	0.85				1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected		0.99	1.00				0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		3239	1428				1599	3197	1430	1614	3228	1399
Flt Permitted		0.99	1.00				0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)		3239	1428				1599	3197	1430	1614	3228	1399
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)	120	292	59	0	0	0	68	882	246	129	890	247
RTOR Reduction (vph)	0	0	44	0	0	0	0	0	152	0	0	138
Lane Group Flow (vph)	0	412	15	0	0	0	68	882	94	129	890	109
Confl. Peds. (#/hr)	7		22	22		7	8					8
Heavy Vehicles (%)	1%	1%	1%	0%	0%	0%	4%	4%	4%	3%	3%	3%
Turn Type	Perm	NA	Perm				Prot	NA	Perm	Prot	NA	Perm
Protected Phases		4					5	2		1	6	
Permitted Phases	4		4						2			6
Actuated Green, G (s)		12.7	12.7				2.6	19.7	19.7	5.6	22.7	22.7
Effective Green, g (s)		12.7	12.7				2.6	19.7	19.7	5.6	22.7	22.7
Actuated g/C Ratio		0.25	0.25				0.05	0.38	0.38	0.11	0.44	0.44
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)		798	352				80	1222	547	175	1422	616
v/s Ratio Prot							0.04	c0.28		c0.08	c0.28	
v/s Ratio Perm		0.13	0.01						0.07			0.08
v/c Ratio		0.52	0.04				0.85	0.72	0.17	0.74	0.63	0.18
Uniform Delay, d1		16.7	14.8				24.3	13.6	10.5	22.2	11.1	8.7
Progression Factor		1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2		0.6	0.0				53.1	2.1	0.2	14.9	0.9	0.1
Delay (s)		17.3	14.8				77.4	15.7	10.7	37.1	12.0	8.9
Level of Service		B	B				E	B	B	D	B	A
Approach Delay (s)		17.0			0.0			18.2			13.9	
Approach LOS		B			A			B			B	
<b>Intersection Summary</b>												
HCM 2000 Control Delay			16.2				HCM 2000 Level of Service			B		
HCM 2000 Volume to Capacity ratio			0.64									
Actuated Cycle Length (s)			51.5				Sum of lost time (s)			13.5		
Intersection Capacity Utilization			57.7%				ICU Level of Service			B		
Analysis Period (min)			15									
c Critical Lane Group												

# HCM Unsignalized Intersection Capacity Analysis

## 1: N Vernonia Rd & Pittsburg Rd

















12/08/2016

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	153	45	15	107	26	18
Future Volume (Veh/h)	153	45	15	107	26	18
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75
Hourly flow rate (vph)	204	60	20	143	35	24
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			264		417	234
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			264		417	234
tC, single (s)			4.1		6.5	6.3
tC, 2 stage (s)						
tF (s)			2.2		3.6	3.4
p0 queue free %			98		94	97
cM capacity (veh/h)			1294		576	795
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	264	163	59			
Volume Left	0	20	35			
Volume Right	60	0	24			
cSH	1700	1294	649			
Volume to Capacity	0.16	0.02	0.09			
Queue Length 95th (ft)	0	1	7			
Control Delay (s)	0.0	1.1	11.1			
Lane LOS		A	B			
Approach Delay (s)	0.0	1.1	11.1			
Approach LOS			B			
Intersection Summary						
Average Delay		1.7				
Intersection Capacity Utilization		28.3%		ICU Level of Service		A
Analysis Period (min)		15				

# HCM Unsignalized Intersection Capacity Analysis

## 2: N Vernonia Rd & Helens Way/Farmview Dr

















12/08/2016

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	9	1	41	3	1	2	12	37	1	1	81	6
Future Volume (Veh/h)	9	1	41	3	1	2	12	37	1	1	81	6
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73
Hourly flow rate (vph)	12	1	56	4	1	3	16	51	1	1	111	8
Pedestrians		1						7			1	
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)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	206	202	123	264	206	52	120			52		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	206	202	123	264	206	52	120			52		
tC, single (s)	7.1	6.5	6.2	7.5	6.9	6.6	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.9	4.4	3.7	2.2			2.2		
p0 queue free %	98	100	94	99	100	100	99			100		
cM capacity (veh/h)	744	689	926	570	621	917	1448			1548		
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	69	8	68	120								
Volume Left	12	4	16	1								
Volume Right	56	3	1	8								
cSH	884	673	1448	1548								
Volume to Capacity	0.08	0.01	0.01	0.00								
Queue Length 95th (ft)	6	1	1	0								
Control Delay (s)	9.4	10.4	1.8	0.1								
Lane LOS	A	B	A	A								
Approach Delay (s)	9.4	10.4	1.8	0.1								
Approach LOS	A	B										
Intersection Summary												
Average Delay			3.3									
Intersection Capacity Utilization			21.8%	ICU Level of Service					A			
Analysis Period (min)			15									

# HCM Unsignalized Intersection Capacity Analysis

### 3: N Vernonia Rd & Oakwood Dr

















12/08/2016

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1	1	47	1	1	1	10	51	1	1	129	1
Future Volume (Veh/h)	1	1	47	1	1	1	10	51	1	1	129	1
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76
Hourly flow rate (vph)	1	1	62	1	1	1	13	67	1	1	170	1
Pedestrians		1						1			4	
Lane Width (ft)		12.0						12.0			12.0	
Walking Speed (ft/s)		3.5						3.5			3.5	
Percent Blockage		0						0			0	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	272	268	172	330	268	72	172			68		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	272	268	172	330	268	72	172			68		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.2			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.3			2.2		
p0 queue free %	100	100	93	100	100	100	99			100		
cM capacity (veh/h)	668	630	867	577	635	993	1380			1527		
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	64	3	81	172								
Volume Left	1	1	13	1								
Volume Right	62	1	1	1								
cSH	858	695	1380	1527								
Volume to Capacity	0.07	0.00	0.01	0.00								
Queue Length 95th (ft)	6	0	1	0								
Control Delay (s)	9.5	10.2	1.3	0.0								
Lane LOS	A	B	A	A								
Approach Delay (s)	9.5	10.2	1.3	0.0								
Approach LOS	A	B										
Intersection Summary												
Average Delay			2.4									
Intersection Capacity Utilization			21.1%		ICU Level of Service				A			
Analysis Period (min)			15									

# HCM Unsignalized Intersection Capacity Analysis

### 4: N Vernonia Rd & Columbia Blvd

12/08/2016







												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	22	190	38	18	130	24	32	49	23	63	130	26
Future Volume (vph)	22	190	38	18	130	24	32	49	23	63	130	26
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Hourly flow rate (vph)	27	229	46	22	157	29	39	59	28	76	157	31
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total (vph)	302	208	126	264								
Volume Left (vph)	27	22	39	76								
Volume Right (vph)	46	29	28	31								
Hadj (s)	-0.02	-0.03	-0.04	0.06								
Departure Headway (s)	5.4	5.5	5.8	5.6								
Degree Utilization, x	0.45	0.32	0.20	0.41								
Capacity (veh/h)	626	597	543	593								
Control Delay (s)	12.7	11.1	10.2	12.5								
Approach Delay (s)	12.7	11.1	10.2	12.5								
Approach LOS	B	B	B	B								
Intersection Summary												
Delay				11.9								
Level of Service				B								
Intersection Capacity Utilization				39.2%	ICU Level of Service	A						
Analysis Period (min)				15								

# HCM Unsignalized Intersection Capacity Analysis

## 5: US-30 & N Vernonia Rd

12/08/2016























Movement	EBL	EBR	NEL	NET	SWT	SWR	
Lane Configurations							
Traffic Volume (veh/h)	11	175	80	612	925	22	
Future Volume (Veh/h)	11	175	80	612	925	22	
Sign Control	Stop			Free	Free		
Grade	0%			0%	0%		
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	
Hourly flow rate (vph)	12	197	90	688	1039	25	
Pedestrians	5						
Lane Width (ft)	12.0						
Walking Speed (ft/s)	3.5						
Percent Blockage	0						
Right turn flare (veh)		9					
Median type				TWLT	TWLT		
Median storage veh				2	2		
Upstream signal (ft)							
pX, platoon unblocked							
vC, conflicting volume	1568	524	1069				
vC1, stage 1 conf vol	1044						
vC2, stage 2 conf vol	524						
vCu, unblocked vol	1568	524	1069				
tC, single (s)	6.9	7.0	4.3				
tC, 2 stage (s)	5.9						
tF (s)	3.5	3.3	2.3				
p0 queue free %	95	60	85				
cM capacity (veh/h)	256	493	589				
Direction, Lane #	EB 1	NE 1	NE 2	NE 3	SW 1	SW 2	SW 3
Volume Total	209	90	344	344	520	520	25
Volume Left	12	90	0	0	0	0	0
Volume Right	197	0	0	0	0	0	25
cSH	523	589	1700	1700	1700	1700	1700
Volume to Capacity	0.40	0.15	0.20	0.20	0.31	0.31	0.01
Queue Length 95th (ft)	48	13	0	0	0	0	0
Control Delay (s)	17.2	12.2	0.0	0.0	0.0	0.0	0.0
Lane LOS	C	B					
Approach Delay (s)	17.2	1.4			0.0		
Approach LOS	C						
Intersection Summary							
Average Delay			2.3				
Intersection Capacity Utilization			46.2%		ICU Level of Service		A
Analysis Period (min)			15				

# HCM Signalized Intersection Capacity Analysis

## 6: US-30 & Columbia Blvd










12/08/2016

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	93	212	79	0	0	0	32	442	149	111	832	173
Future Volume (vph)	93	212	79	0	0	0	32	442	149	111	832	173
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		4.5	4.5				4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor		0.95	1.00				1.00	0.95	1.00	1.00	0.95	1.00
Frpb, ped/bikes		1.00	0.98				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	1.00	1.00
Frt		1.00	0.85				1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected		0.99	1.00				0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		3211	1425				1471	2942	1316	1568	3137	1373
Flt Permitted		0.99	1.00				0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)		3211	1425				1471	2942	1316	1568	3137	1373
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)	103	236	88	0	0	0	36	491	166	123	924	192
RTOR Reduction (vph)	0	0	68	0	0	0	0	0	104	0	0	103
Lane Group Flow (vph)	0	339	20	0	0	0	36	491	62	123	924	89
Confl. Peds. (#/hr)			14	14			1					1
Heavy Vehicles (%)	2%	2%	2%	0%	0%	0%	13%	13%	13%	6%	6%	6%
Turn Type	Perm	NA	Perm				Prot	NA	Perm	Prot	NA	Perm
Protected Phases		4					5	2		1	6	
Permitted Phases	4		4						2			6
Actuated Green, G (s)		10.9	10.9				1.8	18.1	18.1	6.2	22.5	22.5
Effective Green, g (s)		10.9	10.9				1.8	18.1	18.1	6.2	22.5	22.5
Actuated g/C Ratio		0.22	0.22				0.04	0.37	0.37	0.13	0.46	0.46
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)		718	318				54	1093	489	199	1449	634
v/s Ratio Prot							0.02	0.17		c0.08	c0.29	
v/s Ratio Perm		0.11	0.01						0.05			0.06
v/c Ratio		0.47	0.06				0.67	0.45	0.13	0.62	0.64	0.14
Uniform Delay, d1		16.4	14.9				23.2	11.5	10.1	20.1	10.0	7.5
Progression Factor		1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2		0.5	0.1				26.9	0.3	0.1	5.6	0.9	0.1
Delay (s)		16.9	15.0				50.1	11.8	10.2	25.7	10.9	7.6
Level of Service		B	B				D	B	B	C	B	A
Approach Delay (s)		16.5			0.0			13.4			11.9	
Approach LOS		B			A			B			B	
<b>Intersection Summary</b>												
HCM 2000 Control Delay			13.2				HCM 2000 Level of Service			B		
HCM 2000 Volume to Capacity ratio			0.62									
Actuated Cycle Length (s)			48.7				Sum of lost time (s)			13.5		
Intersection Capacity Utilization			51.8%				ICU Level of Service			A		
Analysis Period (min)			15									
c Critical Lane Group												

# HCM Unsignalized Intersection Capacity Analysis

## 1: N Vernonia Rd & Pittsburg Rd

















12/08/2016

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	134	42	39	132	37	18
Future Volume (Veh/h)	134	42	39	132	37	18
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	146	46	42	143	40	20
Pedestrians					1	
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)						
pX, platoon unblocked						
vC, conflicting volume			193		397	170
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			193		397	170
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			97		93	98
cM capacity (veh/h)			1373		593	878
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	192	185	60			
Volume Left	0	42	40			
Volume Right	46	0	20			
cSH	1700	1373	665			
Volume to Capacity	0.11	0.03	0.09			
Queue Length 95th (ft)	0	2	7			
Control Delay (s)	0.0	1.9	11.0			
Lane LOS		A	B			
Approach Delay (s)	0.0	1.9	11.0			
Approach LOS			B			
Intersection Summary						
Average Delay			2.3			
Intersection Capacity Utilization			32.2%	ICU Level of Service	A	
Analysis Period (min)			15			

# HCM Unsignalized Intersection Capacity Analysis

## 2: N Vernonia Rd & Helens Way/Farmview Dr

















12/08/2016

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	7	1	25	3	1	1	38	70	2	2	63	20
Future Volume (Veh/h)	7	1	25	3	1	1	38	70	2	2	63	20
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Hourly flow rate (vph)	8	1	29	4	1	1	45	82	2	2	74	24
Pedestrians					4			2				
Lane Width (ft)					12.0			12.0				
Walking Speed (ft/s)					3.5			3.5				
Percent Blockage					0			0				
Right turn flare (veh)												
Median type								None			None	
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	264	268	88	298	279	87	98			88		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	264	268	88	298	279	87	98			88		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	99	100	97	99	100	100	97			100		
cM capacity (veh/h)	672	619	974	617	610	973	1508			1515		
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	38	6	129	100								
Volume Left	8	4	45	2								
Volume Right	29	1	2	24								
cSH	878	656	1508	1515								
Volume to Capacity	0.04	0.01	0.03	0.00								
Queue Length 95th (ft)	3	1	2	0								
Control Delay (s)	9.3	10.5	2.8	0.2								
Lane LOS	A	B	A	A								
Approach Delay (s)	9.3	10.5	2.8	0.2								
Approach LOS	A	B										
Intersection Summary												
Average Delay			2.9									
Intersection Capacity Utilization			23.3%	ICU Level of Service				A				
Analysis Period (min)			15									

# HCM Unsignalized Intersection Capacity Analysis

## 3: N Vernonia Rd & Oakwood Dr

















12/08/2016

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	3	1	32	3	1	1	39	109	2	1	87	2
Future Volume (Veh/h)	3	1	32	3	1	1	39	109	2	1	87	2
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Hourly flow rate (vph)	4	1	38	4	1	1	46	130	2	1	104	2
Pedestrians		4			5							
Lane Width (ft)		12.0			12.0							
Walking Speed (ft/s)		3.5			3.5							
Percent Blockage		0			0							
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	336	340	109	374	340	136	110			137		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	336	340	109	374	340	136	110			137		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	99	100	96	99	100	100	97			100		
cM capacity (veh/h)	599	562	946	543	562	914	1487			1446		
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	43	6	178	107								
Volume Left	4	4	46	1								
Volume Right	38	1	2	2								
cSH	885	586	1487	1446								
Volume to Capacity	0.05	0.01	0.03	0.00								
Queue Length 95th (ft)	4	1	2	0								
Control Delay (s)	9.3	11.2	2.1	0.1								
Lane LOS	A	B	A	A								
Approach Delay (s)	9.3	11.2	2.1	0.1								
Approach LOS	A	B										
Intersection Summary												
Average Delay			2.6									
Intersection Capacity Utilization			24.7%		ICU Level of Service					A		
Analysis Period (min)			15									

# HCM Unsignalized Intersection Capacity Analysis

## 4: N Vernonia Rd & Columbia Blvd

12/08/2016









												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	33	226	28	20	161	68	43	158	71	75	102	25
Future Volume (vph)	33	226	28	20	161	68	43	158	71	75	102	25
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	36	246	30	22	175	74	47	172	77	82	111	27
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total (vph)	312	271	296	220								
Volume Left (vph)	36	22	47	82								
Volume Right (vph)	30	74	77	27								
Hadj (s)	0.00	-0.13	-0.11	0.03								
Departure Headway (s)	6.1	6.1	6.1	6.4								
Degree Utilization, x	0.53	0.46	0.50	0.39								
Capacity (veh/h)	541	527	536	491								
Control Delay (s)	15.9	14.2	15.2	13.5								
Approach Delay (s)	15.9	14.2	15.2	13.5								
Approach LOS	C	B	C	B								
Intersection Summary												
Delay				14.8								
Level of Service				B								
Intersection Capacity Utilization				51.4%	ICU Level of Service	A						
Analysis Period (min)				15								

# HCM Unsignalized Intersection Capacity Analysis

## 5: US-30 & N Vernonia Rd

12/08/2016























Movement	EBL	EBR	NEL	NET	SWT	SWR	
Lane Configurations				 	 		
Traffic Volume (veh/h)	23	125	205	1123	843	37	
Future Volume (Veh/h)	23	125	205	1123	843	37	
Sign Control	Stop			Free	Free		
Grade	0%			0%	0%		
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	
Hourly flow rate (vph)	24	130	214	1170	878	39	
Pedestrians	6						
Lane Width (ft)	12.0						
Walking Speed (ft/s)	3.5						
Percent Blockage	1						
Right turn flare (veh)		9					
Median type				TWLT	TWLT		
Median storage veh				2	2		
Upstream signal (ft)							
pX, platoon unblocked							
vC, conflicting volume	1897	445	923				
vC1, stage 1 conf vol	884						
vC2, stage 2 conf vol	1013						
vCu, unblocked vol	1897	445	923				
tC, single (s)	6.8	6.9	4.2				
tC, 2 stage (s)	5.8						
tF (s)	3.5	3.3	2.2				
p0 queue free %	87	77	70				
cM capacity (veh/h)	186	557	725				
Direction, Lane #	EB 1	NE 1	NE 2	NE 3	SW 1	SW 2	SW 3
Volume Total	154	214	585	585	439	439	39
Volume Left	24	214	0	0	0	0	0
Volume Right	130	0	0	0	0	0	39
cSH	660	725	1700	1700	1700	1700	1700
Volume to Capacity	0.23	0.30	0.34	0.34	0.26	0.26	0.02
Queue Length 95th (ft)	22	31	0	0	0	0	0
Control Delay (s)	15.6	12.0	0.0	0.0	0.0	0.0	0.0
Lane LOS	C	B					
Approach Delay (s)	15.6	1.9			0.0		
Approach LOS	C						
Intersection Summary							
Average Delay			2.0				
Intersection Capacity Utilization			51.0%		ICU Level of Service		A
Analysis Period (min)			15				

# HCM Signalized Intersection Capacity Analysis

## 6: US-30 & Columbia Blvd










12/08/2016

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	113	275	54	0	0	0	63	811	226	119	819	238
Future Volume (vph)	113	275	54	0	0	0	63	811	226	119	819	238
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		4.5	4.5				4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor		0.95	1.00				1.00	0.95	1.00	1.00	0.95	1.00
Frpb, ped/bikes		1.00	0.97				1.00	1.00	1.00	1.00	1.00	0.97
Flpb, ped/bikes		1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Frt		1.00	0.85				1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected		0.99	1.00				0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		3239	1428				1599	3197	1430	1614	3228	1399
Flt Permitted		0.99	1.00				0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)		3239	1428				1599	3197	1430	1614	3228	1399
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)	123	299	59	0	0	0	68	882	246	129	890	259
RTOR Reduction (vph)	0	0	44	0	0	0	0	0	152	0	0	145
Lane Group Flow (vph)	0	422	15	0	0	0	68	882	94	129	890	114
Confl. Peds. (#/hr)	7		22	22		7	8					8
Heavy Vehicles (%)	1%	1%	1%	0%	0%	0%	4%	4%	4%	3%	3%	3%
Turn Type	Perm	NA	Perm				Prot	NA	Perm	Prot	NA	Perm
Protected Phases		4					5	2		1	6	
Permitted Phases	4		4						2			6
Actuated Green, G (s)		12.9	12.9				2.6	19.9	19.9	5.6	22.9	22.9
Effective Green, g (s)		12.9	12.9				2.6	19.9	19.9	5.6	22.9	22.9
Actuated g/C Ratio		0.25	0.25				0.05	0.38	0.38	0.11	0.44	0.44
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)		805	354				80	1225	548	174	1424	617
v/s Ratio Prot							0.04	c0.28		c0.08	c0.28	
v/s Ratio Perm		0.13	0.01						0.07			0.08
v/c Ratio		0.52	0.04				0.85	0.72	0.17	0.74	0.62	0.19
Uniform Delay, d1		16.8	14.8				24.5	13.6	10.6	22.4	11.2	8.8
Progression Factor		1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2		0.6	0.0				53.1	2.1	0.2	15.6	0.9	0.1
Delay (s)		17.5	14.9				77.6	15.7	10.7	38.0	12.1	9.0
Level of Service		B	B				E	B	B	D	B	A
Approach Delay (s)		17.1			0.0			18.2			14.0	
Approach LOS		B			A			B			B	
<b>Intersection Summary</b>												
HCM 2000 Control Delay			16.2				HCM 2000 Level of Service			B		
HCM 2000 Volume to Capacity ratio			0.65									
Actuated Cycle Length (s)			51.9				Sum of lost time (s)			13.5		
Intersection Capacity Utilization			57.8%				ICU Level of Service			B		
Analysis Period (min)			15									
c Critical Lane Group												

# HCM Unsignalized Intersection Capacity Analysis

## 1: N Vernonia Rd & Pittsburg Rd

















12/08/2016

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	173	51	36	171	46	19
Future Volume (Veh/h)	173	51	36	171	46	19
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	188	55	39	186	50	21
Pedestrians					1	
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)						
pX, platoon unblocked						
vC, conflicting volume			244		480	216
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			244		480	216
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			97		91	97
cM capacity (veh/h)			1315		531	828
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	243	225	71			
Volume Left	0	39	50			
Volume Right	55	0	21			
cSH	1700	1315	594			
Volume to Capacity	0.14	0.03	0.12			
Queue Length 95th (ft)	0	2	10			
Control Delay (s)	0.0	1.6	11.9			
Lane LOS		A	B			
Approach Delay (s)	0.0	1.6	11.9			
Approach LOS			B			
Intersection Summary						
Average Delay			2.2			
Intersection Capacity Utilization			37.0%	ICU Level of Service	A	
Analysis Period (min)			15			

# HCM Unsignalized Intersection Capacity Analysis

## 2: N Vernonia Rd & Helens Way/Farmview Dr

















12/08/2016

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	3	1	11	4	1	1	16	90	3	3	82	9
Future Volume (Veh/h)	3	1	11	4	1	1	16	90	3	3	82	9
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Hourly flow rate (vph)	4	1	13	5	1	1	19	106	4	4	96	11
Pedestrians					4			2				
Lane Width (ft)					12.0			12.0				
Walking Speed (ft/s)					3.5			3.5				
Percent Blockage					0			0				
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	257	262	104	275	265	112	107			114		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	257	262	104	275	265	112	107			114		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	99	100	99	99	100	100	99			100		
cM capacity (veh/h)	688	634	955	658	632	943	1497			1482		
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	18	7	129	111								
Volume Left	4	5	19	4								
Volume Right	13	1	4	11								
cSH	857	683	1497	1482								
Volume to Capacity	0.02	0.01	0.01	0.00								
Queue Length 95th (ft)	2	1	1	0								
Control Delay (s)	9.3	10.3	1.2	0.3								
Lane LOS	A	B	A	A								
Approach Delay (s)	9.3	10.3	1.2	0.3								
Approach LOS	A	B										
Intersection Summary												
Average Delay			1.6									
Intersection Capacity Utilization			23.1%		ICU Level of Service				A			
Analysis Period (min)			15									

# HCM Unsignalized Intersection Capacity Analysis

## 3: N Vernonia Rd & Oakwood Dr

















12/08/2016

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	4	1	30	4	1	1	34	108	3	1	96	3
Future Volume (Veh/h)	4	1	30	4	1	1	34	108	3	1	96	3
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Hourly flow rate (vph)	5	1	36	5	1	1	40	129	4	1	114	4
Pedestrians		4			5							
Lane Width (ft)		12.0			12.0							
Walking Speed (ft/s)		3.5			3.5							
Percent Blockage		0			0							
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	334	340	120	370	340	136	122			138		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	334	340	120	370	340	136	122			138		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	99	100	96	99	100	100	97			100		
cM capacity (veh/h)	602	564	933	548	564	914	1472			1445		
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	42	7	173	119								
Volume Left	5	5	40	1								
Volume Right	36	1	4	4								
cSH	863	584	1472	1445								
Volume to Capacity	0.05	0.01	0.03	0.00								
Queue Length 95th (ft)	4	1	2	0								
Control Delay (s)	9.4	11.2	1.9	0.1								
Lane LOS	A	B	A	A								
Approach Delay (s)	9.4	11.2	1.9	0.1								
Approach LOS	A	B										
Intersection Summary												
Average Delay			2.4									
Intersection Capacity Utilization			24.4%	ICU Level of Service					A			
Analysis Period (min)			15									

# HCM Unsignalized Intersection Capacity Analysis

## 4: N Vernonia Rd & Columbia Blvd

12/08/2016









												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	35	215	65	20	215	105	85	200	55	105	145	15
Future Volume (vph)	35	215	65	20	215	105	85	200	55	105	145	15
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	38	234	71	22	234	114	92	217	60	114	158	16
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total (vph)	343	370	369	288								
Volume Left (vph)	38	22	92	114								
Volume Right (vph)	71	114	60	16								
Hadj (s)	-0.07	-0.16	-0.03	0.08								
Departure Headway (s)	7.8	7.6	7.7	8.2								
Degree Utilization, x	0.74	0.78	0.79	0.65								
Capacity (veh/h)	430	444	441	393								
Control Delay (s)	30.0	33.0	34.5	25.2								
Approach Delay (s)	30.0	33.0	34.5	25.2								
Approach LOS	D	D	D	D								
Intersection Summary												
Delay				31.0								
Level of Service				D								
Intersection Capacity Utilization				57.2%	ICU Level of Service	B						
Analysis Period (min)				15								

# HCM Unsignalized Intersection Capacity Analysis

## 5: US-30 & N Vernonia Rd

12/08/2016























Movement	EBL	EBR	NEL	NET	SWT	SWR	
Lane Configurations				 	 		
Traffic Volume (veh/h)	25	200	255	1750	1195	45	
Future Volume (Veh/h)	25	200	255	1750	1195	45	
Sign Control	Stop			Free	Free		
Grade	0%			0%	0%		
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	
Hourly flow rate (vph)	26	208	266	1823	1245	47	
Pedestrians	6						
Lane Width (ft)	12.0						
Walking Speed (ft/s)	3.5						
Percent Blockage	1						
Right turn flare (veh)		9					
Median type				TWLT	TWLT		
Median storage veh)				2	2		
Upstream signal (ft)							
pX, platoon unblocked							
vC, conflicting volume	2694	628	1298				
vC1, stage 1 conf vol	1251						
vC2, stage 2 conf vol	1444						
vCu, unblocked vol	2694	628	1298				
tC, single (s)	6.8	6.9	4.2				
tC, 2 stage (s)	5.8						
tF (s)	3.5	3.3	2.2				
p0 queue free %	68	51	49				
cM capacity (veh/h)	81	423	521				
Direction, Lane #	EB 1	NE 1	NE 2	NE 3	SW 1	SW 2	SW 3
Volume Total	234	266	912	912	622	622	47
Volume Left	26	266	0	0	0	0	0
Volume Right	208	0	0	0	0	0	47
cSH	476	521	1700	1700	1700	1700	1700
Volume to Capacity	0.49	0.51	0.54	0.54	0.37	0.37	0.03
Queue Length 95th (ft)	67	72	0	0	0	0	0
Control Delay (s)	26.8	18.9	0.0	0.0	0.0	0.0	0.0
Lane LOS	D	C					
Approach Delay (s)	26.8	2.4			0.0		
Approach LOS	D						
Intersection Summary							
Average Delay			3.1				
Intersection Capacity Utilization			64.5%		ICU Level of Service		C
Analysis Period (min)			15				

# HCM Signalized Intersection Capacity Analysis

## 6: US-30 & Columbia Blvd

12/08/2016

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	150	260	70	0	0	0	45	1350	270	150	1190	300
Future Volume (vph)	150	260	70	0	0	0	45	1350	270	150	1190	300
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		4.5	4.5				4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor		0.95	1.00				1.00	0.95	1.00	1.00	0.95	1.00
Frpb, ped/bikes		1.00	0.96				1.00	1.00	1.00	1.00	1.00	0.96
Flpb, ped/bikes		1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Frt		1.00	0.85				1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected		0.98	1.00				0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		3222	1413				1599	3197	1430	1614	3228	1390
Flt Permitted		0.98	1.00				0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)		3222	1413				1599	3197	1430	1614	3228	1390
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)	163	283	76	0	0	0	49	1467	293	163	1293	326
RTOR Reduction (vph)	0	0	61	0	0	0	0	0	81	0	0	132
Lane Group Flow (vph)	0	446	15	0	0	0	49	1467	212	163	1293	194
Confl. Peds. (#/hr)	7		22	22		7	8					8
Heavy Vehicles (%)	1%	1%	1%	0%	0%	0%	4%	4%	4%	3%	3%	3%
Turn Type	Perm	NA	Perm				Prot	NA	Perm	Prot	NA	Perm
Protected Phases		4					5	2		1	6	
Permitted Phases	4		4						2			6
Actuated Green, G (s)		15.5	15.5				2.9	40.4	40.4	9.5	47.0	47.0
Effective Green, g (s)		15.5	15.5				2.9	40.4	40.4	9.5	47.0	47.0
Actuated g/C Ratio		0.20	0.20				0.04	0.51	0.51	0.12	0.60	0.60
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)		632	277				58	1636	732	194	1922	828
v/s Ratio Prot							0.03	c0.46		c0.10	0.40	
v/s Ratio Perm		0.14	0.01						0.15			0.14
v/c Ratio		0.71	0.05				0.84	0.90	0.29	0.84	0.67	0.23
Uniform Delay, d1		29.6	25.7				37.8	17.4	11.0	34.0	10.8	7.5
Progression Factor		1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2		3.6	0.1				65.1	6.9	0.2	26.5	0.9	0.1
Delay (s)		33.2	25.8				102.8	24.2	11.3	60.5	11.7	7.6
Level of Service		C	C				F	C	B	E	B	A
Approach Delay (s)		32.1			0.0			24.3			15.4	
Approach LOS		C			A			C			B	
<b>Intersection Summary</b>												
HCM 2000 Control Delay		21.4										
HCM 2000 Volume to Capacity ratio		0.84										
Actuated Cycle Length (s)		78.9										
Intersection Capacity Utilization		76.6%										
Analysis Period (min)		15										
c Critical Lane Group												

# HCM Unsignalized Intersection Capacity Analysis

## 1: N Vernonia Rd & Pittsburg Rd

















12/08/2016

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↰			↱	↰	↱
Traffic Volume (veh/h)	173	53	47	171	48	22
Future Volume (Veh/h)	173	53	47	171	48	22
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	188	58	51	186	52	24
Pedestrians					1	
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)						
pX, platoon unblocked						
vC, conflicting volume			247		506	218
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			247		506	218
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		90	97
cM capacity (veh/h)			1312		509	826
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	246	237	76			
Volume Left	0	51	52			
Volume Right	58	0	24			
cSH	1700	1312	579			
Volume to Capacity	0.14	0.04	0.13			
Queue Length 95th (ft)	0	3	11			
Control Delay (s)	0.0	2.0	12.2			
Lane LOS		A	B			
Approach Delay (s)	0.0	2.0	12.2			
Approach LOS			B			
Intersection Summary						
Average Delay		2.5				
Intersection Capacity Utilization		38.0%	ICU Level of Service	A		
Analysis Period (min)		15				

# HCM Unsignalized Intersection Capacity Analysis

## 2: N Vernonia Rd & Helens Way/Farmview Dr

















12/08/2016

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	8	1	28	4	1	1	42	90	3	3	82	22
Future Volume (Veh/h)	8	1	28	4	1	1	42	90	3	3	82	22
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Hourly flow rate (vph)	9	1	33	5	1	1	49	106	4	4	96	26
Pedestrians					4			2				
Lane Width (ft)					12.0			12.0				
Walking Speed (ft/s)					3.5			3.5				
Percent Blockage					0			0				
Right turn flare (veh)												
Median type								None			None	
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	324	329	111	362	340	112	122			114		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	324	329	111	362	340	112	122			114		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	99	100	97	99	100	100	97			100		
cM capacity (veh/h)	612	570	946	555	562	943	1478			1482		
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	43	7	159	126								
Volume Left	9	5	49	4								
Volume Right	33	1	4	26								
cSH	837	591	1478	1482								
Volume to Capacity	0.05	0.01	0.03	0.00								
Queue Length 95th (ft)	4	1	3	0								
Control Delay (s)	9.5	11.2	2.5	0.3								
Lane LOS	A	B	A	A								
Approach Delay (s)	9.5	11.2	2.5	0.3								
Approach LOS	A	B										
Intersection Summary												
Average Delay			2.7									
Intersection Capacity Utilization			24.6%		ICU Level of Service				A			
Analysis Period (min)			15									

# HCM Unsignalized Intersection Capacity Analysis

## 3: N Vernonia Rd & Oakwood Dr

















12/08/2016

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	4	1	39	4	1	1	47	134	3	1	109	3
Future Volume (Veh/h)	4	1	39	4	1	1	47	134	3	1	109	3
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Hourly flow rate (vph)	5	1	46	5	1	1	56	160	4	1	130	4
Pedestrians		4			5							
Lane Width (ft)		12.0			12.0							
Walking Speed (ft/s)		3.5			3.5							
Percent Blockage		0			0							
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	414	419	136	460	419	167	138			169		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	414	419	136	460	419	167	138			169		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	99	100	95	99	100	100	96			100		
cM capacity (veh/h)	529	503	915	469	503	878	1453			1408		
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	52	7	220	135								
Volume Left	5	5	56	1								
Volume Right	46	1	4	4								
cSH	842	507	1453	1408								
Volume to Capacity	0.06	0.01	0.04	0.00								
Queue Length 95th (ft)	5	1	3	0								
Control Delay (s)	9.6	12.2	2.2	0.1								
Lane LOS	A	B	A	A								
Approach Delay (s)	9.6	12.2	2.2	0.1								
Approach LOS	A	B										
Intersection Summary												
Average Delay			2.6									
Intersection Capacity Utilization			26.5%		ICU Level of Service					A		
Analysis Period (min)			15									

# HCM Unsignalized Intersection Capacity Analysis

## 4: N Vernonia Rd & Columbia Blvd

12/08/2016









												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	40	215	65	20	215	116	85	223	55	114	159	18
Future Volume (vph)	40	215	65	20	215	116	85	223	55	114	159	18
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	43	234	71	22	234	126	92	242	60	124	173	20
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total (vph)	348	382	394	317								
Volume Left (vph)	43	22	92	124								
Volume Right (vph)	71	126	60	20								
Hadj (s)	-0.06	-0.17	-0.03	0.07								
Departure Headway (s)	8.7	8.5	8.6	9.0								
Degree Utilization, x	0.84	0.90	0.94	0.79								
Capacity (veh/h)	393	382	414	370								
Control Delay (s)	44.2	52.1	59.2	38.8								
Approach Delay (s)	44.2	52.1	59.2	38.8								
Approach LOS	E	F	F	E								
Intersection Summary												
Delay				49.2								
Level of Service				E								
Intersection Capacity Utilization				62.3%	ICU Level of Service	B						
Analysis Period (min)				15								

# HCM Unsignalized Intersection Capacity Analysis

## 5: US-30 & N Vernonia Rd

12/08/2016























Movement	EBL	EBR	NEL	NET	SWT	SWR	
Lane Configurations				 	 		
Traffic Volume (veh/h)	25	214	278	1750	1195	45	
Future Volume (Veh/h)	25	214	278	1750	1195	45	
Sign Control	Stop			Free	Free		
Grade	0%			0%	0%		
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	
Hourly flow rate (vph)	26	223	290	1823	1245	47	
Pedestrians	6						
Lane Width (ft)	12.0						
Walking Speed (ft/s)	3.5						
Percent Blockage	1						
Right turn flare (veh)		9					
Median type				TWLT	TWLT		
Median storage veh				2	2		
Upstream signal (ft)							
pX, platoon unblocked							
vC, conflicting volume	2742	628	1298				
vC1, stage 1 conf vol	1251						
vC2, stage 2 conf vol	1492						
vCu, unblocked vol	2742	628	1298				
tC, single (s)	6.8	6.9	4.2				
tC, 2 stage (s)	5.8						
tF (s)	3.5	3.3	2.2				
p0 queue free %	63	47	44				
cM capacity (veh/h)	70	423	521				
Direction, Lane #	EB 1	NE 1	NE 2	NE 3	SW 1	SW 2	SW 3
Volume Total	249	290	912	912	622	622	47
Volume Left	26	290	0	0	0	0	0
Volume Right	223	0	0	0	0	0	47
cSH	472	521	1700	1700	1700	1700	1700
Volume to Capacity	0.53	0.56	0.54	0.54	0.37	0.37	0.03
Queue Length 95th (ft)	75	84	0	0	0	0	0
Control Delay (s)	29.0	20.2	0.0	0.0	0.0	0.0	0.0
Lane LOS	D	C					
Approach Delay (s)	29.0	2.8			0.0		
Approach LOS	D						
Intersection Summary							
Average Delay			3.6				
Intersection Capacity Utilization			65.9%		ICU Level of Service		C
Analysis Period (min)			15				

