



January 29, 2016

City of West Linn
Mr. Peter Spir
Associate Planner
22500 Salamo Road
West Linn, OR 97068

SUBJECT: UPPER MIDHILL ESTATES (15-03)

Dear Peter,

I am writing on behalf of our client, Upper Midhill Estates, LLC, to transmit the information identified in the City's November 19th incompleteness determination and to request that the application for the Upper Midhill Estates Subdivision (SUB-15-03) be deemed complete. The following has been provided to document our response to each of the requests listed within the November 19th incompleteness notification. The applicant is providing all of the missing information identified in the incompleteness determination as required by ORS 227.178(2)(a).

Incomplete items per the Planning Department are as follows:

1. CDC Chapter 85.160(B) Requires stamp and signature of the engineer.

Applicant's Finding: The Applicant's engineer has not stamped and sign a preliminary plan set as preliminary plans should never be confused for construction ready plans. Final construction plans will be stamped and signed by the project's engineer of record. The Applicant has provided an engineer's stamp on the preliminary plans with a "preliminary" watermark over the stamp. The final approved drawings will be signed.

2. CDC Chapter 85.160(D) (3) Rename "Preliminary Plat" as "Tentative Plan" (sheet C200)

Applicant's Finding: The Applicant has changed the name of sheet C200 to Tentative Plan.

3. CDC Chapter 85.160(D) (4) Location of the proposed division of land, with a tie to the City coordinate system, where established, and a description sufficient to define its location and boundaries, and a legal description of the tract boundaries.

Applicant's Finding: The Applicant has provided plans which have been designed using a survey which has been prepared using a coordinate system which is familiar to the City of West Linn.

4. CDC Chapter 85.160(E) (1) The location, widths, and names of all existing or platted streets and rights-of-way within or adjacent to the tract (within 50 feet), together with easements

and other important features such as section lines, donation land claim corners, section corners, City boundary lines, and monuments.

Applicant's Finding: The Applicant has added the location, widths, and names off all existing or platted streets and rights-of-way within or adjacent to the tract within 50 feet, as well as easements, section lines, donation land claim corners, section corners, City boundary lines, and monuments to the preliminary plat.

5. CDC Chapter 85.160(E) (5) and 55.100(B) (2) Provide City Arborist's review and mapping of significant trees.

Applicant's Finding: The City's Arborist, Mike Perkins, has performed an inspection of the site and has verbally confirmed that the project arborist's report is accurate. Formal correspondence has been requested from the City's Arborist but has not been provided to the Applicant.

6. CDC Chapter 85.160(E) (5) Trees on non-Type I and II lands shall have their "dripline plus 10 feet" protected area calculated per CDC 55.100(B) (2) and expressed in square feet, and also as a percentage of total non-Type I and II area.

Applicant's Finding: A delineation line has been added to separate the Type I and II land located in the south-west corner of the property. Only 2 significant trees lie outside of the land Types I and II, both lie within ROW improvements and thus must be removed.

7. CDC Chapter 85.160(E) (8) Show zoning onsite and properties adjacent to site (including Lake Oswego properties)

Applicant's Finding: The Applicant has revised the Site Plan (Sheet C200) to show the zoning on and adjacent to the subject property.

8. CDC Chapter 85.170(A) (3) Legal description of the tract.

Applicant's Finding: The Applicant has provided a condensed legal description on each page of the preliminary land use plan set. The Applicant has further provided a full legal description contained within a title report as an attachment to this correspondence.

9. CDC Chapter 85.200(J) (7) and 85.170(A) (7). Please verify density calculations. Sheet C200 states that there is a gross site area of 6.10 acres. CDC Chapter 85 offers no deduction in net acres due to ROW or public facilities. There is a deduction, per 85.200(J) (7), for Type I and II lands which comprise 3,963 square feet of wetlands. The net area is 261,897 square feet (6.10 acres (265,860 square feet) minus 3,963 square feet). 261,897 square feet divided by 4,500 square foot minimum lot size yields 58 lots which may be reduced (X .70) to 40 lots. The provisions of CDC Chapter 24: Planned Unit Development may provide alternative densities but would require a PUD application. (The PUD deposit fee is \$4,200 plus \$400 per acre.)

Applicant's Finding: The City has confirmed that the density proposed within this application for subdivision falls within the allowable ranges permitted within the R-4.5 zoning district, since the definition of net acreage excludes rights of way.

10. CDC Chapter 85.170(A) (8) Show slopes (incl. sheet C130) by breakdowns as required by 55.110(B) (3) (Type I and II lands). Also, the current slope breakdown (sheet C130) uses color/patterns that are difficult to tell apart. Please use contrasting colors or patterns.

Applicant's Finding: The slope break down has been adjusted to show Type I and II lands. The colors can be better distinguished by either the submitted 11x17's or the electronic copies of the revised plan set.

11. CDC Chapter 85.170(A) Grading. Please relocate/show retaining walls and "*proposed gravel outfall*" (as shown on sheet C210 map and legend) within the site boundaries and not on adjacent properties unless easements for those facilities can be provided.

Applicant's Finding: The Applicant now shows the proposed retaining walls and gravel outfalls. These lie within the site boundary.

12. CDC Chapter 85.200(B) (4) Please address the approval criteria of CDC Chapter 48: Access.

Applicant's Finding: Chapter 48 of the CDC has been added to the narrative. The Applicant has addressed the applicable approval criteria.

13. CDC Chapter 85.200(B) (7) Lots 13, 14 and 15 must be provided with legal access. An agreement with the City for access across undeveloped ROW may be required.

Applicant's Finding: The Applicant will enter into a shared access and maintenance agreement for access to lots 13, 14, and 15.

14. CDC Chapter 85.200(A) (12) Although the original Robinwood plat named the undeveloped internal street: Scenic Drive- that does not reconcile with the fact that the street will be an extension of Hillside Drive. Please rename Scenic Drive as Hillside Drive.

Applicant's Finding: The Applicant has adjusted the name from Scenic Drive to Hillside Drive.

15. CDC Chapter 85.200(F) (5) Need to request a statement from the City Engineer that there is sufficient water service available.

Applicant's Finding: The Applicant has confirmed with the City Engineer that sufficient water service is available.

16. CDC Chapter 85.200(G) (9) Need to request a statement from the City Engineer that there is sufficient sewer capacity available.

Applicant's Finding: The Applicant has confirmed with the City Engineer that sufficient sewer service is available.

17. CDC Chapter 32.020(A) A Water Resource Area (WRA) permit is required. The application form needs to be amended to add a WRA permit. The WRA permit fee is \$2,600 plus a re-vegetation inspection fee of \$250.

Applicant's Finding: The Applicant has provided a fee to enable the City's review of a Water Resource Area Permit, and will revise the application form to mark the appropriate box. The standards and criteria for approval of such development are addressed under Chapter 32 of the application.

18. CDC Chapter 32.050 Provide WRA application per this section or request waiver where CDC Chapter 85: Land Division submittal has already addressed that item or where it is not applicable.

Applicant's Finding: The Applicant has provided a fee to enable the City's review of a Water Resource Area Permit, and has clarified that it is expressly requesting approval of development within a WRA as allowed by Chapter 32.

19. CDC Chapter 32.060, 32.080 (A) (B) (C) (D) please provide responses to these approval criteria. (The Schott and Associates report does not address these code sections and approval criteria.)

Applicant's Finding: The Applicant's revised application has addressed the applicable sections of CDC Chapter 32, including the standard process approval criteria of 32.060. The alternative process approval criteria of Section 32.080 do not apply to this application.

20. CDC Chapter 32.050(F) (5) requires delineation of the WRA. The Schott and Associates report discusses two small PEM wetlands totaling 0.09 acres and a "defined ditch" at the north edge of the site but does not make a finding that the ditch is a wetland (page 4 of the report). However, the "Wetland Determination Data Form" for sample point 6 states that the sampled area is within a wetland. Staff also notes that the applicant finding on page 27 of the 3J submittal states that there are two areas of WRA on this site including an ephemeral drainageway. Please reconcile these comments. If the drainageway does in fact include a wetland then it needs to be mapped and the appropriate setbacks of Chapter 32 would apply. (The City of West Linn has only extended WRA designation to ephemeral streams where they are headwaters that evolve into an intermittent and/or perennial stream.)

Applicant's Finding: The Applicant's Wetland Delineation Report does not show a wetland within the sample points along the ephemeral drainage along the site's Northern Boundary. The Applicant has provided a letter of Concurrence from the Oregon State Department of State Lands identifying the two small wetlands located on



the site. The drainage located along the northern edge of the property is exempt from state permitting requirements due to its status as a man-made drainage facility and it is not considered to be a wetland or a water of the state.

21. Traffic Impact Analysis: Update figure 2 to reflect the most recent site plan. Include proposed mitigation exhibits for illustration. Provide cost estimate of proposed mitigations and full improvement to accommodate mitigations. Provide analysis for other modes: pedestrian, bike, transit, and truck analysis.

Applicant's Finding: The Applicant's Traffic Impact Analysis has been updated and has been submitted along with this letter and the revised plans.

22. Geotechnical Report: Update figure 2 to reflect the most recent site plan. Storm water facility has been redesigned to be located at middle of the site instead of at the NW corner of the site. Revise the observation and recommendation in accordance with the new location.

Applicant's Finding: The Applicant's Geotechnical Report has not been updated as the findings within the report are not impacted by the change in the preliminary subdivision layout.

23. Sheet C201: Local Road not Neighborhood Route. 6' sidewalk on curb tight sidewalk. 6.5' including curb. Revise Section A-A. Spelling error on Section B-B.

Applicant's Finding: The title has been adjusted to read Local Road. Typical Section A-A has been adjusted to show a 6.0' sidewalk. The spelling error on Section B-B has been corrected.

24. Sheet C210: 6' sidewalk on curb tight sidewalk. 6.5' including curb. Why there is a stop in the middle of the roadway? Provide new street signs. Show location of new street sign and pole.

Applicant's Finding: The Applicant has adjusted the sidewalk in the typical sections. The stop sign has been removed. A new street sign has been added between lot 15 and Tract C.

25. Tract A will be replaced by an easement.

Applicant's Finding: The Applicant has removed Tract A and replaced this area with an easement over the adjoining lots.

26. Tract B shall be eliminated and the property will be consolidated with adjacent lots.

Applicant's Finding: The Applicant has removed the Tract and the adjacent lots have been consolidated.



27. Retaining wall in the detention pond area must be replaced in tier. No geo-grid will be allowed to extend inside the public utility easement.

Applicant's Finding: The Applicant has designed tiered walls in order eliminate the need for geo-grid.

28. The street pavement width is preferred to be 28 wide to allow on street parking. Discuss with Khoi how this can be achieved.

29.

Applicant's Finding: The Applicant has proposed a street layout with on-street parking along one side of the proposed road network. This design has been preliminarily evaluated by the City's Engineer.

We trust that these responses and materials will assist in the City's favorable evaluation of the application. Please feel free to contact us with any questions that you may have. We will be ready to respond to any questions or requests for any further clarification.

Sincerely,



Andrew Tull
Principal Planner
3J Consulting, Inc.

Attachments: Revised Land Use Narrative
Revised Site Plan and Utility Plans
Preliminary Title Report
Revised Traffic Impact Analysis
DSL Letter of Concurrence for Wetlands

File



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GENERAL INFORMATION

Property Owner: 18000 Midhill Drive, LLC
1235 North Dutton Ave, Suite E
Santa Rosa, CA 95401
Contact: David Chiddix

Applicant: Upper Midhill Estates, LLC
931 SW King Avenue
Portland, OR 97205
Contact: Ryan Zygar
Phone: 360-798-4838
Email: ryan@zygar.com

Applicant's Representative: 3J Consulting, Inc.
5075 SW Griffith Drive, Suite 150
Beaverton, OR 97005
Contact: Andrew Tull
Phone: 503-545-1907
Email: andrew.tull@3j-consulting.com

SITE INFORMATION

Tax Lot Numbers: 2S1E13CA0200
Address: 18000 Upper Midhill Drive
Size: 6.10 acres
Zoning Designation: R-4.5 (City of West Linn)
Neighborhood: Robinwood
Comprehensive Plan: Medium Density Residential
Existing Use: The site is vacant.
Street Functional Classification: The site currently takes access from Upper Midhill Drive, a local street. Adjacent College View Drive, Scenic Drive and Hillside Drive are local streets.
Surrounding Zoning: North, East and West- City of Lake Oswego
South- R-4.5 (West Linn)

INTRODUCTION

APPLICANT'S REQUEST

The Applicant seeks approval of an application for Subdivision Preliminary Plat and Water Resource Area (WRA) Review for the development of 34 residential lots (Chêne Blanc Estates). This narrative describes the proposed subdivision of the site and documents compliance with the relevant sections of the City of West Linn's Community Development Code ("CDC").

PROPOSED SITE IMPROVEMENTS

The project site consists of a total of 6.10 acres. The property is located at the north end of Upper Midhill Drive, adjacent to the City of Lake Oswego to the north. The site is currently vacant. The 34 lots will take access from either Upper Midhill Drive or Hillside Drive, both local streets.

The intent of this subdivision is to provide thirty-four (34) buildable lots on the subject property. Each of the proposed lots will exceed the minimum of 4,500 square feet in size, for development with single-family detached homes, a use permitted outright in the R-4.5 zone. This application would create thirty-four (34) lots for needed housing, contributing to the City's inventory of diverse and available housing stock.

The lot layout and configuration of streets and drainage are dictated by four main factors: topography, existing street grades, the abundance of significant trees, and the city's requirement that any development provide a minimum of 34 lots. The application demonstrates how these factors have been successfully addressed in compliance with all applicable criteria.

APPLICABLE CRITERIA

The following sections of the CDC have been extracted as they have been deemed to be applicable to the proposal. Following each applicable criteria or design standard, the Applicant has provided a series of draft findings. The intent of providing code and detailed responses and findings is to document that the proposed development has satisfied the approval criteria for Subdivision Preliminary Plat.

DIVISION 2. ZONING PROVISIONS

CHAPTER 14. SINGLE-FAMILY RESIDENTIAL ATTACHED AND DETACHED/DUPLEX, R-4.5

14.030 PERMITTED USES

The following uses are permitted outright in this zoning district.

1. Single-family detached residential unit.
2. Duplex residential units.
3. Family day care.
4. Single-family attached residential units.
5. Community recreation.
6. Residential home.
7. Utilities, minor.
8. Manufactured housing.
9. Transportation facilities (Type I). (Ord. 1180, 1986; Ord. 1226, 1988; Ord. 1248, 1989; Ord. 1354, 1994; Ord. 1584, 2008)

Applicant's Finding: The proposed subdivision is intended for single-family detached residential units, a use permitted outright in the R-4.5 zone.

The requirements of this section have been satisfied.

14.070 DIMENSIONAL REQUIREMENTS, USES PERMITTED OUTRIGHT AND USES PERMITTED UNDER PRESCRIBED CONDITIONS

Except as may be otherwise provided by the provisions of this code, the following are the requirements for uses within this zone:

- A. The minimum lot size shall be:
 1. For a single-family detached unit, 4,500 square feet.
 2. For each attached single-family unit, 4,000 square feet.
 3. For a duplex, 8,000 square feet or 4,000 square feet for each unit.
- B. The minimum front lot line length or the minimum lot width at the front lot line shall be 35 feet.
- C. The average minimum lot width shall be 35 feet.
- D. *Repealed by Ord. 1622.*
- E. The minimum yard dimensions or minimum building setback areas from the lot line shall be:
 1. For a front yard, 20 feet; except for steeply sloped lots where the provisions of CDC [41.010](#) shall apply.

2. For an interior side yard, five feet.
 3. For a side yard abutting a street, 15 feet.
 4. For a rear yard, 20 feet.
- F. The maximum building height shall be 35 feet, except for steeply sloped lots in which case the provisions of CDC [41.010](#) shall apply.
- G. The maximum lot coverage shall be 40 percent.
- H. The minimum width of an accessway to a lot which does not abut a street or a flag lot shall be 15 feet.
- I. The floor area ratio shall be 0.45. Type I and II lands shall not be counted toward lot area when determining allowable floor area ratio, except that a minimum floor area ratio of 0.30 shall be allowed regardless of the classification of lands within the property. That 30 percent shall be based upon the entire property including Type I and II lands. Existing residences in excess of this standard may be replaced to their prior dimensions when damaged without the requirement that the homeowner obtain a non-conforming structures permit under Chapter [66](#) CDC.
- J. The sidewall provisions of Chapter [43](#) CDC shall apply. (Ord. 1226, 1988; Ord. 1308, 1991; Ord. 1377, 1995; Ord. 1538, 2006; Ord. 1622 § 24, 2014)

**Applicant's
Finding:**

The proposed lots range in size from 4,615 square feet to 9,905 square feet, well over the 4,500 square foot minimum for single-family detached residential in the R-4.5 zone. The lot widths at front property line and lot width averages all exceed 35 feet, as demonstrated on the submitted plans. There are no accessways proposed as all lots access a public street. Yard dimensions, building height, lot coverage, floor area ratios and sidewall provisions will all meet the requirements of this section and will be verified at time of building permit submittal.

The requirements of this section have been satisfied.

DIVISION 8. LAND DIVISION

CHAPTER 85. GENERAL PROVISIONS

85.170 SUPPLEMENTAL SUBMITTAL REQUIREMENTS FOR TENTATIVE SUBDIVISION OR PARTITION PLAN

B. Transportation.

2. Traffic Impact Analysis (TIA).

a. **Purpose.** The purpose of this section of the code is to implement Section 660-012-0045(2)(e) of the State Transportation Planning Rule that requires the City to adopt a process to apply conditions to development proposals in order to minimize adverse impacts to and protect transportation facilities. This section establishes the standards for when a proposal must be reviewed for potential traffic impacts; when a Traffic Impact Analysis must be submitted with a development application in order to determine whether conditions are needed to minimize impacts to and protect transportation facilities; what must be in a Traffic Impact Study; and who is qualified to prepare the study.

b. **Typical average daily trips.** The latest edition of the Trip Generation manual, published by the Institute of Transportation Engineers (ITE) shall be used as the standards by which to gauge average daily vehicle trips.

c. **When required.** A Traffic Impact Analysis may be required to be submitted to the City with a land use application, when the following conditions apply:

1) **The development application involves one or more of the following actions:**

(A) **A change in zoning or a plan amendment designation; or**

Applicant's Finding: The Applicant is not proposing a change in zoning or a plan amendment designation as a part of this land use application, therefore a Traffic Impact Analysis is not required per this subsection.

The requirements of this section have been satisfied.

(B) **Any proposed development or land use action that ODOT states may have operational or safety concerns along a State highway; and**

Applicant's Finding: The proposed development is not located along a State highway, therefore a Traffic Impact Analysis is not required per this subsection.

The requirements of this section have been satisfied.

(C) **The development shall cause one or more of the following effects, which can be determined by field counts, site observation, traffic impact analysis or study, field measurements, crash history, Institute of Transportation Engineers Trip Generation manual; and information and studies provided by the local reviewing jurisdiction and/or ODOT:**

(1) **An increase in site traffic volume generation by 250 average daily trips (ADT) or more (or as required by the City Engineer); or**

Applicant's Finding: The *Institute of Transportation Engineers Trip Generation Manual, 9th Edition* estimates an average increase in daily trips as 9.5 trips/ residential lot. The proposed 34 lot subdivision will generate 323 average daily trips (ADT), exceeding the 250 ADT threshold. Therefore, the submittal includes a Transportation Impact Analysis prepared by Kittleson & Associates, Inc. in support of this project.

The requirements of this section have been satisfied.

(2) **An increase in use of adjacent streets by vehicles exceeding the 20,000-pound gross vehicle weights by 10 vehicles or more per day; or**

Applicant's Finding: The proposed development is intended to serve primarily residential traffic and is not estimated to increase the use of adjacent streets by vehicles exceeding 20,000-pound gross vehicle weights by 10 vehicles or more per day, therefore a Traffic Impact Analysis is not required per this subsection.

The requirements of this section have been satisfied.

(3) The location of the access driveway does not meet minimum intersection sight distance requirements, or is located where vehicles entering or leaving the property are restricted, or such vehicles queue or hesitate on the State highway, creating a safety hazard; or

Applicant's Finding:

Proposed access driveways have been designed to meet the minimum intersection site distance for new single family homes.

The requirements of this section have been satisfied.

(4) The location of the access driveway does not meet the access spacing standard of the roadway on which the driveway is located; or

Applicant's Finding:

Proposed access driveways have been designed to meet the minimum intersection site distance for new single family homes.

The requirements of this section have been satisfied.

(5) A change in internal traffic patterns that may cause safety problems, such as backup onto the highway or traffic crashes in the approach area.

Applicant's Finding:

No changes to local traffic patterns hold the potential to cause off-site safety problems.

The requirements of this section have been satisfied.

d. Traffic impact analysis requirements.

1) Preparation. A Traffic Impact Analysis shall be prepared by a professional engineer qualified under OAR [734-051-0040](#). The City shall commission the traffic analysis and it will be paid for by the applicant.

2) Transportation Planning Rule compliance. See CDC [105.050\(D\)](#), Transportation Planning Rule Compliance.

3) Pre-application conference. The applicant will meet with West Linn Public Works prior to submitting an application that requires a traffic impact application. This meeting will determine the required elements of the TIA and the level of analysis expected.

e. Approval criteria.

1) Criteria. When a Traffic Impact Analysis is required, approval of the development proposal requires satisfaction of the following criteria:

(A) The Traffic Impact Analysis was prepared by a professional traffic engineer qualified under OAR [734-051-0040](#); and

(B) If the proposed development shall cause one or more of the effects in subsection (B)(2) of this section, or other traffic hazard or negative impact to a transportation

facility, the Traffic Impact Analysis includes mitigation measures that meet the City's level of service and are satisfactory to the City Engineer, and ODOT when applicable; and

(C) The proposed site design and traffic and circulation design and facilities, for all transportation modes, including any mitigation measures, are designed to:

- (1) Have the least negative impact on all applicable transportation facilities; and
- (2) Accommodate and encourage non-motor vehicular modes of transportation to the extent practicable; and
- (3) Make the most efficient use of land and public facilities as practicable; and
- (4) Provide the most direct, safe and convenient routes practicable between on-site destinations, and between on-site and off-site destinations; and
- (5) Otherwise comply with applicable requirements of the City of West Linn Community Development Code.

f. Conditions of approval. The City may deny, approve, or approve the proposal with appropriate conditions.

- 1) Dedication of land for streets, transit facilities, sidewalks, bikeways, paths, or accessways shall be required where the existing transportation system will be impacted by or is inadequate to handle the additional burden caused by the proposed use.
- 2) Improvements such as paving, curbing, installation or contribution to traffic signals, or construction of sidewalks, bikeways, accessways, paths, or streets that serve the proposed use where the existing transportation system may be burdened by the proposed use may be required.

Applicant's Finding:

The transportation impact analysis submitted with this application was prepared by a professional traffic engineer and finds that the proposed subdivision can be constructed while maintaining safe and acceptable traffic operations at the study intersection and adjacent roadways. The following is a list of recommended mitigation measures:

- Construct an extension of Upper Midhill Road consistent with the City's local street standard.
- Shrubbery and landscaping near the internal intersections and site access points should be maintained to ensure adequate sight distance.
- Develop a cost estimate for the proposed improvements to the Arbor/highway 43 intersection in coordination with the City and ODOT staff and pay a proportionate share (estimated at 1.9 percent) of the total cost of the improvements. A preliminary cost estimate has been provided to the City detailing the anticipated costs of the Highway 43 Road widening.

The requirements of this section have been satisfied.

85.200 APPROVAL CRITERIA

No tentative subdivision or partition plan shall be approved unless adequate public facilities will be available to provide service to the partition or subdivision area prior to final plat approval and the Planning Commission or Planning Director, as applicable, finds that the following standards have been satisfied, or can be satisfied by condition of approval.

A. Streets.

1. **General.** The location, width and grade of streets shall be considered in their relation to existing and planned streets, to the generalized or reasonable layout of streets on adjacent undeveloped lot or parcels, to topographical conditions, to public convenience and safety, to accommodate various types of transportation (automobile, bus, pedestrian, bicycle), and to the proposed use of land to be served by the streets. The functional class of a street aids in defining the primary function and associated design standards for the facility. The hierarchy of the facilities within the network in regard to the type of traffic served (through or local trips), balance of function (providing access and/or capacity), and the level of use (generally measured in vehicles per day) are generally dictated by the functional class. The street system shall assure an adequate traffic or circulation system with intersection angles, grades, tangents, and curves appropriate for the traffic to be carried. Streets should provide for the continuation, or the appropriate projection, of existing principal streets in surrounding areas and should not impede or adversely affect development of adjoining lands or access thereto.

To accomplish this, the emphasis should be upon a connected continuous pattern of local, collector, and arterial streets rather than discontinuous curvilinear streets and cul-de-sacs. Deviation from this pattern of connected streets should only be permitted in cases of extreme topographical challenges including excessive slopes (35 percent-plus), hazard areas, steep drainageways, wetlands, etc. In such cases, deviations may be allowed but the connected continuous pattern must be reestablished once the topographic challenge is passed. Streets should be oriented with consideration of the sun, as site conditions allow, so that over 50 percent of the front building lines of homes are oriented within 30 degrees of an east-west axis.

Internal streets are the responsibility of the developer. All streets bordering the development site are to be developed by the developer with, typically, half-street improvements or to City standards prescribed by the City Engineer. Additional travel lanes may be required to be consistent with adjacent road widths or to be consistent with the adopted Transportation System Plan (TSP) and any adopted updated plans.

An applicant may submit a written request for a waiver of abutting street improvements if the TSP prohibits the street improvement for which the waiver is requested. Those areas with numerous (particularly contiguous) under-developed or undeveloped tracts will be required to install street improvements. When an applicant requests a waiver of street improvements and the waiver is granted, the applicant shall pay an in-lieu fee equal to the estimated cost, accepted by the City Engineer, of the otherwise required street improvements. As a basis for this determination, the City Engineer shall consider the cost of similar improvements in recent development projects and may require up to three estimates from the applicant. The amount of the fee shall be established prior to the Planning Commission's decision on the associated application. The in-lieu fee shall be used for in kind or related improvements. Streets shall also be laid out to avoid and protect tree clusters and significant trees, but not to the extent that it would compromise connectivity requirements per this subsection (A)(1), or bring the density below 70 percent of the maximum density for the developable net area. The developable net area is calculated by taking the total site acreage and deducting Type I and II lands; then up to 20 percent of the remaining land may be excluded as necessary for the purpose of protecting significant tree clusters or stands as defined in CDC [55.100\(B\)\(2\)](#).

Applicant's Finding:

This site is located north end of Upper Midhill Drive, a local street. The development will include the extension of Hillside Drive, also a local street. The development of this site will not negatively affect the connectivity of these two streets. Figure 8-6 of the West Linn Transportation System Plan - Future Local Street Connectivity Improvements, does not identify a new street connection within or adjacent to this site. However, the proposed subdivision will include connection of Upper Midhill Drive to Hillside Drive to provide connectivity throughout this site.

The extension of Upper Midhill and Hillside will require right-of-way dedication with this subdivision. The Applicant proposes additional right-of-way within the site for the extension of both of these streets, as discussed below. Sidewalks and planter strips are also proposed.

This section requires the developer to be responsible for the construction of internal streets. The Applicant proposes full responsibility for construction of the extensions of Upper Midhill and Hillside.

The requirements of this section have been satisfied.

2. Right-of-way and roadway widths. In order to accommodate larger tree-lined boulevards and sidewalks, particularly in residential areas, the standard right-of-way widths for the different street classifications shall be within the range listed below. But instead of filling in the right-of-way with pavement, they shall accommodate the amenities (e.g., boulevards, street trees, sidewalks). The exact width of the right-of-way shall be determined by the City Engineer or the approval authority. The following ranges will apply:

Street Classification	Right-of-Way
Local Street	40' – 60'

Additional rights-of-way for slopes may be required. Sidewalks shall not be located outside of the right-of-way unless to accommodate significant natural features or trees.

Applicant's Finding:

The Applicant proposes dedication of a variable width between 48' and 50' of right-of-way within the site for both Upper Midhill and Hillside, as shown on the preliminary plat, sheet C200. These dedications are consistent with the Transportation System Plan (TSP) requirements of 40'-60' ROW for a local street.

The requirements of this section have been satisfied.

3. Street widths. Street widths shall depend upon which classification of street is proposed. The classifications and required cross sections are established in Chapter 8 of the adopted TSP.

Applicant's Finding:

The width of the paved section of the extensions of Upper Midhill and Hillside will be 24 feet, per the TSP standard for a local street.

The requirements of this section have been satisfied.

4. The decision-making body shall consider the City Engineer’s recommendations on the desired right-of-way width, pavement width and street geometry of the various street types within the subdivision after consideration by the City Engineer of the following criteria:

- a. The type of road as set forth in the Transportation Master Plan.**
- b. The anticipated traffic generation.**
- c. On-street parking requirements.**
- d. Sidewalk and bikeway requirements.**
- e. Requirements for placement of utilities.**
- f. Street lighting.**
- g. Drainage and slope impacts.**
- h. Street trees.**
- i. Planting and landscape areas.**
- j. Existing and future driveway grades.**
- k. Street geometry.**
- l. Street furniture needs, hydrants.**

Applicant's Finding: The City’s Development Engineer has reviewed the proposal and made recommendations to the applicant, which are incorporated into the proposed roadway configuration.

The Applicant has specifically requested a modification along the western edge of the extension of Hillside Drive. This modification would involve the placement of a curb-tight sidewalk along the western edge of the street. The curb-tight sidewalk has been proposed in order to reduce grading impacts and wall construction along the roadway’s western edge. The western edge of Hillside currently abuts several existing structures.

The requirements of this section have been satisfied.

5. Additionally, when determining appropriate street width, the decision-making body shall consider the following criteria:

- a. When a local street is the only street serving a residential area and is expected to carry more than the normal local street traffic load, the designs with two travel and one parking lane are appropriate.**
- b. Streets intended to serve as signed but unstriped bike routes should have the travel lane widened by two feet.**
- c. Collectors should have two travel lanes and may accommodate some parking. Bike routes are appropriate.**
- d. Arterials should have two travel lanes. On-street parking is not allowed unless part of a Street Master Plan. Bike lanes are required as directed by the Parks Master Plan and Transportation Master Plan.**

Applicant's Finding: The local street load will not exceed that expected of a residential area. This site is also not designated as a bike route and does not include collector or arterial streets.

The requirements of this section have been satisfied.

6. Reserve strips. Reserve strips or street plugs controlling the access to streets are not permitted unless owned by the City.

Applicant's Finding: The applicant does not propose reserve strips or street plugs with this application. All rights-of-way will be dedicated to the edge of the adjoining properties.

The requirements of this section have been satisfied.

7. Alignment. All streets other than local streets or cul-de-sacs, as far as practical, shall be in alignment with existing streets by continuations of the centerlines thereof. The staggering of street alignments resulting in "T" intersections shall, wherever practical, leave a minimum distance of 200 feet between the centerlines of streets having approximately the same direction and otherwise shall not be less than 100 feet.

Applicant's Finding: The extension of both local streets will be in direct alignment. One "L" shaped intersection between Hillside and Upper Midhill Drive is proposed, where the two streets intersect at the northwestern corner of the site.

The requirements of this section have been satisfied.

8. Future extension of streets. Where necessary to give access to or permit a satisfactory future subdivision of adjoining land, streets shall be extended to the boundary of the subdivision and the resulting dead-end streets may be approved without turnarounds. (Temporary turnarounds built to Fire Department standards are required when the dead-end street is over 100 feet long.)

Applicant's Finding: The Applicant proposes to construct Upper Midhill to connect to Hillside, both local public streets.

The requirements of this section have been satisfied.

9. Intersection angles. Streets shall be laid out to intersect angles as near to right angles as practical, except where topography requires lesser angles, but in no case less than 60 degrees unless a special intersection design is approved. Intersections which are not at right angles shall have minimum corner radii of 15 feet along right-of-way lines which form acute angles. Right-of-way lines at intersections with arterial streets shall have minimum curb radii of not less than 35 feet. Other street intersections shall have curb radii of not less than 25 feet. All radii shall maintain a uniform width between the roadway and the right-of-way lines. The intersection of more than two streets at any one point will not be allowed unless no alternative design exists.

Applicant's Finding: The proposed street configuration includes one intersection between Hillside and Upper Midhill Drive. The proposed intersection has limited options for alignment due to the grading necessary to connect these two streets. The proposed angle between Upper Midhill and Hillside Drive is approximately 74 degrees.

The requirements of this section have been satisfied.

10. Additional right-of-way for existing streets. Wherever existing street rights-of-way adjacent to or within a tract are of inadequate widths based upon the standards of this chapter, additional right-of-way shall be provided at the time of subdivision or partition.

Applicant's Finding: Additional right-of-way for extensions of Upper Midhill and Hillside, as discussed above, will be dedicated at time of subdivision.

The requirements of this section have been satisfied.

11. Cul-de-sacs.

a. New cul-de-sacs and other closed-end streets (not including stub streets intended to be connected) on sites containing less than 5 acres, or sites accommodating uses other than residential or mixed use development, are not allowed unless the applicant demonstrates that there is no feasible alternative due to :***

Applicant's Finding: No cul-de-sacs are proposed with this subdivision.

The requirements of this section have been satisfied.

12. Street names. No street names shall be used which will duplicate or be confused with the names of existing streets within the City. Street names that involve difficult or unusual spellings are discouraged. Street names shall be subject to the approval of the Planning Commission or Planning Director, as applicable. Continuations of existing streets shall have the name of the existing street. Streets, drives, avenues, ways, boulevards, and lanes shall describe through streets. Place and court shall describe cul-de-sacs. Crescent, terrace, and circle shall describe loop or arcing roads.

Applicant's Finding: The street names of Upper Midhill and Hillside Drive are established. No new street names are proposed.

The requirements of this section have been satisfied.

13. Grades and curves. Grades shall not exceed 8 percent on major or secondary arterials, 10 percent on collector streets, or 15 percent on any other street unless by variance. Willamette Drive/Highway 43 shall be designed to a minimum horizontal and vertical design speed of 45 miles per hour, subject to Oregon Department of Transportation (ODOT) approval. Arterials shall be designed to a minimum horizontal and vertical design speed of 35 miles per hour. Collectors shall be designed to a minimum horizontal and vertical design speed of 30 miles per hour. All other streets shall be designed to have a minimum centerline radii of 50 feet. Super elevations (i.e., banking) shall not exceed four percent. The centerline profiles of all streets may be provided where terrain constraints (e.g., over 20 percent slopes) may result in considerable deviation from the originally proposed alignment.

Applicant's Finding: The grade of the extensions of Hillside Drive and Hillside Drive will not exceed 15 percent, per this standard. All city centerline radii standards will be met.

The requirements of this section have been satisfied.

14. Access to local streets. Intersection of a local residential street with an arterial street may be prohibited by the decision-making authority if suitable alternatives exist for providing interconnection of proposed local residential streets with other local streets. Where a subdivision or partition abuts or contains an existing or proposed major arterial street, the decision-making authority may require marginal access streets, reverse-frontage lots with suitable depth, visual barriers, noise barriers, berms, no-access reservations along side and rear property lines, and/or other measures necessary for adequate protection of residential properties from incompatible land uses, and to ensure separation of through traffic and local traffic.

Applicant's Finding: The subject property does not abut nor contain an existing or proposed Major Arterial Street, nor is an intersection of a Local Residential Street with an Arterial Street proposed.

The requirements of this section have been satisfied.

15. Alleys. Alleys shall be provided in commercial and industrial districts unless other permanent provisions for access to off-street parking and loading facilities are made as approved by the decision-making authority. While alley intersections and sharp changes in alignment should be avoided, the corners of necessary alley intersections shall have radii of not less than 10 feet. Alleys may be provided in residential subdivisions or multi-family projects. The decision to locate alleys shall consider the relationship and impact of the alley to adjacent land uses. ***

Applicant's Finding: No alleys are proposed with this subdivision.

The requirements of this section have been satisfied.

16. Sidewalks. Sidewalks shall be installed per CDC 92.010(H), Sidewalks. The residential sidewalk width is six feet plus planter strip as specified below. Sidewalks in commercial zones shall be constructed per subsection (A)(3) of this section. See also subsection C of this section. Sidewalk width may be reduced with City Engineer approval to the minimum amount (e.g., four feet wide) necessary to respond to site constraints such as grades, mature trees, rock outcroppings, etc., or to match existing sidewalks or right-of-way limitations.

Applicant's Finding: The applicant proposes to install a 6-foot sidewalk plus planter strip along the both sides of Upper Midhill and Hillside within this property, per this standard.

The requirements of this section have been satisfied.

17. Planter strip. The planter strip is between the curb and sidewalk providing space for a grassed or landscaped area and street trees. The planter strip shall be at least 6 feet wide to accommodate a fully matured tree without the boughs interfering with pedestrians on the sidewalk or vehicles along the curbline. Planter strip width may be reduced or eliminated, with City Engineer approval, when it cannot

be corrected by site plan, to the minimum amount necessary to respond to site constraints such as grades, mature trees, rock outcroppings, etc., or in response to right-of-way limitations.

Applicant's Finding: The applicant proposes to install a minimum 6-foot planter strip between all proposed sidewalks and paved street sections on Upper Midhill. The Applicant proposes a curb-tight sidewalk configuration along the western edge of Hillside in order to reduce the intensity of grading and wall construction required adjacent to the site's neighboring single family homes.

The requirements of this section have been satisfied.

18. Streets and roads shall be dedicated without any reservations or restrictions.

Applicant's Finding: No reservations or restrictions are proposed with the street dedication.

The requirements of this section have been satisfied.

19. All lots in a subdivision shall have access to a public street. Lots created by partition may have access to a public street via an access easement pursuant to the standards and limitations set forth for such accessways in Chapter 48 CDC.

Applicant's Finding: All lots have direct access to a public street.

The requirements of this section have been satisfied.

20. Gated streets. Gated streets are prohibited in all residential areas on both public and private streets. A driveway to an individual home may be gated.

Applicant's Finding: Gated streets are not proposed.

The requirements of this section have been satisfied.

21. Entryway treatments and street isle design. When the applicant desires to construct certain walls, planters, and other architectural entryway treatments within a subdivision, the following standards shall apply:

- a. All entryway treatments except islands shall be located on private property and not in the public right-of-way.
- b. Planter islands may be allowed provided there is no structure (i.e., brick, signs, etc.) above the curbline, except for landscaping. Landscaped islands shall be set back a minimum of 24 feet from the curbline of the street to which they are perpendicular.
- c. All islands shall be in public ownership. The minimum aisle width between the curb and center island curbs shall be 14 feet. Additional width may be required as determined by the City Engineer.
- d. Brick or special material treatments are acceptable at intersections with the understanding that the City will not maintain these sections except with asphalt overlay, and that they must meet the

Americans with Disabilities Act (ADA) standards. They shall be laid out to tie into existing sidewalks at intersections.

e. Maintenance for any common areas and entryway treatments (including islands) shall be guaranteed through homeowners association agreements, CC&Rs, etc.

f. Under Chapter 52 CDC, subdivision monument signs shall not exceed 32 square feet in area.

Applicant's Finding: The applicant does not propose to construct entryway treatments to the subdivision at this time.

The requirements of this section have been satisfied.

22. Based upon the determination of the City Manager or the Manager's designee, the applicant shall construct or cause to be constructed, or contribute a proportionate share of the costs, for all necessary off-site improvements identified by the transportation analysis commissioned to address CDC 85.170(B)(2) that are required to mitigate impacts from the proposed subdivision. The proportionate share of the costs shall be determined by the City Manager or Manager's designee, who shall assume that the proposed subdivision provides improvements in rough proportion to identified impacts of the subdivision. Off-site transportation improvements will include bicycle and pedestrian improvements as identified in the adopted City of West Linn TSP.

Applicant's Finding: The submitted Transportation Impact Analysis includes the following mitigation measures:

- Construct an extension of Upper Midhill Road consistent with the City's local street standard.
- Shrubbery and landscaping near the internal intersections and site access points should be maintained to ensure adequate sight distance.
- Develop a cost estimate for the proposed improvements to the Arbor/highway 43 intersection in coordination with the City and ODOT staff and pay a proportionate share (estimated at 1.9 percent) of the total cost of the improvements. A preliminary cost estimate for the Arbor/Highway 43 widening has been provided to staff for review.

The Applicant proposes to accomplish these mitigation measures with this subdivision project.

The requirements of this section have been satisfied.

B. Blocks and lots.

1. General. The length, width, and shape of blocks shall be designed with due regard for the provision of adequate building sites for the use contemplated; consideration of the need for traffic safety, convenience, access, circulation, and control; and recognition of limitations and opportunities of topography and solar access.

Applicant's Finding: The lot layout is based on due regard for the provision of adequate building sites; traffic safety, convenience, access, circulation and control; and the limitations and opportunities of topography and existing roadway network. The lots are generously sized to accommodate homes that are similar in nature to those in surrounding subdivisions. The

extensions of Upper Midhill Drive and Hillside Drive allow all traffic access from a local-classification street. The site is adjacent to the City’s boundary to the north, east and west, limiting connectivity options. The lots are all deep in the north-south direction, thus enhancing solar access on the building sites.

The requirements of this section have been satisfied.

2. Sizes. The recommended block size is 400 feet in length to encourage greater connectivity within the subdivision. Blocks shall not exceed 800 feet in length between street lines, except for blocks adjacent to arterial streets or unless topographical conditions or the layout of adjacent streets justifies a variation. Designs of proposed intersections shall demonstrate adequate sight distances to the City Engineer’s specifications. Block sizes and proposed accesses must be consistent with the adopted TSP.

Applicant's Finding: Though the site has topographic considerations as well as the location adjacent to the City limits, no block length exceeds 800 feet. Hillside Drive connects to Hillside Drive less than 800 feet from where it turns 90 degrees to connect with Upper Midhill Drive. Upper Midhill Drive connects to College View Drive less than 800 feet from where it turns 90 degrees to connect with Hillside Drive. The entire site is looped to enhance connectivity and meet the intent of the block length standards.

The requirements of this section have been satisfied.

3. Lot size and shape. Lot or parcel size, width, shape, and orientation shall be appropriate for the location of the subdivision or partition, for the type of use contemplated, for potential utilization of solar access, and for the protection of drainageways, trees, and other natural features. No lot or parcel shall be dimensioned to contain part of an existing or proposed street. All lots or parcels shall be buildable. “Buildable” describes lots that are free of constraints such as wetlands, drainageways, etc., that would make home construction impossible. Lot or parcel sizes shall not be less than the size required by the zoning code unless as allowed by planned unit development (PUD). Depth and width of properties reserved or laid out for commercial and industrial purposes shall be adequate to provide for the off-street parking and service facilities required by the type of use proposed.

Chapter 14- Single-Family Residential Detached and Attached, R-4.5 standards are as follows:

Lot Size (Detached Dwelling Units)	4,500 square feet
Lot Size (Attached Dwelling Units)	4,000 square feet
Front Lot Line Length/Minimum Lot Width at Front Lot Line	35 feet
Average Minimum Lot Width	35 feet

Applicant's Finding: All proposed lots are a minimum of 4,500 square feet in size to accommodate single-family detached dwelling units. All 34 proposed lots exceed the minimum requirements for front lot line length, lot width and lot depth.

The requirements of this section have been satisfied.

4. Access. Access to subdivisions, partitions, and lots shall conform to the provisions of Chapter 48 CDC, Access, Egress and Circulation.

Applicant's Finding: Section 48.020.B states: "All lots shall have access from a public street or from a platted private street approved under the land division chapter." All proposed lots will have access from a public street.

The requirements of this section have been satisfied.

5. Double frontage lots and parcels. Double frontage lots and parcels have frontage on a street at the front and rear property lines. Double frontage lots and parcels shall be avoided except where they are essential to provide separation of residential development from arterial streets or adjacent non-residential activities, or to overcome specific disadvantages of topography and orientation. A planting screen or impact mitigation easement at least 10 feet wide, and across which there shall be no right of access, may be required along the line of building sites abutting such a traffic artery or other incompatible use.

Applicant's Finding: Due to the location of the Upper Midhill right-of-way and topography of the site, Lots 21 and 22 are double frontage. However, the tip of Upper Midhill, which will be the rear of these two lots, is a local street that will be providing access to other homes in the subdivision. No access restrictions are necessary. Two double-frontage lots were unavoidable to accommodate the topography, the need for connectivity, and the existing public street pattern.

The requirements of this section have been satisfied.

6. Lot and parcel side lines. The lines of lots and parcels, as far as is practicable, should run at right angles to the street upon which they face, except that on curved streets they should be radial to the curve.

Applicant's Finding: Though the shape of the subject site is somewhat irregular, all side lot lines run at approximate right angles to the streets upon which they face as far as practicable.

The requirements of this section have been satisfied.

7. Flag lots. Flag lots can be created where it can be shown that no other reasonable street access is possible to achieve the requested land division. A single flag lot shall have a minimum street frontage of 15 feet for its accessway. Where two to four flag lots share a common accessway, the minimum street frontage and accessway shall be eight feet in width per lot. Common accessways shall have mutual maintenance agreements and reciprocal access and utility easements. ***

Applicant's Finding: There are no flag lots proposed with this subdivision.

The requirements of this section have been satisfied.

- 8. Large lots or parcels. In dividing tracts into large lots or parcels which, at some future time, are likely to be redivided, the approval authority may:**
- a. require that the blocks be of such size and shape, and be so divided into building sites, and contain such easements and site restrictions as will provide for extension and opening of streets at intervals which will permit a subsequent division of any tract into lots or parcels of smaller size; or**
 - b. alternately, in order to prevent further subdivision or partition of oversized and constrained lots or parcels, restrictions may be imposed on the subdivision or partition plat.**

Applicant's Finding: Lot 5 is sized such that it could be redivided in the future; however, the location of the lot adjacent to Tract A and the width of the lot's frontage make redivision very unlikely. If redivision is proposed in the future, all requirements of the R-4.5 zone could be met while accommodating two parcels from lot 5.

