

D E L B O C A  
V I S T A  
A LIMITED LIABILITY COMPANY

## King's Landing

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Subdivision Application

May 2, 2018

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### DATA SHEET

Property Owner                      Melvin Taylor, Trustee of the Melvin J. Taylor Revocable Trust  
Dated June 19, 2013  
Robert Phillips, Jr  
John Lucescu, Georgeta Lucescu, Ruben Lucescu and  
Jenna Lucescu

Applicant                                Del Boca Vista LLC  
PO Box 3189  
Newberg, OR 97132  
Phone: 971-706-2058

Property Description                Tax lots R3207-600 (Tract B only)-700-800  
located at 25300, 25020, 25040 N Valley Road  
Newberg, OR 97132

Zoning:                                    R-1

Lot Size:                                 15.4 ac

Proposal:                                76 Lot Subdivision

Minimum Lot Size per Code:      5,000sf

Proposed Lots sizes:                3060-6495 sf lots

Average Lot Size:                    5029 sf

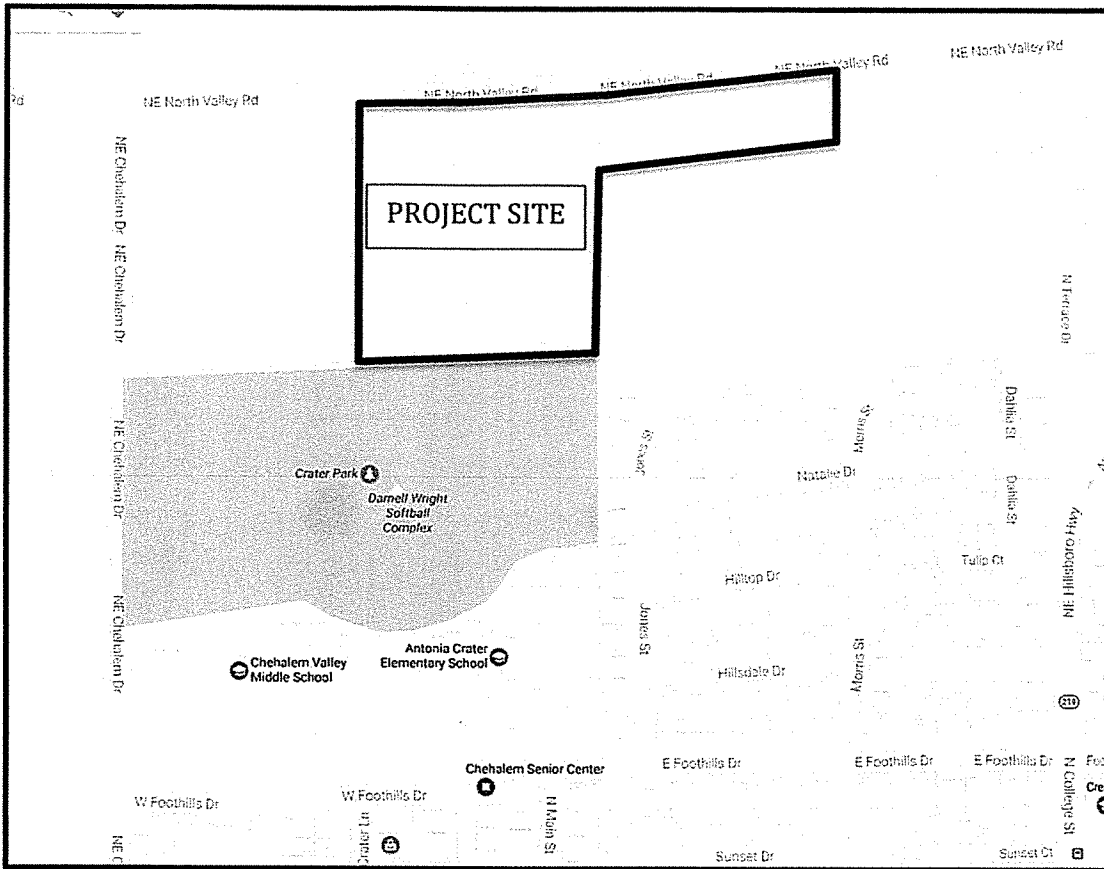
Target Density:                        4.4 units per acre

Proposed Density:                    4.9 units/acre

## PROJECT OVERVIEW

Del Boca Vista LLC is proposing a 76-lot subdivision for a detached single-family residential development. This subdivision will be known as King’s Landing. This subdivision will occur on tax lots R3207-600 (Tract B only)-700-800 which are located at 25300, 25020, 25040 N Valley Road in Newberg, OR 97132. The property currently is primarily vacant land. Access to the new lots will be by public roads from Taylor Drive, Barbaras Way and North Valley Road that meet Public Works standards.

PUBLIC SERVICES



Sanitary Sewer

All of the proposed lots will be served by gravity to the public sanitary sewer system. Sanitary sewer will be extended easterly to and through this development from two locations in the Gracie’s Landing subdivision.

Sanitary flows from this development will discharge to the Chehalem Drive Pump Station. A capacity analysis for the undeveloped tributary area to the Chehalem Pump Stations was prepared by Keller Associates dated March 23, 2017. Refer to Exhibit H for a copy of this report. The report found that there is sufficient capacity for the pump station to serve all of the land yet to be developed without a need for upgrades to the station. The report assumed the creation of 107 lots from the properties that are a part of this development application. The proposal is to develop 76 total lots which are fewer than in the analysis, therefore it can be concluded that the Chehalem Pump Station has capacity to serve this development without the need for upgrades.

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To accommodate future service to upstream development within the UGB, sanitary sewer will be extended to the east end of Barbaras Way. No sanitary sewer lines are proposed in North Valley Drive as Goal 11 does not support providing for accommodation of services to properties outside of the UGB or URA. In addition, the City has not identified a need to expand the UGB north or west of this property in the future.

### Water Supply

All of the proposed lots will be served by municipal water. The water mainline will be extended from the existing system located in either Barbaras Way or Taylor Drive.

The entire site is located within the service area of the city’s reservoir gravity service system. Therefore, adequate domestic and fire flow volume and pressure can be provided.

To accommodate future service to upstream development within the UGB, the water line will be extended through the development along Barbaras Way. No water mains are proposed in North Valley Drive as Goal 11 does not support providing for accommodation of services to properties outside of the UGB or URA. In addition, the City has not identified a need to expand the UGB north or west of this property in the future.

### Storm Drainage

Because of the topography, storm water runoff from the site will be collected and discharged to two detention and water quality facilities where they will discharge into the existing drainage channel running through the middle of the site. Refer to Exhibit C for the preliminary stormwater report for runoff and sizing calculations.

Wetlands along the drainage channel have been identified and delineated on the plans. Where new residential lots or public rights-of-way impact the wetlands, onsite mitigation work or mitigation bank credits will be acquired. Approval of the wetland impact will be obtained through submission of a Joint Permit Application (JPA) to appropriate state and federal agencies.

In addition, a portion of the drainage channel in the southwest corner of the development will be relocated to its original location, also coordinated through the JPA permit.

### Transportation

North Valley Road is classified as a Major Collector in the Transportation System Plan. Ten feet along development frontage will be dedicated as public right-of-way to allow for the full development. Jurisdiction of North Valley Drives remains with Yamhill County, so frontage improvements will be designed to city standards and constructed by permit through the County.

The interior streets (Barbaras Way and Taylor Drive) will be improved to local/residential standards.

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The portion of Barbaras Way along the frontage of Lots 18 through 55 is proposed to be designed as a Limited Residential with parking on one side. There are 38 lots with frontage access to this section of road with an average daily traffic generation of 9.52 trips per day for a total of 362 trips which is less than the maximum permitted 600 trips. This is proposed due to the conflict presented by the Stream Corridor resulting in a narrow width available between the corridor and North Valley Road.

Taylor Drive will terminate in a cul-de-sac which exceeds the length and lot loading as permitted by Code. This is necessary given the restrains of wetlands and stream corridor.

The development of 76 single family homes in the three phases of the planned King’s Landing in Newberg will add traffic to the transportation system.

The intersection of Hwy 219 at Foothills Dr. is functioning at LOS F with the existing and anticipated Gracie’s Landing and Dutchman Ridge traffic. Signalization or a roundabout at this intersection are potential mitigation actions. This is already recognized by the City as this intersection is identified as Project No. 102 in the Transportation SDC methodology to be completed in 6-10 years. Therefore, the Transportation SDC’s paid by the future lots in King’s Landing will go to fund this project.

North Valley Rd at Hwy 219 is functioning at LOS E in the PM Peak with existing and background traffic. It functions at LOS F (v/c 0.349) with King’s Landing. This v/c is well within ODOT performance metrics. Review of mitigation alternatives suggest signalization should be considered in the future.

The other studied intersections will all function within accepted standards with traffic from King’s Landing. The City and State should continue to monitor the performance metrics at the intersection of Hwy 219 at N Valley Rd. Improvements will be needed in the future if traffic volumes continue to increase as expected.

### SUBDIVISION CRITERIA

#### 1. FUTURE USE

Approval does not impede the future best use of the property under the same ownership as the full extent of the property is being developed to its maximum extent practicable.

Adjoining land will not be adversely affected. The surrounding uses are: To the North: County EF-40; to the South: City R1; to the East: City R1; and to the West: City R1.

#### 2. APPLICABLE SUBDIVISION CRITERIA

#### **15.235.040A General Submission Requirements.**



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2. Traffic Analysis. A traffic analysis shall be submitted for any project that generates in excess of 40 trips per p.m. peak hour. A traffic analysis may be required for projects below the 40 trips per p.m. peak hour threshold when the development’s location or traffic characteristics could affect traffic safety, access management, street capacity or a known traffic problem or deficiency. The traffic analysis shall be scoped in conjunction with the city and any other applicable roadway authority.

**RESPONSE:** A Traffic Impact Analysis report has been completed and is attached to this application as Exhibit E.

3. Public Utilities Analysis. The public facilities analysis shall be scoped with the city and shall address the impact of the proposed development on the public wastewater and water systems. The analysis shall identify any mitigation or improvements necessary to the public facilities to adequately serve the development per city standards under adopted ordinances and master plans.

**RESPONSE:** An analysis has been performed and no offsite improvements are needed downstream of this development.

4. Stormwater Analysis. The stormwater analysis shall address the criteria listed in Chapter 13.25 NMC.

**RESPONSE:** A Stormwater Analysis report has been completed and is attached to this application.

5. Wetland Delineation Approved by the Department of State Lands (DSL). An approved wetland delineation shall be submitted for any property listed in the National Wetlands Inventory (NWI) or that is located within the city’s mapped stream corridor.

**RESPONSE:** The approved Wetland Delineation Report (WD#2017-0505) is attached to this application as Exhibit D. An approved Joint Permit Application to DSL and COE will be obtained before any work displacing identified wetlands begins; but has not yet been submitted.

6. Future Streets Concept Plan. The future streets concept shall show all existing subdivisions, streets, and unsubdivided land surrounding the subject property and show how proposed streets may be extended to connect with existing streets. At a minimum, the plan shall depict future street connections for land within 400 feet of the subject property

**RESPONSE:** Taylor Drive ends in a cul-de-sac with no further extension possible due to the adjacent CPRD ballfields. Barbaras Way begins at the Gracie’s Landing subdivision terminus extending easterly to a dead end at Tax Lot 3307-00300. It is

anticipated that future development will continue this route to connect with Terrace Drive.

### **15.235.040 Preliminary plat submission requirements.**

3. Proposed Development. Except where the director deems certain information is not relevant, applications for preliminary plat approval shall contain all of the following information on the proposed development:

- a. Proposed lots, streets, tracts, open space and park land (if any); location, names, right-of-way dimensions, approximate radius of street curves; and approximate finished street centerline grades. All tracts that are being held for private use and all reservations and restrictions relating to such private tracts shall be identified;
- b. Easements. Location, width and purpose of all proposed easements;
- c. Lots and private tracts (e.g., private open space, common area, or street) with approximate dimensions, area calculation (e.g., in square feet), and identification numbers. Through lots shall be avoided except where necessary to provide separation of residential development from major traffic routes, adjacent nonresidential activities, or to overcome specific issues with topography or orientation;
- d. Proposed uses of the property, including all existing structures to remain, areas proposed to be dedicated as public right-of-way or preserved as open space for the purpose of stormwater management, recreation, or other use;
- e. Proposed grading;
- f. Proposed public street improvements, pursuant to NMC 15.505.030, including street cross sections;
- g. Information demonstrating that proposed lots can reasonably be accessed and developed without the need for a variance and in conformance with applicable setbacks and lot coverage requirements;
- h. Preliminary design for extending city water and wastewater service to each lot, per NMC 15.505.040;
- i. Proposed method of stormwater drainage and treatment, if required, pursuant to NMC 15.505.050;
- j. The approximate location and identity of other utilities, including the locations of street lighting fixtures, as applicable;
- k. Evidence of compliance with applicable overlay zones; and

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1. Evidence of contact with the applicable road authority for proposed new street connections.

**RESPONSE:** All of the criteria a through k are addressed with the attached preliminary design plans. To satisfy Criteria l, applicant has sent a correspondence to and spoken with Bill Gille at Yamhill County alerting the County of the proposed improvements to North Valley Road. See attached email to Bill Gille as Exhibit I.

### **15.235.050 Preliminary plat approval criteria.**

A. Approval Criteria. By means of a Type II procedure for a subdivision, or a Type II or III procedure for a subdivision per NMC 15.235.030(A), the applicable review body shall approve, approve with conditions, or deny an application for a preliminary plat. The decision shall be based on findings of compliance with all of the following approval criteria:

1. The land division application shall conform to the requirements of this chapter;
2. All proposed lots, blocks, and proposed land uses shall conform to the applicable provisions of NMC Division 15.400, Development Standards;

**RESPONSE:** These provisions will be met with the submission of subdivision plans or are addressed in the Variance Application submitted as part of this subdivision request.

3. Access to individual lots, and public improvements necessary to serve the development, including but not limited to water, wastewater, stormwater, and streets, shall conform to NMC Division 15.500, Public Improvement Standards;

**RESPONSE:** These provisions will be met with the submission of subdivision plans.

4. The proposed plat name is not already recorded for another subdivision, and satisfies the provisions of ORS Chapter 92;

**RESPONSE:** The proposed plat name of the subdivision is King’s Landing and was approved by Marty Glass from Yamhill County Surveyors. See attached email as Exhibit J.

5. The proposed streets, utilities, and stormwater facilities conform to city of Newberg adopted master plans and applicable Newberg public works design and construction standards, and allow for transitions to existing and potential future development on adjacent lands. The preliminary plat shall identify all proposed public improvements and dedications;

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**RESPONSE:** These provisions will be met with the submission of subdivision plans.

6. All proposed private common areas and improvements, if any, are identified on the preliminary plat and maintenance of such areas is assured through the appropriate legal instrument;

**RESPONSE:** These provisions will be met with the submission of subdivision plans.

7. Evidence that any required state and federal permits, as applicable, have been obtained or can reasonably be obtained prior to development; and

**RESPONSE:** These provisions will be met with the submission of subdivision plans.

8. Evidence that improvements or conditions required by the city, road authority, Yamhill County, special districts, utilities, and/or other service providers, as applicable to the project, have been or can be met.

**RESPONSE:** These provisions will be met with the submission of subdivision plans.

### **STREAM CORRIDOR**

#### **15.342.070 Activities requiring a Type II process.**

The installation, construction or relocation of the following improvements shall be processed as a Type II decision. The proposal shall be accompanied by a plan as identified in NMC 15.342.080 and conform to the mitigation standards contained in NMC 15.342.090.

A. Public or private street crossings, sidewalks, pathways, and other transportation improvements that generally cross the stream corridor in a perpendicular manner.

**RESPONSE:** The existing stream crossings will be improved to provide public walkways that meets City standards. See attached report in Exhibit C.

**Paragraphs B-I:** Not applicable.

J. Stream corridor enhancement activities which are reasonably expected to enhance stream corridor resource values and generally follow the restoration standards in NMC 15.342.060. [Ord. 2451, 12-2-96. Code 2001 § 151.471.]

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**RESPONSE:** The stream corridor will be enhanced with new plantings and a redirection of the drainageway located in the proposed Phase One of this subdivision. Further, a conservation easement will be created to limit the activity and impacts on this wetland and stream corridor area. Detailed development plan will be submitted with the Public Works Permit application.

### **15.342.080 Plan submittal requirements for Type II activities.**

In addition to the design review plan submittal requirements, all applicants for Type II activities within the SC overlay subdistrict shall submit the following information:

A. A site plan indicating all of the following existing conditions:

1. Location of the boundaries of the SC overlay subdistrict.
2. Outline of any existing features including, but not limited to, structures, decks, areas previously disturbed, and existing utility locations.
3. Location of any wetlands or water bodies on the site and the location of the stream centerline and top of bank.
4. Within the area to be disturbed, the approximate location of all trees that are more than six inches in diameter at breast height must be shown, with size and species. Trees outside the disturbed area may be individually shown or shown as crown cover with an indication of species type or types.
5. Topography shown by contour lines at five-foot vertical intervals or less.
6. Photographs of the site may be used to supplement the above information but are not required.

**RESPONSE:** See site plan attached as Exhibit B.

B. Proposed development plan including all of the following:

1. Outline of disturbed area including all areas of proposed utility work.
2. Location and description of all proposed erosion control devices.
3. A landscape plan prepared by a landscape architect, or other qualified design professional, shall be prepared which indicates the size, species, and location of all new vegetation to be planted. [Ord. 2451, 12-2-96. Code 2001 § 151.472.]

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**RESPONSE:** Detailed development plan will be submitted with the Public Works Permit application.

### **15.342.090 Mitigation requirements for Type II activities.**

The following mitigation requirements apply to Type II activities. The plans required pursuant to NMC 15.342.080 shall be submitted indicating the following mitigation requirements will be met.

A. Disturbed areas, other than authorized improvements, shall be regraded and contoured to appear natural. All fill material shall be native soil. Native soil may include soil associations commonly found within the vicinity, as identified from USDA Soil Conservation Service, Soil Survey of Yamhill Area, Oregon.

B. Replanting shall be required using a combination of trees, shrubs and grass. Species shall be selected from the Newberg native plant list. Planting shall be as follows:

1. At least eight species of plants shall be used.
2. At least two species must be trees and two species must be shrubs.
3. No more than 50 percent of any seed mix used can be grass.
4. A minimum of one tree and three shrubs shall be used for every 500 square feet of planting area.
5. Areas to be replanted must be completed at the time of final inspection or completion of the work, except as otherwise allowed by this code.
6. Existing vegetation that can be saved and replanted is encouraged, although not required.

C. Removed trees over six inches in diameter, as measured at breast height, shall be replaced as follows:

1. Trees from six to 18 inches in diameter shall be replaced with a minimum of three new trees for every tree removed.
2. Trees over 18 inches but less than 30 inches shall be replaced with a minimum of five trees for every tree removed.
3. Trees over 30 inches shall be replaced with a minimum of eight trees for every tree removed.

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4. All trees replaced pursuant to this section shall have an average caliper measurement of a minimum of one inch. Additional trees of any size caliper may be used to further enhance the mitigation site.

D. All disturbed areas, other than authorized improvements, shall be replanted to achieve 90 percent cover in one year. The director may require a bond or other form of security instrument to insure completion of the restoration plan. The director shall authorize the release of the bond or other security instrument when, after one year, the restoration site has achieved the purposes and standards of this section.

E. All disturbed areas shall be protected with erosion control devices prior to construction activity. The erosion control devices shall remain in place until 90 percent cover is achieved.

F. Except as provided below, all restoration work must occur within the SC overlay subdistrict and be on the same property. The director may authorize work to be performed on properties within the general vicinity or adjacent to the overlay subdistrict; provided, that the applicant demonstrates that this will provide greater overall benefit to the stream corridor areas. [Ord. 2451, 12-2-96. Code 2001 § 151.473.]

**RESPONSE:** A detailed development plan adhering to these requirements will be submitted with the Public Works Permit application.

### 15.405 LOT REQUIREMENTS

#### 15.405.010 Lot area – Lot areas per dwelling unit.

A. In the following districts, each lot or development site shall have an area as shown below except as otherwise permitted by this code:

1. In the R-1 district, each lot or development site shall have a minimum area of 5,000 square feet or as may be established by a subdistrict. The average size of lots in a subdivision intended for single-family development shall not exceed 10,000 square feet.

2. In the R-2, R-3, and RP districts, each lot or development site shall have a minimum area of 3,000 square feet or as may be established by a subdistrict. In the R-2 and R-P districts, the average size of lots in a subdivision intended for single-family development shall not exceed 5,000 square feet.

3. In the AI, AR, C-1, C-2, and C-3 districts, each lot or development site shall have a minimum area of 5,000 square feet or as may be established by a subdistrict.

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4. In the M-1, M-2 and M-3 districts, each lot or development site shall have a minimum area of 20,000 square feet.

5. Institutional districts shall have a minimum size of five contiguous acres in order to create a large enough campus to support institutional uses; however, additions to the district may be made in increments of any size.

6. Within the commercial zoning district(s) of the riverfront overlay subdistrict, there is no minimum lot size required, provided the other standards of this code can be met.

### B. Lot or Development Site Area per Dwelling Unit.

1. In the R-1 district, there shall be a minimum of 5,000 square feet per dwelling unit.

2. In the R-2, AR, and R-P districts, there shall be a minimum of 3,000 square feet of lot or development site area per dwelling unit. In the R-2 and R-P districts, lots or development sites in excess of 15,000 square feet used for multiple single-family, duplex or multifamily dwellings shall be developed at a minimum of one dwelling per 5,000 square feet lot area.

3. In the R-3 district, there shall be a minimum of 1,500 square feet of lot or development site area per dwelling unit. Lots or development sites in excess of 15,000 square feet used for multiple single-family, duplex or multifamily dwellings shall be developed at a minimum of one dwelling per 2,500 square feet lot area.

C. In calculating lot area for this section, lot area does not include land within public or private streets. In calculating lot area for maximum lot area/minimum density requirements, lot area does not include land within stream corridors, land reserved for public parks or open spaces, commons buildings, land for preservation of natural, scenic, or historic resources, land on slopes exceeding 15 percent or for avoidance of identified natural hazards, land in shared access easements, public walkways, or entirely used for utilities, land held in reserve in accordance with a future development plan, or land for uses not appurtenant to the residence.

D. Lot size averaging is allowed for any subdivision. Some lots may be under the minimum lot size required in the zone where the subdivision is located, as long as the average size of all lots is at least the minimum lot size.

### RESPONSE:

Lot Number	Lot Size (SF)	Lot Number	Lot Size (SF)
1	5000	39	3060



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2	5384	40	3060
3	5000	41	3060
4	5000	42	3060
5	5500	43	3060
6	5500	44	3060
7	5000	45	3060
8	4599	46	3060
9	3762	47	3060
10	3762	48	3060
11	3762	49	6754
12	3596	50	7524
13	3060	51	4775
14	3060	52	5280
15	3060	53	3841
16	3060	54	5035
17	3060	55	4429
18	3060	56	58041
19	3060	57	5571
20	3060	58	6334
21	3060	59	5000
22	3060	60	5572
23	3060	61	6408
24	3060	62	5009
25	3060	63	7254
26	3060	64	6284
27	3060	65	5971
28	3060	66	6966
29	3060	67	8137
30	3683	68	5053
31	3683	69	5348
32	3060	70	5151
33	3060	71	5087
34	3060	72	5512
35	3060	73	6224
36	3060	74	6495
37	3060	75	5605
38	3060	76	6258
		<b>Total</b>	<b>382189</b>
		<b>Average</b>	<b>5029</b>

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The table above demonstrates that the proposed lot areas meet the code standard when taking into account lot size averaging.

### **15.405.030 Lot dimensions and frontage.**

A. Width. Widths of lots shall conform to the standards of this code.

B. Depth to Width Ratio. Each lot and parcel shall have an average depth between the front and rear lines of not more than two and one-half times the average width between the side lines. Depths of lots shall conform to the standards of this code. Development of lots under 15,000 square feet are exempt from the lot depth to width ratio requirement.

C. Area. Lot sizes shall conform to standards set forth in this code. Lot area calculations shall not include area contained in public or private streets as defined by this code.

D. Frontage.

1. No lot or development site shall have less than the following lot frontage standards:

a. Each lot or development site shall have either frontage on a public street for a distance of at least 25 feet or have access to a public street through an easement that is at least 25 feet wide. No new private streets, as defined in NMC 15.05.030, shall be created to provide frontage or access except as allowed by NMC 15.240.020(L)(2).

b. Each lot in an R-2 and R-3 zone shall have a minimum width of 25 feet at the front building line.

c. Each lot in an R-1 shall have a minimum width of 35 feet, and AI or RP zone shall have a minimum width of 50 feet at the front building line.

d. Each lot in an AR zone shall have a minimum width of 45 feet at the front building line.

2. The above standards apply with the following exceptions:

a. Legally created lots of record in existence prior to the effective date of the ordinance codified in this code.

b. Lots or development sites which, as a process of their creation, were approved with sub-standard widths in accordance with provisions of this code.

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c. Existing private streets may not be used for new dwelling units, except private streets that were created prior to March 1, 1999, including paving to fire access roads standards and installation of necessary utilities, and private streets allowed in the airport residential and airport industrial districts. [Ord. 2822 § 1 (Exh. A), 2-5-18; Ord. 2730 § 1 (Exh. A (3)), 10-18-10; Ord. 2720 § 1(15), 11-2-09; Ord. 2647, 6-5-06; Ord. 2507, 3-1-99; Ord. 2451, 12-2-96. Code 2001 § 151.567.]

**RESPONSE:** The proposed lot configuration meets all of the provisions of this code section for depth to width ratio, area, and minimum frontage at front building line. Lot 12 will be increased in width by one foot via a lot line adjustment when Gracie’s Landing Phase 3 is recorded.

### **15.405.040 Lot coverage and parking coverage requirements.**

A. Purpose. The lot coverage and parking coverage requirements below are intended to:

1. Limit the amount of impervious surface and storm drain runoff on residential lots.
2. Provide open space and recreational space on the same lot for occupants of that lot.
3. Limit the bulk of residential development to that appropriate in the applicable zone.

B. Residential uses in residential zones shall meet the following maximum lot coverage and parking coverage standards. See the definitions in NMC 15.05.030 and Appendix A, Figure 4.

1. Maximum Lot Coverage.
  - a. R-1: 30 percent, or 40 percent if all structures on the lot are one-story.
  - b. R-2 and RP: 50 percent.
  - c. AR and R-3: 50 percent.
2. Maximum Parking Coverage. R-1, R-2, R-3, and RP: 30 percent.
3. Combined Maximum Lot and Parking Coverage.
  - a. R-1, R-2 and RP: 60 percent.

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b. R-3: 70 percent.

C. All other districts and uses not listed in subsection (B) of this section shall not be limited as to lot coverage and parking coverage except as otherwise required by this code. [Ord. 2746 § 1 (Exh. A § 1), 8-15-11; Ord. 2730 § 1 (Exh. A (3)), 10-18-10; Ord. 2647, 6-5-06; Ord. 2451, 12-2-96. Code 2001 § 151.568.]

**RESPONSE:** The development of the individual lots will meet this criterion. See the attached Exhibit M for demonstration of buildable house product placed on the smaller lots.

### 15.505.030 G6 Street standards.

6. Limited Residential Streets. Limited residential streets shall be allowed only at the discretion of the review authority, and only in consideration of the following factors:

a. The requirements of the fire chief shall be followed.

**RESPONSE:** The proposed subdivision design follows TVF&R design standards for appropriate fire access and turn-arounds for dead end street greater than 150 feet. See attached email from Jason Arn as Exhibit L.

b. The estimated traffic volume on the street is low, and in no case more than 600 average daily trips.

**RESPONSE:** The portion of Barbaras Way along the frontage of Lots 18 through 55 is proposed to be designed as a Limited Residential with parking on one side. There are 38 lots with frontage access to this section of road with an average daily traffic generation of 9.52 trips per day for a total of 362 trips which is less than the maximum permitted 600 trips.

c. Use for through streets or looped streets is preferred over cul-de-sac streets.

**RESPONSE:** Through streets are proposed with the exception of Taylor Drive in Phase 3 as it is constrained by stream corridor and CPRD ballfields.

d. Use for short blocks (under 400 feet) is preferred over longer blocks.

## Development Application – King’s Landing

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**RESPONSE:** While the short block lengths are preferred, the code requirement 15.505.030(O)2 allows for 800-foot blocks. Where block lengths exceed 400 feet, a public walkway, where possible given topography and stream corridor constraints, is proposed to enhance connectivity.

e. The total number of residences or other uses accessing the street in that block is small, and in no case more than 30 residences.

**RESPONSE:** The proposed Limited Residential street is bisected by a connection to North Valley Road with 13 lots west and 25 lots east of this connection. This results in fewer than 30 residences along any given section of roadway.

f. On-street parking usage is limited, such as by providing ample off-street parking, or by staggering driveways so there are few areas where parking is allowable on both sides.

**RESPONSE:** The Fire Marshal indicated that the proposed limited residential street is acceptable provided parking is allowed only on one side of the street.

### **15.505.030 L. Cul-de-Sacs.**

1. Cul-de-sacs shall only be permitted when one or more of the circumstances listed in this section exist. When cul-de-sacs are justified, public walkway connections shall be provided wherever practical to connect with another street, walkway, school, or similar destination.

a. Physical or topographic conditions make a street connection impracticable. These conditions include but are not limited to controlled access streets, railroads, steep slopes, wetlands, or water bodies where a connection could not be reasonably made.

b. Buildings or other existing development on adjacent lands physically preclude a connection now or in the future, considering the potential for redevelopment.

c. Where streets or accessways would violate provisions of leases, easements, or similar restrictions.

d. Where the streets or accessways abut the urban growth boundary and rural resource land in farm or forest use, except where the adjoining land is designated as an urban reserve area.

**RESPONSE:** The site conditions in the proposed subdivision make alternate street connections impracticable because of the constraints of the topography along Jones St. to Taylor St., the stream corridor and wetland areas that run through the middle of the site.

## Development Application – King’s Landing

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2. Cul-de-sacs shall be no more than 400 feet long (measured from the centerline of the intersection to the radius point of the bulb).

**RESPONSE:** See variance criteria response below.

3. Cul-de-sacs shall not serve more than 18 single-family dwellings.

Each cul-de-sac shall have a circular end with a minimum diameter of 96 feet, curb-to-curb, within a 109-foot minimum diameter right-of-way. For residential uses, a 35-foot radius may be allowed if the street has no parking, a mountable curb, curbside sidewalks, and sprinkler systems in every building along the street.

**RESPONSE:** See variance criteria response below.

### 15.505.030 Street Standards.

#### O. Platting Standards for Blocks.

1. Purpose. Streets and walkways can provide convenient travel within a neighborhood and can serve to connect people and land uses. Large, uninterrupted blocks can serve as a barrier to travel, especially walking and biking. Large blocks also can divide rather than unite neighborhoods. To promote connected neighborhoods and to shorten travel distances, the following minimum standards for block lengths are established.

2. Maximum Block Length and Perimeter. The maximum length and perimeters of blocks in the zones listed below shall be according to the following table. The review body for a subdivision, partition, conditional use permit, or a Type II design review may require installation of streets or walkways as necessary to meet the standards below.

Zone(s)	Maximum Block Length	Maximum Block Perimeter
R-1	800 feet	2,000 feet
R-2, R-3, RP, I	1,200 feet	3,000 feet

3. Exceptions.

a. If a public walkway is installed mid-block, the maximum block length and perimeter may be increased by 25 percent.

## Development Application – King’s Landing

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**RESPONSE:** Barbaras Way between Bruce Drive and unnamed street to North Valley Road exceeds the 800 feet but is within 25% increase allowance (1000 feet) measuring approximately 892 feet. Taylor Drive from the cul-de-sac to Jones Street exceeds the 800 feet but is within 25% increase allowance (1000 feet) measuring approximately 898 feet. Both sections provide public walkways

b. Where a proposed street divides a block, one of the resulting blocks may exceed the maximum block length and perimeter standards provided the average block length and perimeter of the two resulting blocks do not exceed these standards.

**RESPONSE:** Not applicable.

c. Blocks in excess of the above standards are allowed where access controlled streets, street access spacing standards, railroads, steep slopes, wetlands, water bodies, preexisting development, ownership patterns or similar circumstances restrict street and walkway location and design. In these cases, block length and perimeter shall be as small as practical. Where a street cannot be provided because of these circumstances but a public walkway is still feasible, a public walkway shall be provided.

**RESPONSE:** See plan submittal identifying the use of public walkways where practical given the existing neighboring developments, steep topography and stream corridor location, the block sizes are as small as possible. These site constraints restrict the street and walkway location and design. Applicant proposes the most practical design working with the limitations set forth while limiting the impacts to the wetlands and the stream corridor. While the Applicant maintains that the requested block lengths and perimeters in excess of the allowable standards are excepted under this provision, a variance application follows addressing those issues as well.

### 15.505.030 Street Standards

#### S. Public Walkways.

1. Projects subject to Type II design review, partition, or subdivision approval may be required to provide public walkways where necessary for public safety and convenience, or where necessary to meet the standards of this code. Public walkways are meant to connect cul-de-sacs to adjacent areas, to pass through oddly shaped or unusually long blocks, to provide for networks of public paths according to adopted plans, or to provide access to schools, parks or other community destinations or public areas. Where practical, public walkway easements and locations may also be used to accommodate public utilities.

## Development Application – King’s Landing

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**RESPONSE:** The proposed subdivision plan utilizes public walkways to connect the Taylor Drive cul-de-sac in Phase 2 to the CPRD ballfield to the south and to Phase 3 on the other side of the stream corridor. Similarly Phase 3 is connect to North Valley Road with public walkways to address block length.

2. Public walkways shall be located within a public access easement that is a minimum of 15 feet in width.

**RESPONSE:** All proposed public walkways are located within a public access easement that is a minimum of 15 feet in width.

3. A walk strip, not less than 10 feet in width, shall be paved in the center of all public walkway easements. Such paving shall conform to specifications in the Newberg public works design and construction standards.

**RESPONSE:** All public walkways in this project will meet this criterion.

4. Public walkways shall be designed to meet the Americans with Disabilities Act requirements.

**RESPONSE:** All public walkways will meet this criteria to the maximum extent practicable within the constraints of topography, natural obstructions and stream corridor restrictions.

5. Public walkways connecting one right-of-way to another shall be designed to provide as short and straight of a route as practical.

**RESPONSE:** All public walkways in this project will meet this criterion.

6. The developer of the public walkway may be required to provide a homeowners’ association or similar entity to maintain the public walkway and associated improvements.

**RESPONSE:** All public walkways in this project will meet this criterion by identifying a responsible entity. See attached CC&Rs as Exhibit K. The City shall maintain any walkway adjacent to the stormwater facilities (pursuant to a discussion with City Engineer).

7. Lighting may be required for public walkways in excess of 250 feet in length.

**RESPONSE:** No walkways are proposed to be greater than 250 feet.



8. The review body may modify these requirements where it finds that topographic, preexisting development, or similar constraints exist.

**RESPONSE:** Needs to modify requirements due to these conditions will be identified in the final design submitted for Engineering Permit approval.

### **VARIANCE, BLOCK LENGTH**

This variance application proposes to increase the block length of Jones Street as identified in the proposed plan set. The proposed Jones Street block length is 899.49 feet.

#### **15.235.060 Land division related code adjustments and variances.**

Code adjustments and variances shall be processed in accordance with Chapters 15.210 and 15.215 NMC. Applications for code adjustments and variances related to the proposed land division shall be submitted at the same time an application for land division is submitted; the applications shall be reviewed concurrently.

#### **15.505.030 Street Standards.**

**O. Platting Standards for Blocks.**

1. Purpose. Streets and walkways can provide convenient travel within a neighborhood and can serve to connect people and land uses. Large, uninterrupted blocks can serve as a barrier to travel, especially walking and biking. Large blocks also can divide rather than unite neighborhoods. To promote connected neighborhoods and to shorten travel distances, the following minimum standards for block lengths are established.

2. Maximum Block Length and Perimeter. The maximum length and perimeters of blocks in the zones listed below shall be according to the following table. The review body for a subdivision, partition, conditional use permit, or a Type II design review may require installation of streets or walkways as necessary to meet the standards below.

<b>Zone(s)</b>	<b>Maximum Block Length</b>	<b>Maximum Block Perimeter</b>
R-1	800 feet	2,000 feet
R-2, R-3, RP, I	1,200 feet	3,000 feet

**RESPONSE:** This variance application proposes to increase the block length of Jones Street as identified in the proposed plan set. The design is set forth to be as efficient as possible considering the topography, stream corridor and existing street connections and development adjacent to the property.

**15.215.040 Type II variance criteria.**

The Type II procedure shall be used to process a variance request. The hearing body shall grant the variance if the following criteria are satisfied:

A. That strict or literal interpretation and enforcement of the specified regulation would result in practical difficulty or unnecessary physical hardship inconsistent with the objectives of this code.

**RESPONSE:** A strict enforcement of this provision to the subject property would create both a practical difficulty and an unnecessary physical hardship. The existing street connections and the topography of Jones Street drive the proposed design. The site conditions prevent Taylor Street from being developed in any other manner without the crossing of the stream corridor. Further, the confines dictated by the stream corridor in concert with the topography result in longer block lengths.

## Development Application – King’s Landing

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B. That there are exceptional or extraordinary circumstances or conditions applicable to the property involved or to the intended use of the property which do not apply generally to other properties classified in the same zoning district.

**RESPONSE:** The stream corridor and accompanying wetlands essentially divide this property into two separate sides of the development. This fact, in conjunction with the CPRD developed property into ballfields, creates an exceptional circumstance wherein strictly applying the block length conditions would render that section of the property undevelopable. The variance of the proposed block length allows for the development of this property in a practical manner as other property generally would be allowed to develop.

C. That strict or literal interpretation and enforcement of the specified regulation would deprive the applicant of privileges enjoyed by the owners of other properties classified in the same zoning district.

**RESPONSE:** The variance of the proposed block length allows for the development of this property in a practical manner as other property generally would be allowed to develop. A strict or literal interpretation would make it impracticable to develop the R1 zoned property.

D. That the granting of the variance will not constitute a grant of special privilege inconsistent with the limitations on other properties classified in the same zoning district.

**RESPONSE:** Other properties in the R-1 zoning district are afforded the same opportunity to maximize density according to the code standards for this zone. Granting this variance does not constitute a special privilege for the applicant but rather equalizes the development rights such that they are consistent with all R-1 zoned properties.

E. That the granting of the variance will not be detrimental to the public health, safety or welfare or materially injurious to properties or improvements in the vicinity. [Ord. 2451, 12-2-96. Code 2001 § 151.163]

**RESPONSE:** The proposed block lengths do not create a detriment to the public’s health, safety or welfare nor are they materially injurious to properties in the vicinity. The proposed subdivision blends well with the adjoining neighborhoods of Dutchman Ridge and Gracie’s Landing.

# Development Application – King’s Landing

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**VARIANCE, BLOCK PERIMETER**

Applicant requests a variance to the block perimeters of Taylor Dr. identified as Blocks 5 and 8 on the attached Exhibit N. The proposed Block 5 perimeter is 3,718 feet. The proposed Block 8 perimeter is 3,446 feet. This variance is necessary due to the site constraints and existing neighboring developments.

**15.235.060 Land division related code adjustments and variances.**

Code adjustments and variances shall be processed in accordance with Chapters 15.210 and 15.215 NMC. Applications for code adjustments and variances related to the proposed land division shall be submitted at the same time an application for land division is submitted; the applications shall be reviewed concurrently. [Ord. 2813 § 1 (Exh. A § 7), 9-5-17.]

**15.505.030 Street Standards.**

**O. Platting Standards for Blocks.**

1. Purpose. Streets and walkways can provide convenient travel within a neighborhood and can serve to connect people and land uses. Large, uninterrupted blocks can serve as a barrier to travel, especially walking and biking. Large blocks also can divide rather than unite neighborhoods. To promote connected neighborhoods and to shorten travel distances, the following minimum standards for block lengths are established.

2. Maximum Block Length and Perimeter. The maximum length and perimeters of blocks in the zones listed below shall be according to the following table. The review body for a subdivision, partition, conditional use permit, or a Type II design review may require installation of streets or walkways as necessary to meet the standards below.

<b>Zone(s)</b>	<b>Maximum Block Length</b>	<b>Maximum Block Perimeter</b>
R-1	800 feet	2,000 feet
R-2, R-3, RP, I	1,200 feet	3,000 feet

**RESPONSE:** Blocks 5 and 8 exceed the maximum block perimeter allowed.

### 15.215.040 Type II variance criteria.

The Type II procedure shall be used to process a variance request. The hearing body shall grant the variance if the following criteria are satisfied:

A. That strict or literal interpretation and enforcement of the specified regulation would result in practical difficulty or unnecessary physical hardship inconsistent with the objectives of this code.

**RESPONSE:** A strict or literal interpretation of this Code Section would create an impractical difficulty due to the site constraints of topography, natural obstructions and stream corridor restrictions.

B. That there are exceptional or extraordinary circumstances or conditions applicable to the property involved or to the intended use of the property which do not apply generally to other properties classified in the same zoning district.

**RESPONSE:** The stream corridor and accompanying wetlands essentially divide this property into two separate sides of the development. This fact, in conjunction with the CPRD developed property into ballfields, creates an exceptional circumstance wherein strictly applying the block perimeter conditions would render that section of the property undevelopable, or impracticable to develop.

C. That strict or literal interpretation and enforcement of the specified regulation would deprive the applicant of privileges enjoyed by the owners of other properties classified in the same zoning district.

**RESPONSE:** The variance of the proposed block perimeters served allows for the development of this property in a practical manner as other property generally would be allowed to develop. A strict or literal interpretation would make it impracticable to develop the R-1 zoned property.

D. That the granting of the variance will not constitute a grant of special privilege inconsistent with the limitations on other properties classified in the same zoning district.

**RESPONSE:** Other properties in the R-1 zoning district are afforded the same opportunity to maximize density according to the code standards for this zone. Granting this variance does not constitute a special privilege for the applicant but rather equalizes the development rights such that they are consistent with all R-1 zoned properties.

E. That the granting of the variance will not be detrimental to the public health, safety or welfare or materially injurious to properties or improvements in the vicinity. [Ord. 2451, 12-2-96. Code 2001 § 151.163

## Development Application – King’s Landing

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**RESPONSE:** The proposed block perimeters are not a detriment to the public health, safety or welfare nor materially injurious to properties in the vicinity. The proposed subdivision blends well with the adjoining neighborhoods of Dutchman Ridge and Gracie’s Landing.