# HCM Signalized Intersection Capacity Analysis

## 6: US-30 & Columbia Blvd


















12/08/2016

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	153	266	70	0	0	0	45	1350	270	150	1190	311
Future Volume (vph)	153	266	70	0	0	0	45	1350	270	150	1190	311
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		4.5	4.5				4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor		0.95	1.00				1.00	0.95	1.00	1.00	0.95	1.00
Frpb, ped/bikes		1.00	0.96				1.00	1.00	1.00	1.00	1.00	0.96
Flpb, ped/bikes		1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Frt		1.00	0.85				1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected		0.98	1.00				0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		3222	1413				1599	3197	1430	1614	3228	1390
Flt Permitted		0.98	1.00				0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)		3222	1413				1599	3197	1430	1614	3228	1390
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)	166	289	76	0	0	0	49	1467	293	163	1293	338
RTOR Reduction (vph)	0	0	61	0	0	0	0	0	79	0	0	137
Lane Group Flow (vph)	0	455	15	0	0	0	49	1467	214	163	1293	201
Confl. Peds. (#/hr)	7		22	22		7	8					8
Heavy Vehicles (%)	1%	1%	1%	0%	0%	0%	4%	4%	4%	3%	3%	3%
Turn Type	Perm	NA	Perm				Prot	NA	Perm	Prot	NA	Perm
Protected Phases		4					5	2		1	6	
Permitted Phases	4		4						2			6
Actuated Green, G (s)		15.6	15.6				2.9	40.5	40.5	9.5	47.1	47.1
Effective Green, g (s)		15.6	15.6				2.9	40.5	40.5	9.5	47.1	47.1
Actuated g/C Ratio		0.20	0.20				0.04	0.51	0.51	0.12	0.60	0.60
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)		635	278				58	1636	732	193	1922	827
v/s Ratio Prot							0.03	c0.46		c0.10	0.40	
v/s Ratio Perm		0.14	0.01						0.15			0.14
v/c Ratio		0.72	0.05				0.84	0.90	0.29	0.84	0.67	0.24
Uniform Delay, d1		29.7	25.8				37.9	17.4	11.1	34.1	10.8	7.6
Progression Factor		1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2		3.9	0.1				65.1	6.9	0.2	27.2	0.9	0.2
Delay (s)		33.5	25.8				102.9	24.3	11.3	61.2	11.7	7.7
Level of Service		C	C				F	C	B	E	B	A
Approach Delay (s)		32.4			0.0			24.3			15.5	
Approach LOS		C			A			C			B	
<b>Intersection Summary</b>												
HCM 2000 Control Delay		21.5					HCM 2000 Level of Service		C			
HCM 2000 Volume to Capacity ratio		0.85										
Actuated Cycle Length (s)		79.1					Sum of lost time (s)		13.5			
Intersection Capacity Utilization		76.9%					ICU Level of Service		D			
Analysis Period (min)		15										
c Critical Lane Group												

# HCM Unsignalized Intersection Capacity Analysis

### 4: N Vernonia Rd & Columbia Blvd

















12/19/2016

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	40	215	65	20	215	116	85	223	55	114	159	18
Future Volume (vph)	40	215	65	20	215	116	85	223	55	114	159	18
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	43	234	71	22	234	126	92	242	60	124	173	20
Direction, Lane #	EB 1	WB 1	WB 2	NB 1	SB 1							
Volume Total (vph)	348	256	126	394	317							
Volume Left (vph)	43	22	0	92	124							
Volume Right (vph)	71	0	126	60	20							
Hadj (s)	-0.06	0.06	-0.68	-0.03	0.07							
Departure Headway (s)	8.1	8.6	7.8	7.8	8.2							
Degree Utilization, x	0.78	0.61	0.27	0.86	0.72							
Capacity (veh/h)	422	383	407	444	408							
Control Delay (s)	34.7	23.1	12.6	42.1	29.7							
Approach Delay (s)	34.7	19.6		42.1	29.7							
Approach LOS	D	C		E	D							
Intersection Summary												
Delay			31.6									
Level of Service			D									
Intersection Capacity Utilization			66.6%	ICU Level of Service		C						
Analysis Period (min)			15									

# HCM Unsignalized Intersection Capacity Analysis

### 4: N Vernonia Rd & Columbia Blvd

12/19/2016

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	36	215	65	20	215	108	85	207	55	108	149	16
Future Volume (vph)	36	215	65	20	215	108	85	207	55	108	149	16
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	39	234	71	22	234	117	92	225	60	117	162	17
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total (vph)	344	373	377	296								
Volume Left (vph)	39	22	92	117								
Volume Right (vph)	71	117	60	17								
Hadj (s)	-0.07	-0.16	-0.03	0.08								
Departure Headway (s)	8.1	7.9	8.0	8.4								
Degree Utilization, x	0.77	0.81	0.83	0.69								
Capacity (veh/h)	421	436	433	387								
Control Delay (s)	33.2	37.1	39.9	28.0								
Approach Delay (s)	33.2	37.1	39.9	28.0								
Approach LOS	D	E	E	D								
Intersection Summary												
Delay				35.0								
Level of Service				D								
Intersection Capacity Utilization				58.5%	ICU Level of Service		B					
Analysis Period (min)				15								

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

VERNONIA RD at PITTSBURG RD, City of St. Helens, Columbia County, 01/01/2010 to 12/31/2014

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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## TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT

## CRASH SUMMARIES BY YEAR BY COLLISION TYPE

VERNONIA RD at COLUMBIA BLVD, City of St. Helens, Columbia County, 01/01/2010 to 12/31/2014

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: 2014														
ANGLE	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	1	0	1	0	0
YEAR 2014 TOTAL	0	0	2	2	0	0	0	0	2	2	0	2	0	0
YEAR: 2013														
ANGLE	0	0	2	2	0	0	0	1	1	0	2	2	0	0
YEAR 2013 TOTAL	0	0	2	2	0	0	0	1	1	0	2	2	0	0
YEAR: 2012														
ANGLE	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														
ANGLE	0	0	1	1	0	0	0	0	1	1	0	1	0	0
YEAR 2011 TOTAL	0	0	1	1	0	0	0	0	1	1	0	1	0	0
FINAL TOTAL	0	0	6	6	0	0	0	1	5	4	2	6	0	0

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OREGON.. DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION  
TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT

CDS380  
11/29/2016

CITY OF ST. HELENS, COLUMBIA COUNTY  
**VERNONIA RD at COLUMBIA BLVD, city of St. Helens, Columbia County, 01/01/2010 to 12/31/2014**  
URBAN NON-SYSTEM CRASH LISTING  
Total crash records: 6

SER#	INVEST	D C S I L K TIME	FROM	CLASS	CITY STREET	RD CHAR	INT-TYPE (MEDIAN)	INT-BEL	OFFRD	WTHR	CRASH	SPCL USE	MOVE	P#	TYPE	SVRTY	E	X	RES	LOC	ERROR	ACT EVENT	CAUSE
TRAILER QTY	OWNER	V#	TYPE	TO	STRGHT	SE-NW	DRVR	NONE	00	F	UNK	UNK	01	DRVR	NONE	00	F	UNK	UNK	028	000	015	00
00126	NONE	N N N	04/14/2011	0	16	COLUMBIA BLVD	CN	01	10A	0	0	0	0	0	0	0	0	0	0	0	0	0	0
00407	NONE	N N N	12/03/2012	0	16	COLUMBIA BLVD	CN	04	12P	0	0	0	0	0	0	0	0	0	0	0	0	0	0
00453	NONE	N N N	12/11/2013	0	16	COLUMBIA BLVD	CN	02	5P	0	0	0	0	0	0	0	0	0	0	0	0	0	0
00481	NONE	N N N	12/11/2013	0	16	COLUMBIA BLVD	CN	02	5P	0	0	0	0	0	0	0	0	0	0	0	0	0	0
00092	CITY	N N N	03/08/2014	0	16	COLUMBIA BLVD	CN	01	9A	0	0	0	0	0	0	0	0	0	0	0	0	0	0
00137	CITY	N N N	04/17/2014	0	16	COLUMBIA BLVD	CN	04	2P	0	0	0	0	0	0	0	0	0	0	0	0	0	0

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CDS380  
11/29/2016

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

CITY OF ST. HELENS, COLUMBIA COUNTY

VERNONIA RD at COLUMBIA BLVD, city of St. Helens, Columbia County, 01/01/2010 to 12/31/2014

Total crash records: 6

SER#	INVEST	D C S L K TIME	FROM	CLASS	CITY STREET	RD CHAR	INT-TYPE (MEDIAN)	INT-REL LEGS TRAF - (#LANES)	CONTL	DRVMY	LIGHT	SURF	COLL	CRASH	SPCL USE TRLR QTY	MOVE	P# TYPE	SVRTY	E X RES	LOC	ERROR	ACT EVENT	CAUSE
					FIRST STREET	DIRECT									OWNER		TO						
					SECOND STREET	LOCN									V# TYPE								

OR<25

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.

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

VERNONIA RD at LOWER COL RIVER HY, City of St. Helens, Columbia County, 01/01/2010 to 12/31/2014

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: 2014														
TURNING MOVEMENTS	0	2	0	2	0	2	0	1	1	2	0	2	0	0
YEAR 2014 TOTAL	0	2	0	2	0	2	0	1	1	2	0	2	0	0
YEAR: 2012														
TURNING MOVEMENTS	0	1	0	1	0	1	0	1	0	0	1	1	0	0
YEAR 2012 TOTAL	0	1	0	1	0	1	0	1	0	0	1	1	0	0
YEAR: 2010														
TURNING MOVEMENTS	0	1	0	1	0	1	0	1	0	0	1	1	0	0
YEAR 2010 TOTAL	0	1	0	1	0	1	0	1	0	0	1	1	0	0
FINAL TOTAL	0	4	0	4	0	4	0	3	1	2	2	4	0	0

Navigate using Bookmarks or by clicking on an agenda item.

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## TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT

## CRASH SUMMARIES BY YEAR BY COLLISION TYPE

COLUMBIA BLVD at LOWER COL RIVER HY, City of St. Helens, Columbia County, 01/01/2010 to 12/31/2014

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: 2014														
ANGLE	0	2	0	2	0	2	0	2	0	2	0	2	0	0
REAR-END	0	1	2	3	0	1	0	2	1	3	0	3	0	0
YEAR 2014 TOTAL	0	3	2	5	0	3	0	4	1	5	0	5	0	0
YEAR: 2013														
PEDESTRIAN	0	1	0	1	0	1	0	1	0	1	0	1	0	0
REAR-END	0	1	3	4	0	1	0	4	0	2	2	4	0	0
TURNING MOVEMENTS	0	0	1	1	0	0	1	0	1	1	0	1	0	0
YEAR 2013 TOTAL	0	2	4	6	0	2	1	5	1	4	2	6	0	0
YEAR: 2012														
ANGLE	0	1	0	1	0	1	0	0	1	0	1	1	0	0
PEDESTRIAN	0	1	0	1	0	1	0	1	0	1	0	1	0	0
REAR-END	0	1	0	1	0	2	0	1	0	0	1	1	0	0
TURNING MOVEMENTS	0	1	0	1	0	1	0	1	0	1	0	1	0	0
YEAR 2012 TOTAL	0	4	0	4	0	5	0	3	1	2	2	4	0	0
YEAR: 2011														
TURNING MOVEMENTS	0	2	0	2	0	3	0	1	1	1	1	2	0	0
YEAR 2011 TOTAL	0	2	0	2	0	3	0	1	1	1	1	2	0	0
YEAR: 2010														
ANGLE	0	0	1	1	0	0	0	0	1	1	0	1	0	0

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

COLUMBIA BLVD at LOWER COL RIVER HY, City of St. Helens, Columbia County, 01/01/2010 to 12/31/2014

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		
REAR-END	0	0	1	1	0	0	0	1	0	0	1	0	1	0	0	0
YEAR 2010 TOTAL	0	0	2	2	0	0	0	1	1	1	2	0	2	0	0	0
FINAL TOTAL	0	11	8	19	0	13	1	14	5	5	14	5	19	0	0	0

Navigate using Bookmarks or by clicking on an agenda item.

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COLUMBIA BLVD at LOWER COL RIVER HY, City of St. Helens, Columbia County, 01/01/2010 to 12/31/2014

Total crash records: 19

[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 reports 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.



CDS380  
11/29/2016

OREGON.. DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION  
TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT

URBAN NON-SYSTEM CRASH LISTING  
COLUMBIA BLVD at LOWER COL RIVER HY, City of St. Helens, Columbia County, 01/01/2010 to 12/31/2014  
Total crash records: 19

CITY OF ST. HELENS, COLUMBIA COUNTY

S D  
P R S W

E A U C O DATE  
E L G H R DAY

SER# INVEST D C S L K TIME

FROM

CLASS

CITY STREET

FIRST STREET

SECOND STREET

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COLUMBIA BLVD

LOWER COL RIVER HY

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## Left-Turn Lane Warrant Analysis

*Le*

Project: 16176 - Emerald Meadows Estates  
 Intersection: Pittsburg Road at N Vernonia Road  
 Date: 12/19/2016  
 Scenario: 2018 Background plus Site Conditions - AM Peak Hour (WB)

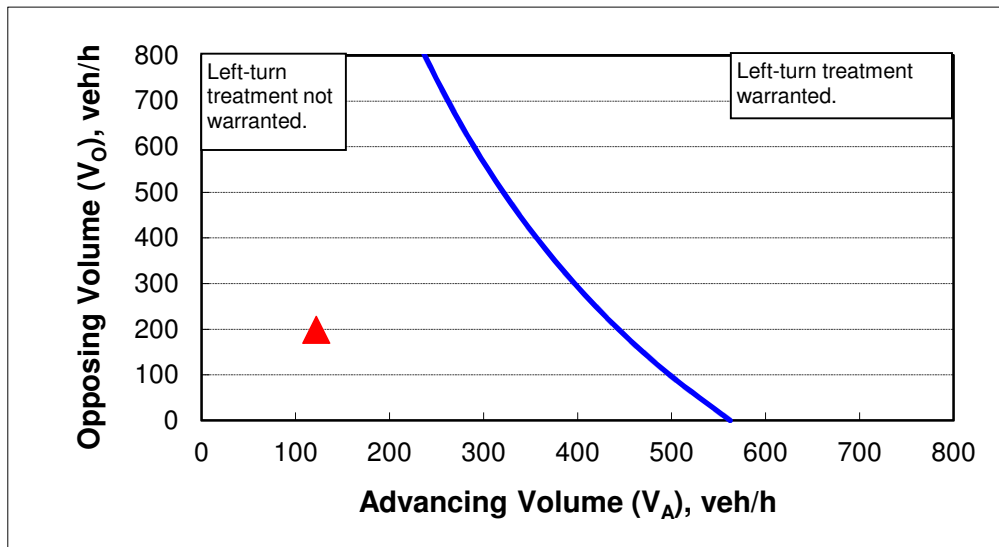
### 2-lane roadway (English)

#### INPUT

Variable	Value
85 <sup>th</sup> percentile speed, mph:	35
Percent of left-turns in advancing volume ( $V_A$ ), %:	12%
Advancing volume ( $V_A$ ), veh/h:	122
Opposing volume ( $V_O$ ), veh/h:	198

#### OUTPUT

Variable	Value
Limiting advancing volume ( $V_A$ ), veh/h:	444
<b>Guidance for determining the need for a major-road left-turn bay:</b>	
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: 16176 - Emerald Meadows Estates  
 Intersection: Pittsburg Road at N Vernonia Road  
 Date: 12/19/2016  
 Scenario: 2031 Planning Horizon plus Zone Change - PM Peak Hour (WB)

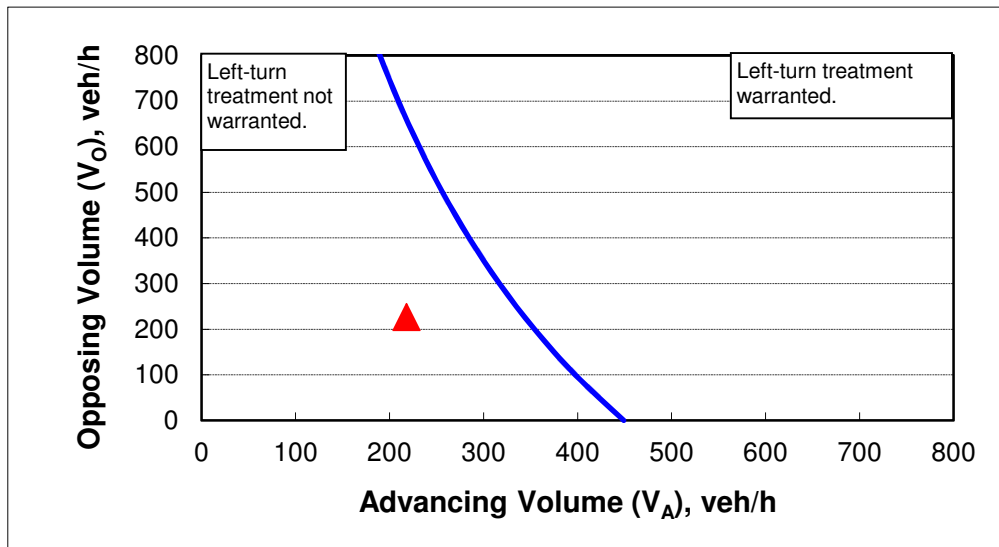
### 2-lane roadway (English)

#### INPUT

Variable	Value
85 <sup>th</sup> percentile speed, mph:	35
Percent of left-turns in advancing volume ( $V_A$ ), %:	22%
Advancing volume ( $V_A$ ), veh/h:	218
Opposing volume ( $V_O$ ), veh/h:	226

#### OUTPUT

Variable	Value
Limiting advancing volume ( $V_A$ ), veh/h:	344
<b>Guidance for determining the need for a major-road left-turn bay:</b>	
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: 16176 - Emerald Meadows Estates  
 Intersection: Helens Way/Farmview Drive at N Vernonia Road  
 Date: 12/19/2016  
 Scenario: 2018 Background plus Site Conditions - AM Peak Hour (NB)

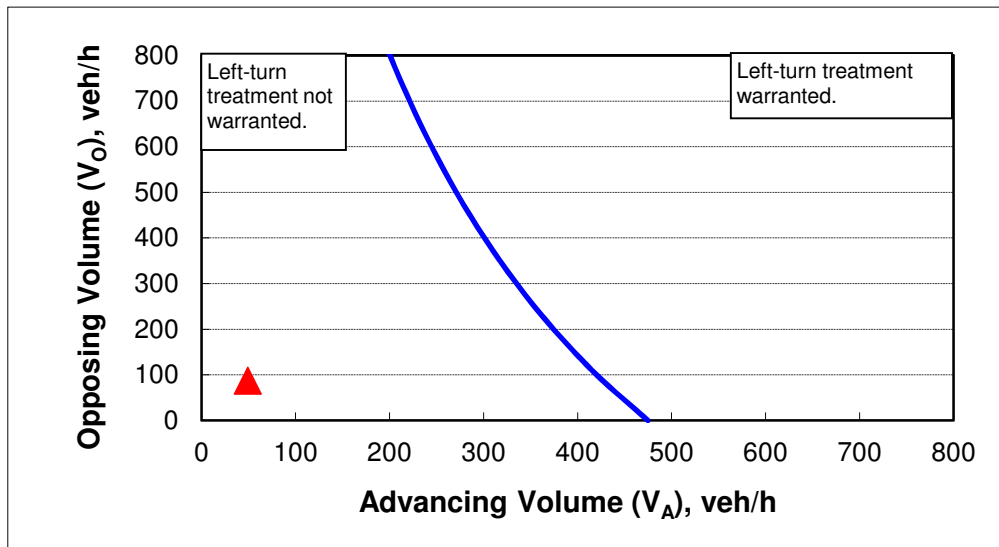
### 2-lane roadway (English)

#### INPUT

Variable	Value
85 <sup>th</sup> percentile speed, mph:	25
Percent of left-turns in advancing volume ( $V_A$ ), %:	24%
Advancing volume ( $V_A$ ), veh/h:	49
Opposing volume ( $V_O$ ), veh/h:	87

#### OUTPUT

Variable	Value
Limiting advancing volume ( $V_A$ ), veh/h:	427
<b>Guidance for determining the need for a major-road left-turn bay:</b>	
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: 16176 - Emerald Meadows Estates  
 Intersection: Helens Way/Farmview Drive at N Vernonia Road  
 Date: 12/19/2016  
 Scenario: 2031 Planning Horizon plus Zone Change - PM Peak Hour (NB)

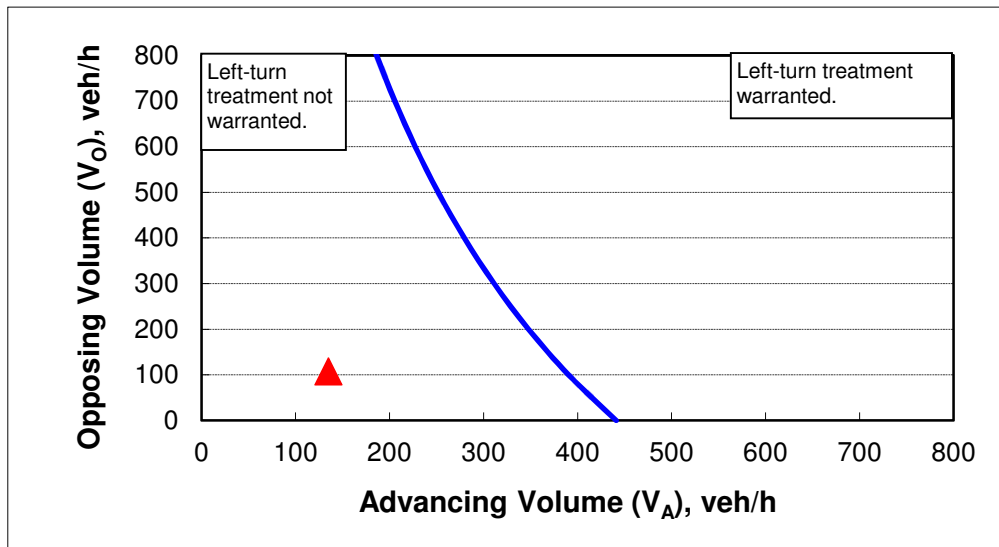
### 2-lane roadway (English)

#### INPUT

Variable	Value
85 <sup>th</sup> percentile speed, mph:	25
Percent of left-turns in advancing volume ( $V_A$ ), %:	31%
Advancing volume ( $V_A$ ), veh/h:	135
Opposing volume ( $V_O$ ), veh/h:	107

#### OUTPUT

Variable	Value
Limiting advancing volume ( $V_A$ ), veh/h:	387
<b>Guidance for determining the need for a major-road left-turn bay:</b>	
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: 16176 - Emerald Meadows Estates  
 Intersection: Helens Way/Farmview Drive at N Vernonia Road  
 Date: 12/19/2016  
 Scenario: 2018 Background plus Site Conditions - AM Peak Hour (SB)

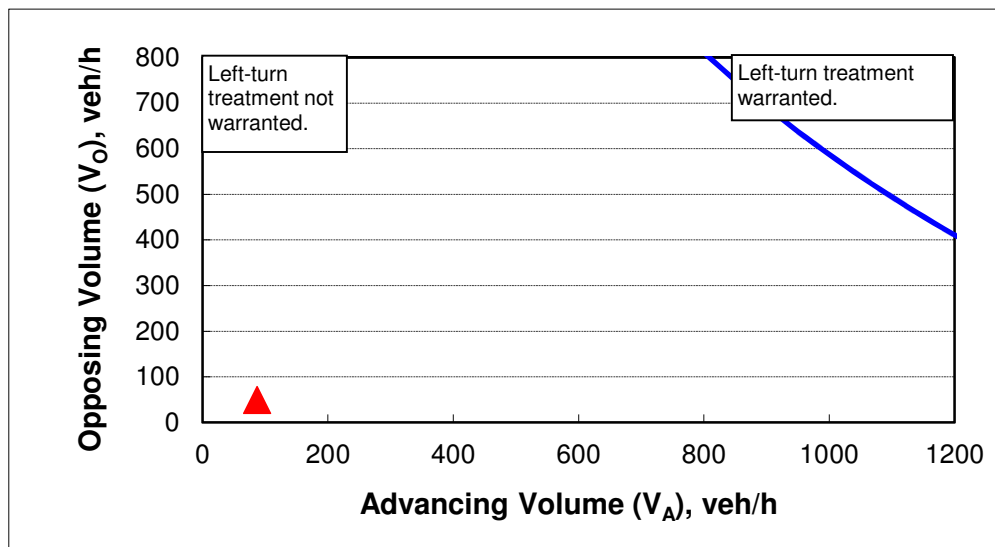
### 2-lane roadway (English)

#### INPUT

Variable	Value
85 <sup>th</sup> percentile speed, mph:	25
Percent of left-turns in advancing volume ( $V_A$ ), %:	1%
Advancing volume ( $V_A$ ), veh/h:	87
Opposing volume ( $V_O$ ), veh/h:	49

#### OUTPUT

Variable	Value
Limiting advancing volume ( $V_A$ ), veh/h:	1803
<b>Guidance for determining the need for a major-road left-turn bay:</b>	
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: 16176 - Emerald Meadows Estates  
 Intersection: Helens Way/Farmview Drive at N Vernonia Road  
 Date: 12/19/2016  
 Scenario: 2031 Planning Horizon plus Zone Change - PM Peak Hour (SB)

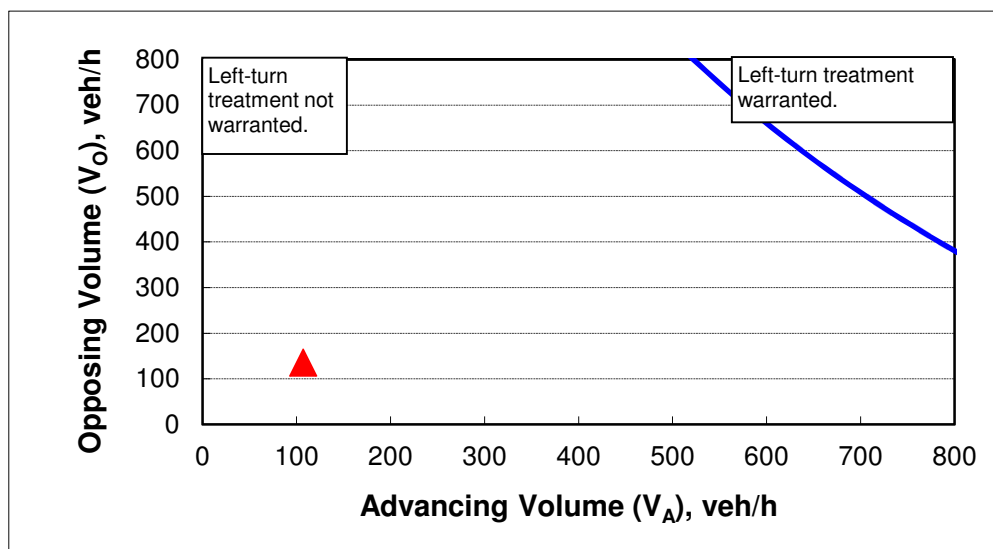
### 2-lane roadway (English)

#### INPUT

Variable	Value
85 <sup>th</sup> percentile speed, mph:	25
Percent of left-turns in advancing volume ( $V_A$ ), %:	3%
Advancing volume ( $V_A$ ), veh/h:	107
Opposing volume ( $V_O$ ), veh/h:	135

#### OUTPUT

Variable	Value
Limiting advancing volume ( $V_A$ ), veh/h:	1051
<b>Guidance for determining the need for a major-road left-turn bay:</b>	
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: 16176 - Emerald Meadows Estates  
 Intersection: Oakwood Drive at N Vernonia Road  
 Date: 12/19/2016  
 Scenario: 2018 Background plus Site Conditions - AM Peak Hour (NB)

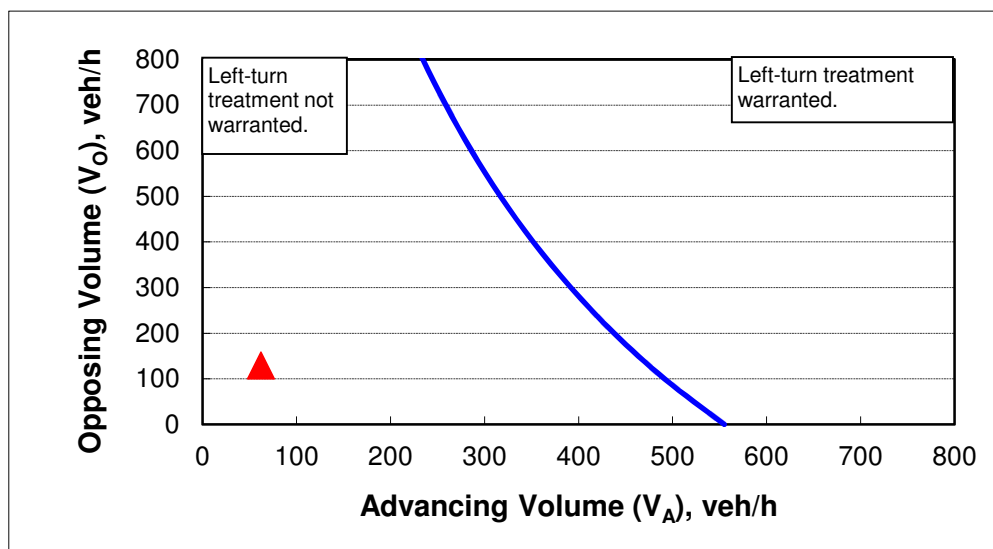
### 2-lane roadway (English)

#### INPUT

Variable	Value
85 <sup>th</sup> percentile speed, mph:	25
Percent of left-turns in advancing volume ( $V_A$ ), %:	16%
Advancing volume ( $V_A$ ), veh/h:	62
Opposing volume ( $V_O$ ), veh/h:	129

#### OUTPUT

Variable	Value
Limiting advancing volume ( $V_A$ ), veh/h:	475
<b>Guidance for determining the need for a major-road left-turn bay:</b>	
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: 16176 - Emerald Meadows Estates  
 Intersection: Oakwood Drive at N Vernonia Road  
 Date: 12/19/2016  
 Scenario: 2031 Planning Horizon plus Zone Change - PM Peak Hour (NB)

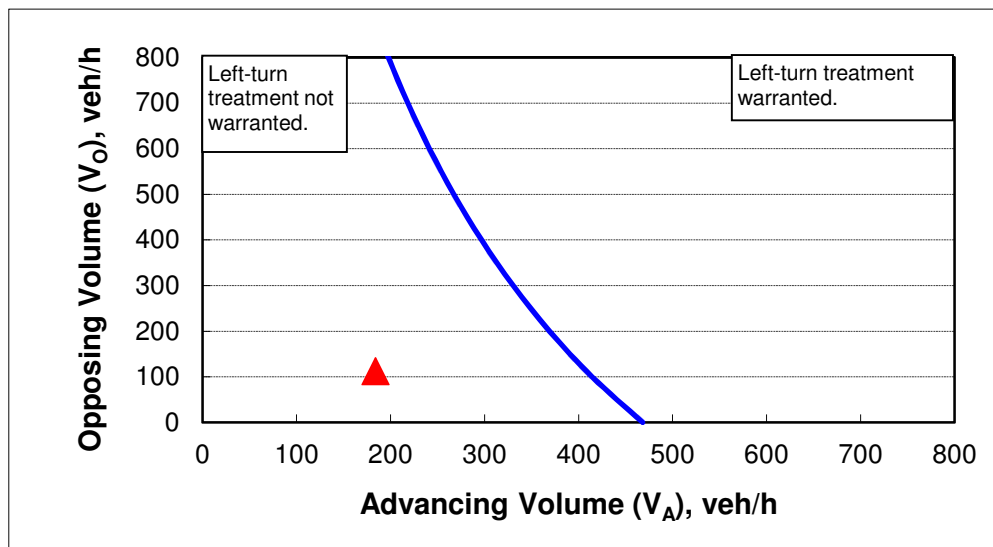
### 2-lane roadway (English)

#### INPUT

Variable	Value
85 <sup>th</sup> percentile speed, mph:	25
Percent of left-turns in advancing volume ( $V_A$ ), %:	26%
Advancing volume ( $V_A$ ), veh/h:	184
Opposing volume ( $V_O$ ), veh/h:	112

#### OUTPUT

Variable	Value
Limiting advancing volume ( $V_A$ ), veh/h:	409
<b>Guidance for determining the need for a major-road left-turn bay:</b>	
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: 16176 - Emerald Meadows Estates  
 Intersection: Oakwood Drive at N Vernonia Road  
 Date: 12/19/2016  
 Scenario: 2018 Background plus Site Conditions - AM Peak Hour (SB)

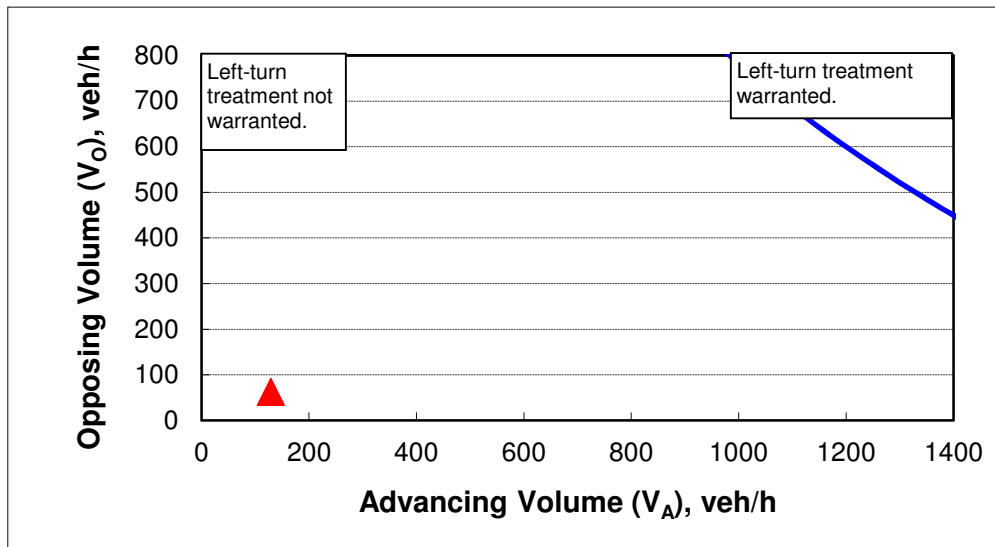
### 2-lane roadway (English)

#### INPUT

Variable	Value
85 <sup>th</sup> percentile speed, mph:	25
Percent of left-turns in advancing volume ( $V_A$ ), %:	1%
Advancing volume ( $V_A$ ), veh/h:	129
Opposing volume ( $V_O$ ), veh/h:	62

#### OUTPUT

Variable	Value
Limiting advancing volume ( $V_A$ ), veh/h:	2157
<b>Guidance for determining the need for a major-road left-turn bay:</b>	
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: 16176 - Emerald Meadows Estates  
 Intersection: Oakwood Drive at N Vernonia Road  
 Date: 12/19/2016  
 Scenario: 2031 Planning Horizon plus Zone Change - PM Peak Hour (SB)

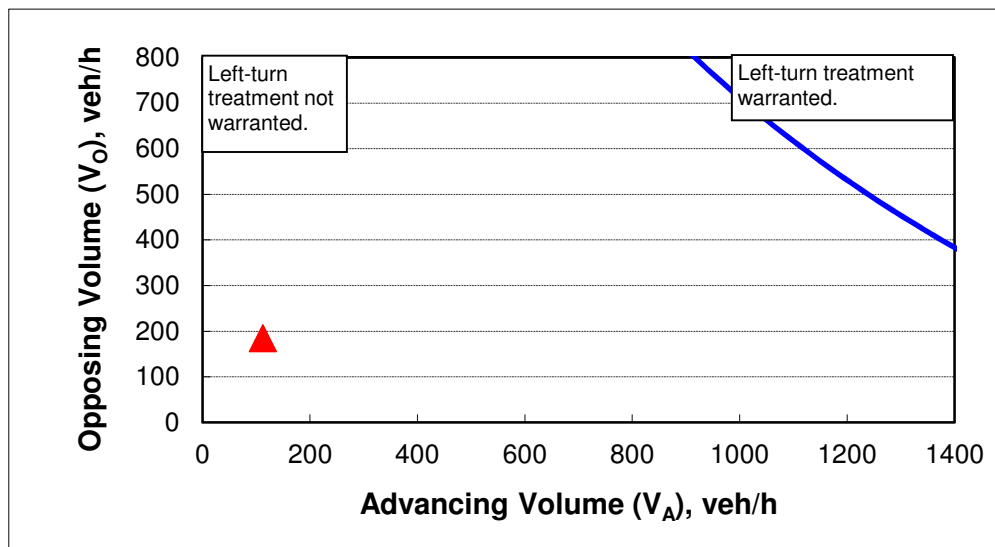
### 2-lane roadway (English)

#### INPUT

Variable	Value
85 <sup>th</sup> percentile speed, mph:	25
Percent of left-turns in advancing volume ( $V_A$ ), %:	1%
Advancing volume ( $V_A$ ), veh/h:	112
Opposing volume ( $V_O$ ), veh/h:	184