The requirements of this section have been satisfied.

C. Pedestrian and bicycle trails.

- 1. Trails or multi-use pathways shall be installed, consistent and compatible with federal ADA requirements and with the Oregon Transportation Planning Rule, between subdivisions, cul-de-sacs, and streets that would otherwise not be connected by streets due to excessive grades, significant tree(s), and other constraints natural or manmade. Trails shall also accommodate bicycle or pedestrian traffic between neighborhoods and activity areas such as schools, libraries, parks, or commercial districts. Trails shall also be required where designated by the Parks Master Plan.**

Applicant's Finding: The proposed extensions of Upper Midhill Drive and Hillside Drive include sidewalks and, therefore, additional trails or pedestrian connections are not required. There are no existing trail connections which require connection from this site.

The requirements of this section have been satisfied.

D. Transit facilities.

- 1. The applicant shall consult with Tri-Met and the City Engineer to determine the appropriate location of transit stops, bus pullouts, future bus routes, etc., contiguous to or within the development site. If transit service is planned to be provided within the next two years, then facilities such as pullouts shall be constructed per Tri-Met standards at the time of development. More elaborate facilities, like shelters, need only be built when service is existing or imminent. Additional rights-of-way may be required of developers to accommodate buses.**

Applicant's Finding: Transit facilities have not been identified by Tri-Met or the City Development Engineer adjacent to this property.

The requirements of this section have been satisfied.

- E. Grading. Grading of building sites shall conform to the following standards unless physical conditions demonstrate the propriety of other standards:**

1. All cuts and fills shall comply with the excavation and grading provisions of the Uniform Building Code and the following:
 - a. Cut slopes shall not exceed one and one-half feet horizontally to one foot vertically (i.e., 67 percent grade).
 - b. Fill slopes shall not exceed two feet horizontally to one foot vertically (i.e., 50 percent grade). Please see the following illustration.***
2. The character of soil for fill and the characteristics of lot and parcels made usable by fill shall be suitable for the purpose intended.
3. If areas are to be graded (more than any four-foot cut or fill), compliance with CDC 85.170(C) is required.
4. The proposed grading shall be the minimum grading necessary to meet roadway standards, and to create appropriate building sites, considering maximum allowed driveway grades.
5. Type I lands shall require a report submitted by an engineering geologist, and Type I and Type II lands shall require a geologic hazard report.
6. Repealed by Ord. 1635.
7. On land with slopes in excess of 12 percent, cuts and fills shall be regulated as follows:
 - a. Toes of cuts and fills shall be set back from the boundaries of separate private ownerships at least three feet, plus one-fifth of the vertical height of the cut or fill. Where an exception is required from that requirement, slope easements shall be provided.
 - b. Cuts shall not remove the toe of any slope where a severe landslide or erosion hazard exists (as described in subsection (G)(5) of this section).
 - c. Any structural fill shall be designed by a registered engineer in a manner consistent with the intent of this code and standard engineering practices, and certified by that engineer that the fill was constructed as designed.
 - d. Retaining walls shall be constructed pursuant to Section 2308(b) of the Oregon State Structural Specialty Code.
 - e. Roads shall be the minimum width necessary to provide safe vehicle access, minimize cut and fill, and provide positive drainage control.
8. Land over 50 percent slope shall be developed only where density transfer is not feasible. The development will provide that:
 - a. At least 70 percent of the site will remain free of structures or impervious surfaces.
 - b. Emergency access can be provided.
 - c. Design and construction of the project will not cause erosion or land slippage.
 - d. Grading, stripping of vegetation, and changes in terrain are the minimum necessary to construct the development in accordance with subsection J of this section.

Applicant's Finding: A geotechnical engineering report is included with this submittal. A preliminary grading plan has been included in the submitted plans which complies with all criteria of this subsection. The Applicant has provided a plan which minimizes cuts and fills and reduces the need for significant retaining walls where possible.

The requirements of this section have been satisfied.

F. Water.

1. A plan for domestic water supply lines or related water service facilities shall be prepared consistent with the adopted Comprehensive Water System Plan, plan update, March 1987, and subsequent superseding revisions or updates.
2. Adequate location and sizing of the water lines.
3. Adequate looping system of water lines to enhance water quality.
4. For all non-single-family developments, there shall be a demonstration of adequate fire flow to serve the site.
5. A written statement, signed by the City Engineer, that water service can be made available to the site by the construction of on-site and off-site improvements and that such water service has sufficient volume and pressure to serve the proposed development's domestic, commercial, industrial, and fire flows.

Applicant's Finding: The applicant will connect all lots to public water per the submitted Composite Utility Plan, sheet C300. This plan is consistent with the adopted Comprehensive Water System Plan.

The requirements of this section have been satisfied.

G. Sewer.

1. A plan prepared by a licensed engineer shall show how the proposal is consistent with the Sanitary Sewer Master Plan (July 1989). Agreement with that plan must demonstrate how the sanitary sewer proposal will be accomplished and how it is gravity-efficient. The sewer system must be in the correct basin and should allow for full gravity service.
2. Sanitary sewer information will include plan view of the sanitary sewer lines, including manhole locations and depth or invert elevations.
3. Sanitary sewer lines shall be located in the public right-of-way, particularly the street, unless the applicant can demonstrate why the alternative location is necessary and meets accepted engineering standards.
4. Sanitary sewer line should be at a depth that can facilitate connection with down-system properties in an efficient manner.
5. The sanitary sewer line should be designed to minimize the amount of lineal feet in the system.
6. The sanitary sewer line shall avoid disturbance of wetland and drainageways. In those cases where that is unavoidable, disturbance shall be mitigated pursuant to Chapter 32 CDC, Water Resource Area Protection, all trees replaced, and proper permits obtained. Dual sewer lines may be required so the drainageway is not disturbed.
7. Sanitary sewer shall be extended or stubbed out to the next developable subdivision or a point in the street that allows for reasonable connection with adjacent or nearby properties.
8. The sanitary sewer system shall be built pursuant to DEQ, City, and Tri-City Service District sewer standards. The design of the sewer system should be prepared by a licensed engineer, and the applicant must be able to demonstrate the ability to satisfy these submittal requirements or standards at the pre-construction phase.
9. A written statement, signed by the City Engineer, that sanitary sewers with sufficient capacity to serve the proposed development and that adequate sewage treatment plant capacity is available to the City to serve the proposed development.

Applicant's Finding: The applicant will connect all lots to public sanitary sewer per the submitted Composite Utility Plan, Sheet C300. The proposed sanitary sewer system is consistent with the Sanitary Sewer Master Plan, is in the correct basin and allows for full gravity service.

The requirements of this section have been satisfied.

H. Storm

1. A stormwater quality and detention plan shall be submitted which complies with the submittal criteria and approval standards contained within Chapter 33 CDC. It shall include profiles of proposed drainageways with reference to the adopted Storm Drainage Master Plan.
2. Storm treatment and detention facilities shall be sized to accommodate a 25-year storm incident. A registered civil engineer shall prepare a plan and statement which shall be supported by factual data that clearly shows that there will be no adverse off-site impacts from increased intensity of runoff downstream or constriction causing ponding upstream. The plan and statement shall identify all on- or off-site impacts and measures to mitigate those impacts. The plan and statement shall, at a minimum, determine the off-site impacts from a 25-year storm.
3. Plans shall demonstrate how storm drainage will be collected from all impervious surfaces including roof drains. Storm drainage connections shall be provided to each dwelling unit/lot. The location, size, and type of material selected for the system shall correlate with the 25-year storm incident.
4. Treatment of storm runoff shall meet municipal code standards.

Applicant's Finding: The proposed stormwater treatment and detention has been designed to meet City standards, as detailed in the submitted stormwater report. The project will be served by a stormwater facility located at midpoint of the development in Tract C.

The requirements of this section have been satisfied.

I. Utility easements. Subdivisions and partitions shall establish utility easements to accommodate the required service providers as determined by the City Engineer. The developer of the subdivision shall make accommodation for cable television wire in all utility trenches and easements so that cable can fully serve the subdivision.

Applicant's Finding: The applicant will establish utility easements as determined by the City Engineer and shown on the preliminary plat.

The requirements of this section have been satisfied.

J. Supplemental provisions.

1. Wetland and natural drainageways. Wetlands and natural drainageways shall be protected as required by Chapter 32 CDC, Water Resource Area Protection. Utilities may be routed through the protected corridor as a last resort, but impact mitigation is required.

Applicant's Finding: There is an ephemeral drainageway on the northwest property line that will be protected as required by Chapter 32. There are two small wetlands on the site that will be removed

and mitigated to accommodate the public roadway network. Given the minimum density requirements and the need to grade and connect roadways on site, routing utilities and roadways through the two small wetlands cannot be avoided, and is therefore allowed under Chapter 32. This is discussed further in response to the provisions of Chapter 32.

2. Willamette and Tualatin Greenways. The approval authority may require the dedication to the City or setting aside of greenways which will be open or accessible to the public. Except for trails or paths, such greenways will usually be left in a natural condition without improvements. Refer to Chapter 28 CDC for further information on the Willamette and Tualatin River Greenways.

Applicant's Finding: No greenways exist on this site or have been identified for dedication on this property. This property is not adjacent to the Willamette or Tualatin River and, therefore, a River Greenway is not feasible on this site.

The requirements of this section have been satisfied.

3. Street trees. Street trees are required as identified in the appropriate section of the municipal code and Chapter 54 CDC.

Applicant's Finding: Street trees will be installed as part of the public improvements with the development of this subdivision.

The requirements of this section have been satisfied.

4. Lighting. To reduce ambient light and glare, high or low pressure sodium light bulbs shall be required for all subdivision street or alley lights. The light shall be shielded so that the light is directed downwards rather than omni-directional.

Applicant's Finding: Any street light installation within the subdivision will utilize LED fixtures.

The requirements of this section have been satisfied.

5. Dedications and exactions. The City may require an applicant to dedicate land and/or construct a public improvement that provides a benefit to property or persons outside the property that is the subject of the application when the exaction is roughly proportional. No exaction shall be imposed unless supported by a determination that the exaction is roughly proportional to the impact of development.

Applicant's Finding: The applicant is proposing right-of-way dedication and improvements that are roughly proportional to the development of a 34-lot subdivision. The proposed improvements include, the creation and improvement of a local street network from which the proposed homes will take access, a new infrastructure system for the provision of urban services to the development, and a contribution of a proportionate share of the eventual improvements to the intersection improvements associated with Highway 43 and Arbor Drive.

The requirements of this section have been satisfied.

6. Underground utilities. All utilities, such as electrical, telephone, and television cable, that may at times be above ground or overhead shall be buried underground in the case of new development. The exception would be in those cases where the area is substantially built out and adjacent properties have above-ground utilities and where the development site’s frontage is under 200 feet and the site is less than one acre. High voltage transmission lines, as classified by Portland General Electric or electric service provider, would also be exempted. Where adjacent future development is expected or imminent, conduits may be required at the direction of the City Engineer. All services shall be underground with the exception of standard above-grade equipment such as some meters, etc.

Applicant's Finding: All utilities will be installed in compliance with this section.

The requirements of this section have been satisfied.

7. Density requirement. Density shall occur at 70 percent or more of the maximum density allowed by the underlying zoning. These provisions would not apply when density is transferred from Type I and II lands as defined in CDC 02.030. Development of Type I or II lands are exempt from these provisions. Land divisions of three lots or less would also be exempt.

Applicant's Finding: The R-4.5 zone permits a maximum density of 9.68 dwelling units per net acre. Net acre is defined as “The total gross acres less the public right-of-way and other acreage deductions, as applicable”. The net acreage of this site after removal of dedicated right-of way is 5.10 acres. At 9.68 dwelling units per net acre, the maximum number of dwelling units on this site is 49. The minimum density of this site is 70% of 49 units, or 34 units, which is the number of dwelling units proposed.

The requirements of this section have been satisfied.

8. Mix requirement. The “mix” rule means that developers shall have no more than 15 percent of the R-2.1 and R-3 development as single-family residential. The intent is that the majority of the site shall be developed as medium high density multi-family housing.

Applicant's Finding: This property is zoned R-4.5 and, therefore, the use of the parcel as an entirely residential development is permitted.

The requirements of this section have been satisfied.

9. Heritage trees/significant tree and tree cluster protection. All heritage trees, as defined in the Municipal Code, shall be saved. Diseased heritage trees, as determined by the City Arborist, may be removed at his/her direction. All non-heritage trees and clusters of trees (three or more trees with overlapping dripline; however, native oaks need not have an overlapping dripline) that are considered significant by virtue of their size, type, location, health, or numbers shall be saved pursuant to CDC

55.100(B)(2). Trees are defined per the municipal code as having a trunk six inches in diameter or 19 inches in circumference at a point five feet above the mean ground level at the base of the trunk.

Applicant's Finding: No heritage trees have been identified on this site. Tree preservation is discussed further in this report in Section 55.100.

The requirements of this section have been satisfied.

DIVISION 3. SUPPLEMENTAL PROVISIONS AND EXCEPTIONS

CHAPTER 32. WATER RESOURCE AREA PROTECTION

Chapter 32 provides for protection of water resource areas, but also allows development of roads and utilities within water resource areas if it cannot be avoided. Such development requires approval through a Water Resource Area Protection (WRAP) review. The following findings for Chapter 32 address both the supplemental findings requirements of Chapter 85 and the required findings for the requested WRAP approval.

32.010 PURPOSES

32.010(l) Provide for uses and activities in WRAs that have negligible impact on such areas; and to provide for other uses that must be located in such areas in a way that will avoid or, when avoidance is not possible, minimize potential impacts.

This application for development within the two small wetlands WRAs is consistent with the purpose of Chapter 32, because the internal street layout cannot avoid impact to the wetlands while serving the minimum lot density and providing connection to the existing rights of way and construction of street widths and grades required by city street standards. Because the two small isolated wetlands provide minimal functional benefits, and because there are no opportunities for on-site mitigation, the impact of eliminating the wetlands is mitigated through the purchase of Wetland Banking Credits from the Oregon Department of State Lands.

32.020 APPLICABILITY

32.020. A. This chapter applies to all development, activity or uses within WRAs identified on the WRA Map. It also applies to all verified, unmapped WRAs. The WRA Map shall be amended to include the previously unmapped WRAs.

There are no WRAs identified on the city's WRA map. However, the applicant has located and provided delineations for three unmapped WRAs. There is a drainageway along the northwest property line and two small wetland areas isolated from any apparent drainage or riparian areas. The wetland delineation and the response by the Division of State Lands are attached.

32.030. PROHIBITED USES

Development within WRAs is prohibited unless allowed by the matrix in Section 32.030. That matrix allows “driveways/streets/bridges,” both in the Water Resource and in the Water Resource Area, if “a WRA crossing is the only available route.” Crossing the two small wetland WRAs cannot be avoided because the internal street layout cannot avoid the wetlands while serving the minimum lot density and providing connection to the existing rights of way and construction of street widths and grades required by city street standards.

32.050. APPLICATION

A. An application requesting approval for a use or activity regulated by this chapter shall be initiated by the property owner, or the owner’s authorized agent, and shall include an application form and the appropriate deposit or fee as indicated on the master fee schedule.

Applicant's The Applicant has submitted the required forms, fees, and application materials.

Finding: The requirements of this section have been satisfied.

B. A pre-application conference shall be a prerequisite to the filing of the application.

Applicant's The Applicant attended a pre-application conference with the City of West Linn prior to
Finding: submitting this application.

The requirements of this section have been satisfied.

C. The applicant shall submit maps and diagrams at 11 by 17 inches and a written narrative addressing the approval criteria and requirements of this chapter, and any additional copies required by the Planning Director.

Applicant's The Applicant has submitted full and half sized plans for this Application. All required
Finding: copies have been submitted.

The requirements of this section have been satisfied.

D. Where review of soil maps, Department of Geology and Mineral Industries (DOGAMI) maps, or on-site inspection by the City Engineer reveals evidence of slope failures or that WRA slopes are potentially unstable or prone to failure, geotechnical studies may be required to demonstrate that the proposed development will not cause, or contribute to, slope failure or increased erosion or sedimentation in the WRA or adversely impact surface or modify groundwater flow or hydrologic conditions. These geotechnical studies shall include all necessary measures to avoid or correct the potential hazard.

Applicant's Finding: The Applicant has submitted a geotechnical report which addresses slopes on the property. In this instance, the WRA is not located in an area with unusually steep slopes or areas of geological concern.

The requirements of this section have been satisfied.

E. Applications proposing that streets or utilities cross water resources, or any other development that modifies the water resource, shall present evidence in the form of adopted utility master plans or transportation master plans, or findings from a registered Oregon civil engineer, certified engineering geologist or similarly qualified professional to demonstrate that the development or improvements are consistent with accepted engineering practices.

Applicant's Finding: The Applicant has documented at several points within this narrative that if connectivity is to be achieved, as required by this code and desired by the City, the WRA's on site will be impacted due to the amount of grading necessary to facilitate the desired connection. The plans attached to this application have been prepared by a registered Oregon Civil Engineer.

The requirements of this section have been satisfied.

F. Site plan. The applicant shall submit a site plan which contains the following information, as applicable:

1. The name, address, and telephone number of the applicant, the scale (lineal) of the plan, and a north arrow.
2. Property lines, rights-of-way, easements, etc.
3. Topographic information at two-foot contour increments identifying both existing grades and proposed grade changes.
4. A slope map delineating slopes zero to 25 percent and over 25 percent.
5. Boundaries of the WRA, specifically delineating the water resource, and any riparian corridor boundary. If the proposal includes development of a wetland, a wetlands delineation prepared by a professional wetland specialist will be required. The wetland delineation may be required to be accepted or waived through the Department of State Lands (DSL) delineation review process.
6. Location of existing and proposed development, including all existing and proposed structures, accessory structures, any areas of fill or excavation, water resource crossings, alterations to vegetation, or other alterations to the site's natural state.

7. Identify the location and square footage of previously disturbed areas, areas that are to be temporarily disturbed, and area to be permanently disturbed or developed.
8. When an application proposes development within the WRA, an inventory of vegetation within the WRA, sufficient to categorize the existing condition of the WRA, including:
 - a. The type and general quality of ground cover, including the identification of dominant species and any occurrence of non-native, invasive species;
 - b. Square footage of ground cover; and
 - c. Square footage of tree canopy as measured either through aerial photographs or by determining the tree drip lines. Where only a portion of a WRA is to be disturbed, the tree inventory need only apply to the impacted area. The remaining treed area shall be depicted by outlining the canopy cover.
9. Locations of all significant trees as defined by the City Arborist.
10. Identify adopted transportation, utility and other plan documents applicable to this proposal.
11. For cases processed under CDC [32.110](#) (hardship), provide the maximum disturbed area (MDA) calculations.

Applicant's Finding: The Applicant has submitted all of the submission materials required by this section.
The requirements of this section have been satisfied.

G. Construction management plan. The applicant shall submit a construction management plan which includes the following:

1. The location of proposed TDAs (site ingress/egress for construction equipment, areas for storage of material, construction activity areas, grading and trenching, etc.) that will subsequently be restored to original grade and replanted with native vegetation, shall be identified, mapped and enclosed with fencing per subsection (G)(3) of this section.
2. Appropriate erosion control measures consistent with Clackamas County Erosion Prevention and Sediment Control Planning and Design Manual, rev. 2008, and a tentative schedule of work.
3. The WRA shall be protected, prior to construction, with an anchored chain link fence (or equivalent approved by the City) at its perimeter that shall remain undisturbed, except as specifically authorized by the approval authority. Additional fencing to delineate approved TDAs may be required. Fencing shall be mapped and identified in the construction management plan and maintained until construction is complete.

Applicant's Finding: The Applicant has submitted a site construction plan which is compliant with the requirements of this chapter.

The requirements of this section have been satisfied.

H. Mitigation plan prepared in accordance with the requirements in CDC [32.090](#).

Applicant's Finding: The Applicant proposes to mitigate off-site in accordance with the requirements of the Oregon Department of State Lands. No mitigation plan has therefore been prepared.

The requirements of this section have been satisfied.

I. Re-vegetation plan prepared in accordance with the requirements in CDC [32.100](#).

Applicant's Finding: The Applicant has provided a preliminary planting and landscape plan for the site.

The requirements of this section have been satisfied.

J. The Planning Director may modify the submittal requirements per CDC [99.035](#).

Applicant's Finding: The Applicant submitted all information which has been requested by the Planning Director.

The requirements of this section have been satisfied.

K. The following additional requirements apply to applications being submitted under the alternative review process pursuant to CDC [32.070](#) and [32.080](#).

1. Identify the affected WRA and describe the functions it performs (see Table 32-4).
2. Provide a scaled map that delineates the proposed WRA boundaries determined to be sufficient to sustain the functions occurring at the site and a narrative that justifies the proposal, consistent with CDC [32.080](#).
3. Identify the recommended WRA boundary at the site with colored tape, survey markers or other easily identified means for field inspection by staff.
4. Consultant required for alternate review process.

- a. The narrative and analysis required by CDC [32.070](#) and [32.080](#) shall be prepared and signed by a qualified natural resource professional, such as a wildlife biologist, botanist, or hydrologist. The Planning Director shall determine the scope of work and specific products required from the consultant. The Planning Director may require a mitigation plan pursuant to CDC [32.090](#) and/or a re-vegetation plan pursuant to CDC [32.100](#).
- b. The Planning Director may waive the consultant requirement for simple or minor projects if he or she determines that it is not necessary in order to satisfy the requirements of this chapter. (Ord. 1623 § 1, 2014)

Applicant's Finding: The Applicant has submitted for a WRA permit under the requirements of 32.060, the standard review process. The Applicant has not pursued a permit under 32.070 or 32.080 through an alternative review process. The requirements of this section do not apply.

32.060 APPROVAL CRITERIA (STANDARD PROCESS)

A. WRA protection/minimizing impacts.

1. Development shall be conducted in a manner that will avoid or, if avoidance is not possible, minimize adverse impact on WRAs.

Applicant's Finding: The site contains three areas which are subject to the City's WRA standards. The first area is an elongated drainage corridor which consists of a man-made overland drainage route which serves subdivisions which are located off-site. It is believed that this drainage area was created on the Applicant's property by mistake as a drainage tract which was probably intended to contain the drainage route was created as part of the neighboring subdivision.

The second area consists of two small wetlands which are isolated from any apparent drainage or riparian areas.

The first WRA area, along the site's northern boundary, will be avoided by the proposed development. The two isolated wetlands will be impacted by the development as they fall within an area which is planned to be heavily impacted by the construction of a new public roadway.

Where possible, adverse impacts on the site's water quality resource areas has been avoided.

The requirements of this section have been satisfied.

2. Mitigation and re-vegetation of disturbed WRAs shall be completed per CDC 32.090 and 32.100 respectively.

Applicant's Finding: There are two small wetlands on the site that will be removed to accommodate the public roadway network. Given the minimum density requirements and the need to grade and

connect roadways on site, there is no alternative to routing utilities and roadways through the two wetlands. No mitigation for the proposed buffer areas have been proposed however, the Applicant is proposing to mitigate for the wetland through the purchase of wetland mitigation credits through Department of State Lands wetland mitigation banking system.

The proposed mitigation through the department of state lands has been discussed with the City's planning director and is permitted through section 32.090.B.4. As permitted by Section 32.090.D, the Applicant has proposed to mitigate for impacts to the wetlands on site using the State of Oregon's mitigation banking system at the rates charged by the State's wetland banks at the time of application.

The requirements of this section have been satisfied.

B. Storm water and storm water facilities.

1. Proposed developments shall be designed to maintain the existing WRAs and utilize them as the primary method of storm water conveyance through the project site unless:

- a. The surface water management plan calls for alternate configurations (culverts, piping, etc.); or**
- b. Under CDC 32.070, the applicant demonstrates that the relocation of the water resource will not adversely impact the function of the WRA including, but not limited to, circumstances where the WRA is poorly defined or not clearly channelized.**

Re-vegetation, enhancement and/or mitigation of the re-aligned water resource shall be required as applicable.

**Applicant's
Finding:**

The proposed development does not propose to use any of the existing WRA's on site as part of the project's stormwater management system. The existing drainage along the northern edge of the site is believed to have been constructed as part of another development's stormwater management system however this system is located uphill from the proposed development and therefore not suitable for providing service to the subject property.

The other small wetland facilities are isolated and will be filled in order to allow the site's proposed roadways to connect. No alternative to preservation of the proposed WRA's exists. Mitigation for the impacted WRA's has been proposed through a state required wetland mitigation bank.

The requirements of this section have been satisfied.

2. Public and private storm water detention, storm water treatment facilities and storm water outfall or energy dissipaters (e.g., rip rap) may encroach into the WRA if:

- a. Accepted engineering practice requires it;**
- b. Encroachment on significant trees shall be avoided when possible, and any tree loss shall be consistent with the City's Tree Technical Manual and mitigated per CDC 32.090;**
- c. There shall be no direct outfall into the water resource, and any resulting outfall shall not have an erosive effect on the WRA or diminish the stability of slopes; and**
- d. There are no reasonable alternatives available.**

A geotechnical report may be required to make the determination regarding slope stability.

Applicant's Finding: The proposed storm water facilities will not be located or encroach into any WRA.

The requirements of this section are not applicable.

3. Roadside storm water conveyance swales and ditches may be extended within rights-of-way located in a WRA. When possible, they shall be located along the side of the road furthest from the water resource. If the conveyance facility must be located along the side of the road closest to the water resource, it shall be located as close to the road/sidewalk as possible and include habitat friendly design features (treatment train, rain gardens, etc.).

Applicant's Finding: The applicant is not proposing locating roadside stormwater conveyance swales or ditches within a WRA.

The requirements of this section are not applicable.

4. Storm water detention and/or treatment facilities in the WRA shall be designed without permanent perimeter fencing and shall be landscaped with native vegetation.

Applicant's Finding: The proposed storm water facilities will not encroach into a WRA located on site.

The requirements of this section are not applicable.

5. Access to public storm water detention and/or treatment facilities shall be provided for maintenance purposes. Maintenance driveways shall be constructed to minimum width and use water permeable paving materials. Significant trees, including roots, shall not be disturbed to the degree possible. The encroachment and any tree loss shall be mitigated per CDC 32.090. There shall also be no adverse impacts upon the hydrologic conditions of the site.

Applicant's Finding: Access to storm water detention and treatment facilities will not be located within any WRA.

The requirements of this section have been satisfied.

C. Dedications and easements. The City shall request dedications of the WRA to the City when acquisition of the WRA by dedication or easement would serve a public purpose. When such a dedication or easement is mutually agreed upon, the applicant shall provide the documentation for the dedication or easement. Nothing in this section shall prohibit the City from condemning property if:

- 1. The property is necessary to serve an important public purpose; and**
- 2. Alternative means of obtaining the property are unsuccessful.**

Applicant's Finding: The Applicant has proposed to maintain a 15 foot WRA buffer along an ephemeral stream located along the property's northern boundary. While originally proposed as a tract, the

City has requested that the WRA buffer be integrated into the lots which adjoin the ephemeral stream.

The requirements of this section are not applicable.

D. WRA width. Except for the exemptions in CDC 32.040, applications that are using the alternate review process of CDC 32.070, or as authorized by the approval authority consistent with the provisions of this chapter, all development is prohibited in the WRA as established in Table 32-2 below:

Applicant's Finding: The two small wetlands on the site that will be removed and mitigated. The ephemeral stream which runs along the site's northern boundary, has been provided with a fifteen (15) foot wide protective buffer. No encroachments into this buffer have been proposed. The width of the WRA is consistent with the requirements of this section.

E. Roads, driveways and utilities.

1. New roads, driveways, or utilities shall avoid WRAs unless the applicant demonstrates that no other practical alternative exists. In that case, road design and construction techniques shall minimize impacts and disturbance to the WRA by the following methods:

a. New roads and utilities crossing riparian habitat areas or streams shall be aligned as close to perpendicular to the channel as possible.

b. Roads and driveways traversing WRAs shall be of the minimum width possible to comply with applicable road standards and protect public safety. The footprint of grading and site clearing to accommodate the road shall be minimized.

c. Road and utility crossings shall avoid, where possible:

- 1) Salmonid spawning or rearing areas;**
- 2) Stands of mature conifer trees in riparian areas;**
- 3) Highly erodible soils;**
- 4) Landslide prone areas;**
- 5) Damage to, and fragmentation of, habitat; and**
- 6) Wetlands identified on the WRA Map.**

2. Crossing of fish bearing streams and riparian corridors shall use bridges or arch-bottomless culverts or the equivalent that provides comparable fish protection, to allow passage of wildlife and fish and to retain the natural stream bed.

3. New utilities spanning fish bearing stream sections, riparian corridors, and wetlands shall be located on existing roads/bridges, elevated walkways, conduit, or other existing structures or installed underground via tunneling or boring at a depth that avoids tree roots and does not alter the hydrology sustaining the water resource, unless the applicant demonstrates that it is not physically possible or it is cost prohibitive. Bore pits associated with the crossings shall be restored upon project completion. Dry, intermittent streams may be crossed with open cuts during a time period approved by the City and any agency with jurisdiction.

Applicant's Finding: The Applicant has demonstrated that because of the site's grades and proximity to existing roadways that no alternative exists which would allow the site's two adjoining

roadways to be connected. The Applicant has therefore proposed to impact the two small, isolated wetlands which are located near the center of the site. Street widths are the minimum allowed. Because no practical alternative exists, the requirements of this section are met. Because of the small size and isolated nature of the two small wetlands, each wetland will be completely eliminated by a road crossing and related grading, thereby eliminating the surrounding unmapped water resource area. There will be no development within the more significant types of water resource areas identified by 32.060(E)(1)c.

4. No fill or excavation is allowed within the ordinary high water mark of a water resource, unless all necessary permits are obtained from the City, U.S. Army Corps of Engineers and Oregon Department of State Lands (DSL).

Applicant's Finding: The Applicant is in the process of applying for all necessary permits from the City, the US Army Corps of Engineers, and the Department of State Lands. No construction activities will be initiated prior to the issuance of all required permits.

5. Crossings of fish bearing streams shall be aligned, whenever possible, to serve multiple properties and be designed to accommodate conduit for utility lines. The applicant shall, to the extent legally permissible, work with the City to provide for a street layout and crossing location that will minimize the need for additional stream crossings in the future to serve surrounding properties.

Applicant's Finding: There are two small wetlands on the site that will be removed and mitigated to accommodate the public roadway network. Given the minimum density requirements and the need to grade and connect roadways on site, there is no alternative to routing utilities and roadways through the two wetlands. This is discussed further in response to the provisions of Chapter 32.

The requirements of this section have been satisfied.

F. Passive recreation. Low impact or passive outdoor recreation facilities for public use including, but not limited to, multi-use paths and trails, not exempted per CDC 32.040(B)(2), viewing platforms, historical or natural interpretive markers, and benches in the WRA, are subject to the following standards:

- 1. Trails shall be constructed using non-hazardous, water permeable materials with a maximum width of four feet or the recommended width under the applicable American Association of State Highway and Transportation Officials (AASHTO) standards for the expected type and use, whichever is greater.**
- 2. Paved trails are limited to the area within 20 feet of the outer boundary of the WRA, and such trails must comply with the storm water provisions of this chapter.**
- 3. All trails in the WRA shall be set back from the water resource at least 30 feet except at stream crossing points or at points where the topography forces the trail closer to the water resource.**
- 4. Trails shall be designed to minimize disturbance to existing vegetation, work with natural contours, avoid the fall line on slopes where possible, avoid areas with evidence of slope failure and ensure that trail runoff does not create channels in the WRA.**

5. Foot bridge crossings shall be kept to a minimum. When the stream bank adjacent to the foot bridge is accessible (e.g., due to limited vegetation or topography), where possible, fences or railings shall be installed from the foot bridge and extend 15 feet beyond the terminus of the foot bridge to discourage trail users and pets from accessing the stream bank, disturbing wildlife and habitat areas, and causing vegetation loss, stream bank erosion and stream turbidity. Bridges shall not be made of continuous impervious materials or be treated with toxic substances that could leach into the WRA.

6. Interpretive facilities (including viewpoints) shall be at least 10 feet from the top of the water resource's bankfull flow/OHW or delineated wetland edge and constructed with a fence between users and the resource. Interpretive signs may be installed on footbridges.

Applicant's Finding: There are two small wetlands on the site that will be removed and mitigated. Due to the small size and relatively low value of the small ephemeral stream which is located on site, and the difficulty associated with maintaining access to a resource located behind a series of homes, passive recreation will not be provided within the WRA area.

The requirements of this section have been satisfied.

G. Daylighting Piped Streams.

1. As part of any application, covered or piped stream sections shown on the WRA Map are encouraged to be "daylighted" or opened. Once it is daylighted, the WRA will be limited to 15 feet on either side of the stream. Within that WRA, water quality measures are required which may include a storm water treatment system (e.g., vegetated bioswales), continuous vegetative ground cover (e.g., native grasses) at least 15 feet in width that provides year round efficacy, or a combination thereof.

Applicant's Finding: No piped streams exist on the site which will require daylighting as part of this application.

The requirements of this section have been satisfied.

H. The following habitat friendly development practices shall be incorporated into the design of any improvements or projects in the WRA to the degree possible:

1. Restore disturbed soils to original or higher level of porosity to regain infiltration and storm water storage capacity.

Applicant's Finding: The Applicant is not proposing any improvements within the fifteen foot wide WRA buffer area which exists along the site's northern boundary. The area is generally in good condition and is vegetated with an existing stand of deciduous and coniferous trees. The trees in this area have been proposed to be retained in order to meet the City's tree retention standards and to buffer the existing residential neighborhoods located adjacent to the site from the proposed development activities. The existing trees proposed for retention provide a habitat value and will continue to do so through their preservation.

As no site improvements have been proposed within the WRA on site which has been proposed for retention, the requirements of this section do not apply.

32.070 ALTERNATE REVIEW PROCESS

This section establishes a review and approval process that applicants can use when there is reason to believe that the width of the WRA prescribed under the standard process (CDC [32.060\(D\)](#)) is larger than necessary to protect the functions of the water resource at a particular site. It allows a qualified professional to determine what water resources and associated functions (see Table 32-4 below) exist at a site and the WRA width that is needed to maintain those functions. (Ord. 1623 § 1, 2014)

Applicant's Finding: The Applicant has not proposed a review under an alternative review process. The requirements of this section do not apply.

32.080 APPROVAL CRITERIA (ALTERNATE REVIEW PROCESS)

Applications reviewed under the alternate review process shall meet the following approval criteria:

A. The proposed WRA shall be, at minimum, qualitatively equal, in terms of maintaining the level of functions allowed by the WRA standards of CDC [32.060\(D\)](#).

Applicant's Finding: The Applicant has not proposed a review under an alternative review process. The requirements of this section do not apply.

32.090 MITIGATION PLAN

A A mitigation plan shall only be required if development is proposed within a WRA (including development of a PDA). (Exempted activities of CDC [32.040](#) do not require mitigation unless specifically stated. Temporarily disturbed areas, including TDAs associated with exempted activities, do not require mitigation, just grade and soil restoration and re-vegetation.) The mitigation plan shall satisfy all applicable provisions of CDC [32.100](#), Re-Vegetation Plan Requirements.

B. Mitigation shall take place in the following locations, according to the following priorities (subsections (B)(1) through (4) of this section):

1. On-site mitigation by restoring, creating or enhancing WRAs.
2. Off-site mitigation in the same sub-watershed will be allowed, but only if the applicant has demonstrated that:
 - a. It is not practicable to complete mitigation on-site, for example, there is not enough area on-site; and
 - b. The mitigation will provide equal or superior ecological function and value.
3. Off-site mitigation outside the sub-watershed will be allowed, but only if the applicant has demonstrated that:
 - a. It is not practicable to complete mitigation on-site, for example, there is not enough area on-site; and
 - b. The mitigation will provide equal or superior ecological function and value.
4. Purchasing mitigation credits through DSL or other acceptable mitigation bank.

C. Amount of mitigation.

1. The amount of mitigation shall be based on the square footage of the permanent disturbance area by the application. For every one square foot of non-PDA disturbed area, on-site mitigation shall require one square foot of WRA to be created, enhanced or restored.
2. For every one square foot of PDA that is disturbed, on-site mitigation shall require one half a square foot of WRA vegetation to be created, enhanced or restored.
3. For any off-site mitigation, including the use of DSL mitigation credits, the requirement shall be for every one square foot of WRA that is disturbed, two square feet of WRA shall be created, enhanced or restored. The DSL mitigation credits program or mitigation bank shall require a legitimate bid on the cost of on-site mitigation multiplied by two to arrive at the appropriate dollar amount.

D. The Planning Director may limit or define the scope of the mitigation plan and submittal requirements commensurate with the scale of the disturbance relative to the resource and pursuant to the authority of Chapter [99](#) CDC. The Planning Director may determine that a consultant is required to complete all or a part of the mitigation plan requirements.

E. A mitigation plan shall contain the following information:

1. A list of all responsible parties including, but not limited to, the owner, applicant, contractor, or other persons responsible for work on the development site.
2. A map showing where the specific adverse impacts will occur and where the mitigation activities will occur.
3. A re-vegetation plan for the area(s) to be mitigated that meets the standards of CDC [32.100](#).
4. An implementation schedule, including timeline for construction, mitigation, mitigation maintenance, monitoring, and reporting. All in-stream work in fish bearing streams shall be done in accordance with the Oregon Department of Fish and Wildlife.
5. Assurances shall be established to rectify any mitigation actions that are not successful within the first three years. This may include bonding or other surety. (Ord. 1623 § 1, 2014)

Applicant's Finding: Mitigation for the 3,963 square feet of wetland area is proposed through the purchase of wetland credits through the Department of State Land. Wetland Mitigation Credits are available within the area at a purchase price of approximately \$200,000 per acre. As on-site mitigation is not proposed, a mitigation plan has not been prepared.

The requirements of this section have been satisfied.

CHAPTER 42. CLEAR VISION AREAS

42.020 CLEAR VISION AREAS REQUIRED, USES PROHIBITED

- A. A clear vision area shall be maintained on the corners of all property adjacent to an intersection as provided by CDC [42.040](#) and [42.050](#).
- B. A clear vision area shall contain no planting, fence, wall, structure or temporary or permanent obstruction (except for an occasional utility pole or tree) exceeding three feet in height, measured from the top of the curb, or, where no curb exists, from the street centerline grade, except that trees exceeding this height may be located in this area, provided all branches below eight feet are removed. (Ord. 1192, 1987)

42.030 EXCEPTIONS

The following described area in Willamette shall be exempt from the provisions of this chapter. The parcels of land zoned General Commercial which abut Willamette Falls Drive, located between 10th and 16th Streets. Beginning at the intersection of Willamette Falls Drive and 11th Street on 7th Avenue to 16th Street; on 16th Street to 9th Avenue; on 9th Avenue to 14th Street to the Tualatin River; following the Tualatin River and Willamette River to 12th Street; on 12th Street to 4th Avenue; on 4th Avenue to 11th Street; on 11th Street to Willamette Falls Drive. This described area does not include the northerly side of Willamette Falls Drive.

42.040 COMPUTATION; STREET AND ACCESSWAY 24 FEET OR MORE IN WIDTH

The clear vision area for all street intersections and street and accessway intersections (accessways having 24 feet or more in width) shall be that triangular area formed by the right-of-way or property lines along such lots and a straight line joining the right-of-way or property line at points which are 30 feet distant from the intersection of the right-of-way line and measured along such lines.

42.050 COMPUTATION; ACCESSWAY LESS THAN 24 FEET IN WIDTH

The clear vision area for street and accessway intersections (accessways having less than 24 feet in width) shall be that triangular area whose base extends 30 feet along the street right-of-way line in both directions from the centerline of the accessway at the front setback line of a single-family and two-family residence, and 30 feet back from the property line on all other types of uses.

Applicant's Finding: All clear vision areas at the intersections of public streets with driveways or other public streets on the subject site will be free of plantings, fences, walls, structures and obstructions, meeting the requirements for clear vision areas.

The requirements of this section have been satisfied.

CHAPTER 44. FENCES

44.020 SIGHT-OBSCURING FENCE; SETBACK AND HEIGHT LIMITATIONS

A. A sight- or non-sight-obscuring fence may be located on the property line or in a yard setback area subject to the following:

1. The fence is located within:
 - a. A required front yard area, and it does not exceed three feet, except pillars and driveway entry features subject to the requirements of Chapter 42 CDC, Clear Vision Areas, and approval by the Planning Director;
 - b. A required side yard which abuts a street and it is within that portion of the side yard which is also part of the front yard setback area and it does not exceed three feet;
 - c. A required side yard which abuts a street and it is within that portion of the side yard which is not also a portion of the front yard setback area and it does not exceed six feet provided the provisions of Chapter 42 CDC are met;
 - d. A required rear yard which abuts a street and it does not exceed six feet; or
 - e. A required side yard area which does not abut a street or a rear yard and it does not exceed six feet.

Applicant's Finding: New fences are not indicated on the proposed plans because the exact locations have yet to be determined. All fences constructed as part of this subdivision will meet the requirements of these standards.

B. Fence or wall on a retaining wall. When a fence is built on a retaining wall or an artificial berm, the following standards shall apply:

- 1. When the retaining wall or artificial berm is 30 inches or less in height from finished grade, the maximum fence or wall height on top of the retaining wall shall be six feet.**
- 2. When the retaining wall or earth berm is greater than 30 inches in height, the combined height of the retaining wall and fence or wall from finished grade shall not exceed eight and one-half feet.**
- 3. Fences or walls located on top of retaining walls or earth berms in excess of 30 inches above finished grade may exceed the total allowed combined height of eight and one-half feet; provided, that the fence or wall is located a minimum of two feet from the retaining wall and the fence or wall height shall not exceed six feet.**

Applicant's Finding: Any fences built on retaining walls will meet these standards.
The requirements of this section have been satisfied.

44.030 SCREENING OF OUTDOOR STORAGE

A. All service, repair, and storage activities carried on in connection with any commercial, business or industrial activity and not conducted within an enclosed building shall be screened from view of all adjacent properties and adjacent streets by a sight-obscuring fence.

B. The sight-obscuring fence shall be in accordance with provisions of Chapter 42 CDC, Clear Vision Areas, and shall be subject to the provisions of Chapter 55 CDC, Design Review.

Applicant's Finding: This site is residential and no service, repair, or storage activities in connection with commercial, business, or industry activities are proposed.

44.040 LANDSCAPING

Landscaping which is located on the fence line and which impairs sight vision shall not be located within the clear vision area as provided in Chapter 42 CDC.

44.050 STANDARDS FOR CONSTRUCTION

A. The structural side of the fence shall face the owner's property; and

B. The sides of the fence abutting adjoining properties and the street shall be maintained. (Ord. 1291, 1990

Applicant's Finding: Any fences built will meet these standards.
The requirements of this section have been satisfied.

CHAPTER 48. ACCESS, EGRESS AND CIRCULATION

48.025 ACCESS CONTROL

B. Access control standards.

1. **Traffic impact analysis requirements.** The City or other agency with access jurisdiction may require a traffic study prepared by a qualified professional to determine access, circulation and other transportation requirements. (See also CDC 55.125, Traffic Impact Analysis.)

Applicant's Finding: The Applicant has provided a Traffic Impact Analysis under Appendix D of this land use application.

The requirements of this section have been satisfied.

2. **The City or other agency with access permit jurisdiction may require the closing or consolidation of existing curb cuts or other vehicle access points, recording of reciprocal access easements (i.e., for shared driveways), development of a frontage street, installation of traffic control devices, and/or other mitigation as a condition of granting an access permit, to ensure the safe and efficient operation of the street and highway system. Access to and from off-street parking areas shall not permit backing onto a public street.**

Applicant's Finding: The Applicant has proposed a street network which provides safe and logical vehicular circulation through the site as well as opportunities for on-street parking. A reciprocal access easement and maintenance agreement will be required for lots utilizing shared driveways.

The requirements of this section have been satisfied.

3. **Access options. When vehicle access is required for development (i.e., for off-street parking, delivery, service, drive-through facilities, etc.), access shall be provided by one of the following methods (planned access shall be consistent with adopted public works standards and TSP). These methods are "options" to the developer/subdivider.**

a) **Option 1. Access is from an existing or proposed alley or mid-block lane. If a property has access to an alley or lane, direct access to a public street is not permitted.**

b) **Option 2. Access is from a private street or driveway connected to an adjoining property that has direct access to a public street (i.e., "shared driveway"). A public access easement covering the driveway shall be recorded in this case to assure access to the closest public street for all users of the private street/drive.**

c) **Option 3. Access is from a public street adjacent to the development lot or parcel. If practicable, the owner/developer may be required to close or consolidate an existing access point as a condition of approving a new access. Street accesses shall comply with the access spacing standards in subsection (B)(6) of this section.**

Applicant's Finding: The Applicant is proposing access to the site via Option 3. The proposed design utilizes existing undeveloped right-of-way in addition to newly dedicated right-of-way for a public

street. Access to the site will be provided at the terminus of Upper Midhill Drive and Hillside Drive.

The requirements of this section have been satisfied.

4. Subdivisions fronting onto an arterial street. New residential land divisions fronting onto an arterial street shall be required to provide alleys or secondary (local or collector) streets for access to individual lots. When alleys or secondary streets cannot be constructed due to topographic or other physical constraints, access may be provided by consolidating driveways for clusters of two or more lots (e.g., includes flag lots and mid-block lanes).

Applicant's The proposed development does not front onto an arterial road.