**VARIANCE, CUL-DE-SAC LENGTH and NUMBER OF HOMES SERVED**

**15.505.030 L. Cul-de-Sacs.**

1. Cul-de-sacs shall only be permitted when one or more of the circumstances listed in this section exist. When cul-de-sacs are justified, public walkway connections shall be provided wherever practical to connect with another street, walkway, school, or similar destination.

a. Physical or topographic conditions make a street connection impracticable. These conditions include but are not limited to controlled access streets, railroads, steep slopes, wetlands, or water bodies where a connection could not be reasonably made.

b. Buildings or other existing development on adjacent lands physically preclude a connection now or in the future, considering the potential for redevelopment.

c. Where streets or accessways would violate provisions of leases, easements, or similar restrictions.

d. Where the streets or accessways abut the urban growth boundary and rural resource land in farm or forest use, except where the adjoining land is designated as an urban reserve area.

**RESPONSE:** The proposed subdivision contains a cul-de-sac because the physical site constraints of the topography along Jones Street, the wetlands and stream corridor, and the neighboring existing development prevent other street connections from being made.

2. Cul-de-sacs shall be no more than 400 feet long (measured from the centerline of the intersection to the radius point of the bulb).

**RESPONSE:** The proposed cul-de-sac length exceeds 400 feet.

3. Cul-de-sacs shall not serve more than 18 single-family dwellings.

Each cul-de-sac shall have a circular end with a minimum diameter of 96 feet, curb-to-curb, within a 109-foot minimum diameter right-of-way. For residential uses, a 35-foot radius may be allowed if the street has no parking, a mountable curb, curbside sidewalks, and sprinkler systems in every building along the street.

**RESPONSE:** The proposed cul-de-sac serves more than 18 single family dwellings.



## Development Application – King’s Landing

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### 15.215.040 Type II variance criteria.

The Type II procedure shall be used to process a variance request. The hearing body shall grant the variance if the following criteria are satisfied:

A. That strict or literal interpretation and enforcement of the specified regulation would result in practical difficulty or unnecessary physical hardship inconsistent with the objectives of this code.

**RESPONSE:** A strict or literal interpretation of this Code Section would create an impractical difficulty due to the site constraints of topography, natural obstructions and stream corridor restrictions.

B. That there are exceptional or extraordinary circumstances or conditions applicable to the property involved or to the intended use of the property which do not apply generally to other properties classified in the same zoning district.

**RESPONSE:** The stream corridor and accompanying wetlands essentially divide this property into two separate sides of the development. This fact, in conjunction with the CPRD developed property into ballfields, creates an exceptional circumstance wherein strictly applying the cul-de-sac length and number of homes served would render that section of the property undevelopable.

C. That strict or literal interpretation and enforcement of the specified regulation would deprive the applicant of privileges enjoyed by the owners of other properties classified in the same zoning district.

**RESPONSE:** The variance of the proposed cul-de-sac length and number of homes served allows for the development of this property in a practical manner as other property generally would be allowed to develop. A strict or literal interpretation would make it impracticable to develop the R1 zoned property.

D. That the granting of the variance will not constitute a grant of special privilege inconsistent with the limitations on other properties classified in the same zoning district.

**RESPONSE:** Other properties in the R-1 zoning district are afforded the same opportunity to maximize density according to the code standards for this zone. Granting this variance does not constitute a special privilege for the applicant but rather equalizes the development rights such that they are consistent with all R-1 zoned properties.

E. That the granting of the variance will not be detrimental to the public health, safety or welfare or materially injurious to properties or improvements in the vicinity. [Ord. 2451, 12-2-96. Code 2001 § 151.163

**RESPONSE:** The proposed cul-de-sac length and number of homes served are not a detriment to the public health, safety or welfare nor materially injurious to properties in the vicinity. The proposed subdivision blends well with the adjoining neighborhoods of Dutchman Ridge and Gracie’s Landing.

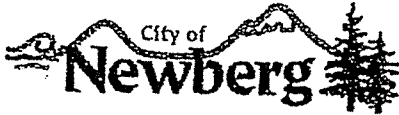
### SUMMARY

The Applicant has presented evidence to demonstrate with all applicable approval criteria for the requested subdivision and variances and respectfully requests approval of the application.



# EXHIBIT A

## Application Forms



TYPE III APPLICATION - 2017  
(QUASI-JUDICIAL REVIEW)

File #: SUB 317-0003

TYPES - PLEASE CHECK ONE:

- Annexation
- Comprehensive Plan Amendment (site specific)
- Zoning Amendment (site specific)
- Historic Landmark Modification/alteration
- Conditional Use Permit
- Type III Major Modification
- Planned Unit Development
- Other: (Explain) Tentative Subdivision Plan with Stream Core Overlay

APPLICANT INFORMATION:

APPLICANT: Del Boca Vista LLC  
 ADDRESS: 500 E Hancock St. Newberg, OR 97132  
 EMAIL ADDRESS: Jessica@dbvcorp.com  
 PHONE: 971-706-2058 MOBILE: 971-998-7507 FAX: \_\_\_\_\_  
 OWNER (if different from above): Robert E. Phillips, Jr. PHONE: 530 538-4808  
 ADDRESS: 25020 N. Valley Rd. Newberg, OR 97132  
 ENGINEER/SURVEYOR: Westlake Consultants PHONE: 503 684 0552  
 ADDRESS: 1515 SW Parkway, Ste 150, Tigard OR 97224

GENERAL INFORMATION:

PROJECT NAME: King's Landing Subdivision PROJECT LOCATION: 25300/25020/25240 N. Valley Rd., Newberg OR 97132  
 PROJECT DESCRIPTION/USE: 76 Lot Subdivision  
 MAP/TAX LOT NO. (i.e.3200AB-400): R3207-600-700-800 ZONE: R-1 SITE SIZE: 15.4 SQ. FT.  ACRE   
 COMP PLAN DESIGNATION: PQ TOPOGRAPHY: Fairly Flat  
 CURRENT USE: Agricultural  
 SURROUNDING USES:  
 NORTH: County EF-40 SOUTH: Schools District/CPRD R-1  
 EAST: Single Family Residence R-1 WEST: Single Family Residence R-1

SPECIFIC PROJECT CRITERIA AND REQUIREMENTS ARE ATTACHED

General Checklist:  Fees  Public Notice Information  Current Title Report  Written Criteria Response  Owner Signature

For detailed checklists, applicable criteria for the written criteria response, and number of copies per application type, turn to:

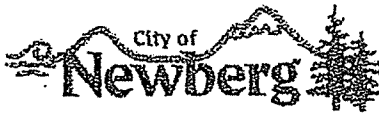
Annexation .....p. 15  
 Comprehensive Plan / Zoning Map Amendment (site specific) .....p. 19  
 Conditional Use Permit .....p. 21  
 Historic Landmark Modification/Alteration .....p. 23  
 Planned Unit Development .....p.26

The above statements and information herein contained are in all respects true, complete, and correct to the best of my knowledge and belief. Tentative plans must substantially conform to all standards, regulations, and procedures officially adopted by the City of Newberg. All owners must sign the application or submit letters of consent. Incomplete or missing information may delay the approval process.

[Signature] 11/21/17  
 Applicant Signature Date  
 Marc Willcuts  
 Print Name

[Signature] 11/21/17  
 Owner Signature Date  
 Robert E. Phillips, Jr.  
 Print Name

Attachments: General Information, Fee Schedule, Noticing Procedures, Planning Commission Schedule, Criteria, Checklists



TYPE III APPLICATION - 2017
(QUASI-JUDICIAL REVIEW)

File #: SUB 317-0003

TYPES - PLEASE CHECK ONE:

- Annexation
Comprehensive Plan Amendment (site specific)
Zoning Amendment (site specific)
Historic Landmark Modification/alteration
Conditional Use Permit
Type III Major Modification
Planned Unit Development
X Other: (Explain) Tentative Subdivision Plan with Stream Core Overlay

APPLICANT INFORMATION:

APPLICANT: Del Boca Vista LLC
ADDRESS: 500 E Hancock St. Newberg, OR 97132
EMAIL ADDRESS: jessica@dbvcorp.com
PHONE: 971-706-2058 MOBILE: 971-998-7507 FAX:
OWNER (if different from above): Melvin Taylor, Trustee of Melvin J. Taylor Revocable Trust PHONE: 530 559 4250
ADDRESS: 13705 Retrac Way, Grass Valley, CA 95949
ENGINEER/SURVEYOR: Westlake Consultants PHONE: 503 684 0552
ADDRESS: 1515 SW Parkway, Ste 150, Tigard OR 97224

GENERAL INFORMATION:

PROJECT NAME: King's Landing Subdivision PROJECT LOCATION: 25300/25020/25240 N. Valley Rd., Newberg OR 97132
PROJECT DESCRIPTION/USE: 78 Lot Subdivision
MAP/TAX LOT NO. (i.e. 3200AB-400): R3207-600-700-800 ZONE: R-1 SITE SIZE: 15.4 SQ. FT. ACRE
COMP PLAN DESIGNATION: PQ TOPOGRAPHY: Fairly Flat
CURRENT USE: Agricultural
SURROUNDING USES:
NORTH: County EF-40 SOUTH: Schools District/CPRD R-1
EAST: Single Family Residence R-1 WEST: Single Family Residence R-1

SPECIFIC PROJECT CRITERIA AND REQUIREMENTS ARE ATTACHED

General Checklist: Fees Public Notice Information Current Title Report Written Criteria Response Owner Signature

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Comprehensive Plan / Zoning Map Amendment (site specific) p. 19
Conditional Use Permit p. 21
Historic Landmark Modification/Alteration p. 23
Planned Unit Development p. 26

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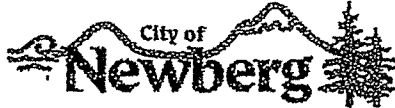
Marc Willcuts 11/20/17
Applicant Signature Date

Melvin Taylor 11/20/17
Owner Signature Date

Marc Willcuts
Print Name

Melvin Taylor, Trustee of the Melvin J. Taylor Trust
Print Name

Attachments: General Information, Fee Schedule, Noticing Procedures, Planning Commission Schedule, Criteria, Checklists



TYPE III APPLICATION - 2017
(QUASI-JUDICIAL REVIEW)

File #: SUB 2317-0003

TYPES -- PLEASE CHECK ONE:

- Annexation
Comprehensive Plan Amendment (site specific)
Zoning Amendment (site specific)
Historic Landmark Modification/alteration
Conditional Use Permit
Type III Major Modification
Planned Unit Development
X Other: (Explain) Tentative Subdivision Plan with Stream Core Overlay

APPLICANT INFORMATION:

APPLICANT: Del Boca Vista LLC
ADDRESS: 500 E Hancock St. Newberg, OR 97132
EMAIL ADDRESS: jessica@dbvcorp.com
PHONE: 971-706-2058 MOBILE: 971-898-7507 FAX:
OWNER (if different from above): Ruben Lucescu PHONE: 503 883-3125
ADDRESS: 25240 N. Valley Rd Newberg OR
ENGINEER/SURVEYOR: Westlake Consultants PHONE: 603 684 0552
ADDRESS: 1515 SW Parkway, Ste. 150; Tigard OR 97224

GENERAL INFORMATION:

PROJECT NAME: King's Landing Subdivision PROJECT LOCATION: 25300/25020/25240 N. Valley Rd., Newberg OR 97132
PROJECT DESCRIPTION/USE: 76 Lot Subdivision
MAP/TAX LOT NO. (i.e. 3200AB-400): R3207-600-700-800 ZONE: R-1 SITE SIZE: 16.4 SQ. FT. ACRE
COMP PLAN DESIGNATION: P2 TOPOGRAPHY: Fairly Flat
CURRENT USE: Agricultural
SURROUNDING USES:
NORTH: County EF-40 SOUTH: Schools District/CPRD R-1
EAST: Single Family Residence R-1 WEST: Single Family Residence R-1

SPECIFIC PROJECT CRITERIA AND REQUIREMENTS ARE ATTACHED

General Checklist: Fees Public Notice Information Current Title Report Written Criteria Response Owner Signature

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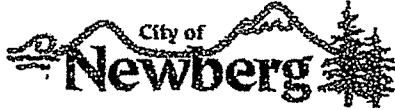
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Marc Willcuts
11/20/17
Applicant Signature Date
Print Name

Ruben Lucescu
11/20/17
Owner Signature Date
Print Name

Attachments: General Information, Fee Schedule, Noticing Procedures, Planning Commission Schedule, Criteria, Checklists



TYPE III APPLICATION - 2017
(QUASI-JUDICIAL REVIEW)

File #: SUB 317-0003

TYPES - PLEASE CHECK ONE:

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APPLICANT INFORMATION:

APPLICANT: Del Boca Vista LLC
ADDRESS: 500 E Hancock St. Newberg, OR 97132
EMAIL ADDRESS: jessica@dbvcorp.com
PHONE: 971-708-2058 MOBILE: 971-998-7507 FAX:
OWNER (if different from above): John Lucescu PHONE: 503 883-3125
ADDRESS: 25240 N. Valley Rd, Newberg OR
ENGINEER/SURVEYOR: Westlake Consultants PHONE: 503 684 0552
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PROJECT NAME: King's Landing Subdivision PROJECT LOCATION: 25300/25020/25240 N. Valley Rd., Newberg OR 97132
PROJECT DESCRIPTION/USE: 76 Lot Subdivision
MAP/TAX LOT NO. (i.e. 3200AB-400): R3207-600-700-800 ZONE: R-1 SITE SIZE: 15.4 SQ. FT. [ ] ACRE [ ]
COMP PLAN DESIGNATION: PQ TOPOGRAPHY: Fairly Flat
CURRENT USE: Agricultural
SURROUNDING USES:
NORTH: County EF-40 SOUTH: Schools District/CPRD R-1
EAST: Single Family Residence R-1 WEST: Single Family Residence R-1

SPECIFIC PROJECT CRITERIA AND REQUIREMENTS ARE ATTACHED

General Checklist: [ ] Fees [ ] Public Notice Information [ ] Current Title Report [ ] Written Criteria Response [ ] Owner Signature

For detailed checklists, applicable criteria for the written criteria response, and number of copies per application type, turn to:

Annexation .....p. 16
Comprehensive Plan / Zoning Map Amendment (site specific) .....p. 19
Conditional Use Permit .....p. 21
Historic Landmark Modification/Alteration .....p. 23
Planned Unit Development .....p.26

The above statements and information herein contained are in all respects true, complete, and correct to the best of my knowledge and belief. Tentative plans must substantially conform to all standards, regulations, and procedures officially adopted by the City of Newberg. All owners must sign the application or submit letters of consent. Incomplete or missing information may delay the approval process.

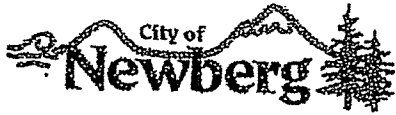
[Signature] 11/20/17
Applicant Signature Date

Marc Willcuts
Print Name

[Signature] 11/20/17
Owner Signature Date

John Lucescu
Print Name

Attachments: General Information, Fee Schedule, Noticing Procedures, Planning Commission Schedule, Criteria, Checklists



TYPE III APPLICATION - 2017 (QUASI-JUDICIAL REVIEW)

File #: Sub 317-0003

TYPES -- PLEASE CHECK ONE:

- Annexation
Comprehensive Plan Amendment (site specific)
Zoning Amendment (site specific)
Historic Landmark Modification/alteration
Conditional Use Permit
Type III Major Modification
Planned Unit Development
Other: (Explain) Tentative Subdivision Plan with Stream Core Overlay

APPLICANT INFORMATION:

APPLICANT: Del Boca Vista LLC
ADDRESS: 500 E Hancock St Newberg, OR 97132
EMAIL ADDRESS: jessica@dbvcorp.com
PHONE: 971-706-2058 MOBILE: 971-998-7507 FAX:
OWNER (if different from above): Georgeta Lucescu PHONE: 503 883 3125
ADDRESS: 25240 N. Valley Rd Newberg OR
ENGINEER/SURVEYOR: Westlake Consultants PHONE: 503 684 0552
ADDRESS: 1515 SW Parkway, Ste. 150; Tigard OR 97224

GENERAL INFORMATION:

PROJECT NAME: King's Landing Subdivision PROJECT LOCATION: 25300/25020/25240 N. Valley Rd., Newberg OR 97132
PROJECT DESCRIPTION/USE: 76 Lot Subdivision
MAP/TAX LOT NO. (i.e. 3200AB-400): R3207-600-700-800 ZONE: R-1 SITE SIZE: 15.4 SQ. FT. [ ] ACRE [ ]
COMP PLAN DESIGNATION: PQ TOPOGRAPHY: Fairly Flat
CURRENT USE: Agricultural
SURROUNDING USES:
NORTH: County EF-40 SOUTH: Schools District/CPRD R-1
EAST: Single Family Residence R-1 WEST: Single Family Residence R-1

SPECIFIC PROJECT CRITERIA AND REQUIREMENTS ARE ATTACHED

General Checklist: [ ] Fees [ ] Public Notice Information [ ] Current Title Report [ ] Written Criteria Response [ ] Owner Signature

For detailed checklists, applicable criteria for the written criteria response, and number of copies per application type, turn to:

Annexation .....p. 15
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Historic Landmark Modification/Alteration .....p. 23
Planned Unit Development .....p.28

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Applicant Signature: [Signature] Date: 11/20/17

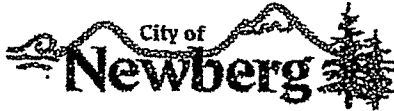
Owner Signature: Georgeta Lucescu Date: 11/20/17

Marc Willcuts
Print Name

Georgeta Lucescu
Print Name

Attachments: General Information, Fee Schedule, Noticing Procedures, Planning Commission Schedule, Criteria, Checklists





TYPE III APPLICATION - 2017  
(QUASI-JUDICIAL REVIEW)

File #: SUB 317-0003

TYPES - PLEASE CHECK ONE:

- Annexation
- Comprehensive Plan Amendment (site specific)
- Zoning Amendment (site specific)
- Historic Landmark Modification/alteration
- Conditional Use Permit
- Type III Major Modification
- Planned Unit Development
- Other: (Explain) Tentative Subdivision Plan with Stream Core Overlay

APPLICANT INFORMATION:

APPLICANT: Del Boca Vista LLC  
 ADDRESS: 500 E Hancock St. Newberg, OR 97132  
 EMAIL ADDRESS: Jessica@dbvcorp.com  
 PHONE: 971-706-2058 MOBILE: 971-998-7507 FAX: \_\_\_\_\_  
 OWNER (if different from above): Jenna Marie Lucescu PHONE: 503 883-3125  
 ADDRESS: 25240 N. Valley Rd Newberg  
 ENGINEER/SURVEYOR: Westlake Consultants PHONE: 503 884 0552  
 ADDRESS: 1515 SW Parkway, Ste 150, Tigard OR 97224

GENERAL INFORMATION:

PROJECT NAME: King's Landing Subdivision PROJECT LOCATION: 25300/25020/25240 N. Valley Rd., Newberg OR 97132  
 PROJECT DESCRIPTION/USE: 76 Lot Subdivision  
 MAP/TAX LOT NO. (i.e. 3200AB-400): R3207-600-700-800 ZONE: R-1 SITE SIZE: 15.4 SQ. FT.  ACRE   
 COMP PLAN DESIGNATION: PQ TOPOGRAPHY: Fairly Flat  
 CURRENT USE: Agricultural  
 SURROUNDING USES:  
 NORTH: County EF-40 SOUTH: Schools District/CPRD R-1  
 EAST: Single Family Residence R-1 WEST: Single Family Residence R-1

SPECIFIC PROJECT CRITERIA AND REQUIREMENTS ARE ATTACHED

General Checklist:  Fees  Public Notice Information  Current Title Report  Written Criteria Response  Owner Signature

For detailed checklists, applicable criteria for the written criteria response, and number of copies per application type, turn to:

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 Comprehensive Plan / Zoning Map Amendment (site specific) .....p. 19  
 Conditional Use Permit .....p. 21  
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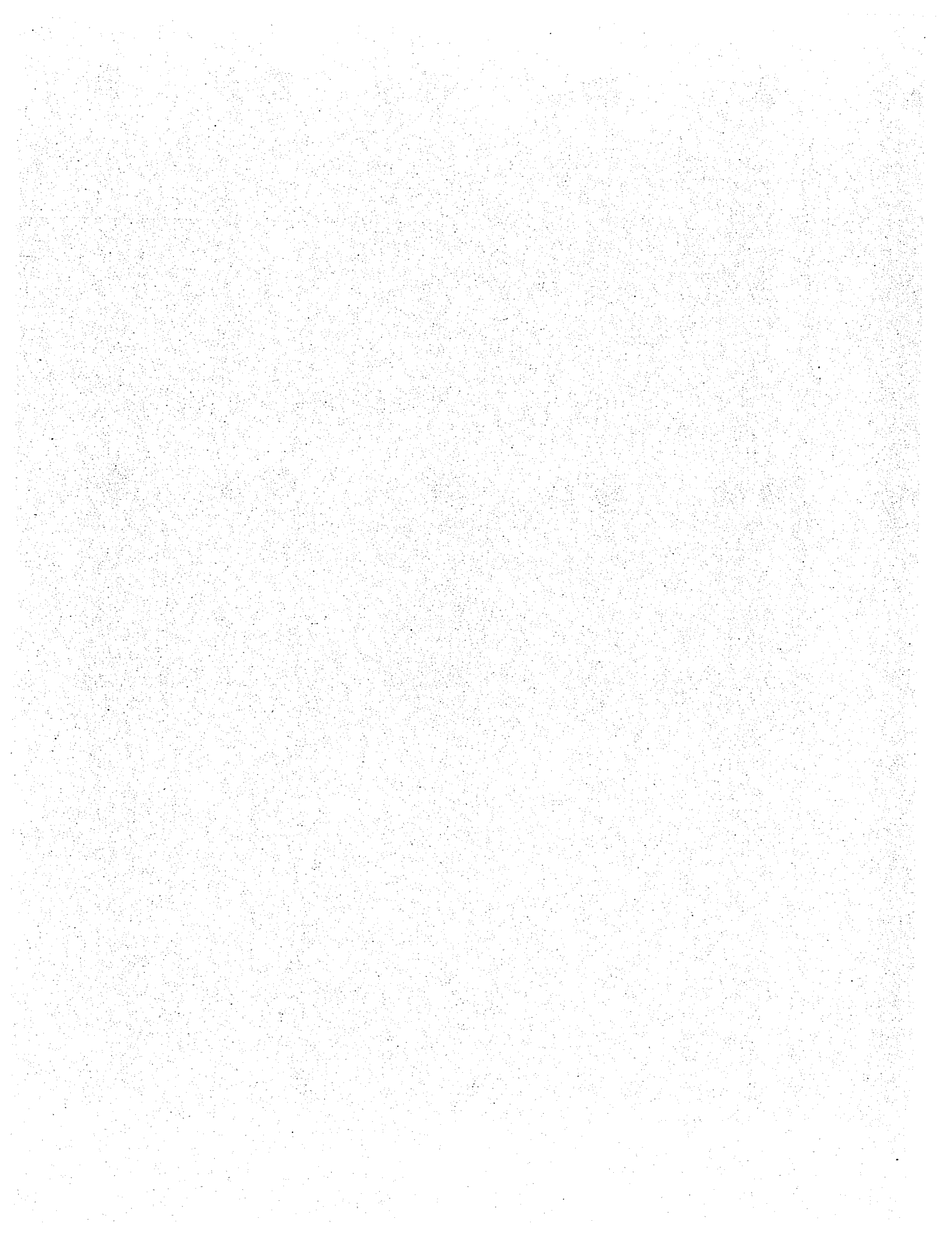
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 Applicant Signature Date

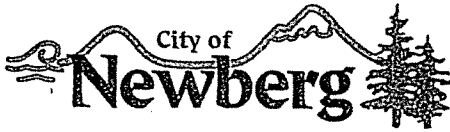
[Signature] 11/20/17  
 Owner Signature Date

Marc Willcuts  
Print Name

Jenna Marie Lucescu  
Print Name

Attachments: General Information, Fee Schedule, Noticing Procedures, Planning Commission Schedule, Criteria, Checklists





# TYPE II APPLICATION (LAND USE) -- 2017

File #: \_\_\_\_\_

**TYPES – PLEASE CHECK ONE:**

- Design review
- Tentative Plan for Partition
- Tentative Plan for Subdivision
- Type II Major Modification
- Variance Block Length, Block Perimeter, Cul De Sac Lengths
- Other: (Explain) \_\_\_\_\_

**APPLICANT INFORMATION:**

APPLICANT: Del Boca Vista LLC

ADDRESS: 500 E. Hancock Newberg, OR 97132

EMAIL ADDRESS: jessica@dbvcorp.com

PHONE: 971-281-8073 MOBILE: 971-998-7507 FAX: \_\_\_\_\_

OWNER (if different from above): See attached signature page PHONE: See attachment

ADDRESS: See attachment

ENGINEER/SURVEYOR: Westlake Consultants PHONE: 503-684-0652

ADDRESS: 15115 SW Sequoia Parkway, Ste. 150; Tigard, OR 97224

**GENERAL INFORMATION:**

PROJECT NAME: King's Landing PROJECT LOCATION: 25300, 25020, 25240 North Valley Rd.; Newberg, OR 97132

PROJECT DESCRIPTION/USE: 76 Lot Subdivision PROJECT VALUATION: \_\_\_\_\_

MAP/TAX LOT NO. (i.e. 3200AB-400): R3207- 600-700-800 ZONE: R-1 SITE SIZE: 15.4 SQ. FT.  ACRE

COMP PLAN DESIGNATION: PQ TOPOGRAPHY: Fairly Flat

CURRENT USE: Agricultural

SURROUNDING USES:

NORTH: County EF-40 SOUTH: School District/CPRD R-1

EAST: Single Family Residence R-1 WEST: Single Family Residence R-1

**SPECIFIC PROJECT CRITERIA AND REQUIREMENTS ARE ATTACHED**

General Checklist:  Fees  Public Notice Information  Current Title Report  Written Criteria Response  Owner Signature

For detailed checklists, applicable criteria for the written criteria response, and number of copies per application type, turn to:

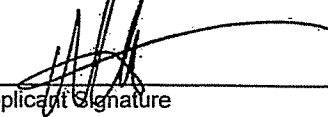
Design Review .....p. 12

Partition Tentative Plat .....p. 14

Subdivision Tentative Plat .....p. 17

Variance Checklist .....p. 20

The above statements and information herein contained are in all respects true, complete, and correct to the best of my knowledge and belief. Tentative plans must substantially conform to all standards, regulations, and procedures officially adopted by the City of Newberg. All owners must sign the application or submit letters of consent. Incomplete or missing information may delay the approval process.

 \_\_\_\_\_  
 Applicant Signature Date May 2, 2018

Owner Signature \_\_\_\_\_ Date \_\_\_\_\_

Marc Willcuts  
Print Name

See attached signature page  
Print Name

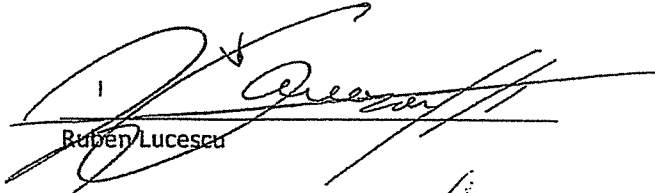
Attachments: General Information, Fee Schedule, Criteria, Checklists

MELVIN TAYLOR  
ADDRESS: 13705 Retrac Way Grass Valley, CA 95949  
TELEPHONE No. : 530. 559.4250

---

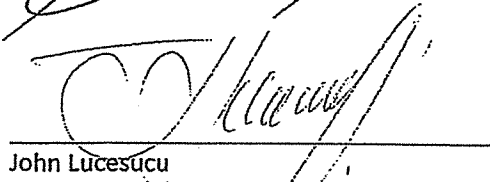
Melvin Taylor, Trustee of Melvin J. Taylor Trust

LUCESCU 25240  
ADDRESS: 2540 NORTH VALLEY ROAD, NEWBERG, OR 97132  
TELEPHONE NO.: 503.883.3125



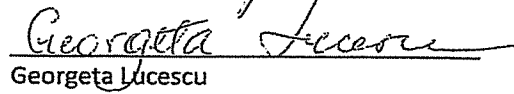
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Ruben Lucescu



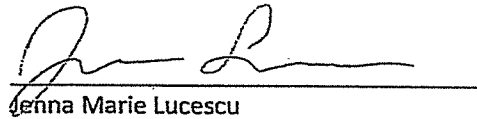
---

John Lucescu



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Georgeta Lucescu



---

Jenna Marie Lucescu

ROBERT PHILLIPS  
25020 NORTH VALLEY ROAD, NEWBERG, OR 97132  
TELEPHONE NO.: 503.538.4808

---

Robert E. Phillips

MELVIN TAYLOR  
ADDRESS: 13705 Retrac Way Grass Valley, CA 95949  
TELEPHONE No. : 530. 559.4250

---

Melvin Taylor, Trustee of Melvin J. Taylor Trust

LUCESCU  
ADDRESS: 2540 NORTH VALLEY ROAD, NEWBERG, OR 97132  
TELEPHONE NO.: 503.883.3125

---

Ruben Lucescu

---

John Lucescu

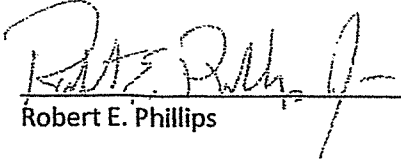
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Georgeta Lucescu

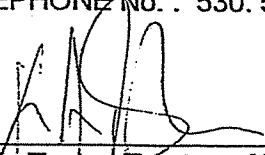
---

Jenna Marie Lucescu

ROBERT PHILLIPS  
25020 NORTH VALLEY ROAD, NEWBERG, OR 97132  
TELEPHONE NO.: 503.538.4808

  
Robert E. Phillips

ADDRESS: 13705 Retrac Way Grass Valley, CA 95949  
TELEPHONE No. : 530.559.4250



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ADDRESS: 2540 NORTH VALLEY ROAD, NEWBERG, OR 97132  
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---

Ruben Lucescu

---

John Lucescu

---

Georgeta Lucescu

---

Jenna Marie Lucescu

ROBERT PHILLIPS  
25020 NORTH VALLEY ROAD, NEWBERG, OR 97132  
TELEPHONE NO.: 503.538.4808

---

Robert E. Phillips



EXHIBIT B  
Tentative Plan



## EXHIBIT C

# Stormwater Drainage Report



# MEMO

From: Daniel Danicic, PE  
971-281-8074  
[dan@dbvcorp.com](mailto:dan@dbvcorp.com)



Date: 4/20/18

Re: Stream Corridor Development Plan

---

**NEED:** Two pedestrian walkways through the stream corridor are needed to comply with the block perimeter code.

**EXISTING CONDITIONS:**

The site plan is shown in Figure 1. Indicated on the plan are boundaries for identified wetlands, brush line and stream corridor. Following are photos of the proposed crossing locations.

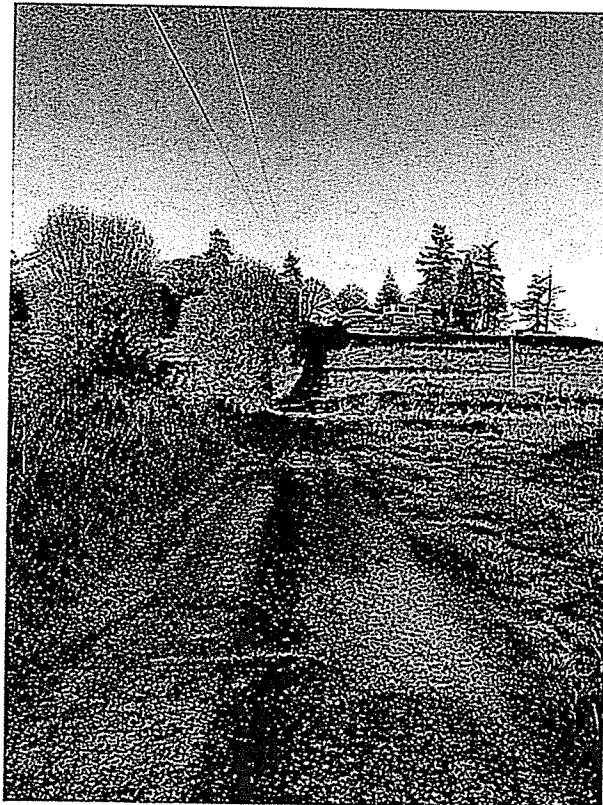
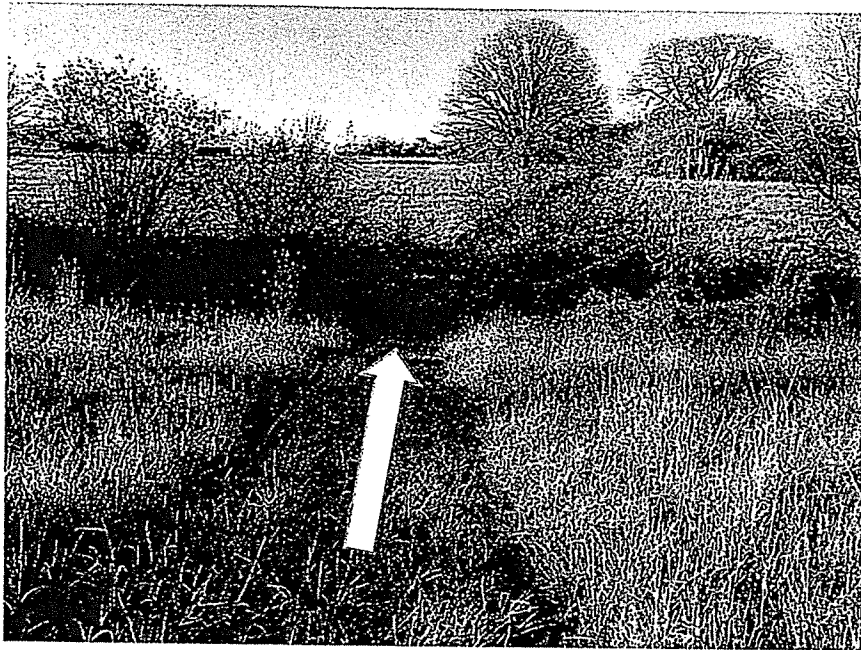


PHOTO A

Looking south at existing path through the Stream Corridor is gravel driveway passing over a culvert.



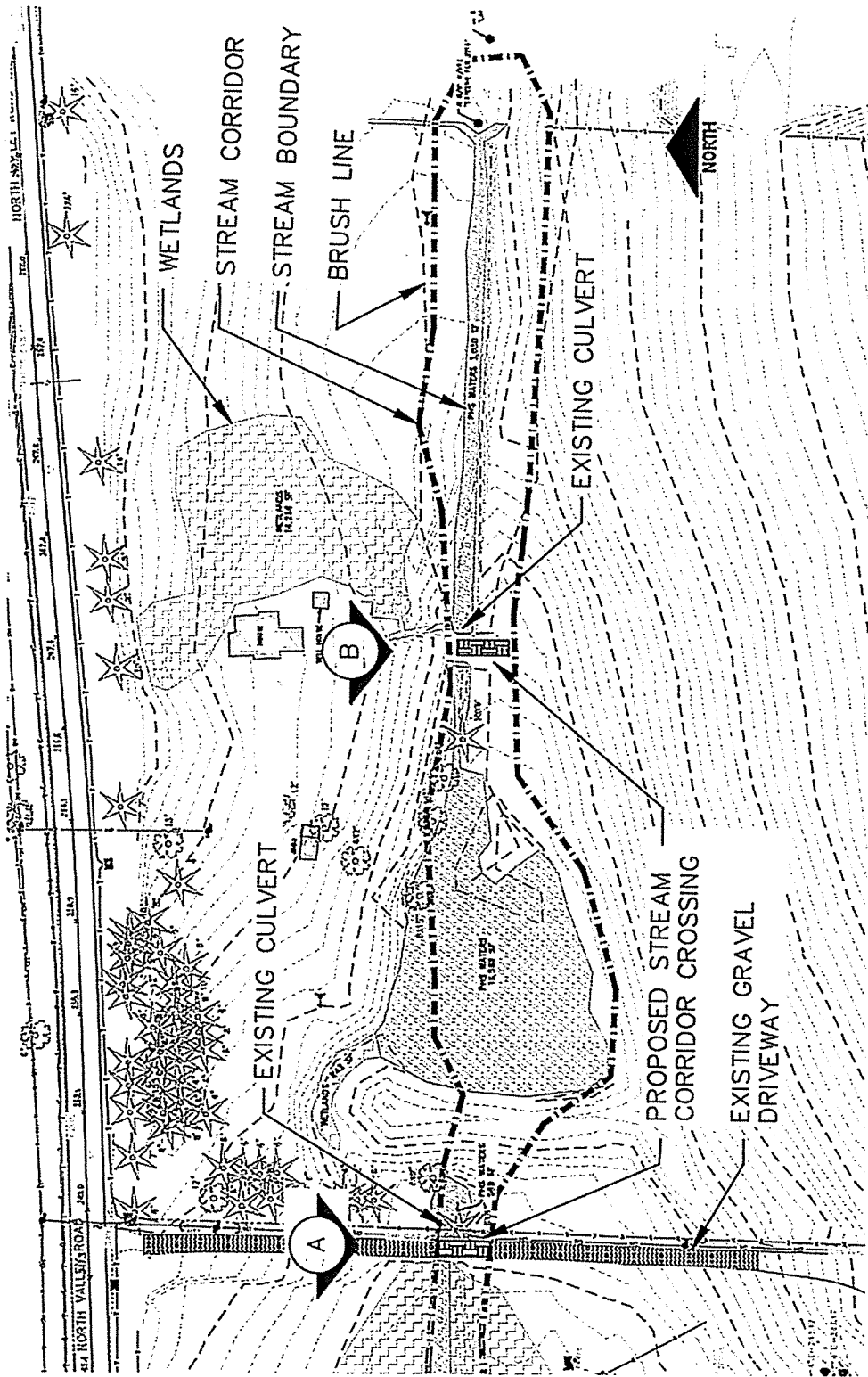
## PHOTO B

Looking south at existing path through the Stream Corridor is grass covered passing over a culvert.

### **PROPOSED DEVELOPMENT PLAN:**

To facilitate pedestrian crossings through the stream corridor that are also ADA compliant, 10-foot wide concrete paths will be constructed meeting City of Newberg Public Works standards. No significant trees or wetlands will be affected.

Details of the construction, erosion control and landscaping will be prepared and submitted for approval with the subdivision plans for Public Works Permit Application .



**FIGURE 1**



## EXHIBIT D

# Wetlands Analysis



# Oregon

Kate Brown, Governor

Department of State Lands

775 Summer Street NE, Suite 100

Salem, OR 97301-1279

(503) 986-5200

FAX (503) 378-4844

[www.oregon.gov/dsl](http://www.oregon.gov/dsl)

State Land Board

Kate Brown

Governor

January 11, 2018

Del Boca Vita  
Attn: Jessica Cain  
500 E. Hancock  
Newberg, OR 97132

Re: WD # 2017-0505 Wetland Delineation Report for Dutchman Ridge  
Yamhill County; T3S R2W Sec. 7, TL 600, 700, 800

Dennis Richardson  
Secretary of State

Dear Ms. Cain:

Tobias Read

State Treasurer

The Department of State Lands has reviewed the wetland delineation report prepared by Pacific Habitat Services for the site referenced above. Based upon the information presented in the report, we concur with the wetland and waterway boundaries as mapped in revised Figure 6 of the report. Please replace all copies of the preliminary wetland map with this final Department-approved map.

Within the study area, six wetlands, (A to F totaling approximately 2.96 acres) and a tributary to Chehalem Creek were identified. The wetlands and tributary are subject to the permit requirements of the state Removal-Fill Law. Under current regulations, a state permit is required for cumulative fill or annual excavation of 50 cubic yards or more in the wetlands or below the ordinary high water line (OHWL) of the waterway (or the 2 year recurrence interval flood elevation if OHWL cannot be determined).

This concurrence is for purposes of the state Removal-Fill Law only. Federal or local permit requirements may apply as well. The Army Corps of Engineers will review the report and make a determination of jurisdiction for purposes of the Clean Water Act at the time that a permit application is submitted. We recommend that you attach a copy of this concurrence letter to both copies of any subsequent joint permit application to speed application review.

Please be advised that state law establishes a preference for avoidance of wetland impacts. Because measures to avoid and minimize wetland impacts may include reconfiguring parcel layout and size or development design, we recommend that you work with Department staff on appropriate site design before completing the city or county land use approval process.

This concurrence is based on information provided to the agency. The jurisdictional determination is valid for five years from the date of this letter unless new information necessitates a revision. Circumstances under which the Department may change a determination are found in OAR 141-090-0045 (available on our web site or upon request). In addition, laws enacted by the legislature and/or rules adopted by the

to the regulations that are in effect at the time of the removal-fill activity or complete permit application. The applicant, landowner, or agent may submit a request for reconsideration of this determination in writing within six months of the date of this letter.

Thank you for having the site evaluated. Please phone me at 503-986-5246 if you have any questions.