#### OUTPUT

Variable	Value
Limiting advancing volume ( $V_A$ ), veh/h:	1743
<b>Guidance for determining the need for a major-road left-turn bay:</b>	
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

## Traffic Signal Warrant Analysis

Project: 16176 - Emerald Meadows Estates  
 Date: 12/19/2016  
 Scenario: Year 2031 Planning Horizon plus Zone Change

Major Street:	Pittsburg Road	Minor Street:	N Vernonia Road
Number of Lanes:	1	Number of Lanes:	1
PM Peak Hour Volumes:	444	PM Peak Hour Volumes:	65

### 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	4,440	8,850	
Minor Street*	650	2,650	<b>No</b>
<i>Condition B: Interruption of Continuous Traffic</i>			
Major Street	4,440	13,300	
Minor Street*	650	1,350	<b>No</b>
<i>Combination Warrant</i>			
Major Street	4,440	10,640	
Minor Street*	650	2,120	<b>No</b>

\* Minor street right-turning traffic volumes reduced by 25%



## Traffic Signal Warrant Analysis

Project: 16176 - Emerald Meadows Estates  
 Date: 12/19/2016  
 Scenario: Year 2031 Planning Horizon plus Zone Change

Major Street:	N Vernonia Road	Minor Street:	Helens Way
Number of Lanes:	1	Number of Lanes:	1
PM Peak Hour Volumes:	242	PM Peak Hour Volumes:	29

### 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	2,420	8,850	
Minor Street*	290	2,650	<b>No</b>
<i>Condition B: Interruption of Continuous Traffic</i>			
Major Street	2,420	13,300	
Minor Street*	290	1,350	<b>No</b>
<i>Combination Warrant</i>			
Major Street	2,420	10,640	
Minor Street*	290	2,120	<b>No</b>

\* Minor street right-turning traffic volumes reduced by 25%



## Traffic Signal Warrant Analysis

Project: 16176 - Emerald Meadows Estates  
 Date: 12/19/2016  
 Scenario: Year 2031 Planning Horizon plus Zone Change

Major Street:	N Vernonia Road	Minor Street:	Oakwood Drive
Number of Lanes:	1	Number of Lanes:	1
PM Peak Hour Volumes:	296	PM Peak Hour Volumes:	33

### 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	2,960	8,850	
Minor Street*	330	2,650	<b>No</b>
<i>Condition B: Interruption of Continuous Traffic</i>			
Major Street	2,960	13,300	
Minor Street*	330	1,350	<b>No</b>
<i>Combination Warrant</i>			
Major Street	2,960	10,640	
Minor Street*	330	2,120	<b>No</b>

\* Minor street right-turning traffic volumes reduced by 25%



## Traffic Signal Warrant Analysis

Project: 16176 - Emerald Meadows Estates  
 Date: 12/19/2016  
 Scenario: Year 2031 Planning Horizon plus Zone Change

Major Street:	Columbia Boulevard	Minor Street:	N Vernonia Road
Number of Lanes:	1	Number of Lanes:	1
PM Peak Hour Volumes:	671	PM Peak Hour Volumes:	349

### 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	6,710	8,850	
Minor Street*	3,490	2,650	<b>No</b>
<i>Condition B: Interruption of Continuous Traffic</i>			
Major Street	6,710	13,300	
Minor Street*	3,490	1,350	<b>No</b>
<i>Combination Warrant</i>			
Major Street	6,710	10,640	
Minor Street*	3,490	2,120	<b>No</b>

\* Minor street right-turning traffic volumes reduced by 25%



## Traffic Signal Warrant Analysis

Project: 16176 - Emerald Meadows Estates  
 Date: 12/19/2016  
 Scenario: Year 2031 Planning Horizon

Major Street:	US-30	Minor Street:	S Vernonia Road
Number of Lanes:	3	Number of Lanes:	2
PM Peak Hour Volumes:	3245	PM Peak Hour Volumes:	34

### 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.

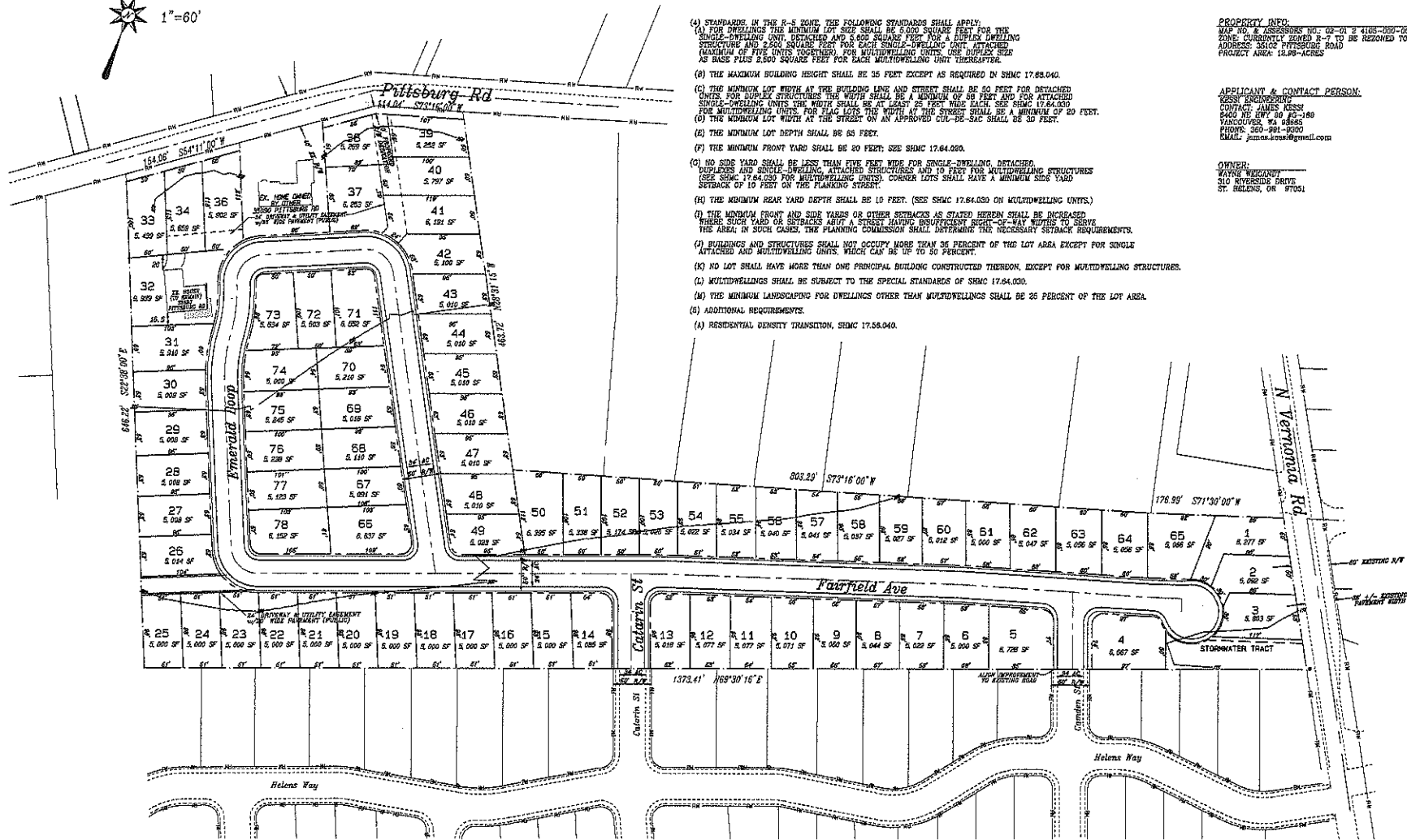
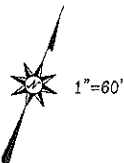
Number of Lanes for Moving Traffic on Each Approach:		ADT on Major St. (total of both approaches)		ADT on Minor St. (higher-volume approach)	
		100% Warrants	70% Warrants	100% Warrants	70% Warrants
<u>WARRANT 1, CONDITION A</u>					
<u>Major St.</u>	<u>Minor St.</u>				
1	1	8,850	6,200	2,650	1,850
2 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	32,450	10,600	
Minor Street*	340	3,550	<b>No</b>
<i>Condition B: Interruption of Continuous Traffic</i>			
Major Street	32,450	15,900	
Minor Street*	340	1,750	<b>No</b>
<i>Combination Warrant</i>			
Major Street	32,450	12,720	
Minor Street*	340	2,840	<b>No</b>

\* Minor street right-turning traffic volumes reduced by 85% of total approach volumes.

# EMERALD MEADOW SUBDIVISION



- (A) STANDARDS IN THE R-5 ZONE, THE FOLLOWING STANDARDS SHALL APPLY.
- (A) FOR DWELLINGS THE MINIMUM LOT SIZE SHALL BE 5,000 SQUARE FEET FOR THE SINGLE-DWELLING UNIT, DETACHED AND 5,000 SQUARE FEET FOR A DUPLEX DWELLING STRUCTURE AND 2,500 SQUARE FEET FOR EACH SINGLE-DWELLING UNIT, ATTACHED. MINIMUM OF TWO UNITS REQUIRED FOR MULTIDWELLING UNITS. ONE DUPLEX SHALL AS BASE PLUS 2,500 SQUARE FEET FOR EACH MULTIDWELLING UNIT THEREAFTER.
- (B) THE MAXIMUM BUILDING HEIGHT SHALL BE 35 FEET EXCEPT AS REQUIRED IN SHMC 17.65.040.
- (C) THE MINIMUM LOT WIDTH AT THE BUILDING LINE AND STREET SHALL BE 50 FEET FOR DETACHED UNITS, FOR DUPLEX STRUCTURES THE WIDTH SHALL BE A MINIMUM OF 60 FEET AND FOR ATTACHED UNITS, THE MINIMUM LOT WIDTH SHALL BE AT LEAST 25 FEET WIDE BACK SEE SHMC 17.64.030 FOR MULTIDWELLING UNITS. FOR FLAG LOTS THE WIDTH AT THE STREET SHALL BE A MINIMUM OF 20 FEET.
- (D) THE MINIMUM LOT WIDTH AT THE STREET ON AN APPROVED CUL-DE-SAC SHALL BE 30 FEET.
- (E) THE MINIMUM LOT DEPTH SHALL BE 65 FEET.
- (F) THE MINIMUM FRONT YARD SHALL BE 20 FEET; SEE SHMC 17.64.030.
- (G) NO SIDE YARD SHALL BE LESS THAN FIVE FEET WIDE FOR SINGLE-DWELLING, DETACHED, DUPLEXES AND SINGLE-DWELLING, ATTACHED STRUCTURES AND 10 FEET FOR MULTIDWELLING STRUCTURES (SEE SHMC 17.64.030 FOR MULTIDWELLING UNITS). CORNER LOTS SHALL HAVE A MINIMUM SIDE YARD SETBACK OF 10 FEET ON THE FLANKING STREET.
- (H) THE MINIMUM REAR YARD DEPTH SHALL BE 10 FEET. (SEE SHMC 17.64.030 ON MULTIDWELLING UNITS.)
- (I) THE MINIMUM FRONT AND SIDE YARDS OR OTHER SETBACKS AS STATED HEREIN SHALL BE INCREASED WHEN SUCH YARD OR SETBACKS ADJUT A STREET HAVING INSUFFICIENT RIGHT-OF-WAY WIDTH TO SERVE THE AREA. IN SUCH CASES, THE PLANNING COMMISSION SHALL DETERMINE THE NECESSARY SETBACK REQUIREMENTS.
- (J) BUILDINGS AND STRUCTURES SHALL NOT OCCUPY MORE THAN 35 PERCENT OF THE LOT AREA EXCEPT FOR SINGLE ATTACHED AND MULTIDWELLING UNITS, WHICH CAN BE UP TO 50 PERCENT.
- (K) NO LOT SHALL HAVE MORE THAN ONE PRINCIPAL BUILDING CONSTRUCTED THEREON, EXCEPT FOR MULTIDWELLING STRUCTURES.
- (L) MULTIDWELLINGS SHALL BE SUBJECT TO THE SPECIAL STANDARDS OF SHMC 17.64.030.
- (M) THE MINIMUM LANDSCAPING FOR DWELLINGS OTHER THAN MULTIDWELLINGS SHALL BE 25 PERCENT OF THE LOT AREA.
- (N) ADDITIONAL REQUIREMENTS:
- (A) RESIDENTIAL DENSITY TRANSITION, SHMC 17.56.040.

PROPERTY INFO:  
 MAP NO. 6, 488,000,000, 100' OF 3, 4100-000-0001  
 ZONE CURRENTLY ZONED R-7 TO BE REZONED TO RS  
 ADDRESS: 35102 PITTSBURG ROAD  
 PROJECT AREA: 12.98-ACRES

APPLICANT & CONTACT PERSON:  
 JESSI ENGINEERING  
 CONTACT: JAMES JESSI  
 8440 NW 10TH ST. #2-100  
 VANCOUVER, WA 98665  
 PHONE: 360-991-9300  
 EMAIL: james.jessi@gmail.com

OWNER:  
 YAHN WINDMILL  
 510 RIVERSIDE DRIVE  
 ST. HELENS, OR 97051



CIVIL ENGINEERING  
 CONSULTING  
 PROJECT MANAGEMENT

SITE INFORMATION  
 ADDRESS: 35102 PITTSBURG ROAD  
 CITY: VANCOUVER, WA  
 COUNTY: KING  
 STATE: WA  
 PROJECT: EMERALD MEADOW SUBDIVISION  
 DATE: 1 Jun 2016

EMERALD MEADOW SUBDIVISION  
 PROPOSED DEVELOPMENT PLAT



DATE: November 14, 2016  
TO: Columbia County Housing Workgroup  
CC: Jim Tierney and Andree Tremoulet  
FROM: Beth Goodman  
SUBJECT: COLUMBIA COUNTY HOUSING ANALYSIS

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Availability of affordable housing is a growing concern in Columbia County. The Community Action Team (CAT) contracted with ECONorthwest to develop information to better understand the issues of housing affordability in Columbia County. This information will help the CAT develop programs and work with communities to develop policies that better address housing affordability, both through private market development of market-rate affordable housing and development of government-subsidized affordable housing.

This memorandum presents a brief analysis of the housing market in Columbia County. It presents a forecast of housing growth based on historical development trends and an assessment of housing affordability in the County. It provides a high-level description of gaps in Columbia County's housing market, both for existing households and for future households.

This memorandum includes the following sections:

- **Summary** presents a brief summary of the conclusions of the analysis.
- **Characteristics of Housing** provides information about the housing stock in Columbia County, including changes in the mix of housing and housing tenure.
- **Housing Affordability in Columbia County** presents information about housing costs and housing affordability in the County, including changes since 2000.
- **Housing Forecast** presents a forecast for housing in Columbia County and selected cities based on the characteristics of the existing housing stock, housing tenure, and housing affordability.
- **Conclusions** discusses the conclusions about the types of housing needed in Columbia County, both to meet existing needs and future needs.

## Summary

The analysis in the memorandum shows that Columbia County struggles with housing affordability similar to communities in and around the Portland region and statewide. Most of Columbia County's housing is single-family detached and most is owner-occupied, with relatively little multifamily housing.

The County's adopted population forecast shows growth of more than 10,400 people over the 2016 to 2036 period, resulting in demand for nearly 4,100 new dwelling units. Assuming that housing growth over the next 20 years is similar to development since 2000, more than three quarters of new housing (about 3,200 units) would be single-family detached units. The

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remaining units would include nearly 790 new multifamily units and nearly 100 new single-family attached units.

However, there are several factors to suggest this development pattern is not meeting the needs of some existing residents and will not meet the needs of some future residents. These factors suggest that the mix of housing that Columbia County and its cities need is for development of a wider range of housing types compared to historical development, especially relatively affordable housing types. These factors include:

- One-third of Columbia County's households are cost burdened and pay more than they can afford for housing. More than half of renters and about one-quarter of homeowners are cost burdened. These households, especially renter households, lack access to affordable housing.
- Twenty-two percent of Columbia County's existing households earn less than \$25,000 per year and there is an existing deficit of about 1,900 dwelling units affordable to these households.
- The median sales price in Columbia County increased by \$60,000 or 33% in Columbia County between 2013 and 2016.
- Incomes grew slower than housing costs since 2000. Income in Columbia County grew by 20% over this period.
- The forecast of population growth in Columbia County does not include the upcoming development of a campus of Portland Community College and development of the Oregon Manufacturing Innovation Center (OMIC), both in Scappoose. There is not sufficient information available at this time about the number of faculty, staff, and students who will work at or attend these educational institutions. It is clear, however, that some people associated with these institutions will live in Columbia County, creating additional demand for housing, including access to a wider range of housing than what is currently available in the County.
- Demographic changes will affect future housing need. While this memorandum does not document demographic factors that may affect housing needs, three broad demographic changes are occurring in Oregon and the nation that will affect housing demand and need in Columbia County over the next 20 years: the aging of the Baby Boomers, household formation and maturation of the Millennial generation, and continued growth in the Latino population.

The conclusion of this memorandum is that Columbia County has a substantial number of existing residents who lack access to affordable housing. Need for affordable housing will grow, as the population grows. In addition, demographic changes and the location of institutes of higher education will drive demand for a wider range of housing than what is available in the County. These housing types include affordable, smaller single-family detached housing, cottage housing, duplexes and tri-plexes, townhouses, garden apartments, and other types of apartments.

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## Characteristics of Housing

Analysis of historical development trends in Columbia County provides insight into the functioning of the local housing market. For the purposes of this memorandum, we grouped housing types based on: (1) whether the structure is stand-alone or attached to another structure and (2) the number of dwelling units in each structure. The housing types used in this analysis are:

- **Single-family detached** includes single-family detached units, manufactured homes on lots and in mobile home parks, and accessory dwelling units.
- **Single-family attached** is all structures with a common wall where each dwelling unit occupies a separate lot, such as row houses or townhouses.
- **Multifamily** is all attached structures (e.g., duplexes, tri-plexes, quad-plexes, and structures with five or more units) other than single-family detached units, manufactured units, or single-family attached units.

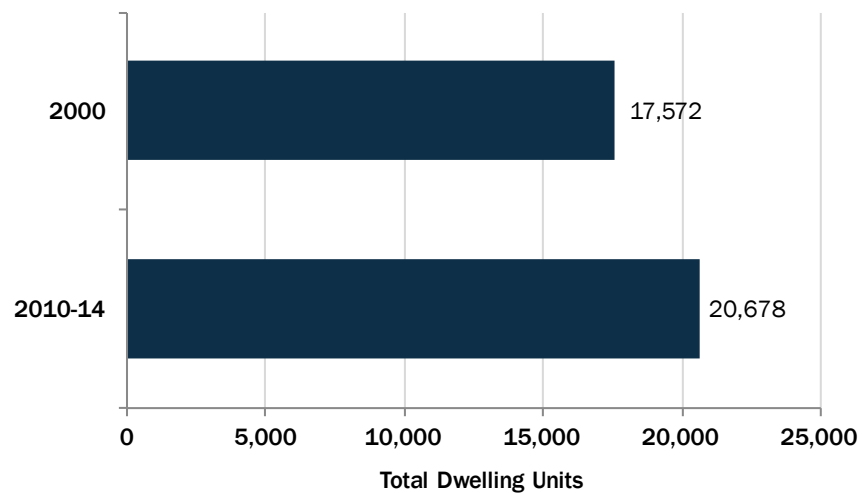
This section presents a brief overview of the housing stock in Columbia County and key cities. It provides information about growth of housing, the mix of housing types, and homeownership rates in Columbia County since 2000. Unless otherwise noted, this memorandum uses data from the 2000 and 2010 Decennial Census and 2010-2014 American Community Survey 5-Year Estimates.

**The total number of dwelling units in Columbia County increased by 3,106 dwelling units from 2000 to 2010-14.**

This amounted to an 18% increase over the analysis period, adding about 3,100 new dwelling units.

**Exhibit 1. Total Dwelling Units, Columbia County, 2000 and 2010-14**

Source: U.S. Census Bureau, 2000 Decennial Census, SF3 Table H030, and 2010-14 ACS Table B25024

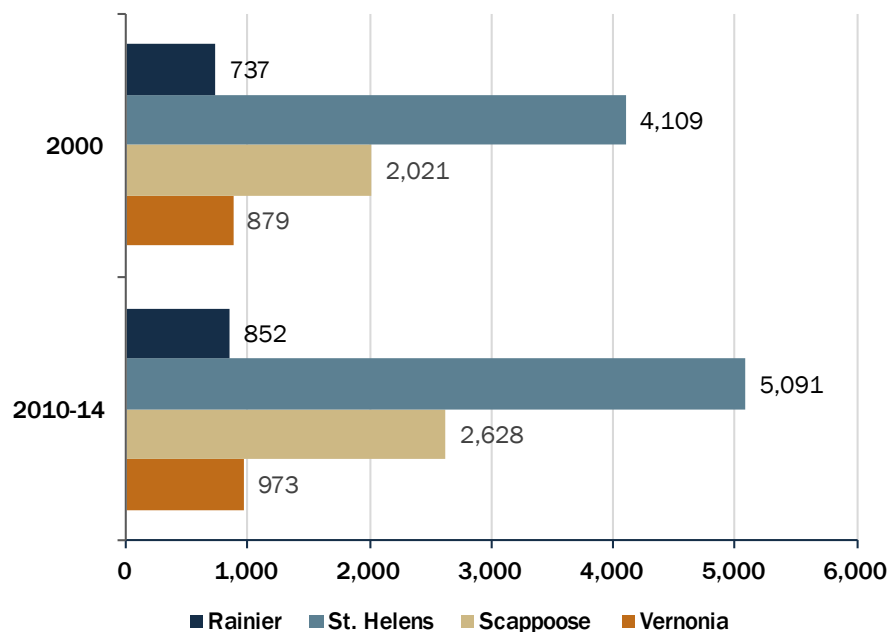


**The total number of dwelling units in each Columbia County geography increased.**

St. Helens had the largest numerical increase in dwelling units (982) over the 2000 to 2010-14 period, whereas Scappoose had the largest percentage increase in its dwelling units at 30%.

**Exhibit 2. Total Dwelling Units, Columbia County Area Geographies, 2000 and 2010-14**

Source: U.S. Census Bureau, 2000 Decennial Census, SF3 Table H030, and 2010-14 ACS Table B25024



Columbia County's housing stock is predominantly single-family detached housing units and has been so since 2000 and before. Eighty-seven percent of the County's housing stock is single-family detached, 12% is multifamily, and 2% is single-family attached (e.g., townhouses). In comparison, 72% of all housing in Oregon is single-family detached.

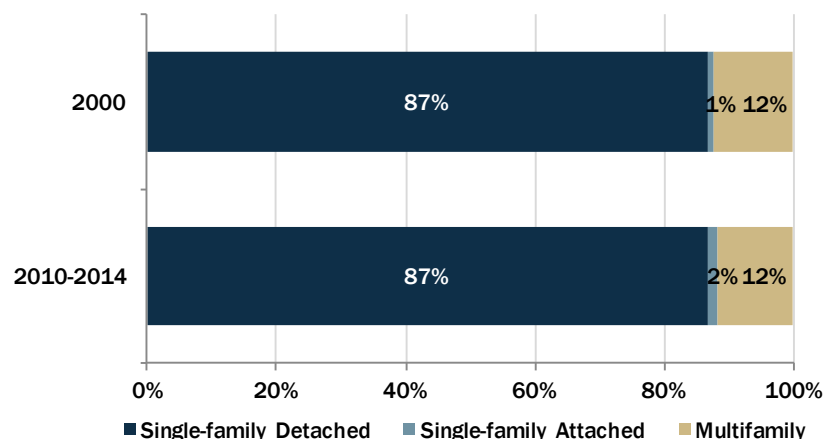
### The mix of housing in Columbia County was largely stable between 2000 and 2010-2014.

The percentage of single-family detached housing remained at approximately 87% between 2000 and 2010-14.

Columbia County had 20,678 dwelling units in the 2010-2014 period. About 17,923 were single-family detached, 317 were single-family attached, and 2,438 were multifamily.

### Exhibit 3. Change in Housing Mix, Columbia County, 2000 and 2010-14

Source: U.S. Census Bureau, 2000 Decennial Census, SF3 Table H030, and 2014 ACS Table B25024

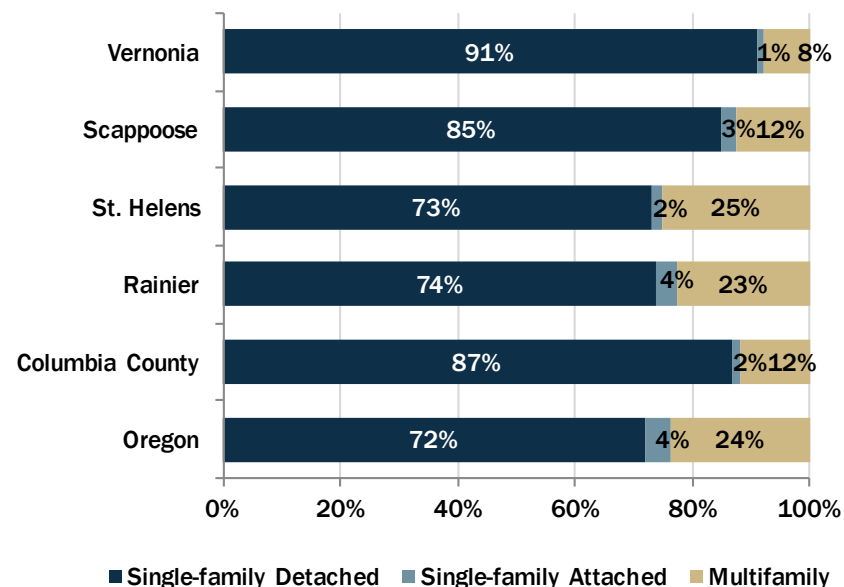


### About 87% of Columbia County's housing stock is single-family detached.

In comparison, about 72% of the housing in Oregon is single-family detached.

### Exhibit 4. Housing Mix, Columbia County Area Geographies, Oregon, 2010-2014

Source: U.S. Census Bureau, 2010-2014 ACS Table B25024

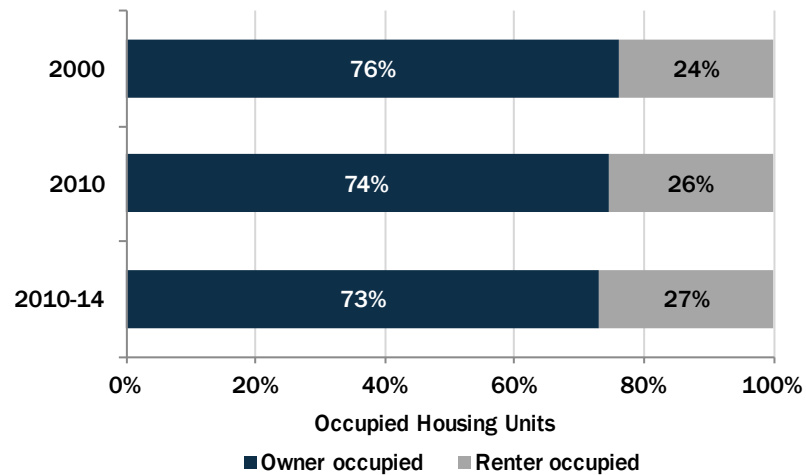


Housing tenure describes whether a dwelling is owner or renter-occupied. This section shows that nearly three-quarters of housing in Columbia County is owner-occupied, compared with Oregon's average of 62% homeownership. Opportunities for rental housing in Columbia County are limited, given the high rates of homeownership.

**The overall homeownership rate in Columbia County decreased from 76% in 2000 down to 73% in 2010-14.**

**Exhibit 5. Tenure, Occupied Units, Columbia County, 2010-2014**

Source: U.S. Census Bureau, 2000 Decennial Census SF1 Table H004, 2010 Decennial Census SF1 Table H4, 2010-14 ACS Table B25003

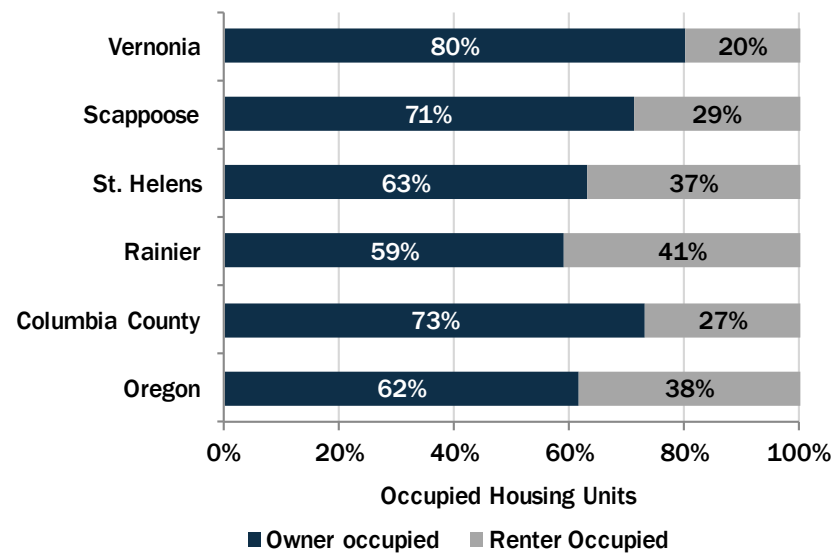


**Columbia County has a higher homeownership rate relative to the State.**

About 73% of households in Columbia County live in owner-occupied dwelling units, compared with 62% of households in Oregon.

**Exhibit 6. Tenure, Occupied Units, Columbia County Area Geographies, Oregon, 2010-14**

Source: U.S. Census Bureau, 2010-2014 ACS Table B25003



## Housing Affordability in Columbia County

This section provides an overview of key indicators of housing affordability in Columbia County and key cities. It provides information about household income, homeownership costs, rental costs, and housing affordability.

### Household Income

Income is one of the key determinants of housing choice. Households with higher incomes have more income to spend on housing. Conversely, lower-income households not only have less to spend on housing but have more essential needs (such as transportation, food, or medical services) to pay for with their smaller income.

**Columbia County's median household income increased by 20% or \$9,153 since 2000.**

#### **Exhibit 7. Change in Median Household Income, nominal dollars, 2000 to 2010-2014**

Source: US Census Bureau, 2000 Decennial Census, Tables HCT012 and 2010-2014 ACS, Tables B19013

	2000	2014	Change 2000 - 2010-14	
			Difference	% Change
Oregon	\$40,818	\$50,521	\$9,703	24%
Columbia County	\$45,452	\$54,605	\$9,153	20%
Rainier	\$39,954	\$46,750	\$6,796	17%
St. Helens	\$40,538	\$47,421	\$6,883	17%
Scappoose	\$47,031	\$62,244	\$15,213	32%
Vernonia	\$41,000	\$59,375	\$18,375	45%

## Homeownership Costs

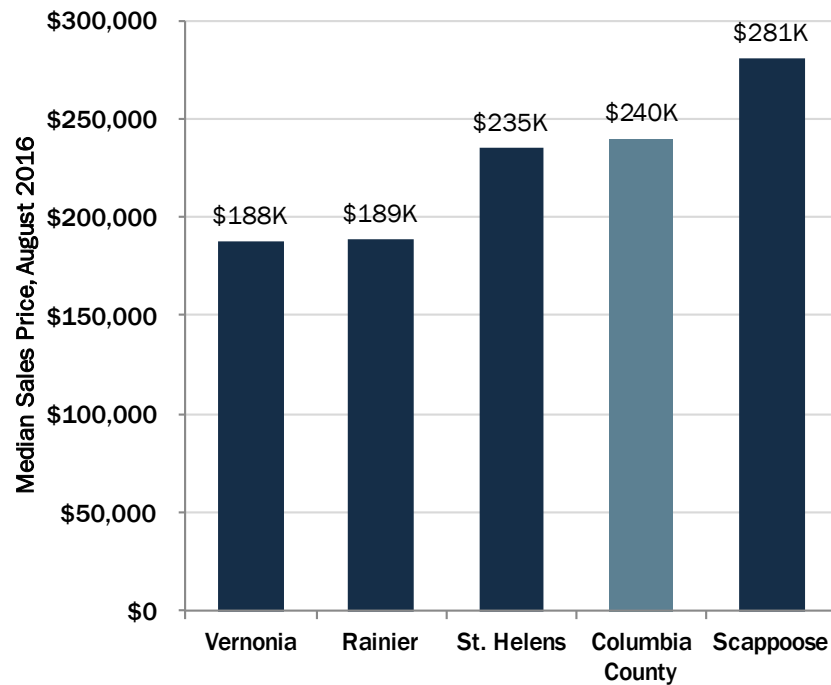
Homeownership has generally become less affordable in Columbia County as house prices have increased. The median home sales price in Columbia County in 2016 was \$240,000. The median sales price in Columbia County increased by \$60,000, or 33% in Columbia County between the third quarter of 2013 and the third quarter of 2016.

**Columbia County's median home sales price was about \$240,000 in August 2016.**

Columbia County's median home sale price was above all County area geographies besides Scappoose.

**Exhibit 8. Median Sales Price, Columbia County-Area Geographies, August 2016**

Source: Columbia County Assessor's Office, Property Sales Data,  
<http://www.co.columbia.or.us/departments/assessors-office-main/property-sales-data>

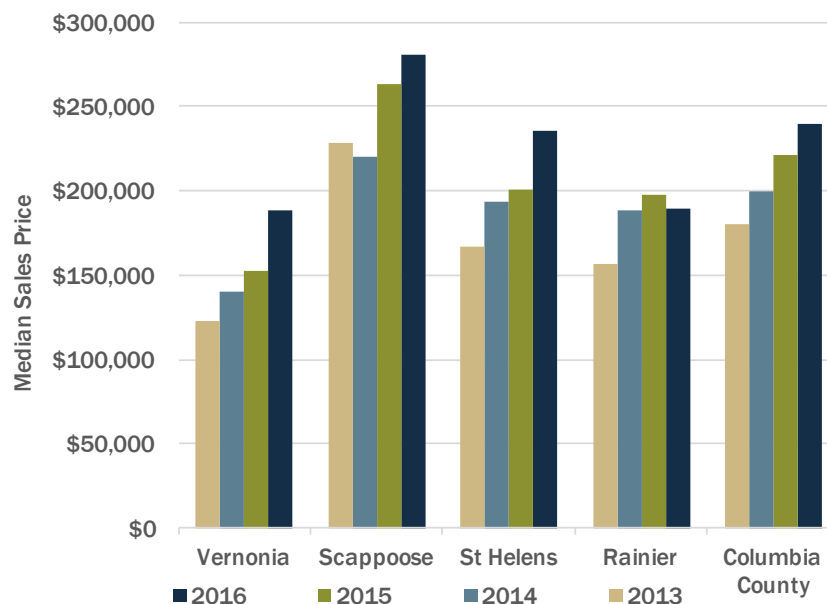


## Median home sales prices in Columbia County have steadily increased over the last three years.

The median sales price in Columbia County in 2016 Q3 increased \$60,000 since 2013 Q3, a 33% increase in housing prices.

### Exhibit 9. Median Sales Price, Columbia County-Area Geographies, August 2013 to August 2016

Source: Columbia County Assessor's Office



The ratio of housing value to household income shows that home values increased faster than incomes since 2000. In Columbia County, the median home value was 3.8 times the median household income, up from 3.2 in 2000. This trend is consistent with statewide trends, showing that homeownership has become less affordable since 2000.

## The ratio of housing value to household income increased for Oregon and all Columbia County area geographies except for Vernonia.

### Exhibit 10. Ratio of Housing Value to Household Income (Median to Median), 2000 to 2010-14<sup>1</sup>

Source: US Census Bureau, 2000 Decennial Census, Tables HCT012 and H085, and 2010-2014 ACS, Tables B19013 and B25077

	2000	2010-14	2000	2010-14	2000	2010-14	2000	2010-14	2000	2010-14
	3.2	3.8	Columbia County	Columbia County	3.1	3.4	Rainier	Rainier	3.1	3.5
					St. Helens	St. Helens	3.2	3.6	Scappoose	Scappoose
							2.8	2.8	Vernonia	Vernonia
									3.6	4.6
									Oregon	Oregon

<sup>1</sup> This ratio compares the median value of housing in Columbia County to the median household income. Inflation-adjusted median owner values in Columbia County increased from \$208,172 in 2000 to \$208,700 in 2010-14. Over the same period, inflation-adjusted median household income decreased from \$65,542 to \$54,605.

## Rental Costs

Rental costs in Columbia County are lower than statewide averages.

Median gross rent in Columbia County is about \$801 per month.