Finding: The requirements of this section are not applicable

5. Double-frontage lots. When a lot or parcel has frontage onto two or more streets, access shall be provided first from the street with the lowest classification. For example, access shall be provided from a local street before a collector or arterial street. When a lot or parcel has frontage opposite that of the adjacent lots or parcels, access shall be provided from the street with the lowest classification.

Applicant's No double fronted lots will be created as part of this subdivision.

Finding: The requirements of this section have been satisfied.

6. Access spacing.

a. The access spacing standards found in Chapter 8 of the adopted Transportation System Plan (TSP) shall be applicable to all newly established public street intersections and non-traversable medians.

b. Private drives and other access ways are subject to the requirements of CDC 48.060.

Applicant's The Applicant's proposed spacing meets the requirements of Chapter 8 of the City's
Finding: Transportation System Plan.

The requirements of this section have been satisfied.

7. Number of access points. For single-family (detached and attached), two-family, and duplex housing types, one street access point is permitted per lot or parcel, when alley access cannot otherwise be provided; except that two access points may be permitted corner lots (i.e., no more than one access per street), subject to the access spacing standards in subsection (B)(6) of this section. The number of street access points for multiple family, commercial, industrial, and public/institutional developments shall be minimized to protect the function, safety and operation of the street(s) and sidewalk(s) for all users. Shared access may be required, in conformance with subsection (B)(8) of this section, in order to maintain the required access spacing, and minimize the number of access points.

Applicant's Finding: The Applicant is proposing only one access point for each new single family lot.

The requirements of this section have been satisfied.

8. Shared driveways. The number of driveway and private street intersections with public streets shall be minimized by the use of shared driveways with adjoining lots where feasible. The City shall require shared driveways as a condition of land division or site design review, as applicable, for traffic safety and access management purposes in accordance with the following standards:

a. Shared driveways and frontage streets may be required to consolidate access onto a collector or arterial street. When shared driveways or frontage streets are required, they shall be stubbed to adjacent developable parcels to indicate future extension. "Stub" means that a driveway or street temporarily ends at the property line, but may be extended in the future as the adjacent lot or parcel develops. "Developable" means that a lot or parcel is either vacant or it is likely to receive additional development (i.e., due to infill or redevelopment potential).

b. Access easements (i.e., for the benefit of affected properties) shall be recorded for all shared driveways, including pathways, at the time of final plat approval or as a condition of site development approval.

c. Exception. Shared driveways are not required when existing development patterns or physical constraints (e.g., topography, lot or parcel configuration, and similar conditions) prevent extending the street/driveway in the future.

Applicant's Finding: The Applicant has proposed a shared access drive for lots 13, 14 and 15. The shared driveway will take access to Upper Midhill Drive, a local street. The Applicant will record a shared access and maintenance agreement over the shared access drive at the time of final plat submission.

The requirements of this section have been satisfied.

C. Street connectivity and formation of blocks required. In order to promote efficient vehicular and pedestrian circulation throughout the City, land divisions and large site developments shall produce complete blocks bounded by a connecting network of public and/or private streets, in accordance with the following standards:

1. Block length and perimeter. The maximum block length shall not exceed 800 feet or 1,800 feet along an arterial.

2. Street standards. Public and private streets shall also conform to Chapter 92 CDC, Required Improvements, and to any other applicable sections of the West Linn Community Development Code and approved TSP.

3. Exception. Exceptions to the above standards may be granted when blocks are divided by one or more pathway(s), in conformance with the provisions of CDC 85.200(C), Pedestrian and Bicycle Trails, or cases where extreme topographic (e.g., slope, creek, wetlands, etc.) conditions or compelling functional limitations preclude implementation, not just inconveniences or design challenges. (Ord. 1635 § 25, 2014; Ord. 1636 § 33, 2014)

Applicant's Finding: Though the site has topographic considerations as well as the location adjacent to the City limits, no block length exceeds 800 feet. Hillside Drive connects to Hillside Drive less than 800 feet from where it turns 90 degrees to connect with Upper Midhill Drive. Upper Midhill Drive connects to College View Drive less than 800 feet from where it turns 90 degrees to connect with Hillside Drive. The entire site is looped to enhance connectivity and meet the intent of the block length standards.

The requirements of this section have been satisfied.

48.030 MINIMUM VEHICULAR REQUIREMENTS FOR RESIDENTIAL USES

A. Direct individual access from single-family dwellings and duplex lots to an arterial street, as designated in the transportation element of the Comprehensive Plan, is prohibited for lots or parcels created after the effective date of this code where an alternate access is either available or is expected to be available by imminent development application. Evidence of alternate or future access may include temporary cul-de-sacs, dedications or stubouts on adjacent lots or parcels, or tentative street layout plans submitted at one time by adjacent property owner/developer or by the owner/developer, or previous owner/developer, of the property in question.

In the event that alternate access is not available as determined by the Planning Director and City Engineer, access may be permitted after review of the following criteria:

- 1. Topography.**
- 2. Traffic volume to be generated by development (i.e., trips per day).**
- 3. Traffic volume presently carried by the street to be accessed.**
- 4. Projected traffic volumes.**
- 5. Safety considerations such as line of sight, number of accidents at that location, emergency vehicle access, and ability of vehicles to exit the site without backing into traffic.**
- 6. The ability to consolidate access through the use of a joint driveway.**
- 7. Additional review and access permits may be required by State or County agencies.**

Applicant's Finding: The proposed development does not include direct access to arterials.

The requirements of this section do not apply.

B. When any portion of any house is less than 150 feet from the adjacent right-of-way, access to the home is as follows:

- 1. One single-family residence, including residences with an accessory dwelling unit as defined in CDC 02.030, shall provide 10 feet of unobstructed horizontal clearance. Dual-track or other driveway designs that minimize the total area of impervious driveway surface are encouraged.**

Applicant's Finding: All proposed driveways within 150 feet of the adjacent right-of-way associated with Upper Midhill Drive and Hillside Drive will provide at least 10 feet of unobstructed horizontal clearance.

The requirements of this section have been satisfied.

2. Two to four single-family residential homes equals a 14- to 20-foot-wide paved or all-weather surface. Width shall depend upon adequacy of line of sight and number of homes.

Applicant's Finding: The proposed shared driveway which will serve lots 13, 14 and 15 will consist of a 16 foot wide paved surface with a 20 foot clearance area.

The requirements of this section have been satisfied.

3. Maximum driveway grade shall be 15 percent. The 15 percent shall be measured along the centerline of the driveway only. Variations require approval of a Class II variance by the Planning Commission pursuant to Chapter 75 CDC. Regardless, the last 18 feet in front of the garage shall be under 12 percent grade as measured along the centerline of the driveway only. Grades elsewhere along the driveway shall not apply.

Applicant's Finding: All proposed driveways will meet the maximum grade standards of this code.

The requirements of this section have been satisfied.

4. The driveway shall include a minimum of 20 feet in length between the garage door and the back of sidewalk, or, if no sidewalk is proposed, to the paved portion of the right-of-way.

Applicant's Finding: All proposed homes will have individual driveway areas of at least 20 feet in length to allow for parking of vehicles off of the common access ways or public roads.

The requirements of this section have been satisfied.

C. When any portion of one or more homes is more than 150 feet from the adjacent right-of-way, the provisions of subsection B of this section shall apply in addition to the following provisions.

- 1. A turnaround may be required as prescribed by the Fire Chief.**
- 2. Minimum vertical clearance for the driveway shall be 13 feet, six inches.**
- 3. A minimum centerline turning radius of 45 feet is required unless waived by the Fire Chief.**

Applicant's Finding: The Applicant is not proposing any homes that will be more than 150 feet from the adjacent right-of-way.

The requirements of this section are not applicable.

4. There shall be sufficient horizontal clearance on either side of the driveway so that the total horizontal clearance is 20 feet.

Applicant's Finding: All proposed driveways will have a horizontal clearance of at least 20 feet.

The requirements of this section have been satisfied.

D. Access to five or more single-family homes shall be by a street built to full construction code standards. All streets shall be public. This full street provision may only be waived by variance.

Applicant's Finding: Access to the proposed lots will be provided by the extensions of Upper Midhill Drive and Hillside Drive, which are both public streets.

The requirements of this section have been satisfied.

48.060 WIDTH AND LOCATION OF CURB CUTS AND ACCESS SEPARATION REQUIREMENTS

A. Minimum curb cut width shall be 16 feet.

Applicant's Finding: All proposed curb cuts exceed the minimum 16 foot standard.

The requirements of this section have been satisfied.

B. Maximum curb cut width shall be 36 feet, except along Highway 43 in which case the maximum curb cut shall be 40 feet. For emergency service providers, including fire stations, the maximum shall be 50 feet.

Applicant's Finding: The maximum width of the curb cuts provided is less than 36 feet.

The requirements of this section have been satisfied.

C. No curb cuts shall be allowed any closer to an intersecting street right-of-way line than the following:

- 1. On an arterial when intersected by another arterial, 150 feet.**
- 2. On an arterial when intersected by a collector, 100 feet.**
- 3. On an arterial when intersected by a local street, 100 feet.**
- 4. On a collector when intersecting an arterial street, 100 feet.**
- 5. On a collector when intersected by another collector or local street, 35 feet.**
- 6. On a local street when intersecting any other street, 35 feet.**

Applicant's Finding: The Applicant's proposed driveway spacing exceeds the minimum 35 foot spacing requirements for local streets intersecting any other streets.

The requirements of this section have been satisfied.

D. There shall be a minimum distance between any two adjacent curb cuts on the same side of a public street, except for one-way entrances and exits, as follows:

3. Between any two curb cuts on the same lot or parcel on a local street, 30 feet.

Applicant's Finding: A minimum distance of 30 feet of spacing has been provided between curb cuts along Upper Midhill Drive and Hillside drive.

The requirements of this section have been satisfied.

E. A rolled curb may be installed in lieu of curb cuts and access separation requirements.

Applicant's Finding: No rolled curbs have been proposed. The requirements of this section do not apply.

The requirements of this section have been satisfied.

F. Curb cuts shall be kept to the minimum, particularly on Highway 43. Consolidation of driveways is preferred. The standard on Highway 43 is one curb cut per business if consolidation of driveways is not possible.

Applicant's Finding: The requirements of this section do not apply.

G. Adequate line of sight pursuant to engineering standards should be afforded at each driveway or accessway. (Ord. 1270, 1990; Ord. 1584, 2008; Ord. 1636 § 35, 2014)

Applicant's Finding: The proposed driveways will comply with the City's engineering standards for site distance. This requirement will be verified at the time of building permit submission for each individual home site and driveway.

The requirements of this section have been satisfied.

48.070 PLANNING DIRECTOR'S AUTHORITY TO RESTRICT ACCESS APPEAL PROVISIONS

A. In order to provide for increased traffic movement on congested streets and eliminate turning movement problems, the Planning Director and the City Engineer, or his designee, may restrict the location of driveways on said street and require the location of driveways on adjacent streets upon the finding that the proposed access would:

1. Provide inadequate access for emergency vehicles; or

Applicant's Finding: The proposed development continues a public street network into the site which will be constructed in accordance with the City's requirements for emergency vehicle access. Adequate access for emergency vehicles has been provided throughout the site.

The requirements of this section have been satisfied.

2. Cause or increase hazardous conditions to exist which would constitute a clear and present danger to the public health safety and general welfare.

Applicant's Finding: The site has no hazardous conditions which would be exacerbated by the development proposal.

The requirements of this section have been satisfied.

48.080 BICYCLE AND PEDESTRIAN CIRCULATION

A. Within all multi-family developments (except two-family/duplex dwellings), each residential dwelling shall be connected to vehicular parking stalls, common open space, and recreation facilities by a pedestrian pathway system having a minimum width of six feet and constructed of an all-weather

material. The pathway material shall be of a different color or composition from the driveway. (Bicycle routes adjacent to the travel lanes do not have to be of different color or composition.)

B. Bicycle and pedestrian ways within a subdivision shall be constructed according to the provisions in CDC 85.200(A)(3).

Applicant's Finding: The Applicant has provided for the extension of Upper Midhill Drive and Hillside drive into the proposed development. The streets will provide facilities for both pedestrians and cyclists consistent with the City's Standards for public streets.

The requirements of this section have been satisfied.

CHAPTER 54. LANDSCAPING

54.020 APPROVAL CRITERIA

A. Every development proposal requires inventorying existing site conditions which include trees and landscaping. In designing the new project, every reasonable attempt should be made to preserve and protect existing trees and to incorporate them into the new landscape plan. Similarly, significant landscaping (e.g., bushes, shrubs) should be integrated. The rationale is that saving a 30-foot-tall mature tree helps maintain the continuity of the site, they are qualitatively superior to two or three two-inch caliper street trees, they provide immediate micro-climate benefits (e.g., shade), they soften views of the street, and they can increase the attractiveness, marketability, and value of the development.

Applicant's Finding: This subdivision application includes a tree inventory and preservation plan focused on maintaining significant trees and clusters. Roads, utilities, and lots have been carefully placed to allow the retention of as many trees as possible.

B. To encourage tree preservation, the parking requirement may be reduced by one space for every significant tree that is preserved in the parking lot area for a maximum reduction of 10 percent of the required parking. The City Parks Supervisor or Arborist shall determine the significance of the tree and/or landscaping to determine eligibility for these reductions.

Applicant's Finding: No parking areas, aside from driveways, are required for residential subdivisions. No parking reduction is requested.

C. Developers must also comply with the municipal code chapter on tree protection.

Applicant's Finding: The developer will comply with all municipal code requirements for tree protection.

D. Heritage trees. Heritage trees are trees which, because of their age, type, notability, or historical association, are of special importance. Heritage trees are trees designated by the City Council following review of a nomination. A heritage tree may not be removed without a public hearing at least 30 days prior to the proposed date of removal. Development proposals involving land with heritage tree(s) shall

be required to protect and save the tree(s). Further discussion of heritage trees is found in the municipal code.

Applicant's No heritage trees have been identified on this site.

Finding: The requirements of this section have been satisfied.

E. (Not applicable to single-family residential)

F. Landscaping (trees) in new subdivision.

1. Street trees shall be planted by the City within the planting strips (minimum six-foot width) of any new subdivision in conformity with the street tree plan for the area, and in accordance with the planting specifications of the Parks and Recreation Department. All trees shall be planted during the first planting season after occupancy. In selecting types of trees, the City Arborist may determine the appropriateness of the trees to local conditions and whether that tree has been overplanted, and whether alternate species should be selected. Also see subsection (C) of this section.

2. The cost of street trees shall be paid by the developer of the subdivision.

3. The fee per street tree, as established by the City, shall be based upon the following:

a. The cost of the tree;

b. Labor and equipment for original placement;

c. Regular maintenance necessary for tree establishment during the initial two-year period following the City schedule of maintenance; and

d. A two-year replacement warranty based on the City's established failure rate. (Ord. 1408, 1998; Ord. 1463, 2000)

Applicant's The applicant will pay for the installation of street trees by the City and maintain the trees
Finding: for the two-year establishment period.

The requirements of this section have been satisfied.

54.030 PLANTING STRIPS FOR MODIFIED AND NEW STREETS

All proposed changes in width in a public street right-of-way or any proposed street improvement shall, where feasible, include allowances for planting strips. Plans and specifications for planting such areas shall be integrated into the general plan of street improvements. This chapter requires any multi-family, commercial, or public facility which causes change in public right-of-way or street improvement to comply with the street tree planting plan and standards.

Applicant's Minimum width 6-foot-wide planting strips will be installed between the sidewalk and the
Finding: asphalt within the right-of-way In all occasions except where a modification has been proposed.

The requirements of this section have been satisfied.

54.040 INSTALLATION

- A. All landscaping shall be installed according to accepted planting procedures.**
- B. The soil and plant materials shall be of good quality.**
- C. Landscaping shall be installed in accordance with the provisions of this code.**
- D. Certificates of occupancy shall not be issued unless the landscaping requirements have been met or other arrangements have been made and approved by the City such as the posting of a bond.**

Applicant's All landscaping installation will meet the requirements of this section.
Finding:

The requirements of this section have been satisfied.

54.050 PROTECTION OF STREET TREES

Street trees may not be topped or trimmed unless approval is granted by the Parks Supervisor or, in emergency cases, when a tree imminently threatens power lines.

Applicant's There are no existing street trees adjacent to this property.
Finding:

The requirements of this section have been satisfied.

54.060 MAINTENANCE

A. The owner, tenant and their agent, if any, shall be jointly and severally responsible for the maintenance of all landscaping which shall be maintained in good condition so as to present a healthy, neat, and orderly appearance and shall be kept free from refuse and debris.

B. All plant growth in interior landscaped areas shall be controlled by pruning, trimming, or otherwise so that:

- 1. It will not interfere with the maintenance or repair of any public utility;**
- 2. It will not restrict pedestrian or vehicular access; and**
- 3. It will not constitute a traffic hazard because of reduced visibility.**

Applicant's The owners of this property, including future homeowners, will be responsible for
Finding: maintenance of landscaping.

The requirements of this section have been satisfied.

54.070 SPECIFICATION SUMMARY

*****25% of residential/multi-family site must be landscaped.**

Applicant's Finding: A minimum of 25% of this site will be landscaped as part of the yards of future homes.
The requirements of this section have been satisfied.

DIVISION 4. DESIGN REVIEW

CHAPTER 55. DESIGN REVIEW

55.100 APPROVAL STANDARDS - CLASS II DESIGN REVIEW

B. Relationship to the natural and physical environment.

1. The buildings and other site elements shall be designed and located so that all heritage trees, as defined in the municipal code, shall be saved. Diseased heritage trees, as determined by the City Arborist, may be removed at his/her direction.

Applicant's Finding: No heritage trees were identified on this site.
The requirements of this section have been satisfied.

2. All heritage trees, as defined in the municipal code, all trees and clusters of trees (“cluster” is defined as three or more trees with overlapping driplines; however, native oaks need not have an overlapping dripline) that are considered significant by the City Arborist, either individually or in consultation with certified arborists or similarly qualified professionals, based on accepted arboricultural standards including consideration of their size, type, location, health, long term survivability, and/or numbers, shall be protected pursuant to the criteria of subsections (B)(2)(a) through (f) of this section. In cases where there is a difference of opinion on the significance of a tree or tree cluster, the City Arborist’s findings shall prevail. It is important to acknowledge that all trees are not significant and, further, that this code section will not necessarily protect all trees deemed significant.

Applicant's Finding: The findings of subsections (B)(2)(a) through (f) are found below.
The requirements of this section have been satisfied.

a. Non-residential and residential projects on Type I and II lands shall protect all heritage trees and all significant trees and tree clusters by either the dedication of these areas or establishing tree conservation easements. Development of Type I and II lands shall require the careful layout of streets, driveways, building pads, lots, and utilities to avoid heritage trees and significant trees and tree clusters, and other natural resources pursuant to this code. The method for delineating the protected trees or tree clusters (“dripline + 10 feet”) is explained in subsection (B)(2)(b) of this section. Exemptions of subsections (B)(2)(c), (e), and (f) of this section shall apply.

Applicant's Finding: This site is not classified as Type I or Type II and, therefore, this standard is not applicable to the vast majority of the property. The Applicant has submitted a slope analysis showing the slopes present on the site. A very small portion of type I and Type II lands exist on the property however these areas fall within a portion of the site which is located adjacent to a Water Quality Resource and in the southernmost corner of the property. No significant trees have been identified within the steeper sloped portions of the site. These areas

adjacent to the WRA will not be developed at the time of site construction and tree protection within these areas will be achieved. The southernmost corner of the site will require development to allow for the necessary extension of the roadway network.

The requirements of this section have been satisfied.

b. Non-residential and residential projects on non-Type I and II lands shall set aside up to 20 percent of the area to protect trees and tree clusters that are determined to be significant, plus any heritage trees. Therefore, in the event that the City Arborist determines that a significant tree cluster exists at a development site, then up to 20 percent of the non-Type I and II lands shall be devoted to the protection of those trees, either by dedication or easement. The exact percentage is determined by establishing the driplines of the trees or tree clusters that are to be protected. In order to protect the roots which typically extend further, an additional 10-foot measurement beyond the dripline shall be added. The square footage of the area inside this “dripline plus 10 feet” measurement shall be the basis for calculating the percentage (see figure below). The City Arborist will identify which tree(s) are to be protected. Development of non-Type I and II lands shall also require the careful layout of streets, driveways, building pads, lots, and utilities to avoid significant trees, tree clusters, heritage trees, and other natural resources pursuant to this code. Exemptions of subsections (B)(2)(c), (e), and (f) of this section shall apply. Please note that in the event that more than 20 percent of the non-Type I and II lands comprise significant trees or tree clusters, the developer shall not be required to save the excess trees, but is encouraged to do so.

Applicant's Finding: The proposed subdivision is located on primarily non-Type I and II lands. Streets, driveways, building pads, lots and utilities have been carefully laid out so as to avoid significant trees and clusters with particular attention to the vegetation around the boundary of the site. The site plan's concept includes deeper than necessary lots around the boundary with the specific goal of retaining a buffer of trees between this site and the neighboring, developed properties. Every reasonable effort has been made to retain trees as they enhance the value of the properties for the developer and the future homeowners. The applicant has inventoried all trees on site and has consulted with the City's arborist to determine which trees on site are significant. The applicant is proposing tree preservation consistent with these requirements, as detailed in the tree plan.

There are a total of 169 trees identified as significant on this site. The significant tree canopy area on site totals 238,212 square feet or 5.4 acres. Of these trees, 50 significant trees will be retained through the site development and homebuilding process. A total of 77,863 square feet of significant canopy will be retained or 1.7 acres. The proposed retention represents 33 percent of the site's existing canopy. In addition to the trees determined to be significant, 62 additional non-significant trees have been proposed for retention. The retention of these trees has been made possible through the Applicant's careful placement of streets, driveways, building pads, lots and utilities throughout the project site. With larger than required back yards and purposeful placement of utilities, the site's preservation requirement of 20% of the significant tree canopy has been met and exceeded.

The requirements of this section have been satisfied.

c. Where stubouts of streets occur on abutting properties, and the extension of those streets will mean the loss of significant trees, tree clusters, or heritage trees, it is understood that tree loss may be inevitable. In these cases, the objective shall be to minimize tree loss. These provisions shall also apply in those cases where access, per construction code standards, to a lot or parcel is blocked by a row or screen of significant trees or tree clusters.

Applicant's No street stub outs are proposed on abutting properties.

Finding:

The requirements of this section have been satisfied.

d. For both non-residential and residential development, the layout shall achieve at least 70 percent of maximum density for the developable net area. The developable net area excludes all Type I and II lands and up to 20 percent of the remainder of the site for the purpose of protection of stands or clusters of trees as defined in subsection (B)(2) of this section.

Applicant's The R-4.5 zone permits a maximum density of 9.68 dwelling units per net acre. Net acre is defined as “The total gross acres less the public right-of-way and other acreage deductions, as applicable”. The net acreage of this site after removal of dedicated right-of way is 5.10 acres. At 9.68 dwelling units per net acre, the maximum number of dwelling units on this site is 49. The minimum density of this site is 70% of 49 units, or 34 units, which is the number of dwelling units proposed.

Finding:

The requirements of this section have been satisfied.

e. For arterial and collector street projects, including Oregon Department of Transportation street improvements, the roads and graded areas shall avoid tree clusters where possible. Significant trees, tree clusters, and heritage tree loss may occur, however, but shall be minimized.

Applicant's No arterial or collector street projects are included with this development application.

Finding:

The requirements of this section have been satisfied.

f. If the protection of significant tree(s) or tree clusters is to occur in an area of grading that is necessary for the development of street grades, per City construction codes, which will result in an adjustment in the grade of over or under two feet, which will then threaten the health of the tree(s), the applicant will submit evidence to the Planning Director that all reasonable alternative grading plans have been considered and cannot work. The applicant will then submit a mitigation plan to the City Arborist to compensate for the removal of the tree(s) on an “inch by inch” basis (e.g., a 48-inch Douglas fir could be replaced by 12 trees, each four-inch). The mix of tree sizes and types shall be approved by the City Arborist.

Applicant's 19 significant trees with a total DBH of 434 inches are proposed for removal due to street construction. The Applicant is proposing to mitigate for the removal of 434 inches of DBH by planting street trees and landscape trees on the project site. The remaining trees which are not able to be planted on site will be mitigated for either in off-site plantings in a location chosen by the City’s arborist or the Applicant will pay a fee in lieu to the City for trees which cannot be planted on site.

Finding:

The requirements of this section have been satisfied.

DIVISION 8. LAND DIVISIONS

CHAPTER 92. REQUIRED IMPROVEMENTS

92.010 PUBLIC IMPROVEMENTS FOR ALL DEVELOPMENT

The following improvements shall be installed at the expense of the developer and meet all City codes and standards:

A. Streets within subdivisions.

1. All streets within a subdivision, including alleys, shall be graded for the full right-of-way width and improved to the City's permanent improvement standards and specifications which include sidewalks and bicycle lanes, unless the decision-making authority makes the following findings:

a. The right-of-way cannot be reasonably improved in a manner consistent with City road standards or City standards for the protection of wetlands and natural drainageways.

b. The right-of-way does not provide a link in a continuous pattern of connected local streets, or, if it does provide such a link, that an alternative street link already exists or the applicant has proposed an alternative street which provides the necessary connectivity, or the applicant has proven that there is no feasible location on the property for an alternative street providing the link.

2. When the decision-making authority makes these findings, the decision-making authority may impose any of the following conditions of approval:

a. A condition that the applicant initiate vacation proceedings for all or part of the right-of-way.

b. A condition that the applicant build a trail, bicycle path, or other appropriate way.

If the applicant initiates vacation proceedings pursuant to subsection (A)(2)(a) of this section, and the right-of-way cannot be vacated because of opposition from adjacent property owners, the City Council shall consider and decide whether to process a City-initiated street vacation pursuant to Chapter [271](#) ORS.

Construction staging area shall be established and approved by the City Engineer. Clearing, grubbing, and grading for a development shall be confined to areas that have been granted approval in the land use approval process only. Clearing, grubbing, and grading outside of land use approved areas can only be approved through a land use approval modification and/or an approved Building Department grading permit for survey purposes. Catch basins shall be installed and connected to pipe lines leading to storm sewers or drainageways.

B. Extension of streets to subdivisions. The extension of subdivision streets to the intercepting paving line of existing streets with which subdivision streets intersect shall be graded for the full right-of-way width and improved to a minimum street structural section and width of 24 feet.

C. Local and minor collector streets within the rights-of-way abutting a subdivision shall be graded for the full right-of-way width and approved to the City's permanent improvement standards and

specifications. The City Engineer shall review the need for street improvements and shall specify whether full street or partial street improvements shall be required. The City Engineer shall also specify the extent of storm drainage improvements required. The City Engineer shall be guided by the purpose of the City's systems development charge program in determining the extent of improvements which are the responsibility of the subdivider.

D. **Monuments.** Upon completion of the first pavement lift of all street improvements, monuments shall be installed and/or reestablished at every street intersection and all points of curvature and points of tangency of street centerlines with an iron survey control rod. Elevation benchmarks shall be established at each street intersection monument with a cap (in a monument box) with elevations to a U.S. Geological Survey datum that exceeds a distance of 800 feet from an existing benchmark.

E. **Surface drainage and storm sewer system.** A registered civil engineer shall prepare a plan and statement which shall be supported by factual data that clearly shows that there will be no adverse impacts from increased intensity of runoff off site of a 100-year storm, or the plan and statement shall identify all off-site impacts and measures to mitigate those impacts commensurate to the particular land use application. Mitigation measures shall maintain pre-existing levels and meet buildout volumes, and meet planning and engineering requirements.

F. **Sanitary sewers.** Sanitary sewers shall be installed to City standards to serve the subdivision and to connect the subdivision to existing mains.

1. If the area outside the subdivision to be directly served by the sewer line has reached a state of development to justify sewer installation at the time, the Planning Commission may recommend to the City Council construction as an assessment project with such arrangement with the subdivider as is desirable to assure financing his share of the construction.

2. If the installation is not made as an assessment project, the City may reimburse the subdivider an amount estimated to be a proportionate share of the cost for each connection made to the sewer by property owners outside of the subdivision for a period of 10 years from the time of installation of the sewers. The actual amount shall be determined by the City Administrator considering current construction costs.

G. **Water system.** Water lines with valves and fire hydrants providing service to each building site in the subdivision and connecting the subdivision to City mains shall be installed. Prior to starting building construction, the design shall take into account provisions for extension beyond the subdivision and to adequately grid the City system. Hydrant spacing is to be based on accessible area served according to the City Engineer's recommendations and City standards. If required water mains will directly serve property outside the subdivision, the City may reimburse the developer an amount estimated to be the proportionate share of the cost for each connection made to the water mains by property owners outside the subdivision for a period of 10 years from the time of installation of the mains. If oversizing of water mains is required to areas outside the subdivision as a general improvement, but to which no new connections can be identified, the City may reimburse the developer that proportionate share of the cost for oversizing. The actual amount and reimbursement method shall be as determined by the City Administrator considering current or actual construction costs.

H. **Sidewalks.**

1. Sidewalks shall be installed on both sides of a public street and in any special pedestrian way within the subdivision, except that in the case of primary or secondary arterials, or special type

industrial districts, or special site conditions, the Planning Commission may approve a subdivision without sidewalks if alternate pedestrian routes are available.

In the case of the double-frontage lots, provision of sidewalks along the frontage not used for access shall be the responsibility of the developer. Providing front and side yard sidewalks shall be the responsibility of the land owner at the time a request for a building permit is received. Additionally, deed restrictions and CC&Rs shall reflect that sidewalks are to be installed prior to occupancy and it is the responsibility of the lot or homeowner to provide the sidewalk, except as required above for double-frontage lots.

2. On local streets serving only single-family dwellings, sidewalks may be constructed during home construction, but a letter of credit shall be required from the developer to ensure construction of all missing sidewalk segments within four years of final plat approval pursuant to CDC 91.010(A)(2).

3. The sidewalks shall measure at least six feet in width and be separated from the curb by a six-foot minimum width planter strip. Reductions in widths to preserve trees or other topographic features, inadequate right-of-way, or constraints, may be permitted if approved by the City Engineer in consultation with the Planning Director.

4. Sidewalks should be buffered from the roadway on high volume arterials or collectors by landscape strip or berm of three and one-half-foot minimum width.

5. The City Engineer may allow the installation of sidewalks on one side of any street only if the City Engineer finds that the presence of any of the factors listed below justifies such waiver:

- a. The street has, or is projected to have, very low volume traffic density;
- b. The street is a dead-end street;
- c. The housing along the street is very low density; or
- d. The street contains exceptional topographic conditions such as steep slopes, unstable soils, or other similar conditions making the location of a sidewalk undesirable.

I. Bicycle routes. If appropriate to the extension of a system of bicycle routes, existing or planned, the Planning Commission may require the installation of separate bicycle lanes within streets and separate bicycle paths.

J. Street name signs. All street name signs and traffic control devices for the initial signing of the new development shall be installed by the City with sign and installation costs paid by the developer.

K. Dead-end street signs. Signs indicating “future roadway” shall be installed at the end of all discontinued streets. Signs shall be installed by the City per City standards, with sign and installation costs paid by the developer.

L. Signs indicating future use shall be installed on land dedicated for public facilities (e.g., parks, water reservoir, fire halls, etc.). Sign and installation costs shall be paid by the developer.

M. Street lights. Street lights shall be installed and shall be served from an underground source of supply. The street lighting shall meet IES lighting standards. The street lights shall be the shoe-box style

light (flat lens) with a 30-foot bronze pole in residential (non-intersection) areas. The street light shall be the cobra head style (drop lens) with an approximate 50-foot (sized for intersection width) bronze pole. The developer shall submit to the City Engineer for approval of any alternate residential, commercial, and industrial lighting, and alternate lighting fixture design. The developer and/or homeowners association is required to pay for all expenses related to street light energy and maintenance costs until annexed into the City.

N. Utilities. The developer shall make necessary arrangements with utility companies or other persons or corporations affected for the installation of underground lines and facilities. Electrical lines and other wires, including but not limited to communication, street lighting, and cable television, shall be placed underground.

O. Curb cuts and driveways. Curb cuts and driveway installations are not required of the subdivider at the time of street construction, but, if installed, shall be according to City standards. Proper curb cuts and hard-surfaced driveways shall be required at the time buildings are constructed.

P. Street trees. Street trees shall be provided by the City Parks and Recreation Department in accordance with standards as adopted by the City in the Municipal Code. The fee charged the subdivider for providing and maintaining these trees shall be set by resolution of the City Council.

Q. Joint mailbox facilities shall be provided in all residential subdivisions, with each joint mailbox serving at least two, but no more than eight, dwelling units. Joint mailbox structures shall be placed in the street right-of-way adjacent to roadway curbs. Proposed locations of joint mailboxes shall be designated on a copy of the tentative plan of the subdivision, and shall be approved as part of the tentative plan approval. In addition, sketch plans for the joint mailbox structures to be used shall be submitted and approved by the City Engineer prior to final plat approval. (Ord. 1180, 1986; Ord. 1192, 1987; Ord. 1287, 1990; Ord. 1321, 1992; Ord. 1339, 1993; Ord. 1401, 1997; Ord. 1408, 1998; Ord. 1442, 1999)

Applicant's Finding: All improvements will be installed per the submitted plans and in conformance with the requirements of this title.

The requirements of this section have been satisfied.

92.030 IMPROVEMENT PROCEDURES

In addition to other requirements, improvements installed by the developer, either as a requirement of these regulations or at the developer's own option, shall conform to the requirements of this title and permanent improvement standards and specifications adopted by the City and shall be installed in accordance with the following procedure:

A. Improvement work shall not be commenced until plans have been checked for adequacy and approved by the City. To the extent necessary for evaluation of the proposal, the improvement plans may be required before approval of the tentative plan of a subdivision or partition. Plans shall be prepared in accordance with the requirements of the City.

B. Improvement work shall not be commenced until the City has been notified in advance, and if work has been discontinued for any reason, it shall not be resumed until the City has been notified.

C. Improvements shall be constructed under the Engineer. The City may require changes in typical sections and details in the public interest if unusual conditions arise during construction to warrant the change.

D. All underground utilities, sanitary sewers, and storm drains installed in streets by the subdivider or by any utility company shall be constructed prior to the surfacing of the streets. Stubs for service connections for underground utilities and sanitary sewers shall be placed to a length obviating the necessity for disturbing the street improvements when service connections are made.

E. A digital and mylar map showing all public improvements as built shall be filed with the City Engineer upon completion of the improvements. (Ord. 1408, 1998)

Applicant's All improvements will be installed in conformance with the requirements of this title.

Finding: The requirements of this section have been satisfied.

**DIVISION 9. ADMINISTRATIVE PROCEDURES
CHAPTER 99 PROCEDURES FOR DECISION MAKING: QUASI-JUDICIAL**

99.030 APPLICATION PROCESS: WHO MAY APPLY, PRE-APPLICATION CONFERENCE, REQUIREMENTS, REFUSAL OF APPLICATION, FEES

A. Who may apply.

1. Applications for approval required under this chapter may be initiated by:

- a. The owner of the property that is the subject of the application or the owner's duly authorized representative;**
- b. The purchaser of such property who submits a duly executed written contract or copy thereof, which has been recorded with the Clackamas Clerk;**
- c. A lessee in possession of such property who submits written consent of the owner to make such application; or**
- d. Motion by the Planning Commission or City Council.**

2. Any person authorized by this chapter to submit an application for approval may be represented by an agent who is authorized in writing by such a person to make the application.

Applicant's The owner of the property is initiating this application for approval.

Finding: The requirements of this section have been satisfied.

B. Pre-application conferences.

1. Subject to subsection (B)(4) of this section, a pre-application conference is required for, but not limited to, *I. land divisions.**

Applicant's A pre-application meeting was held September 3, 2015.

Finding: The requirements of this section have been satisfied.

C. The requirements for making an application.

1. The application shall be made on forms provided by the Director as provided by CDC 99.040(A)(1);

2. The application shall be complete and shall contain the information requested on the form, shall address the appropriate submittal requirements and approval criteria in sufficient detail for review and action, and shall be accompanied by the deposit or fee required by CDC 99.033. No application will be accepted if not accompanied by the required fee or deposit. In the event an additional deposit is required by CDC 99.033 and not provided within the time required, the application shall be rejected without further processing or deliberation and all application materials shall be returned to the applicant, notwithstanding any determination of completeness. (Ord. 1527, 2005; Ord. 1568, 2008; Ord. 1590 § 1, 2009; Ord. 1599 § 6, 2011)

Applicant's This application has been made on forms provided by the City's Planning Department.
Finding: The application contains the necessary information and the required fee.

The requirements of this section have been satisfied.

99.033 FEES

The Council shall adopt a schedule of fees reasonably calculated to defray the expenses of the administrative process. The Council may establish either a set fee or a deposit system in which the applicant pays a deposit and the City determines the total administrative cost at the end of the process and refunds any unused amount of the deposit to the applicant. No additional deposit shall be required for additional costs that are incurred because the matter is referred to or called up by a higher decision-making authority. The Council shall charge no fees for City-initiated land use applications or appeals filed by a recognized neighborhood association pursuant to the provisions of CDC 99.240. (Ord. 1527, 2005; Ord. 1568, 2008; Ord. 1604 § 70, 2011)

Applicant's The required fee was submitted with the land use application.
Finding: The requirements of this section have been satisfied.

99.038 NEIGHBORHOOD CONTACT REQUIRED FOR CERTAIN APPLICATIONS

Prior to submittal of an application for any subdivision, conditional use permit, multi-family project, planned unit development of four or more lots, non-residential buildings of over 1,500 square feet, or a zone change that requires a Comprehensive Plan amendment, the applicant shall contact and discuss the proposed development with any affected neighborhood as provided in this section. Although not required for other or smaller projects, contact with neighbors is highly recommended. The Planning Director may require neighborhood contact pursuant to this section prior to the filing of an application for any other development permit if the Director deems neighborhood contact to be beneficial.

A. Purpose. The purpose of neighborhood contact is to identify potential issues or conflicts regarding a proposed application so that they may be addressed prior to filing. This contact is intended to result in a better application and to expedite and lessen the expense of the review process by avoiding needless delays, appeals, remands, or denials. The City expects an applicant to take the reasonable concerns and recommendations of the neighborhood into consideration when preparing an application. The City expects the neighborhood association to work with the applicant to provide such input.

B. The applicant shall contact by letter all recognized neighborhood associations whose boundaries contain all or part of the site of the proposed development and all property owners within 500 feet of the site.

C. The letter shall be sent by to the president of the neighborhood association, and to one designee as submitted to the City by the neighborhood association, and shall be sent by regular mail to the other officers of the association and the property owners within 500 feet. If another neighborhood association boundary is located within the 500-foot notice radius, the letter shall be sent to that association's president, and to one designee as submitted to the City by the neighborhood association as well. The letter shall briefly describe the nature and location of the proposed development, and invite the association and interested persons to a meeting to discuss the proposal in more detail. The meeting shall be scheduled at the association's regularly scheduled monthly meeting, or at another time at the discretion of the association, and not less than 20 days from the date of mailing of the notice. If the meeting is scheduled as part of the association's regular monthly meeting, the letter shall explain that the proposal may not be the only topic of discussion on the meeting agenda. The letter shall encourage concerned citizens to contact their association president, or their association designee, with any questions that they may want to relay to the applicant.

Neighborhood contact shall be initiated by the applicant by mailing the association president, and to one designee as submitted to the City by the neighborhood association, a letter, return receipt requested, formally requesting, within 60 days, a date and location to have their required neighborhood meeting. The 60 days shall be calculated from the date that the applicant mails this letter to the association. If the neighborhood association does not want to meet within the 60-day timeframe, or if there is no neighborhood association, the applicant may hold a public meeting during the evening after 6:00 p.m., or on the weekend no less than 20 days from the date of mailing of the notice. All meetings shall be held at a location open to the public within the boundaries of the association or at a public facility within the City of West Linn. If the meeting is held at a business, it shall be posted at the time of the meeting as the meeting place and shall note that the meeting is open to the public and all interested persons may attend.

D. On the same date the letters described in subsections A through C of this section are mailed, the applicant shall provide and post notice on the property subject to the proposed application. The notice shall be posted at a location visible from the public right-of-way. If the site is not located adjacent to a through street, then an additional sign shall be posted on the nearest through street. The sign notice shall be at least 11 inches by 17 inches in size on durable material and in clear, legible writing. The notice shall state that the site may be subject to a proposed development (e.g., subdivision, variance, conditional use) and shall set forth the name of the applicant and a telephone number where the applicant can be reached for additional information. The site shall remain posted until the conclusion of the meeting.

E. An application shall not be accepted as complete unless and until the applicant demonstrates compliance with this section by including with the application:

- 1. A copy of the certified letter to the neighborhood association with a copy of return receipt;**
- 2. A copy of the letter to officers of the association and to property owners within 500 feet, including an affidavit of mailing and a copy of the mailing list containing the names and addresses of such owners and residents;**
- 3. A copy of the required posted notice, along with an affidavit of posting;**

4. A copy of the minutes of the meetings, produced by the neighborhood association, which shall include a record of any verbal comments received, and copies of any written comments from property owners, residents, and neighborhood association members. If there are no minutes, the applicant may provide a summary of the meeting comments. The applicant shall also send a copy of the summary to the chair of the neighborhood association. The chair shall be allowed to supplement the summary with any additional comments regarding the content of the meeting, as long as such comments are filed before the record is closed;

5. An audiotape of the meeting; and

6. In the event that it is discovered by staff that the aforementioned procedures of this section were not followed, or that a review of the audio tape and meeting minutes show the applicant has made a material misrepresentation of the project at the neighborhood meeting, the application shall be deemed incomplete until the applicant demonstrates compliance with this section. (Ord. 1425, 1998; Ord. 1474, 2001; Ord. 1568, 2008; Ord. 1590 § 1, 2009)

Applicant's Finding: This section requires the applicant to contact and discuss the proposed development with any affected neighborhood as provided in this section.

A meeting was held with the Robinwood and Skyline Ridge Neighborhood Associations on August 11, 2015. The meeting was scheduled and noticed per the requirements of this section, and the required neighborhood meeting documentation is submitted with this application. The applicant provided renderings and information regarding the proposed subdivision and answered all questions asked by the members of the neighborhood association.

The requirements of this section have been satisfied.

SUMMARY AND CONCLUSION

Based upon the materials submitted herein, the Applicant respectfully requests that the City's Planning Commission approve this 34-lot subdivision and water resource area permit.



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

December 7, 2015

State Land Board

1800 Midhill Drive LLC
Attn: David Chiddix
1235 North Dutton Avenue, Suite E
Santa Rosa, CA 95401

Kate Brown
Governor

Jeanne P. Atkins
Secretary of State

Re: WD #2015-0463 Wetland Delineation Report for the
Reeseaman Property, Clackamas County;
T 2S R 1E S 14CA TL 200

Ted Wheeler
State Treasurer

Dear Mr. Chiddix:

The Department of State Lands has reviewed the wetland delineation report prepared by Schott and Associates for the site referenced above. Based upon the information presented in the report, a site visit on December 4, 2015, and additional information submitted upon request, we concur with the wetland and waterway boundaries as mapped in Figure 6 of the report. Within the study area, two wetlands (totaling approximately 0.9 acres) and one excavated waterway were identified.

The wetlands 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 wetlands. In addition, the excavated waterway is exempt per OAR 141-085-0515 (8); therefore, it is not subject to these state permit requirements.

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 Department may result in a change in jurisdiction; individuals and applicants are subject 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.

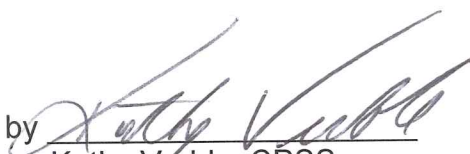
Thank you for having the site evaluated. Please phone me at 503-986-5232 if you have any questions.