Sincerely,



Chris Stevenson  
Jurisdiction Coordinator

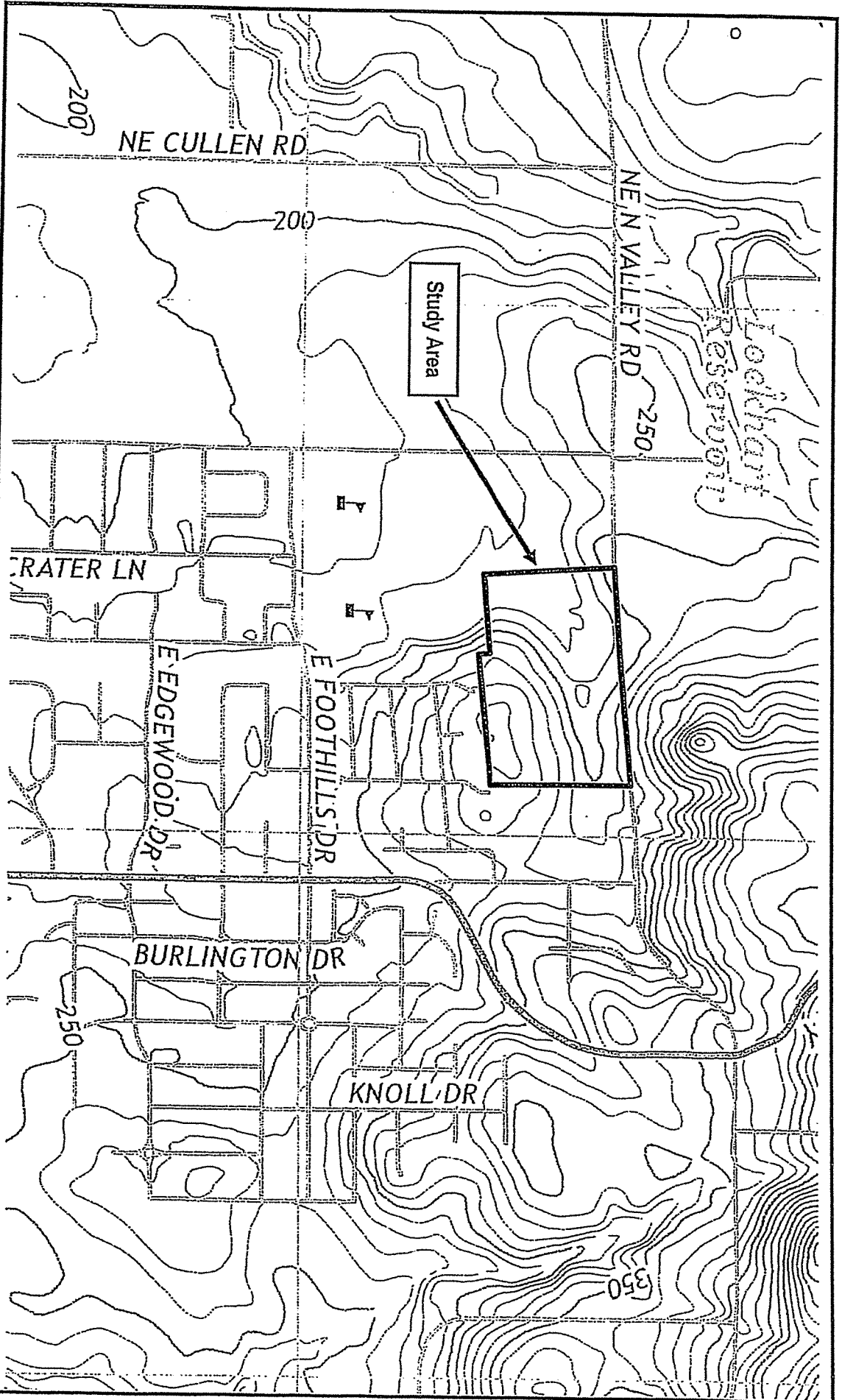
Approved by



Kathy Verble, CPSS  
Aquatic Resource Specialist

Enclosures

ec: John van Staveren, Pacific Habitat Services  
City of Newberg Planning Department (Maps enclosed for updating LWI)  
Kinsey Friesen, Corps of Engineers  
Michael DeBlasi, DSL



#5980  
 1/17/2017  
 Pacific Habitat Services, Inc.  
 9450 SW Commerce Circle, Suite 180  
 Wilsonville, OR 97070

General Location and Topography  
 Dutchman's Ridge Development - Newberg, Oregon  
 United States Geological Survey (USGS), Newberg, Oregon, 7.5 Quadrangle, 2014  
 (viewer/nationalmap.gov/basic)

FIGURE  
 1

3 2 07



ASSESSMENT & TAX  
CARTOGRAPHY

SECTION 7 T3S. R.2W. W1A.  
YAMHILL COUNTY OREGON  
1" = 400'

COUNTY	SECTION	TOWNSHIP	RANGE	W1A
1	1	1	1	1
1	2	1	1	1
1	3	1	1	1
1	4	1	1	1
1	5	1	1	1
1	6	1	1	1
1	7	1	1	1
1	8	1	1	1
1	9	1	1	1
1	10	1	1	1
1	11	1	1	1
1	12	1	1	1
1	13	1	1	1
1	14	1	1	1
1	15	1	1	1
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DATE PRINTED: 10/27/2010

3 2 07

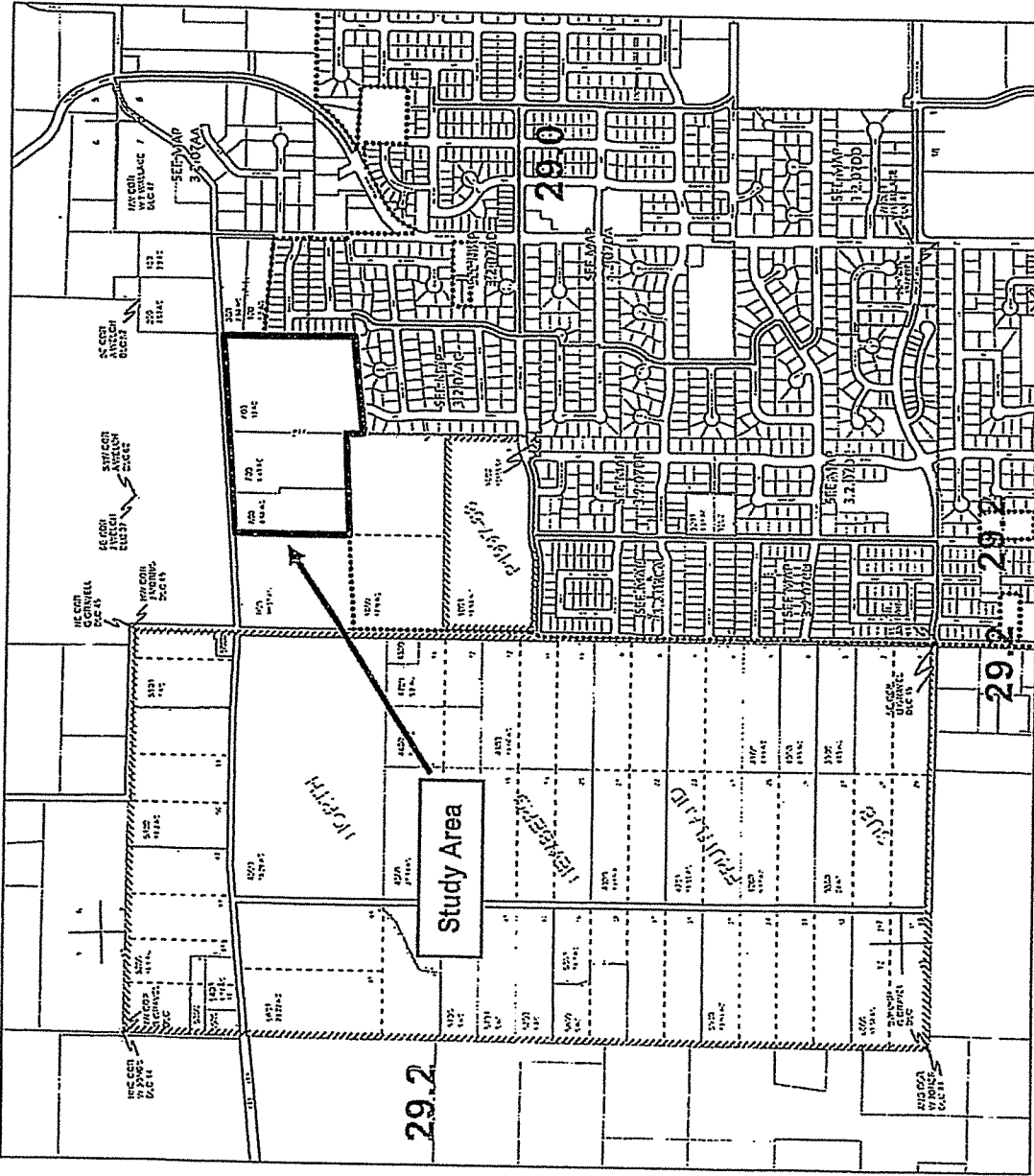


FIGURE  
2

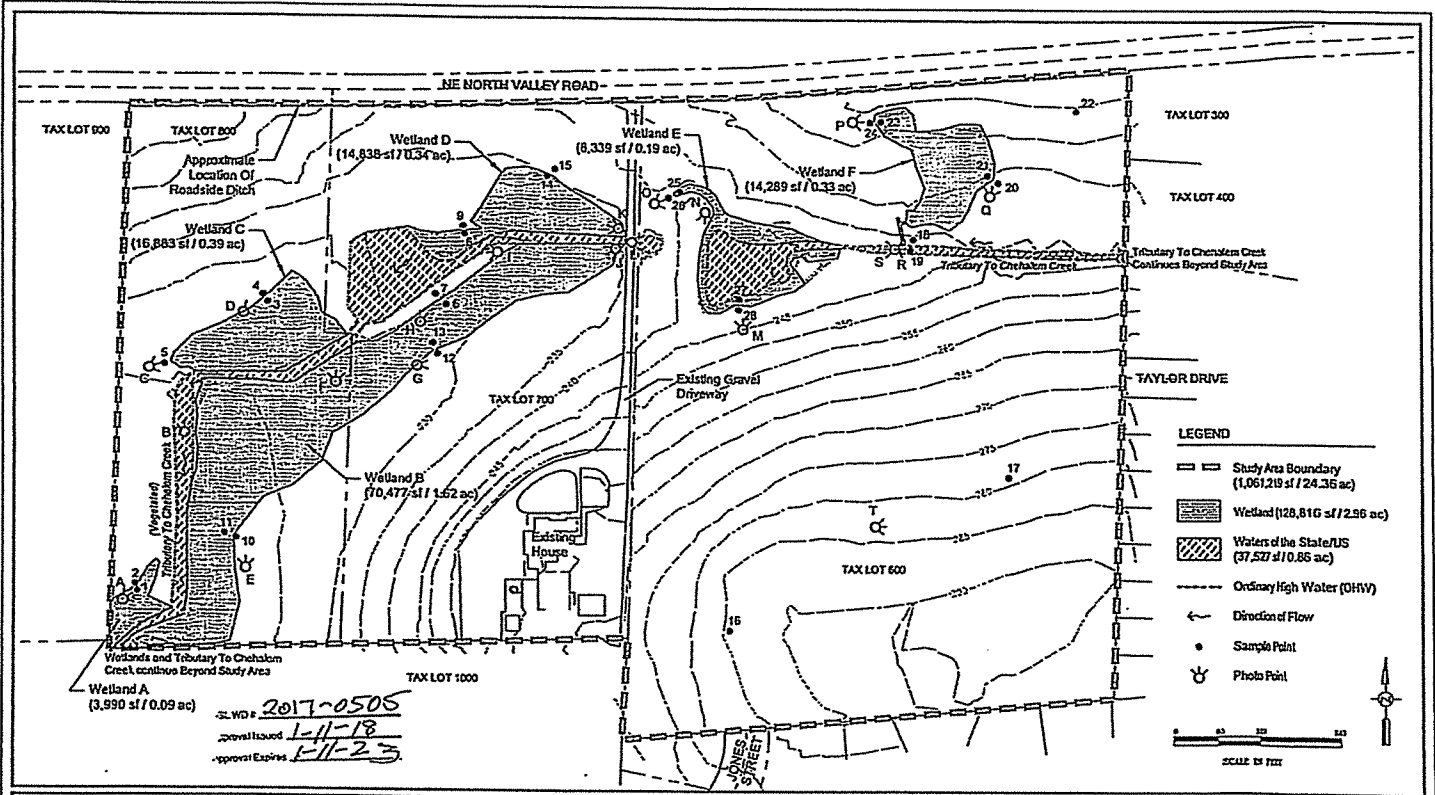
Tax Lot Map  
Dutchman's Ridge Development - Newberg, Oregon  
The Oregon Map (ormap.net)

#5980  
1/17/2017



Pacific Habitat Services, Inc.  
9450 SW Commerce Circle, Suite 100  
Wilsonville, OR 97070





Survey provided by Westlake Consultants.  
 Survey and Sample points 1-4, 6-11 and 14-15 are  
 sub-centimeter. Accuracy of the remaining Sample  
 points is ± 3 feet.

Wetland Delineation **FIGURE 6**  
 Dulchman's Ridge Development - Newberg, Oregon

X:\Projects\Development\13020\13020-Dulchman's Ridge\13020-Dulchman's Ridge\13020-Dulchman's Ridge.dwg, 1/4/2018 4:30:27 PM, CALDWELL



EXHIBIT E  
Traffic Study

**Revised**  
**Traffic Impact Analysis**  
**Kings Landing**

in  
Newberg, Oregon

April 5, 2017

completed with  
Del Boca Vista, LLC  
Newberg, Oregon

Prepared by:  
Associated Transportation Engineering & Planning, Inc.  
Salem, Oregon  
April 6, 2018  
ATEP 17-367



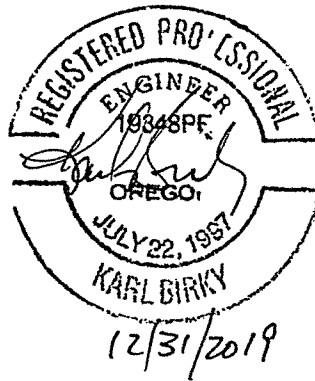
A.T.E.P., Inc.  
1155 13th St. S.E.  
Salem, OR. 97302

Tel.: 503-364-5066  
FAX: 503-364-1260  
e-mail: kbirky@atepinc.com

# Revised Traffic Impact Analysis Kings Landing

in  
Newberg, Oregon

April 5, 2017



completed with  
Del Boca Vista, LLC  
Newberg, Oregon

*Mitigation  
analysis see  
on the last 8  
page of Appendix*

Prepared by:  
Associated Transportation Engineering & Planning, Inc.  
Salem, Oregon  
April 6, 2018  
ATEP 17-367



A.T.E.P., Inc.  
1155 13th St. S.E.  
Salem, OR. 97302

Tel.: 503-364-5066  
FAX: 503-364-1260  
e-mail: kbirky@atepinc.com

## Table of Contents

Introduction:.....2  
Summary of Findings:.....2  
History, Existing Conditions and Background Traffic: .....3  
Traffic Conditions when Kings Landing is Complete: .....5  
Future (2033) Traffic Conditions:.....7  
Summary: .....8

## Figures

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Figure 2 - ODOT Reported Crash Data 2011-2015 .....3  
Figure 3 - Existing & Background Traffic Conditions.....4  
Figure 4 – 2018 Traffic Conditions with Kings Landing.....6  
Figure 5 – 2033 Traffic Conditions with Kings Landing.....8

## Appendices

Turning Movement Counts and Crash Data

Computer Modeling Printouts

Mitigation Modeling Printouts

# Revised Traffic Impact Analysis Kings Landing Newberg, Oregon



## Introduction:

Del Boca Vista intends to develop 76 single family home lots in three phases on a portion of tax lot 600 and tax lots 700 and 800 of tax map 3S2WSec07 in Newberg, Oregon in the proposed Kings Landing Subdivision. The site is south of North Valley Road, at the east end of the Gracies Landing Subdivision. Phases 1 and 2 (54 lots) will be developed with access to North Valley Rd and Barbara's Way. Phase 3 (20 lots) will be accessed from Taylor Dr extended to the west.

Residents of Kings Landing will use the Newberg transportation system and add traffic to the roadways. This analysis will consider the impacts of additional traffic at the intersections of

- Chehalem Dr at Foothills Dr
- N Valley Rd at Chehalem Dr
- N Valley Rd at Hwy 219
- Hwy 219 at Terrace Dr
- Hwy 219 at Foothills Dr
- Foothills Dr at Main St
- Bruce Dr at N Valley Rd
- West access onto Chehalem Dr
- East (Kings Landing) access onto N Valley Rd



Figure 1 - Vicinity Map

## Summary of Findings:

The 76 single family homes in the Kings Landing will generate an estimated 724 trips each day. 57 of the trips will be in the AM Peak hour and 76 trips will be in the PM Peak hour.

The intersection of Hwy 219 at Foothills Dr will be functioning at LOS F with the existing traffic and anticipated traffic from Gracie's Landing and Dutchman Ridge (background traffic) in the AM Peak traffic period. The v/c is 0.705. There are discussions to signalize the intersection in the future, restoring the performance metric to City of Newberg performance standards.

The intersection of Hwy 219 at N Valley Rd is functioning at LOS E with v/c 0.433 (AM) and 0.324 (PM). The WBLT turning movement is experiencing extended delays. The addition of a WBLT lane would provide relief at the intersection, but the City will want to continue monitoring the performance as the City expands in the future.

The other studied intersections will all function within accepted standards with traffic from Kings Landing. The City and State should continue to monitor the performance metrics at the intersection of

Hwy 219 at N Valley Rd. Improvements will be needed in the future if traffic volumes continue to increase as expected. The performance metrics when the single family homes (existing and background) are occupied in 2018 at the studied intersections are shown in Figure 3.

Crash data from ODOT Crash Data Unit shows there have been 11 reported crashes at the N Valley at Hwy 219 intersection in the 5 year period from 2011 to 2015. None of them were fatal.

	Fatal	Injury	Property Damage	Total
<b>Chehalem Dr at Foothills Dr</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
N Valley Rd at Chehalem Dr	0	6	0	6
N Valley Rd at Hwy 219	0	6	5	11
Hwy 219 at Foothills Dr	0	1	4	5
Foothills Dr at Main St	0	0	0	0

**Figure 2 - ODOT Reported Crash Data 2011-2015**

The "2015 Safety at Intersections in Oregon - A Preliminary Update of Statewide Intersection Crash Rates" by Hazel found an average of 0.434 crashes per million entering vehicles at rural 4 legged stop controlled intersections with a standard deviation of 0.534. Assuming that 10% of the daily traffic at the intersection of Hwy 219 at North Valley Rd occurs in the PM Peak hour and that there were 988 vehicles counted at the intersection in the PM Peak hour for this study, one can find the crash rate was 0.61 crashes per million entering vehicles over the past 5 years. There were no fatal crashes. The crash rate is less than one standard deviation above the mean.

### **History, Existing Conditions and Background Traffic:**

The site has been farmland in the recent past and has been annexed into the City. The site is zoned Single Family Residential (R-1). Traffic from the planned single family homes will travel east/west on Taylor Dr and N Valley Rd and north/south on Jones St and Chehalem Dr to access the transportation system. The studied intersections are TWSC (two way stop controlled) with the exception of Main St at Foothills which is AWSC (all way stop controlled). This study will assume that Hwy 219 is a commuter roadway and will adjust the turning movement counts up 9.5% (x 1.095) (1.0016/0.9149) to estimate the 30 HV (30th highest hourly annual volume) at the intersections. Turning movement counts for this analysis were completed in November 2017 at the studied intersections and are included in the appendix.

Contractors are building Gracies Landing in the SE quadrant of Chehalem Dr at N Valley Rd. Traffic from Gracies Landing will be considered background traffic. Dutchman Ridge Subdivision is located west of the end of Taylor Dr. and is in the planning process. Traffic from Dutchman Ridge will also be considered background traffic.. There will be 52 single family homes in Gracie's Landing and 46 homes in Dutchman Ridge when they are constructed. The Institute of Transportation Engineers (ITE) Trip Generation Manual estimates a single family home generates 9.52 trips each day. 0.75 trips in the AM Peak hour and 1.00 trips in the PM Peak hour. The 76 single family homes in the Kings Landing will generate an estimated 724 trips each day. 57 of the trips will be in the AM Peak hour and 76 trips will be in the PM Peak hour.

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	N Valley Rd at Chehalem Dr	Two-way stop	HCM 6th Edition	SB Thru	0.052	11.5	B
3	NE Terrace Dr at Hwy 219	Two-way stop	HCM 6th Edition	SB Left	0.048	14.8	B
4	N Valley Rd at Hwy 219	Two-way stop	HCM 6th Edition	WB Left	0.433	35.6	E
5	Chehalem Dr at Foothills Dr	Two-way stop	HCM 6th Edition	WB Left	0.258	13.7	B
6	Foothills Dr at Hwy 219	Two-way stop	HCM 6th Edition	WB Left	0.705	73.2	F
7	West Access at Chehalem Dr	Two-way stop	HCM 6th Edition	WB Left	0.033	9.4	A
10	Main at Foothills	Two-way stop	HCM 6th Edition	NB Left	0.286	18.8	C
13	N Valley Rd at Bruce Dr	Two-way stop	HCM 6th Edition	NB Left	0.000	10.0	A

## Existing &amp; Background AM Peak Hour Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	N Valley Rd at Chehalem Dr	Two-way stop	HCM 6th Edition	NB Thru	0.042	12.0	B
3	NE Terrace Dr at Hwy 219	Two-way stop	HCM 6th Edition	SB Left	0.018	18.4	C
4	N Valley Rd at Hwy 219	Two-way stop	HCM 6th Edition	WB Left	0.324	48.1	E
5	Chehalem Dr at Foothills Dr	Two-way stop	HCM 6th Edition	WB Left	0.065	10.2	B
6	Foothills Dr at Hwy 219	Two-way stop	HCM 6th Edition	WB Left	0.606	71.0	F
7	West Access at Chehalem Dr	Two-way stop	HCM 6th Edition	WB Left	0.022	9.5	A
10	Main at Foothills	Two-way stop	HCM 6th Edition	NB Left	0.057	11.9	B
13	N Valley Rd at Bruce Dr	Two-way stop	HCM 6th Edition	NB Left	0.000	10.4	B

## Existing &amp; Background PM Peak Hour Summary

**Figure 3 - Existing & Background Traffic Conditions**

The WBLT traffic at the Foothills at Hwy 219 intersection in the AM Peak hour has a v/c of 0.705 with existing and background traffic. While it meets ODOT's performance metrics, the City is in discussion with ODOT to signalize the intersection.

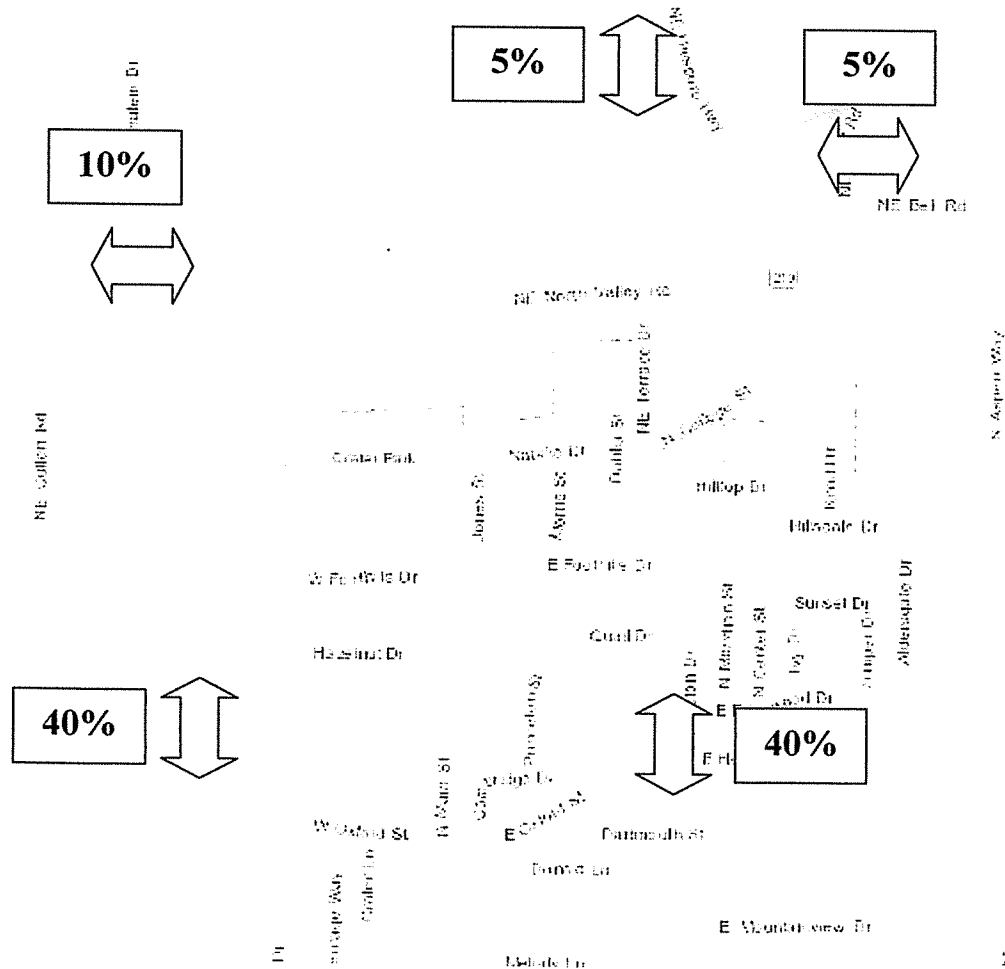


Traffic Conditions when Kings Landing is Complete:

Kings Landing will add 57 trips to the AM Peak hour traffic and 76 trips to the PM Peak hour traffic. This study will assume that 40% the traffic will travel north/south on Chehalem and 40% will travel north/south on College Ave south of Foothills, 5% will travel north/south on College Ave north of Foothills and 5% will travel east/west on Bell Rd and 10% will travel east/west on N Valley Rd west of the site. Background (expected) traffic from Gracie's Landing and Dutchman Ridge has been included in the computer model. The study assumes that traffic volumes will increase linearly 1% per year to estimate the 2033 performance metrics. Traffic volumes were increased 9.5% at the studied intersections to estimate the traffic volumes at the 30th HV time period using ODOT methodology.

There is not a significant change in the performance metrics of the studied intersections with traffic from Kings Landing added to the model. The LOS at the intersection of Foothills at Hwy 219 will continue to be F with v/c 0.725 (AM) and within ODOT standards.

400 LP



ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	N Valley Rd at Chehalem Dr	Two-way stop	HCM 6th Edition	NB Left	0.062	11.8	B
3	NE Terrace Dr at Hwy 219	Two-way stop	HCM 6th Edition	SB Left	0.056	15.1	C
4	N Valley Rd at Hwy 219	Two-way stop	HCM 6th Edition	WB Left	0.453	38.4	E
5	Chehalem Dr at Foothills Dr	Two-way stop	HCM 6th Edition	WB Left	0.294	14.7	B
6	Foothills Dr at Hwy 219	Two-way stop	HCM 6th Edition	WB Left	0.728	78.7	F
7	West Access at Chehalem Dr	Two-way stop	HCM 6th Edition	WB Left	0.047	9.6	A
10	Main at Foothills	Two-way stop	HCM 6th Edition	NB Left	0.292	19.2	C
12	KV Access at N Valley Rd	Two-way stop	HCM 6th Edition	NB Left	0.020	10.3	B
13	N Valley Rd at Bruce Dr	Two-way stop	HCM 6th Edition	NB Left	0.000	10.1	B

## 2018 AM Peak Hour Summary with Kings Landing

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	N Valley Rd at Chehalem Dr	Two-way stop	HCM 6th Edition	NB Thru	0.044	12.3	B
3	NE Terrace Dr at Hwy 219	Two-way stop	HCM 6th Edition	SB Left	0.018	18.8	C
4	N Valley Rd at Hwy 219	Two-way stop	HCM 6th Edition	WB Left	0.349	55.5	F
5	Chehalem Dr at Foothills Dr	Two-way stop	HCM 6th Edition	WB Left	0.079	10.6	B
6	Foothills Dr at Hwy 219	Two-way stop	HCM 6th Edition	WB Left	0.622	74.7	F
7	West Access at Chehalem Dr	Two-way stop	HCM 6th Edition	WB Left	0.031	9.7	A
10	Main at Foothills	Two-way stop	HCM 6th Edition	NB Left	0.059	12.1	B
12	KV Access at N Valley Rd	Two-way stop	HCM 6th Edition	NB Left	0.008	8.8	A
13	N Valley Rd at Bruce Dr	Two-way stop	HCM 6th Edition	NB Left	0.000	10.6	B

## 2018 PM Peak Hour Summary with Kings Landing

Figure 4 – 2018 Traffic Conditions with Kings Landing

The model for this study was run with mitigation alternatives at the Hwy 219 at Foothills and Hwy 219 at N Valley Rd intersections to recommend alternatives that will improve the performance at the intersections as traffic increases in the future. Printouts of the mitigation analysis are included in the Appendix on the last pages. It is noted that neither intersection is in the jurisdiction of the City of Newberg and the intersection of Hwy 219 at N Valley Rd is not in the City or the Urban Growth Boundary. Both intersections will function more efficiently when signalized. Signalization of Foothills at Hwy 219 and N Valley Rd at Hwy 219 is recommended.

### Future (2033) Traffic Conditions:

This study estimated traffic conditions in 16 years (2033) by assuming the existing turning movement counts increase 16% (x1.16). Performance metrics at Hwy 219 at N Valley Rd and Hwy 219 at Foothills Dr will continue to be of concern if improvements are not made or mitigation measures are not taken. Mitigation alternatives are included in the appendix to this analysis after the printouts of the various scenarios near the end of the appendix.

In 2033, it is expected that v/c ratio will be 1.202 in the AM Peak hour at Foothills at Hwy 219 if it is not improved, well above the performance metrics ODOT has established for intersections in its jurisdiction. N Valley Rd at Hwy 219 will function at LOS F with v/c ratios of 0.715 (AM) and 0.556 (PM). While signalization may be the preferred alternative, the v/c ratios at N Valley Rd at Hwy 219 are within the performance standards ODOT has established for this type of intersection. Adding a WBLT lane at the intersection would improve the performance of the intersection to some extent. Continuing monitoring the performance of the intersection is recommended.

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	N Valley Rd at Chehalem Dr	Two-way stop	HCM 6th Edition	NB Left	0.076	12.6	B
3	NE Terrace Dr at Hwy 219	Two-way stop	HCM 6th Edition	SB Left	0.071	16.8	C
4	N Valley Rd at Hwy 219	Two-way stop	HCM 6th Edition	WB Left	0.715	101.8	F
5	Chehalem Dr at Foothills Dr	Two-way stop	HCM 6th Edition	WB Left	0.352	16.5	C
6	Foothills Dr at Hwy 219	Two-way stop	HCM 6th Edition	WB Left	1.202	233.5	F
7	West Access at Chehalem Dr	Two-way stop	HCM 6th Edition	WB Left	0.049	9.7	A
10	Main at Foothills	Two-way stop	HCM 6th Edition	NB Left	0.394	24.3	C
12	KV Access at N Valley Rd	Two-way stop	HCM 6th Edition	NB Left	0.021	10.6	B
13	N Valley Rd at Bruce Dr	Two-way stop	HCM 6th Edition	NB Left	0.000	10.4	B

2033 AM Peak Hour Summary with Kings Landing

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	N Valley Rd at Chehalem Dr	Two-way stop	HCM 6th Edition	NB Thru	0.055	13.1	B
3	NE Terrace Dr at Hwy 219	Two-way stop	HCM 6th Edition	SB Left	0.023	22.2	C
4	N Valley Rd at Hwy 219	Two-way stop	HCM 6th Edition	WB Left	0.556	160.0	F
5	Chehalem Dr at Foothills Dr	Two-way stop	HCM 6th Edition	WB Left	0.091	11.0	B
6	Foothills Dr at Hwy 219	Two-way stop	HCM 6th Edition	WB Left	1.074	212.4	F
7	West Access at Chehalem Dr	Two-way stop	HCM 6th Edition	WB Left	0.032	9.8	A
10	Main at Foothills	Two-way stop	HCM 6th Edition	NB Left	0.074	12.8	B
12	KV Access at N Valley Rd	Two-way stop	HCM 6th Edition	NB Left	0.008	8.8	A
13	N Valley Rd at Bruce Dr	Two-way stop	HCM 6th Edition	NB Left	0.000	11.0	B

2033 PM Peak Hour Summary with Kings Landing

**Figure 5 – 2033 Traffic Conditions with Kings Landing****Summary:**

The development of 76 single family homes in the three phases of the planned Kings Landing subdivision in Newberg will add traffic to the transportation system. The intersection of Hwy 219 at Foothills Dr is functioning at LOS F with the existing and expected traffic from Gracie's Landing and Dutchman Ridge. The v/c is 0.705 during the AM Peak hour with the WBLT experiencing long delays. Signalization of the intersection and is the recommended mitigation.

N Valley Rd at Hwy 219 is functioning at LOS E in the PM Peak with existing and background traffic. It will function at LOS F (v/c 0.349) with Kings Landing. The v/c is well within ODOT performance metrics. Review of mitigation alternatives suggests signalization should be considered in the future. The crash rate at the intersection of N Valley at Hwy 219 is higher than the mean for rural 4 legged stop controlled intersections in Oregon, but less than one standard deviation above the mean.

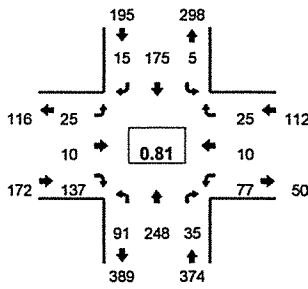
The other studied intersections will all function within accepted standards with traffic from Kings Landing. The City and State should continue to monitor the performance metrics at the intersections of Hwy 219 at Foothills and Hwy 219 at N Valley Rd. Improvements will be needed in the future if traffic volumes continue to increase as expected at these intersections.

Type of peak hour being reported: Intersection Peak

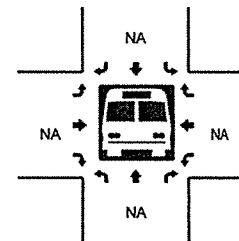
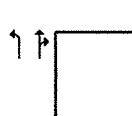
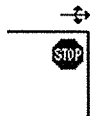
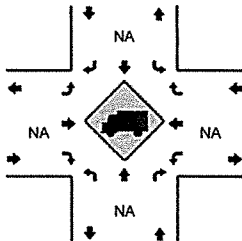
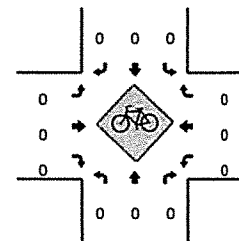
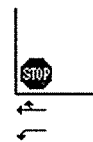
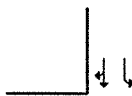
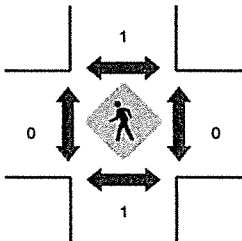
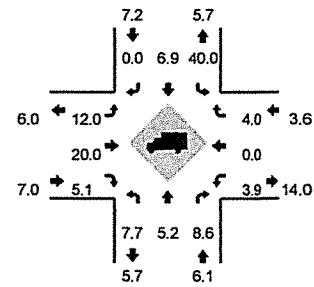
Method for determining peak hour: Total Entering Volume

LOCATION: N College St -- Foothills Dr  
CITY/STATE: Newberg, OR

QC JOB #: 14556409  
DATE: Thu, Nov 16 2017



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



5-Min Count Period Beginning At	N College St (Northbound)				N College St (Southbound)				Foothills Dr (Eastbound)				Foothills Dr (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	4	19	1	0	0	13	0	0	2	0	4	0	5	1	4	0	53	
7:05 AM	7	22	1	0	1	11	2	0	0	0	10	0	7	1	5	0	67	
7:10 AM	12	15	1	0	0	11	1	0	5	0	11	0	5	0	4	0	65	
7:15 AM	13	33	0	0	0	15	2	0	2	1	13	0	4	2	1	0	86	
7:20 AM	14	24	1	0	1	17	4	0	3	2	20	0	4	0	2	0	92	
7:25 AM	17	25	2	0	0	11	2	0	4	0	17	0	4	0	2	0	84	
7:30 AM	11	16	4	0	0	17	2	0	3	0	20	0	7	1	3	0	84	
7:35 AM	3	20	2	0	0	9	1	0	2	2	17	0	4	2	2	0	64	
7:40 AM	8	13	0	0	0	12	1	0	0	0	5	0	9	0	2	0	50	
7:45 AM	2	25	3	0	0	15	0	0	1	1	8	0	9	1	6	0	71	
7:50 AM	5	18	3	0	0	16	0	0	0	2	4	0	5	2	1	0	56	
7:55 AM	3	14	5	0	3	20	0	0	1	0	7	0	13	1	0	0	67	839
8:00 AM	6	15	4	0	0	9	2	0	1	1	8	0	6	1	3	0	56	842
8:05 AM	5	18	7	0	0	17	0	0	2	1	11	0	8	0	1	0	70	845
8:10 AM	4	27	4	0	1	17	1	0	6	0	7	0	4	0	2	0	73	853
8:15 AM	10	24	1	0	1	18	3	0	3	0	7	0	4	0	2	0	73	840
8:20 AM	12	23	5	0	0	19	1	0	2	0	9	0	8	1	3	0	83	831
8:25 AM	1	33	3	0	1	24	2	0	1	0	14	0	6	0	1	0	86	833
8:30 AM	5	19	5	0	1	24	2	0	1	1	14	0	7	1	1	0	81	830
8:35 AM	2	15	8	0	2	19	0	0	1	1	7	0	3	0	1	0	59	825
8:40 AM	4	6	2	0	3	16	0	0	2	1	5	0	5	0	0	0	44	819
8:45 AM	1	13	2	0	0	14	0	0	0	0	4	0	2	0	1	0	37	785
8:50 AM	5	15	2	0	1	17	0	0	0	0	5	0	5	0	0	0	50	779
8:55 AM	6	15	5	0	0	6	0	0	0	3	3	0	5	0	1	0	44	756
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	176	328	12	0	4	172	32	0	36	12	200	0	48	8	20	0	1048	
Heavy Trucks	4	16	4		0	12	0		4	0	12		0	0	0		52	
Pedestrians	0	0	0		0	0	0		0	0	0		0	0	0		0	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Railroad																		
Stopped Buses																		

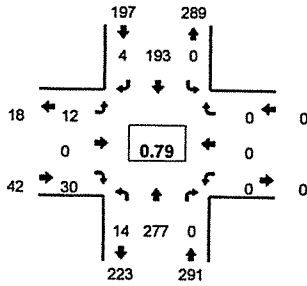
Comments:

Type of peak hour being reported: Intersection Peak

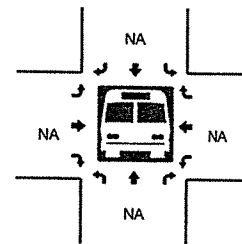
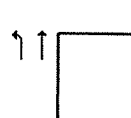
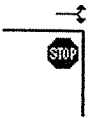
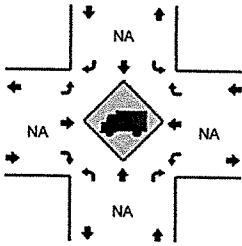
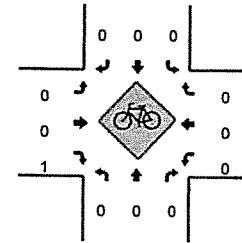
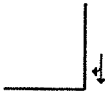
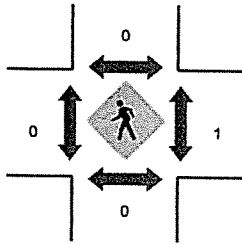
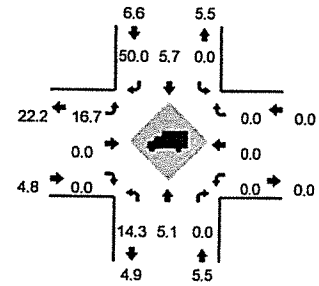
Method for determining peak hour: Total Entering Volume

LOCATION: N College St -- N Terrace Dr  
CITY/STATE: Newberg, OR

QC JOB #: 14556407  
DATE: Thu, Nov 16 2017



Peak-Hour: 7:35 AM -- 8:35 AM  
Peak 15-Min: 8:15 AM -- 8:30 AM



5-Min Count Period Beginning At	N College St (Northbound)				N College St (Southbound)				N Terrace Dr (Eastbound)				N Terrace Dr (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	1	25	0	0	0	5	0	0	0	0	6	0	0	0	0	0	37	
7:05 AM	1	26	0	0	0	10	0	0	0	2	0	5	0	0	0	0	44	
7:10 AM	1	22	0	0	0	10	0	0	0	0	0	3	0	0	0	0	36	
7:15 AM	0	35	0	0	0	17	0	0	0	0	0	1	0	0	0	0	53	
7:20 AM	1	30	0	0	0	15	0	0	0	1	0	4	0	0	0	0	51	
7:25 AM	2	28	0	0	0	12	0	0	0	3	0	3	0	0	0	0	48	
7:30 AM	0	23	0	0	0	15	1	0	0	0	0	2	0	0	0	0	41	
7:35 AM	0	22	0	0	0	8	1	0	0	3	0	3	0	0	0	0	37	
7:40 AM	2	15	0	0	0	10	2	0	0	1	0	3	0	0	0	0	33	
7:45 AM	2	28	0	0	0	9	0	0	0	0	0	5	0	0	0	0	44	
7:50 AM	4	16	0	0	0	15	0	0	0	2	0	4	0	0	0	0	41	
7:55 AM	0	16	0	0	0	18	0	0	0	0	0	4	0	0	0	0	38	503
8:00 AM	1	18	0	0	0	11	0	0	0	0	0	0	0	0	0	0	30	496
8:05 AM	3	18	0	0	0	14	0	0	0	0	0	4	0	0	0	0	39	491
8:10 AM	1	32	0	0	0	14	0	0	0	2	0	3	0	0	0	0	52	507
8:15 AM	0	28	0	0	0	19	0	0	0	0	0	2	0	0	0	0	49	503
8:20 AM	1	29	0	0	0	18	1	0	0	1	0	0	0	0	0	0	50	502
8:25 AM	0	35	0	0	0	32	0	0	0	1	0	0	0	0	0	0	68	522
8:30 AM	0	20	0	0	0	25	0	0	0	2	0	2	0	0	0	0	49	530
8:35 AM	2	15	0	0	0	14	0	0	0	1	0	4	0	0	0	0	36	529
8:40 AM	3	5	0	0	0	18	1	0	0	0	0	2	0	0	0	0	29	525
8:45 AM	1	13	0	0	0	12	0	0	0	0	0	1	0	0	0	0	27	508
8:50 AM	2	13	0	0	0	16	0	0	0	0	0	2	0	0	0	0	33	500
8:55 AM	1	14	0	0	0	6	0	0	0	2	0	0	0	0	0	0	23	485
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	4	368	0	0	0	276	4	0	8	0	8	0	0	0	0	0	668	
Heavy Trucks	0	20	0	0	0	8	4	0	0	0	0	0	0	0	0	0	32	
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Bicycles	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	
Railroad																		
Stopped Buses																		

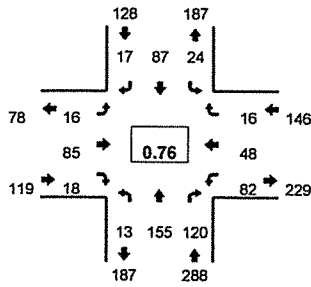
Comments:

Type of peak hour being reported: Intersection Peak

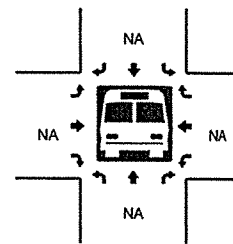
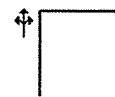
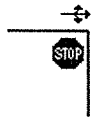
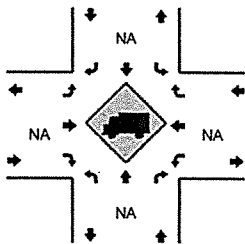
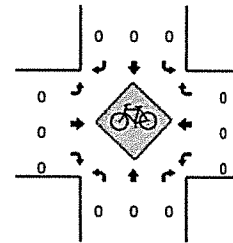
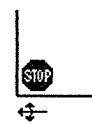
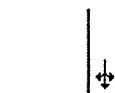
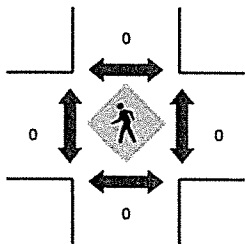
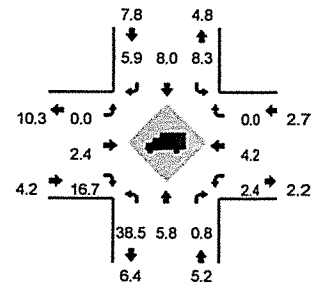
Method for determining peak hour: Total Entering Volume