### Exhibit 11. Median Gross Rent, 2010-2014

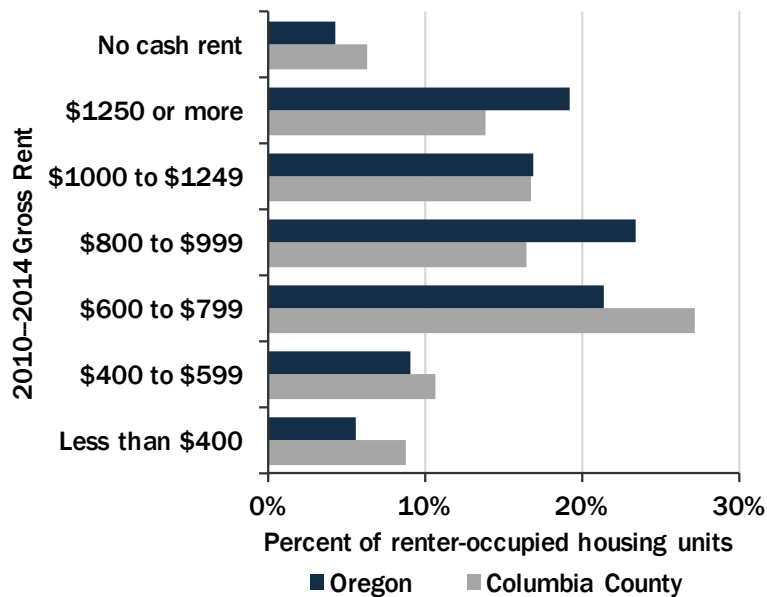
Source: U.S. Census Bureau, 2010-2014 ACS Table B25064

<b>\$801</b>	<b>\$744</b>	<b>\$804</b>	<b>\$929</b>	<b>\$809</b>	<b>\$894</b>
Columbia County	Rainier	St. Helens	Scappoose	Vernonia	Oregon

About 27% of renter-occupied units in Columbia County pay rent between \$600 to \$799.

### Exhibit 12. Gross Rent Distribution, Oregon, Columbia County, 2010-2014

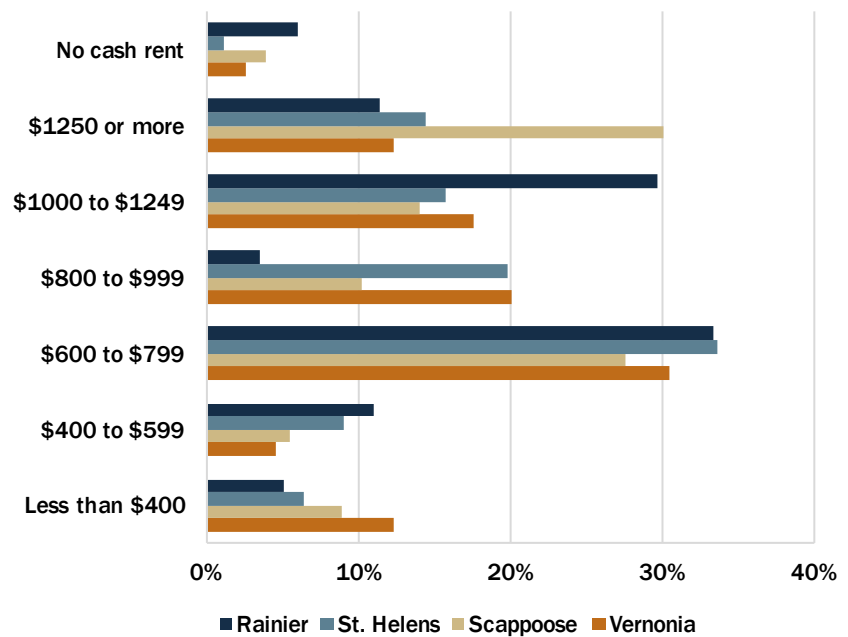
Source: U.S. Census Bureau, 2010-2014 ACS Table B25063



The largest share of renter-occupied units in Columbia County, Rainier, St. Helens, and Vernonia pay \$600 to \$799 in rent. Scappoose renters have about 30% of renters paying \$1,250 or more.

**Exhibit 13. Gross Rent Distribution, Columbia County Area Geographies, 2010-2014**

Source: U.S. Census Bureau, 2010-2014 ACS Table B25063



Data from CoStar<sup>2</sup> provides additional information about rent costs in Columbia County. The asking rent per multifamily unit in Columbia County increased approximately 30% over 2000 to 2016 (from \$589 in 2000 to \$765 in 2016). Rent costs increased faster in St. Helens (53%) and Scappoose (46%) over the 2000 to 2016 period. The rents in St. Helens grew from \$484 to \$742 and in Scappoose from \$823 to \$1,201 over that period.

<sup>2</sup> CoStar Group, [www.costar.com](http://www.costar.com).

## Housing Affordability

A typical standard used to determine housing affordability is that a household should pay no more than a certain percentage of household income for housing, including payments and interest or rent, utilities, and insurance. HUD guidelines indicate that households paying more than 30% of their income on housing experience “cost burden,” and households paying more than 50% of their income on housing experience “severe cost burden.” Using cost burden as an indicator is consistent with the Goal 10 requirement to provide housing that is affordable to all households in a community.

About 34% of Columbia County’s households are cost burdened. Analyzed by housing tenure, about 53% of the County’s renter households are cost burdened, compared with 27% of homeowners. In comparison, 40% of Oregon’s households are cost burdened.

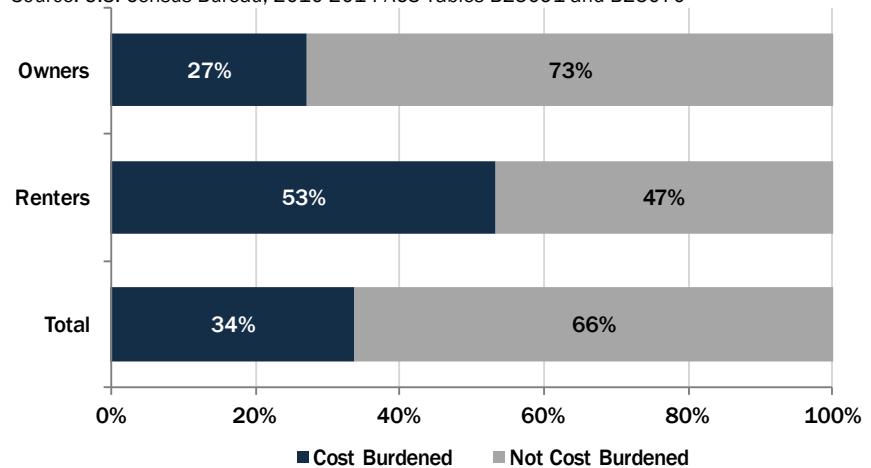
For example, 22% of Columbia County’s households have income of less than \$25,000 per year. These households can afford rent of less than \$625 per month, or a home with a value of less than \$62,500. Most, but not all of these households are cost burdened.

### More than half of Columbia County’s renters are cost burdened compared to about one-quarter of owners.

Cost burden rates are much higher among renters in Columbia County than among homeowners. In the 2010-14 period, about 53% of renters were cost burdened compared to 27% of homeowners.

**Exhibit 14. Housing Cost Burden by Tenure, Columbia County, 2010-14**

Source: U.S. Census Bureau, 2010-2014 ACS Tables B25091 and B25070



**About 34% of all households in Columbia County are cost burdened.**

Of the Columbia County area geographies, St. Helens has the highest share of cost burdened households.

**Exhibit 15. Housing Cost Burden, Columbia County Area Geographies, 2010-14**

Source: U.S. Census Bureau, 2010-2014 ACS Tables B25091 and B25070

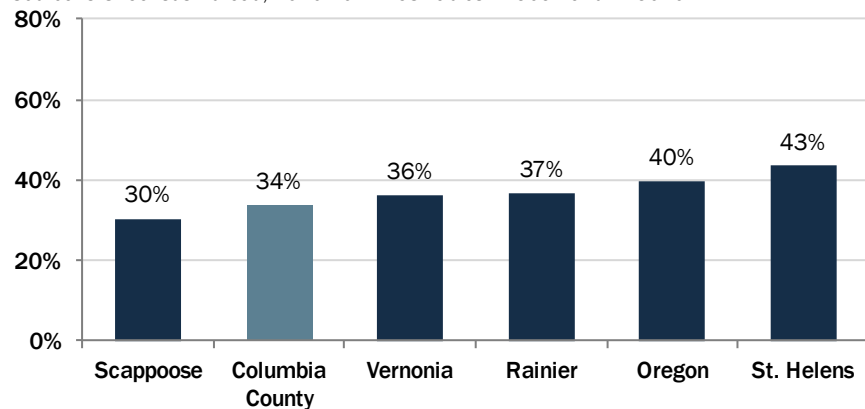


Exhibit 16 shows housing affordability based on household income. Exhibit 16 groups households by level of Median Family Income (MFI), which is determined by HUD for every county. The MFI for the Portland Metropolitan Statistical Area, which Columbia County is a part of, was \$73,300 in 2016. About 18% of Columbia County's households had income that was less than 30% of the County MFI (\$21,990) and are able to afford housing costing \$550 or less. Fifteen percent of Columbia County's households had income between 30% and 50% of the County MFI and are able to afford rent between \$550 and \$916.

The information in Exhibit 16 suggests that Columbia has a substantial housing affordability problem, which is consistent with other cities in the Portland region.

**More than 20% of Columbia County households have cannot afford the average rent cost in Columbia County (\$801 per month) for the 2010-2016 period.**

**Exhibit 16. Financially Attainable Housing, by Median Family Income (MFI) for Columbia County (\$73,300), 2016**

Source: U.S. Department of Housing and Urban Development, U.S. Census Bureau, 2014 ACS Table 19001 Attainable rent

% of Col. Co. MFI	< 30%	30%-50%	50%-80%	80%-120%	> 120%
Annual Income	< \$21,990	\$21,990-\$36,650	\$36,650-\$58,640	\$58,640-\$87,960	> \$87,960
Monthly Affdble. Housing Cost	< \$550	\$550-\$916	\$916-\$1,466	\$1,466-\$2,199	> \$2,199
Percent of Columbia Co. House-holds	18%	15%	13%	27%	26%
Attainable Owner Housing Types	None	Mfg. in parks	Townhome Duplex Mfg on lot	Townhome Single-family house	All housing types
Attainable Renter Housing Types	Subsidized Apartment	Apartment Mfg. in parks	Apartment Townhome Single-family house	Most Single-family houses	All housing types

Exhibit 17 contrasts the number of households at differing income levels with the number of dwelling units affordable to these households, assuming they spend no more than 30% of their income on housing costs. Exhibit 17 shows that Columbia has about 4,167 households earning less than \$25,000 and 2,291 dwelling units (1,126 owner-occupied units and 1,165 rental units) with housing costs affordable to these households. **The County has a deficit of nearly 1,900 units for households with income below \$25,000.** This is consistent with the County's rate of cost burden because most of these 1,900 households are not homeless, but occupy housing that costs more than they can afford.

Although it appears that Columbia County has a surplus of housing affordable to households with annual income between \$25,000 and \$50,000, this is not likely the case. Some, perhaps many, of the 1,900 households with income below \$25,000 occupy housing that is not affordable to them, predominantly housing affordable to households with income between \$25,000 and \$50,000. This suggests that Columbia County may need more housing affordable for this income range as well. The information in Exhibit 17 reinforces the conclusion that Columbia County has a housing affordability challenge.

**Columbia County currently has a large deficit of housing affordable to households earning less than \$25,000.**

The deficit of housing for households earning less than \$25,000 results in these households living in housing that is more expensive than they can afford, consistent with the data about renter cost burden in Columbia County.

The housing types that Columbia has a deficit of are more affordable housing types such as apartments, duplexes, tri- and quad-plexes, and manufactured housing.

**Exhibit 17. Rough Estimate of Housing Affordability, Columbia County, 2016**

Source: US Census Bureau, 2010-2014 ACS Tables 19001, 25075, 25063

Annual Income	<\$25K	<\$25K-\$50K	<\$50K-\$75K	<\$75K-\$100K	>\$100k
HH in Columbia County	<b>4,167</b> 22%	<b>4,349</b> 23%	<b>4,071</b> 22%	<b>2,498</b> 13%	<b>3,687</b> 20%
Monthly Affdble. Housing Cost	<b>&lt;\$625</b>	<b>\$625-\$1,250</b>	<b>\$1,250-\$1,875</b>	<b>\$1,875-\$2,450</b>	<b>&gt; \$2,450</b>
Affdble. Owner Housing Cost	<b>&lt;\$62,500</b>	<b>\$62,500-\$125,000</b>	<b>\$125,000-\$187,500</b>	<b>\$187,500-\$245,000</b>	<b>&gt; \$245K</b>
Est. of Number of Owner Units in Columbia County	<b>1,126</b>	<b>1,315</b>	<b>3,333</b>	<b>2,805</b>	<b>5,160</b>
Est. of Number of Renter Units in Columbia County	<b>1,165</b>	<b>3,126</b>	<b>600</b>	<b>118</b>	<b>24</b>
Does Columbia County Have Enough Units?	<b>No. Deficit: 1,876 units</b>	<b>Yes. Surplus: 92 units</b>	<b>No. Deficit: 138 units</b>	<b>Yes. Surplus: 425 units</b>	<b>Yes. Surplus: 1,498 units</b>

## Housing Forecast

This section presents a forecast of housing growth in Columbia County, based on historical development trends. It includes a projection of housing demand by housing type (single-family detached, townhouses, and multifamily) and income levels. This section presents the forecast for population growth in Columbia County and the forecast for housing growth.

### Population Growth

Exhibit 18 shows historical population growth in Columbia County and selected cities since 1990. Between 1990 and 2015, Columbia County added 12,833 people, an increase of 34% at an average annual growth rate (AAGR) of 1.2%. The majority of this growth was in St. Helens and Scappoose.

#### Exhibit 18. Population, Columbia County, 1990 - 2015

Source: U.S. Decennial Census 1990, 2000, and 2010, and PSU Population Research Center 2015 estimate

AAGR is average annual growth rate

	1990	2000	2010	2015	Change 1990 to 2015		
					Number	Percent	AAGR
Oregon	2,842,321	3,421,399	3,831,074	4,013,845	1,171,524	41%	1.4%
Columbia County	37,557	43,560	49,351	50,390	12,833	34%	1.2%
Rainier	1,674	1,687	1,895	1,905	231	14%	0.5%
St. Helens	7,535	10,019	12,883	13,095	5,560	74%	2.2%
Scappoose	3,529	4,976	6,592	6,745	3,216	91%	2.6%
Vernonia	1,808	2,228	2,151	2,065	257	14%	0.5%

Exhibit 19 presents a forecast for Columbia County for 2016 to 2036 based on the adopted population forecast for Columbia County, developed by Portland State University's Population Research Center in 2008.<sup>3</sup>

The County is in the process of having a new population forecast developed, which will be available in June 2017. This forecast does not account for changes in development since 2008, when the forecast was developed. It also does not account for the proposed Oregon Manufacturing Innovation Center (OMIC), which will be located in Scappoose. Information about the number of faculty, staff, and students who will be a part of OMIC is not currently available. ECONorthwest is developing a Housing Needs Analysis for Scappoose and expects to incorporate information about expected development of OMIC into that analysis.

#### Exhibit 19. Forecast of Population Growth, 2016-2036

Source: Columbia County Oregon Population Forecasts 2010-2030, Portland State University Population Research Center, 2008

Note: ECONorthwest extrapolated the forecast for growth from the adopted forecasts for 2010 and 2030 based on the rate of growth in Columbia County and each city.

AAGR is average annual growth rate

	2016	2036	Change 2016-2036	
			Number	AAGR
Columbia County	51,826	62,267	10,441	0.9%
Rainier	1,971	2,362	391	0.9%
St. Helens	14,429	20,040	5,610	1.7%
Scappoose	7,537	11,443	3,906	2.1%
Vernonia	2,523	2,833	309	0.6%

<sup>3</sup> The adopted forecast shows growth from 2010 to 2030. ECONorthwest extrapolated the population growth to the 2016 to 2036 period based on the rates of growth in the adopted forecast. For example, the adopted forecast shows Columbia County growing at a 0.9% average annual growth rate over the 2010 to 2030 period. The forecast in Exhibit 19 the County will grow by 0.9% between 2010 and 2016 and 0.9% between 2030 and 2036. ECONorthwest extrapolated the population forecasts for the cities using the same methods.

## Forecast of Housing Growth

This section describes the key assumptions and presents an estimate of new housing units needed in Columbia County and the selected cities between 2016 and 2036, shown in Exhibit 20.

- **Population.** A 20-year population forecast (in this instance, 2016 to 2036) is the foundation for estimating needed new dwelling units. The forecast of housing growth uses the forecast for population growth in Exhibit 19.

**Persons in Group Quarters.** Persons in group quarters do not consume standard housing units: thus, any forecast of new people in group quarters is typically derived from the population forecast for the purpose of estimating housing demand. The forecast in Exhibit 20 shows the number of persons in group quarters for 2016 to 2036 based on 2010-2014 American Community Survey data about the percent of the population in group quarters.

- **Household Size.** The forecast in Exhibit 20 shows the average household size for 2016 to 2036 based on 2010-2014 American Community Survey data about average household size.
- **Vacancy Rate.** Vacancy rates are cyclical and represent the lag between demand and the market's response to demand for additional dwelling units. Vacancy rates for rental and multifamily units are typically higher than those for owner-occupied and single-family dwelling units. The forecast in Exhibit 20 shows the average vacancy rate assumption for 2016 to 2036 based on 2010-2014 American Community Survey data about vacancy rates.

According to Co-Star, multifamily vacancy rates in Columbia County varied from 2.4% in 2000 to 5% in 2009. In the third quarter of 2016, multifamily vacancy rates were about 3.5%. The vacancy rates shown in Exhibit 20 shows may be higher than current vacancy rates for all housing in Columbia County and its cities (especially Vernonia, which the American Community Survey reported a nearly 21% vacancy rate for).

### Exhibit 20. Forecast of New Dwelling Units, Selected cities Columbia County, 2016 - 2036

Source: ECONorthwest, 2010-2014 American Community Survey data about group quarters, average household size, and vacancy rates

Variable	Rainier	St. Helens	Scappoose	Vernonia	Other Parts of Columbia	Total
Change in persons	391	5,610	3,906	309	224	10,441
<i>minus</i> Change in persons in group quarters	-	137	36	1	-	
<i>equals</i> Persons in households	391	5,473	3,870	308	224	10,267
Average household size	2.47	2.72	2.66	2.66	2.61	
New occupied DU	158	2,012	1,455	116	86	3,827
<i>times</i> Aggregate vacancy rate	9.2%	8.3%	4.0%	20.9%	9.2%	
<i>equals</i> Vacant dwelling units	14	167	59	24	8	272
<b>Total new dwelling units (2016-2036)</b>	<b>172</b>	<b>2,179</b>	<b>1,514</b>	<b>140</b>	<b>94</b>	<b>4,099</b>
<b>Annual average of new dwelling units</b>	<b>9</b>	<b>109</b>	<b>76</b>	<b>7</b>	<b>5</b>	<b>205</b>

Exhibit 21 allocates the housing units forecast for each city in Exhibit 20 to three types of housing: single-family detached, single-family attached, and multifamily. This allocation is based on the existing mix of housing in each city from American Community Survey data.

Exhibit 21 shows that based on the existing housing mix over the 20 year period, the majority of new housing would be single-family detached (3,214 units). The County would have 787 new multifamily units and 98 new single-family attached units.

### Exhibit 21. Forecast of New Dwelling Units by Type of Unit, Selected cities Columbia County, 2016 - 2036

Source: ECONorthwest, 2010-2014 American Community Survey data about housing types

Variable	Rainier	St. Helens	Scappoose	Vernonia	Other Parts of Columbia	Total
<b>New dwelling units (2016-2036)</b>	172	2,179	1,514	140	94	4,099
Dwelling units by structure type						
Single-family detached						
Percent single-family detached DU	74%	73%	85%	91%	87%	
<b>equals Total new single-family detached DU</b>	<b>127</b>	<b>1,590</b>	<b>1,287</b>	<b>128</b>	<b>82</b>	<b>3,214</b>
Single-family attached						
Percent single-family attached DU	4%	2%	3%	1%	1%	
<b>equals Total new single-family attached DU</b>	<b>7</b>	<b>44</b>	<b>45</b>	<b>1</b>	<b>1</b>	<b>98</b>
Multifamily						
Percent multifamily detached DU	22%	25%	12%	8%	12%	
<b>Total new multifamily DU</b>	<b>38</b>	<b>545</b>	<b>182</b>	<b>11</b>	<b>11</b>	<b>787</b>
<b>equals Total new dwelling units (2016-2036)</b>	<b>172</b>	<b>2,179</b>	<b>1,514</b>	<b>140</b>	<b>94</b>	<b>4,099</b>

Exhibit 22 shows the forecast of the new 4,099 dwelling units by income level, assuming that Columbia County's income distribution does not change. For example, Exhibit 22 assumes that 18% of the County's households will have income of 30% or less of the Median Family Income, consistent with the analysis in Exhibit 16.

Exhibit 22 shows that about 1,345 of Columbia County's new households over the 2016-2036 period will have income below 50% of the Median Family Income. These households will struggle to find housing that is affordable. These will need more affordable housing types, such as manufactured housing, duplexes, townhouses, apartments, and subsidized apartments.

**Assuming that income distribution remains about the same in the future, about one-third of Columbia County's new households (1,345 new households) will have income below 50% of the Median Family Income and will have limited housing choices.**

Generally speaking, these households may not be able to afford market rent costs and are likely to be cost burdened. Their housing choices will be limited to older housing (such as manufactured homes or apartments) or government subsidized housing.

**Exhibit 22. Forecast of Financially Attainable Housing for New Dwelling Units, by Percentage of Median Family Income (MFI) for Columbia County, 2016-2036**

Source: U.S. Department of Housing and Urban Development, U.S. Census Bureau, 2014 ACS  
Table 19001 Attainable rent

% of Col. Co. MFI	< 30%	30%-50%	50%-80%	80%-120%	> 120%
Number of New Dwelling Units	749	596	551	1,125	1,078
Percent of Columbia Co. Households	18%	15%	13%	27%	26%
Attainable Owner Housing Types	None	Mfg. in parks	Townhome Duplex Mfg on lot	Townhome Single-family house	All housing types
Attainable Renter Housing Types	Subsidized Apartment	Apartment Mfg. in parks	Apartment Townhome Single-family house	Most Single-family houses	All housing types

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## Conclusions

The analysis in the memorandum shows that Columbia County struggles with housing affordability consistent with communities in and around the Portland region and statewide. Most of Columbia County's housing is single-family detached and most is owner-occupied.

The forecast of growth presented in this memorandum assumes that this development pattern may continue over the next 20 years. The forecast for new housing shows demand for 4,099 dwelling units to accommodate the forecast of population growth over the 2016 to 2036 period. More than three quarters of these units (3,214 units) would be single-family detached units. The remaining units would include 787 new multifamily units and 98 new single-family attached units

However, there are several factors to suggest this development pattern is not meeting the needs of some existing residents and will not meet the needs of some future residents. These factors suggest that the mix of housing that Columbia County and its cities need is for development of more multifamily units compared to historical development. These factors include:

- One-third of Columbia County's households are cost burdened and pay more than they can afford for housing. More than half of renters and about one-quarter of homeowners are cost burdened. These households, especially renter households, lack access to affordable housing.
- Twenty-two percent of Columbia County's existing households earn less than \$25,000 per year and there is an existing deficit of about 1,900 dwelling units affordable to these households. Housing affordable, or at least more affordable, to households in this income range is likely to include housing like manufactured housing, duplexes, smaller apartment buildings, or government subsidized housing.
- The median sales price in Columbia County increased by \$60,000, or 33% in Columbia County between 2013 and 2016.
- Incomes grew slower than housing costs since 2000. Income in Columbia County grew by 20% over this period. In 2000, the median home value in Columbia County was 3.2 times the median household income. By 2010-2014, median home value in was 3.8 times the median household income.
- The forecast of population growth in Columbia County does not include the upcoming development of a campus of Portland Community College in Scappoose and development of the Oregon Manufacturing Innovation Center (OMIC), also in Scappoose. There is not sufficient information available at this time about the number of faculty, staff, and students who will work at or attend these educational institutions. It is clear, however, that some people associated with these institutions will live in Columbia County, creating additional demand for housing. Some of whom will need access to a wider range of housing than what is currently available in the County, including more townhouses and multifamily housing.

- Demographic changes will affect future housing need. While this memorandum does not document demographic factors that may affect housing needs, three broad demographic changes are occurring in Oregon and the nation that will affect housing demand and need in Columbia County over the next 20 years. They are:
  - *Aging of the Baby Boomers.* By 2036, the youngest Baby Boomers will be 75 years old. As people age, their housing preferences and needs change. Baby Boomers' housing choices will affect housing preference and homeownership, with some boomers likely to stay in their home as long as they are able and some preferring other housing products, such as multifamily housing or age-restricted housing developments.
  - *Household formation and maturation of the Millennials.* By 2036, the Millennial generation will be 36 to 56 years old. The Millennial generation is the age group most likely to form the majority of new households over the next 20 years. While low incomes have kept current homeownership rates among young adults below their potential, Millennials may represent pent-up demand that will release as the economy fully recovers. In the near-term, Millennials may increase demand for rental units. The long-term housing preference of Millennials is uncertain. They may have different housing preferences as a result of the current housing market turmoil and may prefer smaller, owner-occupied units or rental units. On the other hand, their housing preferences may be similar to the Baby Boomers, with a preference for larger units with more amenities. Recent surveys about housing preference suggest that Millennials want affordable, single-family homes in areas that offer transportation alternatives to cars, such as suburbs or small cities with walkable neighborhoods.<sup>4</sup>
  - *Hispanic and Latino population will continue to grow.* The U.S. Census projects that by about 2040, Hispanic and Latino population will account for one-quarter of the nation's population. The share of Hispanic and Latino population in the western U.S. is likely to be higher. In addition, the Hispanic and Latino population is generally younger than the U.S. average, with many Hispanic and Latino people belonging to the Millennial generation.

Hispanic and Latino population growth will be an important driver in growth of housing demand, both for owner- and renter-occupied housing. Growth in Hispanic and Latino population will drive demand for housing for families with children. Given the lower income for Hispanic and Latino households, especially

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<sup>4</sup> The American Planning Association, "Investing in Place; Two generations' view on the future of communities." 2014.

"Access to Public Transportation a Top Criterion for Millennials When Deciding Where to Live, New Survey Shows," Transportation for America.

"Survey Says: Home Trends and Buyer Preferences," National Association of Home Builders International Builders

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first generation immigrants, growth in this group will also drive demand for affordable housing, both for ownership and renting.<sup>5</sup>

The conclusion of this memorandum is that Columbia County has a substantial number of existing residents who lack access to affordable housing. Need for affordable housing will grow, as the population grows. In addition, demographic changes and the location of institutes of higher education will drive demand for a wider range of housing than what is available in the County. These housing types include affordable smaller single-family detached housing, cottage housing, duplexes and tri-plexes, townhouses, garden apartments, and other types of apartments.

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<sup>5</sup> The following articles describe housing preferences and household income trends for Hispanic and Latino families, including differences in income levels for first, second, and third generation households. Pew Research Center. *Second-Generation Americans: A Portrait of the Adult Children of Immigrants*, February 7, 2012. National Association of Hispanic Real Estate Professionals. *2014 State of Hispanic Homeownership Report*, 2014.

9/12/2016

**FILE**  
CP2A-1-16

To the St. Helens Planning Commission and City Council:

Our property at 35186 Pittsburg Rd. (the 1.25 acres containing our house and outbuildings plus another half-acre behind that) is outside the city limits of St. Helens. When we purchased it in 1994, our property was surrounded by other county properties. With the annexation a few years ago of the L-shaped 13-acre property at 35090 Pittsburg Rd. that runs on two sides of us, our county property is now bordered by city land on two sides. This puts our nearly two wooded, country-like acres in the potential position of being awkwardly bordered on those two sides with a subdivision.

When this 13-acre property was outside the city limits, it was zoned for large parcels, which meant we knew that a very reasonable couple dozen or so houses could eventually be built. The annexation and zoning change to R-7 meant there was a possibility of up to 80 houses that could go in. (Our neighborhood's objection to this change was met with a collective shrug at the City Council meeting.) Now with a potential R-5 zoning, we could be surrounded by up to 113 houses – with the prospect of additional people if the allowable multi-family units are built -- with all of the added noise, traffic, and lack of privacy that would involve. This is certainly not what we bargained for when we moved into our "country" home.

One of the comprehensive plan goals (#14) is to provide for an orderly and efficient transition from rural to urban land use. Although transportation and utilities are mentioned in the application, there is more to a transition than infrastructure. For parcels that are currently 22,000-43,500 s.f. in size to be adjacent to lots that are 5,000 s.f. seems to be an irrational conversion of rural to urban. We are not against growth; we are against unreasonable, explosive growth that affects our and our neighbors' quality of life.

We respectfully request that the application be rejected.

Sincerely,

*Dave Innocenti*

*Kathy Innocenti*

Dave Innocenti

Kathy Innocenti

RECEIVED

SEP 12 2016

CITY OF ST. HELENS

# **EMERALD MEADOWS**

## **POST-ACKNOWLEDGEMENT PLAN AMENDMENT AND ZONE CHANGE**

**Applicant:** Wayne Weigandt  
**Engineer:** James Kessi, Kessi Engineering and Consulting  
**Legal:** Andrew H. Stamp, P.C.  
**Transportation:** William Farley, P.E. Lancaster Engineering  
Daniel Stumpf, E.I. Lancaster Engineering

# ORIENTATION MAP

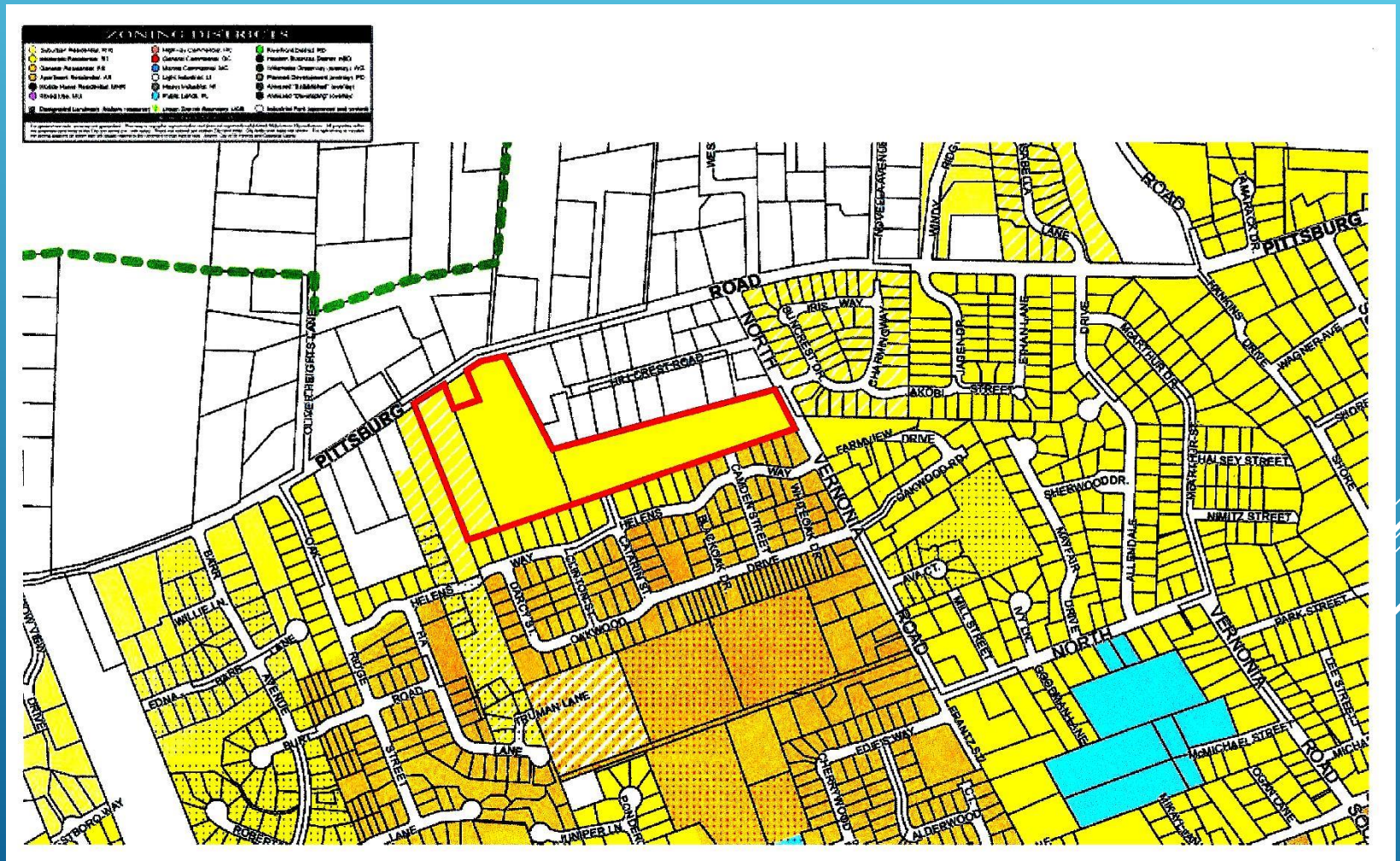


# WAYNE WEIGANDT'S OBJECTIVES

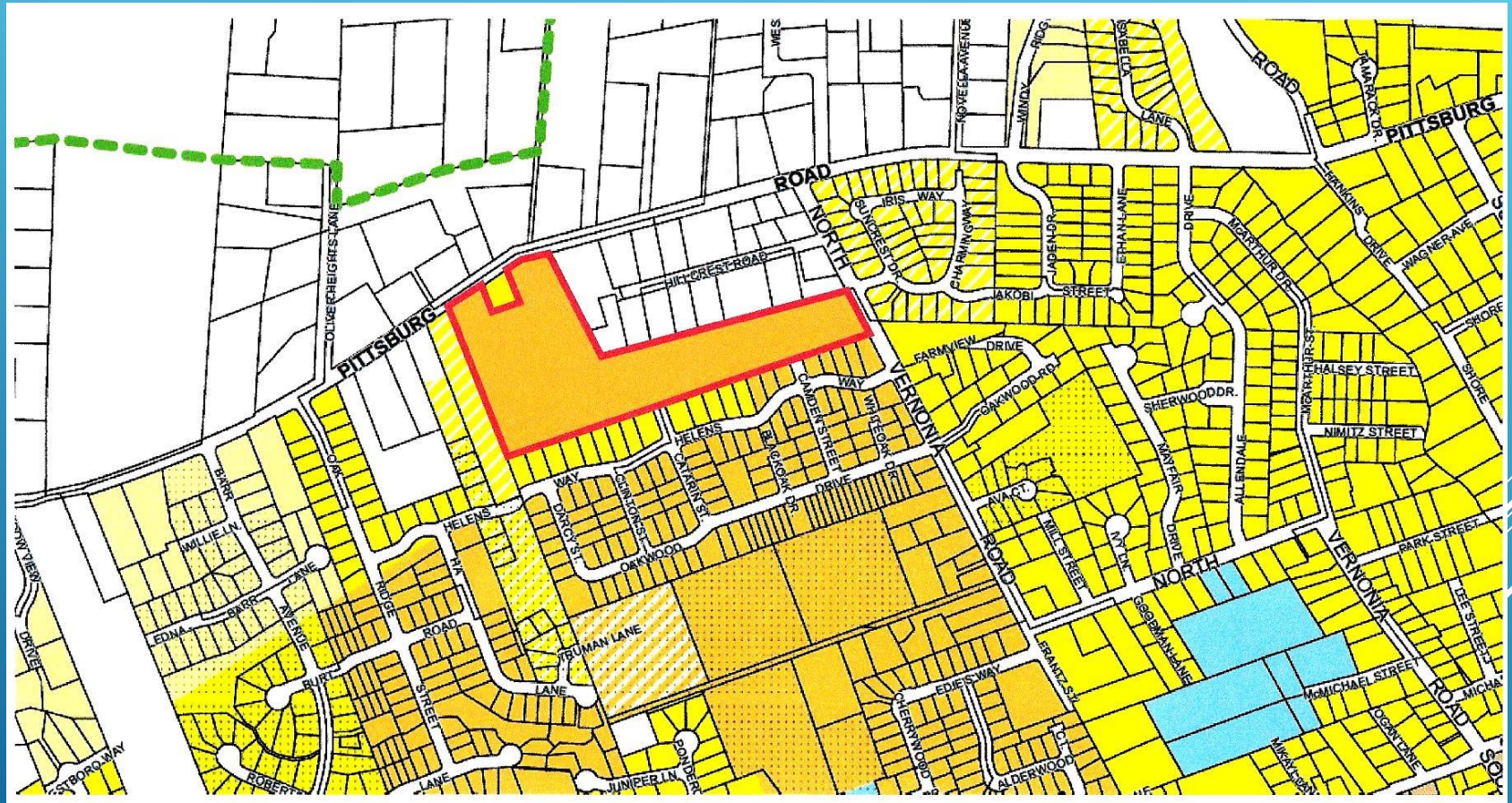


- **Change Plan Designation from Suburban Residential; (“SR”) to General Residential (“GR”)**
- **Change Plan Zone from R-7 to R-5**

# CURRENT ZONING



# PROPOSED ZONING

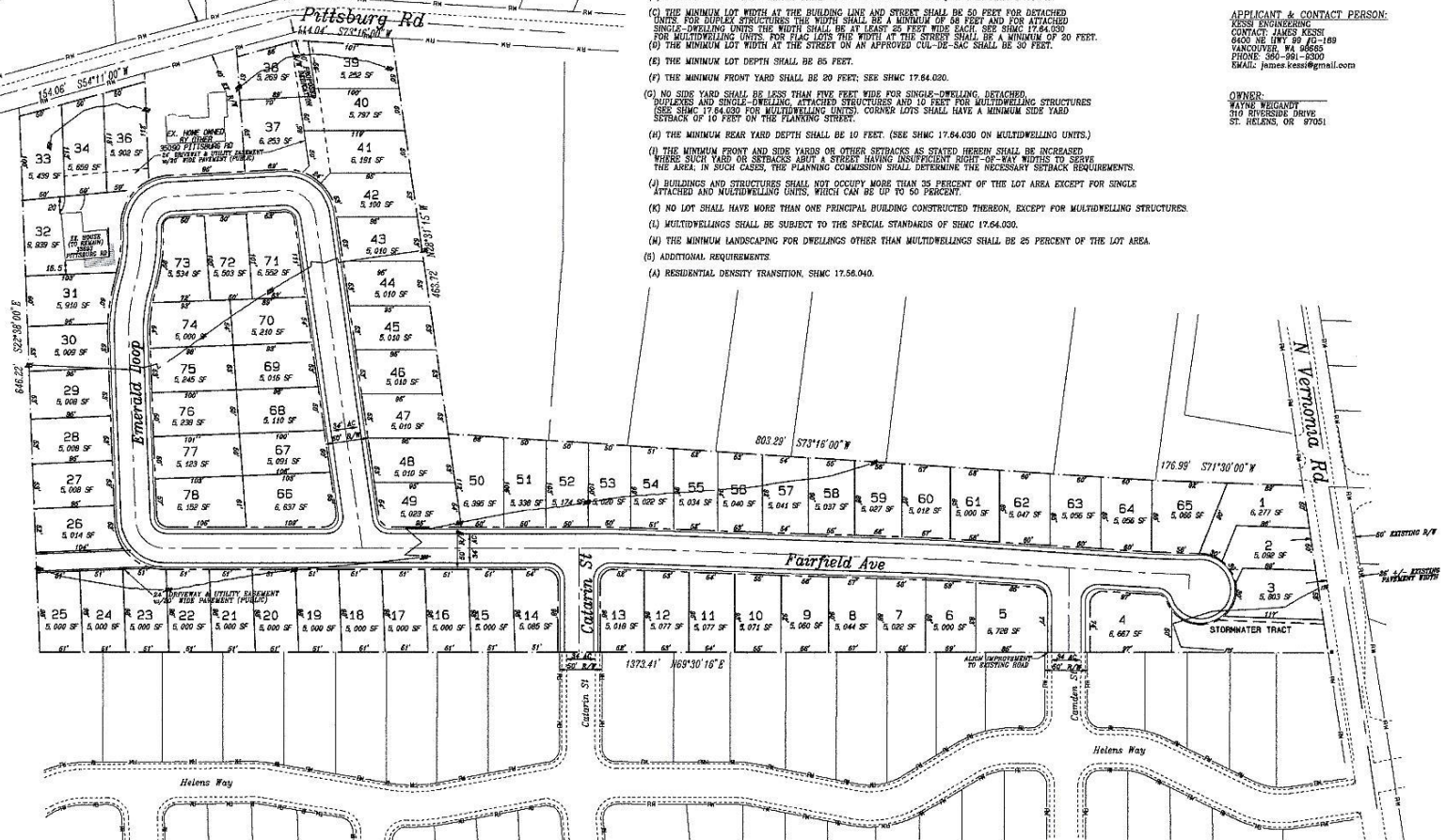
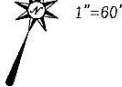


# REASONS FOR DESIRED ZONE CHANGE



- ▶ Accommodate the City's new standards (e.g. wider streets and right-of-way) without losing housing density.
- ▶ Better lot configuration / less variances required.
- ▶ Meet market demand for housing at the median \$250,000 price point.
  - ▶ less demand for R-7 housing in Columbia County.
- ▶ Maintain compatibility with adjacent development patterns.