Sincerely,



Peter Ryan, PWS
Jurisdiction Coordinator

Approved by



Kathy Verble, CPSS
Aquatic Resource Specialist

Enclosures

ec: Cari Cramer, Schott and Associates
City of West Linn Planning Department (Map enclosed for updating LWI)
Dominic Yballe, Corps of Engineers
Melinda Butterfield, DSL

WD2015-0463

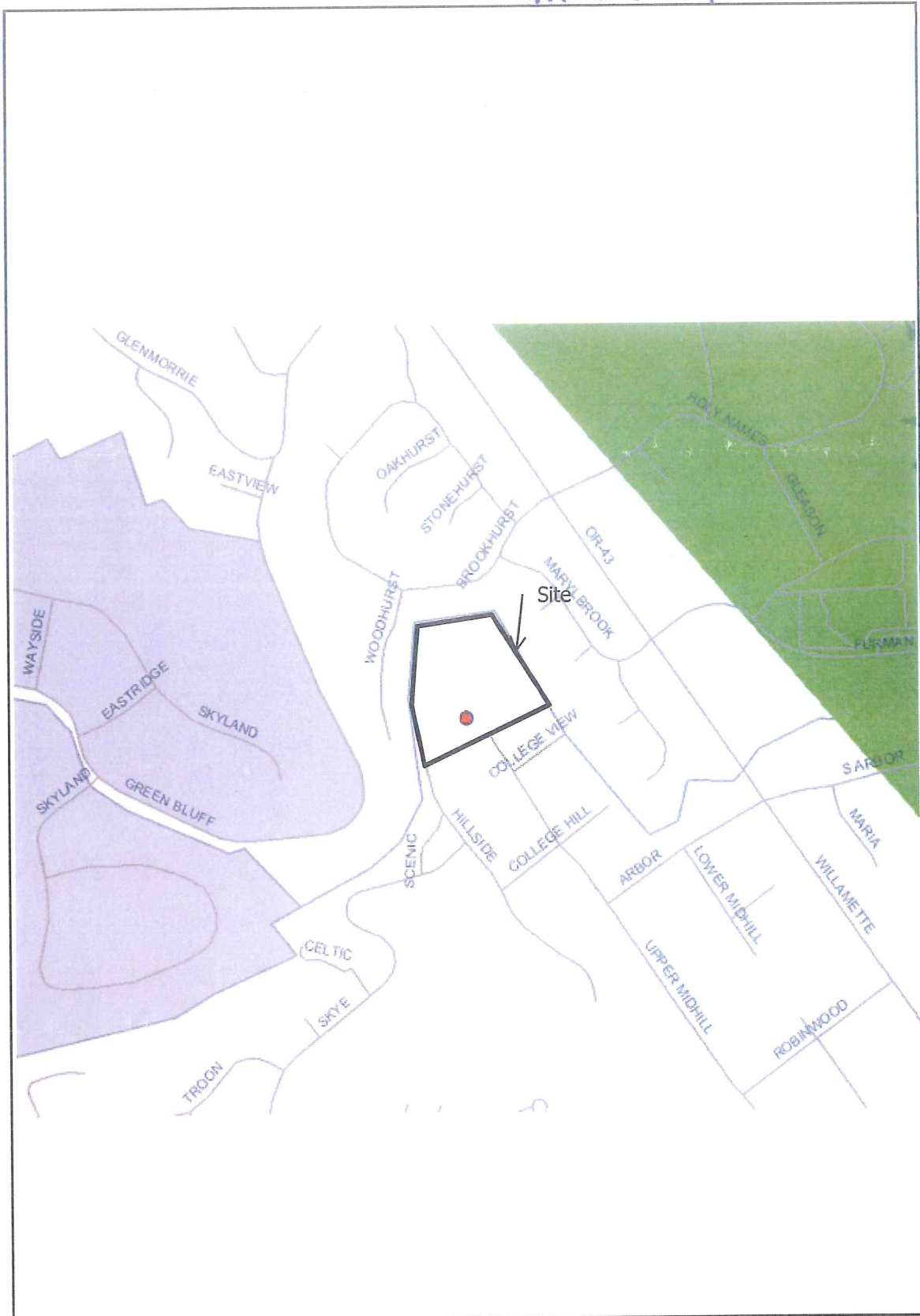
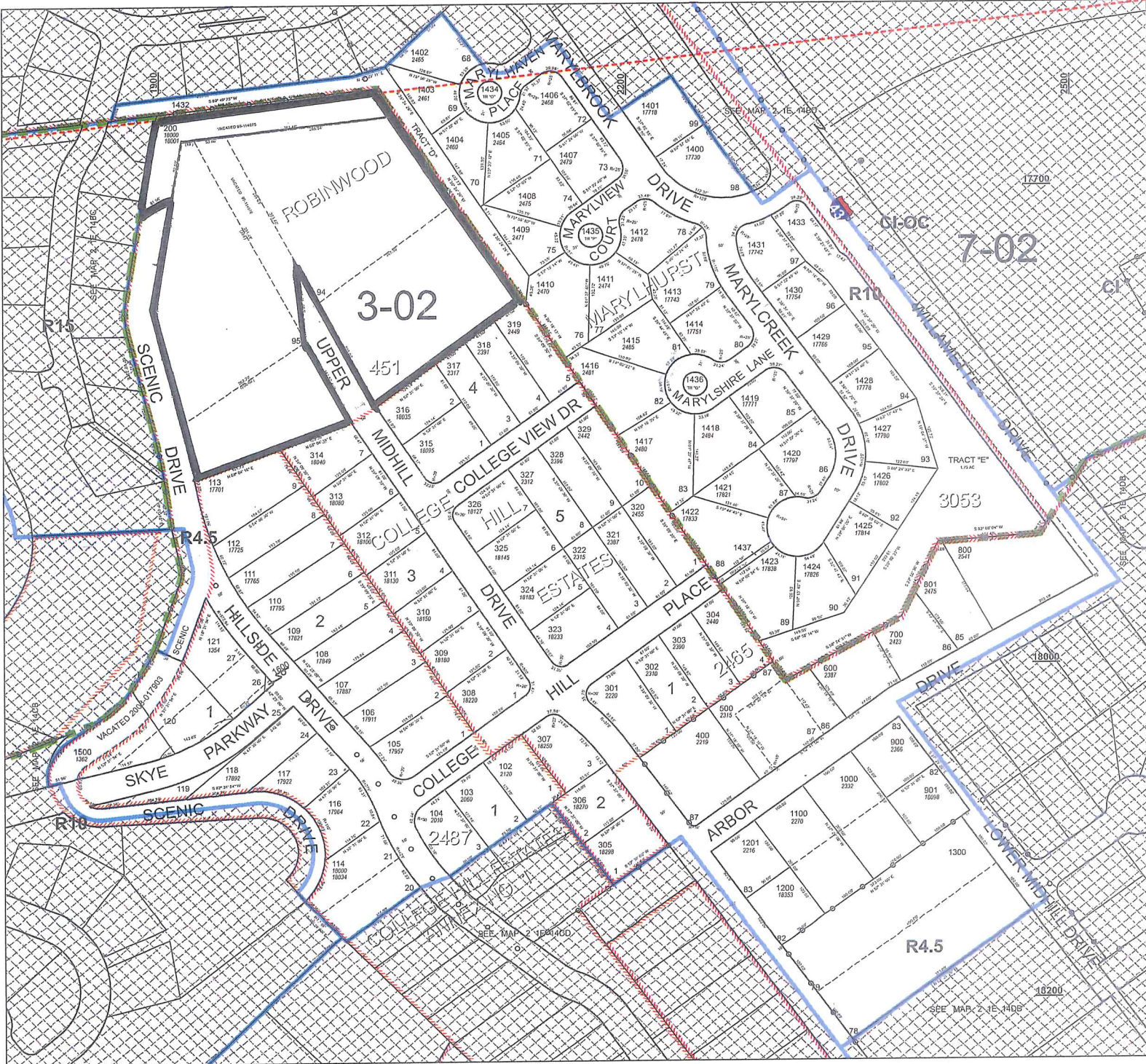


Figure 1: Location Map
Reese Property
S&A 2373

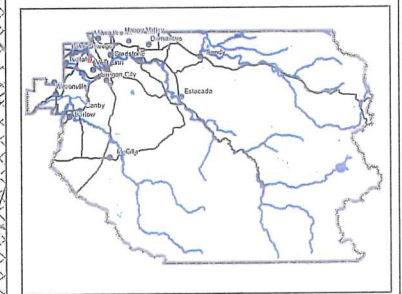
Schott & Associates
P.O. Box 589
Aurora, OR. 97002
503.678.6007

Cancelled Taxlots

101
300
100
122
123



- Parcel Boundary
- - - Private Road ROW
- - - Historical Boundary
- Railroad Centerline
- TaxCodeLines
- Map Index
- WaterLines
- Land Use Zoning
- Plats
- Water
- Corner
- Section Corner
- 1/16th Line
- Govt Lot Line
- DLC Line
- Meander Line
- PLSS Section Line
- Historic Corridor 40'
- Historic Corridor 20'



THIS MAP IS FOR ASSESSMENT
PURPOSES ONLY





Title Department
12909 SW 68th Pkwy, Suite 350
Portland, OR 97223
Phone (503) 431-8500 Fax (503) 684-2978

PROPERTY INFORMATION REPORT

Date: June 17, 2015

File No.: 15010153
Property Address: 18000 Upper Midhill Drive, West Linn, OR 97068

Tamarack Development
Ryan Zygar
6140 SW Macadam Avenue
Portland, OR 97239

REPORT FEE: \$200.00

The information contained in this report is furnished by WFG National Title Insurance Company (the "Company") as an information service based on the records and the indices maintained by the Company for the county identified below. This report does not constitute title insurance and is not to be construed or used as a commitment for title insurance. The Company assumes and shall have no liability whatsoever for any errors or inaccuracies in this report. In the event any such liability is ever asserted or enforced, such liability shall in no event exceed a maximum of \$250. No examination has been made of the Company's records, other than as specifically set forth in this report.

The effective date of this report is June 15, 2015

REPORT FINDINGS

A. The land referred to in this report is located in the county of Clackamas State of Oregon, and is described as follows:

SEE ATTACHED EXHIBIT "A"

B. As of the Effective Date and according to the last deed of record, we find the title to the land to be vested as follows:

18000 Midhill Drive, LLC, a Delaware limited liability company

C. As of the Effective Date and according to the Public Records, the Land is subject to the following liens and encumbrances, which are not necessarily shown in the order of priority:

1. City liens, if any, of the City of West Linn.
2. Easement for utilities over and across the premises formerly included within the boundaries of Scenic Drive and Upper Midhill Drive now vacated, if any such exist.
3. Conditions and Restrictions, including the terms and provisions thereof, established by City of West Linn:

Ordinance No.	:	1430
Recorded	:	December 14, 1999
Recording No.	:	99-114675
4. Conditions and Restrictions, including the terms and provisions thereof, established by City of West Linn:

Ordinance No.	:	1429
Recorded	:	December 14, 1999
Recording No.	:	99-114676

5. Any conveyance or encumbrance by 18000 Midhill Drive, LLC, a Delaware limited liability company should be executed in accordance with the Operating Agreement of said Company.

NOTE: Please be advised that we have searched the records and do not find any open Deeds of Trust. If you should have knowledge of an outstanding obligation, please contact the Title Department for further review.

NOTE: Taxes paid in full for 2014-2015
Levied Amount : \$6,817.48
Property ID No. : 00302121
Levy Code : 003-002
Map Tax Lot No. : 21E14CA-00200

NOTE: In no event shall WFG National Title have any liability for the tax assessor's imposition of any additional assessments for omitted taxes unless such taxes have been added to the tax roll and constitute liens on the property as of the date of closing. Otherwise, such omitted taxes shall be the sole, joint and several responsibility of seller(s) and buyer(s), as they may determine between themselves.

NOTE: The following is provided for informational purposes only:

We find the following Deed(s) recorded on said property in the past 24 months:

Document type : Warranty Deed
Grantor : The Patricia L. Reesman Family Limited Partnership, LLP
Grantee : 18000 Midhill Drive, LLC, a Delaware limited liability company
Recorded : April 30, 2015
Recording No. : 2015-24754

NOTE: We find NO judgments or Federal Tax Liens against 18000 Midhill Drive, LLC, a Delaware limited liability company.

NOTE: The Oregon Corporation Commission disclosed that 18000 Midhill Drive, LLC, a Delaware limited liability company, registered to do business in Oregon:

Filed in Oregon : April 29, 2015
Registered Agent (OR) : Ryan Zygar
Filed in Delaware : April 27, 2015
Registered Agent (DE) : The Corporation Trust Company

NOTE: The following applicable recording fees will be charged by the county:

Multnomah County-First Page \$46.00
Washington County-First Page \$41.00
Clackamas County-First Page \$53.00
Each Additional Page \$ 5.00
Non-standard Document Fee \$20.00
E-recording Fee \$ 5.00

EXHIBIT "A"

Tracts 93, 94 and 95, Robinwood and part of Tract 96, Robinwood, in the Gabriel Walling Donation Land Claim, in Township 2 South, Range 1 East, Willamette Meridian, in the City of West Linn, County of Clackamas and State of Oregon, more particularly described as follows:

Beginning at the Southeast corner of said Tract 96; thence Northwesterly along the Easterly boundary of said Tract 96, a distance of 78.5 feet to an angle point in the Westerly right of way line of Arbor Drive and the true point of beginning of the tract to be described; thence Northwesterly along the Easterly boundary of said Tract 96, a distance of 155.0 feet to the Northeast corner of said Tract 96; thence Southwesterly 262.2 feet to the Northwest corner of said Tract 96, said corner lying on the Easterly boundary of Scenic Drive; thence Southerly along the Easterly boundary of said Scenic Drive 81.0 feet to a point; thence Easterly 300.44 feet, more or less, to the true point of beginning of the tract herein described.

Together with that portion of Scenic Drive vacated by City of West Linn Ordinance No. 1430, recorded December 14, 1999 as Fee No. 99-114675, which by law inures.

And together with that portion of Upper Midhill Drive vacated by City of West Linn Ordinance No. 1429, recorded December 14, 1999 as Fee No. 99-114676, which by law inures.



KITTELSON & ASSOCIATES, INC.

TRANSPORTATION ENGINEERING / PLANNING

610 SW Alder Street, Suite 700, Portland, OR 97205 P 503.228.5230 F 503.273.8169

MEMORANDUM

Date: January 29, 2016

Project #: 18758.0

To: Khoi Le, City of West Linn
 Avi Tayar, Oregon Department of Transportation, Region 1

CC: Ryan Zygar, Chene Blanc Estates, LLC

From: Matt Bell, Anthony Yi, and Alexander Kado

Project: Chene Blanc Estates Residential Development

Subject: Transportation Impact Analysis



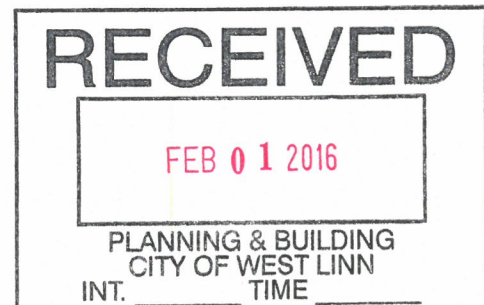
This memorandum summarizes the results of a transportation impact analysis prepared for the proposed Chene Blanc Estates residential development located at the northern terminus of Upper Midhill Drive in West Linn, Oregon. Figure 1 illustrates the site vicinity map. The proposed development plan includes 34 single-family residential homes located along an extension of Upper Midhill Drive that connects to Hillside Drive to the west. Figure 2 illustrates the conceptual site plan. Construction of the proposed development is expected to occur in 2015 with full build-out and occupancy in 2016.

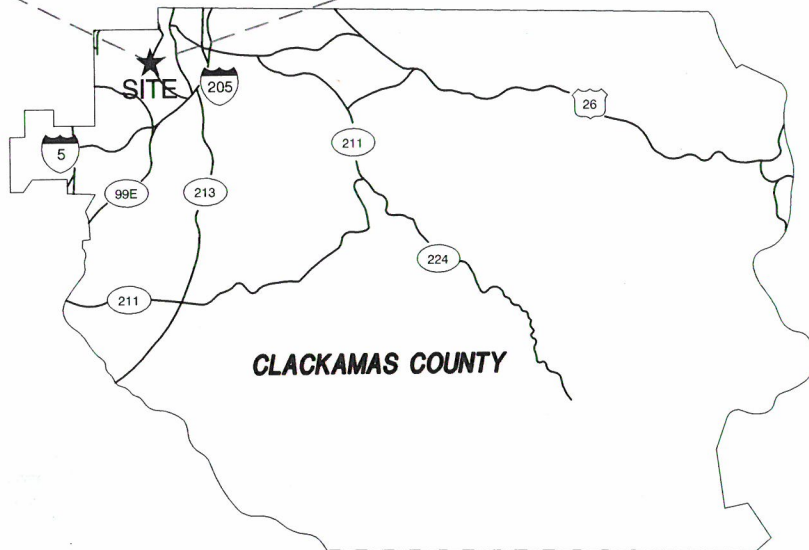
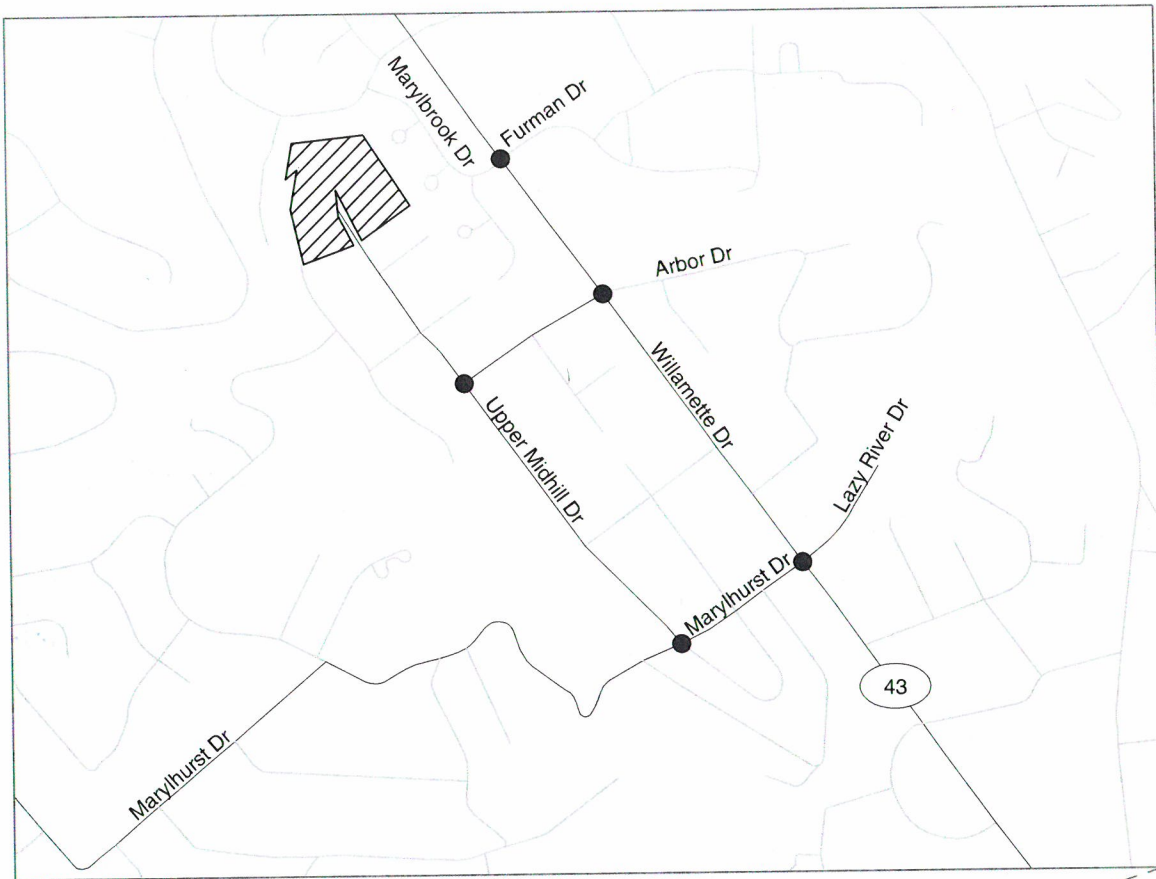
The results of this analysis indicate that the proposed development can be constructed while maintaining safe and acceptable traffic operations at the study intersections assuming provision of the recommended mitigation measures. Additional details of the study methodology, findings, and recommendations are provided herein.

SCOPE OF THE REPORT

This analysis determines the transportation-related impacts associated with the proposed Chene Blanc Estates residential development and was prepared in accordance with the City of West Linn and Oregon Department of Transportation Department (ODOT) requirements for transportation impact analyses. The study intersections and scope of this project were selected in coordination with City and ODOT staff. The operational analyses were performed at the following study intersections:

- Willamette Drive (OR 43)/Marylbrook Drive
- Willamette Drive (OR 43)/Arbor Drive
- Willamette Drive (OR 43)/Marylhurst Drive
- Upper Midhill Drive/Arbor Drive
- Upper Midhill Drive/Marylhurst Drive



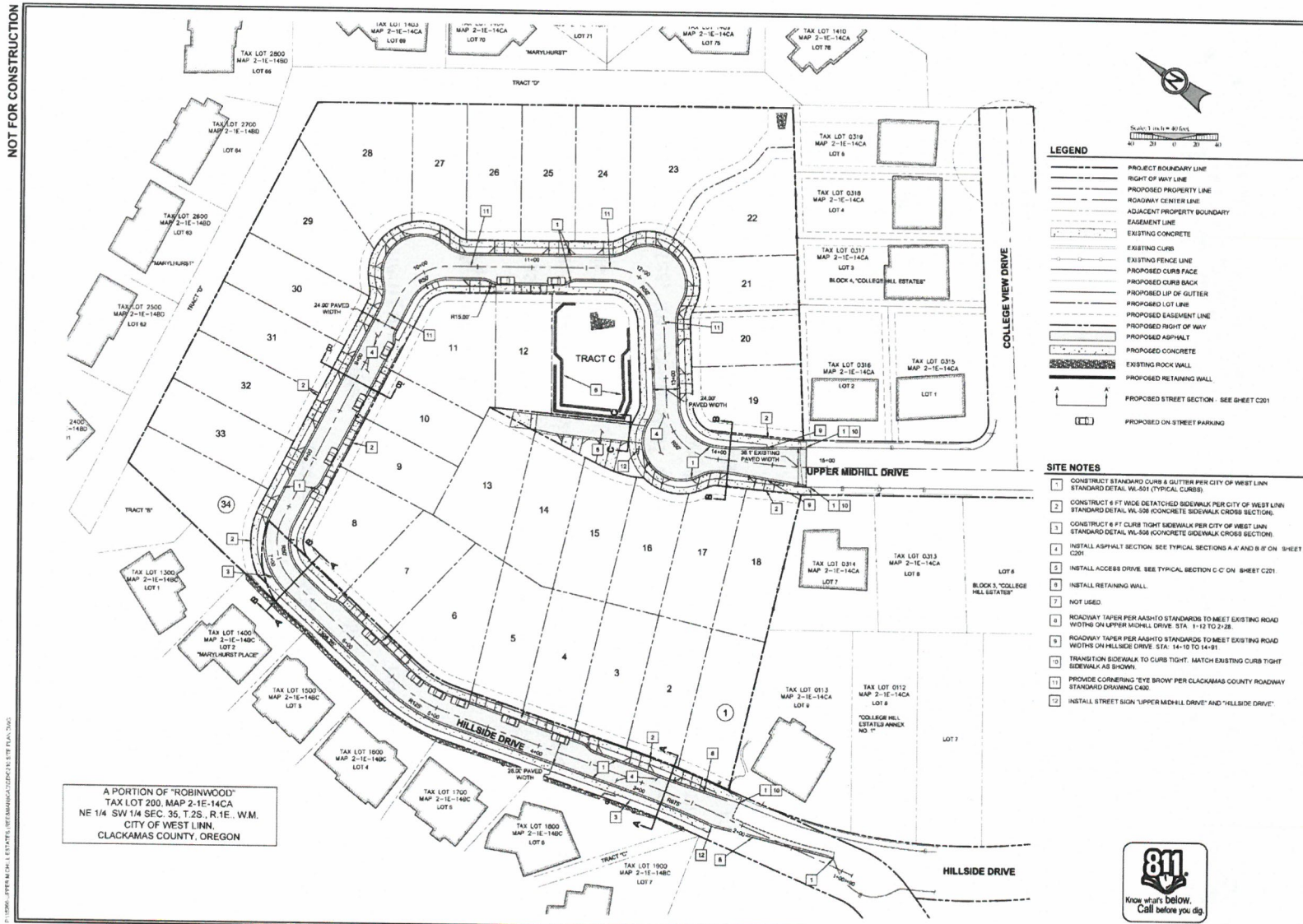


● - Study Intersections

Site Vicinity Map
West Linn, OR

Figure
1

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DESIGN REVIEW
DATE
BY
PROJECT NUMBER

PRELIMINARY SITE PLAN
CHENE BLANC ESTATES
LAND USE DOCUMENTS
1800 UPPER MIDHILL DRIVE, LLC
WEST LINN, OR



M-JOB O # 11226
LAW/LIC # 1182
TAX LOT # 1202-1400-0002
DESIGNED BY: J. P. CHAN, J.P.
CHECKED BY: J. P.
SHEET TITLE: **SITE PLAN**
SHEET NUMBER: **C210**



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RECEIVED: 2016-01-13

Conceptual Site Plan
West Linn, OR
Figure
2

This report evaluates these transportation issues:

- Year 2015 existing land-use and transportation-system conditions within the site vicinity during the weekday a.m. and p.m. peak periods;
- Developments and transportation improvements planned in the study area;
- Year 2016 background traffic conditions (without the proposed development) during the weekday a.m. and p.m. peak periods;
- Trip generation and distribution estimates for the proposed development; and
- Year 2016 total traffic conditions (with full build-out and occupancy of the proposed development) during the weekday a.m. and p.m. peak periods.

EXISTING CONDITIONS

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

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

SITE CONDITIONS AND ADJACENT LAND USES

The proposed development site is located within the West Linn city limits, is currently vacant, and is zoned for medium density residential. The adjacent land uses include single family residential homes and a small city park located further south along Upper Midhill Drive.

TRANSPORTATION FACILITIES

Table 1 summarizes the characteristics of the transportation facilities within the site vicinity.

Table 1: Existing Transportation Facilities

Roadway	Functional Classification ¹	Number of Lanes	Posted Speed (mph)	Sidewalks	Bicycle Lanes	On-Street Parking
Willamette Drive (OR 43)	Principal Arterial	2	35	Partial	Yes	No
Upper Midhill Drive	Local Street	2	25	Partial	No	Yes
Arbor Drive	Local Street	2	25	No	No	No
Marylhurst Drive	Collector	2	25	No	No	No

1. City of West Linn Transportation System Plan (TSP – Reference 1).

Roadway Facilities

Willamette Drive is the major north-south arterial within the City of West Linn providing access to the cities of Lake Oswego and Portland to the north, and Oregon City to the south. Marylhurst Drive is an east-west collector, which provides access to Willamette Drive via a signalized intersection. Arbor Drive is an east-west local street that provides access to Willamette Drive via a two-way stop-control intersection. Upper Midhill Drive is a north-south local street that connects the proposed development to Arbor Drive and Marylhurst Drive. The segment of Upper Midhill Drive located south of Arbor Drive is relatively narrow; however, two vehicles can pass each other on the roadway. Also, should redevelopment occur along Upper Midhill Drive, it is assumed the roadway will be improved to the City's local street standard. Figure 3 illustrates the existing lane configurations and traffic control devices at the study intersections.

Pedestrian and Bicycle Facilities

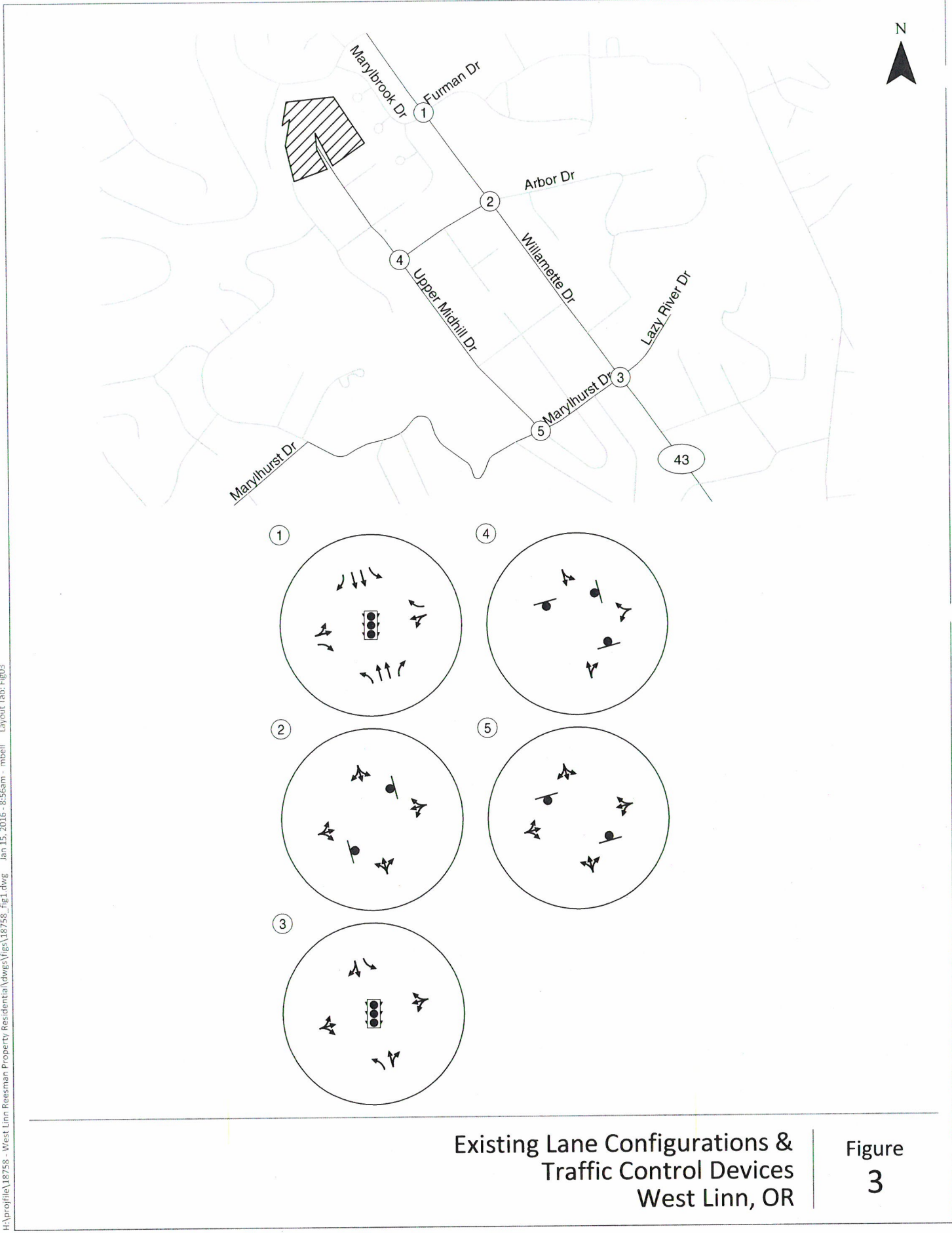
Sidewalks are limited within the site vicinity to segments of Upper Midhill Drive located north of Arbor Drive and segments of Willamette Drive located north and south of Marylhurst Drive. Crosswalks are provided at the Willamette Drive/Marylhurst Drive and Willamette Drive/Marylbrook intersections, which are signalized with pedestrian pushbuttons and countdown signal heads. Bike lanes are provided within the site vicinity to Willamette Drive, which provides continuous bike lanes north and south of the proposed development.

Transit Facilities

Local transit service is provided within the site vicinity by TriMet. TriMet Line 35 provides frequent service along Willamette Drive, Monday through Friday from 6:00 a.m. to 12:00 a.m. on 15-30 minute headways. Limited service is provided on Saturdays and Sundays. Line 35 serves two stops located adjacent to Arbor Drive (Stop 6301 and 6302) and two stops located adjacent to Marylhurst Drive (Stop 9216 and 6337). The stops located adjacent to Arbor Drive are not supported by sidewalks or crosswalks, while the stops located adjacent to Marylhurst Drive have sidewalks and a signalized crossing at the Willamette Drive/Marylhurst Drive intersection.

TRAFFIC VOLUMES AND PEAK HOUR OPERATIONS

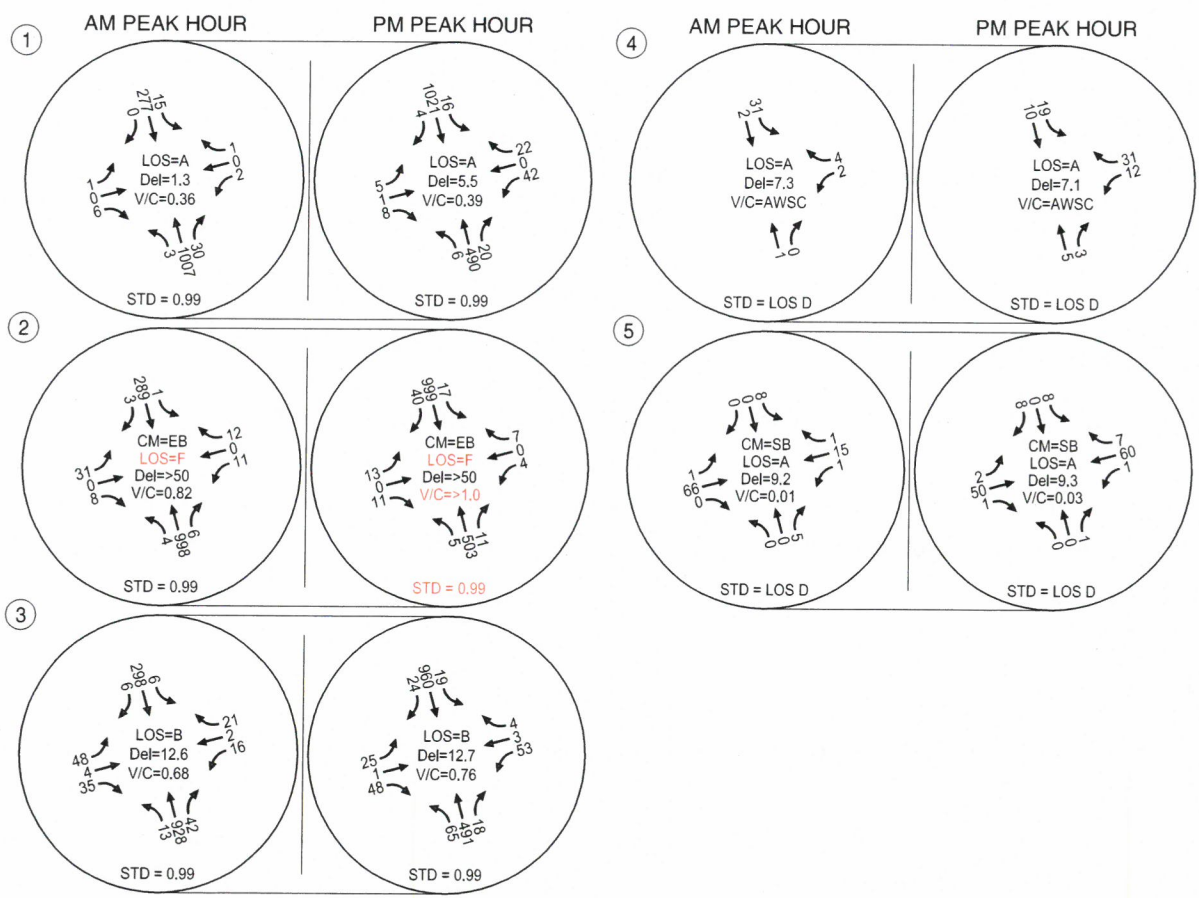
Manual turning movement counts were conducted at the study intersections in June 2015. All the counts were conducted on a typical mid-week day during the morning (7:00 to 9:00 a.m.) and evening (4:00 to 6:00 p.m.) peak time periods. The system-wide morning and evening peak hours were found to occur between 7:00 and 8:00 a.m. and 4:40 and 5:40 p.m., respectively. Figure 4 provides a summary of the year 2015 turning-movement counts for the weekday a.m. and p.m. peak hours. The traffic counts shown in Figure 4 were seasonally adjusted to 30th Highest Hour Volumes (30HV) in accordance with the methodology outlined in the ODOT Analysis Procedures Manual (APM – Reference 2). *Appendix "A" contains the traffic count worksheets used in this study.*



Existing Lane Configurations &
Traffic Control Devices
West Linn, OR

Figure
3

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Existing Traffic Conditions
 Weekday AM & PM Peak Hour
 West Linn, OR

Figure
 4

CM = CRITICAL MOVEMENT (TWSC)
 LOS = INTERSECTION LEVEL OF SERVICE (SIGNALIZED/AWSC) /
 CRITICAL MOVEMENT LEVEL OF SERVICE (TWSC)
 Del = INTERSECTION AVERAGE CONTROL DELAY (SIGNALIZED/
 AWSC) / CRITICAL MOVEMENT CONTROL DELAY (TWSC)
 V/C = CRITICAL VOLUME-TO-CAPACITY RATIO
 TWSC = TWO-WAY STOP CONTROL
 AWSC = ALL-WAY STOP CONTROL
 STD = MOBILITY STANDARD

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Current Levels of Service

All level-of-service analyses described in this report were performed in accordance with the procedures stated in the 2000 *Highway Capacity Manual* (HCM – Reference 3). *A description of level of service and the criteria by which they are determined is presented in Appendix “B”.* Appendix “B” also indicates how level of service is measured and what is generally considered an acceptable range.

The City of West Linn requires all signalized and unsignalized intersections to maintain LOS D or better, while ODOT requires all signalized and unsignalized intersections to maintain a v/c ration of 0.99. The City controls the Upper Midhill Drive/Arbor Drive and Upper Midhill Drive/Marylhurst Drive intersections while the ODOT controls the intersections located along Willamette Drive.

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

Figure 4 summarizes the results of the traffic operations analysis at the study intersections under existing traffic conditions. As shown, all of the study intersections currently operate acceptably during the weekday a.m. and p.m. peak hours with the exception of the Willamette Drive/Arbor Drive intersection. Additional information on the operational issues identified at the study intersection is provided below. *Appendix “C” includes the worksheets used to evaluate existing traffic conditions at the study intersections.*

Willamette Drive/Arbor Drive

The eastbound approach to the Willamette Drive/Arbor Drive intersection currently operates at LOS F and above capacity during the weekday p.m. peak hour. This is primarily due to the relatively low volume of eastbound traffic along Arbor Drive conflicting with the relatively high volume of northbound and southbound traffic along Willamette Drive. Potential mitigation measures are identified later in this report.

Traffic Safety

The crash history of the study intersections was reviewed in an effort to identify any potential safety issues. ODOT provided the five most recent years of crash data available for the study intersections, including January 1, 2009 through December 31, 2013. Table 2 summarizes the crash history of the study intersections over the five-year period.

Table 2: Study Intersection Crash Summary (January 1, 2009 – December 31, 2013)

Location	Crash Type						Severity			Total
	Angle	Turn	Rear-End	Side Swipe	Fixed Object	Ped/Bike	PDO	Injury	Fatal	
Willamette Drive/Marylbrook Drive	0	1	1	0	0	1	0	3	0	3
Willamette Drive/Arbor Drive	0	4	5	0	0	0	4	5	0	9
Willamette Drive/Marylhurst Drive	0	1	2	0	0	0	1	2	0	3
Upper Midhill Drive/Arbor Drive	0	0	0	0	0	0	0	0	0	0
Upper Midhill Drive/Marylhurst Drive	0	0	0	0	0	0	0	0	0	0

PDO = Property Damage Only

As shown in Table 2, the Willamette Drive/Arbor Drive intersection experienced the highest number of crashes over the five year period. Further review of the crashes indicates that a majority of the rear-end crashes occurred in the northbound direction when a motorist failed to avoid another slowed or stopped motorist waiting to turn left onto Arbor Drive. Potential mitigation measures are identified later in this report. No other trends or patterns were identified in the crash data that requires mitigation associated with the proposed development. *Appendix "D" contains the crash data obtained from ODOT.*

TRANSPORTATION IMPACT ANALYSIS

The transportation impact analysis identifies how the study area's transportation system will operate in the year the proposed development is expected to be fully built, year 2016. The impact of traffic generated by the proposed development was examined as follows:

- Developments and transportation improvements planned in the site vicinity were identified.
- Year 2016 background traffic conditions (without the proposed development) were analyzed at the study intersections during the weekday a.m. and p.m. peak hours.
 - Background traffic conditions were developed by applying a 1-percent annual growth rate to the existing traffic volumes to account for regional growth in the site vicinity between years 2015 and 2016.
- Site-generated trips were estimated for build-out of the site.
- Site trip-distribution patterns were derived after the existing traffic patterns and the major trip origins and destinations in West Linn and the Metro area.
- Year 2016 total traffic conditions (with full build-out and occupancy of the proposed development) were analyzed at the study intersections during the weekday a.m. and p.m. peak hours.

YEAR 2016 BACKGROUND TRAFFIC CONDITIONS

The year 2016 background traffic conditions analysis identifies how the study area's transportation system will operate without the proposed development. This analysis includes traffic attributed to planned developments within the study area and to general growth in the region, but does not include traffic from the proposed development.

Planned Developments and Transportation Improvements

No planned developments or transportation improvements were identified within the site vicinity that will impact traffic operations under year 2016 traffic conditions.

Traffic Volumes

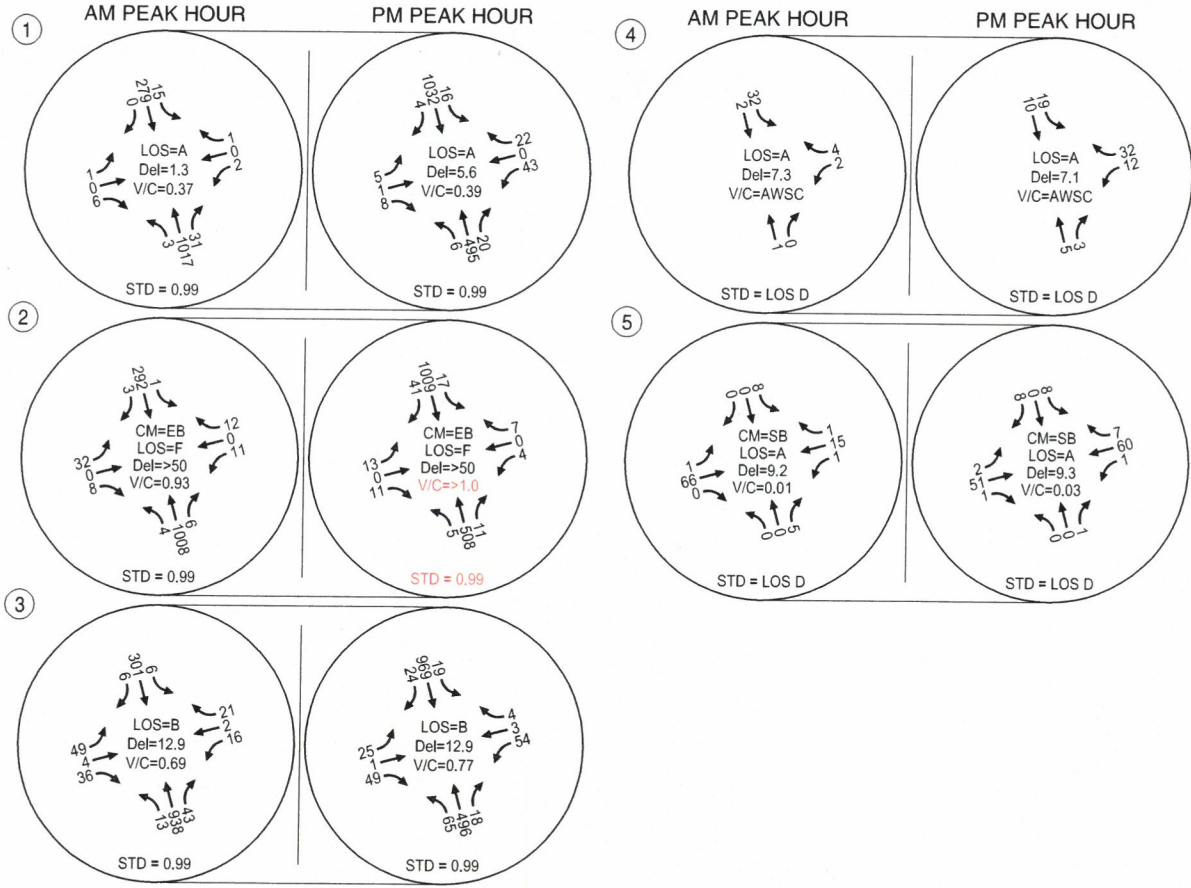
The growth rate used in this analysis was developed based on a review of historical traffic volumes along Willamette Drive and discussions with City staff. Based on the review and discussions, a 1-percent annual growth rate was applied to the existing traffic volumes to account for regional growth between 2015 and 2016. Figure 5 illustrates the resulting forecast year 2016 background traffic volumes during the weekday a.m. and p.m. peak hours.

Intersection Level-of-Service

The traffic volumes shown in Figure 5 were used to conduct an operations analysis at the study intersections under year 2016 background traffic conditions. As shown, all of the study intersections are expected to operate acceptably during the weekday a.m. and p.m. peak hours with the exception of the Willamette Drive/Arbor Drive intersection. Additional information on the operational issues identified at the study intersection is provided below. *Appendix "E" includes the worksheets used to evaluate year 2016 background traffic conditions at the study intersections.*

Willamette Drive/Arbor Drive

The eastbound approach to the Willamette Drive/Arbor Drive intersection is expected to continue to operate at LOS F and above capacity during the weekday p.m. peak hour. Potential mitigation measures are identified later in this report.



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CM = CRITICAL MOVEMENT (TWSC)
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 TWSC = TWO-WAY STOP CONTROL
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 STD = MOBILITY STANDARD

Year 2016 Background Traffic Conditions
 Weekday AM & PM Peak Hour
 West Linn, OR

Figure
 5

PROPOSED DEVELOPMENT PLAN

Chene Blanc Estates, LLC is proposing to develop the 6.14 acre site located at the northern terminus of Upper Midhill Drive. The proposed development plan consists of 34 single-family residential homes located along an extension of Upper Midhill Drive that will connect to Scenic Drive to the west. Construction of the proposed development is expected to occur in 2015 with full build-out and occupancy in 2016.

Trip Generation

A trip generation estimate was prepared for the proposed development based on information provided in the standard reference manual, *Trip Generation*, 9th Edition, published by the Institute of Transportation Engineers (ITE – Reference 4). Table 3 summarizes the trip generation estimate for the daily, weekday a.m. and weekday p.m. peak hours.