LOCATION: N College St -- NE North Valley Rd/NE Bell Rd  
 CITY/STATE: Newberg, OR

QC JOB #: 14556405  
 DATE: Thu, Nov 16 2017



Peak-Hour: 7:35 AM -- 8:35 AM  
 Peak 15-Min: 8:15 AM -- 8:30 AM



5-Min Count Period Beginning At	N College St (Northbound)				N College St (Southbound)				NE North Valley Rd/NE Bell Rd (Eastbound)				NE North Valley Rd/NE Bell Rd (Westbound)				Total	Hourly Totals	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U			
7:00 AM	4	15	6	0	3	4	0	0	2	7	1	0	0	1	0	0	0	43	
7:05 AM	0	23	1	0	0	7	1	0	3	11	2	0	2	0	0	0	0	50	
7:10 AM	0	14	6	0	0	5	0	0	2	8	1	0	3	0	0	0	0	39	
7:15 AM	2	29	5	0	1	11	0	0	3	15	3	0	4	2	1	0	0	76	
7:20 AM	1	25	5	0	2	10	0	0	3	7	0	0	5	2	3	0	0	63	
7:25 AM	4	19	12	0	1	6	0	0	6	2	2	0	6	1	2	0	0	61	
7:30 AM	2	9	8	0	2	8	0	0	3	7	1	0	5	5	0	0	0	50	
7:35 AM	4	17	8	0	2	3	0	0	1	12	2	0	4	2	0	0	0	55	
7:40 AM	0	10	4	0	6	5	1	0	1	3	1	0	7	6	1	0	0	45	
7:45 AM	1	23	6	0	1	9	2	0	1	6	1	0	2	4	0	0	0	56	
7:50 AM	2	7	3	0	1	7	2	0	0	5	2	0	2	5	2	0	0	38	
7:55 AM	2	10	6	0	3	5	2	0	2	3	2	0	8	2	2	0	0	47	623
8:00 AM	1	9	7	0	0	6	3	0	4	6	1	0	1	6	0	0	0	44	624
8:05 AM	0	7	6	0	0	10	3	0	1	9	2	0	3	2	1	0	0	44	618
8:10 AM	1	16	13	0	5	7	1	0	1	8	0	0	6	7	3	0	0	68	647
8:15 AM	0	11	23	0	2	5	3	0	1	8	2	0	9	2	2	0	0	68	639
8:20 AM	0	10	21	0	1	6	0	0	2	9	2	0	12	5	1	0	0	69	645
8:25 AM	1	16	17	0	3	10	0	0	1	8	2	0	21	5	2	0	0	86	670
8:30 AM	1	19	6	0	0	14	0	0	1	8	1	0	7	2	2	0	0	61	681
8:35 AM	1	9	4	0	1	8	1	0	0	5	2	0	4	0	0	0	0	35	661
8:40 AM	0	6	0	0	1	12	1	0	2	1	3	0	3	1	1	0	0	31	647
8:45 AM	0	8	6	0	2	11	2	0	3	3	1	0	0	0	0	0	0	36	627
8:50 AM	0	8	4	0	1	10	5	0	1	7	2	0	6	4	1	0	0	49	638
8:55 AM	1	11	3	0	0	7	0	0	0	2	0	0	0	2	1	0	0	27	618
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total		
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U			
All Vehicles	4	148	244	0	24	84	12	0	16	100	24	0	168	48	20	0	0	892	
Heavy Trucks	4	16	0	0	4	8	0	0	0	0	0	0	4	0	0	0	0	36	
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Railroad	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Stopped Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

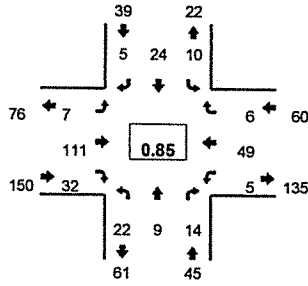
Comments:

Type of peak hour being reported: Intersection Peak

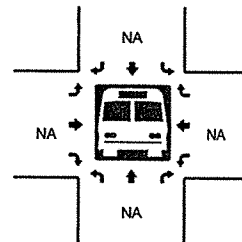
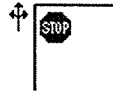
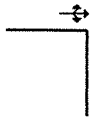
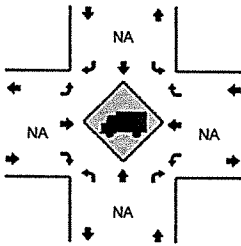
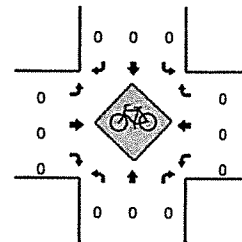
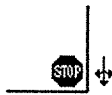
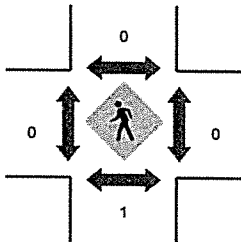
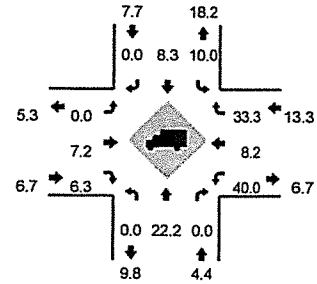
Method for determining peak hour: Total Entering Volume

LOCATION: NE Chehalis Dr -- NE North Valley Rd  
 CITY/STATE: Newberg, OR

QC JOB #: 14556403  
 DATE: Thu, Nov 16 2017



Peak-Hour: 7:05 AM -- 8:05 AM  
 Peak 15-Min: 7:05 AM -- 7:20 AM



5-Min Count Period Beginning At	NE Chehalis Dr (Northbound)				NE Chehalis Dr (Southbound)				NE North Valley Rd (Eastbound)				NE North Valley Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	1	0	0	3	0	0	0	0	6	0	0	1	3	0	0	14	
7:05 AM	1	0	2	0	1	2	0	0	0	14	6	0	1	1	0	0	28	
7:10 AM	1	5	3	0	0	2	0	0	0	16	5	0	0	0	0	0	32	
7:15 AM	2	1	0	0	0	2	1	0	1	16	1	0	0	2	0	0	26	
7:20 AM	1	0	2	0	1	6	0	0	1	8	4	0	0	3	1	0	27	
7:25 AM	2	0	1	0	1	3	0	0	2	6	4	0	0	2	0	0	21	
7:30 AM	5	0	0	0	2	1	1	0	1	10	3	0	1	6	1	0	31	
7:35 AM	1	0	1	0	1	1	0	0	0	9	2	0	2	5	0	0	22	
7:40 AM	0	2	0	0	0	1	1	0	1	4	1	0	0	6	0	0	16	
7:45 AM	2	0	0	0	2	2	0	0	0	6	1	0	0	5	0	0	18	
7:50 AM	3	0	2	0	0	1	0	0	1	7	1	0	0	5	2	0	22	
7:55 AM	1	0	2	0	1	1	1	0	0	6	1	0	1	7	1	0	22	279
8:00 AM	3	1	1	0	1	2	1	0	0	9	3	0	0	7	1	0	29	294
8:05 AM	2	1	0	0	2	1	1	0	0	11	0	0	1	5	1	0	25	291
8:10 AM	0	0	2	0	0	1	3	0	0	5	1	0	2	5	0	0	19	278
8:15 AM	2	0	1	0	2	1	1	0	0	10	2	0	1	5	1	0	26	278
8:20 AM	1	0	1	0	2	1	0	0	1	7	4	0	0	4	0	0	21	272
8:25 AM	1	2	2	0	1	1	0	1	1	9	1	0	0	4	2	0	25	276
8:30 AM	0	3	2	0	0	0	0	0	0	7	3	0	0	3	0	0	18	263
8:35 AM	1	0	0	0	2	0	1	0	0	7	1	0	0	1	1	0	14	255
8:40 AM	1	0	0	0	1	1	0	0	1	3	1	0	0	2	0	0	10	249
8:45 AM	1	0	1	0	0	0	0	0	1	6	1	0	2	0	0	0	12	243
8:50 AM	0	2	1	0	0	0	0	0	1	8	0	0	0	6	1	0	19	240
8:55 AM	1	1	0	0	0	2	0	0	2	6	2	0	1	4	0	0	19	237
<b>Peak 15-Min Flowrates</b>	<b>Northbound</b>				<b>Southbound</b>				<b>Eastbound</b>				<b>Westbound</b>				<b>Total</b>	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	16	24	20	0	4	24	4	0	4	184	48	0	4	12	0	0	344	
Heavy Trucks	0	8	0	0	0	4	0	0	0	16	4	0	0	4	0	0	36	
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Railroad																	0	
Stopped Buses																		

Comments:

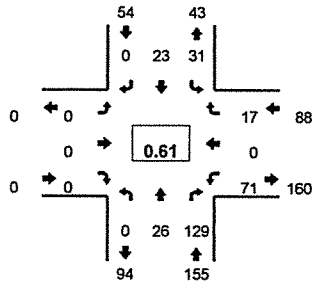


Type of peak hour being reported: Intersection Peak

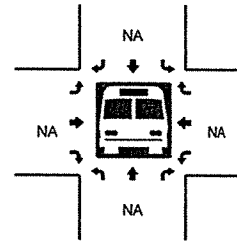
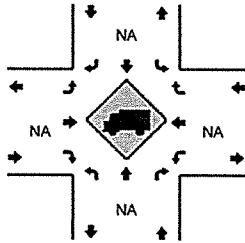
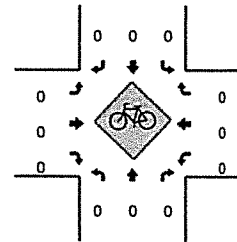
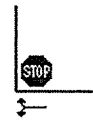
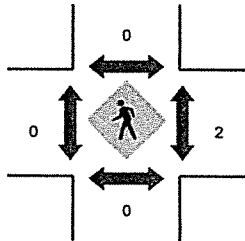
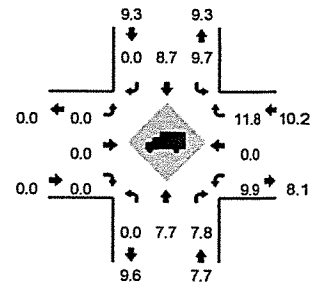
Method for determining peak hour: Total Entering Volume

LOCATION: NE Chehalem Dr – W Foothills Dr  
CITY/STATE: Newberg, OR

QC JOB #: 14556401  
DATE: Thu, Nov 16 2017



Peak-Hour: 7:00 AM -- 8:00 AM  
Peak 15-Min: 7:10 AM -- 7:25 AM



5-Min Count Period Beginning At	NE Chehalem Dr (Northbound)				NE Chehalem Dr (Southbound)				W Foothills Dr (Eastbound)				W Foothills Dr (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	3	9	0	0	1	0	0	0	0	0	0	6	0	1	0	20	
7:05 AM	0	2	5	0	3	1	0	0	0	0	0	0	1	0	1	0	13	
7:10 AM	0	3	17	0	4	2	0	0	0	0	0	0	10	0	5	0	41	
7:15 AM	0	1	21	0	5	1	0	0	0	0	0	0	11	0	1	0	40	
7:20 AM	0	3	20	0	6	1	0	0	0	0	0	0	10	0	0	0	40	
7:25 AM	0	1	20	0	5	5	0	0	0	0	0	0	5	0	4	0	40	
7:30 AM	0	1	13	0	4	1	0	0	0	0	0	0	16	0	3	0	38	
7:35 AM	0	0	9	0	2	1	0	0	0	0	0	0	7	0	1	0	20	
7:40 AM	0	1	6	0	1	3	0	0	0	0	0	0	3	0	1	0	15	
7:45 AM	0	2	2	0	0	2	0	0	0	0	0	0	0	0	0	0	6	
7:50 AM	0	7	3	0	0	3	0	0	0	0	0	0	1	0	0	0	14	
7:55 AM	0	2	4	0	1	2	0	0	0	0	0	0	1	0	0	0	10	297
8:00 AM	0	6	1	0	0	4	0	0	0	0	0	0	4	0	2	0	17	294
8:05 AM	0	2	8	0	1	2	0	0	0	0	0	0	2	0	0	0	15	296
8:10 AM	0	1	2	0	2	2	0	0	0	0	0	0	4	0	1	0	12	267
8:15 AM	0	3	5	0	4	2	0	0	0	0	0	0	1	0	0	0	15	242
8:20 AM	0	0	5	0	2	3	0	0	0	0	0	0	4	0	2	0	16	218
8:25 AM	0	5	2	0	0	1	0	0	0	0	0	0	4	0	1	0	13	191
8:30 AM	0	4	1	0	0	5	0	0	0	0	0	0	4	0	2	0	16	169
8:35 AM	0	1	0	0	1	0	0	0	0	0	0	0	1	0	0	0	3	152
8:40 AM	0	2	0	0	0	2	0	0	0	0	0	0	3	0	1	0	8	145
8:45 AM	0	3	1	0	1	2	0	0	0	0	0	0	2	0	0	0	9	148
8:50 AM	0	2	1	0	0	5	0	0	0	0	0	0	0	0	0	0	3	137
8:55 AM	0	2	0	0	0	5	0	0	0	0	0	0	1	0	1	0	9	136
<b>Peak 15-Min Flowrates</b>	<b>Northbound</b>				<b>Southbound</b>				<b>Eastbound</b>				<b>Westbound</b>				<b>Total</b>	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	0	28	232	0	60	16	0	0	0	0	0	0	124	0	24	0	484	
Heavy Trucks	0	0	12		4	0	0		0	0	0		16	0	4		36	
Pedestrians		0				0				0				8			8	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Railroad																		
Stopped Buses																		

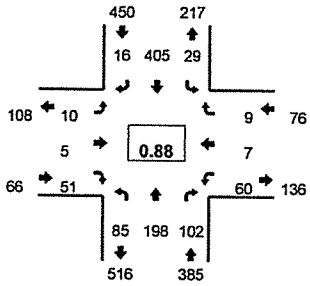
Comments:

Type of peak hour being reported: Intersection Peak

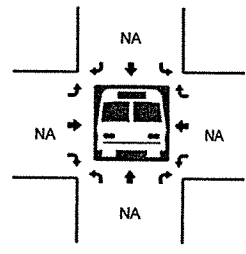
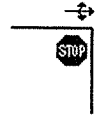
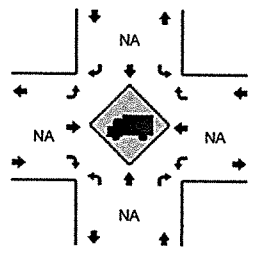
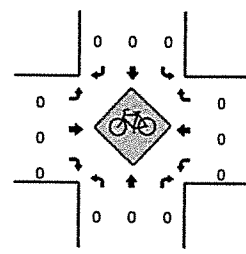
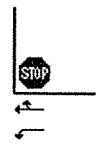
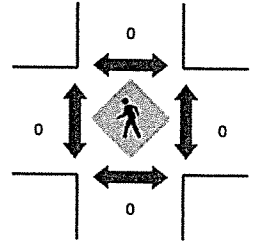
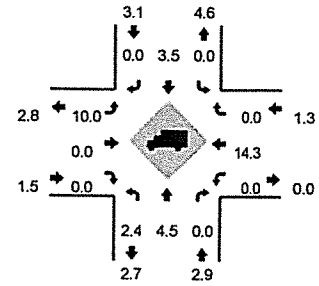
Method for determining peak hour: Total Entering Volume

LOCATION: N College St – Foothills Dr  
CITY/STATE: Newberg, OR

QC JOB #: 14556410  
DATE: Thu, Nov 16 2017



Peak-Hour: 4:40 PM -- 5:40 PM  
Peak 15-Min: 4:40 PM -- 4:55 PM



5-Min Count Period Beginning At	N College St (Northbound)				N College St (Southbound)				Foothills Dr (Eastbound)				Foothills Dr (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	4	15	3	0	0	32	0	0	0	0	6	0	6	0	1	0	67	
4:05 PM	3	20	6	0	0	25	0	0	1	0	5	0	5	0	0	0	65	
4:10 PM	7	23	6	0	0	21	2	0	0	0	5	0	5	1	2	0	72	
4:15 PM	7	12	2	0	3	25	3	0	0	1	6	0	7	0	0	0	66	
4:20 PM	7	17	9	0	1	24	3	0	0	0	4	0	2	1	0	0	68	
4:25 PM	4	10	11	1	1	23	0	0	1	2	6	0	5	0	0	0	64	
4:30 PM	3	11	8	0	3	38	0	0	0	0	7	0	2	0	2	0	74	
4:35 PM	3	24	8	0	0	20	1	0	0	0	3	0	3	1	2	0	65	
4:40 PM	7	13	9	0	3	47	2	0	1	1	7	0	5	0	2	0	97	
4:45 PM	12	21	7	0	3	37	0	0	2	0	8	0	3	1	0	0	94	
4:50 PM	5	18	7	0	0	45	1	0	2	0	3	0	3	0	1	0	85	
4:55 PM	8	21	9	0	1	31	1	0	1	1	7	0	4	1	1	0	86	903
5:00 PM	8	14	11	0	2	36	1	0	0	0	5	0	1	0	1	0	79	915
5:05 PM	9	20	8	0	2	35	1	0	0	1	1	0	6	0	1	0	84	934
5:10 PM	6	16	11	0	4	36	1	0	0	1	5	0	7	2	1	0	90	952
5:15 PM	6	12	5	0	0	24	1	0	0	1	1	0	8	0	1	0	59	945
5:20 PM	4	17	8	0	9	26	6	0	0	0	3	0	6	1	0	0	80	957
5:25 PM	7	17	6	0	2	38	0	0	1	0	4	0	6	1	0	0	82	975
5:30 PM	6	13	7	0	1	19	0	0	1	0	4	0	4	1	0	0	56	957
5:35 PM	7	16	14	0	2	31	2	0	2	0	3	0	7	0	1	0	85	977
5:40 PM	5	15	7	0	3	23	0	0	0	0	3	0	1	0	1	0	58	938
5:45 PM	7	17	8	0	6	34	5	0	0	0	2	0	4	1	1	0	85	929
5:50 PM	6	17	11	0	0	25	2	0	0	0	2	0	10	1	0	0	74	918
5:55 PM	7	18	11	0	3	22	0	0	0	2	4	0	4	1	0	0	72	904

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	96	208	92	0	24	516	12	0	20	4	72	0	44	4	12	0	1104
Heavy Trucks	4	4	0	0	0	36	0	0	4	0	0	0	0	4	0	0	52
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Railroad																	
Stopped Buses																	

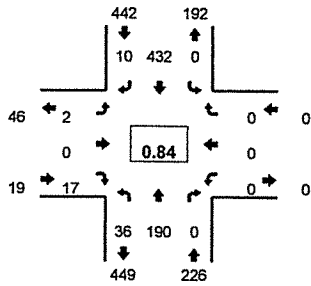
Comments:

Type of peak hour being reported: Intersection Peak

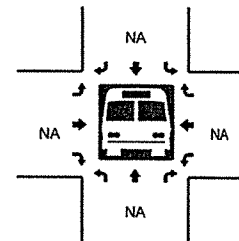
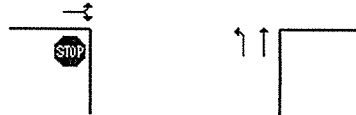
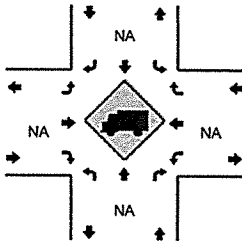
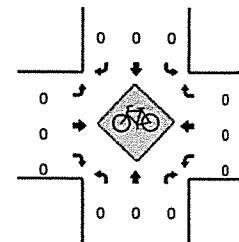
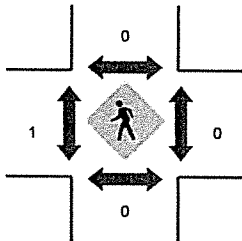
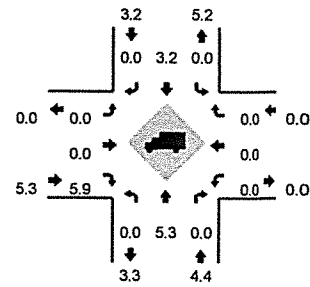
Method for determining peak hour: Total Entering Volume

LOCATION: N College St – N Terrace Dr  
CITY/STATE: Newberg, OR

QC JOB #: 14556408  
DATE: Thu, Nov 16 2017



Peak-Hour: 4:30 PM -- 5:30 PM  
Peak 15-Min: 4:40 PM -- 4:55 PM



5-Min Count Period Beginning At	N College St (Northbound)				N College St (Southbound)				N Terrace Dr (Eastbound)				N Terrace Dr (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	4	12	0	0	0	30	0	0	0	0	2	0	0	0	0	0	48	
4:05 PM	3	16	0	0	0	23	1	0	0	0	2	0	0	0	0	0	45	
4:10 PM	3	19	0	1	0	20	0	0	1	0	3	0	0	0	0	0	47	
4:15 PM	1	11	0	0	0	29	2	0	0	0	2	0	0	0	0	0	45	
4:20 PM	1	16	0	0	0	23	1	0	1	0	3	0	0	0	0	0	45	
4:25 PM	1	13	0	0	0	28	0	0	0	0	0	0	0	0	0	0	42	
4:30 PM	2	11	0	0	0	36	0	0	0	0	1	0	0	0	0	0	50	
4:35 PM	5	19	0	0	0	25	1	0	0	0	3	0	0	0	0	0	53	
4:40 PM	4	15	0	0	0	44	1	0	0	0	2	0	0	0	0	0	66	
4:45 PM	3	20	0	0	0	40	5	0	0	0	3	0	0	0	0	0	71	
4:50 PM	1	19	0	0	0	43	0	0	1	0	3	0	0	0	0	0	67	
4:55 PM	2	21	0	0	0	27	0	0	0	0	1	0	0	0	0	0	51	630
5:00 PM	5	10	0	0	0	40	1	0	0	0	0	0	0	0	0	0	56	638
5:05 PM	1	20	0	0	0	37	2	0	0	0	1	0	0	0	0	0	61	654
5:10 PM	5	15	0	0	0	43	0	0	1	0	1	0	0	0	0	0	65	672
5:15 PM	1	12	0	0	0	20	0	0	0	0	0	0	0	0	0	0	33	660
5:20 PM	5	12	0	0	0	43	0	0	0	0	1	0	0	0	0	0	61	676
5:25 PM	2	16	0	0	0	34	0	0	0	0	1	0	0	0	0	0	53	687
5:30 PM	3	12	0	0	0	22	0	0	0	0	0	0	0	0	0	0	37	674
5:35 PM	3	17	0	0	0	33	0	0	0	0	1	0	0	0	0	0	54	675
5:40 PM	1	15	0	0	0	26	0	0	0	0	1	0	0	0	0	0	43	652
5:45 PM	4	13	0	0	0	44	2	0	0	0	1	0	0	0	0	0	64	645
5:50 PM	1	16	0	0	0	28	0	0	0	0	3	0	0	0	0	0	48	626
5:55 PM	1	17	0	0	0	28	0	0	0	0	0	0	0	0	0	0	46	621
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	32	216	0	0	0	508	24	0	4	0	32	0	0	0	0	0	816	
Heavy Trucks	0	12	0	0	0	28	0	0	0	0	4	0	0	0	0	0	44	
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Railroad																		
Stopped Buses																		

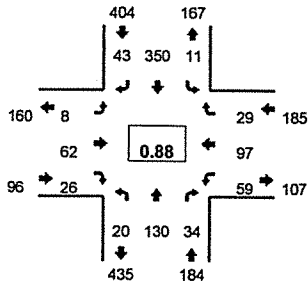
Comments:

Type of peak hour being reported: Intersection Peak

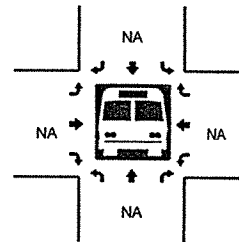
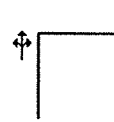
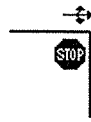
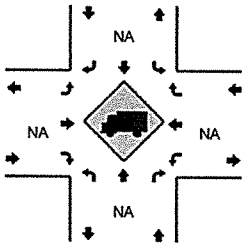
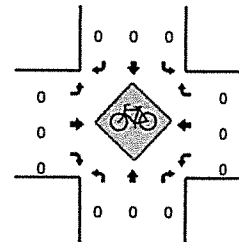
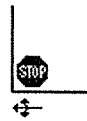
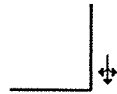
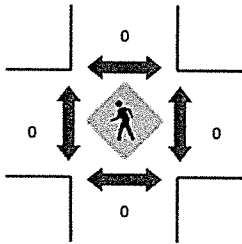
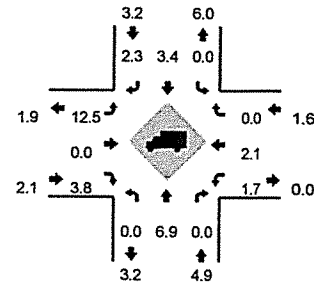
Method for determining peak hour: Total Entering Volume

LOCATION: N College St – NE North Valley Rd/NE Bell Rd  
 CITY/STATE: Newberg, OR

QC JOB #: 14556406  
 DATE: Thu, Nov 16 2017



Peak-Hour: 4:30 PM -- 5:30 PM  
 Peak 15-Min: 4:40 PM -- 4:55 PM



5-Min Count Period Beginning At	N College St (Northbound)				N College St (Southbound)				NE North Valley Rd/NE Bell Rd (Eastbound)				NE North Valley Rd/NE Bell Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	1	11	1	0	1	23	6	0	3	5	3	0	7	10	0	0	71	
4:05 PM	2	12	3	0	1	19	3	0	2	5	2	0	2	8	3	0	62	
4:10 PM	3	12	2	0	1	17	3	0	0	2	1	0	3	7	0	0	51	
4:15 PM	2	10	2	0	0	17	3	0	1	3	6	0	8	7	3	0	62	
4:20 PM	3	12	3	0	0	19	1	0	2	4	1	0	4	8	2	0	59	
4:25 PM	3	10	3	0	2	21	0	0	1	5	2	0	4	6	5	0	62	
4:30 PM	2	4	3	0	0	28	1	0	0	8	4	0	3	8	3	0	64	
4:35 PM	3	11	4	0	2	26	5	0	1	3	1	0	3	8	3	0	70	
4:40 PM	1	9	5	0	2	27	3	0	0	5	3	0	5	11	1	0	72	
4:45 PM	0	15	3	0	1	34	4	0	2	5	2	0	12	10	4	0	92	
4:50 PM	1	13	6	0	0	36	6	0	2	4	1	0	6	4	4	0	83	
4:55 PM	2	16	2	0	0	20	1	0	1	5	1	0	2	9	2	0	61	809
5:00 PM	0	7	4	0	0	45	6	0	0	3	1	0	7	9	3	0	85	823
5:05 PM	3	13	2	0	2	22	4	0	0	7	1	0	4	5	1	0	64	825
5:10 PM	1	8	2	0	1	41	1	0	0	7	3	0	1	7	1	0	73	847
5:15 PM	4	12	2	0	2	17	3	0	1	1	4	0	4	7	1	0	58	843
5:20 PM	1	8	1	0	0	25	4	0	0	10	3	0	7	7	5	0	71	855
5:25 PM	2	14	0	0	1	29	5	0	1	4	2	0	5	12	1	0	76	869
5:30 PM	2	7	3	0	0	18	4	0	1	3	3	0	1	12	2	0	56	861
5:35 PM	3	11	3	0	1	30	3	0	1	0	1	0	2	5	3	0	63	854
5:40 PM	1	12	3	0	4	23	5	0	1	6	2	0	4	11	3	0	75	857
5:45 PM	2	6	3	0	3	32	1	0	1	3	1	0	6	9	0	0	67	832
5:50 PM	3	9	4	0	2	31	1	0	1	4	0	0	5	6	1	0	67	816
5:55 PM	1	11	4	0	2	23	2	0	1	9	0	0	5	6	1	0	65	820
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	8	148	56	0	12	388	52	0	16	56	24	0	92	100	36	0	988	
Heavy Trucks	0	12	0	0	0	20	0	0	4	0	4	0	0	0	0	0	40	
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Railroad																		
Stopped Buses																		

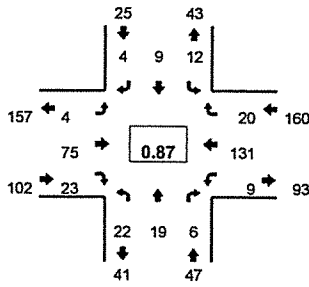
Comments:

Type of peak hour being reported: Intersection Peak

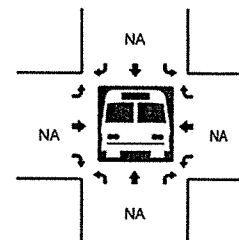
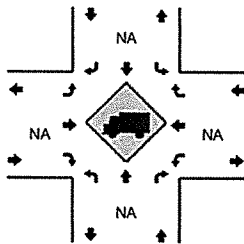
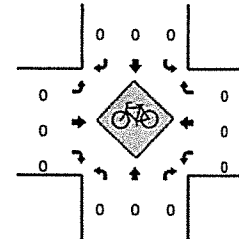
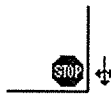
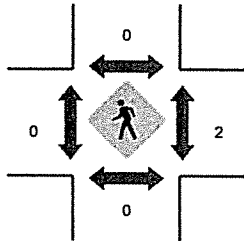
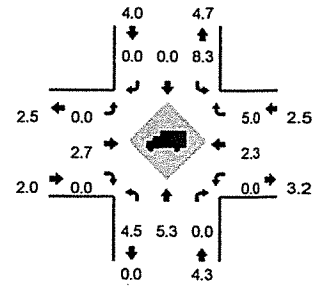
Method for determining peak hour: Total Entering Volume

LOCATION: NE Chehalem Dr -- NE North Valley Rd  
 CITY/STATE: Newberg, OR

QC JOB #: 14556404  
 DATE: Thu, Nov 16 2017



Peak-Hour: 4:35 PM -- 5:35 PM  
 Peak 15-Min: 5:20 PM -- 5:35 PM



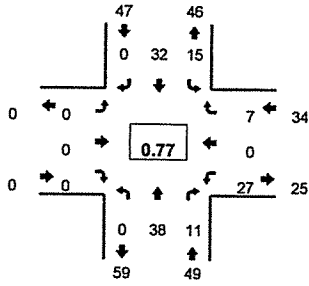
5-Min Count Period Beginning At	NE Chehalem Dr (Northbound)				NE Chehalem Dr (Southbound)				NE North Valley Rd (Eastbound)				NE North Valley Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	1	0	1	0	1	0	0	0	0	11	1	0	1	14	1	0	31	
4:05 PM	0	0	2	0	0	0	1	0	0	4	7	0	0	11	1	0	26	
4:10 PM	4	4	0	0	0	0	1	0	1	6	2	0	2	9	1	0	30	
4:15 PM	2	0	2	0	0	1	2	0	0	6	4	0	0	11	1	0	29	
4:20 PM	1	1	0	0	0	1	0	0	1	6	0	0	0	10	3	0	23	
4:25 PM	1	1	1	0	0	1	1	0	1	8	2	0	1	7	2	0	26	
4:30 PM	0	1	1	0	0	0	0	0	1	11	3	0	1	7	0	0	25	
4:35 PM	3	1	0	0	0	0	1	0	0	9	2	0	0	13	1	0	30	
4:40 PM	3	1	1	0	1	0	1	0	0	5	1	0	2	14	2	0	31	
4:45 PM	1	2	3	0	1	0	0	0	0	6	2	0	2	7	2	0	26	
4:50 PM	2	0	0	0	0	3	1	0	1	5	2	0	0	10	0	0	24	
4:55 PM	3	1	0	0	2	1	0	0	0	4	4	0	1	14	1	0	31	332
5:00 PM	3	2	0	0	1	1	0	0	0	8	1	0	0	9	3	0	28	329
5:05 PM	0	1	0	0	1	1	0	0	0	4	1	0	0	9	1	0	18	321
5:10 PM	0	4	0	0	0	0	0	0	0	11	0	0	2	4	4	0	25	316
5:15 PM	1	1	0	0	3	0	0	0	1	5	1	0	0	12	1	0	25	312
5:20 PM	3	4	1	0	1	2	0	0	1	9	0	0	1	13	1	0	36	325
5:25 PM	2	0	0	0	2	0	0	0	1	4	5	0	1	10	3	0	28	327
5:30 PM	1	2	1	0	0	1	1	0	0	5	4	0	0	16	1	0	32	334
5:35 PM	3	1	1	0	0	2	2	0	0	3	0	0	2	9	1	0	24	328
5:40 PM	0	4	2	0	0	1	0	0	1	4	2	0	1	17	1	0	33	330
5:45 PM	2	2	0	0	1	0	0	0	0	3	0	0	0	9	0	0	17	321
5:50 PM	1	3	0	0	0	0	0	0	0	7	0	0	1	9	2	0	23	320
5:55 PM	3	0	0	0	1	2	0	0	0	7	1	0	0	7	1	0	22	311
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	24	24	8	0	12	12	4	0	8	72	36	0	8	156	20	0	384	
Heavy Trucks	4	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	8	
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Railroad																		
Stopped Buses																		

Comments:

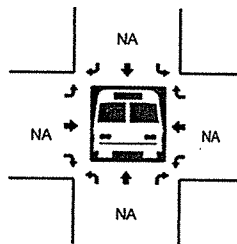
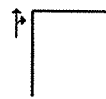
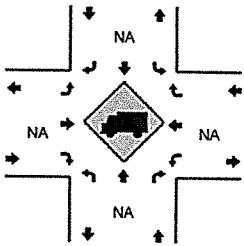
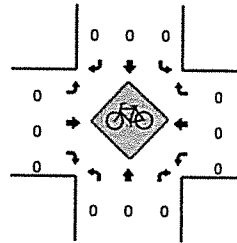
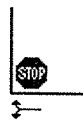
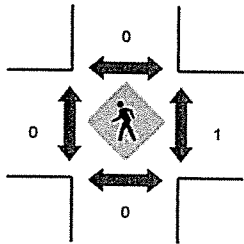
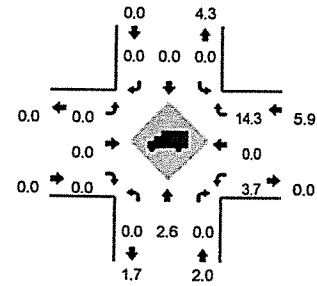
Type of peak hour being reported: Intersection Peak

Method for determining peak hour: Total Entering Volume

LOCATION: NE Chehalem Dr – W Foothills Dr  
 CITY/STATE: Newberg, OR  
 QC JOB #: 14556402  
 DATE: Thu, Nov 16 2017



Peak-Hour: 4:05 PM -- 5:05 PM  
 Peak 15-Min: 4:05 PM -- 4:20 PM



5-Min Count Period Beginning At	NE Chehalem Dr (Northbound)				NE Chehalem Dr (Southbound)				W Foothills Dr (Eastbound)				W Foothills Dr (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	1	2	0	0	1	0	0	0	0	0	0	2	0	0	0	6	
4:05 PM	0	4	2	0	2	6	0	0	0	0	0	0	1	0	1	0	16	
4:10 PM	0	5	1	0	0	3	0	0	0	0	0	0	3	0	1	0	13	
4:15 PM	0	4	3	0	1	4	0	0	0	0	0	0	1	0	0	0	13	
4:20 PM	0	2	1	0	0	2	0	0	0	0	0	0	1	0	0	0	6	
4:25 PM	0	2	2	0	2	2	0	0	0	0	0	0	1	0	0	0	9	
4:30 PM	0	1	0	0	2	2	0	0	0	0	0	0	6	0	1	0	12	
4:35 PM	0	3	0	0	1	0	0	0	0	0	0	0	1	0	0	0	5	
4:40 PM	0	5	1	0	0	4	0	0	0	0	0	0	5	0	0	0	15	
4:45 PM	0	4	1	0	3	1	0	0	0	0	0	0	0	0	2	0	11	
4:50 PM	0	2	0	0	2	1	0	0	0	0	0	0	7	0	0	0	12	
4:55 PM	0	2	0	0	0	4	0	1	0	0	0	0	0	0	2	0	9	127
5:00 PM	0	4	0	0	1	3	0	0	0	0	0	0	1	0	0	0	9	130
5:05 PM	0	1	1	0	1	0	0	0	0	0	0	0	0	0	2	0	5	119
5:10 PM	0	1	1	0	1	1	0	0	0	0	0	0	0	0	1	0	5	111
5:15 PM	0	2	1	0	0	1	0	0	0	0	0	0	1	0	1	0	6	104
5:20 PM	0	6	2	0	1	2	0	0	0	0	0	0	2	0	3	0	16	114
5:25 PM	0	0	2	0	1	5	0	0	0	0	0	0	1	0	1	0	10	115
5:30 PM	0	4	0	0	1	5	0	0	0	0	0	0	2	0	0	0	12	115
5:35 PM	0	2	0	0	0	5	0	0	0	0	0	0	0	0	1	0	12	117
5:40 PM	0	6	1	0	2	2	0	0	0	0	0	0	0	0	0	0	6	112
5:45 PM	0	4	2	0	0	0	0	0	0	0	0	0	0	0	0	0	6	112
5:50 PM	0	2	6	0	1	0	0	0	0	0	0	0	1	0	1	0	11	111
5:55 PM	0	3	3	0	0	1	0	0	0	0	0	0	2	0	0	0	9	111
<b>Peak 15-Min Flowrates</b>	<b>Northbound</b>				<b>Southbound</b>				<b>Eastbound</b>				<b>Westbound</b>				<b>Total</b>	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	0	52	24	0	12	52	0	0	0	0	0	0	20	0	8	0	168	
Heavy Trucks	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Railroad	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Stopped Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

Comments:

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

NE Chehalem Dr/St & Foothills Dr  
 January 1, 2011 through December 31, 2015

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

FINAL TOTAL

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

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

NE Chehalem Dr/St & NE North Valley Rd  
 January 1, 2011 through December 31, 2015

COLLISION TYPE	FATAL CRASHES		NON-PROPERTY DAMAGE ONLY		TOTAL CRASHES		TOTAL PEOPLE		PEOPLE INJURED		TRUCKS		DRY SURF		WET SURF		DAY		DARK		INTER-SECTION RELATED		INTER-SECTION OFF-ROAD	
	FATAL CRASHES	FATAL CRASHES	FATAL CRASHES	PROPERTY DAMAGE ONLY	TOTAL CRASHES	PEOPLE KILLED	PEOPLE INJURED	TRUCKS	DRY SURF	WET SURF	DAY	DARK	INTER-SECTION RELATED	INTER-SECTION OFF-ROAD										
YEAR: 2015																								
ANGLE	0	2	0	0	2	0	7	0	2	0	2	0	2	0	0	2	0	0	0	0	0	0	0	0
TURNING MOVEMENTS	0	1	0	0	1	0	2	0	1	0	0	1	1	0	0	0	1	0	1	0	0	0	0	0
2015 TOTAL	0	3	0	0	3	0	9	0	3	0	2	1	3	0	0	2	1	0	1	0	0	0	0	0
YEAR: 2014																								
ANGLE	0	1	0	0	1	0	1	0	0	1	1	0	1	0	1	1	0	1	0	0	0	0	0	0
2014 TOTAL	0	1	0	0	1	0	1	0	0	1	1	0	1	0	1	1	0	1	0	0	0	0	0	0
YEAR: 2012																								
ANGLE	0	1	0	0	1	0	4	0	1	0	0	1	1	0	0	0	1	0	1	0	0	0	0	0
2012 TOTAL	0	1	0	0	1	0	4	0	1	0	0	1	1	0	0	0	1	0	1	0	0	0	0	0
YEAR: 2011																								
ANGLE	0	1	0	0	1	0	1	0	1	0	1	0	1	0	0	1	0	1	0	0	0	0	0	0
2011 TOTAL	0	1	0	0	1	0	1	0	1	0	1	0	1	0	0	1	0	1	0	0	0	0	0	0
FINAL TOTAL	0	6	0	0	6	0	15	0	5	1	4	2	6	0	0	2	6	0	2	0	0	0	0	0

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



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

NE Foothills Dr & Hillsboro-Silverton Hwy  
 January 1, 2011 through December 31, 2015

COLLISION TYPE	FATAL CRASHES		NON-PROPERTY DAMAGE ONLY		TOTAL CRASHES	TOTAL PEOPLE KILLED	TOTAL PEOPLE INJURED	TRUCKS	DRY SURF	WET SURF	DAY	DARK	INTER-SECTION RELATED	INTER-SECTION OFF-ROAD
	FATAL CRASHES	NON-PROPERTY DAMAGE ONLY												
YEAR: 2015														
TURNING MOVEMENTS	0	1	0	0	1	0	0	0	1	0	1	0	1	0
2015 TOTAL	0	1	0	0	1	0	0	0	1	0	1	0	1	0
YEAR: 2014														
TURNING MOVEMENTS	0	1	0	0	1	0	0	0	1	0	1	0	1	0
2014 TOTAL	0	1	0	0	1	0	0	0	1	0	1	0	1	0
YEAR: 2013														
ANGLE	0	1	0	0	1	0	0	0	1	0	0	1	1	0
2013 TOTAL	0	1	0	0	1	0	0	0	1	0	0	1	1	0
YEAR: 2012														
ANGLE	0	1	0	0	1	0	0	0	0	1	1	0	1	0
2012 TOTAL	0	1	0	0	1	0	0	0	0	1	1	0	1	0
YEAR: 2011														
ANGLE	0	0	1	0	1	0	1	0	1	0	1	0	1	0
2011 TOTAL	0	0	1	0	1	0	1	0	1	0	1	0	1	0
FINAL TOTAL	0	1	4	0	5	0	1	0	4	1	4	1	5	0