# EMERALD MEADOW SUBDIVISION



- (4) STANDARDS IN THE R-5 ZONE, THE FOLLOWING STANDARDS SHALL APPLY.
- (A) FOR DWELLINGS THE MINIMUM LOT AREA SHALL BE 5,000 SQUARE FEET FOR THE SINGLE-DWELLING UNIT, DETACHED AND 5,000 SQUARE FEET FOR A DUPLEX DWELLING STRUCTURE AND 2,500 SQUARE FEET FOR EACH SINGLE-DWELLING UNIT ATTACHED (MAXIMUM OF FIVE UNITS TOTAL) FOR MULTIDWELLING UNITS, USE DIFFERENT SIZE AS BASE PLUS 2,500 SQUARE FEET FOR EACH MULTIDWELLING UNIT THEREAFTER.
- (B) THE MAXIMUM BUILDING HEIGHT SHALL BE 35 FEET EXCEPT AS REQUIRED IN SHMC 17.69.040.
- (C) THE MINIMUM LOT WIDTH AT THE BUILDING LINE AND STREET SHALL BE 50 FEET FOR DETACHED UNITS FOR DUPLEX STRUCTURES THE WIDTH SHALL BE A MINIMUM OF 35 FEET AND FOR ATTACHED SINGLE-DWELLING UNITS THE WIDTH SHALL BE AT LEAST 25 FEET WIDE EACH. SEE SHMC 17.64.030 FOR MULTIDWELLING UNITS. FOR LOT LOTS THE WIDTH AT THE STREET SHALL BE A MINIMUM OF 20 FEET.
- (D) THE MINIMUM LOT WIDTH AT THE STREET ON AN APPROVED CUL-DE-SAC SHALL BE 30 FEET.
- (E) THE MINIMUM LOT DEPTH SHALL BE 65 FEET.
- (F) THE MINIMUM FRONT YARD SHALL BE 20 FEET. SEE SHMC 17.64.020.
- (G) NO SIDE YARD SHALL BE LESS THAN FIVE FEET WIDE FOR SINGLE-DWELLING, DETACHED DUPLEXES AND SINGLE-DWELLING, ATTACHED STRUCTURES AND 10 FEET FOR MULTIDWELLING STRUCTURES (SEE SHMC 17.64.030 FOR MULTIDWELLING UNITS). CORNER LOTS SHALL HAVE A MINIMUM SIDE YARD SETBACK OF 10 FEET ON THE FLANKING STREET.
- (H) THE MINIMUM REAR YARD DEPTH SHALL BE 10 FEET. (SEE SHMC 17.64.030 ON MULTIDWELLING UNITS.)
- (I) THE MINIMUM FRONT AND SIDE YARDS OR OTHER SETBACKS AS STATED HEREON SHALL BE INCREASED WHERE SUCH YARD SETBACKS ADJUT A STREET HAVING DISCREPANT RIGHT-OF-WAY WIDTHS TO SERVE THE AREA. IN SUCH CASES, THE PLANNING COMMISSION SHALL DETERMINE THE NECESSARY SETBACK REQUIREMENTS.
- (J) BUILDINGS AND STRUCTURES SHALL NOT OCCUPY MORE THAN 35 PERCENT OF THE LOT AREA EXCEPT FOR SINGLE ATTACHED AND MULTIDWELLING UNITS, WHICH CAN BE UP TO 50 PERCENT.
- (K) NO LOT SHALL HAVE MORE THAN ONE PRINCIPAL BUILDING CONSTRUCTED THEREON, EXCEPT FOR MULTIDWELLING STRUCTURES.
- (L) MULTIDWELLINGS SHALL BE SUBJECT TO THE SPECIAL STANDARDS OF SHMC 17.64.030.
- (M) THE MINIMUM LANDSCAPING FOR DWELLINGS OTHER THAN MULTIDWELLINGS SHALL BE 25 PERCENT OF THE LOT AREA.
- (N) ADDITIONAL REQUIREMENTS
- (A) RESIDENTIAL DENSITY TRANSITION, SHMC 17.56.040.

**PROPERTY INFO:**  
 MAP NO. 4 SUBSECTIONS NO. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 168, 169, 170, 171, 172, 173, 174, 175, 176, 177, 178, 179, 180, 181, 182, 183, 184, 185, 186, 187, 188, 189, 190, 191, 192, 193, 194, 195, 196, 197, 198, 199, 200, 201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 211, 212, 213, 214, 215, 216, 217, 218, 219, 220, 221, 222, 223, 224, 225, 226, 227, 228, 229, 230, 231, 232, 233, 234, 235, 236, 237, 238, 239, 240, 241, 242, 243, 244, 245, 246, 247, 248, 249, 250, 251, 252, 253, 254, 255, 256, 257, 258, 259, 260, 261, 262, 263, 264, 265, 266, 267, 268, 269, 270, 271, 272, 273, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293, 294, 295, 296, 297, 298, 299, 300, 301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312, 313, 314, 315, 316, 317, 318, 319, 320, 321, 322, 323, 324, 325, 326, 327, 328, 329, 330, 331, 332, 333, 334, 335, 336, 337, 338, 339, 340, 341, 342, 343, 344, 345, 346, 347, 348, 349, 350, 351, 352, 353, 354, 355, 356, 357, 358, 359, 360, 361, 362, 363, 364, 365, 366, 367, 368, 369, 370, 371, 372, 373, 374, 375, 376, 377, 378, 379, 380, 381, 382, 383, 384, 385, 386, 387, 388, 389, 390, 391, 392, 393, 394, 395, 396, 397, 398, 399, 400, 401, 402, 403, 404, 405, 406, 407, 408, 409, 410, 411, 412, 413, 414, 415, 416, 417, 418, 419, 420, 421, 422, 423, 424, 425, 426, 427, 428, 429, 430, 431, 432, 433, 434, 435, 436, 437, 438, 439, 440, 441, 442, 443, 444, 445, 446, 447, 448, 449, 450, 451, 452, 453, 454, 455, 456, 457, 458, 459, 460, 461, 462, 463, 464, 465, 466, 467, 468, 469, 470, 471, 472, 473, 474, 475, 476, 477, 478, 479, 480, 481, 482, 483, 484, 485, 486, 487, 488, 489, 490, 491, 492, 493, 494, 495, 496, 497, 498, 499, 500, 501, 502, 503, 504, 505, 506, 507, 508, 509, 510, 511, 512, 513, 514, 515, 516, 517, 518, 519, 520, 521, 522, 523, 524, 525, 526, 527, 528, 529, 530, 531, 532, 533, 534, 535, 536, 537, 538, 539, 540, 541, 542, 543, 544, 545, 546, 547, 548, 549, 550, 551, 552, 553, 554, 555, 556, 557, 558, 559, 560, 561, 562, 563, 564, 565, 566, 567, 568, 569, 570, 571, 572, 573, 574, 575, 576, 577, 578, 579, 580, 581, 582, 583, 584, 585, 586, 587, 588, 589, 590, 591, 592, 593, 594, 595, 596, 597, 598, 599, 600, 601, 602, 603, 604, 605, 606, 607, 608, 609, 610, 611, 612, 613, 614, 615, 616, 617, 618, 619, 620, 621, 622, 623, 624, 625, 626, 627, 628, 629, 630, 631, 632, 633, 634, 635, 636, 637, 638, 639, 640, 641, 642, 643, 644, 645, 646, 647, 648, 649, 650, 651, 652, 653, 654, 655, 656, 657, 658, 659, 660, 661, 662, 663, 664, 665, 666, 667, 668, 669, 670, 671, 672, 673, 674, 675, 676, 677, 678, 679, 680, 681, 682, 683, 684, 685, 686, 687, 688, 689, 690, 691, 692, 693, 694, 695, 696, 697, 698, 699, 700, 701, 702, 703, 704, 705, 706, 707, 708, 709, 710, 711, 712, 713, 714, 715, 716, 717, 718, 719, 720, 721, 722, 723, 724, 725, 726, 727, 728, 729, 730, 731, 732, 733, 734, 735, 736, 737, 738, 739, 740, 741, 742, 743, 744, 745, 746, 747, 748, 749, 750, 751, 752, 753, 754, 755, 756, 757, 758, 759, 760, 761, 762, 763, 764, 765, 766, 767, 768, 769, 770, 771, 772, 773, 774, 775, 776, 777, 778, 779, 780, 781, 782, 783, 784, 785, 786, 787, 788, 789, 790, 791, 792, 793, 794, 795, 796, 797, 798, 799, 800, 801, 802, 803, 804, 805, 806, 807, 808, 809, 810, 811, 812, 813, 814, 815, 816, 817, 818, 819, 820, 821, 822, 823, 824, 825, 826, 827, 828, 829, 830, 831, 832, 833, 834, 835, 836, 837, 838, 839, 840, 841, 842, 843, 844, 845, 846, 847, 848, 849, 850, 851, 852, 853, 854, 855, 856, 857, 858, 859, 860, 861, 862, 863, 864, 865, 866, 867, 868, 869, 870, 871, 872, 873, 874, 875, 876, 877, 878, 879, 880, 881, 882, 883, 884, 885, 886, 887, 888, 889, 890, 891, 892, 893, 894, 895, 896, 897, 898, 899, 900, 901, 902, 903, 904, 905, 906, 907, 908, 909, 910, 911, 912, 913, 914, 915, 916, 917, 918, 919, 920, 921, 922, 923, 924, 925, 926, 927, 928, 929, 930, 931, 932, 933, 934, 935, 936, 937, 938, 939, 940, 941, 942, 943, 944, 945, 946, 947, 948, 949, 950, 951, 952, 953, 954, 955, 956, 957, 958, 959, 960, 961, 962, 963, 964, 965, 966, 967, 968, 969, 970, 971, 972, 973, 974, 975, 976, 977, 978, 979, 980, 981, 982, 983, 984, 985, 986, 987, 988, 989, 990, 991, 992, 993, 994, 995, 996, 997, 998, 999, 1000.

**APPLICANT & CONTACT PERSON:**  
 JESS ENGINEERING  
 CONTACT: JAMES JESS  
 6400 NE HWY 30 PO-188  
 VANDERBILT, WA 98088  
 PHONE: 360-991-6300  
 EMAIL: james.jess@gmail.com

**OWNER:**  
 WAYNE WRIGHT  
 110 DIVISION DRIVE  
 ST. HELENS, OR 97051

**KRESS ENGINEERING**  
 CIVIL ENGINEERING  
 PLANNING  
 DESIGN  
 CONSTRUCTION MANAGEMENT

**SITE INFORMATION**  
 SUBMITTER: JAMES JESS  
 ATTORNEY: JAMES JESS  
 DATE: 1 Jun 2016  
 SHEET: 1

**EMERALD MEADOW SUBDIVISION  
 PROPOSED DEVELOPMENT PLAT**

# THE CITY OF ST. HELEN'S PLANNING OBJECTIVES

- ▶ Compliance with Statewide Planning Goal 10.
- ▶ Compliance with Transportation Planning Rule ("TPR").
- ▶ Compliance with the Mandatory Approval Standards in the Comprehensive Plan and St. Helens Municipal Code Title 17 - Community Development Code.



# What is **Affordable Housing**?



The government says housing is “affordable” if a family spends **no more than 30%** of their income to live there.



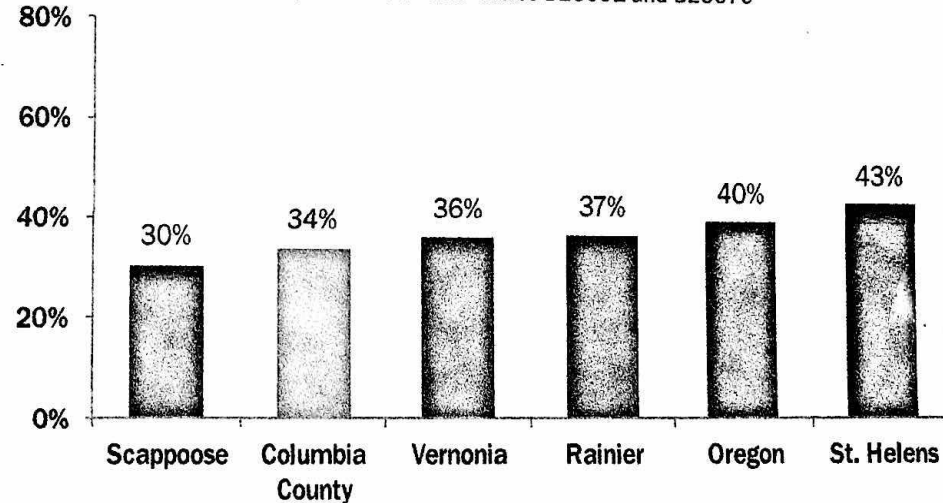
# ST. HELENS HAS THE HIGHEST PERCENTAGE OF COST-BURDENED RESIDENTS IN COLUMBIA COUNTY – 43%

**About 34% of all households in Columbia County are cost burdened.**

Of the Columbia County area geographies, St. Helens has the highest share of cost burdened households.

**Housing Cost Burden, Columbia County Area Geographies, 2010-14**

Source: U.S. Census Bureau, 2010-2014 ACS Tables B25091 and B25070



# PROBLEM: HOME PRICES RISING FASTER THAN INCOMES

	Income (Yr 2000-2014)	Home Prices (Aug 2013-2016)
Columbia County	Up \$9,153 (20%)	Up \$60,000 (33%)
St. Helens	Up \$6,883 (17%)	NA

Source: Columbia County Housing Analysis: ECO Northwest, Oct. 2016.

# PROJECTED GROWTH IN COLUMBIA COUNTY



- ▶ Columbia County's adopted population forecast shows growth of more than 10,400 people expected in the 2016-2036 period, resulting in a demand for nearly 4,100 new dwelling units.
- ▶ Assuming the popular demand for housing mix remains roughly the same as the 1990-2010 period, than over 75% of the new housing units will be built as single-family homes. That means a demand for 3,075 new single-family residences.

Source: Columbia County Housing Analysis: ECO Northwest, Oct. 2016.

# CHARACTERISTICS OF R-7 VS. R-5

	<u>R-7 (Moderate Residential)</u>	<u>R-5 (General Residential)</u>
Housing Types Allowed	Single-Family Duplexes (CUP required)	Single-Family Duplexes Townhomes (5 units max per structure) Multi-Dwelling units (CUP Required)
Average Lot Size	6150 sq. ft.	4890 sq. ft.
Average Dwelling Size	2,204 sq. ft.	1,612 sq. ft.
Minimum Lot Size	7,000 sq. ft. (single-family) 10,000 sq. ft. (duplex)	5000 sq. ft. (single-family) 5800 sq. ft. (duplex) 2500 sq. ft. (per unit, townhouse)
Average Cost of Home	<b>\$306,211</b>	<b>\$253,675</b>

# R-7 VS R-5: KEY METRICS

<u>R-5 Subdivisions:</u>	<u>Average House Size</u>	<u>Average Impr. Market Value</u>	<u>Total Cost</u>
County Meadows (2005)	1607 sq. ft.	\$148,041	\$232,862
Star Heights (2007)	1625 sq. ft.	\$163,620	\$251,745
Oakview (2000)	1608 sq. ft.	\$160,821	\$248,983

<u>R-7 Subdivisions:</u>	<u>Average House Size</u>	<u>Average Impr. Market Value</u>	<u>Total Cost</u>
Elk Ridge (2008)	2040 sq. ft.	\$201,520	\$303,986
Oak Ridge I (2005)	2131 sq. ft.	\$174,272	\$288,215
Oak Ridge II (2006)	2430 sq. ft.	\$221,499	\$311,562

Source: Ticor Title.

# HOUSING AFFORDABILITY IN COLUMBIA COUNTY

- **Comparison: Percentage of Columbia County Residents Who Can Afford an Average-Sized Home Built on an R-7 Zoned Parcel versus an R-5 Zoned Parcel:**

R-7	R-5
12%	45%

# STATEWIDE PLANNING GOAL 10 (HOUSING)



- ▶ Goal 10 requires “[b]uildable lands for residential use shall be inventoried and plans shall encourage the availability of adequate numbers of needed housing units....”.
- ▶ A “housing needs analysis must be incorporated into the Comprehensive Plan.” *Lengkeek v. City of Talent*, 50 Or LUBA 367, 378-80 (2005).
  - ▶ City is not in compliance.
- ▶ OAR 660-008-0010: “[s]ufficient buildable land shall be designated on the comprehensive plan map to satisfy housing needs by type and density range as determined in the housing needs projection.”

# SHMC 19.08.050(2)



- ▶ The City of St. Helens Comprehensive Plan requires the city “to promote safe, adequate, and affordable housing for all current and future members of the community.”

# ONE SOLUTION: ADD TO LAND SUPPLY BY INCREASING DENSITY



- ▶ Full construction of Emerald Meadows' 78 new houses would be a small but important step in meeting this demand, providing attractive, affordable, newly-constructed, low-maintenance houses.

# TRANSPORTATION PLANNING RULE (“TPR”)

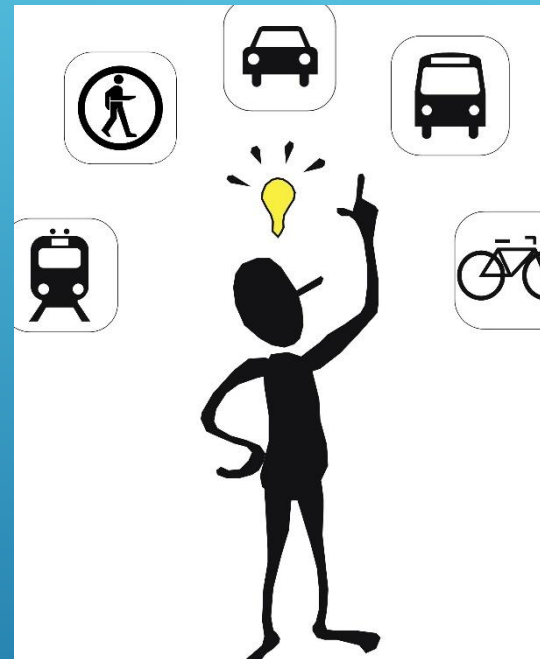
OAR 660-012-0060 requires :

- ▶ (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 transportation facility, then the local government must put in place measures to mitigate the impact.



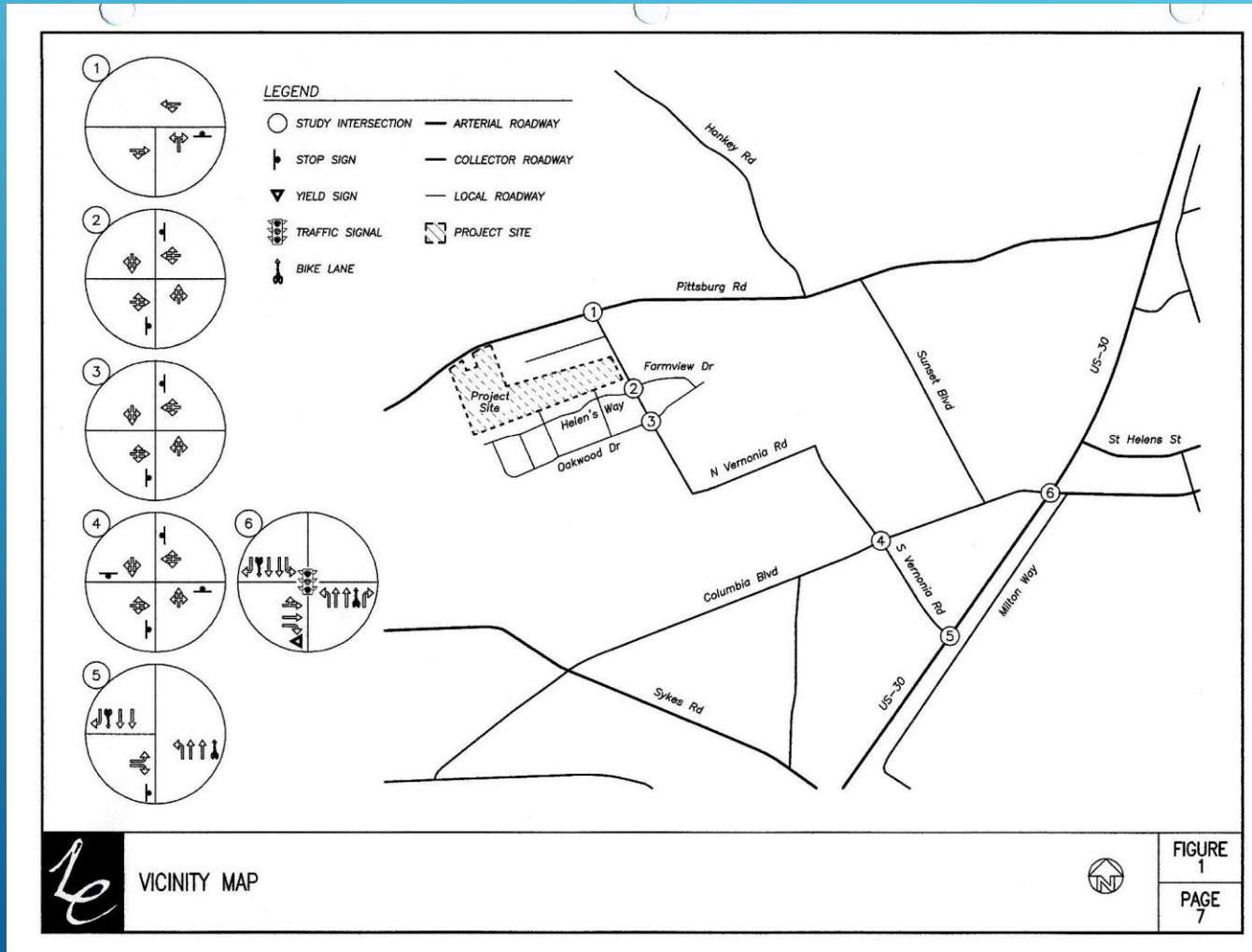
# TRANSPORTATION PLANNING RULE (“TPR”)

- ▶ (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 by adopting measures that demonstrate allowed land uses are consistent with the planned function, capacity, and performance standards of the transportation facility.

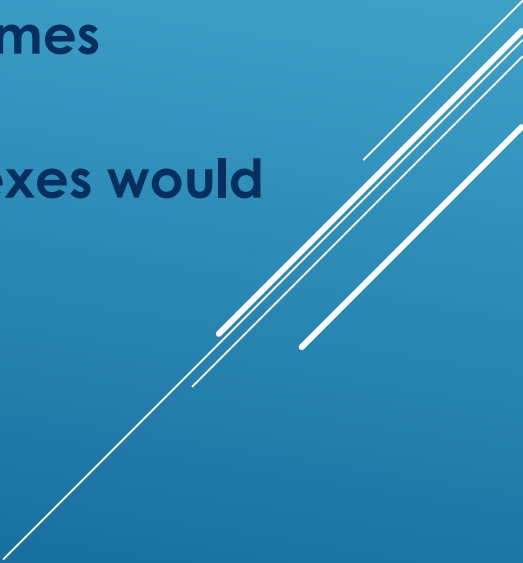


# TRANSPORTATION IMPACT ANALYSIS ("TIA")

## ROADS AND INTERSECTIONS ANALYZED



# TRANSPORTATION IMPACT ANALYSIS: KEY ASSUMPTIONS

- ▶ Per code section 17.32.070 R-5 the minimum lot size is 5,000 sf per SFD. For duplexes the minimum lot size is 5,800 plus an additional 2,500 sf per attached unit to a maximum of five attached dwelling units.
  - ▶ Duplexes behave more similarly to SFDs and based our trip generation rates for duplexes on this land-use.
  - ▶ Multiplexes behave more similarly to townhomes /condos/apartments.
  - ▶ Based our trip generation assumptions, duplexes would project the highest trip generation.
- 

# TRANSPORTATION IMPACT ANALYSIS: KEY CONCLUSIONS (PAGE 1 OF 2)

- ▶ The trip generation calculations show that the proposed development of 78 single-family homes is projected to generate a total of 64 site trips during the morning peak hour and 84 site trips during the evening peak hour.
- ▶ All study intersections are currently operating acceptably per City of Saint Helens and ODOT standards and are projected to continue operating acceptably upon build-out of the proposed development through year 2018.
- ▶ The intersection of Columbia Boulevard at N. Vernonia Road operates at LOS E under the 2031 planning year, but is projected to operate acceptably with minor mitigation.

# TRANSPORTATION IMPACT ANALYSIS: KEY CONCLUSIONS (PAGE 2 OF 2)


- ▶ Upon the restriping of the westbound approach of Columbia Boulevard at N Vernonia Road or limiting development on the subject site with a trip cap, the intersection is projected to operate within acceptable capacity per City code by the 2031 planning horizon.
- ▶ The proposed zone change will not degrade the performance of any other existing or planned transportation facility below acceptable City or ODOT standards. Accordingly, TPR is satisfied if the above mitigation is addressed upon development of the site.
- ▶ No significant trends or crash patterns were identified at any of the study intersections and no specific safety mitigation is recommended.
- ▶ Left-turn lane warrants are not projected to be met for any of the applicable study intersections under any of the analysis scenarios through the 2031 planning year. No new turn lanes are necessary or recommended.

# COMPATIBILITY WITH EXISTING USES

Not an approval standard for a zone change.

- ❖ “Compatible” is defined as follows:
  - ❖ “Capable of existing together in harmony.”
    - ❖ without discord or disharmony.”
- ❖ Compatibility does not necessarily mean that *all* negative impacts of the proposed use be eliminated. *Clark v. Coos County*, 53 Or LUBA 325 (2007).

# CHARACTERISTICS OF NEARBY USES

- ▶ Except for those few parcels in public use (e.g. McBride Elementary School, Campbell Park), this area is nearly entirely residential, zoned R-7 and R-5, developed with single-family detached homes (subdivisions).
  - ▶ Emerald Meadows will be entirely residential, zoned R-5, developed with with single-family homes and/or duplexes, developed as a subdivision.
- 
- A series of white diagonal lines of varying lengths and thicknesses, located in the bottom right corner of the slide.

# AESTHETIC COMPATIBILITY WITH NEIGHBORHOOD (1)

## R-5 SFR



# AESTHETIC COMPATIBILITY WITH NEIGHBORHOOD (2)

R-5 SFR

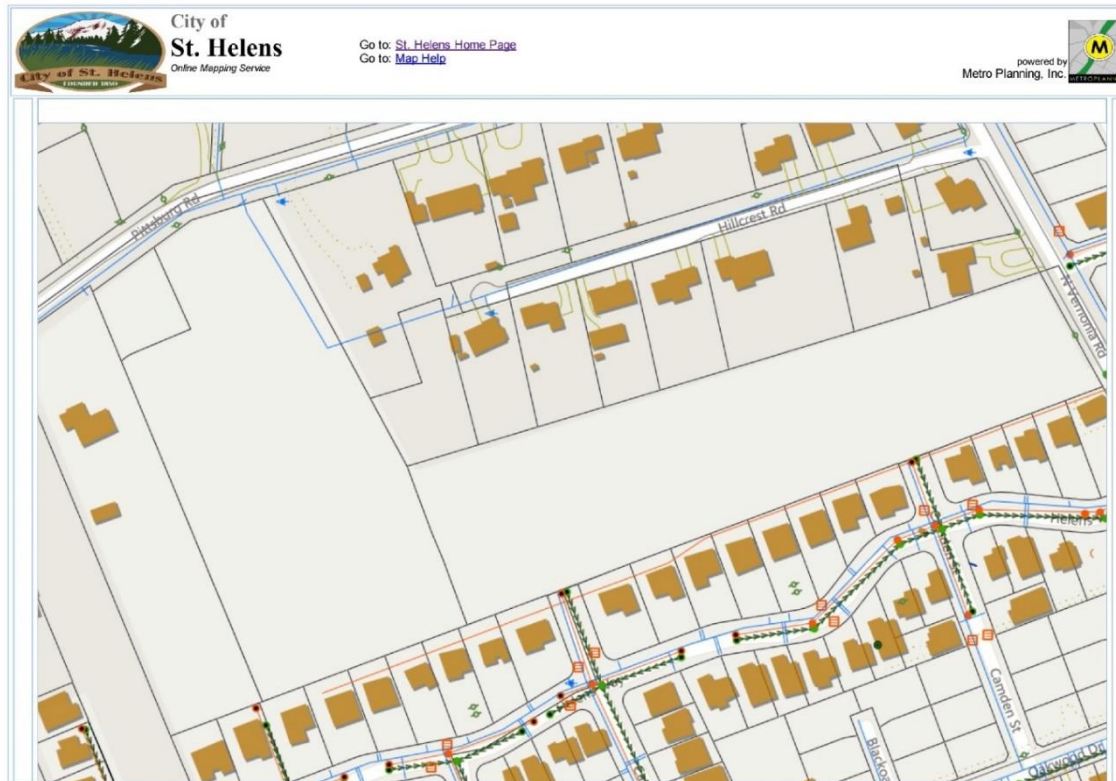


# AESTHETIC COMPATIBILITY WITH NEIGHBORHOOD (3)

## R-5 DUPLEX



# COMPATIBILITY WITH EXISTING UTILITIES



# CONCLUSIONS

- ▶ **NEED** for more affordable homes: increase density
- ▶ **Maintain COMPATIBILITY** with surrounding uses
- ▶ **Demonstrate COMPLIANCE** with approval criteria



# QUESTIONS?



**City of St. Helens**  
**ORDINANCE NO. 3212**

AN ORDINANCE AMENDING ST. HELENS MUNICIPAL CODE  
SECTION 2.28 PERTAINING TO NUMBER OF LIBRARY BOARD MEMBERS

**WHEREAS**, the Library Board is initiating a five-year strategic planning effort that will benefit from the support of additional Library Board members,

**NOW, THEREFORE, THE CITY OF ST. HELENS ORDAINS AS FOLLOWS:**

Section 1. Section 2.28.050 of the St. Helens Municipal Code is amended to read as follows (underlined words are added, ~~words stricken through~~ are deleted):

**"2.28.050 Library board.**

The library board shall consist of at least ~~five~~ seven members and no more than ~~seven~~ nine members appointed by the mayor and confirmed by the city council. A majority of members shall be residents of the city. No member of the library board shall have any financial interest, either directly or indirectly, in any contract to which the library is a party, nor shall any such member receive a salary or any payment for material or for any services rendered the board. Board members may be reimbursed for expenses incurred in the performance of their duties."

Section 2. Section 2.28.060 of the St. Helens Municipal Code is amended to read as follows (underlined words are added, ~~words stricken through~~ are deleted):

**"2.28.060 Terms of office – Vacancies.**

At their first meeting, two of the newly appointed members of the library board shall fill vacancies then existing. The other newly appointed members shall choose their term of office by lot as follows: one member shall ~~initially~~ hold office for a term expiring on June 30, 2018 and the other newly appointed member shall hold office for a term beginning July 1, 2017 and ending on June 30, 2021 ~~one year, one for two years, one for three years, and two for four years from July 1st in the year of their appointment~~. Succeeding appointees shall hold office for a term of four years from July 1st in the year of their appointment. At the expiration of the term of any board member, the mayor shall appoint a new member or may reappoint a member for a term of four years with the confirmation of the city council. If a vacancy occurs, the mayor shall appoint a new member to complete the unexpired term with the confirmation of the city council. ~~Mayor and council in making appointments shall provide that no more than two members' terms expire in any fiscal year~~. No person shall hold appointment as a member for more than two full consecutive terms, but any person may be appointed again to the board after an interval of one year. Any

board member failing to attend three consecutive board meetings without approval of the board may be removed by the city council and a new member appointed to complete the unexpired term."

Read the first time: February 1, 2017

Read the second time: February 15, 2017

**APPROVED AND ADOPTED** by the City Council this 15th day of February, 2017,  
by the following vote:

Ayes:

Nays:

---

Rick Scholl, Mayor

ATTEST:

---

Kathy Payne, City Recorder

**City of St. Helens**  
**RESOLUTION NO. 1776**

**A RESOLUTION ADOPTING THE ST. HELENS PUBLIC  
LIBRARY STRATEGIC PLAN**

**WHEREAS**, the City Council has approved a study to develop a strategic plan for the St. Helens Public Library; and

**WHEREAS**, as a part of the study, the views and comments of the citizens of St. Helens were solicited and compiled through focus groups and a planning meeting; and

**WHEREAS**, the Library Board and Library staff has put considerable time and effort into the development of a strategic plan for the Library; and

**WHEREAS**, the City Council finds that it is in the public's interest, health and welfare that the Library adopt a strategic plan.

**NOW, THEREFORE, THE CITY OF ST. HELENS RESOLVES AS FOLLOWS:**

**Section 1.** The St. Helens Public Library Strategic Plan 2017-2021, attached as Exhibit A, is hereby adopted.

**Section 2.** The Library's Strategic Plan shall be used as the guiding principles for the City Council, Library Board and Library staff in making decisions on issues pertaining to the Library and shall follow and implement elements of the Strategic Plan as identified within the Plan document.