Table 3: Trip Generation Estimate

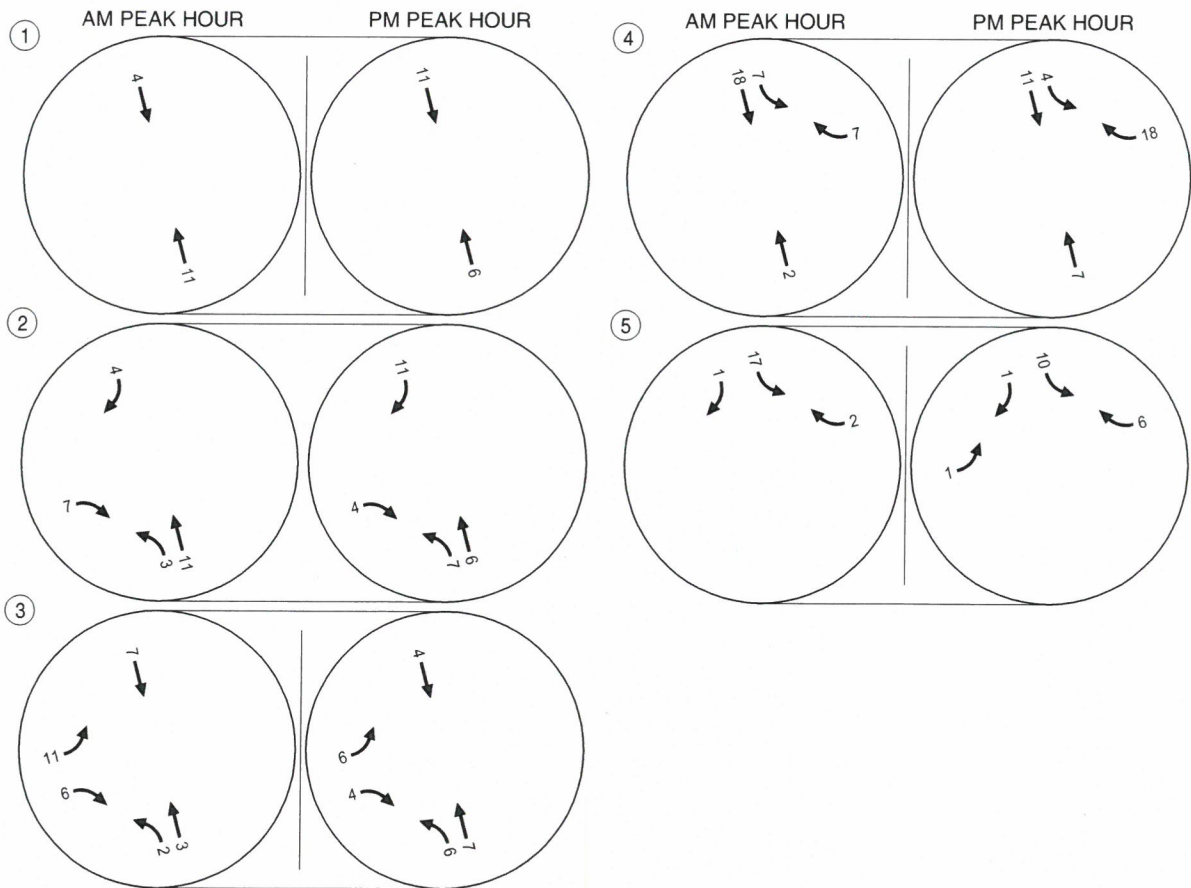
Land Use	ITE Code	Size	Daily Trips	Weekday AM Peak Hour Trips			Weekday PM Peak Hour Trips		
				Total	In	Out	Total	In	Out
Single-Family Homes	210	34 units	389	34	9	25	40	25	15

As shown in Table 3, the proposed development is estimated to generate approximately 389 daily trips, including 34 trips (9 inbound, 25 outbound) during the weekday a.m. peak hour and 40 trips (25 inbound, 15 outbound) during the weekday p.m. peak hour.

Site Trip Distribution/Trip Assignment

The site-generated trips were distributed onto the study area roadway system according to the existing traffic patterns, the location of major trip origins and destinations in West Linn and the Metro area. Figure 6 illustrates the estimated trip distribution pattern for the proposed development.

The site-generated trips were assigned to the network by distributing the trips shown in Table 3 according to the trip distribution pattern shown in Figure 6. Figure 6 also illustrates the site-generated trips that are expected to use the roadway system during the weekday a.m. and p.m. peak hours. As shown, no additional trips were added to the eastbound left-turn movement at the Willamette Drive/Arbor Drive intersection due to the existing and projected future operational issues associated with that movement. It is assumed that all trips from the site headed north on Willamette Drive will use the traffic signal at Willamette Drive/Marylhurst Drive.



Estimated Trip Distribution Pattern & Site Generated Trips
 Weekday AM & PM Peak Hour
 West Linn, OR

Figure
 6

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YEAR 2016 TOTAL TRAFFIC CONDITIONS

The total traffic conditions analysis forecasts how the study area's transportation system will operate with the traffic generated by the proposed development. The year 2016 background traffic volumes shown in Figure 5 were added to the site-generated traffic shown in Figure 6 to arrive at the total traffic volumes shown in Figure 7.

Intersection Level of Service

The traffic volumes shown in Figure 7 were used to conduct an operations analysis at the study intersections under year 2016 total traffic conditions. As shown, all of the study intersections are expected to operate acceptably during the weekday a.m. and p.m. peak hours with the exception of the Willamette Drive/Arbor Drive intersection. Additional information on the operational issues identified at the study intersection is provided below. *Appendix "F" includes the worksheets used to evaluate year 2016 total traffic conditions at the study intersections.*

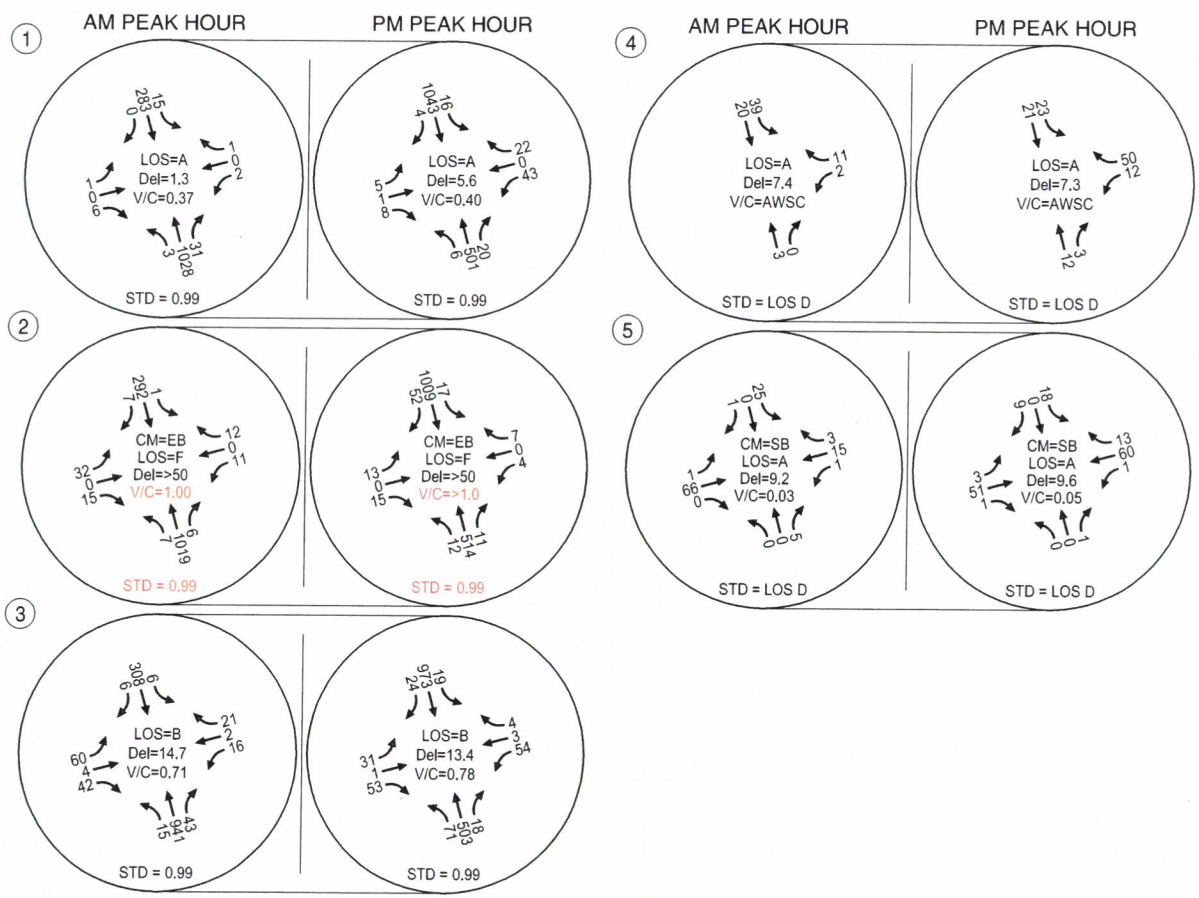
Willamette Drive/Arbor Drive

The eastbound approach to the Willamette Drive/Arbor Drive intersection is expected to operate at LOS F and above capacity during the weekday a.m. and p.m. peak hours under year 2016 total traffic conditions. Potential mitigation measures are identified below.

Mitigation

The provision of a separate northbound left-turn lane at the Willamette Drive/Arbor Drive intersection would provide an incremental improvement in traffic operations over total traffic conditions as well as improve safety by providing separation between the slowed or stopped northbound left-turning vehicles and northbound through vehicles; however, the intersection would continue to operate at LOS F and above capacity during the weekday p.m. peak hour. If, however, the north leg of the intersection were designed to accommodate two-stage left-turn movements from the eastbound approach, the intersection would operate at LOS C during the weekday a.m. and LOS D during the weekday p.m. peak hours and below capacity during both time periods.

Figure 8 summarizes the results of the traffic operations analysis at the study intersection under year 2016 total traffic conditions with the proposed mitigation (with and without the two-stage left-turn capability). Figure 9 illustrates a conceptual design of the proposed mitigation with the two-stage left-turn capability. *Appendix "G" includes the worksheets used to evaluate year 2016 total traffic conditions at the Willamette Drive/Arbor Drive intersection with the proposed mitigation.*

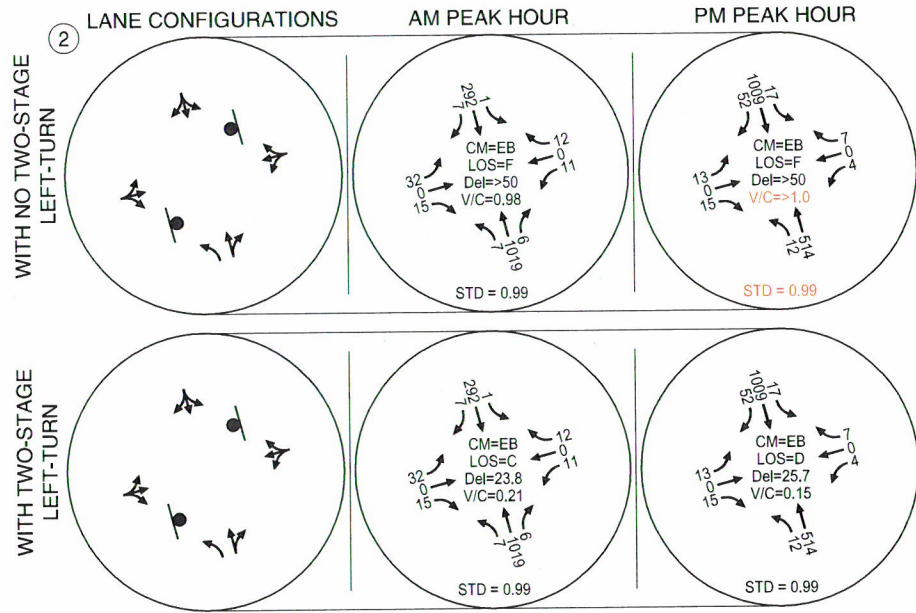


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Year 2016 Total Traffic Conditions
 Weekday AM & PM Peak Hour
 West Linn, OR

Figure
 7

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CM = CRITICAL MOVEMENT (TWSC)
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 Del = INTERSECTION AVERAGE CONTROL DELAY (SIGNALIZED/AWSC) / CRITICAL MOVEMENT CONTROL DELAY (TWSC)
 V/C = CRITICAL VOLUME-TO-CAPACITY RATIO
 TWC = TWO-WAY STOP CONTROL
 AWSC= ALL-WAY STOP CONTROL
 STD = MOBILITY STANDARD

Year 2016 Total Traffic Conditions - Mitigated Weekday AM & PM Peak Hour West Linn, OR

Figure 8

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Highway 43 at Arbor Drive Intersection Concept
West Linn, OR

Figure
9

Proportionate Share

The proposed development will result in a 1.9 percent increase in traffic volumes at the Willamette Drive/Arbor Drive intersection during the weekday a.m. peak hour and a 1.8 percent increase during the weekday p.m. peak hour. Therefore, the cost of the proposed mitigation will likely exceed the proportionate impacts of the proposed development. Section 55.125 of the West Linn Community Development Code (CDC) allows the City to condition mitigation that either addresses or minimizes the impacts of a proposed development. Section 55.100.I.1 allows the City to require construction or contribution of a proportionate share for necessary off-site improvements identified by the transportation analysis. Because the cost of the proposed mitigation will likely exceed the project's share of the impact, we recommend the City collect a proportionate share of the project's impact for use on the future project.

A preliminary cost estimate was developed for the proposed mitigation based unit costs for similar improvements. The cost estimate includes widening on both sides of Willamette Drive (OR 43) to accommodate the separate left turn lane as well as gravel shoulders and drainage, but does not include curb, gutter, and sidewalk. The cost estimate was submitted to the City and is currently in review.

CONCLUSIONS AND RECOMMENDATIONS

The results of the traffic impact analysis indicate that the proposed Chene Blanc Estates residential development can be constructed while maintaining safe and acceptable traffic operations at the study intersection and adjacent roadways assuming provision of the recommended mitigation measures. The findings of this analysis and our recommendations are discussed below.

FINDINGS

Existing Conditions

- All of the study intersections operate acceptably during the weekday a.m. and p.m. peak hours with the exception of the Willamette Drive/Arbor Drive intersection.
 - Mitigation measures have been identified as described below.
- The Willamette Drive/Arbor Drive intersection experienced the highest number of crashes over the five year study period, a majority of which involved vehicles turning to/from the minor street.
 - Mitigation measures have been identified as described below.
 - No other trends or patterns were identified in the crash data that require mitigation associated with this project.
- The segment of Upper Midhill Drive located south of Arbor Drive is relatively narrow; however, two vehicles can pass each other on the roadway. Also, should redevelopment

occur along Upper Midhill Drive, it is assumed the roadway will be improved to the City's local street standard.

Year 2016 Background Traffic Conditions

- No planned developments or transportation improvements were identified within the site vicinity that will impact traffic operations under 2016 traffic conditions.
- All of the study intersections are forecast to operate acceptably during the weekday a.m. and p.m. peak hours with the exception of the Willamette Drive/Arbor Drive intersection.
 - Mitigation measures have been identified as described below.

Proposed Development Plan

- The proposed development will include 34 single family residential homes located along an extension of Upper Midhill Drive.
- The proposed development is estimated to generate approximately 400 daily trips, including 34 trips (9 inbound, 25 outbound) during the weekday a.m. peak hour and 40 trips (25 inbound, 15 outbound) during the weekday p.m. peak hour.

Year 2016 Total Traffic Conditions

- All of the study intersections are forecast to operate acceptably during the weekday a.m. and p.m. peak hours with the exception of the Willamette Drive/Arbor Drive intersection.
 - Mitigation measures have been identified as described below.

RECOMMENDATIONS

The following list summarizes the mitigation measures recommended as part of this proposed development.

- Construct an extension of Upper Midhill Drive consistent with the City's local street standard.
- Shrubbery and landscaping near the internal intersections and site access points should be maintained to ensure adequate sight distance.
- Pay a proportionate share (1.9 percent) of the total cost to construct a separate left-turn lane at the Willamette Drive (OR 43)/Arbor Drive Intersection.

REFERENCES

1. City of West Linn. *Transportation System Plan*. 2008.
2. Oregon Department of Transportation. *Analysis Procedures Manual*. 2015.
3. Transportation Research Board. *Highway Capacity Manual*. 2000.
4. Institute of Transportation Engineers. *Trip Generation, 9th Edition*. 2012.

APPENDIX

- A. Traffic Counts
- B. Description of Level of Service
- C. Existing Traffic Conditions Worksheets
- D. Crash Data
- E. Year 2016 Background Traffic Conditions Worksheets
- F. Year 2016 Total Traffic Conditions Worksheets
- G. Year 2016 Total Traffic Conditions Worksheets - Mitigated

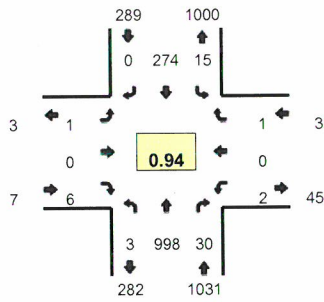
Appendix A Traffic Counts

Type of peak hour being reported: Intersection Peak

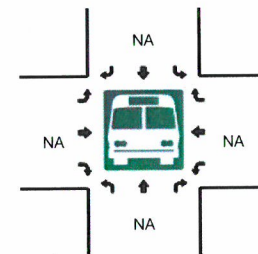
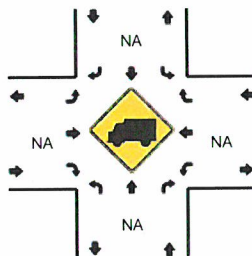
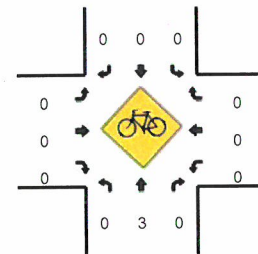
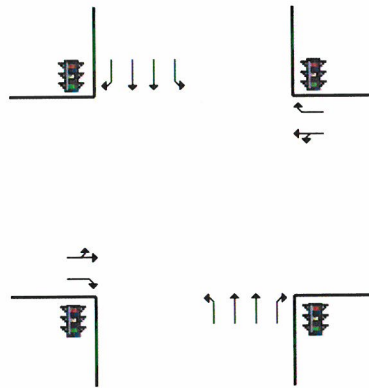
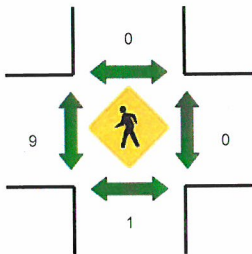
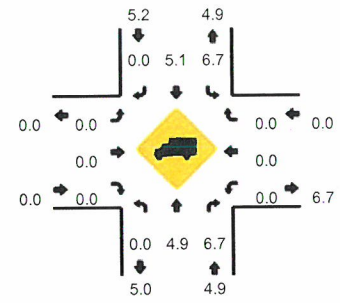
Method for determining peak hour: Total Entering Volume

LOCATION: Willamette Dr (OR 43) -- Marylbrook Dr/Furman Dr
CITY/STATE: Lake Oswego, OR

QC JOB #: 13423109
DATE: Wed, Jun 17 2015



Peak-Hour: 7:00 AM -- 8:00 AM
Peak 15-Min: 7:20 AM -- 7:35 AM



5-Min Count Period	Willamette Dr (OR 43) (Northbound)				Willamette Dr (OR 43) (Southbound)				Marylbrook Dr/Furman Dr (Eastbound)				Marylbrook Dr/Furman 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	78	2	0	0	20	0	0	0	0	1	0	0	0	0	0	101	
7:05 AM	0	90	2	0	0	20	0	0	0	0	0	0	1	0	0	0	113	
7:10 AM	0	79	1	0	1	22	0	0	0	0	0	0	0	1	0	0	104	
7:15 AM	1	76	0	0	1	15	0	0	0	0	1	0	1	0	0	0	95	
7:20 AM	1	89	3	0	0	18	0	0	0	0	0	0	0	0	0	0	111	
7:25 AM	0	95	6	0	3	27	0	0	0	0	1	0	0	0	0	0	132	
7:30 AM	0	81	2	0	1	25	0	0	0	0	0	0	0	0	0	0	109	
7:35 AM	0	79	1	0	0	21	0	0	0	0	1	0	0	0	0	0	102	
7:40 AM	0	91	3	0	3	23	0	0	0	0	0	0	0	0	0	0	120	
7:45 AM	0	90	3	0	1	26	0	0	1	0	1	0	0	0	0	0	122	
7:50 AM	0	68	2	0	1	28	0	0	0	0	1	0	0	0	0	0	100	
7:55 AM	1	82	5	0	4	29	0	0	0	0	0	0	0	0	0	0	121	1330
8:00 AM	0	66	2	0	1	26	0	0	0	0	2	0	0	0	0	0	97	1326
8:05 AM	0	68	1	0	4	22	1	0	0	0	0	0	0	0	1	0	97	1310
8:10 AM	0	60	0	0	0	29	0	0	0	0	0	0	0	0	0	0	89	1295
8:15 AM	0	62	0	0	2	27	0	0	0	0	1	0	0	0	0	0	92	1292
8:20 AM	0	73	3	0	2	26	0	0	0	0	0	0	1	0	0	0	105	1286
8:25 AM	0	57	3	0	1	42	0	0	1	0	0	0	0	0	0	0	104	1258
8:30 AM	1	56	6	0	1	46	0	0	0	0	1	0	1	0	1	0	113	1262
8:35 AM	1	67	5	0	3	35	0	0	0	0	1	0	0	0	0	0	112	1272
8:40 AM	1	49	2	0	2	35	0	0	1	0	0	0	0	0	0	0	90	1242
8:45 AM	0	82	3	0	3	47	1	0	0	0	0	0	1	0	0	0	137	1257
8:50 AM	0	66	3	0	8	39	0	0	0	0	0	0	1	0	1	0	118	1275
8:55 AM	1	65	4	0	7	25	0	0	1	0	1	0	0	0	0	0	104	1258
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	1060	44	0	16	280	0	0	0	0	4	0	0	0	0	0	1408	
Heavy Trucks	0	44	8		4	16	0		0	0	0		0	0	0		72	
Pedestrians		0				0				4				0			4	
Bicycles	0	1	0		0	0	0		0	0	0		0	0	0		1	
Railroad																		
Stopped Buses																		

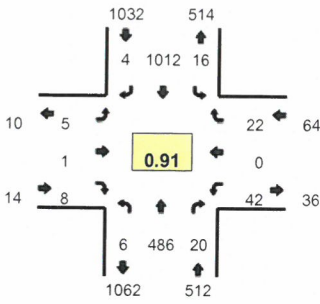
Comments:

Type of peak hour being reported: Intersection Peak

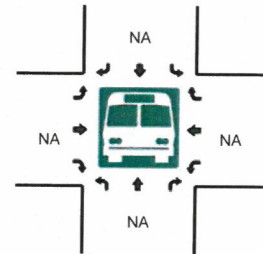
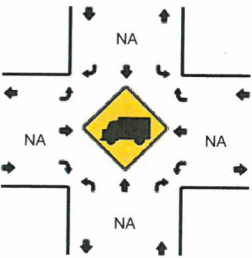
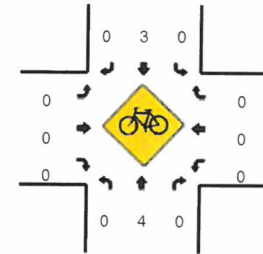
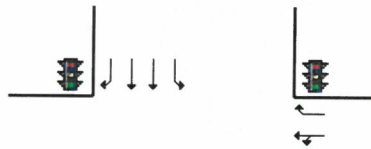
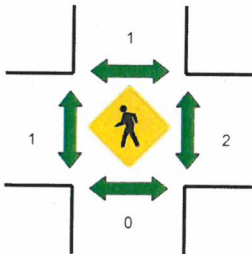
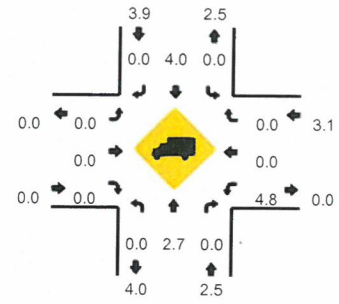
Method for determining peak hour: Total Entering Volume

LOCATION: Willamette Dr (OR 43) -- Marybrook Dr/Furman Dr
CITY/STATE: Lake Oswego, OR

QC JOB #: 13423110
DATE: Wed, Jun 17 2015



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



5-Min Count Period Beginning At	Willamette Dr (OR 43) (Northbound)				Willamette Dr (OR 43) (Southbound)				Marybrook Dr/Furman Dr (Eastbound)				Marybrook Dr/Furman 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	34	1	0	2	43	0	0	0	0	0	0	1	0	1	0	82	
4:05 PM	0	26	2	0	0	47	0	0	0	0	0	0	5	0	4	0	84	
4:10 PM	1	39	0	0	0	39	0	0	0	0	0	0	2	0	1	0	82	
4:15 PM	0	58	2	0	1	32	0	0	0	0	0	0	1	0	2	0	96	
4:20 PM	0	60	3	0	0	35	1	0	0	0	0	0	3	0	2	0	104	
4:25 PM	1	55	1	0	0	32	0	0	0	0	0	1	2	0	1	0	93	
4:30 PM	0	50	1	0	2	57	0	0	1	0	0	0	2	0	0	0	113	
4:35 PM	1	53	1	0	2	46	0	0	0	0	0	0	3	0	3	0	109	
4:40 PM	0	43	1	0	1	92	1	0	0	1	0	0	3	0	2	0	144	
4:45 PM	0	47	3	0	2	96	1	0	0	0	0	0	0	0	2	0	151	
4:50 PM	0	45	6	0	0	94	0	0	0	0	0	0	2	0	2	0	149	
4:55 PM	2	33	2	0	2	92	1	0	1	0	0	0	6	0	1	0	140	1347
5:00 PM	1	43	1	0	1	80	0	1	0	0	1	0	6	0	1	0	135	1400
5:05 PM	0	36	1	0	3	85	0	0	0	0	0	0	9	0	4	0	138	1454
5:10 PM	0	37	2	0	2	69	0	0	1	0	1	0	5	0	4	0	121	1493
5:15 PM	0	41	0	0	0	60	0	0	1	0	2	0	4	0	1	0	109	1506
5:20 PM	2	42	0	0	1	91	0	0	0	0	1	0	2	0	3	0	142	1544
5:25 PM	0	35	3	0	0	84	0	0	0	0	0	0	1	0	0	0	123	1574
5:30 PM	0	47	1	0	3	81	1	0	2	0	1	0	2	0	1	0	139	1600
5:35 PM	1	37	0	0	0	88	0	0	0	0	2	0	2	0	1	0	131	1622
5:40 PM	0	37	2	0	3	83	1	0	0	0	1	0	1	0	5	0	133	1611
5:45 PM	0	33	1	0	2	88	2	0	0	0	0	0	0	0	3	0	129	1589
5:50 PM	0	45	1	0	0	69	0	0	0	0	1	0	2	0	2	0	120	1560
5:55 PM	1	28	3	0	3	71	0	0	0	0	0	0	1	0	3	0	110	1530
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	0	540	40	0	12	1128	8	0	0	4	0	0	20	0	24	0	1776	
Heavy Trucks	0	8	0	0	0	48	0	0	0	0	0	0	4	0	0	0	60	
Pedestrians		0				0				0				0			0	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Railroad																		
Stopped Buses																		

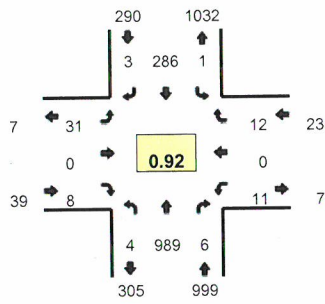
Comments:

Type of peak hour being reported: Intersection Peak

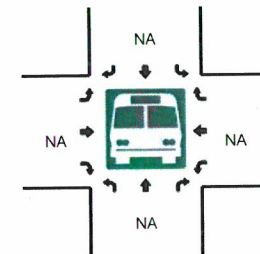
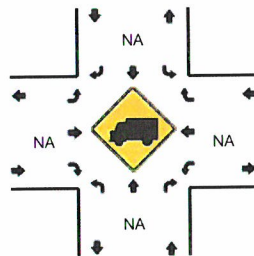
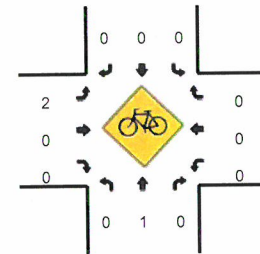
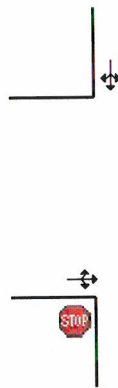
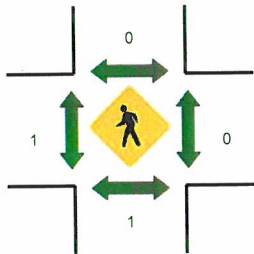
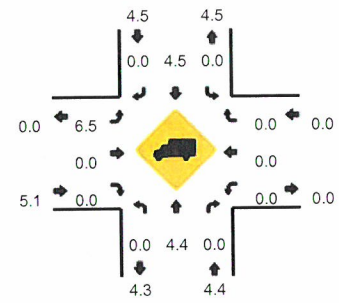
Method for determining peak hour: Total Entering Volume

LOCATION: Willamette Dr (OR 43) -- Arbor Dr
 CITY/STATE: West Linn, OR

QC JOB #: 13423107
 DATE: Wed, Jun 17 2015



Peak-Hour: 7:00 AM -- 8:00 AM
 Peak 15-Min: 7:20 AM -- 7:35 AM



5-Min Count Period	Willamette Dr (OR 43) (Northbound)				Willamette Dr (OR 43) (Southbound)				Arbor Dr (Eastbound)				Arbor 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	80	0	0	0	19	1	0	1	0	0	0	1	0	1	0	103	
7:05 AM	0	89	0	0	0	24	0	0	3	0	1	0	0	0	2	0	119	
7:10 AM	0	80	0	0	0	24	0	0	3	0	0	0	0	0	1	0	108	
7:15 AM	0	73	0	0	0	19	0	0	3	0	0	0	1	0	0	0	96	
7:20 AM	0	96	0	0	0	18	0	0	7	0	0	0	0	0	0	0	121	
7:25 AM	1	98	1	0	0	26	0	0	2	0	2	0	0	0	2	0	132	
7:30 AM	0	86	2	0	0	25	0	0	0	0	0	0	2	0	0	0	115	
7:35 AM	1	74	0	0	0	24	0	0	2	0	0	0	3	0	1	0	105	
7:40 AM	0	84	1	0	0	23	0	0	2	0	1	0	0	0	3	0	114	
7:45 AM	1	87	0	0	0	26	0	0	3	0	1	0	1	0	0	0	119	
7:50 AM	1	68	1	0	0	28	1	0	2	0	2	0	3	0	1	0	107	
7:55 AM	0	74	1	0	1	30	1	0	3	0	1	0	0	0	1	0	112	1351
8:00 AM	0	66	0	0	0	28	0	0	2	0	0	0	0	0	1	0	97	1345
8:05 AM	0	64	0	0	0	23	1	0	2	0	2	0	1	0	0	0	93	1319
8:10 AM	0	63	0	0	0	28	0	0	1	0	1	0	1	0	0	0	94	1305
8:15 AM	1	59	1	0	1	28	0	0	0	0	0	0	2	0	4	0	96	1305
8:20 AM	0	67	0	0	1	22	0	0	6	0	1	0	0	0	3	0	100	1284
8:25 AM	0	61	0	0	0	44	0	0	0	0	1	0	0	0	0	0	106	1258
8:30 AM	0	70	0	0	0	46	1	0	0	0	0	0	0	0	0	0	117	1260
8:35 AM	0	66	0	0	0	36	1	0	4	0	1	0	0	0	1	0	109	1264
8:40 AM	0	55	0	0	0	35	0	0	1	0	1	0	0	0	0	0	92	1242
8:45 AM	1	86	0	0	1	43	1	0	3	0	2	0	0	0	2	0	139	1262
8:50 AM	0	65	1	0	0	38	1	0	0	0	1	0	1	0	1	0	108	1263
8:55 AM	0	72	0	0	0	24	2	0	0	0	0	0	1	0	0	0	99	1250
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	1120	12	0	0	276	0	0	36	0	8	0	8	0	8	0	1472	
Heavy Trucks	0	44	0	0	0	16	0	0	4	0	0	0	0	0	0	0	64	
Pedestrians		4				0											4	
Bicycles	0	0	0		0	0	0		1	0	0		0	0	0		1	
Railroad																		
Stopped Buses																		

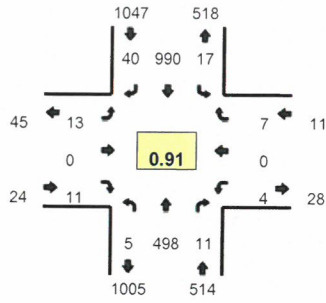
Comments:

Type of peak hour being reported: Intersection Peak

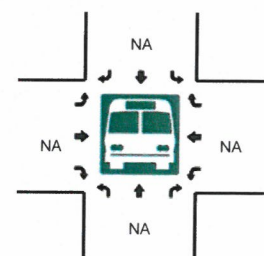
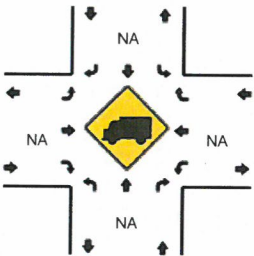
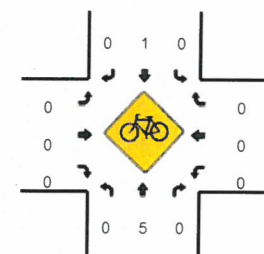
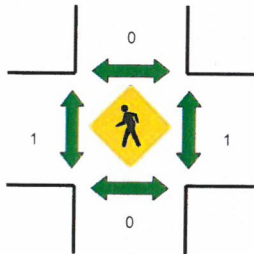
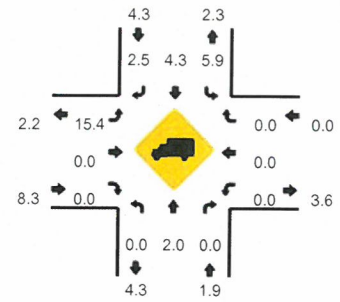
Method for determining peak hour: Total Entering Volume

LOCATION: Willamette Dr (OR 43) -- Arbor Dr
CITY/STATE: West Linn, OR

QC JOB #: 13423108
DATE: Wed, Jun 17 2015



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



5-Min Count Period Beginning At	Willamette Dr (OR 43) (Northbound)				Willamette Dr (OR 43) (Southbound)				Arbor Dr (Eastbound)				Arbor Dr (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	1	34	2	0	0	43	2	0	2	0	0	0	0	1	0	0	85	
4:05 PM	2	35	1	0	0	54	1	0	0	0	1	0	0	0	1	0	95	
4:10 PM	0	30	0	0	0	43	0	0	4	0	3	0	0	0	1	0	81	
4:15 PM	0	59	0	0	0	26	0	0	1	0	1	0	0	0	0	0	87	
4:20 PM	2	59	1	0	2	41	1	0	1	0	0	0	1	0	1	0	109	
4:25 PM	0	59	1	0	0	31	0	0	0	0	0	0	0	0	1	0	92	
4:30 PM	0	46	1	0	0	59	0	0	0	0	1	0	0	0	0	0	107	
4:35 PM	1	53	0	0	0	48	2	0	0	0	0	0	0	0	0	0	104	
4:40 PM	0	46	1	0	5	89	3	0	1	0	1	0	0	0	1	0	147	
4:45 PM	2	44	0	0	3	83	4	0	1	0	1	0	1	0	1	0	140	
4:50 PM	1	52	3	0	1	89	4	0	1	0	0	0	0	0	0	0	151	
4:55 PM	1	32	2	0	1	92	4	0	4	0	3	0	1	0	1	0	141	1339
5:00 PM	0	41	1	0	0	78	7	0	0	0	1	0	0	0	1	0	129	1383
5:05 PM	0	39	1	0	0	80	3	0	1	0	2	0	0	0	0	0	126	1414
5:10 PM	0	32	1	0	0	75	1	0	1	0	1	0	1	0	1	0	113	1446
5:15 PM	0	46	0	0	2	75	4	0	0	0	0	0	1	0	1	0	129	1488
5:20 PM	1	40	0	0	1	81	3	0	2	0	2	0	0	0	0	0	130	1509
5:25 PM	0	33	0	0	2	81	0	0	1	0	0	0	0	0	0	0	117	1534
5:30 PM	0	49	1	0	1	79	2	0	0	0	0	0	0	0	1	0	133	1560
5:35 PM	0	44	1	0	1	88	5	0	1	0	0	0	0	0	0	0	140	1596
5:40 PM	2	32	0	0	0	73	3	0	0	0	1	0	0	0	3	0	114	1563
5:45 PM	0	29	2	0	4	83	2	0	0	0	0	0	2	0	2	0	124	1547
5:50 PM	3	43	0	0	3	73	3	0	2	0	2	0	0	0	1	0	130	1526
5:55 PM	0	39	1	0	0	70	5	0	0	0	0	0	0	0	1	0	116	1501
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	12	568	16	0	36	1044	44	0	12	0	8	0	4	0	8	0	1752	
Heavy Trucks	0	12	0	0	4	52	0	0	0	0	0	0	0	0	0	0	68	
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	

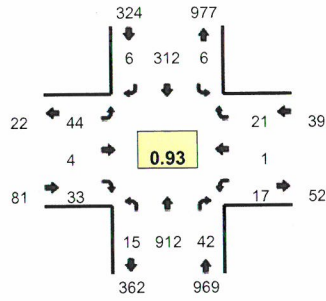
Comments:

Type of peak hour being reported: Intersection Peak

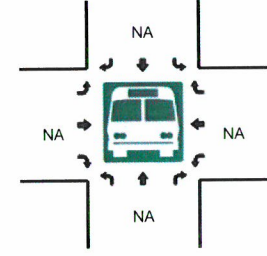
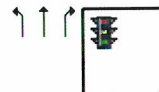
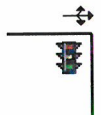
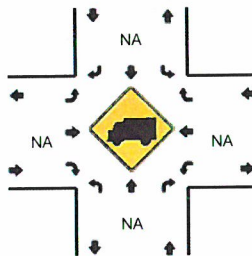
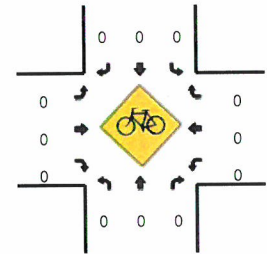
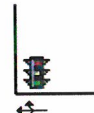
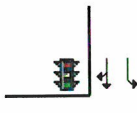
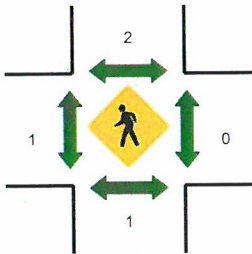
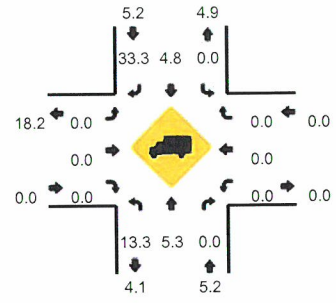
Method for determining peak hour: Total Entering Volume

LOCATION: Willamette Dr (OR 43) -- Marylhurst Dr/Lazy River Dr
CITY/STATE: West Linn, OR

QC JOB #: 13423105
DATE: Wed, Jun 17 2015



Peak-Hour: 7:05 AM -- 8:05 AM
Peak 15-Min: 7:20 AM -- 7:35 AM



5-Min Count Period	Willamette Dr (OR 43) (Northbound)				Willamette Dr (OR 43) (Southbound)				Marylhurst Dr/Lazy River Dr (Eastbound)				Marylhurst Dr/Lazy River Dr (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	1	76	3	0	0	10	0	0	6	1	3	0	0	1	1	0	102	
7:05 AM	3	78	3	0	0	25	2	0	2	0	4	0	2	0	2	0	121	
7:10 AM	0	74	3	0	0	29	0	0	2	1	6	0	0	0	3	0	118	
7:15 AM	1	73	7	0	0	21	0	0	5	0	2	0	2	0	1	0	112	
7:20 AM	1	84	6	0	0	18	0	0	6	0	1	0	2	0	4	0	122	
7:25 AM	1	89	4	0	1	25	1	0	8	0	3	0	1	0	1	0	134	
7:30 AM	1	86	3	0	1	26	0	0	3	0	2	0	0	0	2	0	124	
7:35 AM	0	72	1	0	1	24	0	0	4	1	4	0	3	0	1	0	111	
7:40 AM	2	76	3	0	1	24	0	0	3	0	0	0	2	1	2	0	114	
7:45 AM	1	74	2	0	1	34	0	0	4	0	3	0	3	0	1	0	123	
7:50 AM	0	75	3	0	0	29	0	0	3	0	3	0	1	0	3	0	117	
7:55 AM	2	63	4	0	1	30	3	0	2	1	4	0	0	0	0	0	110	1408
8:00 AM	3	68	3	0	0	27	0	0	2	1	1	0	1	0	1	0	107	1413
8:05 AM	2	51	3	0	0	24	0	0	3	0	4	0	0	1	3	0	91	1383
8:10 AM	1	67	6	0	0	27	1	0	2	1	6	0	3	0	1	0	115	1380
8:15 AM	0	60	5	0	0	34	0	0	3	0	3	0	1	0	3	0	109	1377
8:20 AM	3	61	8	0	1	26	0	0	4	2	3	0	3	0	2	0	113	1368
8:25 AM	1	46	4	0	0	42	0	0	7	1	7	0	1	0	1	0	110	1344
8:30 AM	2	65	6	0	1	39	0	0	5	0	8	0	3	0	2	0	131	1351
8:35 AM	3	62	3	0	4	46	3	0	4	0	6	0	0	0	2	0	133	1373
8:40 AM	2	58	3	0	2	31	1	0	2	1	8	0	2	0	1	0	111	1370
8:45 AM	0	70	3	0	2	40	1	0	5	0	4	0	0	0	2	0	127	1374
8:50 AM	2	61	2	0	0	39	3	0	5	0	8	0	0	0	1	0	121	1378
8:55 AM	5	65	4	0	1	25	0	0	1	0	3	0	0	0	1	0	105	1373
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
All Vehicles	12	1036	52	0	8	276	4	0	68	0	24	0	12	0	28	0	1520	
Heavy Trucks	4	44	0	0	0	20	0	0	0	0	0	0	0	0	0	0	68	
Pedestrians		0				0				0				0			0	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Railroad																		
Stopped Buses																		

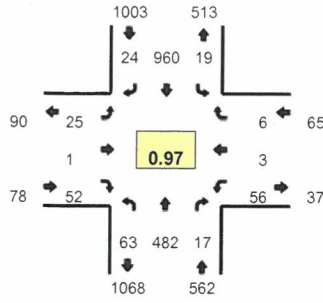
Comments:

Type of peak hour being reported: Intersection Peak

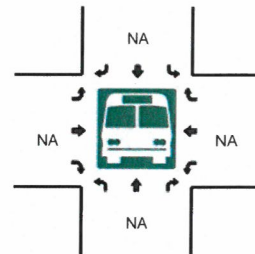
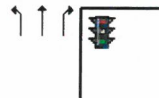
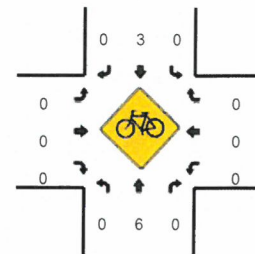
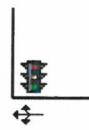
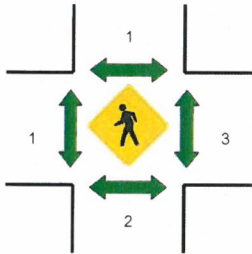
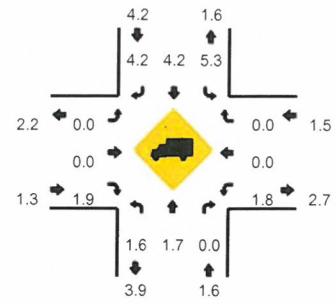
Method for determining peak hour: Total Entering Volume

LOCATION: Willamette Dr (OR 43) -- Marylhurst Dr/Lazy River Dr
 CITY/STATE: West Linn, OR

QC JOB #: 13423106
 DATE: Wed, Jun 17 2015



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

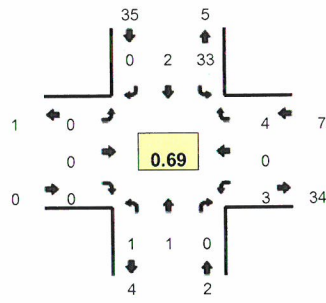


5-Min Count Period Beginning At	Willamette Dr (OR 43) (Northbound)				Willamette Dr (OR 43) (Southbound)				Marylhurst Dr/Lazy River Dr (Eastbound)				Marylhurst Dr/Lazy River Dr (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	10	33	3	0	0	57	3	0	1	0	1	0	4	0	0	0	112	
4:05 PM	9	35	0	0	2	49	0	0	2	1	1	0	5	0	1	0	105	
4:10 PM	6	42	2	0	0	49	2	0	2	0	4	0	4	0	0	0	111	
4:15 PM	1	56	2	0	0	26	1	0	0	0	3	0	1	0	0	0	90	
4:20 PM	10	63	3	0	0	47	1	0	1	0	3	0	0	0	1	0	129	
4:25 PM	4	61	1	0	0	10	0	0	3	0	1	0	5	0	1	0	86	
4:30 PM	9	48	0	0	2	74	2	0	2	0	4	0	4	0	1	0	146	
4:35 PM	3	43	1	0	0	49	3	0	4	0	1	0	2	0	1	0	107	
4:40 PM	6	45	1	0	1	62	1	0	2	0	3	0	1	0	0	0	122	
4:45 PM	7	52	2	0	1	91	2	0	2	0	3	0	1	0	2	0	163	
4:50 PM	4	48	2	0	1	87	2	0	2	0	5	0	3	0	1	0	155	
4:55 PM	3	27	1	0	1	76	0	0	0	0	6	0	6	0	0	0	120	1446
5:00 PM	3	43	2	0	2	84	3	0	0	0	3	0	3	0	0	0	143	1477
5:05 PM	8	45	2	0	2	76	3	0	3	0	4	0	8	0	0	0	151	1523
5:10 PM	8	34	3	0	3	77	2	0	2	0	2	0	6	0	0	0	137	1549
5:15 PM	8	37	1	0	1	73	4	0	2	1	4	0	5	0	0	0	136	1595
5:20 PM	8	44	1	0	3	76	0	0	5	0	10	0	6	3	0	0	156	1622
5:25 PM	3	35	0	0	2	85	1	0	1	0	4	0	8	0	0	0	139	1675
5:30 PM	3	36	3	0	0	81	3	0	4	0	2	0	4	0	1	0	137	1666
5:35 PM	3	41	0	0	2	83	3	0	2	0	2	0	2	0	0	0	138	1697
5:40 PM	5	40	0	0	1	71	1	0	2	0	7	0	4	0	2	0	133	1708
5:45 PM	4	24	1	0	2	80	2	0	1	0	4	0	4	0	0	0	122	1667
5:50 PM	6	43	1	0	0	73	5	0	2	0	3	0	0	0	1	0	134	1646
5:55 PM	7	39	0	0	1	64	2	0	4	0	10	0	3	0	1	0	131	1657
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	56	508	20	0	12	1016	16	0	16	0	56	0	40	0	12	0	1752	
Heavy Trucks	4	8	0	0	0	48	0	0	0	0	0	0	0	0	0	0	60	
Pedestrians		8				0				0				0			8	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Railroad																		
Stopped Buses																		