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

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

NE Foothills Dr & Main St  
 January 1, 2011 through December 31, 2015

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

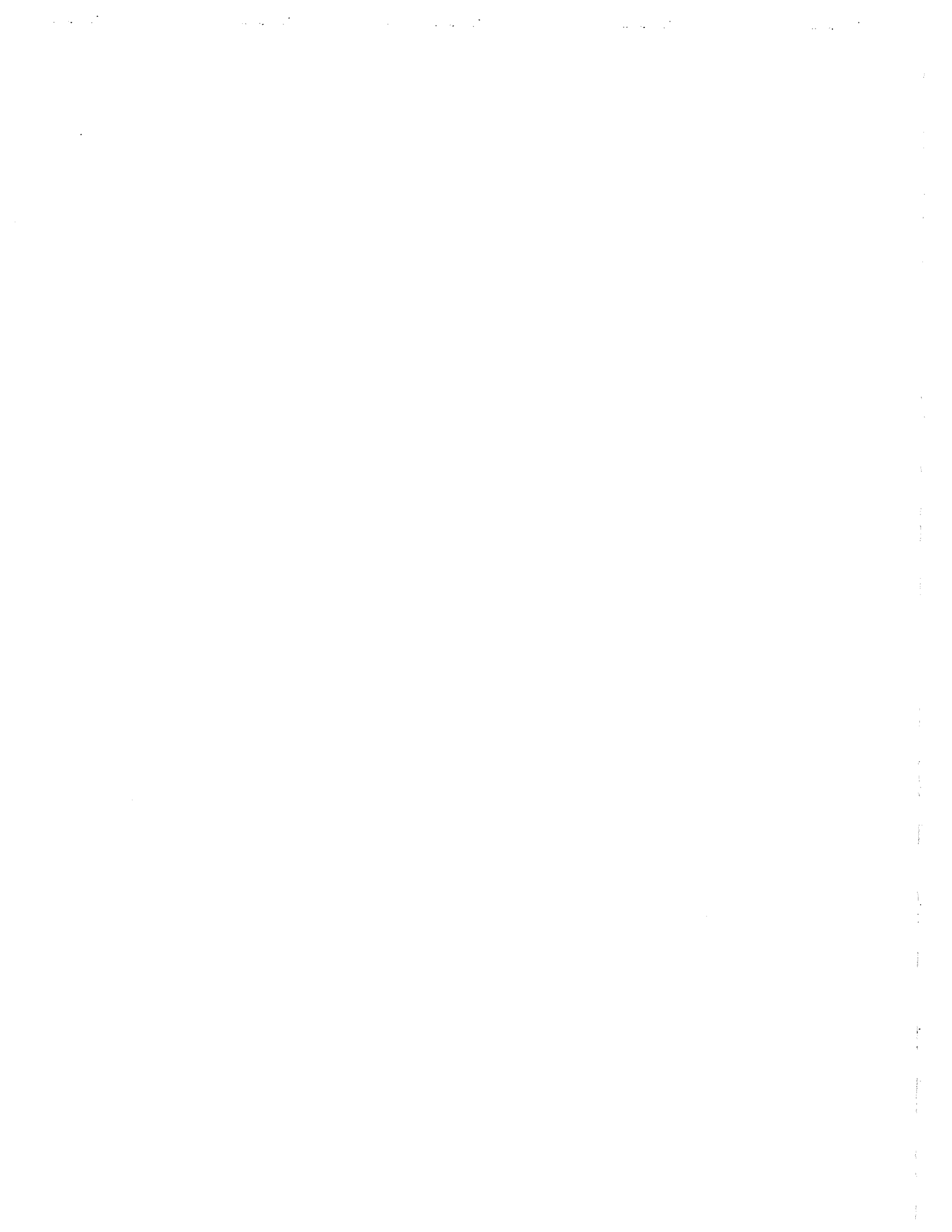
*Disclaimer: A higher number of crashes may be reported as of 2011 compared to prior years. This does not reflect an increase in annual crashes. The higher numbers result from a change to an internal departmental process that allows the Crash Analysis and Reporting Unit to add previously unavailable,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

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

NE North Valley Rd / NE Bell Rd & Hillsboro-Silverton Hwy  
 January 1, 2011 through December 31, 2015

COLLISION TYPE	FATAL CRASHES	NON- FATAL CRASHES	PROPERTY DAMAGE ONLY	TOTAL CRASHES	PEOPLE KILLED	PEOPLE INJURED	TRUCKS	DRY SURF	WET SURF	DAY	DARK	INTER- SECTION RELATED	OFF- ROAD
YEAR: 2015													
ANGLE	0	4	1	5	0	7	0	4	1	5	0	5	0
TURNING MOVEMENTS	0	0	1	1	0	0	0	1	0	1	0	1	0
2015 TOTAL	0	4	2	6	0	7	0	5	1	6	0	6	0
YEAR: 2013													
TURNING MOVEMENTS	0	1	1	2	0	1	0	2	0	2	0	2	0
2013 TOTAL	0	1	1	2	0	1	0	2	0	2	0	2	0
YEAR: 2012													
FIXED / OTHER OBJECT	0	1	0	1	0	1	0	1	0	0	1	1	0
TURNING MOVEMENTS	0	0	1	1	0	0	0	1	0	1	0	1	0
2012 TOTAL	0	1	1	2	0	1	0	2	0	1	1	2	0
YEAR: 2011													
ANGLE	0	0	1	1	0	0	0	0	1	1	0	1	0
2011 TOTAL	0	0	1	1	0	0	0	0	1	1	0	1	0
FINAL TOTAL	0	6	5	11	0	9	0	9	2	10	1	11	0

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



Visiro File: J:\...Kings Landing TIA - Newberg.visiro  
 Report File: J:\...1AM Existing & Background.pdf  
 Scenario 1: 1 AM Existing & Background  
 Kings Landing TIA  
 Delay (sec / veh): 11.5  
 Level Of Service: B  
 Volume to Capacity (v/c): 0.052

**Intersection Analysis Summary**

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	N Valley Rd at Chehalem Dr	Two-way stop	HCM 6th Edition	SB Thru	0.052	11.5	B
3	NE Terrace Dr at Hwy 219	Two-way stop	HCM 6th Edition	SB Left	0.048	14.8	B
4	N Valley Rd at Hwy 219	Two-way stop	HCM 6th Edition	WB Left	0.433	35.6	E
5	Chehalem Dr at Foothills Dr	Two-way stop	HCM 6th Edition	WB Left	0.258	13.7	B
6	Foothills Dr at Hwy 219	Two-way stop	HCM 6th Edition	WB Left	0.705	73.2	F
7	West Access at Chehalem Dr	Two-way stop	HCM 6th Edition	WB Left	0.033	9.4	A
10	Main at Foothills	Two-way stop	HCM 6th Edition	NB Left	0.286	18.8	C
13	N Valley Rd at Bruce Dr	Two-way stop	HCM 6th Edition	NB Left	0.000	10.0	A

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Visiro File: J:\...Kings Landing TIA - Newberg.visiro  
 Report File: J:\...1AM Existing & Background.pdf  
 Scenario 1: 1 AM Existing & Background  
 Kings Landing TIA  
 Delay (sec / veh): 11.5  
 Level Of Service: B  
 Volume to Capacity (v/c): 0.052

**Intersection Setup**

Name	Chehalem Dr Northbound	Chehalem Dr Southbound	N Valley Rd Eastbound	N Valley Rd Westbound
Approach	+	+	+	+
Lane Configuration	Thru Right Left	Thru Right Left	Thru Right Left	Thru Right Left
Turning Movement	12.00 12.00 12.00	12.00 12.00 12.00	12.00 12.00 12.00	12.00 12.00 12.00
Lane Width [ft]	0	0	0	0
No. of Lanes in Pocket	0	0	0	0
Pocket Length [ft]	35.00	35.00	45.00	45.00
Speed [mph]	0.00	0.00	0.00	0.00
Grade [%]	Yes	Yes	Yes	Yes
Crosswalk	Yes	Yes	Yes	Yes

**Volumes**

Name	Chehalem Dr	Chehalem Dr	Chehalem Dr	N Valley Rd	N Valley Rd
Base Volume Input [veh/h]	22	9	14	10	24
Base Volume Adjustment Factor	1.0948	1.0948	1.0948	1.0948	1.0948
Heavy Vehicles Percentage [%]	10.40	10.40	10.40	10.40	10.40
Growth Rate	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0
Diversed Trips [veh/h]	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0
Total Hourly Volume [veh/h]	30	10	17	11	26
Peak Hour Factor	0.8500	0.8500	0.8500	0.8500	0.8500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	9	3	5	3	8
Total Analysis Volume [veh/h]	35	12	20	13	31
Pedestrian Volume [ped/h]	0	0	0	0	0

Intersection Level Of Service Report

Control Type: Two-way stop  
 Analysis Method: HCM 6th Edition  
 Analysis Period: 15 minutes  
 Delay (sec / veh): 14.8  
 Level Of Service: B  
 Volume to Capacity (v/c): 0.048

Intersection Setup

Name	NE Terrace Dr	Hwy 219	Hwy 219
Approach	Southbound	Northbound	Southwestbound
Lane Configuration	1	1	1
Turning Movement	Left Right	Left Thru Right	Thru Right
Lane Width [ft]	12.00	12.00	12.00
No. of Lanes in Pocket	0	1	0
Pocket Length [ft]	300.00	40.00	40.00
Speed [mph]	25.00	40.00	40.00
Grade [%]	0.00	0.00	0.00
Crosswalk	Yes	Yes	Yes

Volumes

Name	NE Terrace Dr	Hwy 219	Hwy 219
Base Volume Input [veh/h]	12	30	193
Base Volume Adjustment Factor	1.0948	1.0948	1.0948
Heavy Vehicles Percentage [%]	4.80	4.80	4.80
Growth Rate	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0
Site-Generated Trips [veh/h]	2	4	0
Diversed Trips [veh/h]	0	0	0
Pass-by Trips [veh/h]	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0
Total Hourly Volume [veh/h]	15	37	211
Peak Hour Factor	0.7900	0.7900	0.7900
Other Adjustment Factor	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	5	12	67
Total Analysis Volume [veh/h]	19	47	267
Pedestrian Volume [ped/h]	0	0	0

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	No	No		
Storage Area [veh]				
Two-Stage Gap Acceptance	No	No		
Number of Storage Spaces in Median				

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.06	0.02	0.02	0.02	0.01	0.01	0.01	0.01
d, M, Delay for Movement [s/veh]	11.46	11.47	9.80	11.29	11.50	9.19	7.45	7.71
Movement LOS	B	B	A	B	B	A	A	A
95th-Percentile Queue Length [veh]	0.33	0.33	0.33	0.26	0.26	0.46	0.46	0.19
95th-Percentile Queue Length [ft]	8.29	8.29	8.29	6.40	6.40	11.52	11.52	4.77
d, A, Approach Delay [s/veh]	10.97			11.17				0.77
Approach LOS	B			B			A	A
d, I, Intersection Delay [s/veh]						3.61		
Intersection LOS						B		

**Intersection Settings**

Priority Scheme	Stop	Free	Free
Filtered Lane	No		
Storage Area [veh]			
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median			

**Movement, Approach, & Intersection Results**

Movement	0.05	0.06	0.02
VIC Movement VIC Ratio	14.76	10.45	7.87
d <sub>M</sub> Delay for Movement [s/veh]	B	A	A
Movement LOS	B	A	A
95th-Percentile Queue Length [veh]	0.37	0.37	0.05
95th-Percentile Queue Length [ft]	9.16	9.16	1.19
d <sub>A</sub> Approach Delay [s/veh]	11.69		0.39
Approach LOS	B	A	A
d <sub>I</sub> Intersection Delay [s/veh]			1.25
Intersection LOS			B

**Intersection Level Of Service Report**  
 Intersection 4: N Valley Rd at Hwy 219

Control Type: Two-way stop  
 Analysis Method: HCM 6th Edition  
 Analysis Period: 15 minutes

Delay (sec / veh): 35.6  
 Level Of Service: E  
 Volume to Capacity (V/C): 0.433

**Intersection Setup**

Name	Hwy 219	Hwy 219	N Valley Rd	N Valley Rd
Approach	Northbound	Southbound	Eastbound	Westbound
Lane Configuration	+	+	+	+
Turning Movement	Left Thru Right	Left Thru Right	Left Thru Right	Left Thru Right
Lane Width [ft]	12.00 12.00 12.00	12.00 12.00 12.00	12.00 12.00 12.00	12.00 12.00 12.00
No. of Lanes in Pocket	0 0 0	0 0 0	0 0 0	0 0 0
Pocket Length [ft]				
Speed [mph]	40.00	40.00	45.00	45.00
Grade [%]	0.00	0.00	0.00	0.00
Crosswalk	Yes	Yes	Yes	Yes

**Volumes**

Name	Hwy 219	Hwy 219	N Valley Rd	N Valley Rd
Base Volume Input [veh/h]	13	155	120	24
Base Volume Adjustment Factor	1.0948	1.0948	1.0948	1.0948
Heavy Vehicles Percentage [%]	4.00	4.00	4.00	4.00
Growth Rate	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0
Site-Generated Trips [veh/h]	0	1	0	0
Diverted Trips [veh/h]	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0
Other Volume [veh/h]	0	0	0	0
Total Hourly Volume [veh/h]	14	171	132	26
Peak Hour Factor	0.7600	0.7600	0.7600	0.7600
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	5	56	43	9
Total Analysis Volume [veh/h]	18	225	174	34
Pedestrian Volume [ped/h]	0	0	0	0

Intersection Setup

Control Type: Two-way stop  
 Analysis Method: HCM 6th Edition  
 Analysis Period: 15 minutes  
 Delay (sec / veh): 13.7  
 Level Of Service: B  
 Volume to Capacity (v/c): 0.258

Name	Chehalum Dr Northbound	Chehalum Dr Southbound	Foothills Dr Westbound
Approach	T	T	T
Lane Configuration			
Turning Movement	Thru 12.00 Right 0	Left 12.00 Thru 0	Left 12.00 Right 0
No. of Lanes in Pocket	0	0	0
Pocket Length [ft]	35.00	35.00	25.00
Speed [mph]	35.00	35.00	25.00
Grade [%]	0.00	0.00	0.00
Crosswalk	Yes	Yes	Yes

Volumes

Name	Chehalum Dr	Chehalum Dr	Foothills Dr
Base Volume Input [veh/h]	26	129	71
Base Volume Adjustment Factor	1.0948	1.0948	1.0948
Heavy Vehicles Percentage [%]	7.40	7.40	7.40
Growth Rate	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0
Site-Generated Trips [veh/h]	6	4	13
Diversed Trips [veh/h]	0	0	0
Pass-by Trips [veh/h]	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0
Other Volume [veh/h]	0	0	0
Total Hourly Volume [veh/h]	34	145	43
Peak Hour Factor	0.6100	0.6100	0.6100
Other Adjustment Factor	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	14	59	17
Total Analysis Volume [veh/h]	56	238	67
Pedestrian Volume [ped/h]	0	0	0

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane	No	No	No	No
Storage Area [veh]				
Two-Stage Gap Acceptance	No	No	No	No
Number of Storage Spaces in Median				

Movement, Approach, & Intersection Results

Movement	Approach	Queue Length [veh]	Queue Length [ft]	Delay [sec]	Stop	Stop
V/C Movement V/C Ratio	0.01	0.03	0.08	0.33	0.43	0.17
d, I, Delay for Movement [s/veh]	7.57	8.23	22.75	21.55	15.83	31.16
Movement LOS	A	A	A	C	C	D
95th-Percentile Queue Length [veh]	1.24	1.24	0.57	2.17	2.17	4.17
95th-Percentile Queue Length [ft]	30.84	30.84	14.33	54.32	54.32	104.29
d, A, Approach Delay [s/veh]	0.33	1.51	20.87	20.87	33.19	33.19
Approach LOS	A	A	C	C	D	D
d, I, Intersection Delay [s/veh]			11.25	11.25	E	E
Intersection LOS			E	E		



Intersection Settings  
 Priority Scheme: Free  
 Filtered Lane: Free  
 Storage Area (veh):  
 Two-Stage Gap Acceptance:  
 Number of Storage Spaces in Median:  
 Movement, Approach, & Intersection Results

Priority Scheme	Free	Free	Stop
Filtered Lane			No
Storage Area (veh)			
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median			
Movement, Approach, & Intersection Results			
VIC Movement VIC Ratio	0.05	0.26	0.05
d, M, Delay for Movement [s/veh]	8.08	13.74	11.72
Movement LOS	A	B	B
95th-Percentile Queue Length [veh]	0.00	0.37	1.28
95th-Percentile Queue Length [ft]	0.00	0.31	31.92
d, A, Approach Delay [s/veh]	0.00	3.95	13.32
Approach LOS	A	A	B
d, I, Intersection Delay [s/veh]		4.92	
Intersection LOS		B	

Intersection Level Of Service Report  
 Intersection 6: Foothills Dr at Hwy 219  
 Control Type: Two-way stop  
 Analysis Method: HCM 6th Edition  
 Analysis Period: 15 minutes  
 Delay (sec / veh): 73.2  
 Level Of Service: F  
 Volume to Capacity (v/c): 0.705

Name	Hwy 219 Northbound	Hwy 219 Southbound	Foothills Dr Eastbound	Foothills Dr Westbound
Approach				
Lane Configuration	T	T	T	T
Turning Movement	Left Thru Right	Left Thru Right	Left Thru Right	Left Thru Right
Lane Width [ft]	12.00 12.00 12.00	12.00 12.00 12.00	12.00 12.00 12.00	12.00 12.00 12.00
No. of Lanes in Pocket	1	1	0	0
Pocket Length [ft]	125.00	150.00	0	90.00
Speed [mph]	35.00	35.00	25.00	25.00
Grade [%]	0.00	0.00	0.00	0.00
Crosswalk	Yes	Yes	Yes	Yes

Volumes

Name	Hwy 219 Northbound	Hwy 219 Southbound	Foothills Dr Eastbound	Foothills Dr Westbound
Base Volume Input [veh/h]	91	248	35	175
Base Volume Adjustment Factor	1.0948	1.0948	1.0948	1.0948
Heavy Vehicles Percentage [%]	5.00	5.00	5.00	5.00
Growth Rate	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0
Site-Generated Trips [veh/h]	3	1	0	0
Diverted Trips [veh/h]	0	0	0	0
Press-by Trips [veh/h]	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0
Other Volume [veh/h]	0	0	0	0
Total Hourly Volume [veh/h]	103	273	38	186
Peak Hour Factor	0.8100	0.8100	0.8100	0.8100
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	32	84	12	60
Total Analysis Volume [veh/h]	127	337	47	242
Pedestrian Volume [ped/h]	0	0	0	0

Priority Schema	Free	Free	Stop	Stop
Flared Lane			No	No
Storage Area (veh)				
Two-Stage Gap Acceptance			No	No
Number of Storage Spaces in Median				

**Movement, Approach, & Intersection Results**

V/C, Movement/V/C Ratio	0.10	0.01	0.15	0.06	0.25	0.70	0.06	0.05
d, M, Delay for Movement [s/veh]	8.11	8.12	27.59	25.43	15.41	73.18	20.31	11.25
Movement LOS	A	A	D	D	C	F	C	B
95th-Percentile Queue Length [veh]	0.33	0.00	2.44	2.44	2.44	4.09	0.35	0.35
95th-Percentile Queue Length [ft]	8.21	0.00	60.05	60.95	60.95	102.24	8.70	8.70
d, A, Approach Delay [s/veh]	2.02	0.18	17.83				54.74	
Approach LOS	A	A	C				F	
d, I, Intersection Delay [s/veh]			11.63				F	
Intersection LOS			F					

Control Type: Two-way stop  
 Analysis Method: HCM 6th Edition  
 Analysis Period: 15 minutes

Delay (sec / veh): 9.4  
 Level Of Service: A  
 Volume to Capacity (v/c): 0.033

**Intersection Setup**

Name	Chehalum Dr Northbound	Chehalum Dr Southbound	West Access
Approach	T	F	T
Lane Configuration	Thru Right	Thru Left	Left Right
Turning Movement	Thru 12.00	Left 12.00	Left 12.00
Lane Width [ft]	0	0	0
No. of Lanes in Pocket	0	0	0
Pocket Length [ft]	30.00	30.00	30.00
Speed [mph]	0.00	0.00	0.00
Grade [%]	Yes	Yes	Yes
Crosswalk	Yes	Yes	Yes

**Volumes**

Name	Chehalum Dr Northbound	Chehalum Dr Southbound	West Access
Base Volume Input [veh/h]	44	0	0
Base Volume Adjustment Factor	1.0948	1.0948	1.0948
Heavy Vehicles Percentage [%]	8.50	8.50	2.00
Growth Rate	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0
Site-Generated Trips [veh/h]	3	8	1
Diversified Trips [veh/h]	0	0	0
Pass-by Trips [veh/h]	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0
Other Volume [veh/h]	0	0	0
Total Hourly Volume [veh/h]	51	8	3
Peak Hour Factor	0.8500	0.8500	0.8500
Other Adjustment Factor	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	15	2	1
Total Analysis Volume [veh/h]	60	9	4
Pedestrian Volume [ped/h]	0	0	0

Intersection Level of Service Report  
 Intersection 10: Main at Foothills  
 Control Type: Two-way stop  
 Analysis Method: HCM 6th Edition  
 Analysis Period: 15 minutes  
 Delay (sec / veh): 18.8  
 Level of Service: C  
 Volume to Capacity (v/c): 0.266

Intersection Setup	Name	Main St		Foothills Dr		Foothills Dr
		Northbound	Southbound	Eastbound	Westbound	
Approach		T		+		
Lane Configuration		T		+		
Turning Movement		Left	Right	Thru	Right	Thru
Lane Width [ft]		12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket		0	0	0	0	0
Pocket Length [ft]		0	0	0	0	0
Speed [mph]		25.00	25.00	25.00	25.00	25.00
Grade [%]		0.00	0.00	0.00	0.00	0.00
Crosswalk		Yes	Yes	Yes	Yes	Yes

Volumes	Name	Main St		Foothills Dr		Foothills Dr
		Northbound	Southbound	Eastbound	Westbound	
Base Volume Input [veh/h]		59	13	174	34	6
Base Volume Adjustment Factor		1.0948	1.0948	1.0948	1.0948	1.0948
Heavy Vehicles Percentage [%]		5.20	5.20	5.20	5.20	5.20
Growth Rate		1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]		0	0	0	0	0
Site-Generated Trips [veh/h]		0	0	11	0	0
Diverted Trips [veh/h]		0	0	0	0	0
Pass-by Trips [veh/h]		0	0	0	0	0
Existing Site Adjustment Volume [veh/h]		0	0	0	0	0
Other Volume [veh/h]		0	0	0	0	0
Total Hourly Volume [veh/h]		63	14	201	37	9
Peak Hour Factor		0.5900	0.5900	0.5900	0.5900	0.5900
Other Adjustment Factor		1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]		27	6	85	16	4
Total Analysis Volume [veh/h]		107	24	341	63	15
Pedestrian Volume [ped/h]		0	0	0	0	0

Intersection Settings  
 Priority Scheme: Free  
 Flared Lane: Free  
 Storage Area [veh]: No  
 Two-Stage Gap Acceptance: No  
 Number of Storage Spaces in Median: No

Movement, Approach, & Intersection Results						
V/C, Movement V/C Ratio		0.00	0.03	0.03	0.01	0.01
d, M, Delay for Movement [s/veh]		7.42	9.44	9.44	8.77	8.77
Movement LOS		A	A	A	A	A
95th-Percentile Queue Length [veh]		0.00	0.17	0.17	0.12	0.12
95th-Percentile Queue Length [ft]		0.00	4.13	4.13	3.06	3.06
d, A, Approach Delay [s/veh]		0.00	0.38	0.38	9.32	9.32
Approach LOS		A	A	A	A	A
d, I, Intersection Delay [s/veh]		1.91	1.91	1.91	A	A
Intersection LOS		A	A	A	A	A

Intersection Level Of Service Report  
 Intersection 13: N Valley Rd at Bruce Dr

Control Type: Two-way stop  
 Analysis Method: HCM 6th Edition  
 Analysis Period: 15 minutes  
 Delay (sec / veh): 10.0  
 Level Of Service: A  
 Volume to Capacity (V/C): 0.000

Intersection Setup

Name	Bruce Dr			N Valley Rd		
	Northbound	Thru	Right	Eastbound	Thru	Westbound
Approach	T			F		
Lane Configuration	T			F		
Turning Movement	Left	Right	Thru	Left	Right	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]						
Speed [mph]	30.00			45.00		
Grade [%]	0.00			0.00		
Crosswalk	Yes			Yes		

Volumes

Name	Bruce Dr			N Valley Rd		
	Northbound	Thru	Right	Eastbound	Thru	Westbound
Base Volume Input [veh/h]	0	0	0	127	0	0
Base Volume Adjustment Factor	1.0948	1.0948	1.0948	1.0948	1.0948	1.0948
Heavy Vehicles Percentage [%]	7.00	7.00	7.00	7.00	7.00	7.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	2	0	0	2
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	141	0	0	78
Peak Hour Factor	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	41	0	0	23
Total Analysis Volume [veh/h]	0	0	166	0	0	92
Pedestrian Volume [ped/h]	0	0	0	0	0	0

Intersection Settings

Priority Scheme	Stop	Free	Free
Filtered Lane	No		
Storage Area [veh]			
Two-Slags Gap Acceptance	No		
Number of Storage Spaces in Median			

Movement, Approach, & Intersection Results

V/C	Movement	V/C Ratio	Delay [s]	Level of Service
0.20	0.04	0.01	8.21	A
18.77	14.55	8.21		
C	B	A	A	A
1.37	1.37	0.00	1.32	1.32
34.26	34.26	0.00	33.02	33.02
18.00	18.00	0.00	0.25	0.25
C	C	A	A	A
2.80	2.80			
C	C			

Priority Scheme	Stop	Free	Free
Filtered Lane	No		
Storage Area [veh]			
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median			

Movement, Approach, & Intersection Results		Free		Free	
VIC, Movement VIC Ratio	0.00	0.00	0.00	0.00	0.00
d, M, Delay for Movement [s/veh]	10.00	9.16	7.60	7.60	7.60
Movement LOS	A	A	A	A	A
95th-Percentile Queue Length [veh]	0.00	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft]	0.00	0.00	0.00	0.00	0.00
d, A, Approach Delay [s/veh]	9.58	0.00	0.00	0.00	0.00
Approach LOS	A	A	A	A	A
d, I, Intersection Delay [s/veh]		0.00			
Intersection LOS		A			

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**Turning Movement Volume: Summary**

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
1	N Valley Rd at Chehalis Dr	30	10	17	11	26	5	8	122	37	7	54	7	334

ID	Intersection Name	Southbound			Northeastbound			Southwestbound			Total Volume
		Left	Right	Thru	Left	Thru	Right	Left	Thru	Right	
3	NE Tarraco Dr at Hwy 219	15	37	16	303	211	4				586

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
4	N Valley Rd at Hwy 219	14	171	132	26	95	20	19	94	20	90	54	18	753

ID	Intersection Name	Northbound			Southbound			Westbound			Total Volume
		Thru	Right	Left	Thru	Left	Right	Left	Right	Thru	
5	Chehalis Dr at Foothills Dr	34	145	41	43	91	24				378

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
6	Foothills Dr at Hwy 219	103	273	38	5	199	16	27	11	160	84	11	27	951

ID	Intersection Name	Northbound			Southbound			Westbound			Total Volume
		Thru	Right	Left	Thru	Left	Right	Left	Right	Thru	
7	West Access at Chehalis Dr	51	8		3	63	24	5			154

ID	Intersection Name	Northbound			Eastbound			Westbound			Total Volume
		Left	Right	Thru	Left	Thru	Right	Left	Thru	Right	
10	Main at Foothills	63	14	201	37	9	198				522

Priority Scheme	Stop	Free	Free
Filtered Lane	No		
Storage Area [veh]			
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median			

Movement, Approach, & Intersection Results		Free		Free	
VIC, Movement VIC Ratio	0.00	0.00	0.00	0.00	0.00
d, M, Delay for Movement [s/veh]	10.00	9.16	7.60	7.60	7.60
Movement LOS	A	A	A	A	A
95th-Percentile Queue Length [veh]	0.00	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft]	0.00	0.00	0.00	0.00	0.00
d, A, Approach Delay [s/veh]	9.58	0.00	0.00	0.00	0.00
Approach LOS	A	A	A	A	A
d, I, Intersection Delay [s/veh]		0.00			
Intersection LOS		A			

ID	Intersection Name	Northbound			Eastbound			Westbound			Total Volume
		Left	Right	Thru	Left	Right	Thru	Left	Thru	Right	
13	N Valley Rd at Bruce Dr	0	0	0	141	0	0	0	0	78	219

ID	Intersection Name	Northbound			Eastbound			Westbound			Total Volume
		Left	Right	Thru	Left	Right	Thru	Left	Thru	Right	
13	N Valley Rd at Bruce Dr	0	0	0	141	0	0	0	0	78	219

ID	Intersection Name	Northbound			Eastbound			Westbound			Total Volume
		Left	Right	Thru	Left	Right	Thru	Left	Thru	Right	
13	N Valley Rd at Bruce Dr	0	0	0	141	0	0	0	0	78	219

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Scenario 1 AM Existing & Background  
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Turning Movement Volume: Detail

ID	Intersection Name	Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume
			Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	
1	N Valley Rd at Chehalam Dr	Final Base	24	10	15	11	26	5	8	122	35	5	54	7	322
		Growth Rate	0	0	0	0	0	0	0	0	0	0	0	0	0
		In Process	0	0	0	0	0	0	0	0	0	0	0	0	0
		Net New Trips	0	0	0	0	0	0	0	0	0	0	0	0	0
		Other	0	0	0	0	0	0	0	0	0	0	0	0	0
Future Total		30	10	17	11	26	5	8	122	37	7	54	7	334	

ID	Intersection Name	Volume Type	Southbound			Northeastbound			Southwestbound			Total Volume
			Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	
3	NE Torrace Dr at Hwy 219	Final Base	13	33	15	303	211	4	4	579	-	579
		Growth Rate	0	0	0	0	0	0	0	0	0	0
		In Process	0	0	0	0	0	0	0	0	0	0
		Net New Trips	2	4	1	0	0	0	0	0	0	0
		Other	0	0	0	0	0	0	0	0	0	0
Future Total		15	37	16	303	211	4	4	585	-	585	

ID	Intersection Name	Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume
			Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	
4	N Valley Rd at Hwy 219	Final Base	14	170	131	26	95	19	18	93	20	90	53	18	747
		Growth Rate	0	0	0	0	0	0	0	0	0	0	0	0	0
		In Process	0	0	0	0	0	0	0	0	0	0	0	0	0
		Net New Trips	0	1	1	0	0	1	1	1	0	0	1	0	0
		Other	0	0	0	0	0	0	0	0	0	0	0	0	0
Future Total		14	171	132	26	95	20	19	94	20	90	54	18	753	

ID	Intersection Name	Volume Type	Northbound			Southbound			Westbound			Total Volume
			Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	
5	Chehalam Dr at Foothills Dr	Final Base	28	141	34	25	78	19	325	-	-	325
		Growth Rate	0	0	0	0	0	0	0	0	0	0
		In Process	0	0	0	0	0	0	0	0	0	0
		Net New Trips	6	4	7	18	13	5	53	-	-	53
		Other	0	0	0	0	0	0	0	0	0	0
Future Total		34	145	41	43	91	24	378	-	-	378	

ID	Intersection Name	Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
6	Foothills Dr at Hwy 219	Final Base	100	272	38	5	192	16	27	11	150	84	11	27	933
		Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
		In Process	0	0	0	0	0	0	0	0	0	0	0	0	0
		Net New Trips	3	1	0	0	4	0	0	0	10	0	0	0	18
		Other	0	0	0	0	0	0	0	0	0	0	0	0	0
	Future Total	103	273	38	5	196	16	27	11	160	84	11	27	951	

ID	Intersection Name	Volume Type	Northbound			Southbound			Westbound			Total Volume
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
7	West Access at Chehaltem Dr	Final Base	48	0	62	0	0	0	0	0	110	110
		Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
		In Process	0	0	0	0	0	0	0	0	0	0
		Net New Trips	3	8	3	1	24	5	44	0	0	0
		Other	0	0	0	0	0	0	0	0	0	0
	Future Total	51	8	65	3	63	24	5	44	154	154	

ID	Intersection Name	Volume Type	Northbound			Eastbound			Westbound			Total Volume	
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right		
10	Main at Foothills	Final Base	63	14	190	37	9	180	493	0	0	0	493
		Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
		In Process	0	0	0	0	0	0	0	0	0	0	0
		Net New Trips	0	0	0	11	0	0	18	29	0	0	0
		Other	0	0	0	0	0	0	0	0	0	0	0
	Future Total	63	14	201	37	9	198	522	0	0	0	522	

ID	Intersection Name	Volume Type	Northbound			Eastbound			Westbound			Total Volume	
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right		
13	N Valley Rd at Bruce Dr	Final Base	0	0	139	0	0	78	215	0	0	0	215
		Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
		In Process	0	0	0	0	0	0	0	0	0	0	0
		Net New Trips	0	0	2	0	0	2	4	0	0	0	0
		Other	0	0	0	0	0	0	0	0	0	0	0
	Future Total	0	0	141	0	0	78	219	0	0	0	219	

Signal Warrants Report For Intersection 1: N Valley Rd at Chehaltem Dr

Warrants Summary

Warrant #	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	No
#3	Peak Hour	No

Intersection Warrants Parameters

Major Approaches	E,W
Minor Approaches	N,S
Speed > 40mph	Yes
Population < 10,000	No
Warrant Factor	70%

Warrant Analysis Traffic Volumes

Hour	Major Streets			Minor Streets		
	E	W	S	N	S	S
1	68	167	42	42	57	57
2	65	160	40	40	55	55
3	64	157	39	39	54	54
4	54	134	34	34	46	46
5	52	127	32	32	43	43
6	46	114	29	29	39	39
7	43	105	26	26	36	36
8	41	100	25	25	34	34
9	33	80	20	20	27	27
10	31	75	19	19	26	26
11	31	75	19	19	26	26
12	29	72	18	18	25	25
13	27	65	16	16	22	22
14	24	60	15	15	21	21
15	24	60	15	15	21	21
16	24	58	15	15	20	20
17	14	33	8	8	11	11
18	7	17	4	4	6	6
19	7	17	4	4	6	6
20	3	7	2	2	2	2
21	2	5	1	1	2	2
22	2	5	1	1	2	2
23	1	3	1	1	1	1
24	1	3	1	1	1	1

Signal Warrants Report For Intersection 3: NE Terrace Dr at Hwy 219

Warrant Analysis by Hour

Hour	Major Lanes	Minor Lanes	Warrant 1 Condition A	Warrant 1 Condition B	Warrant 2	Warrant 3
	Number	Volume	100%	80%	70%	56%
1	2	235	No	No	No	No
2	2	225	No	No	No	No
3	2	221	No	No	No	No
4	2	188	No	No	No	No
5	2	179	No	No	No	No
6	2	160	No	No	No	No
7	2	148	No	No	No	No
8	2	141	No	No	No	No
9	2	113	No	No	No	No
10	2	108	No	No	No	No
11	2	108	No	No	No	No
12	2	101	No	No	No	No
13	2	92	No	No	No	No
14	2	84	No	No	No	No
15	2	84	No	No	No	No
16	2	82	No	No	No	No
17	2	47	No	No	No	No
18	2	25	No	No	No	No
19	2	24	No	No	No	No
20	2	10	No	No	No	No
21	2	7	No	No	No	No
22	2	7	No	No	No	No
23	2	4	No	No	No	No
24	2	4	No	No	No	No
Hours Met			0	0	0	0

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	No
#3	Peak Hour	No

Intersection Warrants Parameters

Major Approaches	NE SW
Minor Approaches	N
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

Warrant Analysis Traffic Volumes

Hour	NE	SW	Minor Streets
1	215	319	N
2	206	306	52
3	202	300	50
4	172	255	49
5	163	242	42
6	146	217	40
7	135	201	35
8	129	191	33
9	103	153	31
10	97	144	25
11	97	144	23
12	92	137	23
13	84	124	22
14	77	115	20
15	77	115	20
16	75	112	19
17	43	64	18
18	24	35	10
19	22	32	6
20	9	13	5
21	6	10	2
22	6	6	2
23	4	6	2
24	4	6	1

Warrant 3 Condition A

Total Stopped Delay Per Vehicle on Minor Approach (s)	N	S
Number of Lanes on Minor Street Approach	11.2	11
Vehicle-hours of Stopped Delay on Minor Approach (ft-hum)	0.07	1
Delay Condition Met	No	0:10
Volume on Minor Street Approach During Same Hour	42	57
High Minor Volume Condition Met	No	No
Total Entering Volume on All Approaches During Same Hour	334	334
Number of Approaches on Intersection	4	4
Total Volume Condition Met	No	No
Warrant Met for Approach	No	No
Warrant Met for Intersection	No	No



Warrant Analysis by Hour

Hour	Minor Lanes		Minor Lanes		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	50%	100%	80%	70%	55%	Condition B	Condition B
1	3	534	1	52	No	No	No	No	No	No	No	Yes	No	No
2	3	512	1	50	No	No	No	No	No	No	No	Yes	No	No
3	3	602	1	49	No	No	No	No	No	No	No	No	No	No
4	3	427	1	42	No	No	No	No	No	No	No	No	No	No
5	3	405	1	40	No	No	No	No	No	No	No	No	No	No
6	3	363	1	35	No	No	No	No	No	No	No	No	No	No
7	3	318	1	31	No	No	No	No	No	No	No	No	No	No
8	3	320	1	31	No	No	No	No	No	No	No	No	No	No
9	3	256	1	23	No	No	No	No	No	No	No	No	No	No
10	3	241	1	23	No	No	No	No	No	No	No	No	No	No
11	3	241	1	23	No	No	No	No	No	No	No	No	No	No
12	3	229	1	22	No	No	No	No	No	No	No	No	No	No
13	3	208	1	20	No	No	No	No	No	No	No	No	No	No
14	3	192	1	19	No	No	No	No	No	No	No	No	No	No
15	3	192	1	19	No	No	No	No	No	No	No	No	No	No
16	3	187	1	18	No	No	No	No	No	No	No	No	No	No
17	3	107	1	10	No	No	No	No	No	No	No	No	No	No
18	3	59	1	6	No	No	No	No	No	No	No	No	No	No
19	3	54	1	5	No	No	No	No	No	No	No	No	No	No
20	3	22	1	2	No	No	No	No	No	No	No	No	No	No
21	3	16	1	2	No	No	No	No	No	No	No	No	No	No
22	3	16	1	2	No	No	No	No	No	No	No	No	No	No
23	3	10	1	1	No	No	No	No	No	No	No	No	No	No
24	3	10	1	1	No	No	No	No	No	No	No	No	No	No
Hours Met					0	0	0	0	0	0	0	2	0	0

Warrant 3 Condition A

Orientation	N
Total Stopped Delay Per Vehicle on Minor Approach (s)	11.7
Number of Lanes on Minor Street Approach	1
Vehicle-Hours of Stopped Delay on Minor Approach (h:hr:min)	0:10
Delay Condition Met	No
Volume on Minor Street Approach During Same Hour	52
High Minor Volume Condition Met	No
Total Entering Volume on All Approaches During Same Hour	508
Number of Approaches on Intersection	3
Total Volume Condition Met	No
Warrant Met for Approach	No
Warrant Met for Intersection	No

Warrants Summary

Warrant #	Name	Eight Hour Vehicular Volume	Four Hour Vehicular Volume	Peak Hour	Met?
#1					No
#2					No
#3					No

Intersection Warrants Parameters

Major Approaches	S, N
Minor Approaches	E, W
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

Warrant Analysis Traffic Volumes

Hour	Major Streets				Minor Streets
	S	N	E	W	
1	317	141	162	133	133
2	304	135	156	128	128
3	288	133	152	125	125
4	254	113	135	105	105
5	241	107	123	101	101
6	216	86	110	90	90
7	200	89	102	84	84
8	190	85	97	80	80
9	152	68	76	64	64
10	143	63	73	60	60
11	143	61	70	57	57
12	136	61	70	57	57
13	124	55	63	52	52
14	114	51	56	48	48
15	111	49	53	47	47
16	111	49	53	47	47
17	63	28	32	27	27
18	35	10	16	13	13
19	32	14	16	13	13
20	32	14	16	13	13
21	13	4	5	4	4
22	10	4	5	4	4
23	6	3	3	3	3
24	6	3	3	3	3

Warrant Analysis by Hour

Hour	Major Lanes		Minor Lanes		Warrant 1 Condition A					Warrant 1 Condition B			Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	50%	100%	80%	70%	56%		
1	2	458	2	295	No	No	Yes	Yes	No	No	No	No	No	No
2	2	439	2	284	No	No	Yes	Yes	No	No	No	No	No	No
3	2	431	2	277	No	No	Yes	Yes	No	No	No	No	No	No
4	2	367	2	236	No	No	No	Yes	No	No	No	No	No	No
5	2	348	2	224	No	No	No	Yes	No	No	No	No	No	No
6	2	312	2	200	No	No	No	No	No	No	No	No	No	No
7	2	269	2	166	No	No	No	No	No	No	No	No	No	No
8	2	275	2	177	No	No	No	No	No	No	No	No	No	No
9	2	220	2	142	No	No	No	No	No	No	No	No	No	No
10	2	206	2	133	No	No	No	No	No	No	No	No	No	No
11	2	206	2	133	No	No	No	No	No	No	No	No	No	No
12	2	197	2	127	No	No	No	No	No	No	No	No	No	No
13	2	179	2	115	No	No	No	No	No	No	No	No	No	No
14	2	165	2	106	No	No	No	No	No	No	No	No	No	No
15	2	165	2	106	No	No	No	No	No	No	No	No	No	No
16	2	160	2	104	No	No	No	No	No	No	No	No	No	No
17	2	91	2	59	No	No	No	No	No	No	No	No	No	No
18	2	51	2	33	No	No	No	No	No	No	No	No	No	No
19	2	46	2	29	No	No	No	No	No	No	No	No	No	No
20	2	19	2	11	No	No	No	No	No	No	No	No	No	No
21	2	14	2	9	No	No	No	No	No	No	No	No	No	No
22	2	14	2	9	No	No	No	No	No	No	No	No	No	No
23	2	9	2	6	No	No	No	No	No	No	No	No	No	No
24	2	9	2	6	No	No	No	No	No	No	No	No	No	No
Hours Met					0	0	3	5	0	0	0	0	0	0

Warrant 3 Condition A

Orientation	E	W
Total Stopped Delay Per Vehicle on Minor Approach (s)	31.2	20.9
Number of Lanes on Minor Street Approach	1	1
Vehicle/Hours of Stopped Delay on Minor Approach (h/veh)	1129	046
Delay Condition Met	No	No
Volume on Minor Street Approach During Same Hour	162	133
High Minor Volume Condition Met	Yes	Yes
Total Entering Volume on All Approaches During Same Hour	753	753
Number of Approaches on Intersection	4	4
Total Volume Condition Met	No	No
Warrant Met for Approach	No	No
Warrant Met for Intersection	No	No

Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	No
#3	Peak Hour	No

Intersection Warrants Parameters

Major Approaches	N, S
Minor Approaches	E
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

Warrant Analysis Traffic Volumes

Hour	Major Streets			Minor Streets
	N	S	E	
1	84	179	115	
2	81	172	110	
3	79	169	108	
4	67	143	92	
5	64	136	87	
6	57	122	78	
7	53	117	72	
8	50	107	69	
9	40	86	55	
10	38	81	52	
11	38	81	52	
12	38	77	49	
13	33	70	45	
14	30	64	41	
15	30	64	41	
16	29	63	40	
17	17	36	23	
18	9	20	13	
19	8	18	12	
20	3	7	5	
21	3	5	3	
22	3	5	3	
23	2	4	2	
24	2	4	2	