**Approved and adopted** by the City Council on February 1, 2017, by the following vote:

Ayes:

Nays:

\_\_\_\_\_  
Rick Scholl, Mayor

ATTEST:

\_\_\_\_\_  
Kathy Payne, City Recorder

**St. Helens Public Library  
Strategic Plan  
2017 – 2021**

**Goal 1: LIFELONG LEARNING**

***Strategies:***

**Continue to develop and implement a range of enrichment opportunities for residents of all ages**

- Offer a variety of programs and services focused on children 0 – 5 and their caregivers
- Offer programming for teens and school aged children
- Offer enrichment programs for adults

**Enhance K-12 learning**

- Develop and maximize partnerships with school district
- Provide support for homeschooling families
- Explore the viability of providing educator library cards

**Promote reading for all ages.**

- Offer a range of reading promotion programs
- Maintain a vital and relevant collection

**Provide information, resources and (where appropriate) training to address a variety of community needs**

- Offer resources and support relating to basic needs: housing, employment, social services
- Provide support for small businesses
- Offer technology access and training
- Expand volunteer program and develop additional opportunities for community involvement
- Continue to offer test proctoring and consider offering other similar services

## Goal 2: LIBRARY AS COMMUNITY/CULTURAL CENTER

### *Strategies:*

#### **Assess current library to identify unmet needs as well as potential improvements to address them**

- Develop a facilities plan that identifies needed improvements in the current library, as well as desired features in an expanded footprint (should that be feasible)
- Develop a funding plan for a renovated or expanded library

#### **Explore opportunities to coordinate services with other community partners**

- Survey community partners to identify potential collaborative opportunities
- Work with community partners to identify and implement best ways to disseminate information about community services
- Develop a collective impact plan for St. Helens community

## Goal 3: ACCESS TO LIBRARY SERVICES

### *Strategies:*

#### **Evaluate current fines and fee structure to eliminate unnecessary barriers**

- Explore options to provide services to out-of-city residents
- Review and revise fee structure (late fees, materials replacement, meeting room rental)
- Implement integrated account collection software

#### **Evaluate open hours on an annual basis to maximize service to the community**

- Enhance measurements of current facility usage (including unmet meeting room requests) and develop plan to evaluate them

#### **Identify underserved audiences and develop efforts to reach them**

- Develop and implement plan to serve homebound residents
- Develop and implement plan to serve low literacy adults
- Develop and implement plan to improve services to Spanish speakers

#### **Assess and improve the library's online presence**

- Upgrade the library's website
- Enhance usability of library catalog for mobile users

## Goal 4: COMMUNICATIONS

### ***Strategies:***

#### **Increase effectiveness of the library's marketing and communications efforts**

- Develop effective communication partnerships with the school district
- Enhance communications about the library's service area, services available without a library card, and the benefits to out-of-city residents of purchasing a card
- Develop and implement a social media plan
- Explore other means of promoting the library (signage, targeted outreach, library value calculator)

**FIRST AMENDMENT TO  
BEAR INSPECTION & CONSULTING LLC  
PERSONAL SERVICES AGREEMENT**

This agreement is entered into this 18th day of January, 2017, by and between the City, (hereinafter "City"), and Bear Inspection & Consulting, LLC, (hereinafter "Contractor").

**RECITALS**

- A. City and Contractor entered into a Personal Services Agreement on October 6, 2016 and said agreement, hereinafter "original agreement", is on file at St. Helens City Hall.
- B. As part of the original agreement, Contractor and City agreed that the Contractor would provide third-party coating inspection services on the rehabilitation of the City's two million gallon concrete drinking water reservoir.
- C. Additional time is required to complete the work due to the extended time it will take for rehabilitation of the City's two million gallon concrete drinking water reservoir to be completed because of the needed specified coating product change.

**NOW, THEREFORE**, in consideration for the mutual covenants contained herein the receipt and sufficiency of which are hereby acknowledged, Contractor and City agree as follows:

- 1. The recitals set forth above are true and correct and are incorporated herein by this reference.
- 2. The agreement completion date shall be extended to March 31, 2017.
- 3. All other terms of the original agreement not specifically amended by this agreement remain in full force and effect.

Dated this 18th day of January, 2017.

**Contractor**



Date: 1-19-2017

**City**

~~Randy Peterson~~, Mayor **RICK SCHOLL**

Date: \_\_\_\_\_

Attest:

By: \_\_\_\_\_  
Kathy Payne, City Recorder

01/06/17

Bear Inspection and Consulting, LLC  
W-449A, Professional Coating Inspection Services for the 2MG Reservoir Rehabilitation Project  
First Amendment to Personal Services Agreement

- 1 -

## **City of St. Helens PERSONAL SERVICES AGREEMENT**

This PERSONAL SERVICES AGREEMENT (this “Agreement”) is made and entered into by and between the **City of St. Helens** (the “City”), an Oregon municipal corporation, and **ECONorthwest** (“Contractor”).

### **RECITALS**

**A.** The City is in need of consulting services for site development, and Contractor is qualified and prepared to provide such services.

**B.** The purpose of this Agreement is to establish the services to be provided by Contractor and the compensation and terms for such services.

### **AGREEMENT**

**1. Engagement.** The City hereby engages Contractor to provide services (“Services”) related to consulting services for site development, and Contractor accepts such engagement. The principal contact for Contractor shall be Lorelei Juntunen, phone (503) 222-6060.

**2. Scope of Work.** The duties and responsibilities of Contractor, including a schedule of performance, shall be as described in Attachment A attached hereto and incorporated herein by reference.

**3. Term.** Subject to the termination provisions of Section 11 of this Agreement, this Agreement shall commence once executed by both parties and shall terminate on June 30, 2017. The City reserves the exclusive right to extend the contract for a period of two (2) months in one (1) month increments. Such extensions shall be in writing with terms acceptable to both parties. Any increase in compensation for the extended term shall be as agreed to by the parties but shall not exceed five percent (5%) of the then-current fees.

**4. Compensation.** The terms of compensation for the initial term shall be as provided in Attachment A.

**5. Payment.**

**5.1** The City agrees to pay Contractor for and in consideration of the faithful performance of the Services, and Contractor agrees to accept from the City as and for compensation for the faithful performance of the Services, the fees outlined in Attachment C, except that the hourly fee shall include all local travel, local telephone expense, computer expense, and routine document copying. Reimbursable expenses shall be billed at cost without markup and shall include travel and related expenses in compliance with the City’s travel and expense policy, reproduction of documents or reports with prior written approval, and long-distance telephone expenses. Contractor’s cost for approved sub-consultants may be marked up a maximum of five percent (5%) by Contractor for management and handling expenses.

**5.2** Contractor shall make and keep reasonable records of work performed pursuant to this Agreement and shall provide detailed monthly billings to the City. Following approval by the City Administrator, billings shall be paid in full within thirty (30) days of receipt thereof. The City shall notify Contractor of any disputed amount within fifteen (15) days from receipt of the invoice, give reasons for the objection, and promptly pay the undisputed amount. Disputed amounts may be withheld without penalty or interest pending resolution of the dispute.

**5.3** The City may suspend or withhold payments if Contractor fails to comply with requirements of this Agreement.

**5.4** Contractor is engaged by the City as an independent contractor in accordance with the standards prescribed in ORS 670.600. Contractor shall not be entitled to any benefits that are provided by the City to City employees.

**5.5** Any provision of this Agreement that is held by a court to create an obligation that violates the debt limitation provision of Article XI, Section 9 of the Oregon Constitution shall be void. The City's obligation to make payments under this Agreement is conditioned upon appropriation of funds pursuant to ORS 294.305 through 294.565.

**6. Document Ownership.** Upon acceptance of the Services and payment for such Services by the City, all work products, including, but not limited to, documents, drawings, papers, computer programs and photographs, performed or produced by Contractor for the benefit of the City under this Agreement shall become the property of the City. Any reuse or alteration of any work produced under this Agreement, except as contemplated herein, shall be at the City's sole risk.

**7. Notices.** All notices, bills and payments shall be made in writing and may be given by personal delivery or by mail. Notices, bills and payments sent by mail should be addressed as follows:

**CITY:** City of St. Helens  
Attn: City Administrator  
PO Box 278  
St. Helens OR 97051

**CONTRACTOR:** **ECONorthwest**  
Attn: Lorelei Juntunen  
222 SW Columbia Street, Suite 1600  
Portland, OR 97201

When so addressed, such notices, bills and payments shall be deemed given upon deposit in the United States mail, postage-prepaid.

**8. Standard of Care.** Contractor shall comply with applicable standards of professional care in the performance of the Services. Contractor shall prepare materials and deliverables in accordance with generally accepted standards of professional practice for the intended use of the project.

**9. Consequential Damages.** Neither party shall be liable to the other for consequential damages, including, without limitation, loss of use or loss of profits incurred by one another or their subsidiaries or successors, regardless of whether such damages are caused by either party's breach of contract, willful misconduct, negligent act or omission, or other wrongful act.

**10. Insurance.**

**10.1** At all times during the term of this Agreement, Contractor shall carry, maintain and keep in full force and effect a policy or policies of insurance as specified in Attachment B attached hereto and incorporated herein by reference.

**10.2** All insurance policies shall provide that the insurance coverage shall not be canceled or reduced by the insurance carrier without thirty (30) days' prior written notice to the City. Contractor agrees that it will not cancel or reduce said insurance coverage.

**10.3** Contractor agrees that if it does not keep the aforesaid insurance in full force and effect, the City may either immediately terminate this Agreement or, if insurance is available at a reasonable cost, the City may take out the necessary insurance and pay, at Contractor's expense, the premium thereon. If the City procures such insurance, the City shall retain any cost incurred for same from moneys due Contractor hereunder.

**10.4** At all times during the term of this Agreement, Contractor shall maintain on file with the City a Certificate of Insurance or a copy of actual policies acceptable to the City showing that the aforesaid policies are in effect in the required amounts. The policies shall contain an endorsement naming the City, its officers, employees and agents, as additional insureds (except for the professional liability and workers' compensation insurance).

**10.5** The insurance provided by Contractor shall be primary to any coverage available to the City. The insurance policies (other than workers' compensation) shall include provisions for waiver of subrogation. Contractor shall be responsible for any deductible amounts outlined in such policies.

**11. Termination.** Either party may terminate this Agreement upon seven (7) days' written notice if one of the following occurs: (a) the other party fails to substantially perform in accordance with the terms of this Agreement; or (b) the City, in its sole discretion, decides to abandon the project. If either party terminates this Agreement, Contractor shall receive compensation only for Services actually performed up to the date of termination.

**12. No Third-Party Rights.** This Agreement shall not create any rights in or inure to the benefit of any parties other than the City and Contractor.

**13. Modification.** Any modification of the provisions of this Agreement shall be set forth in writing and signed by the parties.

**14. Waiver.** A waiver by a party of any breach by the other shall not be deemed to be a waiver of any subsequent breach.

**15. Indemnification.** Contractor and the officers, employees, agents and subcontractors of Contractor are not agents of the City, as those terms are used in ORS 30.265. Contractor shall defend, indemnify and hold harmless the City and its officers, employees,

elected officials, volunteers and agents from any and all claims for injury to any person or damage to property caused by the negligence or other wrongful acts, omissions, or willful misconduct of Contractor or officers, employees, agents, or subcontractors of Contractor. Contractor shall not be responsible for claims caused by the negligence or other wrongful acts or omissions of the City or the City's officers, employees, or agents.

**16. Governing Laws.** This Agreement shall be governed by the laws of the State of Oregon. Venue shall be in the Circuit Court for Columbia County, Oregon.

**17. Compliance with Law.**

**17.1** Contractor shall comply with all applicable federal, state and local statutes, ordinances, administrative rules, regulations and other legal requirements in performance of this Agreement.

**17.2** Contractor shall comply with applicable provisions of ORS 279B.020, 279B.220, 279B.225, 279B.230 and 279B.235. Pursuant to ORS 279B.235, any person employed by Contractor who performs Services shall be paid at least time and a half pay for all overtime in excess of forty (40) hours in any one (1) week, except for persons who are excluded or exempt from overtime pay under ORS 653.010 through 653.261 or under 29 USC Sections 201 through 209.

**17.3** Contractor is a "subject employer," as defined in ORS 656.005, and shall comply with ORS 656.017.

**17.4** Contractor shall not discriminate against any employee or applicant for employment because of race, color, religion, sex, age, national origin, physical or mental disability, or disabled veteran or veteran status in violation of state or federal laws.

**17.5** Contractor certifies that it currently has a City business license or will obtain one prior to delivering services under this Agreement. [Business License No. 04441]

**18. Confidentiality.** Contractor shall maintain the confidentiality, both external and internal, of that confidential information to which it is exposed by reason of this Agreement. Contractor warrants that its employees assigned to this Agreement shall maintain necessary confidentiality.

**19. Publicity.** Contractor shall not use any data, pictures, or other representations of the City in its external advertising, marketing programs, or other promotional efforts except with prior specific written authorization from the City.

**20. Succession.** This Agreement shall inure to the benefit of and shall be binding upon each of the parties hereto and such parties' partners, successors, executors, administrators and assigns.

**21. Assignment.** This Agreement shall not be assigned by Contractor without the express written consent of the City. Contractor shall not assign Contractor's interest in this Agreement or enter into subcontracts for any part of the Services without the prior written consent of the City.

**22. Default.**

**22.1** A party will be in default under this Agreement if that party fails to comply with any provision of this Agreement within ten (10) days after the other party gives written notice specifying the breach. If the breach specified in the notice cannot be completely cured within the ten (10)-day period, a default will not occur if the party receiving the notice diligently begins curative action within the ten (10)-day period and proceeds to cure the breach as soon as practicable.

**22.2** Notwithstanding Subsection 22.1, the City may declare a default immediately by written notice to Contractor if Contractor intentionally or repeatedly breaches material provisions of this Agreement or if Contractor's breach of contract creates unreasonable risk of injury to any person or damage to property.

**22.3** Should a dispute arise between the parties to this Agreement, it is agreed that such dispute will be submitted to a mediator prior to any litigation. The parties shall exercise good-faith efforts to select a mediator who shall be compensated equally by both parties. Mediation shall be conducted in St. Helens, Oregon, unless both parties agree in writing otherwise. Both parties agree to exercise good-faith efforts to resolve disputes covered by this section through the mediation process. If a party requests mediation and the other party fails to respond within ten (10) days, a mediator shall be appointed by the presiding judge of the Circuit Court of the State of Oregon for Columbia County upon request of either party. The parties shall have any rights at law or in equity with respect to any dispute not covered by this section. Nothing in this section shall preclude a party from seeking equitable relief to enjoin a violation of this Agreement.

**22.4** If a default occurs, the party injured by the default may terminate this Agreement and enforce any remedies available under Oregon law. Litigation shall be conducted in the Circuit Court of the State of Oregon for Columbia County. Litigation initiated by the City must be authorized by the St. Helens City Council.

**23. Attorney Fees.** If legal action is commenced in connection with this Agreement, the prevailing party in such action shall be entitled to recover its reasonable attorney fees and costs incurred herein at trial and on appeal.

**24. Inspection and Audit by the City.**

**24.1** Services provided by Contractor and Contractor's performance data, financial records, and other similar documents and records of Contractor that pertain, or may pertain, to the Services under this Agreement shall be open for inspection by the City or its agents at any reasonable time during business hours. Upon request, copies of records or documents shall be provided to the City free of charge.

**24.2** The City shall have the right to inspect and audit Contractor's financial records pertaining to the Services under this Agreement at any time during the term of this Agreement or within two (2) years following the termination of this Agreement.

**24.3** This Section 24 is not intended to limit the right of the City to make inspections or audits as provided by law or administrative rule.

**25. Entire Agreement.** This Agreement contains the entire agreement between the parties and supersedes all prior written or oral discussions or agreements regarding the Services described herein.

**26. Severance.** If any provision of this Agreement is held to be invalid, it will not affect the validity of any other provision. This Agreement will be construed as if the invalid provision had never been included.

**IN WITNESS WHEREOF,** the City has caused this Agreement to be executed in duplicate originals by its duly authorized undersigned agents, and Contractor has executed this Agreement on the date written below.

**CITY:**

**CONTRACTOR:**

**CITY OF ST. HELENS**

**ECONorthwest**

Council Meeting Date: \_\_\_\_\_

Signature: \_\_\_\_\_

Signature: \_\_\_\_\_

Print: \_\_\_\_\_

Print: \_\_\_\_\_

Title: \_\_\_\_\_

Title: \_\_\_\_\_

Date: \_\_\_\_\_

Date: \_\_\_\_\_

APPROVED AS TO FORM:

By: \_\_\_\_\_

City Attorney

**ATTACHMENT A**  
**Scope of Work & Compensation**

## ATTACHMENT B INSURANCE REQUIREMENTS

Contractor and its subcontractors shall maintain insurance acceptable to the City in full force and effect throughout the term of this Contract.

It is agreed that any insurance maintained by the City shall apply in excess of, and not contribute toward, insurance provided by Contractor. The policy or policies of insurance maintained by Contractor and its subcontractors shall provide at least the following limits and coverage:

TYPE OF INSURANCE	LIMITS OF LIABILITY		REQUIRED FOR THIS CONTRACT
<b>General Liability</b>	Each occurrence General Aggregate Products/Comp Ops Aggregate Personal and Advertising Injury	\$1,000,000 \$2,000,000 \$2,000,000 \$1,000,000 w/umbrella or \$1,500,000 w/o umbrella	YES
Please indicate if Claims Made or Occurrence			
<b>Automobile Liability</b>	Combined Single – covering any vehicle used on City business	\$2,000,000	YES
<b>Workers' Compensation</b>	Per Oregon State Statutes If workers compensation is not applicable please initial here _____. State the reason it is not applicable: _____		YES
<b>Professional Liability</b>	Per occurrence  Annual Aggregate	\$500,000 or per contract \$500,000 or per contract	YES

Contractor's general liability and automobile liability insurance must be evidenced by certificates from the insurers. The policies shall name the City, its officers, agents and employees, as additional insureds and shall provide the City with a thirty (30)-day notice of cancellation.

Workers' compensation insurance must be evidenced by a certificate from the insurer. The certificate need not name the City as an additional insured, but must list the City as a certificate holder and provide a thirty (30)-day notice of cancellation to the City.

Certificates of Insurance shall be forwarded to:

City Administrator  
City of St. Helens  
P.O. Box 278  
St. Helens, OR 97051

Contractor agrees to deposit with the City, at the time the executed Contract is returned, Certificates of Insurance and Binders of Insurance if the policy is new or has expired, sufficient to satisfy the City that the insurance provisions of this Contract have been complied with and to keep such insurance in effect and the certificates and/or binders thereof on deposit with the City during the entire term of this Contract. Such certificates and/or binders must be delivered prior to commencement of the Work.

The procuring of such required insurance shall not be construed to limit Contractor's liability hereunder. Notwithstanding said insurance, Contractor shall be obligated for the total amount of any damage, injury or loss caused by negligence or neglect connected with this Contract.



DATE: January 17, 2017  
TO: John Walsh, City of St. Helens  
FROM: Lorelei Juntunen and Emily Picha  
SUBJECT: ST HELENS WATERFRONT RFQ PROPOSAL

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This memorandum provides ECONorthwest's proposed scope for the production of a Request for Qualifications for the St. Helens Waterfront and selected sites in downtown St. Helens.

## Task 1: RFQ Draft

ECONorthwest will work with City staff to prepare a clear and concise RFQ that explains the development opportunity on the St. Helens waterfront and on specific sites in downtown St. Helens. We anticipate an approximately month-long process that starts with a detailed annotated outline of information for the RFQ, and concludes with a complete document. The RFQ will include:

- **Site Context:** the site's location, history, planning efforts related to the site, and the uses that surround the site (summarized from the Framework Plan); market analysis summary. This will include maps (taken from Framework Plan) and surrounding land uses.
- **Planning and public investments:** Overview of previous planning efforts and existing or planned public investments.
- **Site details:** Development considerations, infrastructure, environmental considerations, initial considerations for potential phasing
- **Partnership opportunity:** Overview of the development requirements and expected public support, including urban renewal and other expected public investments, as well as any requirements for that the development must meet to achieve public goals
- **Submission and evaluation process:** submission instructions and requirements, evaluation criteria and selection process.

We will hold one work session at ECONorthwest offices to identify information needed for the document, confirm sites that the City would like to include in the RFQ, define evaluation criteria and expectations, and otherwise define the opportunity.

ECONorthwest will compile all details for the RFQ and produce the document, but will work with the City to fill specific information gaps (if any). We assume that the City will prepare a webpage for the development opportunity.

Budget: \$7,000

Timeline: One month

## Task 2: Developer Selection

ECONorthwest will work with the City to implement the process for developer selection and vetting. ECO will:

- Prepare for and attending one scheduled pre-proposal meeting and tour of the area, but we recommend that the City make itself available for ad hoc tours in case interested parties are unable to attend a scheduled tour.
- Develop scoring sheets for the qualifications responses and for interviews, that link to the criteria in the RFQ
- Review applications from interested parties.
- Attend interview(s) with a short list of selected developers and provide input.

Budget: \$6,000

Timeline: One month

HOURS BY TASK					TOTALS	
Labor Expenses		Task 1	Task 2			
			Dev			
	\$/Hour	RFQ Draft	Selection	Hours	\$	% of Budget
ECONorthwest						
Partner/Project Director	185	10	20	30	\$5,550	43%
Project Manager	140	30	15	45	\$6,300	48%
Senior Analyst	95	10		10	\$950	7%
Sub-Total		50	35	85	\$12,800	98%
Non-Labor Expenses		Task 1	Task 2	Expense Totals		% of Budget
Travel			\$200	\$200	2%	
Total		\$0	\$200	\$200	2%	
Totals by Task		Task 1	Task 2	Summary of Expenses		
Total Labor		\$7,000	\$5,800	Labor	\$12,800	98%
Direct Expense		\$0	\$200	Non-Labor	\$200	2%
Total by Task		\$7,000	\$6,000			
% of Total Budget		54%	46%	Budget	\$13,000	100%

## **CONTRACT PAYMENTS**

City Council Meeting  
February 1, 2017

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**Ameresco, Inc.**

Project: R-646 LED Street Light Conversion (Inv#1)	\$	<b>420,133.85</b>
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**Kennedy/Jenks Consultants**

Project: W-449 2MG Reservoir Rehab (Inv#108385)	\$	<b>7,872.38</b>
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KP

**PAYMENT ADDRESS:**  
Ameresco, Inc  
111 Speen Street  
Suite 410  
Framingham, MA 01701

**AMERESCO**  
Green • Clean • Sustainable



DATE	INVOICE #
1/13/2017	1

BILL TO ADDRESS:	BILLING QUESTIONS:
City of St. Helens Attn: Sue Nelson 265 Strand Street St. Helens, OR 97051	Ameresco, Inc. 5200 SW Macadam Avenue, Ste 500 Portland OR 97239 Attn: Elissa Martino 206-708-2834

**PROJECT LOCATIONS:**  
City of St. Helens  
Street Lighting

PROJECT NAME	PAYMENT TERMS	CLIENT CONTRACT #	AQ JOB NUMBER	AMT PREV. PAID
City of St. Helens Energy Efficiency	Net 30 Days	215-2015-01	811722000	\$ -

No	Item	Scope Item	Contract Amount	Amount Earned	Percent Invoiced	Prior Invoiced Amount	Net Due This Invoice \$
	Engineering Audit Fee		\$ 6,900.00	\$ 6,900.00	100%	\$ -	\$ 6,900.00
	Construction Labor & Materials						
3			\$ 550,350.00	\$ -	58%	\$ -	\$ -
4	Non-Distribution Materials (EC)	ECM-L1		\$ 98,913.82		\$ -	\$ 98,913.82
5	Non-Distribution Labor (EC)	ECM-L1		\$ 20,001.87		\$ -	\$ 20,001.87
6	Distribution Materials (EC)	ECM-L1		\$ 199,373.17		\$ -	\$ 199,373.17
7	Distribution Labor (CRPUD)	ECM-L1		\$ -		\$ -	\$ -
	Construction Services						
9	Bonding -		\$ 11,007.00	\$ 10,751.00	98%	\$ -	\$ 10,751.00
10	M,W&G Design -		\$ 27,518.00	\$ 26,142.10	95%	\$ -	\$ 26,142.10
11	Construction Management -		\$ 27,518.00	\$ 15,960.44	58%	\$ -	\$ 15,960.44
12	ESCO Overhead and Profit -		\$ 110,070.00	\$ 63,840.60	58%	\$ -	\$ 63,840.60
13	Construction Contingency -		\$ 27,518.00	\$ -	0%	\$ -	\$ -
16	Measurement and Verification		\$ 1,750.00	\$ -	0%	\$ -	\$ -
18							
19	SUBTOTAL		\$ 762,631.00	\$ 441,883.00	58%	\$ -	\$ 441,883.00
22	Less: Retainage at 5% of all costs EXCEPT Audit & PDP or M&V		\$ 37,699.05	\$ 21,749.15		\$ -	\$ 21,749.15
23	NET DUE (AFTER RETAINAGE)		\$ 724,931.95	\$ 420,133.85		\$ -	\$ 420,133.85

SIGNATURE:

*[Signature]*

NAME: Grant Thorsland

TITLE: Northwest Regional Manager

R-646 LED Street Light Conversion  
010-301-653120

APPROVED FOR PAYMENT

INIT

*[Signature]*  
*[Signature]*

ACCOUNTS PAYABLE

FINANCE  
SUPERVISOR

DATE

1-24-17  
1-24-17



## Cost Reconciliation

Date Revised: 1/4/2017  
Ameresco Job No. 8117220  
State Contract No.: NA

% and \$ Based on the GMAX Budget Value to the right, insert Bond as a l

### Overall Labor and Material Project Budget

	Total Project Funds Remaining including Contingency*	\$
27774.00		

\*All project funds are expected to be expended in completion of the base scope of work. No project funds or contingency funds can be committed to any work outside of the base scope until the base scope of work is completed.

All project funds are expected to be expended in completion of the base scope of work. No project funds or contingency funds can be committed in any work outside of the base scope until the base scope of work is completed.

**SEATTLE**  
6412 S 196th St  
Kent WA 98032  
(206) 242-3010  
Fax (206) 436-6023

**ALBANY**  
PO Box 925  
Albany OR 97321  
(541) 926-4266  
Fax (541) 926-4268

**BAY CITY                      EUGENE**  
PO Box 3318      875 Wilson St Ste A  
Bay City OR 97107 Eugene OR 97402  
(503) 377-2154      (541) 345-0669  
Fax (503) 377-2762 Fax (541) 345-1857

PLEASE REMIT ALL PAYMENTS TO THE PORTLAND OFFICE

Invoice #: 142564  
Date: 12/12/16  
Contract : 76152 -  
Application #: 1  
Customer Reference: PO.119351  
Customer Job #  
P/W Biller CCE/LB  
Payment Terms: NET/30

**If Any Questions Please Call Billing: Lila Brown @ 503-223-5354**

Page 1 of 1

KP

# **Kennedy/Jenks Consultants**

## **Engineers & Scientists**

303 Second Street, Suite 300 South  
San Francisco, CA 94107

Phone: 415.243.2150

Fax: 415.543.8061

City of St. Helens  
P.O. Box 278  
St. Helens, OR. 97051

Invoice # : 108385  
Project : 1676012\*00  
Project Name : St.Helen's 2MG Reservoir Rehab.  
Invoice Date : 1/23/2017

For Professional Services Rendered through: 12/30/2016

2 MG Reservoir Rehabilitation Project; City of St. Helens; proposal number P16019; agreement date June 6, 2016.

Phase Code / Name	Contract Fee	Previous Billings	Current Billings	Total Billings	Fee Remaining
**** -- Do Not Use	\$2,425.00	\$1,396.05	\$0.00	\$1,396.05	\$1,028.95
01 -- Final Design	\$28,675.00	\$33,589.29	\$0.00	\$33,589.29	-\$4,914.29
02 -- Construction Phase Services	\$33,900.00	\$7,135.90	\$7,872.38	\$15,008.28	\$18,891.72
<b>Totals:</b>	<b>\$65,000.00</b>	<b>\$42,121.24</b>	<b>\$7,872.38</b>	<b>\$49,993.62</b>	<b>\$15,006.38</b>

Amount Due this Invoice

**\$7,872.38**

W-449 2MG Reservoir Rehab  
010-302-653207

APPROVED FOR PAYMENT

INIT	DATE
ACCOUNTS PAYABLE	
FINANCE	1-24-17
SUPERVISOR	1-24-17

Project : 1676012\*00 -- St.Helen's 2MG Reservoir Rehab.

Invoice #:108385

Phase : 02 -- Construction Phase Services

Task : \*\*\*\* -- DO NOT USE

Unit Pricing Expenses

<u>Vendor / Employee Name</u>	<u>Units</u>	<u>Rate</u>	<u>Amount</u>
ODC-Equipment Charges (UP)			
Miles on KJ Company Vehicle	64.00	0.54	34.56
<b>Unit Pricing</b>			<b>34.56</b>

Total Task : \*\*\*\* -- DO NOT USE

Labor :	0.00	0.00
Expense :	64.00	34.56
Total :		34.56

Task : 2.2 -- Pre-Construction Conference

Unit Pricing Expenses

<u>Vendor / Employee Name</u>	<u>Units</u>	<u>Rate</u>	<u>Amount</u>
ODC-Equipment Charges (UP)			
Miles on KJ Company Vehicle	243.00	0.54	131.22
Miles on KJ Company Vehicle	270.00	0.54	145.80
	513.00		277.02
<b>Unit Pricing</b>			<b>277.02</b>

Total Task : 2.2 -- Pre-Construction Conference

Labor :	0.00	0.00
Expense :	513.00	277.02
Total :		277.02

Task : 2.3 -- Submittal Review

Rate Schedule Labor

<u>Class / Employee Name</u>	<u>Hours</u>	<u>Rate</u>	<u>Amount</u>
Engineer/Scientist/Specialist 4			
Sera, Ramon G.	7.50	145.60	1,092.00
<b>Rate Schedule Labor</b>			<b>1,092.00</b>

Total Task : 2.3 -- Submittal Review

Labor :	7.50	1,092.00
Expense :	0.00	0.00
Total :		1,092.00

Task : 2.4 -- Requests for Information

Rate Schedule Labor

<u>Class / Employee Name</u>	<u>Hours</u>	<u>Rate</u>	<u>Amount</u>
Engineer/Scientist/Specialist 2			
Pritchett, Steven T. (PRT)	1.00	124.80	124.80
<b>Rate Schedule Labor</b>			<b>124.80</b>

Total Task : 2.4 -- Requests for Information

Labor :	1.00	124.80
Expense :	0.00	0.00
Total :		124.80

Project : 1676012\*00 -- St.Helen's 2MG Reservoir Rehab.

Invoice # :108385

Phase : 02 -- Construction Phase Services

Task : 2.5 -- Change Order Evaluations

Rate Schedule Labor

<u>Class / Employee Name</u>	<u>Hours</u>	<u>Rate</u>	<u>Amount</u>
Engineer/Scientist/Specialist 4			
Sera, Ramon G.	23.00	145.60	3,348.80
<b>Rate Schedule Labor</b>			<b>3,348.80</b>

Total Task : 2.5 -- Change Order Evaluations

Labor :	23.00	3,348.80
Expense :	0.00	0.00
Total :		3,348.80

Task : 2.6 -- Construction Observation

Rate Schedule Labor

<u>Class / Employee Name</u>	<u>Hours</u>	<u>Rate</u>	<u>Amount</u>
Engineer/Scientist/Specialist 4			
Sera, Ramon G.	7.50	145.60	1,092.00
Engineer/Scientist/Specialist 5			
Garbely, Jennifer A.	6.00	171.60	1,029.60
<b>Rate Schedule Labor</b>			<b>2,121.60</b>

Total Task : 2.6 -- Construction Observation

Labor :	13.50	2,121.60
Expense :	0.00	0.00
Total :		2,121.60

Task : 2.7 -- Progress Meetings

Rate Schedule Labor

<u>Class / Employee Name</u>	<u>Hours</u>	<u>Rate</u>	<u>Amount</u>
Engineer/Scientist/Specialist 4			
Sera, Ramon G.	6.00	145.60	873.60
<b>Rate Schedule Labor</b>			<b>873.60</b>

Total Task : 2.7 -- Progress Meetings

Labor :	6.00	873.60
Expense :	0.00	0.00
Total :		873.60

Total Phase : 02 -- Construction Phase Services

Labor :	51.00	7,560.80
Expense :	577.00	311.58
Total :		7,872.38

Project : 1676012\*00 -- St.Helen's 2MG Reservoir Rehab.

Invoice # :108385

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Total Project: 1676012\*00 -- St.Helen's 2MG Reservoir Rehab.

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7,872.38

## **APPOINTMENTS TO ST. HELENS CITY BOARDS AND COMMISSIONS**

City Council Meeting ~ February 1, 2017

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**Pending applications received:**

<u>Name</u>	<u>Interest</u>	<u>Date Application Received</u>	<u>Referred by Email To Committee(s)</u>
• Kimberly O'Hanlon	Arts & Cultural Commission	5/17/16	5/17/16
• Joann Nelson	Arts & Cultural Commission	9/19/16	9/19/16
• Amanda Heynemann	Library Board	11/10/16	11/21/16

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**Arts & Cultural Commission (3-year terms)**

- Susie Patterson resigned. Her term expires 9/30/2017.
- Nancy Bowers resigned. Her term expires 9/30/2018.

**Status:** A press release was sent out on May 2 and August 16. We have received two applications to date.

**Next Meeting:** February 28, 2017

**Recommendation:** At their regular meeting on January 24, the Commission recommended the Council appoint Kimberly O'Hanlon. Her term will expire 9/30/18.

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**Bicycle & Pedestrian Commission (3-year terms)**

- Dave Ehrenkranz resigned. His term expires 12/31/2015.
- Matt Freeman resigned. His term expires 12/31/2015.
- Ray Scholl resigned. His term expires 12/31/2015.
- Dave Woullet resigned. His term expired 12/31/2014.
- Angela Barlow resigned. Her term expires 12/31/2016.
- Simon Date resigned. His term expires 12/31/2016.
- Martin Kennedy resigned. His term expires 12/31/2016.

**Status:** Currently, the Commission has 5 members and 5 vacancies. One application has been received.

**Next Meeting:** December 29, 2016

**Recommendation:** None at this time.

**City of St. Helens**  
**RESOLUTION NO. 1648**

**A RESOLUTION ESTABLISHING GUIDELINES FOR THE APPOINTMENT  
OF ST. HELENS BOARD, COMMITTEE AND COMMISSION MEMBERS,  
SUPERSEDING RESOLUTION NO. 1521**

**WHEREAS**, the City Council wished to establish the same guidelines for recruitment, interviews and appointments for all City boards, committees and commissions, and adopted Resolution No. 1521 on August 12, 2009; and

**WHEREAS**, Resolution No. 1521 established general recruitment, selection and appointment guidelines for appointments to the City of St. Helens boards, committees and commissions; and

**WHEREAS**, the Council wishes to update the guidelines adopted in Resolution No. 1521 to better meet the needs of the City.

**NOW, THEREFORE, THE COMMON COUNCIL OF THE CITY OF ST. HELENS RESOLVES AS FOLLOWS:**

1. The City Recorder shall send a press release to the local newspaper of record announcing all board, committee and commission vacancies as they become available. A "vacancy" is defined as an unoccupied position, resulting from a voluntary resignation or involuntary termination. A member whose term expired does not create a vacancy, unless that member is resigning at the end of his/her term or the majority of the board, committee or commission wishes to terminate said member.
2. Any individual or group is encouraged to submit names for consideration to the City.
3. All new applicants shall submit a written application to the City Recorder's Office.
4. Members wishing to continue their appointment for another term will inform the City Recorder but need not submit a new application. If a member has served two consecutive full terms, a press release shall be sent to the local newspaper of record, each subsequent term expiration thereafter, to solicit new applications for that position. The incumbent may be reappointed at the discretion of the interview panel and City board, committee or commission. If an individual has been off a City board, committee or commission for a year or more, they must complete a new application.
5. The recruitment period to the board, committee or commission shall be for a finite period. At the end of the advertising period, the Council liaison shall determine if the pool of candidates is sufficient to continue with the selection process or may continue the recruitment period for a set or unlimited period until it is determined there is a sufficient pool of candidates.
6. The Council liaison to the board, committee or commission shall be responsible to assemble an interview committee. The interview committee shall be responsible to make recommendations via the Council liaison to the Mayor and City Council.
7. Appointments must comply with any ordinances, bylaws, Charter provisions, or state or federal laws concerning the board, committee or commission. In the event of any inconsistency between these policies and a chapter relating to a specific board, committee or commission, the specific chapter shall control.
8. In order to become more familiar with each applicant's qualifications, the interview committee may interview all or a shortlist of applicants for a position. The number of applicants to be interviewed is at the interview committee's discretion. The interview committee also has the discretion to reject

all applications in favor of re-advertising if no applicants are found to be suitable for the board, committee or commission.

9. Reappointments to a City board, committee or commission shall be considered in accordance with the guidelines listed in this section, together with the type of service the individual has already given to the board, committee or commission and his/her stated willingness to continue.
10. Consideration should be given to residents outside the City when the board, committee or commission or function serves residents outside City boundaries.
11. Board, committee or commission members shall not participate in any proceeding or action in which there may be a direct or substantial financial interest to the member, the member's relative or a business with which the member or a relative is associated, including any business in which the member is serving on their board or has served within the previous two years; or any business with which the member is negotiating for or has an arrangement or understanding concerning prospective partnership or employment. Any actual or potential conflict of interest shall be disclosed at the meeting where the action is being taken.
12. Board, committee or commission vacancies are filled by appointment of the Mayor with the consent of Council. Board, committee or commission members shall serve without compensation except the Planning Commission that may receive a monthly stipend at the discretion of the City Council.
13. Individuals appointed to one City board, committee or commission shall not serve on any other City board, committee or commission during the term of their appointment; provided, that the Council may waive this limitation if it is in the public interest to do so.

**PASSED AND ADOPTED** by the City Council on this 18th day of December, 2013, by the following vote:

Ayes: Locke, Carlson, Conn, Morten, Peterson

Nays: None

/s/ Randy Peterson  
Randy Peterson, Mayor

ATTEST:

/s/ Kathy Payne  
Kathy Payne, City Recorder

**City of St. Helens**  
**Arts & Cultural Commission**  
**Minutes from Tuesday November 15, 2016**  
City Council Chambers

**Members Present**

Kevin Chavez, Chair  
Rosemary Imhof, Vice Chair  
Kannikar Petersen  
Diane Dillard  
Diane Dunn

**Members Absent**

None

**Guests**

Allen Hulsopple  
Les Watters

**Councilors in Attendance**

Susan Conn, Councilor

**Staff Present**

Jamie Edwards, Secretary  
Jenny Dimsho, Assistant Planner



**CALL MEETING TO ORDER**

Chair Chavez called the meeting to order at 6:40 p.m.