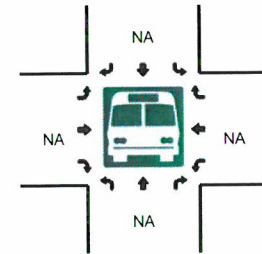
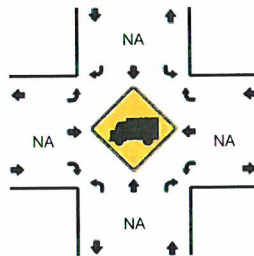
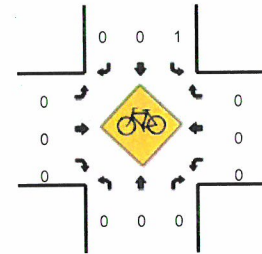
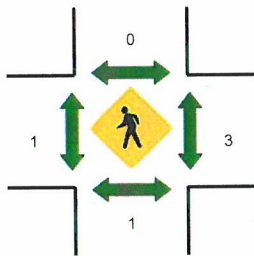
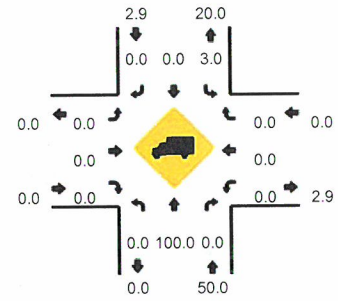
Comments:

LOCATION: Upper Midhill Dr -- Arbor Dr
CITY/STATE: West Linn, OR

QC JOB #: 13423101
DATE: Wed, Jun 17 2015



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



5-Min Count Period Beginning At	Upper Midhill Dr (Northbound)				Upper Midhill Dr (Southbound)				Arbor Dr (Eastbound)				Arbor 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	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	2	
7:05 AM	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	3	
7:10 AM	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	2	
7:15 AM	1	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0	6	
7:20 AM	0	0	0	0	6	1	0	0	0	0	0	0	0	0	0	0	7	
7:25 AM	0	0	0	0	2	0	0	0	0	0	0	0	1	0	0	0	3	
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
7:35 AM	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	2	
7:40 AM	0	1	0	0	4	0	0	0	0	0	0	0	0	0	0	0	5	
7:45 AM	0	0	0	0	2	0	0	0	0	0	0	0	0	0	1	0	3	
7:50 AM	0	0	0	0	4	1	0	0	0	0	0	0	0	0	1	1	7	
7:55 AM	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	2	42
8:00 AM	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	3	43
8:05 AM	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	3	43
8:10 AM	0	0	0	0	2	0	0	0	0	0	0	0	1	0	0	0	3	44
8:15 AM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0	2	40
8:20 AM	0	0	1	0	5	0	0	0	0	0	0	0	0	0	0	0	6	39
8:25 AM	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	2	38
8:30 AM	0	0	0	0	1	1	0	0	0	0	0	0	0	0	1	0	3	41
8:35 AM	0	0	0	0	2	0	0	0	0	0	0	0	0	0	1	0	3	42
8:40 AM	0	1	0	0	2	0	0	0	0	0	0	0	0	0	0	0	3	40
8:45 AM	0	0	0	0	2	0	0	0	0	0	0	0	1	0	0	0	3	40
8:50 AM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	2	0	4	37
8:55 AM	0	0	0	0	1	2	0	0	0	0	0	0	0	0	2	0	5	40
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	4	0	0	0	52	4	0	0	0	0	0	0	4	0	0	0	64	
Heavy Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Pedestrians		0				0				0			4				4	
Bicycles	0	0	0		1	0	0		0	0	0		0	0	0		1	
Railroad																		
Stopped Buses																		

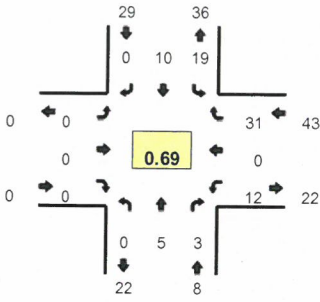
Comments:

Type of peak hour being reported: Intersection Peak

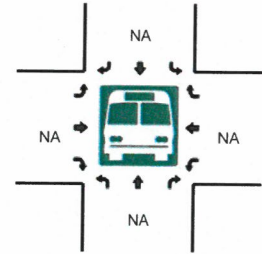
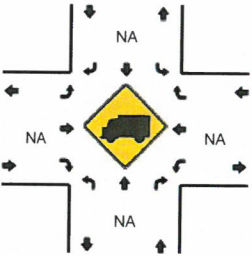
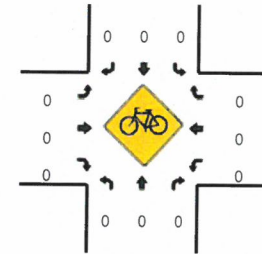
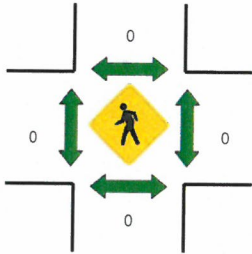
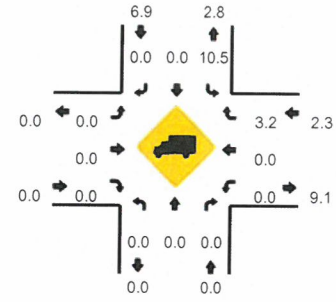
Method for determining peak hour: Total Entering Volume

LOCATION: Upper Midhill Dr -- Arbor Dr
CITY/STATE: West Linn, OR

QC JOB #: 13423102
DATE: Wed, Jun 17 2015



Peak-Hour: 4:40 PM -- 5:40 PM
Peak 15-Min: 4:50 PM -- 5:05 PM



5-Min Count Period	Upper Midhill Dr (Northbound)				Upper Midhill Dr (Southbound)				Arbor Dr (Eastbound)				Arbor Dr (Westbound)				Total	Hourly Totals	
	Beginning At	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right			U
4:00 PM	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	4	0	6	
4:05 PM	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	3	0	5	
4:10 PM	0	0	0	0	0	7	0	0	0	0	0	0	0	0	0	0	0	7	
4:15 PM	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	2	
4:20 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	2	0	3	
4:25 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
4:30 PM	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	2	
4:35 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	
4:40 PM	0	0	1	0	0	1	1	0	0	0	0	0	0	2	0	0	0	5	
4:45 PM	0	0	0	0	0	2	0	0	0	0	0	0	0	1	0	5	0	8	
4:50 PM	0	0	0	0	0	3	1	0	0	0	0	0	0	1	0	3	0	8	
4:55 PM	0	0	1	0	0	4	2	0	0	0	0	0	0	0	0	4	0	11	58
5:00 PM	0	0	0	0	0	2	1	0	0	0	0	0	0	2	0	5	0	10	62
5:05 PM	0	0	0	0	0	2	1	0	0	0	0	0	0	0	0	4	0	7	64
5:10 PM	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	1	0	3	60
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	2	0	3	61
5:20 PM	0	1	0	0	0	2	2	0	0	0	0	0	0	2	0	3	0	10	68
5:25 PM	0	3	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	4	72
5:30 PM	0	0	0	0	0	0	1	0	0	0	0	0	0	1	0	1	0	3	73
5:35 PM	0	1	0	0	0	1	1	0	0	0	0	0	0	2	0	3	0	8	80
5:40 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	2	0	3	78
5:45 PM	0	0	0	0	0	1	1	0	0	0	0	0	0	3	0	0	0	5	75
5:50 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	3	0	3	0	7	74
5:55 PM	0	1	0	1	0	0	1	0	0	0	0	0	0	2	0	1	0	6	69
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total		
All Vehicles	0	0	4	0	36	16	0	0	0	0	0	0	12	0	48	0	116		
Heavy Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Pedestrians		0				0				0				0			0		
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0		
Railroad																	0		
Stopped Buses																	0		

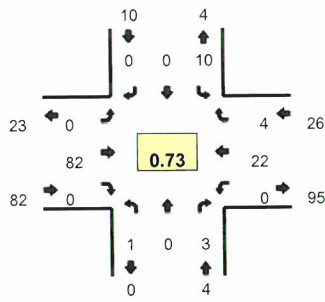
Comments:

Type of peak hour being reported: Intersection Peak

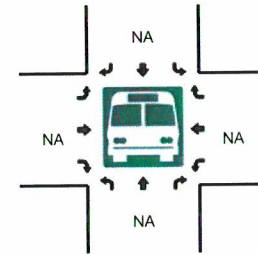
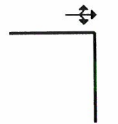
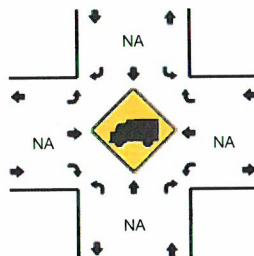
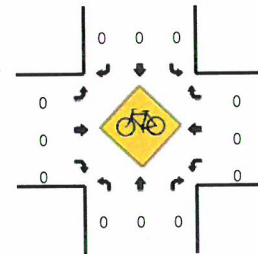
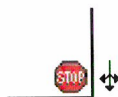
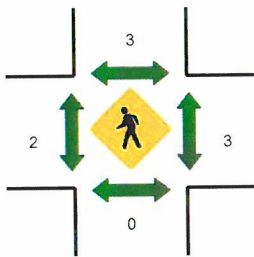
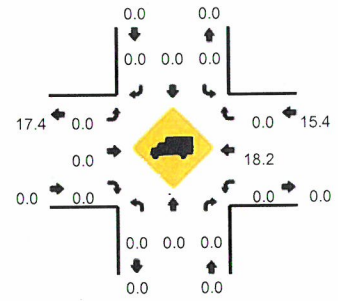
Method for determining peak hour: Total Entering Volume

LOCATION: Upper Midhill Dr/Midhill Cir -- Marylhurst Dr
CITY/STATE: West Linn, OR

QC JOB #: 13423103
DATE: Wed, Jun 17 2015



Peak-Hour: 7:55 AM -- 8:55 AM
Peak 15-Min: 8:25 AM -- 8:40 AM



5-Min Count Period	Upper Midhill Dr/Midhill Cir (Northbound)				Upper Midhill Dr/Midhill Cir (Southbound)				Marylhurst Dr (Eastbound)				Marylhurst Dr (Westbound)				Total	Hourly Totals			
	Beginning At	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right			U		
7:00 AM	0	0	0	0	1	0	0	0	0	0	8	0	0	0	2	0	0	0	11		
7:05 AM	0	0	0	0	0	0	0	0	0	0	6	0	0	0	0	2	0	0	0	8	
7:10 AM	0	0	0	0	0	0	0	0	0	0	7	0	0	0	0	0	0	0	7		
7:15 AM	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0	0	1	0	0	5	
7:20 AM	0	0	0	0	2	0	0	0	0	0	5	0	0	0	0	1	0	0	0	8	
7:25 AM	0	0	1	0	0	0	0	0	0	0	11	0	0	0	0	0	0	0	0	12	
7:30 AM	0	0	1	0	1	0	0	0	0	0	3	0	0	0	1	0	0	0	0	6	
7:35 AM	0	0	0	0	3	0	0	0	0	0	6	0	0	0	0	0	0	0	0	9	
7:40 AM	0	0	0	0	0	0	0	0	0	1	3	0	0	0	0	3	0	0	0	7	
7:45 AM	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0	2	0	0	0	6	
7:50 AM	0	0	1	0	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0	5	
7:55 AM	0	0	2	0	1	0	0	0	0	0	4	0	0	0	0	5	0	0	0	12	96
8:00 AM	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	1	0	0	0	4	89
8:05 AM	1	0	0	0	1	0	0	0	0	0	6	0	0	0	0	2	0	0	0	10	91
8:10 AM	0	0	0	0	0	0	0	0	0	0	5	0	0	0	0	1	1	0	0	7	91
8:15 AM	0	0	0	0	0	0	0	0	0	0	8	0	0	0	0	0	0	0	0	8	94
8:20 AM	0	0	0	0	2	0	0	0	0	0	7	0	0	0	0	3	0	0	0	12	98
8:25 AM	0	0	0	0	3	0	0	0	0	0	9	0	0	0	0	1	0	0	0	13	99
8:30 AM	0	0	0	0	1	0	0	0	0	0	9	0	0	0	0	0	1	0	0	11	104
8:35 AM	0	0	0	0	2	0	0	0	0	0	11	0	0	0	0	5	0	0	0	18	113
8:40 AM	0	0	0	0	0	0	0	0	0	0	6	0	0	0	0	2	0	0	0	8	114
8:45 AM	0	0	0	0	0	0	0	0	0	0	6	0	0	0	0	1	0	0	0	7	115
8:50 AM	0	0	1	0	0	0	0	0	0	0	8	0	0	0	0	1	2	0	0	12	122
8:55 AM	0	0	0	0	0	0	1	0	0	0	3	0	0	0	0	7	0	0	0	11	121
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total				
All Vehicles	0	0	0	0	24	0	0	0	0	116	0	0	0	24	4	0	0	168			
Heavy Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	4				
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	4				
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				
Railroad																					
Stopped Buses																					

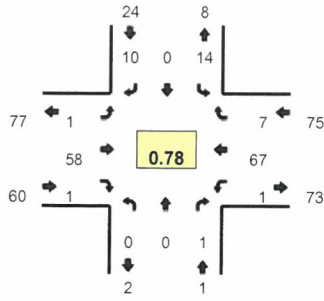
Comments:

Type of peak hour being reported: Intersection Peak

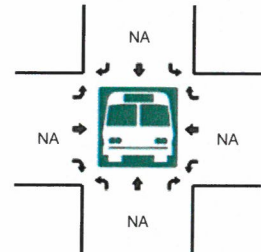
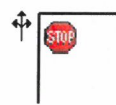
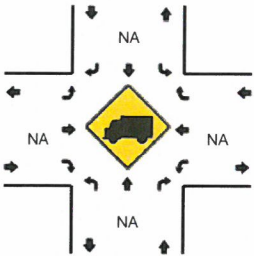
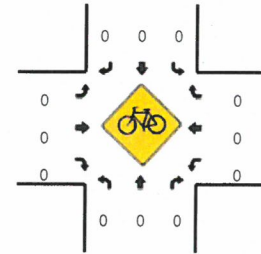
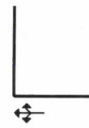
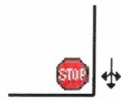
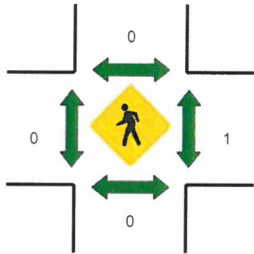
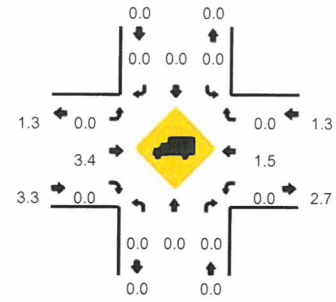
Method for determining peak hour: Total Entering Volume

LOCATION: Upper Midhill Dr/Midhill Cir -- Marylhurst Dr
 CITY/STATE: West Linn, OR

QC JOB #: 13423104
 DATE: Wed, Jun 17 2015



Peak-Hour: 5:00 PM -- 6:00 PM
 Peak 15-Min: 5:10 PM -- 5:25 PM



5-Min Count Period Beginning At	Upper Midhill Dr/Midhill Cir (Northbound)				Upper Midhill Dr/Midhill Cir (Southbound)				Marylhurst Dr (Eastbound)				Marylhurst 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	0	0	0	0	0	0	0	1	0	0	0	1	9	2	0	13	
4:05 PM	0	0	0	0	0	0	0	0	0	2	0	0	0	6	0	0	8	
4:10 PM	0	0	0	0	0	0	0	0	0	3	0	0	0	7	0	0	10	
4:15 PM	0	0	0	0	0	0	0	0	0	2	0	0	0	2	0	0	4	
4:20 PM	0	0	0	0	1	0	0	0	0	3	0	0	0	8	2	0	14	
4:25 PM	0	0	0	0	1	0	0	0	0	4	0	0	0	2	0	0	7	
4:30 PM	0	0	0	0	0	0	0	0	1	5	0	0	0	8	1	0	15	
4:35 PM	0	0	0	0	0	0	0	0	0	3	0	0	0	3	1	0	7	
4:40 PM	0	0	0	0	1	0	1	0	1	2	0	0	1	4	1	0	11	
4:45 PM	0	0	0	0	0	0	0	0	0	5	0	0	0	5	0	0	10	
4:50 PM	0	0	1	0	1	0	1	0	0	3	0	0	0	2	1	0	9	
4:55 PM	0	0	0	0	0	0	0	0	0	2	0	0	0	1	0	0	3	111
5:00 PM	0	0	0	0	1	0	1	0	0	3	0	0	0	5	0	0	10	108
5:05 PM	0	0	0	0	0	0	0	0	0	4	0	0	0	10	0	0	14	114
5:10 PM	0	0	0	0	0	0	0	0	0	5	0	0	0	6	0	0	11	115
5:15 PM	0	0	0	0	2	0	1	0	0	4	0	0	0	10	0	0	17	128
5:20 PM	0	0	0	0	1	0	1	0	0	12	0	0	0	6	3	0	23	137
5:25 PM	0	0	0	0	1	0	0	0	0	5	0	0	0	3	1	0	10	140
5:30 PM	0	0	0	0	1	0	1	0	0	3	1	0	0	5	0	0	11	136
5:35 PM	0	0	0	0	0	0	2	0	1	2	0	0	0	2	1	0	8	137
5:40 PM	0	0	1	0	2	0	1	0	0	6	0	0	0	3	0	0	13	139
5:45 PM	0	0	0	0	2	0	1	0	0	4	0	0	0	3	0	0	10	139
5:50 PM	0	0	0	0	1	0	0	0	0	4	0	0	1	9	0	0	15	145
5:55 PM	0	0	0	0	3	0	2	0	0	6	0	0	0	5	2	0	18	160
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	0	0	0	0	12	0	8	0	0	84	0	0	0	88	12	0	204	
Heavy Trucks	0	0	0	0	0	0	0	0	0	4	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																		
Stopped Buses																		

Comments:

Appendix B Description of Level of Service

DESCRIPTION OF LEVEL OF SERVICE

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

Signalized Intersections

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

Table B1: Level-of-Service Definitions (Signalized Intersections)

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

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

Table B2: Level-of-Service Criteria for Signalized Intersections

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

Unsignalized Intersections

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

Table B3: Level-of-Service Criteria for Unsignalized Intersections

Level of Service	Average Delay per Vehicle to Minor Street
A	<ul style="list-style-type: none"> Nearly all drivers find freedom of operation. Very seldom is there more than one vehicle in queue.
B	<ul style="list-style-type: none"> Some drivers begin to consider the delay an inconvenience. Occasionally there is more than one vehicle in queue.
C	<ul style="list-style-type: none"> Many times there is more than one vehicle in queue. Most drivers feel restricted, but not objectionably so.
D	<ul style="list-style-type: none"> Often there is more than one vehicle in queue. Drivers feel quite restricted.
E	<ul style="list-style-type: none"> Represents a condition in which the demand is near or equal to the probable maximum number of vehicles that can be accommodated by the movement. There is almost always more than one vehicle in queue. Drivers find the delays approaching intolerable levels.
F	<ul style="list-style-type: none"> Forced flow. Represents an intersection failure condition that is caused by geometric and/or operational constraints external to the intersection.

Table B4: Level-of-Service Criteria for Unsignalized Intersections

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

It should be noted that the level-of-service criteria for unsignalized intersections are somewhat different than the criteria used for signalized intersections. The primary reason for this difference is that drivers expect different levels of performance from different kinds of transportation facilities. The expectation is that a signalized intersection is designed to carry higher traffic volumes than an unsignalized intersection. Additionally, there are a number of driver behavior considerations that combine to make delays at signalized intersections less galling than at unsignalized intersections. For example, drivers at signalized intersections are able to relax during the red interval, while drivers on the minor street approaches to TWSC intersections must remain attentive to the task of identifying

acceptable gaps and vehicle conflicts. Also, there is often much more variability in the amount of delay experienced by individual drivers at unsignalized intersections than signalized intersections. For these reasons, it is considered that the control delay threshold for any given level of service is less for an unsignalized intersection than for a signalized intersection. While overall intersection level of service is calculated for AWSC intersections, level of service is only calculated for the minor approaches and the major street left turn movements at TWSC intersections. No delay is assumed to the major street through movements. For TWSC intersections, the overall intersection level of service remains undefined: level of service is only calculated for each minor street lane.

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

Appendix C Existing Traffic Conditions
Worksheets

Existing Traffic Conditions
1: Marylbrook Drive & Highway 43

Weekday AM Peak Hour
8/27/2015



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↕		↕	↕	↕	↑↑	↕	↕	↑↑	↕
Volume (vph)	1	0	6	2	0	1	3	1007	30	15	277	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5	4.5	
Lane Util. Factor		1.00	1.00		1.00	1.00	1.00	0.95	1.00	1.00	0.95	
Frbp, ped/bikes		1.00	0.99		1.00	1.00	1.00	1.00	0.98	1.00	1.00	
Flpb, ped/bikes		1.00	1.00		1.00	1.00	0.99	1.00	1.00	1.00	1.00	
Fr _t		1.00	0.85		1.00	0.85	1.00	1.00	0.85	1.00	1.00	
Fl _t Protected		0.95	1.00		0.95	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1805	1594		1803	1615	1789	3438	1477	1687	3438	
Fl _t Permitted		1.00	1.00		1.00	1.00	0.57	1.00	1.00	0.25	1.00	
Satd. Flow (perm)		1900	1594		1898	1615	1076	3438	1477	451	3438	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	1	0	6	2	0	1	3	1071	32	16	295	0
RTOR Reduction (vph)	0	0	6	0	0	1	0	0	4	0	0	0
Lane Group Flow (vph)	0	1	0	0	2	0	3	1071	28	16	295	0
Confl. Peds. (#/hr)			1	1			9					9
Confl. Bikes (#/hr)									3			
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	5%	7%	7%	5%	0%
Turn Type	Perm		Perm	Perm		Perm	pm+pt		Perm	pm+pt		Perm
Protected Phases		8			4		5	2		1	6	
Permitted Phases	8		8	4	4	4	2		2	6		6
Actuated Green, G (s)		1.2	1.2		1.2	1.2	84.3	83.3	83.3	86.3	84.3	
Effective Green, g (s)		1.2	1.2		1.2	1.2	84.3	83.3	83.3	86.3	84.3	
Actuated g/C Ratio		0.01	0.01		0.01	0.01	0.84	0.83	0.83	0.86	0.84	
Clearance Time (s)		4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5	4.5	
Vehicle Extension (s)		2.5	2.5		2.5	2.5	2.3	4.8	4.8	2.3	4.8	
Lane Grp Cap (vph)		23	19		23	19	914	2864	1230	414	2898	
v/s Ratio Prot							0.00	c0.31		c0.00	0.09	
v/s Ratio Perm		0.00	0.00		c0.00	0.00	0.00		0.02	0.03		
v/c Ratio		0.04	0.00		0.09	0.00	0.00	0.37	0.02	0.04	0.10	
Uniform Delay, d ₁		48.8	48.8		48.9	48.8	1.2	2.0	1.4	1.0	1.3	
Progression Factor		1.00	1.00		1.00	1.00	0.38	0.27	0.19	1.00	1.00	
Incremental Delay, d ₂		0.6	0.1		1.2	0.0	0.0	0.3	0.0	0.0	0.0	
Delay (s)		49.4	48.9		50.0	48.8	0.5	0.8	0.3	1.1	1.4	
Level of Service		D	D		D	D	A	A	A	A	A	
Approach Delay (s)		48.9			49.6			0.8			1.4	
Approach LOS		D			D			A			A	

















Intersection Summary

HCM Average Control Delay	1.3	HCM Level of Service	A
HCM Volume to Capacity ratio	0.36		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	49.6%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Existing Traffic Conditions
2: Arbor Drive & Highway 43

Weekday AM Peak Hour
8/27/2015

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	31	0	8	11	0	12	4	998	6	1	289	3
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	34	0	9	12	0	13	4	1085	7	1	314	3
Pedestrians		1						1				
Lane Width (ft)		12.0						12.0				
Walking Speed (ft/s)		4.0						4.0				
Percent Blockage		0						0				
Right turn flare (veh)												
Median type								None			None	
Median storage veh												
Upstream signal (ft)								992			884	
pX, platoon unblocked	0.31	0.31		0.31	0.31	0.31				0.31		
vC, conflicting volume	1429	1419	318	1424	1417	1088	318			1091		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1271	1239	318	1257	1234	176	318			186		
tC, single (s)	7.2	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.6	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	19	100	99	74	100	95	100			100		
cM capacity (veh/h)	42	55	726	46	55	271	1252			436		
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	42	25	1096	318								
Volume Left	34	12	4	1								
Volume Right	9	13	7	3								
cSH	52	81	1252	436								
Volume to Capacity	0.82	0.31	0.00	0.00								
Queue Length 95th (ft)	86	29	0	0								
Control Delay (s)	198.7	68.5	0.1	0.1								
Lane LOS	F	F	A	A								
Approach Delay (s)	198.7	68.5	0.1	0.1								
Approach LOS	F	F										
Intersection Summary												
Average Delay			6.9									
Intersection Capacity Utilization			66.3%		ICU Level of Service					C		
Analysis Period (min)			15									

Existing Traffic Conditions
3: Marylhurst Drive & Highway 43

Weekday AM Peak Hour
8/27/2015



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↗	↖		↗	↖	
Volume (vph)	48	4	35	16	2	21	13	928	42	6	298	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			4.5		4.5	5.0		4.5	5.0	
Lane Util. Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes		1.00			0.99		1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00			1.00		1.00	1.00		1.00	1.00	
Frt		0.95			0.93		1.00	0.99		1.00	1.00	
Flt Protected		0.97			0.98		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1723			1701		1568	1802		1805	1812	
Flt Permitted		0.86			0.84		0.56	1.00		0.19	1.00	
Satd. Flow (perm)		1517			1452		926	1802		355	1812	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	52	4	38	17	2	23	14	998	45	6	320	6
RTOR Reduction (vph)	0	28	0	0	21	0	0	1	0	0	0	0
Lane Group Flow (vph)	0	66	0	0	21	0	14	1042	0	6	326	0
Confl. Peds. (#/hr)	2					2	1					1
Heavy Vehicles (%)	0%	0%	3%	0%	0%	0%	15%	5%	0%	0%	4%	33%
Turn Type	Perm			Perm			pm+pt		pm+pt			
Protected Phases		8			4		5	2		1	6	
Permitted Phases	8			4			2			6		
Actuated Green, G (s)		8.4			8.4		77.7	76.6		77.5	76.5	
Effective Green, g (s)		8.4			8.4		77.7	76.6		77.5	76.5	
Actuated g/C Ratio		0.08			0.08		0.78	0.77		0.78	0.76	
Clearance Time (s)		4.5			4.5		4.5	5.0		4.5	5.0	
Vehicle Extension (s)		2.5			2.5		2.3	5.2		2.3	5.2	
Lane Grp Cap (vph)		127			122		727	1380		290	1386	
v/s Ratio Prot							c0.00	c0.58		0.00	0.18	
v/s Ratio Perm		c0.04			0.01		0.01			0.02		
v/c Ratio		0.52			0.17		0.02	0.76		0.02	0.23	
Uniform Delay, d1		43.9			42.6		2.5	6.5		6.3	3.4	
Progression Factor		1.00			1.00		1.00	1.00		1.90	1.79	
Incremental Delay, d2		2.6			0.5		0.0	3.9		0.0	0.4	
Delay (s)		46.5			43.1		2.5	10.4		11.9	6.4	
Level of Service		D			D		A	B		B	A	
Approach Delay (s)		46.5			43.1			10.3			6.5	
Approach LOS		D			D			B			A	

Intersection Summary

HCM Average Control Delay	12.6	HCM Level of Service	B
HCM Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	66.6%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Existing Traffic Conditions
4: Arbor Drive & Upper Midhill Drive

Weekday AM Peak Hour
8/27/2015



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Stop			Stop
Volume (vph)	2	4	1	0	31	2
Peak Hour Factor	0.66	0.66	0.66	0.66	0.66	0.66
Hourly flow rate (vph)	3	6	2	0	47	3

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total (vph)	9	2	50
Volume Left (vph)	3	0	47
Volume Right (vph)	6	0	0
Hadj (s)	-0.33	1.70	0.19
Departure Headway (s)	3.7	5.7	4.1
Degree Utilization, x	0.01	0.00	0.06
Capacity (veh/h)	958	624	870
Control Delay (s)	6.7	8.7	7.4
Approach Delay (s)	6.7	8.7	7.4
Approach LOS	A	A	A

Intersection Summary			
Delay		7.3	
HCM Level of Service		A	
Intersection Capacity Utilization	18.5%		ICU Level of Service A
Analysis Period (min)		15	

Existing Traffic Conditions
5: Marylhurst Drive & Upper Midhill Drive

Weekday AM Peak Hour
8/27/2015

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	1	66	0	1	15	1	0	0	5	8	0	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Hourly flow rate (vph)	1	74	0	1	17	1	0	0	6	9	0	0
Pedestrians		1			1							
Lane Width (ft)		12.0			12.0							
Walking Speed (ft/s)		4.0			4.0							
Percent Blockage		0			0							
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (ft)					868							
pX, platoon unblocked												
vC, conflicting volume	18			74			97	97	75	103	96	18
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	18			74			97	97	75	103	96	18
tC, single (s)	5.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	3.1			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			100	100	99	99	100	100
cM capacity (veh/h)	1141			1538			888	796	991	876	796	1065
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	75	19	6	9								
Volume Left	1	1	0	9								
Volume Right	0	1	6	0								
cSH	1141	1538	991	876								
Volume to Capacity	0.00	0.00	0.01	0.01								
Queue Length 95th (ft)	0	0	0	1								
Control Delay (s)	0.1	0.4	8.7	9.2								
Lane LOS	A	A	A	A								
Approach Delay (s)	0.1	0.4	8.7	9.2								
Approach LOS			A	A								
Intersection Summary												
Average Delay			1.4									
Intersection Capacity Utilization			17.3%		ICU Level of Service				A			
Analysis Period (min)			15									

Existing Traffic Conditions
1: Marylbrook Drive & Highway 43

Weekday PM Peak Hour
8/27/2015



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗		↕	↗	↗	↕↕	↗	↗	↕↕	↗
Volume (vph)	5	1	8	42	0	22	6	490	20	16	1021	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor		1.00	1.00		1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frpb, ped/bikes		1.00	1.00		1.00	0.99	1.00	1.00	0.97	1.00	1.00	0.98
Flpb, ped/bikes		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		1.00	0.85		1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected		0.96	1.00		0.95	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		1822	1615		1719	1594	1805	3505	1570	1803	3471	1576
Flt Permitted		0.78	1.00		0.75	1.00	0.24	1.00	1.00	0.45	1.00	1.00
Satd. Flow (perm)		1479	1615		1364	1594	453	3505	1570	846	3471	1576
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	5	1	9	46	0	24	7	538	22	18	1122	4
RTOR Reduction (vph)	0	0	8	0	0	22	0	0	5	0	0	1
Lane Group Flow (vph)	0	6	1	0	46	2	7	538	17	18	1122	3
Confl. Peds. (#/hr)	1					1	1		2	2		1
Confl. Bikes (#/hr)									4			3
Heavy Vehicles (%)	0%	0%	0%	5%	0%	0%	0%	3%	0%	0%	4%	0%
Turn Type	Perm		Perm	Perm		Perm	pm+pt		Perm	pm+pt		Perm
Protected Phases		8			4		5	2		1	6	
Permitted Phases	8		8	4	4	4	2		2	6		6
Actuated Green, G (s)		7.7	7.7		7.7	7.7	87.7	86.7	86.7	89.9	87.8	87.8
Effective Green, g (s)		7.7	7.7		7.7	7.7	87.7	86.7	86.7	89.9	87.8	87.8
Actuated g/C Ratio		0.07	0.07		0.07	0.07	0.80	0.79	0.79	0.82	0.80	0.80
Clearance Time (s)		4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)		2.5	2.5		2.5	2.5	2.3	4.8	4.8	2.3	4.8	4.8
Lane Grp Cap (vph)		104	113		95	112	373	2763	1237	710	2770	1258
v/s Ratio Prot							0.00	0.15		c0.00	c0.32	
v/s Ratio Perm		0.00	0.00		c0.03	0.00	0.01		0.01	0.02		0.00
v/c Ratio		0.06	0.01		0.48	0.01	0.02	0.19	0.01	0.03	0.41	0.00
Uniform Delay, d1		47.8	47.6		49.2	47.6	2.4	2.9	2.5	1.9	3.3	2.2
Progression Factor		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2		0.2	0.0		2.8	0.0	0.0	0.2	0.0	0.0	0.2	0.0
Delay (s)		47.9	47.6		52.1	47.7	2.4	3.1	2.5	1.9	3.5	2.2
Level of Service		D	D		D	D	A	A	A	A	A	A
Approach Delay (s)		47.7			50.5			3.0			3.5	
Approach LOS		D			D			A			A	

















Intersection Summary

HCM Average Control Delay	5.5	HCM Level of Service	A
HCM Volume to Capacity ratio	0.39		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	50.0%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Existing Traffic Conditions
2: Arbor Drive & Highway 43

Weekday PM Peak Hour
8/27/2015

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	13	0	11	4	0	7	5	503	11	17	999	40
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	14	0	12	4	0	8	5	553	12	19	1098	44
Pedestrians		1			1							
Lane Width (ft)		12.0			12.0							
Walking Speed (ft/s)		4.0			4.0							
Percent Blockage		0			0							
Right turn flare (veh)												
Median type								None			None	
Median storage (veh)												
Upstream signal (ft)								992			884	
pX, platoon unblocked	0.25	0.25	0.22	0.25	0.25	0.93	0.22			0.93		
vC, conflicting volume	1736	1735	1121	1740	1751	560	1143			566		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1783	1780	0	1800	1843	486	0			493		
tC, single (s)	7.2	6.5	6.2	7.1	6.5	6.2	4.1			4.2		
tC, 2 stage (s)												
tF (s)	3.6	4.0	3.3	3.5	4.0	3.3	2.2			2.3		
p0 queue free %	0	100	95	70	100	99	98			98		
cM capacity (veh/h)	14	20	237	15	19	542	356			973		
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	26	12	570	1160								
Volume Left	14	4	5	19								
Volume Right	12	8	12	44								
cSH	25	38	356	973								
Volume to Capacity	1.05	0.31	0.02	0.02								
Queue Length 95th (ft)	81	26	1	1								
Control Delay (s)	418.5	136.7	0.5	0.6								
Lane LOS	F	F	A	A								
Approach Delay (s)	418.5	136.7	0.5	0.6								
Approach LOS	F	F										
Intersection Summary												
Average Delay			7.8									
Intersection Capacity Utilization			75.7%		ICU Level of Service					D		
Analysis Period (min)			15									

Existing Traffic Conditions
3: Marylhurst Drive & Highway 43

Weekday PM Peak Hour
8/27/2015



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↗	↖		↗	↖	
Volume (vph)	25	1	48	53	3	4	65	491	18	19	960	24
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			4.5		4.5	5.0		4.5	5.0	
Lane Util. Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Frbp, ped/bikes		0.98			1.00		1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00			1.00		1.00	1.00		1.00	1.00	
Frt		0.91			0.99		1.00	0.99		1.00	1.00	
Flt Protected		0.98			0.96		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1654			1763		1770	1852		1716	1821	
Flt Permitted		0.90			0.69		0.17	1.00		0.45	1.00	
Satd. Flow (perm)		1512			1265		309	1852		815	1821	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	26	1	50	55	3	4	68	511	19	20	1000	25
RTOR Reduction (vph)	0	46	0	0	3	0	0	1	0	0	1	0
Lane Group Flow (vph)	0	31	0	0	59	0	68	529	0	20	1024	0
Confl. Peds. (#/hr)	1		2	2		1	1		3	3		1
Confl. Bikes (#/hr)									5			3
Heavy Vehicles (%)	0%	0%	2%	2%	0%	0%	2%	2%	0%	5%	4%	0%
Turn Type	Perm		Perm		pm+pt		pm+pt					
Protected Phases		8			4		5	2		1	6	
Permitted Phases	8			4			2			6		
Actuated Green, G (s)		8.1			8.1		80.5	75.8		75.3	73.2	
Effective Green, g (s)		8.1			8.1		80.5	75.8		75.3	73.2	
Actuated g/C Ratio		0.08			0.08		0.80	0.76		0.75	0.73	
Clearance Time (s)		4.5			4.5		4.5	5.0		4.5	5.0	
Vehicle Extension (s)		2.5			2.5		2.3	5.2		2.3	5.2	
Lane Grp Cap (vph)		122			102		317	1404		633	1333	
v/s Ratio Prot							c0.01	0.29		0.00	c0.56	
v/s Ratio Perm		0.02			c0.05		0.16			0.02		
v/c Ratio		0.25			0.58		0.21	0.38		0.03	0.77	
Uniform Delay, d1		43.1			44.3		8.2	4.1		3.1	8.2	
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.8			6.8		0.2	0.8		0.0	4.3	
Delay (s)		43.9			51.1		8.4	4.9		3.1	12.5	
Level of Service		D			D		A	A		A	B	
Approach Delay (s)		43.9			51.1			5.3			12.3	
Approach LOS		D			D			A			B	

Intersection Summary

HCM Average Control Delay	12.7	HCM Level of Service	B
HCM Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	18.5
Intersection Capacity Utilization	69.8%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Existing Traffic Conditions
4: Arbor Drive & Upper Midhill Drive

Weekday PM Peak Hour
8/27/2015



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔		↔			↔
Sign Control	Stop		Stop			Stop
Volume (vph)	12	31	5	3	19	10
Peak Hour Factor	0.69	0.69	0.69	0.69	0.69	0.69
Hourly flow rate (vph)	17	45	7	4	28	14

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total (vph)	62	12	42
Volume Left (vph)	17	0	28
Volume Right (vph)	45	4	0
Hadj (s)	-0.34	-0.22	0.25
Departure Headway (s)	3.7	3.8	4.3
Degree Utilization, x	0.06	0.01	0.05
Capacity (veh/h)	959	908	823
Control Delay (s)	6.9	6.9	7.5
Approach Delay (s)	6.9	6.9	7.5
Approach LOS	A	A	A

Intersection Summary			
Delay		7.1	
HCM Level of Service		A	
Intersection Capacity Utilization		18.2%	ICU Level of Service A
Analysis Period (min)		15	

Existing Traffic Conditions
5: Marylhurst Drive & Upper Midhill Drive

Weekday PM Peak Hour
8/27/2015



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Volume (veh/h)	2	50	1	1	60	7	0	0	1	8	0	8
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67
Hourly flow rate (vph)	3	75	1	1	90	10	0	0	1	12	0	12
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh												
Upstream signal (ft)					868							
pX, platoon unblocked												
vC, conflicting volume	100			76			191	184	75	181	180	95
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	100			76			191	184	75	181	180	95
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			100	100	100	98	100	99
cM capacity (veh/h)	1505			1536			762	711	992	782	715	967

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	79	101	1	24
Volume Left	3	1	0	12
Volume Right	1	10	1	12
cSH	1505	1536	992	865
Volume to Capacity	0.00	0.00	0.00	0.03
Queue Length 95th (ft)	0	0	0	2
Control Delay (s)	0.3	0.1	8.6	9.3
Lane LOS	A	A	A	A
Approach Delay (s)	0.3	0.1	8.6	9.3
Approach LOS			A	A

Intersection Summary			
Average Delay		1.3	
Intersection Capacity Utilization		18.2%	ICU Level of Service A
Analysis Period (min)		15	

Appendix D Crash Data

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

State Street /Oswego Hwy (003) & Marylbrook Drive/Furman Drive
 January 1, 2009 through December 31, 2013

COLLISION TYPE	FATAL CRASHES	NON- FATAL CRASHES	PROPERTY DAMAGE ONLY	TOTAL CRASHES	PEOPLE KILLED	PEOPLE INJURED	TRUCKS	DRY SURF	WET SURF	DAY	DARK	INTER- SECTION	INTER- SECTION RELATED	OFF- ROAD
YEAR: 2012														
PEDESTRIAN	0	1	0	1	0	1	0	1	0	1	0	1	0	0
REAR-END	0	1	0	1	0	3	0	0	1	1	0	1	0	0
TURNING MOVEMENTS	0	1	0	1	0	2	0	1	0	0	1	1	0	0
2012 TOTAL	0	3	0	3	0	6	0	2	1	2	1	3	0	0
FINAL TOTAL	0	3	0	3	0	6	0	2	1	2	1	3	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

Willamette Drive /Oswego Hwy (003) & Arbor Drive
 January 1, 2009 through December 31, 2013

COLLISION TYPE	FATAL CRASHES	NON- FATAL CRASHES	PROPERTY DAMAGE ONLY	TOTAL CRASHES	PEOPLE KILLED	PEOPLE INJURED	TRUCKS	DRY SURF	WET SURF	DAY	DARK	INTER- SECTION	INTER- SECTION RELATED	OFF- ROAD
YEAR: 2013														
TURNING MOVEMENTS	0	0	1	1	0	0	0	1	0	1	0	1	0	0
2013 TOTAL	0	0	1	1	0	0	0	1	0	1	0	1	0	0
YEAR: 2012														
REAR-END	0	0	1	1	0	0	0	1	0	1	0	1	0	0
2012 TOTAL	0	0	1	1	0	0	0	1	0	1	0	1	0	0
YEAR: 2011														
REAR-END	0	1	0	1	0	3	0	1	0	1	0	1	0	0
TURNING MOVEMENTS	0	2	0	2	0	2	0	0	2	2	0	2	0	0
2011 TOTAL	0	3	0	3	0	5	0	1	2	3	0	3	0	0
YEAR: 2010														
REAR-END	0	2	0	2	0	2	0	2	0	2	0	2	0	0
2010 TOTAL	0	2	0	2	0	2	0	2	0	2	0	2	0	0
YEAR: 2009														
REAR-END	0	0	1	1	0	0	0	1	0	1	0	1	0	0
TURNING MOVEMENTS	0	0	1	1	0	0	0	1	0	1	0	1	0	0
2009 TOTAL	0	0	2	2	0	0	0	2	0	2	0	2	0	0
FINAL TOTAL	0	5	4	9	0	7	0	7	2	9	0	9	0	0

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

Willamette Drive /Oswego Hwy (003) & Marylhurst Drive/Lazy River Drive
 January 1, 2009 through December 31, 2013

COLLISION TYPE	FATAL CRASHES	NON- FATAL CRASHES	PROPERTY DAMAGE ONLY	TOTAL CRASHES	PEOPLE KILLED	PEOPLE INJURED	TRUCKS	DRY SURF	WET SURF	DAY	DARK	INTER- SECTION	INTER- SECTION RELATED	OFF- ROAD
YEAR: 2012														
TURNING MOVEMENTS	0	0	1	1	0	0	0	0	1	1	0	1	0	0
2012 TOTAL	0	0	1	1	0	0	0	0	1	1	0	1	0	0
YEAR: 2010														
REAR-END	0	2	0	2	0	3	0	1	1	2	0	2	0	0
2010 TOTAL	0	2	0	2	0	3	0	1	1	2	0	2	0	0
FINAL TOTAL	0	2	1	3	0	3	0	1	2	3	0	3	0	0

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

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

003 OSWEGO

Willamette Drive /Oswego Hwy (003) & Marylhurst Drive/Lazy River Drive
 January 1, 2009 through December 31, 2013