Warrant Analysis by Hour

Hour	Major Lanes		Minor Lanes		Warrant 1 Condition A					Warrant 1 Condition B					Warrant 2	Warrant 3	Condition B
	Number	Volume	Number	Volume	100%	80%	70%	50%	100%	80%	70%	50%	50%	50%			
1	2	263	1	115	No	No	No	No	No	No	No	No	No	No	No	No	No
2	2	253	1	110	No	No	No	No	No	No	No	No	No	No	No	No	No
3	2	247	1	108	No	No	No	No	No	No	No	No	No	No	No	No	No
4	2	210	1	92	No	No	No	No	No	No	No	No	No	No	No	No	No
5	2	200	1	87	No	No	No	No	No	No	No	No	No	No	No	No	No
6	2	179	1	78	No	No	No	No	No	No	No	No	No	No	No	No	No
7	2	166	1	72	No	No	No	No	No	No	No	No	No	No	No	No	No
8	2	157	1	69	No	No	No	No	No	No	No	No	No	No	No	No	No
9	2	126	1	55	No	No	No	No	No	No	No	No	No	No	No	No	No
10	2	119	1	52	No	No	No	No	No	No	No	No	No	No	No	No	No
11	2	119	1	52	No	No	No	No	No	No	No	No	No	No	No	No	No
12	2	113	1	49	No	No	No	No	No	No	No	No	No	No	No	No	No
13	2	103	1	45	No	No	No	No	No	No	No	No	No	No	No	No	No
14	2	94	1	41	No	No	No	No	No	No	No	No	No	No	No	No	No
15	2	94	1	41	No	No	No	No	No	No	No	No	No	No	No	No	No
16	2	92	1	40	No	No	No	No	No	No	No	No	No	No	No	No	No
17	2	53	1	23	No	No	No	No	No	No	No	No	No	No	No	No	No
18	2	29	1	13	No	No	No	No	No	No	No	No	No	No	No	No	No
19	2	26	1	12	No	No	No	No	No	No	No	No	No	No	No	No	No
20	2	10	1	5	No	No	No	No	No	No	No	No	No	No	No	No	No
21	2	8	1	3	No	No	No	No	No	No	No	No	No	No	No	No	No
22	2	8	1	3	No	No	No	No	No	No	No	No	No	No	No	No	No
23	2	6	1	2	No	No	No	No	No	No	No	No	No	No	No	No	No
24	2	6	1	2	No	No	No	No	No	No	No	No	No	No	No	No	No
Hours Met					0	0	0	0	0	0	0	0	0	0	0	0	0

Warrant 3 Condition A

Total Stopped Delay Per Vehicle on Minor Approach (s)	E
Number of Lanes on Minor Street Approach	13.3
VehicleHours of Stopped Delay on Minor Approach (hh:mm)	1
Delay Condition Met	0:25
Volume on Minor Street Approach During Same Hour	115
High Minor Volume Condition Met	Yes
Total Entering Volume on All Approaches During Same Hour	378
Number of Approaches on Intersection	3
Total Volume Condition Met	No
Warrant Met for Approach	No
Warrant Met for Intersection	No

Warrant Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	No
#3	Peak Hour	No

Intersection Warrants Parameters

Major Approaches	N S
Minor Approaches	E W
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

Warrant Analysis Traffic Volumes

Hour	Major Streets			Minor Streets		
	N	S	E	W	E	W
1	217	414	122	139		
2	208	397	117	130		
3	204	389	115	186		
4	174	331	98	150		
5	165	315	93	150		
6	148	282	83	135		
7	137	261	77	123		
8	130	243	73	119		
9	104	199	59	95		
10	98	186	55	89		
11	98	186	55	89		
12	93	178	52	85		
13	85	161	48	77		
14	78	149	44	71		
15	76	145	43	69		
16	43	83	24	40		
17	24	48	13	22		
18	22	41	12	20		
19	9	17	5	8		
20	7	12	4	6		
21	7	12	4	6		
22	4	8	2	4		
23	4	8	2	4		
24	4	8	2	4		

Warrants Summary

Warrant #	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	No
#3	Peak Hour	No

Intersection Warrants Parameters

Major Approaches	N, S
Minor Approaches	E
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

Warrant Analysis Traffic Volumes

Hour	Major Streets			Minor Streets
	N	S	E	
1	66	59	29	
2	63	57	28	
3	62	55	27	
4	53	47	23	
5	50	45	22	
6	45	40	20	
7	42	37	18	
8	40	35	17	
9	32	28	14	
10	30	27	13	
11	30	27	13	
12	28	25	12	
13	26	23	11	
14	24	21	10	
15	24	21	10	
16	23	21	10	
17	13	12	6	
18	7	6	3	
19	7	6	3	
20	3	2	1	
21	2	2	1	
22	2	2	1	
23	1	1	1	
24	1	1	1	

Warrant Analysis by Hour

Hour	Minor Lanes			Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Volume	100%	80%	70%	56%	100%	80%	70%	56%		
1	4	631	3	Yes	Yes	Yes	Yes	No	No	Yes	Yes	No	No
2	4	605	3	Yes	Yes	Yes	Yes	No	No	Yes	Yes	No	No
3	4	593	3	Yes	Yes	Yes	Yes	No	No	Yes	Yes	No	No
4	4	505	3	Yes	Yes	Yes	Yes	No	No	Yes	Yes	No	No
5	4	480	3	Yes	Yes	Yes	Yes	No	No	Yes	Yes	No	No
6	4	430	3	No	No	Yes	Yes	No	No	No	No	No	No
7	4	398	3	No	No	Yes	Yes	No	No	No	No	No	No
8	4	378	3	No	No	No	Yes	No	No	No	No	No	No
9	4	303	3	No	No	No	No	No	No	No	No	No	No
10	4	284	3	No	No	No	No	No	No	No	No	No	No
11	4	284	3	No	No	No	No	No	No	No	No	No	No
12	4	271	3	No	No	No	No	No	No	No	No	No	No
13	4	248	3	No	No	No	No	No	No	No	No	No	No
14	4	227	3	No	No	No	No	No	No	No	No	No	No
15	4	227	3	No	No	No	No	No	No	No	No	No	No
16	4	221	3	No	No	No	No	No	No	No	No	No	No
17	4	128	3	No	No	No	No	No	No	No	No	No	No
18	4	70	3	No	No	No	No	No	No	No	No	No	No
19	4	63	3	No	No	No	No	No	No	No	No	No	No
20	4	26	3	No	No	No	No	No	No	No	No	No	No
21	4	19	3	No	No	No	No	No	No	No	No	No	No
22	4	10	3	No	No	No	No	No	No	No	No	No	No
23	4	12	3	No	No	No	No	No	No	No	No	No	No
24	4	12	3	No	No	No	No	No	No	No	No	No	No

Warrant 3 Condition A

Orientation	E	W
Total Stoppage Delay Per Vehicle on Minor Approach (s)	54.7	17.6
Number of Lanes on Minor Street Approach	2	1
Vehiclehours of Stoppage Delay on Minor Approach (h:hr:min)	1:51	0:30
Delay Condition Met	No	No
Volume on Minor Street Approach During Same Hour	122	198
High Minor Volume Condition Met	No	Yes
Total Entering Volume on All Approaches During Same Hour	951	951
Number of Approaches on Intersection	4	4
Total Volume Condition Met	Yes	Yes
Warrant Met for Approach	No	No
Warrant Met for Intersection	No	No

Warrant Analysis by Hour

Hour	Major Lanes		Minor Lanes		Warrant 1 Condition A					Warrant 1 Condition B					Warrant 2/Warrant 3 Condition B		
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%	100%	80%	70%	56%	Condition
1	2	125	1	29	No	No	No	No	No	No	No	No	No	No	No	No	No
2	2	120	1	28	No	No	No	No	No	No	No	No	No	No	No	No	No
3	2	117	1	27	No	No	No	No	No	No	No	No	No	No	No	No	No
4	2	100	1	23	No	No	No	No	No	No	No	No	No	No	No	No	No
5	2	95	1	22	No	No	No	No	No	No	No	No	No	No	No	No	No
6	2	85	1	20	No	No	No	No	No	No	No	No	No	No	No	No	No
7	2	79	1	18	No	No	No	No	No	No	No	No	No	No	No	No	No
8	2	75	1	17	No	No	No	No	No	No	No	No	No	No	No	No	No
9	2	60	1	14	No	No	No	No	No	No	No	No	No	No	No	No	No
10	2	57	1	13	No	No	No	No	No	No	No	No	No	No	No	No	No
11	2	50	1	12	No	No	No	No	No	No	No	No	No	No	No	No	No
12	2	49	1	11	No	No	No	No	No	No	No	No	No	No	No	No	No
13	2	45	1	10	No	No	No	No	No	No	No	No	No	No	No	No	No
14	2	45	1	10	No	No	No	No	No	No	No	No	No	No	No	No	No
15	2	45	1	10	No	No	No	No	No	No	No	No	No	No	No	No	No
16	2	44	1	10	No	No	No	No	No	No	No	No	No	No	No	No	No
17	2	25	1	6	No	No	No	No	No	No	No	No	No	No	No	No	No
18	2	13	1	3	No	No	No	No	No	No	No	No	No	No	No	No	No
19	2	13	1	3	No	No	No	No	No	No	No	No	No	No	No	No	No
20	2	5	1	1	No	No	No	No	No	No	No	No	No	No	No	No	No
21	2	4	1	1	No	No	No	No	No	No	No	No	No	No	No	No	No
22	2	4	1	1	No	No	No	No	No	No	No	No	No	No	No	No	No
23	2	2	1	1	No	No	No	No	No	No	No	No	No	No	No	No	No
24	2	2	1	1	No	No	No	No	No	No	No	No	No	No	No	No	No
Hours Met					0	0	0	0	0	0	0	0	0	0	0	0	0

Warrant 3 Condition A

Orientation	E	S
Total Stopped Delay Per Vehicle on Minor Approach (s)	8.3	
Number of Lanes on Minor Street Approach	1	
Vehicle-Hours of Stopped Delay on Minor Approach (hh:mm)	0:04	
Delay Condition Met	No	
Volume on Minor Street Approach During Same Hour	23	
High Minor Volume Condition Met	No	
Total Entering Volume on All Approaches During Same Hour	154	
Number of Approaches on Intersection	3	
Total Volume Condition Met	No	
Warrant Met for Approach	No	
Warrant Met for Intersection	No	

Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	No
#3	Peak Hour	No

Intersection Warrants Parameters

Major Approaches	E, W
Minor Approaches	S
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

Warrant Analysis Traffic Volumes

Hour	Major Streets			Minor Streets
	E	W	S	
1	207	238	77	S
2	199	228	74	74
3	195	224	72	72
4	166	190	62	62
5	157	181	55	55
6	141	162	49	49
7	130	150	43	43
8	124	143	40	40
9	99	114	37	37
10	93	107	35	35
11	89	102	33	33
12	81	93	30	30
13	75	86	28	28
14	75	86	28	28
15	72	83	27	27
16	72	83	27	27
17	41	48	15	15
18	23	28	8	8
19	21	24	8	8
20	8	10	3	3
21	6	7	2	2
22	6	7	2	2
23	4	5	2	2
24	4	5	2	2

Warrant Analysis by Hour

Hour	Minor Lanes		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2/Warrant 3	
	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%	Condition A	Condition B
1	2	445	1	No	No	No	No	No	No	No	No	No
2	2	427	1	No	No	No	No	No	No	No	No	No
3	2	419	1	No	No	No	No	No	No	No	No	No
4	2	356	1	No	No	No	No	No	No	No	No	No
5	2	338	1	No	No	No	No	No	No	No	No	No
6	2	303	1	No	No	No	No	No	No	No	No	No
7	2	280	1	No	No	No	No	No	No	No	No	No
8	2	267	1	No	No	No	No	No	No	No	No	No
9	2	213	1	No	No	No	No	No	No	No	No	No
10	2	200	1	No	No	No	No	No	No	No	No	No
11	2	200	1	No	No	No	No	No	No	No	No	No
12	2	191	1	No	No	No	No	No	No	No	No	No
13	2	174	1	No	No	No	No	No	No	No	No	No
14	2	161	1	No	No	No	No	No	No	No	No	No
15	2	161	1	No	No	No	No	No	No	No	No	No
16	2	155	1	No	No	No	No	No	No	No	No	No
17	2	89	1	No	No	No	No	No	No	No	No	No
18	2	49	1	No	No	No	No	No	No	No	No	No
19	2	45	1	No	No	No	No	No	No	No	No	No
20	2	18	1	No	No	No	No	No	No	No	No	No
21	2	13	1	No	No	No	No	No	No	No	No	No
22	2	13	1	No	No	No	No	No	No	No	No	No
23	2	9	1	No	No	No	No	No	No	No	No	No
24	2	9	1	No	No	No	No	No	No	No	No	No
Hours Met				0	0	0	0	0	0	0	0	0

Warrant 3 Condition A

Orientation	Condition A
Total Stopped Delay Per Vehicle on Minor Approach (s)	16
Number of Lanes on Minor Street Approach	1
Vehicle-Hours of Stopped Delay on Minor Approach (h:mm)	0:23
Delay Condition Met	No
Volume on Minor Street Approach During Same Hour	77
High Minor Volume Condition Met	No
Total Entering Volume on All Approaches During Same Hour	522
Number of Approaches on Intersection	3
Total Volume Condition Met	No
Warrant Met for Approach	No
Warrant Met for Intersection	No

Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	No
#3	Peak Hour	No

Intersection Warrants Parameters

Major Approaches	E, W
Minor Approaches	S
Speed > 40mph	Yes
Population < 10,000	No
Warrant Factor	70%

Warrant Analysis Traffic Volumes

Hour	Major Streets			Minor Streets
	E	W	S	
1	78	141	0	0
2	75	135	0	0
3	73	133	0	0
4	62	113	0	0
5	59	107	0	0
6	53	96	0	0
7	49	89	0	0
8	47	85	0	0
9	37	68	0	0
10	35	63	0	0
11	35	63	0	0
12	34	61	0	0
13	30	55	0	0
14	28	51	0	0
15	28	51	0	0
16	27	49	0	0
17	16	28	0	0
18	9	18	0	0
19	8	14	0	0
20	6	10	0	0
21	2	4	0	0
22	2	4	0	0
23	2	4	0	0
24	2	3	0	0

Warrant Analysis by Hour

Hour	Major Lanes		Minor Lanes		Warrant 1 Condition A					Warrant 1 Condition B					Warrant 2	Warrant 3	Warrant 4
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%	100%	80%			
1	2	219	1	0	No	No	No	No	No	No	No	No	No	No	No	No	No
2	2	210	1	0	No	No	No	No	No	No	No	No	No	No	No	No	No
3	2	206	1	0	No	No	No	No	No	No	No	No	No	No	No	No	No
4	2	175	1	0	No	No	No	No	No	No	No	No	No	No	No	No	No
5	2	166	1	0	No	No	No	No	No	No	No	No	No	No	No	No	No
6	2	149	1	0	No	No	No	No	No	No	No	No	No	No	No	No	No
7	2	138	1	0	No	No	No	No	No	No	No	No	No	No	No	No	No
8	2	132	1	0	No	No	No	No	No	No	No	No	No	No	No	No	No
9	2	105	1	0	No	No	No	No	No	No	No	No	No	No	No	No	No
10	2	98	1	0	No	No	No	No	No	No	No	No	No	No	No	No	No
11	2	95	1	0	No	No	No	No	No	No	No	No	No	No	No	No	No
12	2	85	1	0	No	No	No	No	No	No	No	No	No	No	No	No	No
13	2	85	1	0	No	No	No	No	No	No	No	No	No	No	No	No	No
14	2	79	1	0	No	No	No	No	No	No	No	No	No	No	No	No	No
15	2	79	1	0	No	No	No	No	No	No	No	No	No	No	No	No	No
16	2	76	1	0	No	No	No	No	No	No	No	No	No	No	No	No	No
17	2	44	1	0	No	No	No	No	No	No	No	No	No	No	No	No	No
18	2	25	1	0	No	No	No	No	No	No	No	No	No	No	No	No	No
19	2	22	1	0	No	No	No	No	No	No	No	No	No	No	No	No	No
20	2	3	1	0	No	No	No	No	No	No	No	No	No	No	No	No	No
21	2	6	1	0	No	No	No	No	No	No	No	No	No	No	No	No	No
22	2	6	1	0	No	No	No	No	No	No	No	No	No	No	No	No	No
23	2	5	1	0	No	No	No	No	No	No	No	No	No	No	No	No	No
24	2	5	1	0	No	No	No	No	No	No	No	No	No	No	No	No	No
Hours Met					0	0	0	0	0	0	0	0	0	0	0	0	0

Warrant 3 Condition A

Orientation	S
Total Stopped Delay Per Vehicle on Minor Approach (s)	9.6
Number of Lanes on Minor Street Approach	1
Vehicle-Hours of Stopped Delay on Minor Approach (hh:mm)	0:00
Delay Condition Met	No
Volume on Minor Street Approach During Same Hour	0
High Minor Volume Condition Met	No
Total Entering Volume on All Approaches During Same Hour	219
Number of Approaches on Intersection	3
Total Volume Condition Met	No
Warrant Met for Approach	No
Warrant Met for Intersection	No

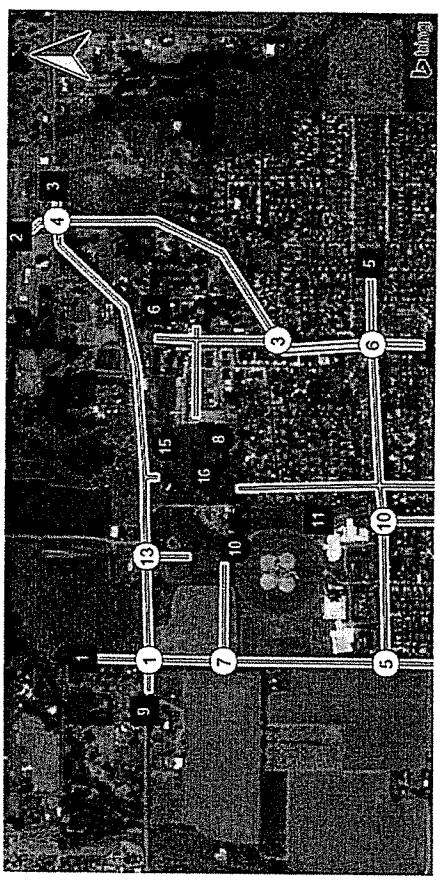
Kings Landing TIA

Scenario 1 AM Existing & Background  
12/11/2017

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Report File: J:\...AM Existing & Background.pdf

Trip Generation summary

Zone ID: Name	Land Use variables	Code	Ind. Var.	Rate	Quantity	% In	% Out	Trips In	Trips Out	Total Trips	% of Total Trips	
												ITE 210 B Units
8: Duchman's Ridge	Homes	ITE 210 B Units		0.750	46,000	25.00	75.00	8	26	34	46.58	
10: Grace's Landing	Homes	ITE 210 B Units		0.750	52,000	25.00	75.00	10	29	39	53.42	
Added Trips Total											73	100.00

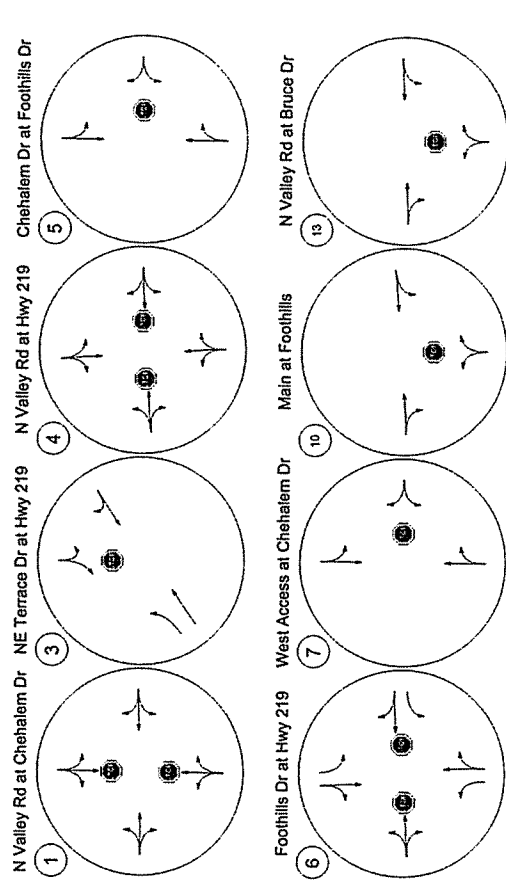


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 Scenario 1 AM Existing & Background  
 12/11/2017

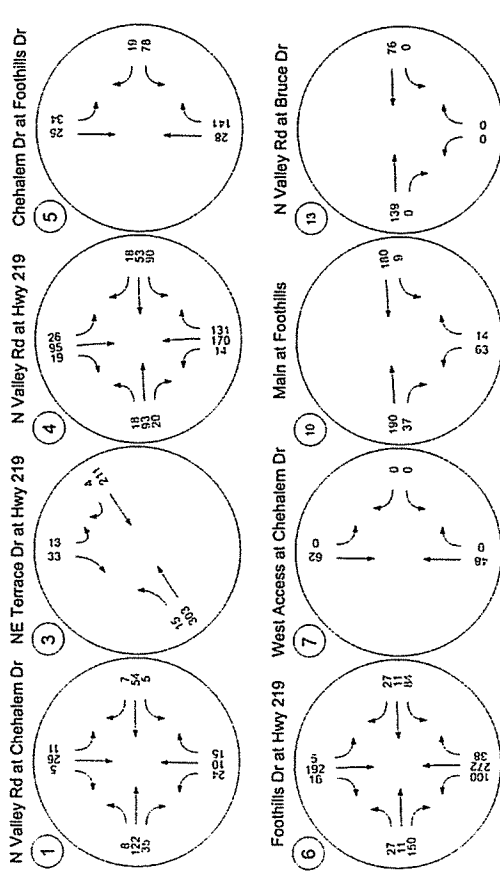
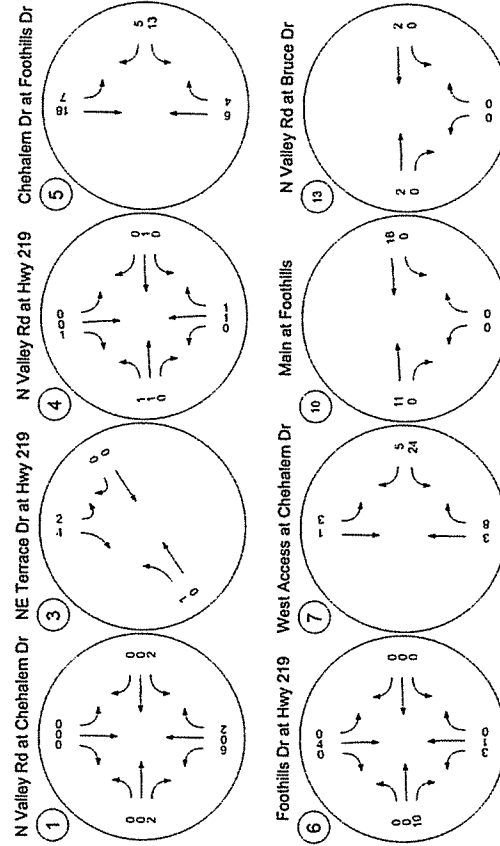
**Trip Distribution summary**

Zone / Gate	To Dutchman's Ridge			From Dutchman's Ridge			Zone 10: Gracie's Landing			From Gracie's Landing		
	Share %	Trips	Share %	Trips	Share %	Trips	Share %	Trips	Share %	Trips	Share %	Trips
10: Gracie's Landing	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
15: Kings Landing N	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
16: Kings Landing S	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
1: Gate	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
2: Gate	5.00	0	5.00	1	5.00	1	5.00	1	5.00	1	5.00	1
3: Gate	5.00	0	5.00	1	5.00	1	5.00	1	5.00	1	5.00	1
4: Gate	30.00	2	30.00	8	20.00	2	20.00	8	20.00	2	20.00	8
5: Gate	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
6: Gate	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
7: Gate	50.00	4	50.00	13	60.00	6	60.00	18	10.00	1	10.00	3
8: Gate	10.00	1	10.00	3	0.00	0	0.00	0	0.00	0	0.00	0
9: Gate	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
11: Gate	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
12: Gate	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
<b>Total</b>	<b>100.00</b>	<b>7</b>	<b>100.00</b>	<b>28</b>	<b>100.00</b>	<b>11</b>	<b>100.00</b>	<b>29</b>				

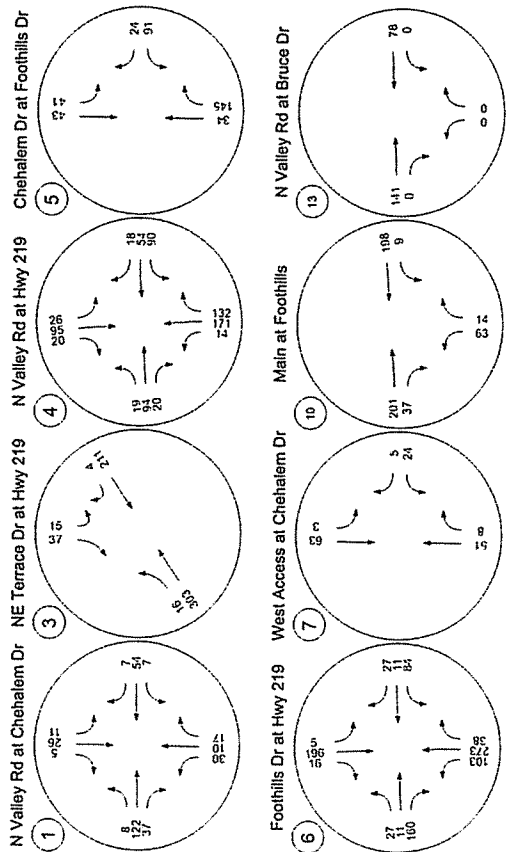
Zone / Gate	To Dutchman's Ridge			From Dutchman's Ridge			Zone 10: Gracie's Landing			From Gracie's Landing		
	Share %	Trips	Share %	Trips	Share %	Trips	Share %	Trips	Share %	Trips	Share %	Trips
8: Dutchman's Ridge	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
15: Kings Landing N	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
16: Kings Landing S	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
1: Gate	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
2: Gate	5.00	0	5.00	1	5.00	1	5.00	1	5.00	1	5.00	1
3: Gate	5.00	0	5.00	1	5.00	1	5.00	1	5.00	1	5.00	1
4: Gate	30.00	2	30.00	8	20.00	2	20.00	8	20.00	2	20.00	8
5: Gate	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
6: Gate	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
7: Gate	50.00	4	50.00	13	60.00	6	60.00	18	10.00	1	10.00	3
8: Gate	10.00	1	10.00	3	0.00	0	0.00	0	0.00	0	0.00	0
9: Gate	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
11: Gate	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
12: Gate	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
<b>Total</b>	<b>100.00</b>	<b>7</b>	<b>100.00</b>	<b>28</b>	<b>100.00</b>	<b>11</b>	<b>100.00</b>	<b>29</b>				



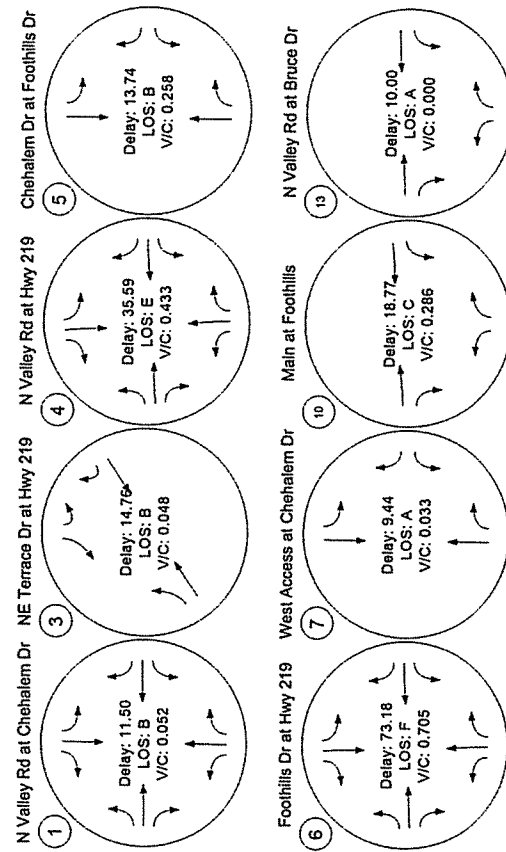




Report Figure 2f: Traffic Volume - Future Total Volume



Report Figure 3: Traffic Conditions



Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	N Valley Rd at Chehalem Dr	Two-way stop	HCM 6th Edition	NB Thru	0.042	12.0	B
3	NE Terrace Dr at Hwy 219	Two-way stop	HCM 6th Edition	SB Left	0.018	18.4	C
4	N Valley Rd at Hwy 219	Two-way stop	HCM 6th Edition	WB Left	0.324	48.1	E
5	Chehalem Dr at Foothills Dr	Two-way stop	HCM 6th Edition	WB Left	0.065	10.2	B
6	Foothills Dr at Hwy 219	Two-way stop	HCM 6th Edition	WB Left	0.606	71.0	F
7	West Access at Chehalem Dr	Two-way stop	HCM 6th Edition	WB Left	0.022	9.5	A
10	Main at Foothills	Two-way stop	HCM 6th Edition	NB Left	0.057	11.9	B
13	N Valley Rd at Bruce Dr	Two-way stop	HCM 6th Edition	NB Left	0.000	10.4	B

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value, for all other control types, they are taken for the whole intersection.

Intersection Setup

Name	Chehalem Dr Northbound	Chehalem Dr Southbound	N Valley Rd Eastbound	N Valley Rd Westbound
Approach	+	+	+	+
Lane Configuration	+	+	+	+
Turning Movement	Left Thru Right	Left Thru Right	Left Thru Right	Left Thru Right
Lane Width [ft]	12.00 12.00 12.00	12.00 12.00 12.00	12.00 12.00 12.00	12.00 12.00 12.00
No. of Lanes in Pocket	0 0 0	0 0 0	0 0 0	0 0 0
Pocket Length [ft]	0 0 0	0 0 0	0 0 0	0 0 0
Speed [mph]	35.00	35.00	45.00	45.00
Grade [%]	0.00	0.00	0.00	0.00
Crosswalk	Yes	Yes	Yes	Yes

Volumes

Name	Chehalem Dr Northbound	Chehalem Dr Southbound	N Valley Rd Eastbound	N Valley Rd Westbound
Base Volume Input [veh/h]	22 19 6 12	9 9 4 4	75 23 23 9	131 20 131 20
Base Volume Adjustment Factor	1.0948 1.0948 1.0948 1.0948	1.0948 1.0948 1.0948 1.0948	1.0948 1.0948 1.0948 1.0948	1.0948 1.0948 1.0948 1.0948
Heavy Vehicles Percentage [%]	2.10 2.10 2.10 2.10	2.10 2.10 2.10 2.10	2.10 2.10 2.10 2.10	2.10 2.10 2.10 2.10
Growth Rate	1.00 1.00 1.00 1.00	1.00 1.00 1.00 1.00	1.00 1.00 1.00 1.00	1.00 1.00 1.00 1.00
In-Process Volume [veh/h]	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0
Site-Generated Trips [veh/h]	4 0 2 0	0 0 0 0	0 0 0 0	0 0 0 0
Diversed Trips [veh/h]	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0
Press-by Trips [veh/h]	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0
Existing Site Adjustment Volume [veh/h]	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0
Other Volume [veh/h]	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0
Total Hourly Volume [veh/h]	28 21 9 13	10 4 4 4	82 31 31 14	143 22 143 22
Peak Hour Factor	0.8700 0.8700 0.8700 0.8700	0.8700 0.8700 0.8700 0.8700	0.8700 0.8700 0.8700 0.8700	0.8700 0.8700 0.8700 0.8700
Other Adjustment Factor	1.0000 1.0000 1.0000 1.0000	1.0000 1.0000 1.0000 1.0000	1.0000 1.0000 1.0000 1.0000	1.0000 1.0000 1.0000 1.0000
Total 15-Minute Volume [veh/h]	8 6 3 4	3 1 1 1	24 9 9 4	41 6 41 6
Total Analysis Volume [veh/h]	32 24 10 15	11 5 5 5	94 36 36 16	164 25 164 25
Pedestrian Volume [ped/h]	0	0	0	0

Control Type: Two-way stop  
 Analysis Method: HCM 6th Edition  
 Analysis Period: 15 minutes  
 Delay (sec / veh): 18.4  
 Level Of Service: C  
 Volume to Capacity (v/c): 0.018

Intersection Setup

Name	NE Terrace Dr	Hwy 219	Hwy 219
Approach	Southbound	Northbound	Southbound
Lane Configuration	1	1	1
Turning Movement	Left Right	Left Thru	Thru Right
Lane Width [ft]	12.00	12.00	12.00
No. of Lanes in Pocket	0	1	0
Pocket Length [ft]	0	300.00	0
Speed [mph]	25.00	40.00	40.00
Grade [%]	0.00	0.00	0.00
Crosswalk	Yes	Yes	Yes

Volumes

Name	NE Terrace Dr	Hwy 219	Hwy 219
Base Volume Input [veh/h]	2	36	190
Base Volume Adjustment Factor	1.0948	1.0948	1.0948
Heavy Vehicles Percentage [%]	5.40	5.40	5.40
Growth Rate	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0
Site-Generated Trips [veh/h]	2	3	5
Diverted Trips [veh/h]	0	0	0
Pass-by Trips [veh/h]	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0
Other Volume [veh/h]	0	0	0
Total Hourly Volume [veh/h]	4	22	44
Peak Hour Factor	0.8400	0.8400	0.8400
Other Adjustment Factor	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	7	13
Total Analysis Volume [veh/h]	5	26	52
Pedestrian Volume [ped/h]	0	248	0

Control Type: Two-way stop  
 Analysis Method: HCM 6th Edition  
 Analysis Period: 15 minutes  
 Delay (sec / veh): 18.4  
 Level Of Service: C  
 Volume to Capacity (v/c): 0.018

Movement, Approach, & Intersection Results

V/C	Movement	Approach	Delay (s)	LOS	Queue Length (ft)	Queue Length (ft)	Queue Length (ft)	Queue Length (ft)	Queue Length (ft)	Queue Length (ft)
0.05	0.04	0.01	0.03	0.02	0.01	0.00	0.01	0.01	0.01	0.01
11.74	12.01	9.52	11.60	11.68	9.48	7.61	7.50	7.50	7.50	7.50
0.36	0.38	0.36	0.16	0.16	0.16	0.32	0.32	0.49	0.49	0.49
8.00	8.00	8.00	4.05	4.05	4.05	8.09	8.09	12.26	12.26	12.26
11.50	11.50	11.29	11.29	11.29	0.28	0.28	0.28	0.59	0.59	0.59
2.90	2.90	2.90	2.90	2.90	2.90	2.90	2.90	2.90	2.90	2.90

Volumes

Name	NE Terrace Dr	Hwy 219	Hwy 219
Base Volume Input [veh/h]	2	36	190
Base Volume Adjustment Factor	1.0948	1.0948	1.0948
Heavy Vehicles Percentage [%]	5.40	5.40	5.40
Growth Rate	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0
Site-Generated Trips [veh/h]	2	3	5
Diverted Trips [veh/h]	0	0	0
Pass-by Trips [veh/h]	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0
Other Volume [veh/h]	0	0	0
Total Hourly Volume [veh/h]	4	22	44
Peak Hour Factor	0.8400	0.8400	0.8400
Other Adjustment Factor	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	7	13
Total Analysis Volume [veh/h]	5	26	52
Pedestrian Volume [ped/h]	0	248	0

Intersection Settings

Priority Scheme	Stop	Free	Free
Filtered Lane Storage Area [veh]	No		
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median			

Movement, Approach, & Intersection Results

Movement	V/C Ratio	0.05	0.05
d, M, Delay for Movement [s/veh]	18.45	12.58	8.88
Movement LOS	C	B	A
95th-Percentile Queue Length [veh]	0.22	0.17	0.00
95th-Percentile Queue Length [ft]	5.49	5.49	0.00
d, A, Approach Delay [s/veh]	13.53	1.54	0.00
Approach LOS	B	A	A
d, I, Intersection Delay [s/veh]		0.97	
Intersection LOS		C	

Intersection Level Of Service Report

Control Type:	Two-way stop	Delay (sec / veh):	48.1
Analysis Method:	HCM 6th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.324

Intersection Setup

Name	Hwy 219 Northbound	Hwy 219 Southbound	N Valley Rd Eastbound	N Valley Rd Westbound
Approach	+	+	+	+
Lane Configuration	Thru Right	Thru Right	Thru Right	Thru Right
Turning Movement	Left Thru Right	Left Thru Right	Left Thru Right	Left Thru Right
Lane Width [ft]	12.00 12.00 12.00	12.00 12.00 12.00	12.00 12.00 12.00	12.00 12.00 12.00
No. of Lanes in Pocket	0	0	0	0
Pocket Length [ft]				
Speed [mph]	40.00	40.00	45.00	45.00
Grade [%]	0.00	0.00	0.00	0.00
Crosswalk	Yes	Yes	Yes	Yes

Volumes

Name	Hwy 219	Hwy 219	Hwy 219	N Valley Rd	N Valley Rd
Base Volume Input [veh/h]	20	130	34	11	350
Base Volume Adjustment Factor	1.0948	1.0948	1.0948	1.0948	1.0948
Heavy Vehicles Percentage [%]	4.00	4.00	4.00	4.00	4.00
Growth Rate	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0
Site-Generated Trips [veh/h]	0	1	0	1	2
Diverted Trips [veh/h]	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0
Total Hourly Volume [veh/h]	22	143	38	12	384
Peak Hour Factor	0.8900	0.8900	0.8900	0.8900	0.8900
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	6	41	11	3	109
Pedestrian Volume [ped/h]	25	163	43	14	436
	0	0	0	0	0

Intersection Level Of Service Report  
 Intersection 5: Chehalam Dr at Foothills Dr  
 Control Type: Two-way stop  
 Analysis Method: HCM 6th Edition  
 Analysis Period: 15 minutes  
 Delay (sec / veh): 10.2  
 Level Of Service: B  
 Volume to Capacity (v/c): 0.065

Intersection Setup		Chehalam Dr		Chehalam Dr		Foothills Dr	
Approach		Northbound		Southbound		Westbound	
Lane Configuration		T		T		T	
Turning Movement		Thru	Right	Left	Thru	Left	Right
Lane Width [ft]		12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket		0	0	0	0	0	0
Pocket Length [ft]		35.00		35.00		25.00	
Speed [mph]		35.00		35.00		25.00	
Grade [%]		0.00		0.00		0.00	
Crosswalk		Yes		Yes		Yes	

Volumes

Name	Chehalam Dr				Foothills Dr			
	38	11	15	32	27	15	27	7
Base Volume Input [veh/h]	1,094	1,094	1,094	1,094	1,094	1,094	1,094	1,094
Base Volume Adjustment Factor	2.40	2.40	2.40	2.40	2.40	2.40	2.40	2.40
Heavy Vehicles Percentage [%]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Growth Rate	0	0	0	0	0	0	0	0
In-Process Volume [veh/h]	20	15	7	11	8	9	9	9
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0
Diverter Trips [veh/h]	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0
Other Volume [veh/h]	62	27	23	46	38	17	17	17
Total Hourly Volume [veh/h]	0.7700	0.7700	0.7700	0.7700	0.7700	0.7700	0.7700	0.7700
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	20	9	7	15	12	6	6	6
Total 15-Minute Volume [veh/h]	81	35	30	60	49	22	22	22
Total Analysis Volume [veh/h]	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]								

Intersection Settings  
 Priority Scheme: Freeo  
 Flared Lane: No  
 Storage Area [veh]: No  
 Two-Stage Gap Acceptance: No  
 Number of Storage Spaces in Median: No

Movement, Approach, & Intersection Results											
VIC Movement	VIC Ratio	A			C			E			
		0.02	0.01	0.06	0.24	0.05	0.32	0.38	0.04		
d, M, Delay for Movement [s/veh]	8.47	7.69	29.01	21.61	16.58	48.05	43.70	36.74			
Movement LOS	A	A	A	D	C	E	E	E			
95th-Percentile Queue Length [veh]	0.83	0.83	1.76	1.54	1.54	5.66	5.66	5.66			
95th-Percentile Queue Length [ft]	20.70	20.70	44.05	44.05	38.38	141.49	141.49	141.49			
d, A, Approach Delay [s/veh]	0.82	0.21	20.95	20.95	20.95	44.03	44.03	44.03			
Approach LOS	A	A	C	C	C	E	E	E			
d, I, Intersection Delay [s/veh]			12.05	12.05	12.05	12.05	12.05	12.05			
Intersection LOS			E	E	E	E	E	E			

Volumes

Name	Chehalam Dr				Foothills Dr			
	38	11	15	32	27	15	27	7
Base Volume Input [veh/h]	1,094	1,094	1,094	1,094	1,094	1,094	1,094	1,094
Base Volume Adjustment Factor	2.40	2.40	2.40	2.40	2.40	2.40	2.40	2.40
Heavy Vehicles Percentage [%]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Growth Rate	0	0	0	0	0	0	0	0
In-Process Volume [veh/h]	20	15	7	11	8	9	9	9
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0
Diverter Trips [veh/h]	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0
Other Volume [veh/h]	62	27	23	46	38	17	17	17
Total Hourly Volume [veh/h]	0.7700	0.7700	0.7700	0.7700	0.7700	0.7700	0.7700	0.7700
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	20	9	7	15	12	6	6	6
Total 15-Minute Volume [veh/h]	81	35	30	60	49	22	22	22
Total Analysis Volume [veh/h]	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]								

Intersection Level Of Service Report  
 Intersection 6: Foothills Dr at Hwy 219  
 Control Type: Two-way stop  
 Analysis Method: HCM 6th Edition  
 Analysis Period: 15 minutes  
 Delay (sec / veh): 71.0  
 Level Of Service: F  
 Volume to Capacity (v/c): 0.606