**VISITORS**

Les Watters with the Columbia County Historical Society brought up Seaman the Dog statue that needed repair due to being vandalized. Commissioner Petersen advised the statue belonged to the Arts and Culture Commission to maintain. Petersen is working with Public Works to get the statue fixed. Petersen advised the Good Time Bench will also be maintained yearly by Public Works. The plaque reads that the statue belongs to the historical society but the City owns it. Watters feels the plaque should be replaced. Chair Chavez is concerned that removing the plaque could cause the statue to lose historical value.

**APPROVAL OF MINUTES FOR SEPTEMBER 27, 2016**

**Motion:** Commissioner Dillard moved to approve minutes for September 27, 2016. Commissioner Petersen second. All in favor; none opposed; motion carries.

**FISCAL REPORT**

The Arts and Cultural Commission reviewed the fiscal report and accepted as submitted.

## **GATEWAY PROJECT PHASE 2**

Assistant City Planner Jenny Dimsho reported they have extra coffee mugs and glasses and states customers could receive \$1.00 off at Big River Bistro per coffee when they buy our cups. Commissioner Dunn will follow up with the Dockside partnership. Dimsho reported we are still receiving money from the postcards sales. The gap is currently just under \$10,000 and the goal is to have the funds by January 2017.

### **Potential revenues:**

- The Commission submitted a sponsorship application to the Columbia River PUD but it was declined as it was not in line with their mission.
- SHEDCO dogs will sell on an online auction on EBay starting Black Friday. 50% of the proceeds will go towards the Gateway Project.
- Commissioner Petersen and Assistant City Planner Jenny Dimsho will apply for a grant by this Friday for \$2,000.00 from County Culture Commission. This will purchase a plaque and list the donors who have supported in the fundraiser with \$1,000.00 or more.

**Motion:** Petersen moved to sign a contract with the artist to provide engineering for the Gateway Sculpture so we could then find an engineer for the brackets to secure it. The second part would be authorizing \$35,000.00 over six months including delivery to engineer the structure. Once it's approved, apply for the permits from the City. Dunn seconded. All in favor; none opposed; motion carries.

Dimsho reports most of the money is currently with SHEDCO. Petersen reports it is not needed to move the funds at this time.

## **BIKE RACKS**

Vice Chair Imhof reported she heard from the artist Bonnie who believes the two bike racks should be completed by the end of December 2016 and the bike cost should be \$70-80 each. Commissioner Dillard suggested Imhof call Jeff with Pacific Industrial to see if he would donate the coating.

Commissioner Petersen advised a plaque will be added to the bike racks reading "Property of City of St. Helens" and can read who designed it and the year it was built.

Imhof reported the beginning and ending balance of the fiscal report shows only \$89.00 Secretary Jamie will follow up with Finance Director Matt Brown on the funds for the bike rack.

## **2016 ARTS AND CULTURE COMMISSION HOLIDAY GREETING CARDS OR E CARDS**

Commissioner Petersen said the 2015 holiday card was the Trash Can image as a tree thanking them for their support. Petersen proposed using the feature we are trying to collect for this year.

The Arts and Cultural Commission sent almost 200 cards last year, ordered them from Bemis and hand addressed the cards at Petersen's office.

Petersen advised the budget would come from administrative and marketing. The budget has \$750.00. Petersen recalls the cost being just over a \$1.00 each card; including the envelope, plus the cost of stamps so total should be just under \$2.00 a card. Chair Chavez will design the cards and have them ready to mail by December 10<sup>th</sup>. The design and order needs to be submitted by December 1<sup>st</sup>.

### **CANDIDATES FOR ARTS AND CULTURE COMMISSION POSITIONS**

The Arts and Cultural Commission received applications for the two vacant commission places from Joann and Kimberly, they were not invited to this meeting. Chair Chavez can call them to schedule a meeting but cannot do the meeting during the week day and asked if anyone else could meet with them. Commissioner Petersen offered her office to meet with the candidates. Vice Chair Imhoff and Commissioner Dunn will be there with Petersen. Imhof will call Kimberly O'Hanlon and Dunn will call Joann Nelson to schedule a meeting.

### **COLUMBIA ART GUILD'S TENT**

Commissioner Petersen reported the Arts and Cultural Commission borrowed a pop up tent for the trash can painting in 2015 from Columbia Art Guilds and never returned it. Petersen recommends the ACC replace the tent. Petersen ordered the tent and request to submit reimbursement for the tent.

**Motion:** Dillard moved to approve \$112.67 for the purchase of a pop up tent to replace the one missing. Imhof seconded. All in favor; none opposed; motion carries.

### **SPIRIT OF HALLOWEENTOWN MASKS**

Vice Chair Imhof report there were 45 people that came in for the masks. It was very successful and a lot of happy people.

### **PUMPKIN CARVING CONTEST**

The Arts and Cultural Commission received three entries this year. Last year there were ten. Petersen reported the pumpkin carving contest does not bring in many people. The mask making brings in many more people and the ACC should reconsider the pumpkin carving contest next year.

Checks were mailed to the winners Thursday, November 10, 2016. Chavez states projects that are just platforms for people to drop off are not as successful as those with crafts/involvements.

### **ARTS AND CULTURAL COMMISSION EXPIRATION AND ELECTIONS**

**Motion:** Petersen recommended renewing terms for Kevin Chavez and Diane Dillard. Dunn seconded. All in favor; none opposed; motion carries.

**Motion:** Dillard moved to nominate Dunn for Chair. Imhof seconded. All in favor; none opposed; motion carries.

**Motion:** Dillard moved to nominate Imhof for Vice Chair. Petersen seconded. All in favor; none opposed; motion carries.

### **SHEDCO LIGHT UP SHOP**

Commissioner Petersen reported that on Saturday, November 19, 2016 from 10AM-2PM, SHEDCO is meeting and making light up balls to decorate the plaza. This year they are making at least 50. Please come and participate and bring anyone interested in volunteering. A light lunch will be provided.

### **ADJOURNMENT**

The meeting was adjourned at 7:56 p.m.

### **NEXT MEETING**

The next is scheduled for Tuesday, January 24, 2017 at 6:30 p.m.

✂

Submitted by:

Jamie Edwards  
Utility Billing Specialist

*Present=P Absent=A*

Date	Dunn	Petersen	Dillard	Imhof	Chavez
September 27, 2016	P	P	P	P	P
October 25, 2016 Meeting Canceled					
November 15, 2016	P	P	P	P	P
December 20, 2016 Meeting canceled					

# Accounts Payable

## To Be Paid Proof List

User: jenniferj  
 Printed: 01/10/2017 - 1:54PM  
 Batch: 00003.01.2017 - AP 1/13/17 FY 16-17

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Invoice Number	Invoice Date	Amount	Quantity	Payment Date	Task Label	Type	PO #	Close PO	Line #
Account Number					Description	Reference			
ACE HARDWARE									
000500									
1217	12/31/2016	82.79	0.00	01/13/2017				False	0
018-019-501000					MATERIALS 1217				
1217	12/31/2016	82.80	0.00	01/13/2017				False	0
018-020-501000					MATERIALS 1217				
1217 Total:		165.59							
1218	12/31/2016	15.96	0.00	01/13/2017				False	0
001-005-509000					MATERIALS 1218				
1218	12/31/2016	15.96	0.00	01/13/2017				False	0
001-005-509000					MATERIALS 1218				
1218	12/31/2016	15.96	0.00	01/13/2017				False	0
001-005-509000					MATERIALS 1218				
1218	12/31/2016	65.63	0.00	01/13/2017				False	0
001-005-501000					MATERIALS 1218				
1218	12/31/2016	2.79	0.00	01/13/2017				False	0
017-017-501000					MATERIALS 1218				
1218	12/31/2016	43.47	0.00	01/13/2017				False	0
017-017-501000					MATERIALS 1218				
1218	12/31/2016	153.98	0.00	01/13/2017				False	0
017-017-501000					MATERIALS 1218				
1218	12/31/2016	9.98	0.00	01/13/2017				False	0
008-008-558104					MATERIALS 1218				
1218	12/31/2016	20.57	0.00	01/13/2017				False	0
001-004-470000					MATERIALS 1218				
1218	12/31/2016	3.59	0.00	01/13/2017				False	0
001-004-470000					MATERIALS 1218				
1218	12/31/2016	6.33	0.00	01/13/2017				False	0

Invoice Number	Invoice Date	Amount	Quantity	Payment Date	Task Label	Type	PO #	Close PO	Line #
Account Number				Description	Reference				
017-017-501000 Operating Materials & Sup.				MATERIALS 1218					
1218	12/31/2016	3.76	0.00	01/13/2017				False	0
013-403-457000 Office supplies				MATERIALS 1218					
1218	12/31/2016	24.92	0.00	01/13/2017				False	0
017-017-501000 Operating Materials & Sup.				MATERIALS 1218					
1218	12/31/2016	19.99	0.00	01/13/2017				False	0
017-417-501000 Operating materials and suppli				MATERIALS 1218					
1218	12/31/2016	79.99	0.00	01/13/2017				False	0
008-008-558104 Events				MATERIALS 1218					
1218	12/31/2016	50.67	0.00	01/13/2017				False	0
001-005-509000 Marine board expense				MATERIALS 1218					
1218	12/31/2016	43.09	0.00	01/13/2017				False	0
013-403-501000 Operating materials/supplies				MATERIALS 1218					
1218	12/31/2016	-43.68	0.00	01/13/2017				False	0
017-017-501000 Operating Materials & Sup.				DISCOUNT					
1218	12/31/2016	31.98	0.00	01/13/2017				False	0
017-417-501000 Operating materials and suppli				MATERIALS 1218					
1218 Total:		564.94							
ACE HARDWARE Total:		730.53							
CENTERLOGIC, INC.									
011595									
38283	1/5/2017	9.75	0.00	01/13/2017				False	0
001-105-500000 Information services				SERVERS BACKUP					
38283	1/5/2017	9.75	0.00	01/13/2017				False	0
017-417-501000 Operating materials and suppli				SERVERS BACKUP					
38283	1/5/2017	3.25	0.00	01/13/2017				False	0
001-104-500000 Information services				SERVERS BACKUP					
38283	1/5/2017	78.00	0.00	01/13/2017				False	0
001-002-500000 Computer System Maint.				SERVERS BACKUP					
38283	1/5/2017	9.75	0.00	01/13/2017				False	0
001-103-500000 Information services				SERVERS BACKUP					
38283	1/5/2017	26.00	0.00	01/13/2017				False	0
012-106-500000 Information services				SERVERS BACKUP					
38283	1/5/2017	9.75	0.00	01/13/2017				False	0
012-102-500000 Information services				SERVERS BACKUP					

Invoice Number	Invoice Date	Amount	Quantity	Payment Date	Task Label	Type	PO #	Close PO	Line #
Account Number	Description			Reference					
38283	1/5/2017	13.00	0.00	01/13/2017				False	0
018-019-500000 Computer System Maint.				SERVERS BACKUP					
38283	1/5/2017	19.50	0.00	01/13/2017				False	0
013-402-500000 Information services				SERVERS BACKUP					
38283	1/5/2017	9.75	0.00	01/13/2017				False	0
015-015-500000 Computer System Maint.				SERVERS BACKUP					
38283	1/5/2017	78.00	0.00	01/13/2017				False	0
013-403-500000 Information services				SERVERS BACKUP					
38283	1/5/2017	22.75	0.00	01/13/2017				False	0
001-004-500000 Computer Maintenance				SERVERS BACKUP					
38283	1/5/2017	13.00	0.00	01/13/2017				False	0
012-101-500000 Information services				SERVERS BACKUP					
38283	1/5/2017	22.75	0.00	01/13/2017				False	0
001-100-500000 Information services				SERVERS BACKUP					
38283 Total:		325.00							
CENTERLOGIC, INC. To		325.00							
CIS TRUST									
011090									
01052016	1/5/2017	175.00	0.00	01/13/2017				False	0
012-106-490000 Professional development				CIS ANNUAL CONF CAROL GREEN 2017					
01052016 Total:		175.00							
CIS TRUST Total:		175.00							
COLUMBIA RIVER P.U.D.									
008325									
01032017	1/3/2017	9,155.72	0.00	01/13/2017				False	0
018-019-534000 Electrical Energy				38633					
01032017 Total:		9,155.72							
COLUMBIA RIVER P.U.D		9,155.72							

Invoice Number	Invoice Date	Amount	Quantity	Payment Date	Task Label	Type	PO #	Close PO	Line #
Account Number				Description		Reference			
ECONORTHWEST 011130 17904	12/31/2016	4,036.95	0.00	01/13/2017				False	0
004-400-554120 Urban Renewal				PROJECT 22668.00 URBAN RENEWAL PLAN					
17904 Total:		4,036.95							
ECONORTHWEST Total:		4,036.95							
SHRED-IT USA, LLC SHRED-IT 8121503018	12/31/2016	171.80	0.00	01/13/2017				False	0
012-102-554000 Contractual/consulting serv				CITY HALL SHRED 13627551					
8121503018 Total:		171.80							
SHRED-IT USA, LLC Tot		171.80							
Report Total:		14,595.00							

# Accounts Payable

## To Be Paid Proof List

User: jenniferj  
 Printed: 01/17/2017 - 9:52AM  
 Batch: 00016.01.2017 - AP 1/17/17 FY 16-17

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Invoice Number	Invoice Date	Amount	Quantity	Payment Date	Task Label	Type	PO #	Close PO	Line #
Account Number	Description				Reference				
A+ ENGRAVING LLC									
45875									
757	1/5/2017	30.00	0.00	01/17/2017				False	0
012-102-524000 Special projects				MAYOR PETERSON PLAQUE REPRINT					
	757 Total:	30.00							
	A+ ENGRAVING LLC To	30.00							
AKS ENGINEERING & FORESTRY									
001128									
4401B-1	1/4/2017	3,000.00	0.00	01/17/2017				False	0
010-303-653307 Survey WWTP Dike				S-645 PROJECT 4401 ST. HELENS LAGOON DIKE SUR					
	4401B-1 Total:	3,000.00							
	AKS ENGINEERING & F	3,000.00							
CLOUD RECORDS MANAGEMENT SOLUTION, CHAVES									
006630									
170008	1/4/2017	259.14	0.00	01/17/2017				False	0
012-102-554000 Contractual/consulting serv				MONTHLY USER FEE					
	170008 Total:	259.14							
	CLOUD RECORDS MAN	259.14							

Invoice Number	Invoice Date	Amount	Quantity	Payment Date	Task Label	Type	PO #	Close PO	Line #
Account Number	Description				Reference				
CODE PUBLISHING, INC.									
007162									
54950	11/29/2016	394.35	0.00	01/17/2017				False	0
012-102-554000 Contractual/consulting serv				MUNICIPAL CODE UPDATE					
54950 Total:		394.35							
55217	1/2/2017	350.00	0.00	01/17/2017				False	0
012-102-554000 Contractual/consulting serv				MUNICIPAL CODE UPDATE					
55217 Total:		350.00							
CODE PUBLISHING, INC		744.35							
COUNTRY MEDIA INC.									
006800									
259714	12/21/2016	63.30	0.00	01/17/2017				False	0
012-101-527000 Communications				ADVERTISING 22481					
259714 Total:		63.30							
260465	12/28/2016	225.00	0.00	01/17/2017				False	0
001-100-473000 Miscellaneous				ADVERTISING 22481					
260465 Total:		225.00							
260476	12/28/2016	14.00	0.00	01/17/2017				False	0
012-101-526000 Advertisements				ADVERTISING 22481					
260476 Total:		14.00							
COUNTRY MEDIA INC. T		302.30							
E2C CORPORATION									
E2C									
4012	1/10/2017	2,350.00	0.00	01/17/2017				False	0
008-008-554000 Consulting/Contractual				JAN 2017 CONTRACTORS COMPENSATIONS					

Invoice Number	Invoice Date	Amount	Quantity	Payment Date	Task Label	Type	PO #	Close PO	Line #
Account Number	Description				Reference				
4012 Total:		2,350.00							
E2C CORPORATION Total		2,350.00							
HUDSON GARBAGE SERVICE									
015875									
9130793	1/1/2017	52.13	0.00	01/17/2017				False	0
001-004-459000 Utilities				1554					
9130793 Total:		52.13							
9130911	1/1/2017	109.63	0.00	01/17/2017				False	0
018-019-459000 Utilites				8333					
9130911	1/1/2017	109.63	0.00	01/17/2017				False	0
018-020-459000 Utilities				8333					
9130911 Total:		219.26							
9131058	1/1/2017	83.76	0.00	01/17/2017				False	0
012-107-459000 Utilitites				7539					
9131058 Total:		83.76							
9131059	1/1/2017	83.76	0.00	01/17/2017				False	0
001-002-459000 Utilities				7547					
9131059 Total:		83.76							
9131060	1/1/2017	78.88	0.00	01/17/2017				False	0
013-403-459000 Utilities				7555					
9131060 Total:		78.88							
9131061	1/1/2017	402.94	0.00	01/17/2017				False	0
001-005-459000 Utilities				7598					
9131061 Total:		402.94							
9131062	1/1/2017	309.10	0.00	01/17/2017				False	0
001-110-459000 Utilities				7601					

Invoice Number	Invoice Date	Amount	Quantity	Payment Date	Task Label	Type	PO #	Close PO	Line #
Account Number	Description				Reference				
	9131062 Total:	309.10							
9131063	1/1/2017	170.91	0.00	01/17/2017				False	0
001-005-459000 Utilities				7636					
	9131063 Total:	170.91							
	HUDSON GARBAGE SER	1,400.74							
PHILLIPS, CYNTHIA									
025515									
01152017	1/17/2017	1,670.00	0.00	01/17/2017				False	0
001-103-554000 Contractual/consulting serv				1/1-1/15 MUNICIPAL COURT JUDGE					
	01152017 Total:	1,670.00							
	PHILLIPS, CYNTHIA Tot	1,670.00							
ROBERTSON, MARK									
ROB									
01102017	1/10/2017	8.00	0.00	01/17/2017				False	0
001-000-354000 Misc Revenue				REFUNC BAL OF PUB REC REQUEST 52689					
	01102017 Total:	8.00							
	ROBERTSON, MARK Tot	8.00							
SHRED-IT USA, LLC									
SHRED-IT									
8121506650	12/31/2016	48.49	0.00	01/17/2017				False	0
001-002-470000 Building Expense				POLICE SHRED 13664225					
	8121506650 Total:	48.49							
	SHRED-IT USA, LLC Tot	48.49							

Invoice Number	Invoice Date	Amount	Quantity	Payment Date	Task Label	Type	PO #	Close PO	Line #
Account Number					Description	Reference			
TVW INC 033827									
0027009-IN	12/31/2016	1,354.31	0.00	01/17/2017	JANITORIAL SERVICE CITY HALL			False	0
012-107-554000 Contractual/consulting serv									
0027009-IN Total:		1,354.31							
0027010-IN	12/31/2016	1,318.70	0.00	01/17/2017	JANITORIAL SERVICE COL CENTER			False	0
001-004-508000 Janitorial Services									
0027010-IN Total:		1,318.70							
0027011-IN	12/31/2016	475.14	0.00	01/17/2017	JANITORIAL SERVICE POLICE			False	0
001-002-508000 Janitorial Services									
0027011-IN Total:		475.14							
0027012-IN	12/31/2016	163.96	0.00	01/17/2017	JANITORIAL SERVICE WWTP			False	0
018-019-470000 Building Expense									
0027012-IN	12/31/2016	163.97	0.00	01/17/2017	JANITORIAL SERVICE WWTP			False	0
018-020-470000 Building Expense									
0027012-IN Total:		327.93							
TVW INC Total:		3,476.08							
VERIZON WIRELESS 000720									
977845999	1/1/2017	167.52	0.00	01/17/2017	242060134-00001			False	0
017-017-459000 Utilities									
977845999 Total:		167.52							
VERIZON WIRELESS To		167.52							

Invoice Number	Invoice Date	Amount	Quantity	Payment Date	Task Label	Type	PO #	Close PO	Line #
Account Number				Description		Reference			

Report Total:

13,456.62



# Accounts Payable

## To Be Paid Proof List

User: jenniferj  
 Printed: 01/19/2017 - 9:19AM  
 Batch: 00017.01.2017 - AP 1/20/17 FY 16-17

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Invoice Number	Invoice Date	Amount	Quantity	Payment Date	Task Label	Type	PO #	Close PO	Line #
Account Number				Description	Reference				
ALEXIN ANALYTICAL LABS, INC.									
001650									
28829	12/31/2016	975.00	0.00	01/20/2017				False	0
017-017-472000 Lab Testing				TESTING					
28829 Total:		975.00							
ALEXIN ANALYTICAL L		975.00							
BEMIS PRINTING									
002701									
7260	12/30/2016	55.00	0.00	01/20/2017				False	0
012-106-457000 Office supplies				DELINQUENT PAYMENT SLIPS					
7260 Total:		55.00							
7269	1/5/2017	43.90	0.00	01/20/2017				False	0
012-107-457000 Office supplies				REPLACEMENT DATER BANDS					
7269 Total:		43.90							
7284	1/11/2017	27.20	0.00	01/20/2017				False	0
012-107-457000 Office supplies				TRODAT 4911					
7284 Total:		27.20							
BEMIS PRINTING Total:		126.10							

BOYD, DALE

Invoice Number	Invoice Date	Amount	Quantity	Payment Date	Task Label	Type	PO #	Close PO	Line #
Account Number				Description	Reference				
58544									
0002726	1/18/2017	40.00	0.00	01/20/2017				False	0
001-000-204000 Bail Deposit				2016 CR 000357 BOND TRANSFER W. BOYD					
0002726 Total:		40.00							
BOYD, DALE Total:		40.00							
CANON SOLUTIONS AMERICA, INC									
021694									
4021069941	12/31/2016	8.40	0.00	01/20/2017				False	0
001-004-473000 Misc Expense				COPIER 1539734					
4021069941 Total:		8.40							
CANON SOLUTIONS AM		8.40							
CARQUEST AUTO PARTS STORES									
005845									
12312016	12/31/2016	24.50	0.00	01/20/2017				False	0
001-002-510000 Automobile Expense				AUTO PARTS					
12312016	12/31/2016	1,061.21	0.00	01/20/2017				False	0
015-015-501000 Operating Materials & Supp				AUTO PARTS					
12312016 Total:		1,085.71							
CARQUEST AUTO PART		1,085.71							
CENTERLOGIC, INC.									
011595									
38065	1/3/2017	253.27	0.00	01/20/2017				False	0
012-101-500000 Information services				IT SUPPORT					
38065	1/3/2017	2,848.75	0.00	01/20/2017				False	0
010-305-653553 Phone system				IT SUPPORT					
38065	1/3/2017	168.85	0.00	01/20/2017				False	0
001-100-500000 Information services				IT SUPPORT					

Invoice Number	Invoice Date	Amount	Quantity	Payment Date	Task Label	Type	PO #	Close PO	Line #
Account Number				Description	Reference				
38065	1/3/2017	338.01	0.00	01/20/2017				False	0
001-103-500000 Information services				IT SUPPORT					
38065	1/3/2017	168.85	0.00	01/20/2017				False	0
001-104-500000 Information services				IT SUPPORT					
38065	1/3/2017	1,967.50	0.00	01/20/2017				False	0
001-002-500000 Computer System Maint.				IT SUPPORT					
38065	1/3/2017	525.00	0.00	01/20/2017				False	0
001-004-500000 Computer Maintenance				IT SUPPORT					
38065	1/3/2017	321.00	0.00	01/20/2017				False	0
001-105-500000 Information services				IT SUPPORT					
38065	1/3/2017	371.72	0.00	01/20/2017				False	0
012-102-500000 Information services				IT SUPPORT					
38065	1/3/2017	895.27	0.00	01/20/2017				False	0
012-106-500000 Information services				IT SUPPORT					
38065	1/3/2017	693.03	0.00	01/20/2017				False	0
013-402-500000 Information services				IT SUPPORT					
38065 Total:		8,551.25							
38149	1/3/2017	64.62	0.00	01/20/2017				False	0
012-101-500000 Information services				IT SUPPORT					
38149	1/3/2017	75.91	0.00	01/20/2017				False	0
001-100-500000 Information services				IT SUPPORT					
38149	1/3/2017	68.54	0.00	01/20/2017				False	0
001-103-500000 Information services				IT SUPPORT					
38149	1/3/2017	30.46	0.00	01/20/2017				False	0
001-104-500000 Information services				IT SUPPORT					
38149	1/3/2017	181.80	0.00	01/20/2017				False	0
001-002-500000 Computer System Maint.				IT SUPPORT					
38149	1/3/2017	383.03	0.00	01/20/2017				False	0
001-004-500000 Computer Maintenance				IT SUPPORT					
38149	1/3/2017	66.23	0.00	01/20/2017				False	0
001-105-500000 Information services				IT SUPPORT					
38149	1/3/2017	22.73	0.00	01/20/2017				False	0
015-015-500000 Computer System Maint.				IT SUPPORT					
38149	1/3/2017	73.10	0.00	01/20/2017				False	0
012-102-500000 Information services				IT SUPPORT					
38149	1/3/2017	181.92	0.00	01/20/2017				False	0
012-106-500000 Information services				IT SUPPORT					

Invoice Number	Invoice Date	Amount	Quantity	Payment Date	Task Label	Type	PO #	Close PO	Line #
Account Number				Description	Reference				
38149	1/3/2017	139.37	0.00	01/20/2017				False	0
013-402-500000 Information services				IT SUPPORT					
38149	1/3/2017	181.76	0.00	01/20/2017				False	0
013-403-500000 Information services				IT SUPPORT					
38149	1/3/2017	247.73	0.00	01/20/2017				False	0
017-417-501000 Operating materials and suppli				IT SUPPORT					
38149	1/3/2017	30.30	0.00	01/20/2017				False	0
018-019-500000 Computer System Maint.				IT SUPPORT					
38149 Total:		1,747.50							
38470	1/16/2017	26.25	0.00	01/20/2017				False	0
010-305-653553 Phone system				IT SUPPORT PHONES					
38470	1/16/2017	26.25	0.00	01/20/2017				False	0
001-002-500000 Computer System Maint.				IT SUPPORT					
38470	1/16/2017	52.50	0.00	01/20/2017				False	0
001-002-500000 Computer System Maint.				IT SUPPORT					
38470 Total:		105.00							
38498	1/16/2017	120.75	0.00	01/20/2017				False	0
012-107-457000 Office supplies				TONER CITY HALL					
38498 Total:		120.75							
CENTERLOGIC, INC. To		10,524.50							
CINTAS CORPORATION-463									
006830									
463780265	1/9/2017	47.95	0.00	01/20/2017				False	0
018-019-470000 Building Expense				MATS					
463780265	1/9/2017	47.96	0.00	01/20/2017				False	0
018-020-470000 Building Expense				MATS					
463780265 Total:		95.91							
463780270	1/9/2017	43.53	0.00	01/20/2017				False	0
013-403-470000 Building				MATS					

Invoice Number	Invoice Date	Amount	Quantity	Payment Date	Task Label	Type	PO #	Close PO	Line #
Account Number					Description	Reference			
463780270 Total:		43.53							
CINTAS CORPORATION		139.44							
CITY OF ST. HELENS									
ST.HELEN									
01172017	1/17/2017	67.20	0.00	01/20/2017				False	0
001-110-470000 Building expense					PERMIT 13703 WATER HEATER SR. CENTER REPLAE				
01172017 Total:		67.20							
CITY OF ST. HELENS To		67.20							
COLUMBIA ELECTRIC FEED & SEED									
008000									
5178	12/27/2016	21.99	0.00	01/20/2017				False	0
008-008-558104 Events					CALCIUM CHLORIDE				
5178 Total:		21.99							
COLUMBIA ELECTRIC F		21.99							
COLUMBIA RIVER P.U.D.									
008325									
01122017	1/12/2017	447.88	0.00	01/20/2017				False	0
001-002-459000 Utilities					73638				
01122017	1/12/2017	732.96	0.00	01/20/2017				False	0
001-004-459000 Utilities					73638				
01122017	1/12/2017	830.71	0.00	01/20/2017				False	0
001-005-459000 Utilities					73638				
01122017	1/12/2017	546.97	0.00	01/20/2017				False	0
001-005-509000 Marine board expense					73638				
01122017	1/12/2017	5,289.76	0.00	01/20/2017				False	0
011-011-453000 Street Lighting					73638				
01122017	1/12/2017	1,558.38	0.00	01/20/2017				False	0

Invoice Number	Invoice Date	Amount	Quantity	Payment Date	Task Label	Type	PO #	Close PO	Line #
Account Number	Description				Reference				
012-107-459000 Utilites				73638					
01122017	1/12/2017	1,157.52	0.00	01/20/2017				False	0
013-403-459000 Utilities				73638					
01122017	1/12/2017	3,041.94	0.00	01/20/2017				False	0
017-017-459000 Utilities				73638					
01122017	1/12/2017	4,520.58	0.00	01/20/2017				False	0
017-417-459000 Utilities				73638					
01122017	1/12/2017	839.06	0.00	01/20/2017				False	0
018-019-534000 Electrical Energy				73638					
01122017	1/12/2017	2,517.17	0.00	01/20/2017				False	0
018-020-534000 Electrical Energy				73638					
01122017	1/12/2017	201.57	0.00	01/20/2017				False	0
018-021-459000 Utilites				73638					
01122017	1/12/2017	1,085.62	0.00	01/20/2017				False	0
018-022-459000 Utilities				73638					
01122017 Total:		22,770.12							
1780798	1/9/2017	111.11	0.00	01/20/2017				False	0
011-011-453000 Street Lighting				73638					
1780798 Total:		111.11							
COLUMBIA RIVER P.U.D		22,881.23							
COMCAST									
COMCAST									
01072017	1/7/2017	94.85	0.00	01/20/2017				False	0
013-403-458000 Telecommunication expense				9144					
01072017 Total:		94.85							
01092017	1/9/2017	65.45	0.00	01/20/2017				False	0
018-020-459000 Utilities				0082					
01092017	1/9/2017	65.45	0.00	01/20/2017				False	0
018-019-459000 Utilites				0082					
01092017 Total:		130.90							

Invoice Number	Invoice Date	Amount	Quantity	Payment Date	Task Label	Type	PO #	Close PO	Line #
Account Number				Description		Reference			
COMCAST Total:		225.75							
CONSOLIDATED SUPPLY									
009000									
S8049517.002	1/3/2017	795.75	0.00	01/20/2017				False	0
017-017-501000 Operating Materials & Sup.				MATERIALS					
S8049517.002 Total:		795.75							
S8049517.003	1/5/2017	-6.20	0.00	01/20/2017				False	0
017-017-501000 Operating Materials & Sup.				MATERIALS CREDIT					
S8049517.003 Total:		-6.20							
S8049517.004	1/5/2017	292.21	0.00	01/20/2017				False	0
017-017-501000 Operating Materials & Sup.				MATERIALS					
S8049517.004 Total:		292.21							
S8056875.001	1/3/2017	2,777.37	0.00	01/20/2017				False	0
018-021-501000 Operating Materials & Supplies				MATERIALS					
S8056875.001 Total:		2,777.37							
S8061841.002	1/3/2017	-383.76	0.00	01/20/2017				False	0
017-017-501000 Operating Materials & Sup.				MATERIALS CREDIT					
S8061841.002 Total:		-383.76							
S8064442.001	1/3/2017	89.54	0.00	01/20/2017				False	0
017-017-501000 Operating Materials & Sup.				MATERIALS					
S8064442.001 Total:		89.54							
S8068204.001	1/4/2017	393.79	0.00	01/20/2017				False	0
017-017-501000 Operating Materials & Sup.				MATERIALS					
S8068204.001 Total:		393.79							

Invoice Number	Invoice Date	Amount	Quantity	Payment Date	Task Label	Type	PO #	Close PO	Line #
Account Number	Description				Reference				
<hr/>									
	CONSOLIDATED SUPPL	3,958.70							
<hr/>									
COUNTRY MEDIA INC. 006800									
261409	1/4/2017	14.00	0.00	01/20/2017				False	0
012-102-526000 Advertisements				ADVERTISING POLICE OFFICER					
<hr/>									
261409 Total:		14.00							
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COUNTRY MEDIA INC. T		14.00							
<hr/>									
E2C CORPORATION E2C									
4013	1/11/2017	100.00	0.00	01/20/2017				False	0
008-008-554000 Consulting/Contractual				ST. HELENS BUS LIC RENEWAL					
<hr/>									
4013 Total:		100.00							
<hr/>									
E2C CORPORATION Tota		100.00							
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HACH COMPANY 014200									
10268026	1/11/2017	237.80	0.00	01/20/2017				False	0
018-019-501000 Operating Materials				MATERIALS					
10268026	1/11/2017	237.81	0.00	01/20/2017				False	0
018-020-501000 Operating Materials & Supplies				MATERIALS					
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10268026 Total:		475.61							
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HACH COMPANY Total:		475.61							
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HASA 014771									
508474	1/12/2017	4,113.60	0.00	01/20/2017				False	0
018-020-527000 Hypochlorite Expense				MULTI CHLOR					

Invoice Number	Invoice Date	Amount	Quantity	Payment Date	Task Label	Type	PO #	Close PO	Line #
Account Number	Description				Reference				
508474 Total:		4,113.60							
HASA Total:		4,113.60							
INFLOW COMMUNICATIONS, INC									
016255									
6758	1/16/2017	808.93	0.00	01/20/2017				False	0
010-305-653553 Phone system				IP PHONE IP 480					
6758 Total:		808.93							
INFLOW COMMUNICAT		808.93							
INGRAM LIBRARY SERVICES, INC.									
016240									
93614593	12/15/2016	70.00	0.00	01/20/2017				False	0
001-004-483000 Audio Materials				BOOKS 20C7921					
93614593 Total:		70.00							
96314594	12/15/2016	16.01	0.00	01/20/2017				False	0
001-004-511000 Printed Materials				BOOKS 20C7921					
96314594 Total:		16.01							
96314595	12/15/2016	78.29	0.00	01/20/2017				False	0
001-004-511000 Printed Materials				BOOKS 20C7921					
96314595 Total:		78.29							
96314596	12/15/2016	43.15	0.00	01/20/2017				False	0
001-004-511000 Printed Materials				BOOKS 20C7921					
96314596 Total:		43.15							
96314597	12/15/2016	102.51	0.00	01/20/2017				False	0
001-004-511000 Printed Materials				BOOKS 20C7921					

Invoice Number	Invoice Date	Amount	Quantity	Payment Date	Task Label	Type	PO #	Close PO	Line #
Account Number					Description	Reference			
96314597 Total:		102.51							
96543421	12/28/2016	22.54	0.00	01/20/2017				False	0
001-004-511000 Printed Materials					BOOKS 20C7921				
96543421 Total:		22.54							
96543422	12/28/2016	15.86	0.00	01/20/2017				False	0
001-004-511000 Printed Materials					BOOKS 20C7921				
96543422 Total:		15.86							
96543423	12/28/2016	376.63	0.00	01/20/2017				False	0
001-004-511000 Printed Materials					BOOKS 20C7921				
96543423 Total:		376.63							
96636040	1/4/2017	10.40	0.00	01/20/2017				False	0
001-004-511000 Printed Materials					BOOKS 20C7921				
96636040 Total:		10.40							
96636042	1/4/2017	305.59	0.00	01/20/2017				False	0
001-004-483000 Audio Materials					BOOKS 20C7921				
96636042 Total:		305.59							
INGRAM LIBRARY SERV		1,040.98							
KLS SURVEYING INC									
017622									
16311	12/30/2016	600.00	0.00	01/20/2017				False	0
010-304-653400 Storm drains					SD- 162 N 17TH STORM EXTENSION				
16311 Total:		600.00							
KLS SURVEYING INC To		600.00							

LEAVY, JOHNNY

Invoice Number	Invoice Date	Amount	Quantity	Payment Date	Task Label	Type	PO #	Close PO	Line #
Account Number	Description				Reference				
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LEA									
01172017	1/17/2017	287.83	0.00	01/20/2017				False	0
018-019-472000 Lab Testing				J. LEAVY DELIVER SAMPLES MILEAGE REIMB. NPD					
01172017 Total:		287.83							
LEAVY, JOHNNY Total:		287.83							
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MAILBOXES NORTHWEST									
019366									
12302016	12/30/2016	16.97	0.00	01/20/2017				False	0
018-019-501000 Operating Materials				SHIPPING TO TOM DAMON 4390					
12302016 Total:		16.97							
MAILBOXES NORTHWE		16.97							
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MAUL FOSTER ALONGI, INC.									
019555									
27376	1/10/2017	3,560.00	0.00	01/20/2017				False	0
004-400-554110 Area Wide Planning				PROJECT 0830.02.03 BWP ON CALL SERVICES					
27376 Total:		3,560.00							
27377	1/10/2017	4,649.53	0.00	01/20/2017				False	0
004-400-554110 Area Wide Planning				PROJECT 0830.03.03 WWTP LAGOON ON CALL SERV					
27377 Total:		4,649.53							
MAUL FOSTER ALONGI		8,209.53							
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METROPRESORT									
020292									
489085	1/4/2017	2,976.47	0.00	01/20/2017				False	0
012-106-554000 Contractual/consulting serv				UB BILL PRINTING REG BILLS 16690					