SER#	D C S L K	G D P R S W E A U C O DATE	DATE	COUNTY	RD# FC COMPNT	CONN #	FIRST STREET	SECOND STREET	RD CHAR DIRECT	INT-TYP (#LANES)	INT-REL TRAF- CNEL	OFFRD WTHR RNDBT	WTHR SURF	CRASH TYP COLL TYP SVRTY	SPCL USE TRLR QTY OWNER	MOVE FROM	PRTC INJ P# TYPE SVRTY	A S G E LICNS E X RES	PED LOC	ERROR	ACTN EVENT	CAUSE
01333	N N N N N	04/21/2010	Wed	CLACKAMAS	1 14		LAZY RIVER DR	WILLAMETTE DR	INTER	CROSS	N	N CLR	S-1STOP	01 NONE	0 STRGHT						07	
CITY		8A		WEST LINN	0 0		LAZY RIVER DR		SE		TRF SIGNAL	N DRY	REAR	PRVTE	SE NW					043,026	001	07
				PORTLAND UA	8.43		WILLAMETTE DR		06	0		N DAY	INJ	PSNGR CAR		01 DRVR INJB	55 F OR-Y		OR<25		000	
														02 NONE	0 STOP						011	00
														PRVTE	SE NW					000	000	00
														PSNGR CAR		01 DRVR NONE	41 M OR-Y		OR<25		000	00
01650	N N N N N	05/17/2010	Mon	CLACKAMAS	1 14		LAZY RIVER DR	WILLAMETTE DR	INTER	CROSS	N	N RAIN	S-1STOP	01 NONE	0 STRGHT						013	27,07
CITY		4P		WEST LINN	0 0		LAZY RIVER DR		SE		TRF SIGNAL	N WET	REAR	PRVTE	SE NW					016,043,026	000	00
				PORTLAND UA	8.43		WILLAMETTE DR		06	0		N DAY	INJ	PSNGR CAR		01 DRVR NONE	21 M OR-Y		OR<25		000	27,07
														02 NONE	0 STOP						011	013
														PRVTE	SE NW					000	000	00
														PSNGR CAR		01 DRVR INJC	64 M OR-Y		OR<25		000	00
														03 NONE	0 STOP						022	00
														PRVTE	SE NW					000	000	00
														PSNGR CAR		01 DRVR INJC	53 F OR-Y		OR<25		000	00
04783	N N N	12/10/2012	Mon	CLACKAMAS	1 14		LAZY RIVER DR	WILLAMETTE DR	INTER	CROSS	N	N UNK	0-1TURN	01 NONE	0 TURN-L						000	00
NONE		10A		WEST LINN	0 0		LAZY RIVER DR		CN		TRF SIGNAL	N WET	TURN	UNKN	NW NE					028,004	000	00
				PORTLAND UA	8.43		WILLAMETTE DR		04	0		N DAY	PDO	UNKNOWN		01 DRVR NONE	00 F UNK		UNK		000	02
														02 NONE	0 STRGHT						000	00
														PRVTE	SE NW					000	000	00
														PSNGR CAR		01 DRVR NONE	59 F OTH-Y		N-RES		000	00

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

Upper Midhill Drive & Arbor Drive
January 1, 2009 through December 31, 2013

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

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

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

Upper Midhill Drive & Marylhurst Drive
January 1, 2009 through December 31, 2013

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

TOTAL

FINAL TOTAL

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

ACTION CODE TRANSLATION LIST

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

ACTION CODE TRANSLATION LIST

ACTION CODE	SHORT DESCRIPTION	LONG DESCRIPTION
099	UNK	UNKNOWN ACTION

CAUSE CODE TRANSLATION LIST

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

COLLISION TYPE CODE TRANSLATION LIST

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

CRASH TYPE CODE TRANSLATION LIST

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

DRIVER LICENSE CODE TRANSLATION LIST

DRIVER RESIDENCE CODE TRANSLATION LIST

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

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

ERROR CODE TRANSLATION LIST

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

ERROR CODE TRANSLATION LIST

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

EVENT CODE TRANSLATION LIST

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

EVENT CODE TRANSLATION LIST

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

EVENT CODE TRANSLATION LIST

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

FUNCTIONAL CLASSIFICATION TRANSLATION LIST

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

HIGHWAY COMPONENT TRANSLATION LIST

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

INJURY SEVERITY CODE TRANSLATION LIST

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

LIGHT CONDITION CODE TRANSLATION LIST

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

MEDIAN TYPE CODE TRANSLATION LIST

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

MILEAGE TYPE CODE TRANSLATION LIST

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

MOVEMENT TYPE CODE TRANSLATION LIST

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

PEDESTRIAN LOCATION CODE TRANSLATION LIST

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

ROAD CHARACTER CODE TRANSLATION LIST

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

PARTICIPANT TYPE CODE TRANSLATION LIST

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

TRAFFIC CONTROL DEVICE CODE TRANSLATION LIST

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

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

VEHICLE TYPE CODE TRANSLATION LIST

WEATHER CONDITION CODE TRANSLATION LIST

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

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

Appendix E Year 2016 Background Traffic
Conditions Worksheets



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↕		↕	↕	↕	↕↕	↕	↕	↕↕	↕
Volume (vph)	1	0	6	2	0	1	3	1017	31	15	279	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5	4.5	
Lane Util. Factor		1.00	1.00		1.00	1.00	1.00	0.95	1.00	1.00	0.95	
Frbp, ped/bikes		1.00	0.99		1.00	1.00	1.00	1.00	0.98	1.00	1.00	
Flpb, ped/bikes		1.00	1.00		1.00	1.00	0.99	1.00	1.00	1.00	1.00	
FrT		1.00	0.85		1.00	0.85	1.00	1.00	0.85	1.00	1.00	
FlT Protected		0.95	1.00		0.95	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1805	1594		1803	1615	1789	3438	1477	1687	3438	
FlT Permitted		1.00	1.00		1.00	1.00	0.57	1.00	1.00	0.25	1.00	
Satd. Flow (perm)		1900	1594		1898	1615	1074	3438	1477	445	3438	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	1	0	6	2	0	1	3	1082	33	16	297	0
RTOR Reduction (vph)	0	0	6	0	0	1	0	0	4	0	0	0
Lane Group Flow (vph)	0	1	0	0	2	0	3	1082	29	16	297	0
Confl. Peds. (#/hr)			1	1			9					9
Confl. Bikes (#/hr)									3			
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	5%	7%	7%	5%	0%
Turn Type	Perm		Perm	Perm		Perm	pm+pt		Perm	pm+pt		Perm
Protected Phases		8			4		5	2		1	6	
Permitted Phases	8		8	4	4	4	2		2	6		6
Actuated Green, G (s)		1.2	1.2		1.2	1.2	84.3	83.3	83.3	86.3	84.3	
Effective Green, g (s)		1.2	1.2		1.2	1.2	84.3	83.3	83.3	86.3	84.3	
Actuated g/C Ratio		0.01	0.01		0.01	0.01	0.84	0.83	0.83	0.86	0.84	
Clearance Time (s)		4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5	4.5	
Vehicle Extension (s)		2.5	2.5		2.5	2.5	2.3	4.8	4.8	2.3	4.8	
Lane Grp Cap (vph)		23	19		23	19	913	2864	1230	409	2898	
v/s Ratio Prot							0.00	c0.31		c0.00	0.09	
v/s Ratio Perm		0.00	0.00		c0.00	0.00	0.00		0.02	0.03		
v/c Ratio		0.04	0.00		0.09	0.00	0.00	0.38	0.02	0.04	0.10	
Uniform Delay, d1		48.8	48.8		48.9	48.8	1.2	2.0	1.4	1.0	1.3	
Progression Factor		1.00	1.00		1.00	1.00	0.33	0.27	0.18	1.00	1.00	
Incremental Delay, d2		0.6	0.1		1.2	0.0	0.0	0.3	0.0	0.0	0.0	
Delay (s)		49.4	48.9		50.0	48.8	0.4	0.8	0.3	1.1	1.4	
Level of Service		D	D		D	D	A	A	A	A	A	
Approach Delay (s)		48.9			49.6			0.8			1.4	
Approach LOS		D			D			A			A	

Intersection Summary		
HCM Average Control Delay	1.3	HCM Level of Service
HCM Volume to Capacity ratio	0.37	A
Actuated Cycle Length (s)	100.0	Sum of lost time (s)
Intersection Capacity Utilization	49.9%	13.5
Analysis Period (min)	15	ICU Level of Service
		A

c Critical Lane Group

Year 2016 Background Traffic Conditions
2: Arbor Drive & Highway 43

Weekday AM Peak Hour
8/27/2015



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Volume (veh/h)	32	0	8	11	0	12	4	1008	6	1	292	3
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	35	0	9	12	0	13	4	1096	7	1	317	3
Pedestrians		1						1				
Lane Width (ft)		12.0						12.0				
Walking Speed (ft/s)		4.0						4.0				
Percent Blockage		0						0				
Right turn flare (veh)												
Median type								None			None	
Median storage veh												
Upstream signal (ft)								992			884	
pX, platoon unblocked	0.30	0.30		0.30	0.30	0.30				0.30		
vC, conflicting volume	1443	1433	321	1438	1431	1099	322			1102		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1309	1276	321	1294	1271	158	322			169		
tC, single (s)	7.2	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.6	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	8	100	99	71	100	95	100			100		
cM capacity (veh/h)	38	50	723	41	50	267	1249			425		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	43	25	1107	322
Volume Left	35	12	4	1
Volume Right	9	13	7	3
cSH	47	74	1249	425
Volume to Capacity	0.93	0.34	0.00	0.00
Queue Length 95th (ft)	96	32	0	0
Control Delay (s)	248.0	76.8	0.1	0.1
Lane LOS	F	F	A	A
Approach Delay (s)	248.0	76.8	0.1	0.1
Approach LOS	F	F		

Intersection Summary			
Average Delay		8.6	
Intersection Capacity Utilization	66.9%	ICU Level of Service	C
Analysis Period (min)	15		

Year 2016 Background Traffic Conditions
3: Marylhurst Drive & Highway 43

Weekday AM Peak Hour

8/27/2015



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↗	↘		↗	↘	
Volume (vph)	49	4	36	16	2	21	13	938	43	6	301	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			4.5		4.5	5.0		4.5	5.0	
Lane Util. Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Frbp, ped/bikes		1.00			0.99		1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00			1.00		1.00	1.00		1.00	1.00	
Frt		0.95			0.93		1.00	0.99		1.00	1.00	
Flt Protected		0.97			0.98		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1722			1701		1568	1801		1805	1812	
Flt Permitted		0.86			0.84		0.56	1.00		0.18	1.00	
Satd. Flow (perm)		1514			1454		922	1801		342	1812	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	53	4	39	17	2	23	14	1009	46	6	324	6
RTOR Reduction (vph)	0	28	0	0	21	0	0	1	0	0	0	0
Lane Group Flow (vph)	0	68	0	0	21	0	14	1054	0	6	330	0
Confl. Peds. (#/hr)	2					2	1					1
Heavy Vehicles (%)	0%	0%	3%	0%	0%	0%	15%	5%	0%	0%	4%	33%
Turn Type	Perm		Perm			pm+pt		pm+pt				
Protected Phases		8			4		5	2		1	6	
Permitted Phases	8			4			2			6		
Actuated Green, G (s)		8.6			8.6		77.5	76.4		77.3	76.3	
Effective Green, g (s)		8.6			8.6		77.5	76.4		77.3	76.3	
Actuated g/C Ratio		0.09			0.09		0.78	0.76		0.77	0.76	
Clearance Time (s)		4.5			4.5		4.5	5.0		4.5	5.0	
Vehicle Extension (s)		2.5			2.5		2.3	5.2		2.3	5.2	
Lane Grp Cap (vph)		130			125		722	1376		279	1383	
v/s Ratio Prot							0.00	c0.59		c0.00	0.18	
v/s Ratio Perm		c0.04			0.01		0.01			0.02		
v/c Ratio		0.52			0.17		0.02	0.77		0.02	0.24	
Uniform Delay, d1		43.7			42.4		2.6	6.7		6.6	3.4	
Progression Factor		1.00			1.00		1.00	1.00		1.89	1.79	
Incremental Delay, d2		2.8			0.5		0.0	4.1		0.0	0.4	
Delay (s)		46.6			42.8		2.6	10.8		12.5	6.6	
Level of Service		D			D		A	B		B	A	
Approach Delay (s)		46.6			42.8			10.7			6.7	
Approach LOS		D			D			B			A	

Intersection Summary

HCM Average Control Delay	12.9	HCM Level of Service	B
HCM Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	67.4%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Stop			Stop
Volume (vph)	2	4	1	0	32	2
Peak Hour Factor	0.66	0.66	0.66	0.66	0.66	0.66
Hourly flow rate (vph)	3	6	2	0	48	3

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total (vph)	9	2	52
Volume Left (vph)	3	0	48
Volume Right (vph)	6	0	0
Hadj (s)	-0.33	1.70	0.19
Departure Headway (s)	3.7	5.7	4.1
Degree Utilization, x	0.01	0.00	0.06
Capacity (veh/h)	957	623	869
Control Delay (s)	6.7	8.7	7.4
Approach Delay (s)	6.7	8.7	7.4
Approach LOS	A	A	A

Intersection Summary			
Delay		7.3	
HCM Level of Service		A	
Intersection Capacity Utilization		18.5%	ICU Level of Service A
Analysis Period (min)		15	

Year 2016 Background Traffic Conditions
5: Marylhurst Drive & Upper Midhill Drive

Weekday AM Peak Hour
8/27/2015



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Volume (veh/h)	1	66	0	1	15	1	0	0	5	8	0	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Hourly flow rate (vph)	1	74	0	1	17	1	0	0	6	9	0	0
Pedestrians		1			1							
Lane Width (ft)		12.0			12.0							
Walking Speed (ft/s)		4.0			4.0							
Percent Blockage		0			0							
Right turn flare (veh)												
Median type		None			None							
Median storage veh												
Upstream signal (ft)					868							
pX, platoon unblocked												
vC, conflicting volume	18			74			97	97	75	103	96	18
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	18			74			97	97	75	103	96	18
tC, single (s)	5.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	3.1			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			100	100	99	99	100	100
cM capacity (veh/h)	1141			1538			888	796	991	876	796	1065

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	75	19	6	9
Volume Left	1	1	0	9
Volume Right	0	1	6	0
cSH	1141	1538	991	876
Volume to Capacity	0.00	0.00	0.01	0.01
Queue Length 95th (ft)	0	0	0	1
Control Delay (s)	0.1	0.4	8.7	9.2
Lane LOS	A	A	A	A
Approach Delay (s)	0.1	0.4	8.7	9.2
Approach LOS			A	A

Intersection Summary

Average Delay	1.4
Intersection Capacity Utilization	17.3%
ICU Level of Service	A
Analysis Period (min)	15

Year 2016 Background Traffic Conditions
1: Marylbrook Drive & Highway 43

Weekday PM Peak Hour
8/27/2015



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↖	↗		↖	↗	↖	↕	↗	↖	↕	↗
Volume (vph)	5	1	8	43	0	22	6	495	20	16	1032	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor		1.00	1.00		1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frbp, ped/bikes		1.00	1.00		1.00	0.99	1.00	1.00	0.97	1.00	1.00	0.98
Flpb, ped/bikes		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		1.00	0.85		1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected		0.96	1.00		0.95	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		1822	1615		1719	1594	1805	3505	1570	1803	3471	1576
Flt Permitted		0.78	1.00		0.75	1.00	0.23	1.00	1.00	0.44	1.00	1.00
Satd. Flow (perm)		1482	1615		1364	1594	446	3505	1570	841	3471	1576
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	5	1	9	47	0	24	7	544	22	18	1134	4
RTOR Reduction (vph)	0	0	8	0	0	22	0	0	5	0	0	1
Lane Group Flow (vph)	0	6	1	0	47	2	7	544	17	18	1134	3
Confl. Peds. (#/hr)	1					1	1		2	2		1
Confl. Bikes (#/hr)									4			3
Heavy Vehicles (%)	0%	0%	0%	5%	0%	0%	0%	3%	0%	0%	4%	0%
Turn Type	Perm		Perm	Perm		Perm	pm+pt		Perm	pm+pt		Perm
Protected Phases		8			4		5	2		1	6	
Permitted Phases	8		8	4	4	4	2		2	6		6
Actuated Green, G (s)		7.8	7.8		7.8	7.8	87.6	86.6	86.6	89.8	87.7	87.7
Effective Green, g (s)		7.8	7.8		7.8	7.8	87.6	86.6	86.6	89.8	87.7	87.7
Actuated g/C Ratio		0.07	0.07		0.07	0.07	0.80	0.79	0.79	0.82	0.80	0.80
Clearance Time (s)		4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)		2.5	2.5		2.5	2.5	2.3	4.8	4.8	2.3	4.8	4.8
Lane Grp Cap (vph)		105	115		97	113	368	2759	1236	705	2767	1257
v/s Ratio Prot							0.00	0.16		c0.00	c0.33	
v/s Ratio Perm		0.00	0.00		c0.03	0.00	0.01		0.01	0.02		0.00
v/c Ratio		0.06	0.01		0.48	0.02	0.02	0.20	0.01	0.03	0.41	0.00
Uniform Delay, d1		47.7	47.5		49.2	47.5	2.4	2.9	2.5	1.9	3.4	2.3
Progression Factor		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2		0.2	0.0		2.8	0.0	0.0	0.2	0.0	0.0	0.2	0.0
Delay (s)		47.8	47.5		51.9	47.6	2.4	3.1	2.5	1.9	3.6	2.3
Level of Service		D	D		D	D	A	A	A	A	A	A
Approach Delay (s)		47.6			50.5			3.1			3.5	
Approach LOS		D			D			A			A	

Intersection Summary

HCM Average Control Delay	5.6	HCM Level of Service	A
HCM Volume to Capacity ratio	0.39		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	50.4%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Year 2016 Background Traffic Conditions
2: Arbor Drive & Highway 43

Weekday PM Peak Hour
8/27/2015

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Volume (veh/h)	13	0	11	4	0	7	5	508	11	17	1009	41	
Sign Control		Stop			Stop			Free			Free		
Grade		0%			0%			0%			0%		
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	
Hourly flow rate (vph)	14	0	12	4	0	8	5	558	12	19	1109	45	
Pedestrians		1			1								
Lane Width (ft)		12.0			12.0								
Walking Speed (ft/s)		4.0			4.0								
Percent Blockage		0			0								
Right turn flare (veh)													
Median type								None			None		
Median storage (veh)													
Upstream signal (ft)								992			884		
pX, platoon unblocked	0.26	0.26	0.22	0.26	0.26	0.92	0.22			0.92			
vC, conflicting volume	1753	1752	1132	1757	1768	565	1155			571			
vC1, stage 1 conf vol													
vC2, stage 2 conf vol													
vCu, unblocked vol	1822	1820	0	1839	1884	489	0			495			
tC, single (s)	7.2	6.5	6.2	7.1	6.5	6.2	4.1			4.2			
tC, 2 stage (s)													
tF (s)	3.6	4.0	3.3	3.5	4.0	3.3	2.2			2.3			
p0 queue free %	0	100	95	68	100	99	98			98			
cM capacity (veh/h)	14	19	238	14	18	539	356			968			
Direction, Lane #	EB 1	WB 1	NB 1	SB 1									
Volume Total	26	12	576	1173									
Volume Left	14	4	5	19									
Volume Right	12	8	12	45									
cSH	24	36	356	968									
Volume to Capacity	1.11	0.33	0.02	0.02									
Queue Length 95th (ft)	83	27	1	1									
Control Delay (s)	455.8	146.7	0.5	0.7									
Lane LOS	F	F	A	A									
Approach Delay (s)	455.8	146.7	0.5	0.7									
Approach LOS	F	F											
Intersection Summary													
Average Delay			8.3										
Intersection Capacity Utilization			76.3%		ICU Level of Service					D			
Analysis Period (min)			15										

Year 2016 Background Traffic Conditions
3: Marylhurst Drive & Highway 43

Weekday PM Peak Hour
8/27/2015



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↕	↕		↕	↕	
Volume (vph)	25	1	49	54	3	4	65	496	18	19	969	24
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			4.5		4.5	5.0		4.5	5.0	
Lane Util. Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Frbp, ped/bikes		0.98			1.00		1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00			1.00		1.00	1.00		1.00	1.00	
Frt		0.91			0.99		1.00	0.99		1.00	1.00	
Flt Protected		0.98			0.96		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1653			1763		1770	1852		1716	1821	
Flt Permitted		0.90			0.68		0.16	1.00		0.45	1.00	
Satd. Flow (perm)		1513			1254		301	1852		809	1821	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	26	1	51	56	3	4	68	517	19	20	1009	25
RTOR Reduction (vph)	0	47	0	0	3	0	0	1	0	0	1	0
Lane Group Flow (vph)	0	31	0	0	60	0	68	535	0	20	1033	0
Confl. Peds. (#/hr)	1		2	2		1	1		3	3		1
Confl. Bikes (#/hr)									5			3
Heavy Vehicles (%)	0%	0%	2%	2%	0%	0%	2%	2%	0%	5%	4%	0%
Turn Type	Perm			Perm			pm+pt			pm+pt		
Protected Phases		8			4		5	2		1	6	
Permitted Phases	8			4			2			6		
Actuated Green, G (s)		8.1			8.1		80.5	75.8		75.3	73.2	
Effective Green, g (s)		8.1			8.1		80.5	75.8		75.3	73.2	
Actuated g/C Ratio		0.08			0.08		0.80	0.76		0.75	0.73	
Clearance Time (s)		4.5			4.5		4.5	5.0		4.5	5.0	
Vehicle Extension (s)		2.5			2.5		2.3	5.2		2.3	5.2	
Lane Grp Cap (vph)		123			102		311	1404		628	1333	
v/s Ratio Prot							c0.01	0.29		0.00	c0.57	
v/s Ratio Perm		0.02			c0.05		0.17			0.02		
v/c Ratio		0.25			0.59		0.22	0.38		0.03	0.78	
Uniform Delay, d1		43.1			44.3		8.5	4.1		3.1	8.3	
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.8			7.4		0.2	0.8		0.0	4.5	
Delay (s)		43.9			51.8		8.7	4.9		3.1	12.8	
Level of Service		D			D		A	A		A	B	
Approach Delay (s)		43.9			51.8			5.3			12.6	
Approach LOS		D			D			A			B	

Intersection Summary

HCM Average Control Delay	12.9	HCM Level of Service	B
HCM Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	18.5
Intersection Capacity Utilization	70.0%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	Y		P			Y
Sign Control	Stop		Stop			Stop
Volume (vph)	12	32	5	3	19	10
Peak Hour Factor	0.69	0.69	0.69	0.69	0.69	0.69
Hourly flow rate (vph)	17	46	7	4	28	14

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total (vph)	64	12	42
Volume Left (vph)	17	0	28
Volume Right (vph)	46	4	0
Hadj (s)	-0.34	-0.22	0.25
Departure Headway (s)	3.7	3.8	4.3
Degree Utilization, x	0.07	0.01	0.05
Capacity (veh/h)	960	907	822
Control Delay (s)	6.9	6.9	7.5
Approach Delay (s)	6.9	6.9	7.5
Approach LOS	A	A	A

Intersection Summary			
Delay		7.1	
HCM Level of Service		A	
Intersection Capacity Utilization		18.2%	ICU Level of Service A
Analysis Period (min)		15	

Year 2016 Background Traffic Conditions
5: Marylhurst Drive & Upper Midhill Drive

Weekday PM Peak Hour
8/27/2015



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Volume (veh/h)	2	51	1	1	60	7	0	0	1	8	0	8
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67
Hourly flow rate (vph)	3	76	1	1	90	10	0	0	1	12	0	12
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (ft)					868							
pX, platoon unblocked												
vC, conflicting volume	100			78			193	186	77	182	181	95
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	100			78			193	186	77	182	181	95
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			100	100	100	98	100	99
cM capacity (veh/h)	1505			1534			760	710	990	781	714	967

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	81	101	1	24
Volume Left	3	1	0	12
Volume Right	1	10	1	12
cSH	1505	1534	990	864
Volume to Capacity	0.00	0.00	0.00	0.03
Queue Length 95th (ft)	0	0	0	2
Control Delay (s)	0.3	0.1	8.6	9.3
Lane LOS	A	A	A	A
Approach Delay (s)	0.3	0.1	8.6	9.3
Approach LOS			A	A

Intersection Summary

Average Delay	1.3
Intersection Capacity Utilization	18.2%
ICU Level of Service	A
Analysis Period (min)	15

Appendix F Year 2016 Total Traffic
Conditions Worksheets

Year 2016 Total Traffic Conditions
1: Marylbrook Drive & Highway 43

Weekday AM Peak Hour
9/2/2015



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↖	↗		↖	↗	↖	↑↑	↗	↖	↑↑	↗
Volume (vph)	1	0	6	2	0	1	3	1028	31	15	283	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5	4.5	
Lane Util. Factor		1.00	1.00		1.00	1.00	1.00	0.95	1.00	1.00	0.95	
Frbp, ped/bikes		1.00	0.99		1.00	1.00	1.00	1.00	0.98	1.00	1.00	
Flpb, ped/bikes		1.00	1.00		1.00	1.00	0.99	1.00	1.00	1.00	1.00	
Frt		1.00	0.85		1.00	0.85	1.00	1.00	0.85	1.00	1.00	
Flt Protected		0.95	1.00		0.95	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1805	1594		1803	1615	1789	3438	1477	1687	3438	
Flt Permitted		1.00	1.00		1.00	1.00	0.57	1.00	1.00	0.25	1.00	
Satd. Flow (perm)		1900	1594		1898	1615	1070	3438	1477	439	3438	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	1	0	6	2	0	1	3	1094	33	16	301	0
RTOR Reduction (vph)	0	0	6	0	0	1	0	0	4	0	0	0
Lane Group Flow (vph)	0	1	0	0	2	0	3	1094	29	16	301	0
Confl. Peds. (#/hr)			1	1			9					9
Confl. Bikes (#/hr)									3			
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	5%	7%	7%	5%	0%
Turn Type	Perm		Perm	Perm		Perm	pm+pt		Perm	pm+pt		Perm
Protected Phases		8			4		5	2		1	6	
Permitted Phases	8		8	4	4	4	2		2	6		6
Actuated Green, G (s)		1.2	1.2		1.2	1.2	84.3	83.3	83.3	86.3	84.3	
Effective Green, g (s)		1.2	1.2		1.2	1.2	84.3	83.3	83.3	86.3	84.3	
Actuated g/C Ratio		0.01	0.01		0.01	0.01	0.84	0.83	0.83	0.86	0.84	
Clearance Time (s)		4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5	4.5	
Vehicle Extension (s)		2.5	2.5		2.5	2.5	2.3	4.8	4.8	2.3	4.8	
Lane Grp Cap (vph)		23	19		23	19	909	2864	1230	404	2898	
v/s Ratio Prot							0.00	c0.32		c0.00	0.09	
v/s Ratio Perm		0.00	0.00		c0.00	0.00	0.00		0.02	0.03		
v/c Ratio		0.04	0.00		0.09	0.00	0.00	0.38	0.02	0.04	0.10	
Uniform Delay, d1		48.8	48.8		48.9	48.8	1.2	2.0	1.4	1.0	1.4	
Progression Factor		1.00	1.00		1.00	1.00	0.42	0.29	0.22	1.00	1.00	
Incremental Delay, d2		0.6	0.1		1.2	0.0	0.0	0.3	0.0	0.0	0.0	
Delay (s)		49.4	48.9		50.0	48.8	0.5	0.9	0.3	1.1	1.4	
Level of Service		D	D		D	D	A	A	A	A	A	
Approach Delay (s)		48.9			49.6			0.9			1.4	
Approach LOS		D			D			A			A	

Intersection Summary

















HCM Average Control Delay	1.3	HCM Level of Service	A
HCM Volume to Capacity ratio	0.37		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	50.2%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Year 2016 Total Traffic Conditions
2: Arbor Drive & Highway 43

Weekday AM Peak Hour

9/2/2015

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	32	0	15	11	0	12	7	1019	6	1	292	7
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	35	0	16	12	0	13	8	1108	7	1	317	8
Pedestrians		1						1				
Lane Width (ft)		12.0						12.0				
Walking Speed (ft/s)		4.0						4.0				
Percent Blockage		0						0				
Right turn flare (veh)												
Median type								None			None	
Median storage (veh)												
Upstream signal (ft)								992			884	
pX, platoon unblocked	0.32	0.32		0.32	0.32	0.32				0.32		
vC, conflicting volume	1464	1454	323	1467	1454	1111	326			1114		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1386	1356	323	1396	1357	286	326			296		
tC, single (s)	7.2	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.6	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	2	100	98	68	100	95	99			100		
cM capacity (veh/h)	36	48	721	37	48	243	1244			409		
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	51	25	1122	326								
Volume Left	35	12	8	1								
Volume Right	16	13	7	8								
cSH	51	67	1244	409								
Volume to Capacity	1.00	0.38	0.01	0.00								
Queue Length 95th (ft)	110	35	0	0								
Control Delay (s)	254.4	88.4	0.2	0.1								
Lane LOS	F	F	A	A								
Approach Delay (s)	254.4	88.4	0.2	0.1								
Approach LOS	F	F										
Intersection Summary												
Average Delay			10.1									
Intersection Capacity Utilization			70.0%		ICU Level of Service					C		
Analysis Period (min)			15									

Year 2016 Total Traffic Conditions
3: Marylhurst Drive & Highway 43

Weekday AM Peak Hour
9/2/2015



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↗	↘		↗	↘	
Volume (vph)	60	4	42	16	2	21	15	941	43	6	308	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			4.5		4.5	5.0		4.5	5.0	
Lane Util. Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Frbp, ped/bikes		1.00			0.99		1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00			1.00		1.00	1.00		1.00	1.00	
Frt		0.95			0.93		1.00	0.99		1.00	1.00	
Flt Protected		0.97			0.98		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1724			1701		1568	1801		1805	1812	
Flt Permitted		0.84			0.86		0.54	1.00		0.17	1.00	
Satd. Flow (perm)		1483			1489		892	1801		314	1812	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	65	4	45	17	2	23	16	1012	46	6	331	6
RTOR Reduction (vph)	0	27	0	0	21	0	0	1	0	0	1	0
Lane Group Flow (vph)	0	87	0	0	21	0	16	1057	0	6	336	0
Confl. Peds. (#/hr)	2					2	1					1
Heavy Vehicles (%)	0%	0%	3%	0%	0%	0%	15%	5%	0%	0%	4%	33%
Turn Type	Perm		Perm		pm+pt		pm+pt					
Protected Phases		8			4		5	2		1	6	
Permitted Phases	8			4			2			6		
Actuated Green, G (s)		10.8			10.8		76.3	74.2		74.1	73.1	
Effective Green, g (s)		10.8			10.8		76.3	74.2		74.1	73.1	
Actuated g/C Ratio		0.11			0.11		0.76	0.74		0.74	0.73	
Clearance Time (s)		4.5			4.5		4.5	5.0		4.5	5.0	
Vehicle Extension (s)		2.5			2.5		2.3	5.2		2.3	5.2	
Lane Grp Cap (vph)		160			161		695	1336		248	1325	
v/s Ratio Prot							c0.00	c0.59		0.00	0.19	
v/s Ratio Perm		c0.06			0.01		0.02			0.02		
v/c Ratio		0.55			0.13		0.02	0.79		0.02	0.25	
Uniform Delay, d1		42.3			40.4		2.9	8.1		8.1	4.4	
Progression Factor		1.00			1.00		1.00	1.00		1.83	1.58	
Incremental Delay, d2		3.0			0.3		0.0	4.9		0.0	0.5	
Delay (s)		45.3			40.6		2.9	12.9		14.9	7.5	
Level of Service		D			D		A	B		B	A	
Approach Delay (s)		45.3			40.6			12.8			7.6	
Approach LOS		D			D			B			A	

Intersection Summary

HCM Average Control Delay	14.7	HCM Level of Service	B
HCM Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	69.1%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	Y		P			Y
Sign Control	Stop		Stop			Stop
Volume (vph)	2	11	3	0	39	20
Peak Hour Factor	0.66	0.66	0.66	0.66	0.66	0.66
Hourly flow rate (vph)	3	17	5	0	59	30

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total (vph)	20	5	89
Volume Left (vph)	3	0	59
Volume Right (vph)	17	0	0
Hadj (s)	-0.48	1.70	0.13
Departure Headway (s)	3.6	5.7	4.1
Degree Utilization, x	0.02	0.01	0.10
Capacity (veh/h)	961	616	874
Control Delay (s)	6.7	8.8	7.5
Approach Delay (s)	6.7	8.8	7.5
Approach LOS	A	A	A

Intersection Summary

Delay		7.4	
HCM Level of Service		A	
Intersection Capacity Utilization		19.9%	ICU Level of Service A
Analysis Period (min)		15	

Year 2016 Total Traffic Conditions
5: Marylhurst Drive & Upper Midhill Drive

Weekday AM Peak Hour
9/2/2015



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Volume (veh/h)	1	66	0	1	15	3	0	0	5	25	0	1
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Hourly flow rate (vph)	1	74	0	1	17	3	0	0	6	28	0	1
Pedestrians		1			1							
Lane Width (ft)		12.0			12.0							
Walking Speed (ft/s)		4.0			4.0							
Percent Blockage		0			0							
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (ft)					868							
pX, platoon unblocked												
vC, conflicting volume	20			74			99	99	75	104	97	20
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	20			74			99	99	75	104	97	20
tC, single (s)	5.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	3.1			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			100	100	99	97	100	100
cM capacity (veh/h)	1138			1538			884	794	991	874	795	1063

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	75	21	6	29
Volume Left	1	1	0	28
Volume Right	0	3	6	1
cSH	1138	1538	991	880
Volume to Capacity	0.00	0.00	0.01	0.03
Queue Length 95th (ft)	0	0	0	3
Control Delay (s)	0.1	0.4	8.7	9.2
Lane LOS	A	A	A	A
Approach Delay (s)	0.1	0.4	8.7	9.2
Approach LOS			A	A

Intersection Summary

Average Delay	2.6
Intersection Capacity Utilization	18.7%
ICU Level of Service	A
Analysis Period (min)	15

Year 2016 Total Traffic Conditions
1: Marylbrook Drive & Highway 43

Weekday PM Peak Hour
9/2/2015



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗		↕	↗	↖	↕↕	↗	↖	↕↕	↗
Volume (vph)	5	1	8	43	0	22	6	501	20	16	1043	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor		1.00	1.00		1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frpb, ped/bikes		1.00	1.00		1.00	0.99	1.00	1.00	0.97	1.00	1.00	0.98
Flpb, ped/bikes		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		1.00	0.85		1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected		0.96	1.00		0.95	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		1822	1615		1719	1594	1805	3505	1570	1803	3471	1576
Flt Permitted		0.78	1.00		0.75	1.00	0.23	1.00	1.00	0.44	1.00	1.00
Satd. Flow (perm)		1482	1615		1364	1594	440	3505	1570	836	3471	1576
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	5	1	9	47	0	24	7	551	22	18	1146	4
RTOR Reduction (vph)	0	0	8	0	0	22	0	0	5	0	0	1
Lane Group Flow (vph)	0	6	1	0	47	2	7	551	17	18	1146	3
Confl. Peds. (#/hr)	1					1	1		2	2		1
Confl. Bikes (#/hr)									4			3
Heavy Vehicles (%)	0%	0%	0%	5%	0%	0%	0%	3%	0%	0%	4%	0%
Turn Type	Perm		Perm	Perm		Perm	pm+pt		Perm	pm+pt		Perm
Protected Phases		8			4		5	2		1	6	
Permitted Phases	8		8	4	4	4	2		2	6		6
Actuated Green, G (s)		7.8	7.8		7.8	7.8	87.6	86.6	86.6	89.8	87.7	87.7
Effective Green, g (s)		7.8	7.8		7.8	7.8	87.6	86.6	86.6	89.8	87.7	87.7
Actuated g/C Ratio		0.07	0.07		0.07	0.07	0.80	0.79	0.79	0.82	0.80	0.80
Clearance Time (s)		4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)		2.5	2.5		2.5	2.5	2.3	4.8	4.8	2.3	4.8	4.8
Lane Grp Cap (vph)		105	115		97	113	363	2759	1236	701	2767	1257
v/s Ratio Prot							0.00	0.16		c0.00	c0.33	
v/s Ratio Perm		0.00	0.00		c0.03	0.00	0.02		0.01	0.02		0.00
v/c Ratio		0.06	0.01		0.48	0.02	0.02	0.20	0.01	0.03	0.41	0.00
Uniform Delay, d1		47.7	47.5		49.2	47.5	2.4	3.0	2.5	1.9	3.4	2.3
Progression Factor		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2		0.2	0.0		2.8	0.0	0.0	0.2	0.0	0.0	0.2	0.0
Delay (s)		47.8	47.5		51.9	47.6	2.4	3.1	2.5	1.9	3.6	2.3
Level of Service		D	D		D	D	A	A	A	A	A	A
Approach Delay (s)		47.6			50.5			3.1			3.5	
Approach LOS		D			D			A			A	

Intersection Summary

HCM Average Control Delay	5.6	HCM Level of Service	A
HCM Volume to Capacity ratio	0.40		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	50.7%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Year 2016 Total Traffic Conditions
2: Arbor Drive & Highway 43

Weekday PM Peak Hour
9/2/2015



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Volume (veh/h)	13	0	15	4	0	7	12	514	11	17	1009	52
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	14	0	16	4	0	8	13	565	12	19	1109	57
Pedestrians		1			1							
Lane Width (ft)		12.0			12.0							
Walking Speed (ft/s)		4.0			4.0							
Percent Blockage		0			0							
Right turn flare (veh)												
Median type								None			None	
Median storage veh												
Upstream signal (ft)								992			884	
pX, platoon unblocked	0.26	0.26	0.22	0.26	0.26	0.92	0.22			0.92		
vC, conflicting volume	1781	1780	1138	1789	1803	572	1167			578		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1894	1891	0	1928	1979	491	0			498		
tC, single (s)	7.2	6.5	6.2	7.1	6.5	6.2	4.1			4.2		
tC, 2 stage (s)												
tF (s)	3.6	4.0	3.3	3.5	4.0	3.3	2.2			2.3		
p0 queue free %	0	100	93	62	100	99	96			98		
cM capacity (veh/h)	12	17	237	12	15	534	355			961		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	31	12	590	1185
Volume Left	14	4	13	19
Volume Right	16	8	12	57
cSH	24	31	355	961
Volume to Capacity	1.27	0.39	0.04	0.02
Queue Length 95th (ft)	96	32	3	1
Control Delay (s)	514.3	183.8	1.2	0.7
Lane LOS	F	F	A	A
Approach Delay (s)	514.3	183.8	1.2	0.7
Approach LOS	F	F		

Intersection Summary

Average Delay	10.8
Intersection Capacity Utilization	74.5%
ICU Level of Service	D
Analysis Period (min)	15

Year 2016 Total Traffic Conditions
3: Marylhurst Drive & Highway 43

Weekday PM Peak Hour
9/2/2015



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↗	↘		↗	↘	
Volume (vph)	31	1	53	54	3	4	71	503	18	19	973	24
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			4.5		4.5	5.0		4.5	5.0	
Lane Util. Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Frbp, ped/bikes		0.98			1.00		1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00			1.00		1.00	1.00		1.00	1.00	
Frt		0.92			0.99		1.00	0.99		1.00	1.00	
Flt Protected		0.98			0.96		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1660			1763		1770	1852		1716	1821	
Flt Permitted		0.89			0.64		0.16	1.00		0.44	1.00	
Satd. Flow (perm)		1508			1184		294	1852		802	1821	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	32	1	55	56	3	4	74	524	19	20	1014	25
RTOR Reduction (vph)	0	50	0	0	3	0	0	1	0	0	1	0
Lane Group Flow (vph)	0	38	0	0	60	0	74	542	0	20	1038	0
Confl. Peds. (#/hr)	1		2	2		1	1		3	3		1
Confl. Bikes (#/hr)									5			3
Heavy Vehicles (%)	0%	0%	2%	2%	0%	0%	2%	2%	0%	5%	4%	0%
Turn Type	Perm			Perm			pm+pt			pm+pt		
Protected Phases		8			4		5	2		1	6	
Permitted Phases	8			4			2			6		
Actuated Green, G (s)		8.2			8.2		80.5	75.7		75.1	73.0	
Effective Green, g (s)		8.2			8.2		80.5	75.7		75.1	73.0	
Actuated g/C Ratio		0.08			0.08		0.80	0.76		0.75	0.73	
Clearance Time (s)		4.5			4.5		4.5	5.0		4.5	5.0	
Vehicle Extension (s)		2.5			2.5		2.3	5.2		2.3	5.2	
Lane Grp Cap (vph)		124			97		308	1402		621	1329	
v/s Ratio Prot							c0.01	0.29		0.00	c0.57	
v/s Ratio Perm		0.02			c0.05		0.18			0.02		
v/c Ratio		0.30			0.62		0.24	0.39		0.03	0.78	
Uniform Delay, d1		43.2			44.4		8.9	4.2		3.2	8.5	
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		1.0			10.2		0.2	0.8		0.0	4.6	
Delay (s)		44.2			54.6		9.1	5.0		3.2	13.1	
Level of Service		D			D		A	A		A	B	
Approach Delay (s)		44.2			54.6			5.5			12.9	
Approach LOS		D			D			A			B	

Intersection Summary

HCM Average Control Delay	13.4	HCM Level of Service	B
HCM Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	18.5
Intersection Capacity Utilization	74.5%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Stop			Stop
Volume (vph)	12	50	12	3	23	21
Peak Hour Factor	0.69	0.69	0.69	0.69	0.69	0.69
Hourly flow rate (vph)	17	72	17	4	33	30

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total (vph)	90	22	64
Volume Left (vph)	17	0	33
Volume Right (vph)	72	4	0
Hadj (s)	-0.40	-0.12	0.20
Departure Headway (s)	3.7	4.0	4.3
Degree Utilization, x	0.09	0.02	0.08
Capacity (veh/h)	950	861	816
Control Delay (s)	7.1	7.1	7.7
Approach Delay (s)	7.1	7.1	7.7
Approach LOS	A	A	A

Intersection Summary			
Delay		7.3	
HCM Level of Service		A	
Intersection Capacity Utilization		19.5%	ICU Level of Service A
Analysis Period (min)		15	

Year 2016 Total Traffic Conditions
5: Marylhurst Drive & Upper Midhill Drive

Weekday PM Peak Hour
9/2/2015

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	3	51	1	1	60	13	0	0	1	18	0	9
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67
Hourly flow rate (vph)	4	76	1	1	90	19	0	0	1	27	0	13
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (ft)					868							
pX, platoon unblocked												
vC, conflicting volume	109			78			201	198	77	190	189	99
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	109			78			201	198	77	190	189	99
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			100	100	100	97	100	99
cM capacity (veh/h)	1494			1534			748	699	990	771	707	962
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	82	110	1	40								
Volume Left	4	1	0	27								
Volume Right	1	19	1	13								
cSH	1494	1534	990	826								
Volume to Capacity	0.00	0.00	0.00	0.05								
Queue Length 95th (ft)	0	0	0	4								
Control Delay (s)	0.4	0.1	8.6	9.6								
Lane LOS	A	A	A	A								
Approach Delay (s)	0.4	0.1	8.6	9.6								
Approach LOS			A	A								
Intersection Summary												
Average Delay			1.9									
Intersection Capacity Utilization			19.4%		ICU Level of Service				A			
Analysis Period (min)			15									

Appendix G Year 2016 Total Traffic
Conditions Worksheets –
Mitigated

Year 2016 Total Traffic Conditions - Mitigated
2: Arbor Drive & Highway 43

Weekday AM Peak Hour
9/2/2015

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	32	0	15	11	0	12	7	1019	6	1	292	7
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	35	0	16	12	0	13	8	1108	7	1	317	8
Pedestrians		1						1				
Lane Width (ft)		12.0						12.0				
Walking Speed (ft/s)		4.0						4.0				
Percent Blockage		0						0				
Right turn flare (veh)												
Median type								None			None	
Median storage (veh)												
Upstream signal (ft)								992			883	
pX, platoon unblocked	0.32	0.32		0.32	0.32	0.32				0.32		
vC, conflicting volume	1460	1454	323	1467	1454	1111	326			1114		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1377	1356	323	1397	1358	292	326			302		
tC, single (s)	7.2	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.6	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	4	100	98	68	100	95	99			100		
cM capacity (veh/h)	36	48	721	37	48	242	1244			409		
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1							
Volume Total	51	25	8	1114	326							
Volume Left	35	12	8	0	1							
Volume Right	16	13	0	7	8							
cSH	52	67	1244	1700	409							
Volume to Capacity	0.98	0.37	0.01	0.66	0.00							
Queue Length 95th (ft)	108	35	0	0	0							
Control Delay (s)	245.3	88.0	7.9	0.0	0.1							
Lane LOS	F	F	A		A							
Approach Delay (s)	245.3	88.0	0.1		0.1							
Approach LOS	F	F										
Intersection Summary												
Average Delay			9.7									
Intersection Capacity Utilization			65.0%		ICU Level of Service		C					
Analysis Period (min)			15									

Year 2016 Total Traffic Conditions - Mitigated
2: Arbor Drive & Highway 43

Weekday PM Peak Hour
9/2/2015

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	13	0	15	4	0	7	12	514	11	17	1009	52
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	14	0	16	4	0	8	13	565	12	19	1109	57
Pedestrians		1			1							
Lane Width (ft)		12.0			12.0							
Walking Speed (ft/s)		4.0			4.0							
Percent Blockage		0			0							
Right turn flare (veh)												
Median type								None			None	
Median storage (veh)												
Upstream signal (ft)								992			883	
pX, platoon unblocked	0.25	0.25	0.22	0.25	0.25	0.93	0.22			0.93		
vC, conflicting volume	1775	1780	1138	1789	1803	572	1167			578		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1919	1940	0	1978	2029	497	0			504		
tC, single (s)	7.2	6.5	6.2	7.1	6.5	6.2	4.1			4.2		
tC, 2 stage (s)												
tF (s)	3.6	4.0	3.3	3.5	4.0	3.3	2.2			2.3		
p0 queue free %	0	100	93	59	100	99	96			98		
cM capacity (veh/h)	11	16	237	11	14	534	355			962		
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1							
Volume Total	31	12	9	581	1185							
Volume Left	14	4	9	4	19							
Volume Right	16	8	0	12	57							
cSH	23	28	355	355	962							
Volume to Capacity	1.34	0.43	0.04	0.04	0.02							
Queue Length 95th (ft)	98	34	3	3	1							
Control Delay (s)	554.1	207.2	15.5	1.0	0.7							
Lane LOS	F	F	C	A	A							
Approach Delay (s)	554.1	207.2	1.2		0.7							
Approach LOS	F	F										
Intersection Summary												
Average Delay			11.6									
Intersection Capacity Utilization		80.0%		ICU Level of Service		D						
Analysis Period (min)			15									