Intersection Setup

Name	Hwy 219 Northbound			Hwy 219 Southbound			Foothills Dr Eastbound			Foothills Dr Westbound		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Approach	T			T			T			T		
Lane Configuration	T			T			T			T		
Turning Movement	T			T			T			T		
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	1	0	1	1	0	0	0	0	1	1	0
Pocket Length [ft]	125.00	150.00	150.00	150.00	150.00	150.00	150.00	150.00	150.00	90.00	90.00	90.00
Speed [mph]	35.00			35.00			25.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Hwy 219 Northbound			Hwy 219 Southbound			Foothills Dr Eastbound			Foothills Dr Westbound		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Base Volume Input [veh/h]	85	198	102	29	405	16	10	5	51	60	7	9
Base Volume Adjustment Factor	1.0948	1.0948	1.0948	1.0948	1.0948	1.0948	1.0948	1.0948	1.0948	1.0948	1.0948	1.0948
Heavy Vehicles Percentage [%]	4.70	4.70	4.70	4.70	4.70	4.70	4.70	4.70	4.70	4.70	4.70	4.70
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	12	5	0	0	3	0	0	0	7	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	105	222	112	32	446	16	11	5	63	66	8	10
Peak Hour Factor	0.8900	0.8900	0.8900	0.8900	0.8900	0.8900	0.8900	0.8900	0.8900	0.8900	0.8900	0.8900
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	30	63	32	9	127	5	3	1	18	19	2	3
Total Analysis Volume [veh/h]	119	252	127	36	507	20	13	6	72	75	9	11
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]			No
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median			

Movement, Approach, & Intersection Results

V/C	MOV	LOS	Delay	Queue	Stop
d, M, Delay for Movement [s/veh]	0.02	0.07	10.21	9.20	A
Movement LOS	A	A	B	A	A
95th-Percentile Queue Length [veh]	0.00	0.20	0.29	0.29	A
95th-Percentile Queue Length [ft]	0.00	4.69	7.22	7.22	A
d, A, Approach Delay [s/veh]	0.00	2.50		9.90	A
Approach LOS	A	A		A	A
d, I, Intersection Delay [s/veh]	3.95				B
Intersection LOS	B				B

Priority Scheme	Free	Free	Stop	Stop
Flared Lane			No	No
Storage Area [veh]			No	No
Two-Stage Gap Acceptance			No	No
Number of Storage Spaces in Median			No	No

Control Type: Two-way stop  
 Analysis Method: HCM 6th Edition  
 Analysis Period: 15 minutes  
 Delay (sec / veh): 9.5  
 Level Of Service: A  
 Volume to Capacity (v/c): 0.022

Name	Chehalam Dr		Chehalam Dr		West Access	
	Northbound	Southbound	Northbound	Southbound	Westbound	Eastbound
Approach	F	T	F	T	T	T
Lane Configuration	Thru	Right	Left	Thru	Left	Right
Turning Movement	12.00	12.00	12.00	12.00	12.00	12.00
Lane Width [ft]	0	0	0	0	0	0
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	30.00	30.00	30.00	30.00	30.00	30.00
Speed [mph]	0.00	0.00	0.00	0.00	0.00	0.00
Grade [%]	Yes	Yes	Yes	Yes	Yes	Yes
Crosswalk						

**Movement, Approach, & Intersection Results**

V/C	Movement	V/C Ratio	0.12	0.03	0.09	0.04	0.13	0.61	0.05	0.02
d_L	Delay for Movement [s/veh]	8.97	8.19	33.35	31.70	15.04	71.05	27.45	10.93	
	Movement LOS	A	A	A	A	A	C	F	D	B
	95th-Percentile Queue Length [veh]	0.39	0.00	0.10	1.01	1.01	3.07	0.22	0.22	
	95th-Percentile Queue Length [ft]	9.90	0.00	2.39	25.35	25.35	76.68	5.53	5.53	
	d_LA Approach Delay [s/veh]	2.14	0.52	18.75	18.75	18.75	59.95			
	Approach LOS	A	A	C	C	C	F			
	d_I Intersection Delay [s/veh]			7.03	7.03	7.03				
	Intersection LOS			F	F	F				

**Volumes**

Name	Chehalam Dr		Chehalam Dr		West Access	
Base Volume Input [veh/h]	47	0	0	44	0	0
Base Volume Adjustment Factor	1.0948	1.0948	1.0948	1.0948	1.0948	1.0948
Heavy Vehicles Percentage [%]	2.30	2.30	2.30	2.30	2.30	2.30
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	2	27	7	3	15	4
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	53	27	7	51	15	4
Peak Hour Factor	0.8300	0.8300	0.8300	0.8300	0.8300	0.8300
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	16	8	2	15	5	1
Total Analysis Volume [veh/h]	64	33	8	61	18	5
Pedestrian Volume [ped/h]	0	0	0	0	0	0

**Volumes**

Name	Chehalam Dr		Chehalam Dr		West Access	
Base Volume Input [veh/h]	47	0	0	44	0	0
Base Volume Adjustment Factor	1.0948	1.0948	1.0948	1.0948	1.0948	1.0948
Heavy Vehicles Percentage [%]	2.30	2.30	2.30	2.30	2.30	2.30
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	2	27	7	3	15	4
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	53	27	7	51	15	4
Peak Hour Factor	0.8300	0.8300	0.8300	0.8300	0.8300	0.8300
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	16	8	2	15	5	1
Total Analysis Volume [veh/h]	64	33	8	61	18	5
Pedestrian Volume [ped/h]	0	0	0	0	0	0



Control Type: Two-way stop  
 Analysis Method: HCM 6th Edition  
 Analysis Period: 15 minutes  
 Delay (sec / veh): 11.9  
 Level of Service: B  
 Volume to Capacity (vc): 0.057

Intersection 10: Main at Foothills

Name	Main St	Foothills Dr	Foothills Dr
Approach	Northbound	Eastbound	Westbound
Lane Configuration	T	T	T
Turning Movement	Left Right	Thru Right	Left Thru
Lane Width [ft]	12.00 12.00	12.00 12.00	12.00 12.00
No. of Lanes in Pocket	0 0	0 0	0 0
Pocket Length [ft]	25.00	25.00	25.00
Speed [mph]	0.00	0.00	0.00
Grade [%]	Yes	Yes	Yes
Crosswalk	Yes	Yes	Yes

Volumes

Name	Main St	Foothills Dr	Foothills Dr
Base Volume Input [veh/h]	24	7	116
Base Volume Adjustment Factor	1.0948	1.0948	1.0948
Heavy Vehicles Percentage [%]	1.00	1.00	1.00
Growth Rate	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0
Site-Generated Trips [veh/h]	0	0	22
Diverted Trips [veh/h]	0	0	0
Pass-by Trips [veh/h]	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0
Other Volume [veh/h]	0	0	0
Total Hourly Volume [veh/h]	26	8	149
Peak Hour Factor	0.8200	0.8200	0.8200
Other Adjustment Factor	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	8	2	45
Total Analysis Volume [veh/h]	32	10	182
Pedestrian Volume [ped/h]	0	0	0

Control Type: Two-way stop  
 Analysis Method: HCM 6th Edition  
 Analysis Period: 15 minutes  
 Delay (sec / veh): 11.9  
 Level of Service: B  
 Volume to Capacity (vc): 0.057

Intersection 10: Main at Foothills

Name	Main St	Foothills Dr	Foothills Dr
Approach	Northbound	Eastbound	Westbound
Lane Configuration	T	T	T
Turning Movement	Left Right	Thru Right	Left Thru
Lane Width [ft]	12.00 12.00	12.00 12.00	12.00 12.00
No. of Lanes in Pocket	0 0	0 0	0 0
Pocket Length [ft]	25.00	25.00	25.00
Speed [mph]	0.00	0.00	0.00
Grade [%]	Yes	Yes	Yes
Crosswalk	Yes	Yes	Yes

Volumes

Name	Main St	Foothills Dr	Foothills Dr
Base Volume Input [veh/h]	24	7	116
Base Volume Adjustment Factor	1.0948	1.0948	1.0948
Heavy Vehicles Percentage [%]	1.00	1.00	1.00
Growth Rate	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0
Site-Generated Trips [veh/h]	0	0	22
Diverted Trips [veh/h]	0	0	0
Pass-by Trips [veh/h]	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0
Other Volume [veh/h]	0	0	0
Total Hourly Volume [veh/h]	26	8	149
Peak Hour Factor	0.8200	0.8200	0.8200
Other Adjustment Factor	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	8	2	45
Total Analysis Volume [veh/h]	32	10	182
Pedestrian Volume [ped/h]	0	0	0

Control Type: Two-way stop  
 Analysis Method: HCM 6th Edition  
 Analysis Period: 15 minutes  
 Delay (sec / veh): 11.9  
 Level of Service: B  
 Volume to Capacity (vc): 0.057

Intersection 10: Main at Foothills

Name	Main St	Foothills Dr	Foothills Dr
Approach	Northbound	Eastbound	Westbound
Lane Configuration	T	T	T
Turning Movement	Left Right	Thru Right	Left Thru
Lane Width [ft]	12.00 12.00	12.00 12.00	12.00 12.00
No. of Lanes in Pocket	0 0	0 0	0 0
Pocket Length [ft]	25.00	25.00	25.00
Speed [mph]	0.00	0.00	0.00
Grade [%]	Yes	Yes	Yes
Crosswalk	Yes	Yes	Yes

Volumes

Name	Main St	Foothills Dr	Foothills Dr
Base Volume Input [veh/h]	24	7	116
Base Volume Adjustment Factor	1.0948	1.0948	1.0948
Heavy Vehicles Percentage [%]	1.00	1.00	1.00
Growth Rate	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0
Site-Generated Trips [veh/h]	0	0	22
Diverted Trips [veh/h]	0	0	0
Pass-by Trips [veh/h]	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0
Other Volume [veh/h]	0	0	0
Total Hourly Volume [veh/h]	26	8	149
Peak Hour Factor	0.8200	0.8200	0.8200
Other Adjustment Factor	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	8	2	45
Total Analysis Volume [veh/h]	32	10	182
Pedestrian Volume [ped/h]	0	0	0

Intersection Level Of Service Report  
 Intersection 13: N Valley Rd at Bruce Dr  
 Control Type: Two-way stop  
 Analysis Method: HCM 8th Edition  
 Analysis Period: 15 minutes  
 Delay (sec/veh): 10.4  
 Level Of Service: B  
 Volume to Capacity (v/c): 0.000

Name	Bruce Dr		N Valley Rd		N Valley Rd	
	Northbound	Right	Thru	Right	Left	Thru
Approach	T		T		T	
Lane Configuration	Left	Right	Thru	Right	Left	Thru
Turning Movement	12.00	12.00	12.00	12.00	12.00	12.00
Lane Width [ft]	0	0	0	0	0	0
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]						
Speed [mph]	30.00		45.00		45.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

**Volumes**

Name	Bruce Dr	N Valley Rd	N Valley Rd
Base Volume Input [veh/h]	0	95	160
Base Volume Adjustment Factor	1.0948	1.0948	1.0948
Heavy Vehicles Percentage [%]	4.00	4.00	4.00
Growth Rate	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0
Site-Generated Trips [veh/h]	0	2	4
Diverted Trips [veh/h]	0	0	0
Pass-by Trips [veh/h]	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0
Other Volume [veh/h]	0	0	0
Total Hourly Volume [veh/h]	0	106	179
Peak Hour Factor	0.8700	0.8700	0.8700
Other Adjustment Factor	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	30	51
Total Analysis Volume [veh/h]	0	122	206
Pedestrian Volume [ped/h]	0	0	0

Priority Scheme	Stop	Free	Free
Fixed Lane	No		
Storage Area [veh]			
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median			

Movement, Approach, & Intersection Results			
V/C	Movement	V/C Ratio	Delay [s]
d, M	Delay for Movement [s/veh]	0.01	0.01
B	11.88	9.60	7.64
A	0.00	0.00	0.00
95th-Percentile Queue Length [veh]	0.22	0.00	0.66
95th-Percentile Queue Length [ft]	5.54	0.00	16.38
d, A	Approach Delay [s/veh]	11.88	0.66
B	11.88	0.00	0.66
A	0.00	0.00	0.00
d, I	Intersection Delay [s/veh]	1.21	0.66
B	1.21	0.00	0.66
A	0.00	0.00	0.00
Intersection LOS		B	A

Priority Scheme	Stop	Free	Free
Fired Lane	No		
Storage Area (veh)			
Two-Sluge Gap Acceptance	No		
Number of Storage Spaces in Median			

**Movement, Approach, & Intersection Results**

V/C Movement	V/C Ratio	Stop	Free	Free	Free
d, M, Delay for Movement [s/veh]	10.44	0.00	0.00	0.00	0.00
Movement LOS	B	8.90	7.48	7.48	7.48
95th-Percentile Queue Length [veh]	0.00	A	A	A	A
95th-Percentile Queue Length [ft]	0.00	0.00	0.00	0.00	0.00
d, A, Approach Delay [s/veh]	0.00	0.00	0.00	0.00	0.00
Approach LOS	A	8.87	0.00	0.00	0.00
d, I, Intersection Delay [s/veh]	0.00	A	A	A	A
Intersection LOS	B	0.00	0.00	0.00	0.00

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 Report File: J:\...JPM Existing & Background.pdf

Scenario 2 PM Existing & Background  
 12/11/2017

**Turning Movement Volume: Summary**

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
1	N Valley Rd at Chehalum Dr	28	21	9	13	10	4	4	82	31	14	143	22	381

ID	Intersection Name	Southbound			Northbound			Southwestbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
3	NE Tarraco Dr at Hwy 219	4	22	44	208	473	13	764			

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
4	N Valley Rd at Hwy 219	22	143	38	12	384	49	10	69	28	65	108	32	951

ID	Intersection Name	Northbound			Southbound			Westbound			Total Volume
		Thru	Right	Left	Thru	Left	Right	Left	Right	Right	
5	Chehalum Dr at Foothills Dr	62	27	23	46	36	17	213			

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
6	Foothills Dr at Hwy 219	105	222	112	32	446	18	11	5	63	66	8	10	1098

ID	Intersection Name	Northbound			Southbound			Westbound			Total Volume
		Thru	Right	Left	Thru	Left	Right	Left	Right	Right	
7	West Access at Chehalum Dr	53	27	7	51	15	4	157			

ID	Intersection Name	Northbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Thru	Right	Left	Thru	Right		
10	Main at Foothills	26	8	149	15	12	191	401			

Warrant Analysis by Hour

Hour	Major Lanes		Minor Lanes		Warrant 1 Condition A			Warrant 1 Condition B			Warrant 2/Warrant 3			
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%	Condition A	Condition B
1	3	738	1	26	No	No	No	No	No	No	No	No	No	No
2	3	709	1	25	No	No	No	No	No	No	No	No	No	No
3	3	694	1	24	No	No	No	No	No	No	No	No	No	No
4	3	591	1	21	No	No	No	No	No	No	No	No	No	No
5	3	501	1	20	No	No	No	No	No	No	No	No	No	No
6	3	465	1	18	No	No	No	No	No	No	No	No	No	No
7	3	443	1	16	No	No	No	No	No	No	No	No	No	No
8	3	354	1	12	No	No	No	No	No	No	No	No	No	No
9	3	332	1	12	No	No	No	No	No	No	No	No	No	No
10	3	332	1	12	No	No	No	No	No	No	No	No	No	No
11	3	317	1	12	No	No	No	No	No	No	No	No	No	No
12	3	317	1	11	No	No	No	No	No	No	No	No	No	No
13	3	288	1	10	No	No	No	No	No	No	No	No	No	No
14	3	256	1	9	No	No	No	No	No	No	No	No	No	No
15	3	256	1	9	No	No	No	No	No	No	No	No	No	No
16	3	256	1	9	No	No	No	No	No	No	No	No	No	No
17	3	147	1	5	No	No	No	No	No	No	No	No	No	No
18	3	81	1	3	No	No	No	No	No	No	No	No	No	No
19	3	74	1	3	No	No	No	No	No	No	No	No	No	No
20	3	29	1	1	No	No	No	No	No	No	No	No	No	No
21	3	23	1	1	No	No	No	No	No	No	No	No	No	No
22	3	15	1	1	No	No	No	No	No	No	No	No	No	No
23	3	15	1	1	No	No	No	No	No	No	No	No	No	No
24	3	15	1	1	No	No	No	No	No	No	No	No	No	No
Hours Met					0	0	0	0	0	0	0	0	0	0

Warrant 3 Condition A

Total Stopped Delay Per Vehicle on Minor Approach (s)	N
Number of Lanes on Minor Approach	1
Vehicle/Hours of Stopped Delay on Minor Approach (veh/h/m)	0.05
Volume on Minor Street Approach During Same Hour	No
High Minor Volume Condition Met	No
Total Entering Volume on All Approaches During Same Hour	28
Number of Approaches on Intersection	764
Total Volume Condition Met	3
Warrant Met for Approach	Yes
Warrant Met for Intersection	No

Signal Warrants Report For Intersection 4: N Valley Rd at Hwy 219

Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	No
#3	Peak Hour	No

Intersection Warrants Parameters

Major Approaches	
Minor Approaches	
Speed > 40mph	S, N
Population < 10,000	E, W
Warrant Factor	No
	No
	100%

Warrant Analysis Traffic Volumes

Hour	Major Streets			Minor Streets
	S	N	E	
1	203	443	206	W
2	195	427	107	W
3	191	418	198	103
4	162	356	184	101
5	154	338	165	86
6	136	303	157	81
7	122	280	140	73
8	97	214	124	64
9	91	200	99	51
10	91	200	93	48
11	87	191	89	48
12	79	174	80	46
13	73	160	74	42
14	71	156	72	39
15	71	156	72	39
16	71	156	72	39
17	41	89	41	37
18	22	49	23	21
19	20	45	23	12
20	8	18	21	11
21	8	13	6	4
22	6	13	6	3
23	6	9	6	3
24	4	8	4	2

Warrant Analysis by Hour

Hour	Major Lanes		Minor Lanes		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2/Warrant 3	
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%	Condition B	Condition C
1	2	648	2	313	Yes	Yes	Yes	Yes	No	No	Yes	Yes	No	No
2	2	922	2	301	Yes	Yes	Yes	Yes	No	No	No	Yes	No	No
3	2	609	2	265	Yes	Yes	Yes	Yes	No	No	No	Yes	No	No
4	2	618	2	251	No	Yes	Yes	Yes	No	No	No	Yes	No	No
5	2	492	2	238	No	Yes	Yes	Yes	No	No	No	Yes	No	No
6	2	441	2	213	No	No	Yes	Yes	No	No	No	No	No	No
7	2	408	2	197	No	No	No	Yes	No	No	No	No	No	No
8	2	389	2	188	No	No	No	Yes	No	No	No	No	No	No
9	2	311	2	150	No	No	No	No	No	No	No	No	No	No
10	2	291	2	141	No	No	No	No	No	No	No	No	No	No
11	2	278	2	141	No	No	No	No	No	No	No	No	No	No
12	2	278	2	135	No	No	No	No	No	No	No	No	No	No
13	2	253	2	122	No	No	No	No	No	No	No	No	No	No
14	2	233	2	113	No	No	No	No	No	No	No	No	No	No
15	2	233	2	113	No	No	No	No	No	No	No	No	No	No
16	2	227	2	109	No	No	No	No	No	No	No	No	No	No
17	2	227	2	109	No	No	No	No	No	No	No	No	No	No
18	2	211	2	92	No	No	No	No	No	No	No	No	No	No
19	2	192	2	85	No	No	No	No	No	No	No	No	No	No
20	2	192	2	85	No	No	No	No	No	No	No	No	No	No
21	2	192	2	85	No	No	No	No	No	No	No	No	No	No
22	2	192	2	85	No	No	No	No	No	No	No	No	No	No
23	2	133	2	66	No	No	No	No	No	No	No	No	No	No
24	2	133	2	66	No	No	No	No	No	No	No	No	No	No
Met					3	5	6	8	0	0	1	4	0	0

Warrant 3 Condition A

Orientation	E	W
Total Stopped Delay Per Vehicle on Minor Approach (s)	44	21
Number of Lanes on Minor Street Approach	1	1
Vehicle-Hours of Stopped Delay on Minor Approach (ft-hrmm)	2:31	0:37
Delay Condition Met	No	No
Volume on Minor Street Approach During Same Hour	208	107
High Minor Volume Condition Met	Yes	Yes
Total Entering Volume on All Approaches During Same Hour	961	461
Number of Approaches on Intersection	4	4
Total Volume Condition Met	Yes	Yes
Warrant Met for Approach	No	No
Warrant Met for Intersection	No	No

Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	No
#3	Peak Hour	No

Intersection Warrants Parameters

Major Approaches	N, S
Minor Approaches	E
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

Warrant Analysis Traffic Volumes

Hour	Major Streets			Minor Streets		
	N	S	E	S	E	E
1	63	89	66	89	53	33
2	66	85	66	85	43	26
3	65	85	65	85	25	25
4	65	85	65	85	25	25
5	62	88	68	88	21	24
6	47	61	37	61	20	20
7	43	56	35	56	19	19
8	41	53	33	53	11	11
9	33	43	26	43	6	6
10	31	40	25	40	4	4
11	31	40	25	40	3	3
12	30	38	24	38	2	2
13	27	35	21	35	2	2
14	25	32	20	32	2	2
15	24	31	19	31	2	2
16	24	31	19	31	2	2
17	14	18	11	18	1	1
18	9	10	6	10	1	1
19	7	9	6	9	1	1
20	3	4	2	4	1	1
21	2	3	2	3	1	1
22	2	3	2	3	1	1
23	1	2	1	2	1	1
24	1	2	1	2	1	1

Warrant Analysis by Hour

Hour	Major Lanes		Warrant 1 Condition A					Warrant 1 Condition B					Warrant 2		Warrant 3	
	Number	Volume	100%	80%	70%	58%	100%	80%	70%	58%	60%	70%	56%	Condition A	Condition B	
1	2	158	1	55	No	No	No	No	No	No	No	No	No	No	No	
2	2	151	1	53	No	No	No	No	No	No	No	No	No	No	No	
3	2	149	1	52	No	No	No	No	No	No	No	No	No	No	No	
4	2	126	1	44	No	No	No	No	No	No	No	No	No	No	No	
5	2	120	1	42	No	No	No	No	No	No	No	No	No	No	No	
6	2	103	1	37	No	No	No	No	No	No	No	No	No	No	No	
7	2	89	1	35	No	No	No	No	No	No	No	No	No	No	No	
8	2	84	1	31	No	No	No	No	No	No	No	No	No	No	No	
9	2	78	1	28	No	No	No	No	No	No	No	No	No	No	No	
10	2	71	1	25	No	No	No	No	No	No	No	No	No	No	No	
11	2	71	1	25	No	No	No	No	No	No	No	No	No	No	No	
12	2	68	1	24	No	No	No	No	No	No	No	No	No	No	No	
13	2	62	1	21	No	No	No	No	No	No	No	No	No	No	No	
14	2	57	1	20	No	No	No	No	No	No	No	No	No	No	No	
15	2	55	1	20	No	No	No	No	No	No	No	No	No	No	No	
16	2	52	1	19	No	No	No	No	No	No	No	No	No	No	No	
17	2	51	1	19	No	No	No	No	No	No	No	No	No	No	No	
18	2	48	1	18	No	No	No	No	No	No	No	No	No	No	No	
19	2	46	1	17	No	No	No	No	No	No	No	No	No	No	No	
20	2	44	1	16	No	No	No	No	No	No	No	No	No	No	No	
21	2	42	1	15	No	No	No	No	No	No	No	No	No	No	No	
22	2	40	1	14	No	No	No	No	No	No	No	No	No	No	No	
23	2	38	1	13	No	No	No	No	No	No	No	No	No	No	No	
24	2	36	1	12	No	No	No	No	No	No	No	No	No	No	No	
Hours Met																

Warrant 3 Condition A

Orientation	E	W
Total Stopped Delay Per Vehicle on Minor Approach (s)	9.9	9.9
Number of Lanes on Minor Street Approach	1	1
Vehicle-Hours of Stopped Delay on Minor Approach (h:mm)	0:09	0:09
Volume on Minor Street Approach During Same Hour	55	55
High Minor Volume Condition Met	No	No
Total Entering Volume on All Approaches During Same Hour	213	213
Number of Approaches on Intersection	3	3
Total Volume Condition Met	No	No
Warrant Met for Approach	No	No
Warrant Met for Intersection	No	No

Warrants Summary

Warrant	Name	Eight Hour Vehicular Volume	Four Hour Vehicular Volume	Peak Hour	Met?
#1					No
#2					No
#3					No

Intersection Warrants Parameters

Major Approaches	N, S
Minor Approaches	E, W
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

Warrant Analysis Traffic Volumes

Hour	Major Streets			Minor Streets		
	N	S	E	E	W	W
1	496	439	84	84	79	79
2	478	421	81	81	76	76
3	468	413	79	79	74	74
4	397	351	67	67	63	63
5	377	334	64	64	60	60
6	337	299	57	57	54	54
7	312	277	53	53	50	50
8	298	263	50	50	47	47
9	238	211	40	40	38	38
10	223	198	38	38	36	36
11	223	198	38	38	36	36
12	213	189	36	36	34	34
13	193	171	33	33	31	31
14	179	158	30	30	28	28
15	169	150	28	28	26	26
16	174	154	29	29	28	28
17	99	88	17	17	16	16
18	55	55	9	9	9	9
19	50	48	8	8	8	8
20	20	44	3	3	3	3
21	15	18	3	3	3	3
22	15	13	3	3	3	3
23	10	10	2	2	2	2
24	10	9	2	2	2	2

Warrant Analysis by Hour

Hour	Minor Lanes Number	Minor Lanes Volume	Warrant 1 Condition A	Warrant 1 Condition B	Warrant 2	Warrant 3	Condition B
1	4	935	No	No	No	No	No
2	4	897	No	No	No	No	No
3	4	879	No	No	No	No	No
4	4	748	No	No	No	No	No
5	4	711	No	No	No	No	No
6	4	696	No	No	No	No	No
7	4	669	No	No	No	No	No
8	4	561	No	No	No	No	No
9	4	449	No	No	No	No	No
10	4	421	No	No	No	No	No
11	4	421	No	No	No	No	No
12	4	402	No	No	No	No	No
13	4	364	No	No	No	No	No
14	4	337	No	No	No	No	No
15	4	337	No	No	No	No	No
16	4	328	No	No	No	No	No
17	4	187	No	No	No	No	No
18	4	103	No	No	No	No	No
19	4	84	No	No	No	No	No
20	4	38	No	No	No	No	No
21	4	28	No	No	No	No	No
22	4	28	No	No	No	No	No
23	4	19	No	No	No	No	No
24	4	19	No	No	No	No	No
Hours Met			0	0	0	0	0

Warrant 3 Condition A

Orientation	E	W
Total Stopped Delay Per Vehicle on Minor Approach (s)	60	18.8
Number of Lanes on Minor Street Approach	2	1
Vehicle-hours of Stopped Delay on Minor Approach (ft-hr/min)	123	0.24
Delay Condition Met	No	No
Volume on Minor Street Approach During Same Hour	84	79
High Minor Volume Condition Met	No	No
Total Entering Volume on All Approaches During Same Hour	1098	1098
Number of Approaches on Intersection	4	4
Total Volume Condition Met	Yes	Yes
Warrant Met for Approach	No	No
Warrant Met for Intersection	No	No

Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	No
#3	Peak Hour	No

Intersection Warrants Parameters

Major Approaches	N, S
Minor Approaches	E
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

Warrant Analysis Traffic Volumes

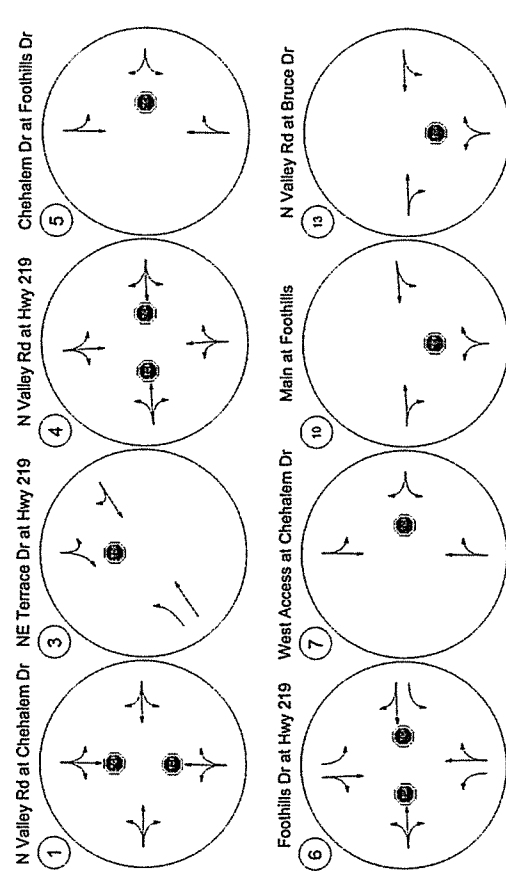
Hour	N	S	Major Streets	Minor Streets
1	58	80		E
2	56	77		18
3	55	75		16
4	46	64		15
5	44	61		14
6	39	54		13
7	37	50		12
8	35	48		11
9	28	38		9
10	26	36		9
11	25	34		8
12	23	31		7
13	21	29		7
14	20	28		7
15	20	28		7
16	17	16		4
17	12	16		2
18	6	8		2
19	6	8		2
20	2	3		1
21	2	2		1
22	2	2		1
23	1	2		0
24	1	2		0



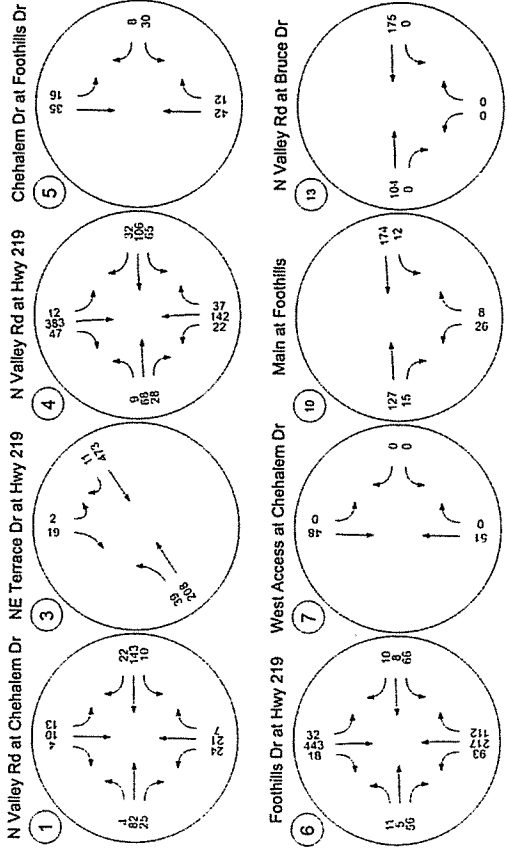
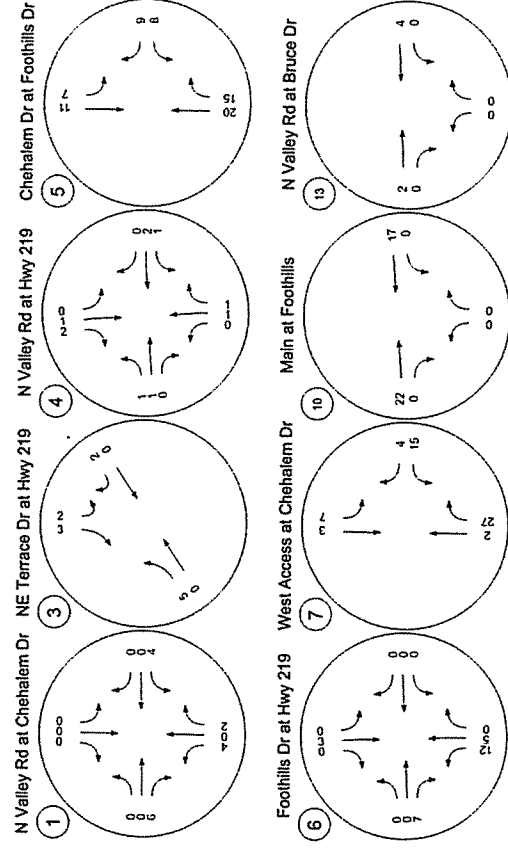
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Trip Distribution summary

Zone / Gate	To Dutchman's Ridge			From Dutchman's Ridge			To Gracie's Landing			From Gracie's Landing		
	Share %	Trips	Trips	Share %	Trips	Trips	Share %	Trips	Share %	Trips	Trips	
10: Gracie's Landing	0.00	0	0	0.00	0	0	0.00	0	0.00	0	0	
15: Kings Landing N	0.00	0	0	0.00	0	0	0.00	0	0.00	0	0	
16: Kings Landing S	0.00	0	0	0.00	0	0	0.00	0	0.00	0	0	
1: Gate	5.00	1	5.00	1	5.00	1	5.00	2	5.00	1	5.00	
2: Gate	5.00	1	5.00	1	5.00	1	5.00	2	5.00	1	5.00	
3: Gate	30.00	6	30.00	6	30.00	6	20.00	7	20.00	4	20.00	
4: Gate	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	
5: Gate	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	
6: Gate	50.00	10	50.00	10	50.00	10	60.00	20	60.00	11	60.00	
7: Gate	10.00	2	10.00	2	10.00	2	10.00	3	10.00	2	10.00	
8: Gate	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	
11: Gate	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	
12: Gate	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	
<b>Total</b>	<b>100.00</b>	<b>29</b>	<b>100.00</b>	<b>29</b>	<b>100.00</b>	<b>34</b>	<b>100.00</b>	<b>34</b>	<b>100.00</b>	<b>19</b>	<b>100.00</b>	



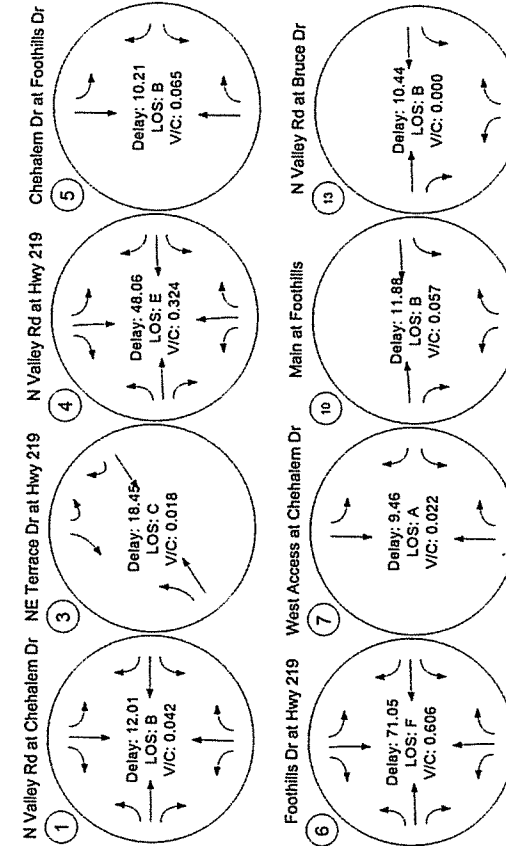
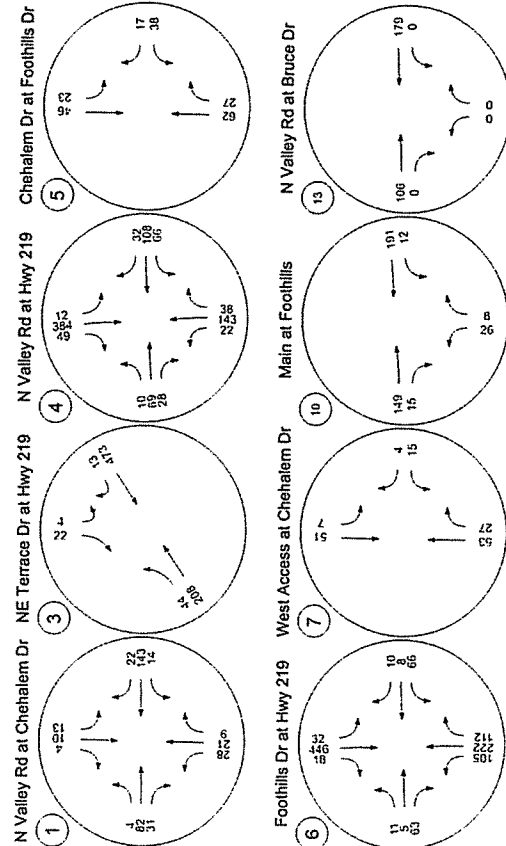




Report Figure 2f: Traffic Volume - Future Total Volume



Report Figure 3: Traffic Conditions



Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Nvmt	V/C	Delay (s/vht)	LOS
1	N Valley Rd at Chehallem Dr	Two-way stop	HCM 6th Edition	NB Left	0.062	11.8	B
3	NE Terrace Dr at Hwy 219	Two-way stop	HCM 6th Edition	SB Left	0.056	15.1	C
4	N Valley Rd at Hwy 219	Two-way stop	HCM 6th Edition	WB Left	0.453	38.4	E
5	Chehallem Dr at Foothills Dr	Two-way stop	HCM 6th Edition	WB Left	0.294	14.7	B
6	Foothills Dr at Hwy 219	Two-way stop	HCM 6th Edition	WB Left	0.728	78.7	F
7	West Access at Chehallem Dr	Two-way stop	HCM 6th Edition	WB Left	0.047	9.6	A
10	Main at Foothills	Two-way stop	HCM 6th Edition	NB Left	0.292	19.2	C
12	KV Access at N Valley Rd	Two-way stop	HCM 6th Edition	NB Left	0.020	10.3	B
13	N Valley Rd at Bruce Dr	Two-way stop	HCM 6th Edition	NB Left	0.000	10.1	B

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report  
Intersection 1: N Valley Rd at Chehallem Dr

Control Type: Two-way stop  
Analysis Method: HCM 6th Edition  
Analysis Period: 15 minutes

Delay (sec / vht): 11.8  
Level Of Service: B  
Volume to Capacity (v/c): 0.062

Intersection Setup

Name	Chehallem Dr		Chehallem Dr		N Valley Rd		N Valley Rd	
	Northbound	Southbound	Eastbound	Westbound	Eastbound	Westbound	Eastbound	Westbound
Approach								
Lane Configuration	+	+	+	+	+	+	+	+
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru
Lane Width (ft)	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0
Pocket Length (ft)								
Speed (mph)	35.00				45.00			
Grade (%)	0.00				0.00			
Crosswalk	Yes				Yes			

Volumes

Name	Chehallem Dr				N Valley Rd				N Valley Rd			
	22	9	14	10	24	5	7	111	32	5	40	0
Base Volume Input (veh/h)	1,0948	1,0948	1,0948	1,0948	1,0948	1,0948	1,0948	1,0948	1,0948	1,0948	1,0948	1,0948
Base Volume Adjustment Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles Percentage (%)	0	0	0	0	0	0	0	0	0	0	0	0
Growth Rate	0	0	0	0	0	0	0	0	0	0	0	0
In-Process Volume (veh/h)	7	0	5	0	0	0	0	1	2	11	3	0
Site-Generated Trips (veh/h)	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips (veh/h)	0	0	0	0	0	0	0	0	0	0	0	0
Pear-by Trips (veh/h)	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume (veh/h)	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume (veh/h)	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume (veh/h)	31	10	20	11	26	5	8	123	37	16	57	7
Peak Hour Factor	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume (veh/h)	9	3	6	3	8	1	2	36	11	5	17	2
Total Analysis Volume (veh/h)	36	12	24	13	31	6	8	145	44	19	67	8
Pedestrian Volume (ped/h)	0	0	0	0	0	0	0	0	0	0	0	0

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	No	No		
Storage Area (veh)				
Two-Stage Gap Acceptance	No	No		
Number of Storage Spaces in Median				

Movement, Approach, & Intersection Results

V/C	0.05	0.02	0.03	0.02	0.05	0.01	0.01	0.01	0.01
d, M, Delay for Movement [s/veh]	11.84	11.81	9.89	11.88	11.81	9.25	7.46	7.73	0.01
Movement LOS	B	B	A	B	B	A	A	A	A
95th-Percentile Queue Length [veh]	0.37	0.37	0.37	0.27	0.27	0.46	0.46	0.23	0.23
95th-Percentile Queue Length [ft]	9.23	9.23	9.23	6.71	6.71	11.62	11.62	5.67	5.67
d, A, Approach Delay [s/veh]	11.18			11.46			0.34		1.56
Approach LOS	B			B			A		A
d, I, Intersection Delay [s/veh]						3.85			
Intersection LOS						B			

Intersection Level Of Service Report

Interaction 3: NE Terrace Dr at Hwy 219

Control Type: Two-way stop  
Analysis Method: HCM 6th Edition  
Analysis Period: 15 minutes  
Delay (sec / veh): 15.1  
Level Of Service: C  
Volume to Capacity (v/c): 0.056

Intersection Setup

Name	NE Terrace Dr	Hwy 219	Hwy 219
Approach	Southbound	Northbound	Southbound
Lane Configuration	1	1	1
Turning Movement	Left Right	Left Thru Right	Thru Right
Lane Width [ft]	12.00	12.00	12.00
No. of Lanes in Pocket	0	1	0
Pocket Length [ft]	300.00		
Speed [mph]	25.00	40.00	40.00
Grade [%]	0.00	0.00	0.00
Crosswalk	Yes	Yes	Yes

Volumes

Name	NE Terrace Dr	Hwy 219	Hwy 219
Base Volume Input [veh/h]	12	30	14
Base Volume Adjustment Factor	1.0948	1.0948	1.0948
Heavy Vehicles Percentage [%]	4.80	4.80	4.80
Growth Rate	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0
Site-Generated Trips [veh/h]	4	6	2
Diversed Trips [veh/h]	0	0	0
Pass-by Trips [veh/h]	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0
Other Volume [veh/h]	0	0	0
Total Hourly Volume [veh/h]	17	36	17
Peak Hour Factor	0.7900	0.7900	0.7900
Other Adjustment Factor	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	5	12	5
Total Analysis Volume [veh/h]	22	48	22
Pedestrian Volume [ped/h]	0	0	0

Priority Scheme	Stop	Free	Free
Fleed Lane	No		
Storage Area (veh)			
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median			

Movement, Approach, & Intersection Results			
V/C Movement	V/C Ratio	Stop	Free
d <sub>M</sub> Delay for Movement [s/veh]	15.07	0.06	0.02
Movement LOS	C	B	A
95th-Percentile Queue Length [veh]	0.41	0.41	0.05
95th-Percentile Queue Length [ft]	10.29	10.29	1.33
d <sub>A</sub> Approach Delay [s/veh]	12.00		0.43
Approach LOS	B		A
d <sub>I</sub> Intersection Delay [s/veh]			1.35
Intersection LOS			C

Control Type: Two-way stop  
 Analysis Method: HCM 6th Edition  
 Analysis Period: 15 minutes  
 Delay (sec / veh): 38.4  
 Level Of Service: E  
 Volume to Capacity (v/c): 0.453