Invoice Number	Invoice Date	Amount	Quantity	Payment Date	Task Label	Type	PO #	Close PO	Line #
Account Number				Description		Reference			
	489085 Total:	2,976.47							
	METROPRESORT Total:	2,976.47							
MIDWEST TAPE 020427									
94562278	12/19/2016	-47.24	0.00	01/20/2017				False	0
001-004-481000 Visual Materials				DVD CREDIT					
	94562278 Total:	-47.24							
94624191	12/21/2016	17.84	0.00	01/20/2017				False	0
001-004-481000 Visual Materials				DVD					
	94624191 Total:	17.84							
94626691	12/22/2016	31.49	0.00	01/20/2017				False	0
001-004-483000 Audio Materials				ABD					
	94626691 Total:	31.49							
94645736	12/29/2016	76.63	0.00	01/20/2017				False	0
001-004-481000 Visual Materials				DVD					
	94645736 Total:	76.63							
94656599	1/4/2017	24.14	0.00	01/20/2017				False	0
001-004-481000 Visual Materials				DVD					
	94656599 Total:	24.14							
	MIDWEST TAPE Total:	102.86							
MUELLER, BRIGGS MUELLE.B									
0002725	1/17/2017	450.00	0.00	01/20/2017				False	0
001-000-204000 Bail Deposit				BOND TRANSFER 2016-CR-000261					

Invoice Number	Invoice Date	Amount	Quantity	Payment Date	Task Label	Type	PO #	Close PO	Line #
Account Number	Description			Reference					
0002725 Total:		450.00							
MUELLER, BRIGGS Tota		450.00							
MURRAY, SMITH & ASSOC., INC. 020762									
09-1078-81	12/21/2016	226.50	0.00	01/20/2017				False	0
010-304-653409 Godfrey Outfall					SD-146 PROJECT 09-1078 GODFREY PARK STORM				
09-1078-81 Total:		226.50							
MURRAY, SMITH & ASS		226.50							
NORTHERN SAFETY CO., INC. 021152									
902229502	12/21/2016	156.88	0.00	01/20/2017				False	0
013-403-501000 Operating materials/supplies					MATERIALS				
902229502 Total:		156.88							
NORTHERN SAFETY CO		156.88							
NORTHWEST NATURAL GAS 021400									
01162017	1/16/2017	2,210.28	0.00	01/20/2017				False	0
017-417-459000 Utilities					2942				
01162017	1/16/2017	128.05	0.00	01/20/2017				False	0
013-403-459000 Utilities					8675				
01162017	1/16/2017	189.58	0.00	01/20/2017				False	0
001-005-459000 Utilities					3047				
01162017	1/16/2017	273.26	0.00	01/20/2017				False	0
001-002-459000 Utilities					5638				
01162017	1/16/2017	1,509.83	0.00	01/20/2017				False	0
001-004-459000 Utilities					7673				

Invoice Number	Invoice Date	Amount	Quantity	Payment Date	Task Label	Type	PO #	Close PO	Line #
Account Number	Description				Reference				
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01162017 Total:		4,311.00							
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NORTHWEST NATURAL		4,311.00							
<hr/>									
NURNBERG SCIENTIFIC									
021703									
0166217-IN	1/9/2017	323.61	0.00	01/20/2017				False	0
018-019-501000 Operating Materials				CARTRIDGES					
0166217-IN	1/9/2017	323.61	0.00	01/20/2017				False	0
018-020-501000 Operating Materials & Supplies				CARTRIDGES					
<hr/>									
0166217-IN Total:		647.22							
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NURNBERG SCIENTIFIC		647.22							
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OGFOA									
022600									
174219	1/17/2017	300.00	0.00	01/20/2017				False	0
012-106-490000 Professional development				MATT BROWN 2017 OGFOA SPRING CONFERENCE					
<hr/>									
174219 Total:		300.00							
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174232	1/17/2017	325.00	0.00	01/20/2017				False	0
012-106-490000 Professional development				JENNIFER JOHNSON 2017 OGFOA SPRING CONFERENCE					
<hr/>									
174232 Total:		325.00							
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OGFOA Total:		625.00							
<hr/>									
OREGON DMV									
023150									
61018-123016	12/30/2016	11.50	0.00	01/20/2017				False	0
001-103-473000 Miscellaneous				SUSPENSION PACKAGE					
<hr/>									
61018-123016 Total:		11.50							

Invoice Number	Invoice Date	Amount	Quantity	Payment Date	Task Label	Type	PO #	Close PO	Line #
Account Number	Description				Reference				
OREGON DMV Total:		11.50							
OREGON MAYORS ASSOCIATION									
022500									
01172017	1/17/2017	132.00	0.00	01/20/2017				False	0
001-100-490000 Professional development				2017 OMA MEMBERSHIP DUES RICK SCHOLL					
01172017 Total:		132.00							
OREGON MAYORS ASSO		132.00							
PAMPLIN MEDIA GROUP, COMMUNITY NEWSPAPERS/									
031685									
15877552	1/6/2017	216.00	0.00	01/20/2017				False	0
012-102-526000 Advertisements				HELP WANTED ADD POLICE OFFICER					
15877552 Total:		216.00							
PAMPLIN MEDIA GROU		216.00							
PENNY HUMMEL CONSULTING									
589756									
1077	1/10/2017	2,988.00	0.00	01/20/2017				False	0
009-210-501200 Strategic Planning				CONSULTING SERVICES PROVIDED IN THIRD OF CC					
1077 Total:		2,988.00							
PENNY HUMMEL CONS		2,988.00							
PORTLAND GENERAL ELECTRIC									
025702									
01172017	1/17/2017	42.82	0.00	01/20/2017				False	0
011-011-453000 Street Lighting				9724					

Invoice Number	Invoice Date	Amount	Quantity	Payment Date	Task Label	Type	PO #	Close PO	Line #
Account Number				Description	Reference				
01172017 Total:		42.82							
01182017	1/18/2017	31.35	0.00	01/20/2017				False	0
004-412-554000 Contract Services				7687					
01182017	1/18/2017	79.28	0.00	01/20/2017				False	0
004-412-554000 Contract Services				9275					
01182017 Total:		110.63							
PORTLAND GENERAL E		153.45							
STAPLES BUSINESS ADVANTAGE									
031983									
3326108321	12/31/2016	10.49	0.00	01/20/2017				False	0
012-107-457000 Office supplies				GEL PHONE PAD REST FOR KATHY P.					
3326108321 Total:		10.49							
3326678859	1/7/2017	69.98	0.00	01/20/2017				False	0
012-106-457000 Office supplies				HEATERS / FANS FOR UB					
3326678859 Total:		69.98							
3326678860	1/7/2017	82.56	0.00	01/20/2017				False	0
013-403-457000 Office supplies				COFFEE FILTER / INK/ COFFEE					
3326678860 Total:		82.56							
3326678861	1/7/2017	350.29	0.00	01/20/2017				False	0
012-107-457000 Office supplies				OFFICE SUPPLIES FOR SUPPLY ROOM					
3326678861 Total:		350.29							
3326678862	1/7/2017	4.99	0.00	01/20/2017				False	0
012-107-457000 Office supplies				PAPER CLIP HOLDER - HEIDI					
3326678862 Total:		4.99							

Invoice Number	Invoice Date	Amount	Quantity	Payment Date	Task Label	Type	PO #	Close PO	Line #
Account Number	Description				Reference				
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	STAPLES BUSINESS AD	518.31							
SUNSET AUTO PARTS, INC.									
020815									
12312016	12/31/2016	21.38	0.00	01/20/2017				False	0
001-005-501000	Operating Materials & Supp			AUTO PARTS / MATERIALS					
12312016	12/31/2016	11.97	0.00	01/20/2017				False	0
001-005-501000	Operating Materials & Supp			AUTO PARTS / MATERIALS					
12312016	12/31/2016	89.08	0.00	01/20/2017				False	0
015-015-501000	Operating Materials & Supp			AUTO PARTS / MATERIALS					
12312016	12/31/2016	9.99	0.00	01/20/2017				False	0
018-018-501000	Operating Materials & Supplies			AUTO PARTS / MATERIALS					
12312016	12/31/2016	28.65	0.00	01/20/2017				False	0
001-005-501000	Operating Materials & Supp			AUTO PARTS / MATERIALS					
12312016	12/31/2016	30.00	0.00	01/20/2017				False	0
017-017-501000	Operating Materials & Sup.			AUTO PARTS / MATERIALS					
12312016 Total:		191.07							
SUNSET AUTO PARTS, I		191.07							
TCMS, TEMP CONTROL MECHANICAL SERVICE CORP									
033013									
015643	1/10/2017	1,857.75	0.00	01/20/2017				False	0
001-004-470000	Building Expense			G10115 1/1-3/31/17					
015643	1/10/2017	1,207.50	0.00	01/20/2017				False	0
009-202-470000	Building expense			G10115 1/1-3/31/17					
015643 Total:		3,065.25							
015644	1/10/2017	214.75	0.00	01/20/2017				False	0
013-403-470000	Building			C10245 1/1-3/31 PUBLIC WORKS					
015644 Total:		214.75							
TCMS, TEMP CONTROL		3,280.00							

Invoice Number	Invoice Date	Amount	Quantity	Payment Date	Task Label	Type	PO #	Close PO	Line #
Account Number				Description	Reference				
VERNON, VICKI R.									
034920									
01102017	1/10/2017	188.00	0.00	01/20/2017				False	0
001-103-554000 Contractual/consulting serv				BYRON HOPPER					
01102017 Total:		188.00							
01172017	1/17/2017	172.00	0.00	01/20/2017				False	0
001-103-554000 Contractual/consulting serv				LOGAN JOHANNSEN					
01172017 Total:		172.00							
VERNON, VICKI R. Total		360.00							
WILCOX & FLEGEL									
037003									
C014217-IN	1/9/2017	1,177.07	0.00	01/20/2017				False	0
001-002-531000 Gasoline Expense				POLICE GAS					
C014217-IN Total:		1,177.07							
C014235-IN	1/10/2017	2,203.00	0.00	01/20/2017				False	0
013-403-531000 Gasoline				SHOP GAS					
C014235-IN Total:		2,203.00							
CL55001	1/15/2017	91.01	0.00	01/20/2017				False	0
001-002-531000 Gasoline Expense				BIO B5 40.690 POLICE					
CL55001 Total:		91.01							
CREDIT-PP	1/9/2017	-20.07	0.00	01/20/2017				False	0
013-403-531000 Gasoline				CREDIT 0011497					
CREDIT-PP Total:		-20.07							
WILCOX & FLEGEL Tota		3,451.01							

Invoice Number	Invoice Date	Amount	Quantity	Payment Date	Task Label	Type	PO #	Close PO	Line #
Account Number					Description	Reference			

Report Total:

76,518.74

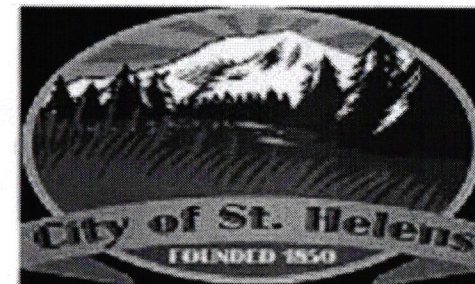


# Accounts Payable

## To Be Paid Proof List

User: jenniferj  
 Printed: 01/26/2017 - 3:42PM  
 Batch: 00019.01.2017 - AP 1/27/17 FY 16-17

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Invoice Number	Invoice Date	Amount	Quantity	Payment Date	Task Label	Type	PO #	Close PO	Line #
Account Number	Description				Reference				
ACE HARDWARE									
000500									
1213	12/31/2016	64.92	0.00	01/27/2017				False	0
008-008-558104 Events				MATERIALS					
1213	12/31/2016	332.90	0.00	01/27/2017				False	0
001-005-501000 Operating Materials & Supp				MATERIALS					
1213 Total:		397.82							
ACE HARDWARE Total:		397.82							
AIRGAS USA, LLC									
AIRGAS									
9058878045	1/3/2017	76.74	0.00	01/27/2017				False	0
017-017-501000 Operating Materials & Sup.				CO2					
9058878045 Total:		76.74							
9941911966	12/31/2016	17.05	0.00	01/27/2017				False	0
017-017-501000 Operating Materials & Sup.				CO2					
9941911966 Total:		17.05							
AIRGAS USA, LLC Total:		93.79							
BEAVER BARK, INC.									
002520									
174275	1/6/2017	140.00	0.00	01/27/2017				False	0

Invoice Number	Invoice Date	Amount	Quantity	Payment Date	Task Label	Type	PO #	Close PO	Line #
Account Number	Description			Reference					
017-017-501000 Operating Materials & Sup.					HEMLOCK 5 YRDS				
174275 Total:		140.00							
BEAVER BARK, INC. Tot		140.00							
CENTERLOGIC, INC.									
011595									
38005	1/4/2017	411.98	0.00	01/27/2017				False	0
001-002-500000 Computer System Maint.					2 - MONITORS MALINDA DURAN				
38005 Total:		411.98							
38006	1/4/2017	664.42	0.00	01/27/2017				False	0
012-108-575000 Equipment expense					MONITORS 1- JUDGE 1- FLOATER / GABLE WIRES				
38006 Total:		664.42							
38370	1/17/2017	1,259.99	0.00	01/27/2017				False	0
012-108-575000 Equipment expense					DELL SONICWALL UPGRADE 3 YEARS				
38370 Total:		1,259.99							
38393	1/16/2017	234.73	0.00	01/27/2017				False	0
012-101-500000 Information services					IT SUPPORT				
38393	1/16/2017	267.50	0.00	01/27/2017				False	0
010-305-653553 Phone system					IT SUPPORT				
38393	1/16/2017	558.41	0.00	01/27/2017				False	0
012-108-575000 Equipment expense					IT SUPPORT				
38393	1/16/2017	313.27	0.00	01/27/2017				False	0
001-103-500000 Information services					IT SUPPORT				
38393	1/16/2017	156.49	0.00	01/27/2017				False	0
001-104-500000 Information services					IT SUPPORT				
38393	1/16/2017	3,967.50	0.00	01/27/2017				False	0
001-002-500000 Computer System Maint.					IT SUPPORT				
38393	1/16/2017	157.50	0.00	01/27/2017				False	0
001-004-500000 Computer Maintenance					IT SUPPORT				
38393	1/16/2017	297.50	0.00	01/27/2017				False	0
001-105-500000 Information services					IT SUPPORT				

Invoice Number	Invoice Date	Amount	Quantity	Payment Date	Task Label	Type	PO #	Close PO	Line #
Account Number				Description	Reference				
38393	1/16/2017	344.51	0.00	01/27/2017				False	0
012-102-500000 Information services				IT SUPPORT					
38393	1/16/2017	829.73	0.00	01/27/2017				False	0
012-106-500000 Information services				IT SUPPORT					
38393	1/16/2017	642.28	0.00	01/27/2017				False	0
013-402-500000 Information services				IT SUPPORT					
38393	1/16/2017	156.49	0.00	01/27/2017				False	0
001-100-500000 Information services				IT SUPPORT					
38393 Total:		7,925.91							
CENTERLOGIC, INC. To		10,262.30							
CENTURY LINK									
034002									
01172017	1/17/2017	40.71	0.00	01/27/2017				False	0
017-017-458000 Telephone Expense				369B					
01172017	1/17/2017	20.35	0.00	01/27/2017				False	0
018-019-458000 Telecommunication Expense				025B					
01172017	1/17/2017	20.36	0.00	01/27/2017				False	0
018-020-458000 Telecommunication Expense				025B					
01172017 Total:		81.42							
CENTURY LINK Total:		81.42							
CENTURY LINK									
034004									
B11166428017011	1/11/2017	88.41	0.00	01/27/2017				False	0
001-002-458000 Telephone Expense				1664					
B11166428017011 Total:		88.41							
CENTURY LINK Total:		88.41							

CINTAS CORPORATION

Invoice Number	Invoice Date	Amount	Quantity	Payment Date	Task Label	Type	PO #	Close PO	Line #
Account Number	Description			Reference					
037620									
5006741996	12/29/2016	86.26	0.00	01/27/2017				False	0
001-002-501000	Operating Materials & Supp			CABINET REFILL					
5006741996 Total:		86.26							
5006968942	1/23/2017	103.01	0.00	01/27/2017				False	0
013-403-470000	Building			CABINET REFILL PUBLIC WORKS					
5006968942 Total:		103.01							
5006968943	1/23/2017	117.74	0.00	01/27/2017				False	0
012-107-457000	Office supplies			CABINET REFILL					
5006968943 Total:		117.74							
CINTAS CORPORATION		307.01							
CINTAS CORPORATION-463									
006830									
463773302	12/26/2016	35.00	0.00	01/27/2017				False	0
001-002-470000	Building Expense			SAFEWASHER SVC					
463773302 Total:		35.00							
463776803	1/2/2017	99.08	0.00	01/27/2017				False	0
001-002-470000	Building Expense			SAFEWASHER SVC					
463776803 Total:		99.08							
463780267	1/9/2017	35.00	0.00	01/27/2017				False	0
001-002-470000	Building Expense			SAFEWASHER SVC					
463780267 Total:		35.00							
463787244	1/23/2017	43.53	0.00	01/27/2017				False	0
013-403-470000	Building			MATS					
463787244 Total:		43.53							

Invoice Number	Invoice Date	Amount	Quantity	Payment Date	Task Label	Type	PO #	Close PO	Line #
Account Number	Description				Reference				
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CINTAS CORPORATION		212.61							
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COLUMBIA COUNTY TRANSFER STATION 007579									
5543	12/31/2016	29.77	0.00	01/27/2017				False	0
013-403-470000 Building					HOMELESS CAMP TRASH				
5543	12/31/2016	21.25	0.00	01/27/2017				False	0
011-011-501000 Operating Materials & Supp					MUN SOLID WASTE				
5543	12/31/2016	21.25	0.00	01/27/2017				False	0
011-011-501000 Operating Materials & Supp					MUN SOLID WASTE				
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5543 Total:		72.27							
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COLUMBIA COUNTY TR		72.27							
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COMCAST									
COMCAST									
01122017	1/12/2017	136.93	0.00	01/27/2017				False	0
017-417-459000 Utilities					3238				
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01122017 Total:		136.93							
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01142017	1/14/2017	96.99	0.00	01/27/2017				False	0
001-005-458000 Telephone Expense					9228				
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01142017 Total:		96.99							
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COMCAST Total:		233.92							
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CONSOLIDATED ELECTRICAL DISTRIBUTORS 005266									
863514	12/25/2016	9.18	0.00	01/27/2017				False	0
018-019-501000 Operating Materials					SERVICE CHARGE FOR INV 4329-606402				
<hr/>									
863514 Total:		9.18							

Invoice Number	Invoice Date	Amount	Quantity	Payment Date	Task Label	Type	PO #	Close PO	Line #
Account Number	Description				Reference				
CONSOLIDATED ELECT		9.18							
CONSOLIDATED SUPPLY									
009000									
S8061841.001	12/29/2016	383.76	0.00	01/27/2017				False	0
017-017-501000 Operating Materials & Sup.				MATERIALS					
S8061841.001 Total:		383.76							
S8063232.002	1/10/2017	296.05	0.00	01/27/2017				False	0
017-017-501000 Operating Materials & Sup.				MATERIALS					
S8063232.002 Total:		296.05							
S8063232.003	1/18/2017	317.63	0.00	01/27/2017				False	0
017-017-501000 Operating Materials & Sup.				MATERIALS					
S8063232.003 Total:		317.63							
S8063232.004	1/19/2017	406.27	0.00	01/27/2017				False	0
017-017-501000 Operating Materials & Sup.				MATERIALS					
S8063232.004 Total:		406.27							
S8064560.001	1/4/2017	629.40	0.00	01/27/2017				False	0
017-017-501000 Operating Materials & Sup.				MATERIALS					
S8064560.001 Total:		629.40							
S8064560.003	1/11/2017	304.10	0.00	01/27/2017				False	0
017-017-501000 Operating Materials & Sup.				MATERIALS					
S8064560.003 Total:		304.10							
S8068204.002	1/6/2017	383.76	0.00	01/27/2017				False	0
017-017-501000 Operating Materials & Sup.				MATERIALS					
S8068204.002 Total:		383.76							
S8071677.001	1/6/2017	-434.98	0.00	01/27/2017				False	0
017-017-501000 Operating Materials & Sup.				MATERIALS CREDIT					

Invoice Number	Invoice Date	Amount	Quantity	Payment Date	Task Label	Type	PO #	Close PO	Line #
Account Number					Description	Reference			
S8071677.001 Total:		-434.98							
S8074614.001	1/9/2017	199.09	0.00	01/27/2017				False	0
017-017-501000	Operating Materials & Sup.				MATERIALS				
S8074614.001 Total:		199.09							
S8074614.002	1/9/2017	63.76	0.00	01/27/2017				False	0
017-017-501000	Operating Materials & Sup.				MATERIALS				
S8074614.002 Total:		63.76							
CONSOLIDATED SUPPL		2,548.84							
ELECTRONIC BUSINESS SYSTEMS, INC.									
011175									
031717	1/13/2017	230.00	0.00	01/27/2017				False	0
012-102-500000	Information services				YEARLY SUPPORT RECORDS SYSTEM				
031717 Total:		230.00							
ELECTRONIC BUSINESS		230.00							
H.D. FOWLER CO.									
012650									
I4410846	1/6/2017	212.50	0.00	01/27/2017				False	0
017-017-501000	Operating Materials & Sup.				RUBBER METER GASKET				
I4410846 Total:		212.50							
H.D. FOWLER CO. Total:		212.50							
HACH COMPANY									
014200									
10271410	1/13/2017	253.89	0.00	01/27/2017				False	0
017-017-501000	Operating Materials & Sup.				KIT PRE ASSY MAINT POST 3/00				

Invoice Number	Invoice Date	Amount	Quantity	Payment Date	Task Label	Type	PO #	Close PO	Line #
Account Number	Description				Reference				
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	10271410 Total:	253.89							
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	HACH COMPANY Total:	253.89							
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HAEBE, HOLLY									
014222									
01252017	1/25/2017	462.13	0.00	01/27/2017				False	0
001-002-460000 CERT				CERT SUPPLIES REIMB. H. HAEBE					
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	01252017 Total:	462.13							
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	HAEBE, HOLLY Total:	462.13							
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INGRAM LIBRARY SERVICES, INC.									
016240									
96636039	1/4/2017	17.11	0.00	01/27/2017				False	0
001-004-511000 Printed Materials				BOOKS 20C7921					
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	96636039 Total:	17.11							
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96636041	1/4/2017	13.59	0.00	01/27/2017				False	0
001-004-511000 Printed Materials				BOOKS 20C7921					
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	96636041 Total:	13.59							
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96802707	1/15/2017	14.09	0.00	01/27/2017				False	0
001-004-511000 Printed Materials				BOOKS 20C7921					
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	96802707 Total:	14.09							
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96802708	1/15/2017	93.85	0.00	01/27/2017				False	0
001-004-511000 Printed Materials				BOOKS 20C7921					
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	96802708 Total:	93.85							
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96802709	1/15/2017	54.80	0.00	01/27/2017				False	0
001-004-483000 Audio Materials				BOOKS 20C7921					

Invoice Number	Invoice Date	Amount	Quantity	Payment Date	Task Label	Type	PO #	Close PO	Line #
Account Number				Description		Reference			
96802709 Total:		54.80							
96802710	1/15/2017	54.28	0.00	01/27/2017				False	0
001-004-511000 Printed Materials				BOOKS 20C7921					
96802710 Total:		54.28							
96827397	1/16/2017	9.93	0.00	01/27/2017				False	0
001-004-511000 Printed Materials				BOOKS 20C7921					
96827397 Total:		9.93							
96827398	1/16/2017	10.36	0.00	01/27/2017				False	0
001-004-511000 Printed Materials				BOOKS 20C7921					
96827398 Total:		10.36							
96827399	1/16/2017	7.35	0.00	01/27/2017				False	0
001-004-511000 Printed Materials				BOOKS 20C7921					
96827399 Total:		7.35							
96827400	1/16/2017	651.44	0.00	01/27/2017				False	0
001-004-511000 Printed Materials				BOOKS 20C7921					
96827400 Total:		651.44							
INGRAM LIBRARY SERV		926.80							
JOHNSTON, ROBERT									
0170									
01202017	1/20/2017	199.00	0.00	01/27/2017				False	0
001-105-490000 Professional development				FIRE PLANS EXAMINER CERT TEST REIMB.					
01202017 Total:		199.00							
JOHNSTON, ROBERT To		199.00							

KNIFE RIVER

Invoice Number	Invoice Date	Amount	Quantity	Payment Date	Task Label	Type	PO #	Close PO	Line #
Account Number				Description			Reference		
017628									
1641449	1/9/2017	1,218.45	0.00	01/27/2017				False	0
011-011-501000 Operating Materials & Supp				ROCK					
1641449 Total:		1,218.45							
1642453	1/18/2017	509.04	0.00	01/27/2017				False	0
017-017-501000 Operating Materials & Sup.				ROCK / SAND					
1642453	1/18/2017	509.04	0.00	01/27/2017				False	0
018-018-501000 Operating Materials & Supplies				ROCK / SAND					
1642453	1/18/2017	509.04	0.00	01/27/2017				False	0
011-011-501000 Operating Materials & Supp				ROCK / SAND					
1642453 Total:		1,527.12							
KNIFE RIVER Total:		2,745.57							
KOLDKIST BOTTLED WATER									
007248									
12312016	12/31/2016	53.00	0.00	01/27/2017				False	0
001-002-501000 Operating Materials & Supp				WATER - 169870					
12312016 Total:		53.00							
KOLDKIST BOTTLED W		53.00							
MAILBOXES NORTHWEST									
019366									
12302016	12/30/2016	13.79	0.00	01/27/2017				False	0
001-002-480000 Postage				SHIPPING COSTS REPAIR DEPT DOGTRA COMPANY					
12302016 Total:		13.79							
MAILBOXES NORTHWE		13.79							
MARTIN, AARON									
01933									

Invoice Number	Invoice Date	Amount	Quantity	Payment Date	Task Label	Type	PO #	Close PO	Line #
Account Number	Description				Reference				
01242017	1/24/2017	25.00	0.00	01/27/2017				False	0
001-103-473000 Miscellaneous				FOR STATE OF OREGON VS STEVEN KENYON 2016-					
01242017 Total:		25.00							
MARTIN, AARON Total:		25.00							
NORTHERN SAFETY CO., INC.									
021152									
902190205	11/18/2016	55.86	0.00	01/27/2017				False	0
013-403-501000 Operating materials/supplies				HOT HANDS / GLV					
902190205 Total:		55.86							
NORTHERN SAFETY CO		55.86							
NORTHWEST NATURAL GAS									
021400									
01172017	1/17/2017	218.21	0.00	01/27/2017				False	0
018-019-459000 Utilites				5750					
01172017	1/17/2017	218.22	0.00	01/27/2017				False	0
018-020-459000 Utilities				5750					
01172017	1/17/2017	62.24	0.00	01/27/2017				False	0
001-005-459000 Utilities				8563					
01172017	1/17/2017	7.91	0.00	01/27/2017				False	0
018-018-459000 Utilites				7720					
01172017	1/17/2017	7.91	0.00	01/27/2017				False	0
017-017-459000 Utilities				7720					
01172017	1/17/2017	169.25	0.00	01/27/2017				False	0
012-107-459000 Utilites				2848					
01172017	1/17/2017	219.20	0.00	01/27/2017				False	0
012-107-459000 Utilites				5285					
01172017 Total:		902.94							
NORTHWEST NATURAL		902.94							

Invoice Number	Invoice Date	Amount	Quantity	Payment Date	Task Label	Type	PO #	Close PO	Line #
Account Number	Description				Reference				
NURNBERG SCIENTIFIC									
021703									
0166569-IN	1/20/2017	475.11	0.00	01/27/2017				False	0
018-020-501000 Operating Materials & Supplies				CARTRIDGES					
0166569-IN	1/20/2017	475.12	0.00	01/27/2017				False	0
018-019-501000 Operating Materials				CARTRIDGES					
0166569-IN Total:		950.23							
NURNBERG SCIENTIFIC		950.23							
OAWU									
021691									
22046	1/19/2017	195.00	0.00	01/27/2017				False	0
018-019-490000 Schools & Conventions				AARON KUNDERS CONF / MEMBERSHIP 2017					
22046	1/19/2017	195.00	0.00	01/27/2017				False	0
018-020-490000 Schools & Conventions				AARON KUNDERS CONF / MEMBERSHIP 2017					
22046 Total:		390.00							
OAWU Total:		390.00							
OPUS:INTERACTIVE, INC.									
021979									
283974	1/16/2017	39.00	0.00	01/27/2017				False	0
012-102-500000 Information services				5951					
283974 Total:		39.00							
284172	1/16/2017	60.00	0.00	01/27/2017				False	0
012-102-500000 Information services				4776 YEARLY FEE FOR C.ST--HELENS.OR.US HOSTIN					
284172 Total:		60.00							
284234	1/16/2017	5.00	0.00	01/27/2017				False	0
001-002-500000 Computer System Maint.				4775					

Invoice Number	Invoice Date	Amount	Quantity	Payment Date	Task Label	Type	PO #	Close PO	Line #
Account Number					Description	Reference			
284234 Total:		5.00							
OPUS:INTERACTIVE, IN		104.00							
OREGON DEPT. OF ENVIRONMENTAL QUALITY, ATTN: ACCOU 010137									
HSRAF17-1300	12/28/2016	614.54	0.00	01/27/2017				False	0
004-400-554110 Area Wide Planning					PROJECT 163815-00 BOISE VENEER PLAN				
HSRAF17-1300 Total:		614.54							
OREGON DEPT. OF ENV		614.54							
PAPE MACHINERY 024755									
10271075	1/17/2017	159.66	0.00	01/27/2017				False	0
015-015-501000 Operating Materials & Supp					BOLTS GRADER EDGE				
10271075 Total:		159.66							
10271083	1/19/2017	49.28	0.00	01/27/2017				False	0
015-015-501000 Operating Materials & Supp					BOLTS				
10271083 Total:		49.28							
PAPE MACHINERY Total		208.94							
PEARL LAW LLC 02541									
11282016	11/28/2016	268.00	0.00	01/27/2017				False	0
001-103-554000 Contractual/consulting serv					GARRISON				
11282016 Total:		268.00							
PEARL LAW LLC Total:		268.00							

Invoice Number	Invoice Date	Amount	Quantity	Payment Date	Task Label	Type	PO #	Close PO	Line #
Account Number	Description				Reference				
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PHILLIPS, CYNTHIA									
025515									
01312017	1/24/2017	1,670.00	0.00	01/27/2017				False	0
001-103-554000 Contractual/consulting serv				MUNICIPAL COURT JUDGE 1-15/1-31					
	01312017 Total:	1,670.00							
	PHILLIPS, CYNTHIA Tot	1,670.00							
RAINIER SIGN COMPANY									
026851									
00-3449	12/29/2016	20.00	0.00	01/27/2017				False	0
001-002-501000 Operating Materials & Supp				MAGNETIC SIGNS					
	00-3449 Total:	20.00							
	RAINIER SIGN COMPAN	20.00							
RICOH USA INC									
027295									
5046422345	1/4/2017	86.10	0.00	01/27/2017				False	0
012-107-502000 Equipment expense				15120165					
	5046422345 Total:	86.10							
	RICOH USA INC Total:	86.10							
RICOH USA, INC.									
027294									
98102034	1/4/2017	207.10	0.00	01/27/2017				False	0
001-002-470000 Building Expense				1496666-3356313					
	98102034 Total:	207.10							

Invoice Number	Invoice Date	Amount	Quantity	Payment Date	Task Label	Type	PO #	Close PO	Line #
Account Number					Description	Reference			
<hr/>									
	RICOH USA, INC. Total:	207.10							
RITZ SAFETY									
02733									
5342423	12/19/2016	200.00	0.00	01/27/2017				False	0
	017-017-501000 Operating Materials & Sup.				GAS BLEND				
	5342423 Total:	200.00							
	RITZ SAFETY Total:	200.00							
ROGERS MACHINERY COMPANY, INC									
027589									
1065855	1/20/2017	1,003.88	0.00	01/27/2017				False	0
	017-417-501000 Operating materials and suppli				MATERIALS				
	1065855 Total:	1,003.88							
	ROGERS MACHINERY C	1,003.88							
SCHOLL YARD MAINTENACE, RICK									
R.SCHOLL									
201392	1/3/2017	75.00	0.00	01/27/2017				False	0
	001-002-470000 Building Expense				DECEMBER 2016 YARDCARE POLICE				
	201392 Total:	75.00							
	SCHOLL YARD MAINTEN	75.00							
SECURE PACIFIC CORPORATION									
001384									
92819	1/1/2017	52.50	0.00	01/27/2017				False	0
	013-403-470000 Building				984				

Invoice Number	Invoice Date	Amount	Quantity	Payment Date	Task Label	Type	PO #	Close PO	Line #
Account Number					Description	Reference			
92819 Total:		52.50							
92820	1/1/2017	119.85	0.00	01/27/2017				False	0
001-004-470000 Building Expense				375					
92820 Total:		119.85							
92821	1/1/2017	98.70	0.00	01/27/2017				False	0
001-005-501000 Operating Materials & Supp				475					
92821 Total:		98.70							
92822	1/1/2017	89.85	0.00	01/27/2017				False	0
001-002-470000 Building Expense				150					
92822 Total:		89.85							
92823	1/1/2017	89.70	0.00	01/27/2017				False	0
018-019-470000 Building Expense				451					
92823 Total:		89.70							
92824	1/1/2017	149.70	0.00	01/27/2017				False	0
017-417-470000 Building expense				1215					
92824 Total:		149.70							
93607	12/31/2016	171.20	0.00	01/27/2017				False	0
018-019-470000 Building Expense				451					
93607 Total:		171.20							
SECURE PACIFIC CORP		771.50							
SELDEN, LAURIE									
030715									
01312017	1/24/2017	3,015.00	0.00	01/27/2017				False	0
001-103-554000 Contractual/consulting serv				1-15-1/31 CRIMINAL PROSECUTORIAL SERVICES					

Invoice Number	Invoice Date	Amount	Quantity	Payment Date	Task Label	Type	PO #	Close PO	Line #
Account Number					Description	Reference			
<hr/>									
01312017 Total:		3,015.00							
<hr/>									
SELDEN, LAURIE Total:		3,015.00							
<hr/>									
SHERWIN-WILLIAMS									
031345									
3499-8	12/30/2016	50.76	0.00	01/27/2017				False	0
001-005-501000 Operating Materials & Supp					PAINT FOR COL VIEW PARK RESTROOMS				
<hr/>									
3499-8 Total:		50.76							
<hr/>									
SHERWIN-WILLIAMS To		50.76							
<hr/>									
ST. HELENS AUTO BODY, WALTER E. CROSS									
028470									
3622	1/25/2017	869.93	0.00	01/27/2017				False	0
001-002-510000 Automobile Expense					2008 CHEV SILVERADO				
<hr/>									
3622 Total:		869.93							
<hr/>									
ST. HELENS AUTO BOD		869.93							
<hr/>									
ST. HELENS MARKET FRESH IGA									
029225									
02-1848265	12/16/2016	5.38	0.00	01/27/2017				False	0
001-002-501000 Operating Materials & Supp					DISH SOAP				
<hr/>									
02-1848265 Total:		5.38							
<hr/>									
ST. HELENS MARKET F		5.38							
<hr/>									
STAPLES BUSINESS ADVANTAGE									
031983									
3327289104	1/14/2017	35.38	0.00	01/27/2017				False	0

Invoice Number	Invoice Date	Amount	Quantity	Payment Date	Task Label	Type	PO #	Close PO	Line #
Account Number	Description			Reference					
012-106-457000 Office supplies					OFFICE SUPPLIES				
3327289104 Total:		35.38							
3327289105	1/14/2017	23.88	0.00	01/27/2017				False	0
013-402-457000 Office supplies					PENCILS - SHARON D.				
3327289105	1/14/2017	245.37	0.00	01/27/2017				False	0
012-107-457000 Office supplies					OFFICE SUPPLIES				
3327289105 Total:		269.25							
STAPLES BUSINESS AD		304.63							
STATE OF OREGON									
023450									
123116	12/31/2016	765.24	0.00	01/27/2017				False	0
001-103-420000 Unemployment					JR METZ				
123116	12/31/2016	377.86	0.00	01/27/2017				False	0
001-002-420000 Unemployment Ins					CD WARD				
123116	12/31/2016	2,248.00	0.00	01/27/2017				False	0
012-106-420000 Unemployment					SL MAHAR				
123116 Total:		3,391.10							
STATE OF OREGON Total		3,391.10							
SUPERIOR TIRE SERVICES									
032774									
6432759	12/7/2016	236.72	0.00	01/27/2017				False	0
001-002-510000 Automobile Expense					TIRES				
6432759 Total:		236.72							
6433248	12/16/2016	642.32	0.00	01/27/2017				False	0
015-015-501000 Operating Materials & Supp					TIRES				
6433248 Total:		642.32							

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# Accounts Payable

## To Be Paid Proof List

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 Batch: 00018.01.2017 - AP 1/20/17 FY 16-17 OVER 10K

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Invoice Number	Invoice Date	Amount	Quantity	Payment Date	Task Label	Type	PO #	Close PO	Line #
Account Number	Description				Reference				
Boise White Paper, LLC									
003720									
01152017	1/15/2017	12,500.00	0.00	01/20/2017	False				
004-410-563000 Principal expense				FEBRUARY 2017 NOTE PAYEMENT					
01152017 Total:		12,500.00							
Boise White Paper, LLC To		12,500.00							
Report Total:		12,500.00							

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