Intersection Level Of Service Report  
 Intersection 4: N Valley Rd at Hwy 219

Name	Hwy 219 Northbound			Hwy 219 Southbound			N Valley Rd Eastbound			N Valley Rd Westbound		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Approach	+			+			+			+		
Lane Configuration	+			+			+			+		
Turning Movement	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]												
Speed [mph]	40.00			40.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Hwy 219 Northbound			Hwy 219 Southbound			N Valley Rd Eastbound			N Valley Rd Westbound		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Base Volume Input [veh/h]	13	155	120	24	87	17	16	85	18	82	48	16
Base Volume Adjustment Factor	1.0948	1.0948	1.0948	1.0948	1.0948	1.0948	1.0948	1.0948	1.0948	1.0948	1.0948	1.0948
Heavy Vehicles Percentage [%]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	2	2	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Divorced Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	16	172	133	26	95	21	21	95	26	90	55	18
Peak Hour Factor	0.7600	0.7600	0.7600	0.7600	0.7600	0.7600	0.7600	0.7600	0.7600	0.7600	0.7600	0.7600
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	5	57	44	9	31	7	7	32	9	30	18	6
Total Analysts Volume [veh/h]	21	228	175	34	125	28	28	126	34	118	72	24
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane			No	No
Storage Area [veh]				
Two-Stage Gap Acceptance			No	No
Number of Storage Spaces in Median				

Movement, Approach, & Intersection Results

V/C	Movement	V/C Ratio	0.01	0.03	0.09	0.34	0.64	0.45	0.18	0.03
d, M	Delay for Movement [s/veh]	7.58	A	A	A	A	A	A	A	A
	Movement LOS	1.26	A	A	A	A	A	A	A	A
95th-Percentile Queue Length [veh]		1.26	1.26	0.58	0.58	2.42	2.42	4.47	4.47	4.47
95th-Percentile Queue Length [ft]		31.54	31.54	14.54	14.54	60.62	60.62	111.63	111.63	111.63
d, A	Approach Delay [s/veh]	0.38	A	A	A	A	A	A	A	A
	Approach LOS		A	A	A	A	A	A	A	A
d, I	Intersection Delay [s/veh]	12.03	E	E	E	E	E	E	E	E
	Intersection LOS		E	E	E	E	E	E	E	E

Intersection Level Of Service Report

Control Type: Two-way stop  
Analysis Method: HCM 6th Edition  
Analysis Period: 15 minutes  
Daisy (sec / veh): 14.7  
Level Of Service: B  
Volume to Capacity (V/C): 0.294

Intersection Setup

Name	Chehalum Dr Northbound	Chehalum Dr Southbound	Foothills Dr Westbound
Approach	T	T	T
Lane Configuration	Thru Right	Thru Left	Thru Left Right
Turning Movement	12.00	12.00	12.00
Lane Width [ft]	0	0	0
No. of Lanes in Pocket	0	0	0
Pocket Length [ft]	35.00	35.00	25.00
Speed [mph]	0.00	0.00	0.00
Grade [%]	Yes	Yes	Yes
Crosswalk	Yes	Yes	Yes

Volumes

Name	Chehalum Dr	Chehalum Dr	Foothills Dr
Base Volume Input [veh/h]	26	129	17
Base Volume Adjustment Factor	1.0948	1.0948	1.0948
Heavy Vehicles Percentage [%]	7.40	7.40	7.40
Growth Rate	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0
Site-Generated Trips [veh/h]	12	6	35
Diversed Trips [veh/h]	0	0	0
Pass-by Trips [veh/h]	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0
Other Volume [veh/h]	0	0	0
Total Hourly Volume [veh/h]	40	147	98
Peak Hour Factor	0.6100	0.6100	0.6100
Other Adjustment Factor	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	16	60	25
Total Analysis Volume [veh/h]	66	241	161
Pedestrian Volume [ped/h]	0	0	0

Priority Scheme	Free	Free	Stop
Prioritized Lane			No
Storage Area [veh]			No
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median			

**Movement, Approach, & Intersection Results**

V/C Ratio	Delay (s)	LOS	Queue Length (ft)	Queue Length (veh)	Stop
d.M. Delay for Movement [s/veh]	8.11	A	14.73	12.43	B
Movement LOS	A	A	B	B	B
95th-Percentile Queue Length [veh]	0.47	0.47	1.52	1.52	B
95th-Percentile Queue Length [ft]	11.65	11.65	37.94	37.94	B
d.A. Approach Delay [s/veh]	3.29	A	14.27	14.27	B
Approach LOS	A	A	B	B	B
d.I. Intersection Delay [s/veh]	5.08	B			
Intersection LOS	B	B			

**Intersection Level Of Service Report**

Intersection 6: Foothills Dr at Hwy 219  
 Delay (sec / veh): 78.7  
 Level Of Service: F  
 Volume to Capacity (v/c): 0.728

Control Type: Two-way stop  
 HCM 6th Edition  
 Analysis Method: HCM 6th Edition  
 Analysis Period: 15 minutes

**Intersection Setup**

Name	Hwy 219			Hwy 219			Foothills Dr			Foothills Dr		
	Northbound			Southbound			Eastbound			Westbound		
Approach	T			T			T			T		
Lane Configuration	T			T			T			T		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	1	0	1	1	0	0	0	1	1	0	0
Pocket Length [ft]	125.00	150.00	150.00	150.00	150.00	150.00	90.00	90.00	90.00	90.00	90.00	90.00
Speed [mph]	35.00	35.00	35.00	35.00	35.00	35.00	25.00	25.00	25.00	25.00	25.00	25.00
Grade [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Crosswalk	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

**Volumes**

Name	Hwy 219			Hwy 219			Foothills Dr			Foothills Dr		
	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	91	248	35	5	175	15	25	10	137	77	10	25
Base Volume Adjustment Factor	1.0948	1.0948	1.0948	1.0948	1.0948	1.0948	1.0948	1.0948	1.0948	1.0948	1.0948	1.0948
Heavy Vehicles Percentage [%]	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	3	4	0	0	12	0	0	0	12	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	103	276	38	5	204	16	27	11	162	84	11	27
Peak Hour Factor	0.8100	0.8100	0.8100	0.8100	0.8100	0.8100	0.8100	0.8100	0.8100	0.8100	0.8100	0.8100
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	32	85	12	2	63	5	8	3	50	26	3	8
Total Analysis Volume [veh/h]	127	341	47	6	252	20	33	14	200	104	14	33
Pedestrian Volume [ped/h]	0	0	0	0	0	0	0	0	0	0	0	0

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Filtered Lane			No	No
Storage Area [veh]			No	No
Two-Stage Gap Acceptance			No	No
Number of Storage Spaces in Median				

Movement, Approach, & Intersection Results

Movement	0.10	0.16	0.06	0.28	0.73	0.06	0.05
V/C Movement V/C Ratio	0.10	0.16	0.06	0.28	0.73	0.06	0.05
d, M, Delay for Movement [s/veh]	8.14	28.33	28.08	15.81	78.68	20.62	11.30
Movement LOS	A	A	A	C	F	C	B
95th-Percentile Queue Length [veh]	0.33	0.00	0.02	2.53	2.53	4.28	0.35
95th-Percentile Queue Length [ft]	8.28	0.00	0.00	63.32	63.32	106.89	8.83
d, A, Approach Delay [s/veh]	2.01	0.18		18.06		55.56	
Approach LOS	A	A		C		F	
d, I, Intersection Delay [s/veh]				12.05			
Intersection LOS				F			

Intersection Level Of Service Report

Control Type: Two-way stop  
Analysis Method: HCM 6th Edition  
Analysis Period: 15 minutes  
Delay (sec / veh): 9.6  
Level Of Service: A  
Volume to Capacity (v/c): 0.047

Intersection Setup

Name	Chehalum Dr Northbound	Chehalum Dr Southbound	Chehalum Dr Westbound
Approach	T	T	T
Lane Configuration	Thru Right	Left Thru Right	Left Right
Turning Movement	Thru Right	Left Thru Right	Left Right
Lane Width [ft]	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0
Pocket Length [ft]			
Speed [mph]	30.00	30.00	30.00
Grade [%]	0.00	0.00	0.00
Crosswalk	Yes	Yes	Yes

Volumes

Name	Chehalum Dr Northbound	Chehalum Dr Southbound	Chehalum Dr Westbound
Base Volume Input [veh/h]	44	0	0
Base Volume Adjustment Factor	1.0948	1.0948	1.0948
Heavy Vehicles Percentage [%]	8.50	8.50	8.50
Growth Rate	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0
Site-Generated Trips [veh/h]	7	11	3
Diverted Trips [veh/h]	0	0	0
Pass-by Trips [veh/h]	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0
Other Volume [veh/h]	0	0	0
Total Hourly Volume [veh/h]	55	11	3
Peak Hour Factor	0.8500	0.8500	0.8500
Other Adjustment Factor	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	16	3	1
Total Analysis Volume [veh/h]	65	13	4
Pedestrian Volume [ped/h]	0	0	0



Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]			
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median			

Movement, Approach, & Intersection Results

Movement	Free	Free	0.05	0.01
V/C Movement/V/C Ratio	0.00	0.00	0.05	0.01
d <sub>M</sub> Delay for Movement [s/veh]	7.44	7.44	9.61	6.87
Movement LOS	A	A	A	A
95th-Percentile Queue Length [veh]	0.00	0.19	0.17	0.17
95th-Percentile Queue Length [ft]	0.00	4.79	4.22	4.22
d <sub>A</sub> Approach Delay [s/veh]	0.00	0.33	9.51	A
Approach LOS	A	A	A	A
d <sub>I</sub> Intersection Delay [s/veh]	2.16	2.16	A	A
Intersection LOS	A	A	A	A

Intersection Level Of Service Report

Intersection 10: Main at Foothills Dr  
Control Type: Two-way stop  
Analysis Method: HCM 6th Edition  
Analysis Period: 15 minutes  
Delay (sec/veh): 19.2  
Level Of Service: C  
Volume to Capacity (v/c): 0.282

Intersection Setup

Name	Main St	Main St	Foothills Dr	Foothills Dr
Approach	Northbound	Southbound	Eastbound	Westbound
Lane Configuration	T	T	F	F
Turning Movement	Left	Right	Thru	Left
Lane Width [ft]	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0
Pocket Length [ft]	0	0	0	0
Speed [mph]	25.00	25.00	25.00	25.00
Grade [%]	0.00	0.00	0.00	0.00
Crosswalk	Yes	Yes	Yes	Yes

Volumes

Name	Main St	Main St	Foothills Dr	Foothills Dr
Base Volume Input [veh/h]	59	13	174	34
Base Volume Adjustment Factor	1.0948	1.0948	1.0948	1.0948
Heavy Vehicles Percentage [%]	5.20	5.20	5.20	5.20
Growth Rate	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0
Site-Generated Trips [veh/h]	0	0	13	0
Diverged Trips [veh/h]	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0
Other Volume [veh/h]	0	0	0	0
Total Hourly Volume [veh/h]	63	14	203	37
Peak Hour Factor	0.5900	0.5900	0.5900	0.5900
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	27	6	86	16
Total Analysis Volume [veh/h]	107	24	344	63
Pedestrian Volume [ped/h]	0	0	0	0

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]			
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median			

Movement, Approach, & Intersection Results

Movement	Free	Free	0.05	0.01
V/C Movement/V/C Ratio	0.00	0.00	0.05	0.01
d <sub>M</sub> Delay for Movement [s/veh]	7.44	7.44	9.61	6.87
Movement LOS	A	A	A	A
95th-Percentile Queue Length [veh]	0.00	0.19	0.17	0.17
95th-Percentile Queue Length [ft]	0.00	4.79	4.22	4.22
d <sub>A</sub> Approach Delay [s/veh]	0.00	0.33	9.51	A
Approach LOS	A	A	A	A
d <sub>I</sub> Intersection Delay [s/veh]	2.16	2.16	A	A
Intersection LOS	A	A	A	A

Volumes

Name	Main St	Main St	Foothills Dr	Foothills Dr
Base Volume Input [veh/h]	59	13	174	34
Base Volume Adjustment Factor	1.0948	1.0948	1.0948	1.0948
Heavy Vehicles Percentage [%]	5.20	5.20	5.20	5.20
Growth Rate	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0
Site-Generated Trips [veh/h]	0	0	13	0
Diverged Trips [veh/h]	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0
Other Volume [veh/h]	0	0	0	0
Total Hourly Volume [veh/h]	63	14	203	37
Peak Hour Factor	0.5900	0.5900	0.5900	0.5900
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	27	6	86	16
Total Analysis Volume [veh/h]	107	24	344	63
Pedestrian Volume [ped/h]	0	0	0	0

Intersection Settings

Priority Scheme	Stop	Free	Free
Fixed Lane	No		
Storage Area [feet]			
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median			

Movement, Approach, & Intersection Results

Movement	V/C Ratio	0.20	0.04	0.01
d, M, Delay for Movement [s/veh]	15.19	14.78	8.22	
Movement LOS	C	A	A	A
95th-Percentile Queue Length [veh]	1.41	1.41	0.00	1.40
95th-Percentile Queue Length [ft]	35.21	35.21	0.00	34.92
d, A, Approach Delay [s/veh]	18.39	0.00	0.00	0.34
Approach LOS	C	A	A	A
d, I, Intersection Delay [s/veh]		2.81		
Intersection LOS		C		

Intersection Level Of Service Report

Control Type: Two-way stop  
Analysis Method: HCM 6th Edition  
Analysis Period: 15 minutes  
Delay (sec / veh): 10.3  
Level Of Service: B  
Volume to Capacity (v/c): 0.020

Intersection Setup

Name	KV Access		N Valley Rd		N Valley Rd	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration	T		F		T	
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	30.00		45.00		45.00	
Speed [mph]	0.00		0.00		0.00	
Grade [%]	Yes		Yes		Yes	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	KV Access		N Valley Rd		N Valley Rd	
Base Volume Input [veh/h]	0	0	127	0	0	69
Base Volume Adjustment Factor	1.0948	1.0948	1.0948	1.0948	1.0948	1.0948
Heavy Vehicles Percentage [%]	7.00	7.00	7.00	7.00	7.00	7.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	12	10	2	4	4	2
Diverged Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	12	10	141	4	4	78
Peak Hour Factor	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	4	3	41	1	1	23
Total Analysis Volume [veh/h]	14	12	166	5	5	92
Pedestrian Volume [ped/h]	0	0	0	0	0	0

Intersection Level Of Service Report  
 Intersection 13: N Valley Rd at Bruce Dr

Control Type: Two-way stop  
 HCM 6th Edition  
 Analysis Method: Level Of Service: 10.1  
 Analysis Period: Volume to Capacity (v/c): B  
 15 minutes 0.000

Intersection Setup

Name	Bruce Dr	N Valley Rd	N Valley Rd
Approach	Northbound	Eastbound	Westbound
Lane Configuration	T	F	T
Turning Movement	Left 12.00	Thru 12.00	Right 12.00
Lane Width [ft]	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0
Pocket Length [ft]	0	0	0
Speed [mph]	30.00	45.00	45.00
Grade [%]	0.00	0.00	0.00
Crosswalk	Yes	Yes	Yes

Volumes

Name	Bruce Dr	N Valley Rd	N Valley Rd
Base Volume Input [veh/h]	0	127	0
Base Volume Adjustment Factor	1.0948	1.0948	1.0948
Heavy Vehicles Percentage [%]	7.00	7.00	7.00
Growth Rate	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0
Site-Generated Trips [veh/h]	0	6	0
Diverged Trips [veh/h]	0	0	0
Pass-by Trips [veh/h]	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0
Other Volume [veh/h]	0	0	0
Total Hourly Volume [veh/h]	0	145	0
Peak Hour Factor	0.8500	0.8500	0.8500
Other Adjustment Factor	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	43	0
Total Analysis Volume [veh/h]	0	171	0
Pedestrian Volume [ped/h]	0	0	0

Intersection Settings

Priority Scheme	Stop	Free	Free
Filtered Lane	No		
Storage Area [veh]			
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median			

Movement, Approach, & Intersection Results

Movement	V/C	Approach LOS	Intersection LOS
V/C, Movement V/C Ratio	0.02	A	A
d, M, Delay for Movement [s/veh]	10.27	B	1.00
Movement LOS	A	A	B
95th-Percentile Queue Length [veh]	0.10	0.00	0.23
95th-Percentile Queue Length [ft]	2.62	0.00	5.68
d, A, Approach Delay [s/veh]	9.64	A	0.39
Approach LOS	A	A	A
d, I, Intersection Delay [s/veh]		1.00	A
Intersection LOS		B	A

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]			
Two-Stage Opp Acceptance	No		
Number of Storage Spaces in Median			

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00
d, M, Delay for Movement [s/veh]	10.13	9.19	7.62
Movement LOS	B	A	A
95th-Percentile Queue Length [veh]	0.00	0.00	0.00
95th-Percentile Queue Length [ft]	0.00	0.00	0.00
d, A, Approach Delay [s/veh]	9.66		0.00
Approach LOS	A	A	A
d, I, Intersection Delay [s/veh]		0.00	
Intersection LOS		B	

Turning Movement Volume: Summary

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
1	N Valley Rd at Chehalum Dr	31	10	20	11	26	5	8	123	37	16	57	7	351

ID	Intersection Name	Southbound			Northeastbound			Southwestbound			Total Volume
		Left	Right	Thru	Left	Thru	Right	Left	Thru	Right	
3	NE Terrace Dr at Hwy 219	17	39	17	17	305	217	4	4	4	699

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
4	N Valley Rd at Hwy 219	16	172	133	26	95	21	21	80	26	90	55	16	769

ID	Intersection Name	Northbound			Southbound			Westbound			Total Volume
		Thru	Right	Left	Thru	Left	Right	Thru	Left	Right	
5	Chehalum Dr at Foothills Dr	40	147	41	60	98	25	411			

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
6	Foothills Dr at Hwy 219	103	276	39	5	204	16	27	11	162	84	11	27	964

ID	Intersection Name	Northbound			Southbound			Westbound			Total Volume
		Thru	Right	Left	Thru	Left	Right	Thru	Left	Right	
7	West Access at Chehalum Dr	55	11	3	72	33	5	179			

ID	Intersection Name	Northbound			Eastbound			Westbound			Total Volume
		Left	Right	Thru	Left	Thru	Right	Left	Thru	Right	
10	Main at Foothills	63	14	203	37	6	206	532			

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]			
Two-Stage Opp Acceptance	No		
Number of Storage Spaces in Median			

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00
d, M, Delay for Movement [s/veh]	10.13	9.19	7.62
Movement LOS	B	A	A
95th-Percentile Queue Length [veh]	0.00	0.00	0.00
95th-Percentile Queue Length [ft]	0.00	0.00	0.00
d, A, Approach Delay [s/veh]	9.66		0.00
Approach LOS	A	A	A
d, I, Intersection Delay [s/veh]		0.00	
Intersection LOS		B	

Turning Movement Volume: Summary

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
1	N Valley Rd at Chehalum Dr	31	10	20	11	26	5	8	123	37	16	57	7	351

ID	Intersection Name	Southbound			Northeastbound			Southwestbound			Total Volume
		Left	Right	Thru	Left	Thru	Right	Left	Thru	Right	
3	NE Terrace Dr at Hwy 219	17	39	17	17	305	217	4	4	4	699

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
4	N Valley Rd at Hwy 219	16	172	133	26	95	21	21	80	26	90	55	16	769

ID	Intersection Name	Northbound			Southbound			Westbound			Total Volume
		Thru	Right	Left	Thru	Left	Right	Thru	Left	Right	
5	Chehalum Dr at Foothills Dr	40	147	41	60	98	25	411			

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
6	Foothills Dr at Hwy 219	103	276	39	5	204	16	27	11	162	84	11	27	964

ID	Intersection Name	Northbound			Southbound			Westbound			Total Volume
		Thru	Right	Left	Thru	Left	Right	Thru	Left	Right	
7	West Access at Chehalum Dr	55	11	3	72	33	5	179			

ID	Intersection Name	Northbound			Eastbound			Westbound			Total Volume
		Left	Right	Thru	Left	Thru	Right	Left	Thru	Right	
10	Main at Foothills	63	14	203	37	6	206	532			

ID	Intersection Name	Northbound		Eastbound		Westbound		Total Volume
		Left	Right	Thru	Right	Left	Thru	
12	KV Access at N Valley Rd	12	10	141	4	4	78	249

ID	Intersection Name	Northbound		Eastbound		Westbound		Total Volume
		Left	Right	Thru	Right	Left	Thru	
13	N Valley Rd at Bruce Dr	0	0	145	0	0	90	235

Turning Movement Volume: Detail

ID	Intersection Name	Volume Type			Northbound			Southbound			Eastbound			Westbound			Total Volume
		Final Base	Growth Rate	In Process	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
1	N Valley Rd at Chehalis Dr	1.00	1.00	1.00	24	10	15	11	26	5	8	122	35	5	54	7	322
	Net New Trips	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Other	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Future Total				31	10	20	11	26	5	8	123	37	16	57	7	351

ID	Intersection Name	Volume Type			Southbound			Northeastbound			Southwestbound			Total Volume
		Final Base	Growth Rate	In Process	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
3	NE Terrace Dr at Hwy 219	1.00	1.00	1.00	13	33	33	15	303	211	4	579		
	Net New Trips	0	0	0	0	0	0	0	0	0	0	0		
	Other	0	0	0	0	0	0	0	0	0	0	0		
	Future Total				17	39	39	17	303	217	4	599		

ID	Intersection Name	Volume Type			Northbound			Southbound			Eastbound			Westbound			Total Volume
		Final Base	Growth Rate	In Process	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
4	N Valley Rd at Hwy 219	1.00	1.00	1.00	14	170	131	26	95	19	18	93	20	90	53	18	747
	Net New Trips	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Other	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Future Total				16	172	133	26	95	21	21	96	26	90	53	18	769

ID	Intersection Name	Volume Type			Northbound			Southbound			Westbound			Total Volume
		Final Base	Growth Rate	In Process	Thru	Right	Left	Thru	Right	Left	Thru	Right		
5	Chehalis Dr at Foothills Dr	1.00	1.00	1.00	28	141	141	34	25	78	19	325		
	Net New Trips	0	0	0	0	0	0	0	0	0	0	0		
	Other	0	0	0	0	0	0	0	0	0	0	0		
	Future Total				40	147	147	41	60	98	25	411		

ID	Intersection Name	Volume Type	Northbound			Eastbound			Westbound			Total Volume
			Left	Thru	Right	Thru	Right	Left	Thru	Right		
13	N Valley Rd at Bruce Dr	Final Base	0	0	0	139	0	0	0	76	215	
		Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	-	
		In Process	0	0	0	0	0	0	0	0	0	
		Net New Trips	0	0	0	6	0	0	0	14	20	
		Other	0	0	0	0	0	0	0	0	0	
Future Total			0	0	145	0	0	0	90	235		

ID	Intersection Name	Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
6	Foothills Dr at Hwy 219	Final Base	100	272	38	5	192	16	27	11	150	84	11	27	933
		Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0	0	0	0	0	0	0
		Net New Trips	3	4	0	0	12	0	0	12	0	0	0	0	31
		Other	0	0	0	0	0	0	0	0	0	0	0	0	0
Future Total			103	276	38	5	204	16	27	11	162	84	11	27	964

ID	Intersection Name	Volume Type	Northbound			Southbound			Westbound			Total Volume
			Thru	Right	Left	Thru	Right	Left	Right	Left		
7	West Access at Chehalum Dr	Final Base	48	0	0	62	0	0	0	0	110	
		Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	-	
		In Process	0	0	0	0	0	0	0	0	0	
		Net New Trips	7	11	3	10	33	5	69	0	0	
		Other	0	0	0	0	0	0	0	0	0	
Future Total			55	11	3	72	33	5	5	179		

ID	Intersection Name	Volume Type	Northbound			Eastbound			Westbound			Total Volume
			Left	Right	Thru	Thru	Right	Left	Thru	Right		
10	Main at Foothills	Final Base	63	14	190	37	9	180	493			
		Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	-			
		In Process	0	0	0	0	0	0	0			
		Net New Trips	0	0	13	0	0	0	26	39		
		Other	0	0	0	0	0	0	0	0		
Future Total			63	14	203	37	9	206	532			

ID	Intersection Name	Volume Type	Northbound			Eastbound			Westbound			Total Volume
			Left	Right	Thru	Thru	Right	Left	Thru	Right		
12	KV Access at N Valley Rd	Final Base	0	0	139	0	0	0	76	215		
		Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	-		
		In Process	0	0	0	0	0	0	0	0		
		Net New Trips	12	10	2	4	4	2	34	0		
		Other	0	0	0	0	0	0	0	0		
Future Total			12	10	141	4	4	78	249			

Signal Warrants Report For Intersection 1: N Valley Rd at Chehalam Dr

Warrant Summary	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	No
#3	Peak Hour	No

Intersection Warrants Parameters	E, W	N, S
Major Approaches		
Minor Approaches		
Speed > 40mph	Yes	
Population < 10,000	No	
Warrant Factor	70%	

Hour	Major Streets			Minor Streets		
	E	W	N	E	W	S
1	80	160	42	61		
2	77	161	40	59		
3	75	158	39	57		
4	64	154	34	49		
5	61	128	32	46		
6	54	114	29	41		
7	50	106	26	38		
8	48	101	25	37		
9	38	81	20	29		
10	36	76	19	27		
11	36	72	18	27		
12	34	66	16	24		
13	31	60	15	22		
14	28	60	15	22		
15	28	59	15	21		
16	28	59	15	21		
17	16	34	8	12		
18	9	18	5	7		
19	8	17	4	6		
20	3	7	2	2		
21	2	5	1	2		
22	2	5	1	2		
23	2	3	1	1		
24	2	3	1	1		

Signal Warrants Report For Intersection 1: N Valley Rd at Chehalam Dr

Hour	Major Lanes		Warrant 1 Condition A					Warrant 1 Condition B			Warrant 2	Warrant 3
	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		
1	2	248	No	No	No	No	No	No	No	No	No	No
2	2	238	No	No	No	No	No	No	No	No	No	No
3	2	233	No	No	No	No	No	No	No	No	No	No
4	2	198	No	No	No	No	No	No	No	No	No	No
5	2	189	No	No	No	No	No	No	No	No	No	No
6	2	168	No	No	No	No	No	No	No	No	No	No
7	2	156	No	No	No	No	No	No	No	No	No	No
8	2	149	No	No	No	No	No	No	No	No	No	No
9	2	119	No	No	No	No	No	No	No	No	No	No
10	2	112	No	No	No	No	No	No	No	No	No	No
11	2	106	No	No	No	No	No	No	No	No	No	No
12	2	97	No	No	No	No	No	No	No	No	No	No
13	2	89	No	No	No	No	No	No	No	No	No	No
14	2	89	No	No	No	No	No	No	No	No	No	No
15	2	87	No	No	No	No	No	No	No	No	No	No
16	2	87	No	No	No	No	No	No	No	No	No	No
17	2	50	No	No	No	No	No	No	No	No	No	No
18	2	27	No	No	No	No	No	No	No	No	No	No
19	2	25	No	No	No	No	No	No	No	No	No	No
20	2	10	No	No	No	No	No	No	No	No	No	No
21	2	7	No	No	No	No	No	No	No	No	No	No
22	2	7	No	No	No	No	No	No	No	No	No	No
23	2	5	No	No	No	No	No	No	No	No	No	No
24	2	5	No	No	No	No	No	No	No	No	No	No
Hours Met			0	0	0	0	0	0	0	0	0	0

Warrant 3 Condition A	Orientation	
	N	S
Total Stopped Delay For Vehicles on Minor Approach (s)	11.5	11.2
Number of Lanes on Minor Street Approach	1	1
Vehicle-hours of Stopped Delay on Minor Approach (h:mm)	0:08	0:11
Delay Condition Met	No	No
Volume on Minor Street Approach During Same Hour	42	61
High Minor Volume Condition Met	No	No
Total Entering Volume on All Approaches During Same Hour	351	351
Number of Approaches on Intersection	4	4
Total Volume Condition Met	No	No
Warrant Met for Approach	No	No
Warrant Met for Intersection	No	No

Warrant Analysis by Hour

Hour	Major Lanes		Minor Lanes		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2/Warrant 3 Condition	
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%	Yes	No
1	3	543	1	56	No	No	No	No	No	No	No	No	No	No
2	3	521	1	54	No	No	No	No	No	No	No	No	No	No
3	3	511	1	53	No	No	No	No	No	No	No	No	No	No
4	3	435	1	45	No	No	No	No	No	No	No	No	No	No
5	3	413	1	43	No	No	No	No	No	No	No	No	No	No
6	3	369	1	38	No	No	No	No	No	No	No	No	No	No
7	3	342	1	35	No	No	No	No	No	No	No	No	No	No
8	3	326	1	34	No	No	No	No	No	No	No	No	No	No
9	3	261	1	27	No	No	No	No	No	No	No	No	No	No
10	3	244	1	25	No	No	No	No	No	No	No	No	No	No
11	3	244	1	25	No	No	No	No	No	No	No	No	No	No
12	3	233	1	24	No	No	No	No	No	No	No	No	No	No
13	3	212	1	22	No	No	No	No	No	No	No	No	No	No
14	3	196	1	20	No	No	No	No	No	No	No	No	No	No
15	3	196	1	20	No	No	No	No	No	No	No	No	No	No
16	3	190	1	20	No	No	No	No	No	No	No	No	No	No
17	3	108	1	11	No	No	No	No	No	No	No	No	No	No
18	3	93	1	6	No	No	No	No	No	No	No	No	No	No
19	3	54	1	2	No	No	No	No	No	No	No	No	No	No
20	3	22	1	2	No	No	No	No	No	No	No	No	No	No
21	3	17	1	2	No	No	No	No	No	No	No	No	No	No
22	3	10	1	1	No	No	No	No	No	No	No	No	No	No
23	3	10	1	1	No	No	No	No	No	No	No	No	No	No
24	3	10	1	1	No	No	No	No	No	No	No	No	No	No
Hours Met					0	0	0	0	0	0	0	0	3	0

Signal Warrants Report For Intersection 3: NE Terrace Dr at Hwy 219

Warrant #	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	No
#3	Peak Hour	No

Intersection Warrants Parameters	NE, SW
Major Approaches	N
Minor Approaches	No
Speed > 40mph	No
Population < 10,000	100%
Warrant Factor	

Hour	Major Streets		Minor Streets	
	NE	SW	N	S
1	221	322	56	54
2	212	309	54	53
3	208	303	45	43
4	177	245	43	38
5	168	213	35	34
6	150	203	34	27
7	139	193	27	25
8	133	155	25	25
9	105	145	25	24
10	99	145	24	22
11	85	138	24	20
12	85	126	22	20
13	80	118	20	20
14	80	116	20	11
15	77	113	11	6
16	44	64	6	6
17	24	35	6	6
18	24	32	6	2
19	22	13	2	2
20	9	10	2	2
21	7	10	2	1
22	7	6	1	1
23	4	6	1	1
24	4	6	1	1

Warrant 3 Condition A		Orientation
Total Stopped Delay Per Vehicle on Minor Approach (s)		N
Number of Lanes on Minor Street Approach		12
VehicleHours of Stopped Delay on Minor Approach (h:mm)		1
Delay Condition Met		0:11
Volume on Minor Street Approach During Same Hour		56
High Minor Volume Condition Met		No
Total Entering Volume on All Approaches During Same Hour		599
Number of Approaches on Intersection		3
Total Volume Condition Met		No
Warrant Met for Approach		No
Warrant Met for Intersection		No



Signal Warrants Report For Intersection 4: N Valley Rd at Hwy 219

Warrants Summary		Name	Met?
#1	Eight Hour Vehicular Volume		No
#2	Four Hour Vehicular Volume		No
#3	Peak Hour		No

Intersection Warrants Parameters		S, N
Major Approaches		E, W
Minor Approaches		No
Speed > 40mph		100%
Population < 10,000		
Warrant Factor		

Hour	Major Streets				Minor Streets			
	S	N	E	W	E	W	S	N
1	321	142	163	143	156	137	136	137
2	308	136	155	134	153	134	133	134
3	302	130	144	114	130	114	114	114
4	257	114	124	109	124	109	109	109
5	244	108	111	97	111	97	97	97
6	218	97	103	90	103	90	90	90
7	202	89	98	86	98	86	86	86
8	193	85	98	86	98	86	86	86
9	154	69	78	69	78	69	69	69
10	144	64	73	64	73	64	64	64
11	144	64	70	61	70	61	61	61
12	138	61	64	56	64	56	56	56
13	125	55	53	51	53	51	51	51
14	116	51	51	50	51	50	50	50
15	110	50	50	49	50	49	49	49
16	112	50	50	49	50	49	49	49
17	64	28	33	16	33	16	16	16
18	35	18	18	14	18	14	14	14
19	32	14	16	11	16	11	11	11
20	13	6	7	6	7	6	6	6
21	10	4	5	4	5	4	4	4
22	10	4	5	4	5	4	4	4
23	6	3	3	3	3	3	3	3
24	6	3	3	3	3	3	3	3

Signal Warrants Report For Intersection 4: N Valley Rd at Hwy 219

Hour	Major Lanes		Minor Lanes		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2 Condition B	
	Number	Volume	Number	Volume	100%	80%	70%	50%	100%	80%	70%	50%	56%	Condition B
1	2	463	2	306	No	No	Yes	Yes	No	No	No	No	No	No
2	2	444	2	293	No	No	Yes	Yes	No	No	No	No	No	No
3	2	435	2	287	No	No	Yes	Yes	No	No	No	No	No	No
4	2	371	2	244	No	No	No	Yes	No	No	No	No	No	No
5	2	352	2	233	No	No	No	Yes	No	No	No	No	No	No
6	2	315	2	208	No	No	No	No	No	No	No	No	No	No
7	2	291	2	193	No	No	No	No	No	No	No	No	No	No
8	2	278	2	184	No	No	No	No	No	No	No	No	No	No
9	2	222	2	147	No	No	No	No	No	No	No	No	No	No
10	2	208	2	137	No	No	No	No	No	No	No	No	No	No
11	2	208	2	131	No	No	No	No	No	No	No	No	No	No
12	2	189	2	131	No	No	No	No	No	No	No	No	No	No
13	2	180	2	120	No	No	No	No	No	No	No	No	No	No
14	2	167	2	110	No	No	No	No	No	No	No	No	No	No
15	2	162	2	107	No	No	No	No	No	No	No	No	No	No
16	2	152	2	101	No	No	No	No	No	No	No	No	No	No
17	2	92	2	62	No	No	No	No	No	No	No	No	No	No
18	2	51	2	34	No	No	No	No	No	No	No	No	No	No
19	2	46	2	30	No	No	No	No	No	No	No	No	No	No
20	2	19	2	13	No	No	No	No	No	No	No	No	No	No
21	2	14	2	9	No	No	No	No	No	No	No	No	No	No
22	2	14	2	9	No	No	No	No	No	No	No	No	No	No
23	2	9	2	6	No	No	No	No	No	No	No	No	No	No
24	2	9	2	6	No	No	No	No	No	No	No	No	No	No

Warrant 3 Condition A		Warrant 3 Condition B	
Orientation	E	W	W
Total Stopped Delay Per Vehicle on Minor Approach (s)	35.8	1	21.6
Number of Lanes on Minor Street Approach	1	0.51	1
Vehicle Hours of Stopped Delay on Minor Approach (ft/turn)	137	No	No
Delay Condition Met	No	No	No
Volume on Minor Street Approach During Same Hour	163	Yes	143
High Minor Volume Condition Met	789	Yes	768
Total Enticing Volume on All Approaches During Same Hour	4	4	4
Number of Approaches on Intersection	No	No	No
Total Volume Condition Met	No	No	No
Warrant Met for Approach	No	No	No
Warrant Met for Intersection	No	No	No

Warrant Analysis by Hour

Hour	Major Lanes		Minor Lanes		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2		Warrant 3		
	Number	Volume	Number	Volume	100%	80%	70%	50%	100%	80%	70%	50%	50%	70%	50%	Condition	Condition
1	2	288	1	123	No	No	No	No	No	No	No	No	No	No	No	No	No
2	2	277	1	118	No	No	No	No	No	No	No	No	No	No	No	No	No
3	2	271	1	116	No	No	No	No	No	No	No	No	No	No	No	No	No
4	2	231	1	98	No	No	No	No	No	No	No	No	No	No	No	No	No
5	2	219	1	93	No	No	No	No	No	No	No	No	No	No	No	No	No
6	2	196	1	84	No	No	No	No	No	No	No	No	No	No	No	No	No
7	2	182	1	77	No	No	No	No	No	No	No	No	No	No	No	No	No
8	2	173	1	74	No	No	No	No	No	No	No	No	No	No	No	No	No
9	2	138	1	59	No	No	No	No	No	No	No	No	No	No	No	No	No
10	2	129	1	55	No	No	No	No	No	No	No	No	No	No	No	No	No
11	2	129	1	55	No	No	No	No	No	No	No	No	No	No	No	No	No
12	2	123	1	53	No	No	No	No	No	No	No	No	No	No	No	No	No
13	2	103	1	44	No	No	No	No	No	No	No	No	No	No	No	No	No
14	2	103	1	44	No	No	No	No	No	No	No	No	No	No	No	No	No
15	2	103	1	44	No	No	No	No	No	No	No	No	No	No	No	No	No
16	2	100	1	43	No	No	No	No	No	No	No	No	No	No	No	No	No
17	2	57	1	23	No	No	No	No	No	No	No	No	No	No	No	No	No
18	2	32	1	14	No	No	No	No	No	No	No	No	No	No	No	No	No
19	2	29	1	12	No	No	No	No	No	No	No	No	No	No	No	No	No
20	2	11	1	5	No	No	No	No	No	No	No	No	No	No	No	No	No
21	2	9	1	4	No	No	No	No	No	No	No	No	No	No	No	No	No
22	2	9	1	4	No	No	No	No	No	No	No	No	No	No	No	No	No
23	2	6	1	2	No	No	No	No	No	No	No	No	No	No	No	No	No
24	2	6	1	2	No	No	No	No	No	No	No	No	No	No	No	No	No
Hours Met					0	0	0	0	0	0	0	0	0	0	0	0	0

Warrant 3 Condition A

Orientation	E
Total Stopped Delay Per Vehicle on Minor Approach (s)	14.3
Number of Lanes on Minor Street Approach	1
Vehicle-hours of Stopped Delay on Minor Approach (h:min)	0:28
Delay Condition Met	No
Volume on Minor Street Approach During Same Hour	123
High Minor Volume Condition Met	Yes
Total Entering Volume on All Approaches During Same Hour	411
Number of Approaches on Intersection	3
Total Volume Condition Met	No
Warrant Met for Approach	No
Warrant Met for Intersection	No

Signal Warrants Report For Intersection 5: Chehalis Dr at Foothills Dr

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	No
#3	Peak Hour	No

Intersection Warrants Parameters

Major Approaches	N, S
Minor Approaches	E
Speed > 40mph	No
Precipitation < 10.000	100%
Warrant Factor	

Warrant Analysis Traffic Volumes

Hour	Major Streets			Minor Streets	
	N	S	E	N	E
1	101	187	123	118	118
2	97	176	116	98	98
3	95	150	81	85	85
4	77	142	77	84	84
5	69	127	69	77	77
6	64	118	64	74	74
7	61	112	61	50	50
8	48	90	48	55	55
9	45	84	45	55	55
10	45	84	45	53	53
11	43	80	43	48	48
12	39	73	39	44	44
13	36	67	36	44	44
14	36	65	36	43	43
15	35	37	35	25	25
16	20	21	20	14	14
17	11	10	11	12	12
18	10	10	10	5	5
19	4	4	4	4	4
20	3	3	3	4	4
21	3	3	3	2	2
22	2	2	2	4	4
23	2	2	2	4	4
24	2	2	2	2	2

Warrant Analysis by Hour

Hour	Major Lanes		Minor Lanes		Warrant 1 Condition A				Warrant 1 Condition B			Warrant 2/Warrant 3 Condition B	
	Number	Volume	Number	Volume	100%	80%	70%	58%	100%	80%	70%	55%	Yes
1	4	642	3	322	Yes	Yes	Yes	Yes	No	No	No	Yes	No
2	4	616	3	309	Yes	Yes	Yes	Yes	No	No	No	Yes	No
3	4	604	3	303	Yes	Yes	Yes	Yes	No	No	No	Yes	No
4	4	514	3	258	No	Yes	Yes	Yes	No	No	No	Yes	No
5	4	488	3	245	No	Yes	Yes	Yes	No	No	No	No	No
6	4	437	3	219	No	No	Yes	Yes	No	No	No	No	No
7	4	405	3	203	No	No	No	Yes	No	No	No	No	No
8	4	395	3	193	No	No	No	Yes	No	No	No	No	No
9	4	308	3	155	No	No	No	No	No	No	No	No	No
10	4	269	3	145	No	No	No	No	No	No	No	No	No
11	4	269	3	145	No	No	No	No	No	No	No	No	No
12	4	276	3	138	No	No	No	No	No	No	No	No	No
13	4	251	3	126	No	No	No	No	No	No	No	No	No
14	4	231	3	116	No	No	No	No	No	No	No	No	No
15	4	231	3	116	No	No	No	No	No	No	No	No	No
16	4	225	3	113	No	No	No	No	No	No	No	No	No
17	4	129	3	64	No	No	No	No	No	No	No	No	No
18	4	71	3	35	No	No	No	No	No	No	No	No	No
19	4	65	3	32	No	No	No	No	No	No	No	No	No
20	4	20	3	13	No	No	No	No	No	No	No	No	No
21	4	20	3	10	No	No	No	No	No	No	No	No	No
22	4	20	3	10	No	No	No	No	No	No	No	No	No
23	4	13	3	6	No	No	No	No	No	No	No	No	No
24	4	13	3	6	No	No	No	No	No	No	No	No	No
Hours Met					3	5	6	6	0	0	1	4	0

Signal Warrants Report For Intersection 6: Foothills Dr at Hwy 219

Warrant #	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	No
#3	Peak Hour	No

Intersection Warrants Parameters

Major Approaches	N, S
Minor Approaches	E, W
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

Warrant Analysis Traffic Volumes

Hour	Major Streets				Minor Streets			
	N	S	E	W	N	S	E	W
1	225	417	122	200	117	182	182	182
2	216	400	115	180	115	180	180	180
3	212	392	110	160	110	160	160	160
4	180	334	90	132	90	132	132	132
5	171	317	83	126	83	126	126	126
6	153	284	77	120	77	120	120	120
7	142	263	73	120	73	120	120	120
8	135	250	70	96	70	96	96	96
9	109	200	55	90	55	90	90	90
10	101	188	55	90	55	90	90	90
11	101	179	52	86	52	86	86	86
12	97	173	48	78	48	78	78	78
13	88	163	44	72	44	72	72	72
14	81	150	44	72	44	72	72	72
15	81	146	43	70	43	70	70	70
16	79	146	43	70	43	70	70	70
17	45	83	24	40	24	40	40	40
18	25	46	13	22	13	22	22	22
19	9	17	5	8	5	8	8	8
20	7	13	4	6	4	6	6	6
21	7	13	4	6	4	6	6	6
22	7	13	4	6	4	6	6	6
23	5	8	2	4	2	4	4	4
24	5	8	2	4	2	4	4	4