Year 2016 Total Traffic Conditions - Mitigated (Two-Stage)
2: Arbor Drive & Highway 43

Weekday AM Peak Hour
9/2/2015



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		+			+		+	+			+	
Volume (veh/h)	32	0	15	11	0	12	7	1019	6	1	292	7
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	35	0	16	12	0	13	8	1108	7	1	317	8
Pedestrians		1						1				
Lane Width (ft)		12.0						12.0				
Walking Speed (ft/s)		4.0						4.0				
Percent Blockage		0						0				
Right turn flare (veh)												
Median type								None			TWLTL	
Median storage (veh)											2	
Upstream signal (ft)								992			883	
pX, platoon unblocked	0.31	0.31		0.31	0.31	0.31				0.31		
vC, conflicting volume	1460	1454	323	1467	1454	1111	326			1114		
vC1, stage 1 conf vol	324	324		1126	1126							
vC2, stage 2 conf vol	1136	1129		341	328							
vCu, unblocked vol	1372	1351	323	1393	1353	247	326			258		
tC, single (s)	7.2	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)	6.2	5.5		6.1	5.5							
tF (s)	3.6	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	81	100	98	94	100	95	99			100		
cM capacity (veh/h)	185	191	721	204	194	247	1244			410		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1
Volume Total	51	25	8	1114	326
Volume Left	35	12	8	0	1
Volume Right	16	13	0	7	8
cSH	242	225	1244	1700	410
Volume to Capacity	0.21	0.11	0.01	0.66	0.00
Queue Length 95th (ft)	19	9	0	0	0
Control Delay (s)	23.8	23.0	7.9	0.0	0.1
Lane LOS	C	C	A		A
Approach Delay (s)	23.8	23.0	0.1		0.1
Approach LOS	C	C			

Intersection Summary		
Average Delay		1.2
Intersection Capacity Utilization	65.0%	ICU Level of Service C
Analysis Period (min)		15

2: Arbor Drive & Highway 43

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	13	0	15	4	0	7	12	514	11	17	1009	52
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	14	0	16	4	0	8	13	565	12	19	1109	57
Pedestrians		1			1							
Lane Width (ft)		12.0			12.0							
Walking Speed (ft/s)		4.0			4.0							
Percent Blockage		0			0							
Right turn flare (veh)												
Median type								None			TWLTL	
Median storage veh												2
Upstream signal (ft)								992				883
pX, platoon unblocked	0.26	0.26	0.21	0.26	0.26	0.91	0.21			0.91		
vC, conflicting volume	1775	1780	1138	1789	1803	572	1167			578		
vC1, stage 1 conf vol	1176	1176		598	598							
vC2, stage 2 conf vol	599	604		1191	1204							
vCu, unblocked vol	1800	1821	0	1857	1908	483	0			489		
tC, single (s)	7.2	6.5	6.2	7.1	6.5	6.2	4.1			4.2		
tC, 2 stage (s)	6.2	5.5		6.1	5.5							
tF (s)	3.6	4.0	3.3	3.5	4.0	3.3	2.2			2.3		
p0 queue free %	92	100	93	97	100	99	96			98		
cM capacity (veh/h)	179	168	234	157	142	536	351			960		
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1							
Volume Total	31	12	9	581	1185							
Volume Left	14	4	9	4	19							
Volume Right	16	8	0	12	57							
cSH	205	285	351	351	960							
Volume to Capacity	0.15	0.04	0.04	0.04	0.02							
Queue Length 95th (ft)	13	3	3	3	1							
Control Delay (s)	25.7	18.2	15.7	1.0	0.7							
Lane LOS	D	C	C	A	A							
Approach Delay (s)	25.7	18.2	1.2		0.7							
Approach LOS	D	C										
Intersection Summary												
Average Delay			1.4									
Intersection Capacity Utilization			80.0%		ICU Level of Service		D					
Analysis Period (min)			15									

LAND USE DOCUMENTS

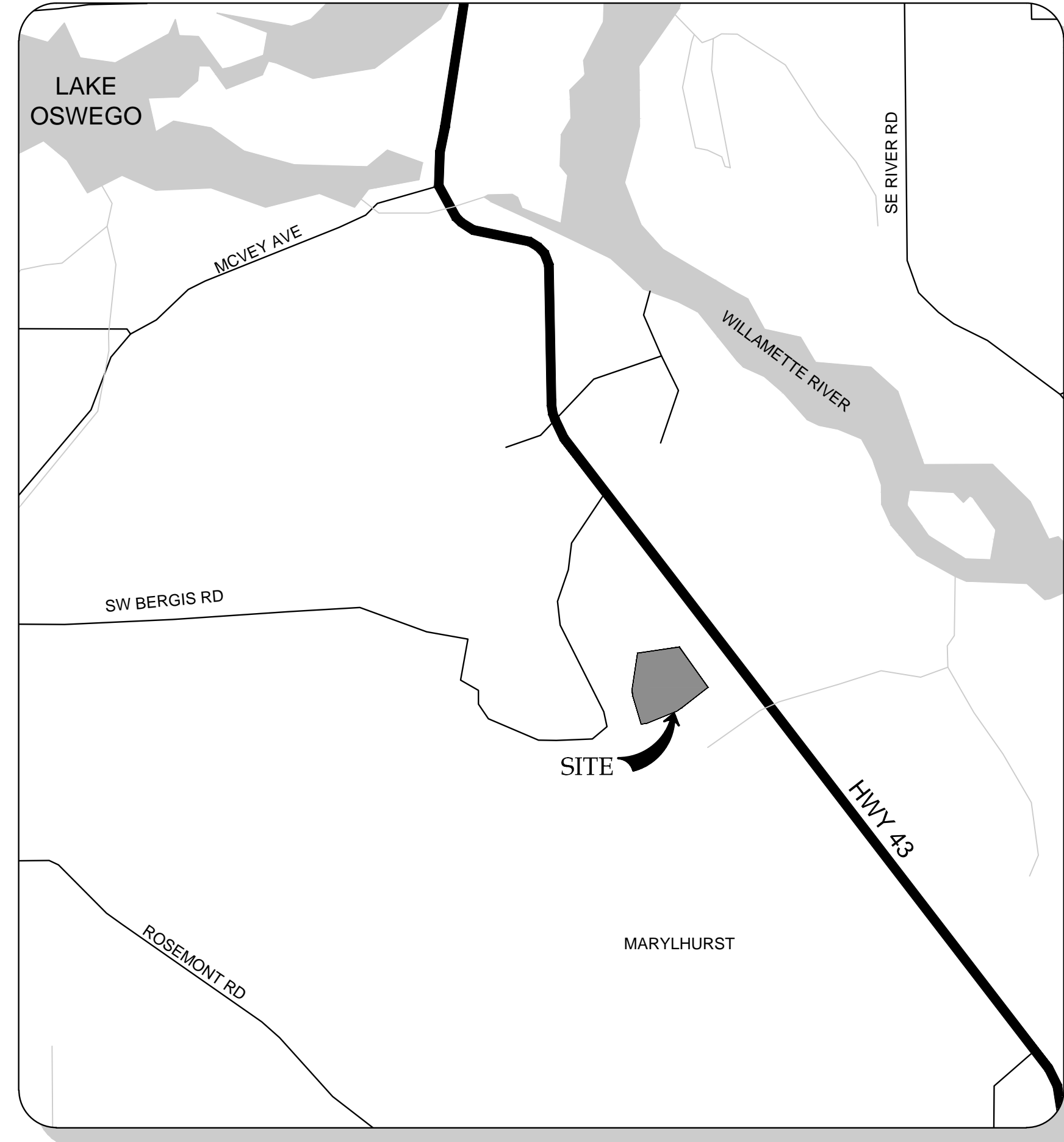
FOR

CHÊNE BLANC ESTATES

PREPARED FOR
1800 UPPER MIDHILL DRIVE, LLC

TAX LOT 200 LOCATED IN THE
NE 1/4 OF SW 1/4 SEC. 14, T.2S, R.1E., W.M.
CITY OF WEST LINN, CLACKAMAS COUNTY, OREGON

Sheet Number	Sheet Title
C000	COVER SHEET
C100	EXISTING CONDITIONS PLAN
C105	PHASE 1 DEMOLITION & EROSION CONTROL
C110	TREE PRESERVATION PLAN
C111	TREE PRESERVATION DETAILS I
C112	TREE PRESERVATION DETAILS II
C113	TREE PRESERVATION DETAILS III
C114	TREE PRESERVATION DETAILS IV
C130	SLOPE ANALYSIS PLAN
C200	PRELIMINARY PLAT
C201	TYPICAL SECTIONS
C210	PRELIMINARY SITE PLAN
C220	ROADWAY PROFILES
C230	PHASE 2 GRADING AND EROSION CONTROL
C280	PHOTOMETRICS PLAN
C300	COMPOSITE UTILITY PLAN
L1	LANDSCAPE PLAN



VICINITY MAP
NOT TO SCALE



SITE MAP
Scale: 1 inch = 100 feet



SITE INFORMATION

SITE ADDRESS 18000 UPPER MIDHILL DRIVE WEST LINN OREGON	TAX LOT(S) 2S1E14CA 00200
JURISDICTION CITY OF WEST LINN	FLOOD HAZARD MAP NUMBER: 41005C0019D ZONE X (UNSHADED)
ZONING R-4.5	GROSS SITE AREA 6.10 AC.
UTILITIES & SERVICES	
WATER, STORM, SEWER CITY OF WEST LINN CONTACT: KHOI LE PHONE: (503) 722-5517 EMAIL: kle@westlinnoregon.gov	CABLE CENTURY LINK - REGIONAL ENGINEER CONTACT: KENNETH SCIULLI PHONE: (503) 242-0304 EMAIL: kenneth.sciulli@centurylink.com
GAS NORTHWEST NATURAL - ENGINEERING CONTACT: BRIAN KELLEY PHONE: (503) 220-2427 EMAIL: brian.kelley@nwnatural.com	CABLE CENTURY LINK - REGIONAL MANAGER CONTACT: JEREMY MORRIS PHONE: (503) 293-4567 EMAIL: jeremy.morris@centurylink.com
POWER PGE CONTACT: CHRIS JEWETT PHONE: (503) 672-5481 EMAIL: chris.jewett@pgn.com	CABLE COMCAST CONTACT: KENNETH WILLS PHONE: (503) 793-9981 EMAIL: kenneth_wills@cable.comcast.com
FIRE, POLICE, SCHOOLS, ROADS, PARKS CITY OF WEST LINN	

PROJECT TEAM

OWNER / APPLICANT

UPPER MIDHILL ESTATES, LLC
C/O: RYAN ZYGAR
981 SW KING AVENUE
PORTLAND, OR 97205
PHONE: (360) 798-4838
EMAIL: ryan@zygar.com

LAND SURVEYOR

COMPASS SURVEYING
4107 SE INTERNATIONAL WAY, SUITE 705
MILWAUKIE, OR 97224
CONTACT: DON DEVLAEINCK, PLS
PHONE: 503-653-9093
EMAIL: dond@compass-engineering.com

CIVIL ENGINEER

3J CONSULTING, INC.
5075 SW GRIFFITH DRIVE, SUITE 150
BEAVERTON, OR 97005
CONTACTS:
JESSE EMERSON, PE
PHONE: (503) 946-9365 x202
EMAIL: jesse.emerson@3j-consulting.com
AARON MURPHY, PE
PHONE: (503) 946-9365 x 218
EMAIL: aaron.murphy@3j-consulting.com

PLANNING CONSULTANT

3J CONSULTING, INC.
5075 SW GRIFFITH DRIVE, SUITE 150
BEAVERTON, OR 97005
CONTACT: ANDREW TULL
PHONE: 503-946-9365
EMAIL: andrew.tull@3j-consulting.com

GEOTECHNICAL CONSULTANT

GEOPACIFIC ENGINEERING, INC.
14835 SW 72ND AVENUE
PORTLAND, OR 97224
CONTACT: JIM IMBRIE
PHONE: (503) 625-4455
EMAIL: jimbrie@geopacificeng.com

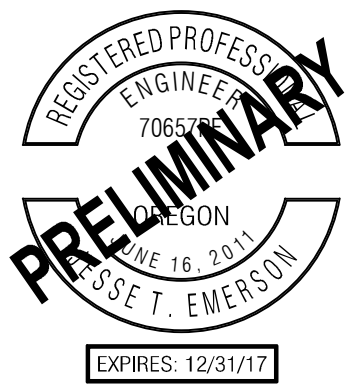
A PORTION OF "ROBINWOOD"
TAX LOT 200, MAP 2-1E-14CA
NE 1/4 SW 1/4 SEC. 35, T.2S., R.1E., W.M.
CITY OF WEST LINN,
CLACKAMAS COUNTY, OREGON

DESIGN REVIEW 01/11/2016

REVISION SUMMARY BY DATE

1/A

COVER SHEET
CHÊNE BLANC ESTATES
LAND USE DOCUMENTS
1800 UPPER MIDHILL DRIVE, LLC
WEST LINN, OR



3J JOB ID # | 15266
LAND USE # | TBD
TAX LOT # | 2S1E14CA 00200
DESIGNED BY | JTE, CKW, JCP
CHECKED BY | JTE

SHEET TITLE
COVER SHEET

SHEET NUMBER

C000

NOT FOR CONSTRUCTION

P:\15266-UPPER MIDHILL ESTATES\REESMAN\CAD\DD\100 EXISTING CONDITIONS PLAN.DWG



A PORTION OF "ROBINWOOD"
 TAX LOT 200, MAP 2-1E-14CA
 NE 1/4 SW 1/4 SEC. 35, T.2S., R.1E., W.M.
 CITY OF WEST LINN,
 CLACKAMAS COUNTY, OREGON

LEGEND

--- PROJECT BOUNDARY LINE	⊗ TEST PIT
--- RIGHT OF WAY LINE	⊗ FIRE HYDRANT
--- ROADWAY CENTER LINE	⊗ WATER VALVE
--- ADJACENT PROPERTY BOUNDARY	⊗ BLOW-OFF VALVE
--- EXISTING MAJOR CONTOUR	⊗ SIGN
--- EXISTING MINOR CONTOUR	⊗ SANITARY MANHOLE
--- EASEMENT LINE	⊗ SANITARY CLEANOUT
--- BUILDING	⊗ STORM MANHOLE
--- CURB	⊗ STORM CLEANOUT
--- FENCE	⊗ STORM INLET
--- TELECOM. LINE	⊗ TELEPHONE PEDESTAL
--- GAS LINE	⊗ EXISTING TREE*
--- UGP	
--- UNDERGROUND POWER	
--- VEGETATION LIMITS LINE	
--- SS	
--- SD	
--- W	
--- EXISTING MAPPED WETLAND	
--- EXISTING DRAINAGE SWALE	

EXISTING CONDITIONS PLAN

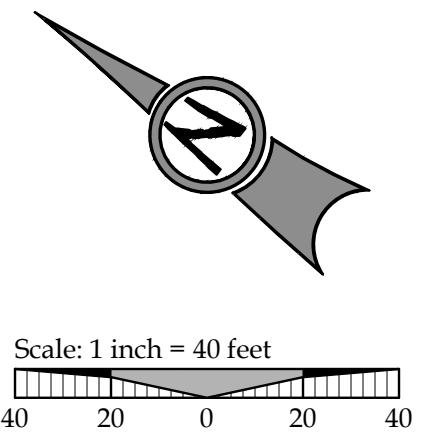
THIS PLAN IS INTENDED FOR USE AS AN EXISTING CONDITIONS PLAN SHOWING THE CONDITIONS OF THE SITE PRIOR TO CONSTRUCTION. INFORMATION SHOWN ON THIS PLAN WAS DEVELOPED FROM THE TOPOGRAPHIC SURVEY, AERIAL PHOTOS, AND SITE OBSERVATIONS BY THE ENGINEER. NOT ALL SURFACE FEATURES OR UTILITIES MAY BE SHOWN. CONTRACTOR SHALL VERIFY ALL EXISTING CONDITIONS PRIOR TO CONSTRUCTION TO DETERMINE WORK SPECIFIC DETAILS. TOPOGRAPHIC INFORMATION PROVIDED BY COMPASS LAND SURVEYING, DATED JUNE 2015.

ZONE X (UN-SHADED) THE SITE IS LOCATED WITHIN ZONE X (UN-SHADED) PER FLOOD INSURANCE RATE MAP (FIRM) COMMUNITY-PANEL NUMBER 41005C 0019 D FEMA'S DEFINITION OF ZONE X (UN-SHADED) IS AN AREA OF MINIMAL FLOOD HAZARD, USUALLY DEPICTED ON FIRMS AS ABOVE THE 500-YEAR FLOOD LEVEL. ZONE X IS THE AREA DETERMINED TO BE OUTSIDE THE 500-YEAR FLOOD AND PROTECTED BY LEVEE FROM 100-YEAR FLOOD. IN COMMUNITIES THAT PARTICIPATE IN THE NFIP, FLOOD INSURANCE IS AVAILABLE TO ALL PROPERTY OWNERS AND RENTERS IN THESE ZONES.

SURVEYOR'S NOTE

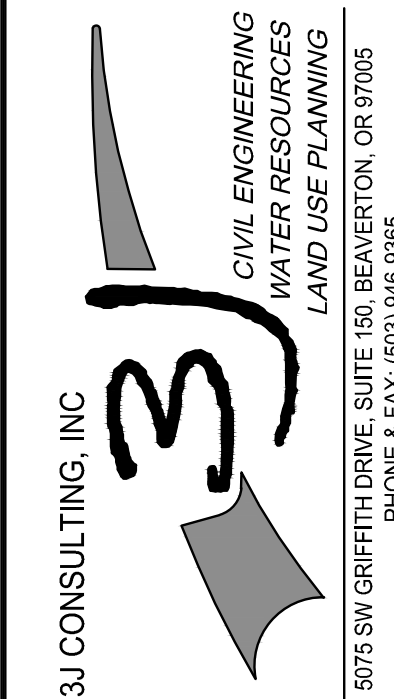
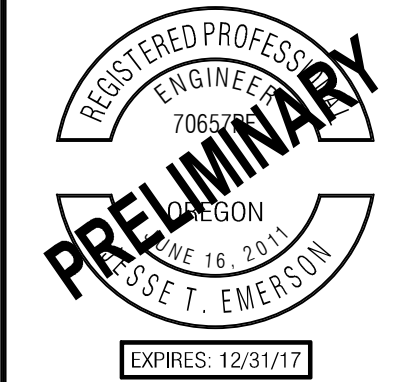
- UTILITY INFORMATION SHOWN ON THIS MAP IS BASED UPON OBSERVED FEATURES, RECORD DATA AND TONE MARKS PROVIDED BY PUBLIC UTILITY LOCATION SERVICES. NO WARRANTIES ARE MADE REGARDING THE ACCURACY OR COMPLETENESS OF THE UTILITY INFORMATION SHOWN. INTERESTED PARTIES ARE HEREBY ADVISED THAT UTILITY LOCATIONS SHOULD BE VERIFIED PRIOR TO DESIGN OR CONSTRUCTION OF ANY CRITICAL ITEMS.
- VERTICAL DATUM: NAVD88 UTILIZING GPS POSITIONING TIED TO THE ORGN WITH REAL TIME CORRECTORS REFERENCED TO DATUM NAD 83(2011) EPOCH 2010.00. THIS DATUM REALIZATION WAS VERIFIED THROUGH DIRECT OBSERVATION TO NGS CONTROL POINT Q723 HAVING A POINT IDENTIFICATION OF RD1491. THIS POINT IS DESCRIBED AS A STAINLESS STEEL ROD W/ SLEEVE NEAR THE INTERSECTION OF STATE HIGHWAY 224 AND LAKE ROAD. THE ELEVATION OF THIS POINT IS PUBLISHED AS 31.131 AND WAS ESTABLISHED BY NGS THROUGH DIFFERENTIAL LEVELING AND ADJUSTED BY THE NATIONAL GEODETIC SURVEY IN JUNE 1991 AND HAS A VERTICAL ORDER OF FIRST CLASS II.
- BASIS OF BEARINGS: CENTERLINE OF UPPER MIDHILL DRIVE AS PER THE PLAT OF "COLLEGE HILL ESTATES"
- TOPOGRAPHIC FEATURES SHOWN ON THIS MAP WERE LOCATED USING STANDARD PRECISION TOPOGRAPHIC MAPPING PROCEDURES. THIRD PARTY USERS OF DATA FROM THIS MAP PROVIDED VIA AUTOCAD DRAWING FILES OR DATA EXCHANGE FILES SHOULD NOT RELY ON ANY AUTOCAD GENERATED INFORMATION WHICH IS BEYOND THE LIMITS OF PRECISION OF THIS MAP. THIRD PARTIES USING DATA FROM THIS MAP IN AN AUTOCAD FORMAT SHOULD VERIFY ANY ELEMENTS REQUIRING PRECISE LOCATIONS PRIOR TO COMMENCEMENT OF ANY CRITICAL DESIGN OR CONSTRUCTION. CONTACT COMPASS LAND SURVEYORS FOR FURTHER INFORMATION. FURTHERMORE, COMPASS LAND SURVEYORS WILL NOT BE RESPONSIBLE NOR HELD LIABLE FOR ANY DESIGN OR CONSTRUCTION RELATED PROBLEMS THAT ARISE OUT OF THIRD PARTY USAGE OF THIS MAP (IN AUTOCAD OR OTHER FORMAT) IN ANY MANNER INCONSISTENT WITH THIS STATEMENT.
- UNDERGROUND PIPE SIZES AND MATERIAL TYPES ARE BASED UPON RECORD DRAWINGS, INFORMATION PROVIDED BY UTILITY LOCATORS AND FIELD OBSERVATIONS AT MANHOLES AND CATCH BASIN RIMS AND SHOULD BE VERIFIED.

REESMAN PROPERTY EXISTING CONDITIONS MAP
 TL 200 IN NE 1/4 OF SW 1/4 SEC. 14, T.2S, R.1E., W.M.
 CITY OF WEST LINN, CLACKAMAS COUNTY, OREGON



DESIGN REVIEW 01/11/2016
 REVISION SUMMARY BY DATE

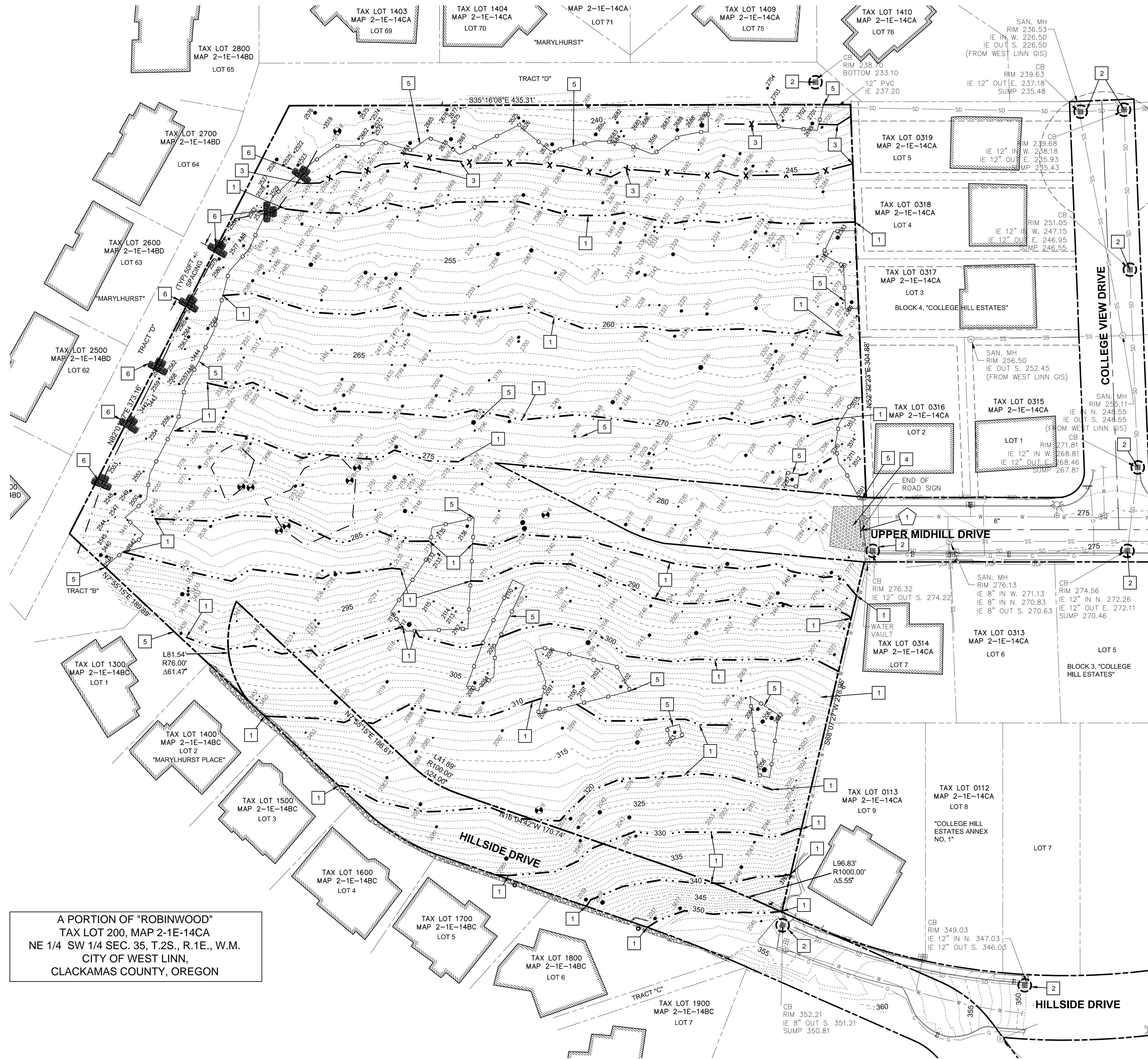
EXISTING CONDITIONS PLAN
CHÉNE BLANC ESTATES
 LAND USE DOCUMENTS
 1800 UPPER MIDHILL DRIVE, LLC
 WEST LINN, OR



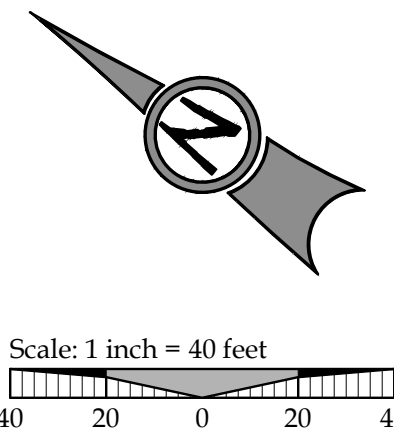
3J JOB ID #	15266
LAND USE #	TBD
TAX LOT #	251E14CA 00200
DESIGNED BY	JTE, CKW, JCP
CHECKED BY	JTE
SHEET TITLE	EX. COND.
SHEET NUMBER	C100

NOT FOR CONSTRUCTION

P:\15266-UPPER MIDHILL ESTATES (REESMAN)\CADD\C105 PHASE 1 DEMOLITION & EROSION CONTROL.DWG



A PORTION OF "ROBINWOOD"
 TAX LOT 200, MAP 2-1E-14CA
 NE 1/4 SW 1/4 SEC. 35, T.2S., R.1E., W.M.
 CITY OF WEST LINN,
 CLACKAMAS COUNTY, OREGON



- LEGEND**
- PROJECT BOUNDARY LINE
 - RIGHT OF WAY LINE
 - PROPOSED PROPERTY LINE
 - ROADWAY CENTER LINE
 - ADJACENT PROPERTY BOUNDARY
 - EXISTING MAJOR CONTOUR
 - EXISTING MINOR CONTOUR
 - EASEMENT LINE
 - STRAW WATTLE
 - SILT FENCE
 - TREE PROTECTION FENCING
 - EXISTING MAPPED WETLAND
 - EXISTING DRAINAGE SWALE
 - CONSTRUCTION ENTRANCE
 - INLET PROTECTION
 - EROSION CONTROL: BIO BAG
 - SURFACE RUNOFF FLOW ARROW
 - TREE LOCATION AND TAG NUMBER
 - TEST PIT

SEE SHEETS C110-C114 FOR TREE PRESERVATION AND REMOVAL INFORMATION

DEMOLITION KEY NOTES

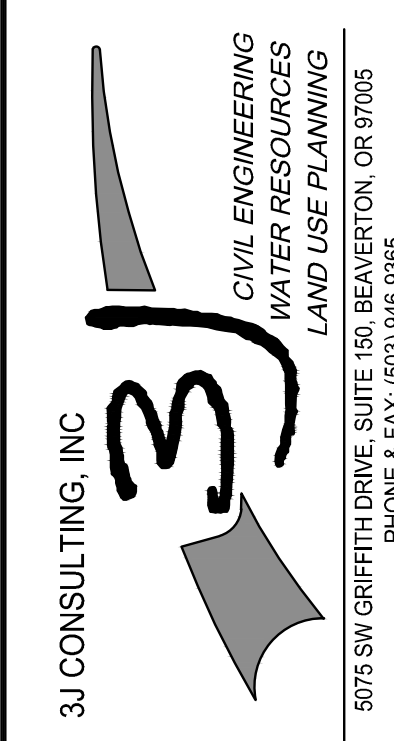
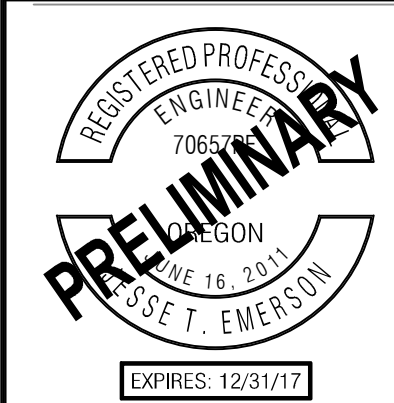
- REMOVE SIGN AND POST AND DISPOSE OF OFF-SITE.

EROSION CONTROL KEY NOTES

- INSTALL STRAW WATTLE AS NEEDED FOR CONSTRUCTION PHASING. MAINTAIN EXISTING VEGETATION AS LONG AS POSSIBLE.
- INSTALL INLET PROTECTION.
- PLACE SILT FENCING AT LIMITS OF GRADING AND CONSTRUCTION WHERE SHOWN.
- CONSTRUCT STABILIZED CONSTRUCTION ENTRANCE.
- INSTALL TREE PROTECTION FENCING AT LIMITS SHOWN.
- INSTALL EROSION CONTROL BIO BAG(S) AT LOCATION(S) SHOWN.

DESIGN REVIEW 01/11/2016
 REVISION SUMMARY BY DATE

PHASE 1 DEMOLITION & EROSION CONTROL
CHÊNE BLANC ESTATES
LAND USE DOCUMENTS
 1800 UPPER MIDHILL DRIVE, LLC
 WEST LINN, OR



3J JOB ID # | 15266
 LAND USE # | TBD
 TAX LOT # | 251E14CA 00200
 DESIGNED BY | JTE, CKW, JCP
 CHECKED BY | JTE

SHEET TITLE
PH1 DEMO & E.C.

SHEET NUMBER
C105

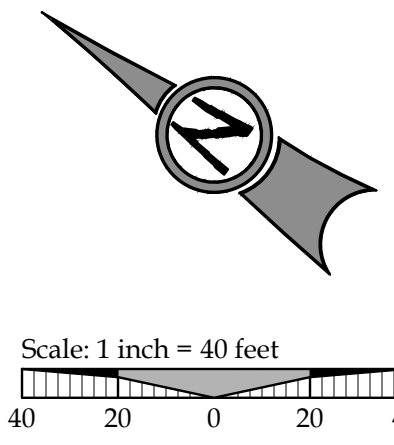


NOT FOR CONSTRUCTION

P:\15266-UPPER MIDHILL ESTATES (REESMAN)\CADD\C110 TREE PRESERVATION PLAN.DWG



A PORTION OF "ROBINWOOD"
 TAX LOT 200, MAP 2-1E-14CA
 NE 1/4 SW 1/4 SEC. 35, T.2S., R.1E., W.M.
 CITY OF WEST LINN,
 CLACKAMAS COUNTY, OREGON



LEGEND

- PROJECT BOUNDARY LINE
- RIGHT OF WAY LINE
- PROPOSED PROPERTY LINE
- ROADWAY CENTER LINE
- ADJACENT PROPERTY BOUNDARY
- EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- PROPOSED TREE PROTECTIVE FENCING
- TYPE III DELINEATION LINE
- SIGNIFICANT TREE CANOPY TO REMAIN (DRIPLINE + 10 FT)
- SIGNIFICANT TREE CANOPY TO BE REMOVED (DRIPLINE + 10 FT)
- SIGNIFICANT TREE CANOPY TO BE REMOVED (DRIPLINE + 10 FT) (NON-TYPE I OR II)
- TREE TO BE REMOVED

GENERAL TREE INVENTORY STATISTICS

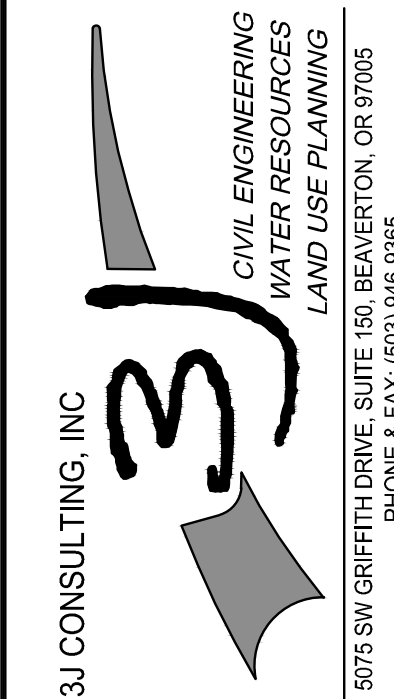
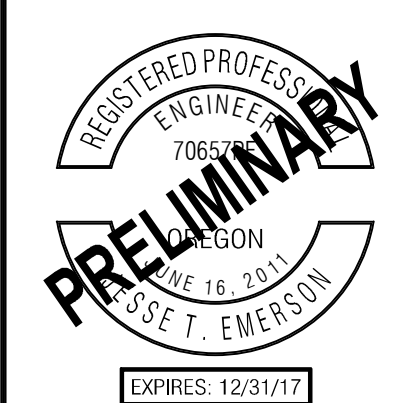
TOTAL PROPERTY AREA:	265,860 +/- SF (6.10 AC)
TOTAL TREE INVENTORY:	502
TOTAL TREES RETAINED:	114
TOTAL TREES REMOVED:	388
TOTAL TREE CALIPER INCHES:	8,906
TOTAL CALIPER INCHES RETAINED:	2,026
TOTAL CALIPER INCHES REMOVED:	6,880

SIGNIFICANT TREE STATISTICS

SIGNIFICANT TREE INVENTORY:	169
SIGNIFICANT TREES RETAINED:	50
SIGNIFICANT TREES REMOVED:	119
SIGNIFICANT TREE CALIPER INCHES:	3,891
SIGNIFICANT CALIPER INCHES RETAINED:	1,129
SIGNIFICANT CALIPER INCHES REMOVED:	2,762
EXISTING SIGNIFICANT TREE CANOPY COVERAGE:	238,212 SF
SIGNIFICANT TREE CANOPY REMOVED DUE TO R.O.W. IMPROVEMENTS:	160,349 SF
TREE PRESERVATION AREA REQUIRED (20% OF EXISTING CANOPY):	47,642 SF
TREE PRESERVATION AREA PROVIDED (33% OF EXISTING CANOPY):	77,863 SF
SIGNIFICANT NON-TYPE I OR II AREA RETAINED (DRIPLINE +10'):	0 SF
TOTAL SIGNIFICANT NON-TYPE I OR II AREA (DRIPLINE +10'):	7,045 SF
TOTAL PERCENT NON-TYPE I OR II AREA RETAINED (DRIPLINE +10'):	0%

DESIGN REVIEW 01/11/2016
 REVISION SUMMARY BY DATE

TREE PRESERVATION PLAN
CHÊNE BLANC ESTATES
 LAND USE DOCUMENTS
 1800 UPPER MIDHILL DRIVE, LLC
 WEST LINN, OR



3J JOB ID # | 15266
 LAND USE # | TBD
 TAX LOT # | 251E14CA 00200
 DESIGNED BY | JTE, CKW, JCP
 CHECKED BY | JTE

SHEET TITLE
 TREE PRES. PLAN
 SHEET NUMBER

C110



TREE INVENTORY					
SURVEY POINT NUMBER	TREE SPECIES	NOMINAL CALIPER SIZE	SIGNIFICANT DESIGNATION	PROPOSED ACTION	REMOVE DUE TO CONDITION
2037	DOUGLAS-FIR	30	SIGNIFICANT	REMOVE	ROW
2038	DOUGLAS-FIR	38	SIGNIFICANT	REMOVE	ROW
2039	DOUGLAS-FIR	32	SIGNIFICANT	REMOVE	ROW
2040	DOUGLAS-FIR	26	NON-SIGNIFICANT	REMOVE	ROW
2042	DOUGLAS-FIR	36	NON-SIGNIFICANT	REMOVE	BUILDING
2043	DOUGLAS-FIR	32	NON-SIGNIFICANT	REMOVE	BUILDING
2044	DOUGLAS-FIR	26	NON-SIGNIFICANT	REMOVE	GRADING
2045	PORT-ORFORD-CEDAR	18	NON-SIGNIFICANT	REMOVE	ROW
2046	DOUGLAS-FIR	6	NON-SIGNIFICANT	REMOVE	ROW
2047	BIG LEAF MAPLE	20	NON-SIGNIFICANT	REMOVE	BUILDING
2048	OREGON WHITE OAK	29	NON-SIGNIFICANT	REMOVE	BUILDING
2049	BIG LEAF MAPLE	18	NON-SIGNIFICANT	REMOVE	BUILDING
2050	BIG LEAF MAPLE	8	NON-SIGNIFICANT	REMOVE	CONDITION
2051	OREGON WHITE OAK	14	NON-SIGNIFICANT	REMOVE	BUILDING
2052	OREGON WHITE OAK	16	NON-SIGNIFICANT	REMOVE	BUILDING
2053	SCOULER'S WILLOW	18	NON-SIGNIFICANT	REMOVE	BUILDING
2054	RED ALDER	8	NON-SIGNIFICANT	REMOVE	CONDITION
2055	RED ALDER	10	NON-SIGNIFICANT	REMOVE	CONDITION
2056	DOUGLAS-FIR	42	SIGNIFICANT	RETAIN	N/A
2057	OREGON WHITE OAK	8, 12	NON-SIGNIFICANT	REMOVE	CONDITION
2058	BIG LEAF MAPLE	21	NON-SIGNIFICANT	REMOVE	CONDITION
2059	BIG LEAF MAPLE	14	NON-SIGNIFICANT	REMOVE	CONDITION
2060	BIG LEAF MAPLE	8	NON-SIGNIFICANT	REMOVE	CONDITION
2061	OREGON WHITE OAK	10, 12	NON-SIGNIFICANT	REMOVE	CONDITION
2062	DOUGLAS-FIR	34	SIGNIFICANT	RETAIN	N/A
2063	DOUGLAS-FIR	36	SIGNIFICANT	RETAIN	N/A
2064	DOUGLAS-FIR	28	SIGNIFICANT	RETAIN	N/A
2065	MADRONE	10	NON-SIGNIFICANT	REMOVE	CONDITION
2066	MADRONE	12	NON-SIGNIFICANT	REMOVE	CONDITION
2067	MADRONE	14	NON-SIGNIFICANT	REMOVE	CONDITION
2068	MADRONE	13	NON-SIGNIFICANT	REMOVE	CONDITION
2069	MADRONE	10, 16	NON-SIGNIFICANT	REMOVE	CONDITION
2070	DOUGLAS-FIR	24	NON-SIGNIFICANT	REMOVE	BUILDING
2071	DOUGLAS-FIR	18	NON-SIGNIFICANT	REMOVE	BUILDING
2072	BIG LEAF MAPLE	6x8, 16	NON-SIGNIFICANT	REMOVE	BUILDING
2073	OREGON WHITE OAK	24	NON-SIGNIFICANT	RETAIN	N/A
2074	DOUGLAS-FIR	38	NON-SIGNIFICANT	REMOVE	CONDITION
2075	RED ALDER	20	NON-SIGNIFICANT	REMOVE	BUILDING
2076	MADRONE	16	NON-SIGNIFICANT	REMOVE	BUILDING
2078	DOUGLAS-FIR	28	NON-SIGNIFICANT	REMOVE	GRADING
2079	DOUGLAS-FIR	30	SIGNIFICANT	REMOVE	GRADING
2080	OREGON WHITE OAK	36	SIGNIFICANT	REMOVE	ROW
2081	OREGON WHITE OAK	22	SIGNIFICANT	REMOVE	ROW
2082	OREGON WHITE OAK	30	SIGNIFICANT	REMOVE	ROW

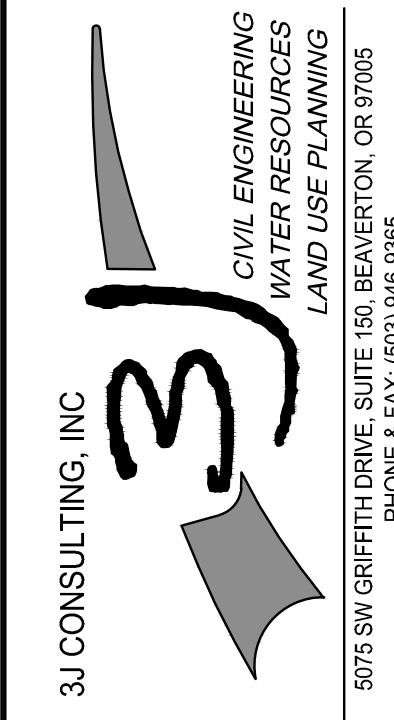
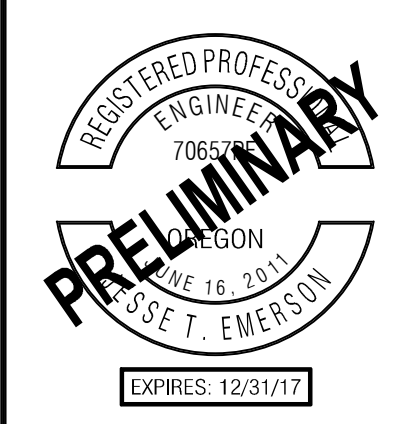
2083	OREGON WHITE OAK	14, 20 24	SIGNIFICANT	REMOVE	ROW
2084	OREGON WHITE OAK	26	SIGNIFICANT	REMOVE	GRADING
2085	OREGON WHITE OAK	15	NON-SIGNIFICANT	REMOVE	BUILDING
2086	OREGON WHITE OAK	10	NON-SIGNIFICANT	REMOVE	BUILDING
2087	OREGON WHITE OAK	18	NON-SIGNIFICANT	REMOVE	BUILDING
2088	OREGON WHITE OAK	24	NON-SIGNIFICANT	REMOVE	BUILDING
2089	OREGON WHITE OAK	14	NON-SIGNIFICANT	REMOVE	BUILDING
2090	OREGON WHITE OAK	14	SIGNIFICANT	RETAIN	BUILDING
2091	OREGON WHITE OAK	26	SIGNIFICANT	RETAIN	BUILDING
2092	OREGON WHITE OAK	22	NON-SIGNIFICANT	REMOVE	BUILDING
2093	OREGON WHITE OAK	24	NON-SIGNIFICANT	RETAIN	N/A
2094	OREGON WHITE OAK	15	NON-SIGNIFICANT	RETAIN	N/A
2095	OREGON WHITE OAK	12	NON-SIGNIFICANT	RETAIN	N/A
2096	OREGON WHITE OAK	8	NON-SIGNIFICANT	RETAIN	N/A
2097	OREGON WHITE OAK	12	SIGNIFICANT	RETAIN	N/A
2098	OREGON WHITE OAK	10, 18	SIGNIFICANT	RETAIN	N/A
2099	OREGON WHITE OAK	24	SIGNIFICANT	REMOVE	BUILDING
2100	OREGON WHITE OAK	20	SIGNIFICANT	RETAIN	N/A
2101	OREGON WHITE OAK	26	SIGNIFICANT	RETAIN	N/A
2102	OREGON WHITE OAK	26	SIGNIFICANT	RETAIN	N/A
2103	OREGON WHITE OAK	8	NON-SIGNIFICANT	RETAIN	N/A
2104	OREGON WHITE OAK	13	NON-SIGNIFICANT	REMOVE	CONDITION
2105	DOUGLAS-FIR	42	NON-SIGNIFICANT	REMOVE	CONDITION
2106	OREGON WHITE OAK	12	NON-SIGNIFICANT	REMOVE	BUILDING
2107	OREGON WHITE OAK	16	SIGNIFICANT	REMOVE	BUILDING
2108	OREGON WHITE OAK	2x12	SIGNIFICANT	REMOVE	BUILDING
2109	OREGON WHITE OAK	6, 12	SIGNIFICANT	REMOVE	BUILDING
2110	OREGON WHITE OAK	17	SIGNIFICANT	RETAIN	N/A
2111	SCOULER'S WILLOW	12	NON-SIGNIFICANT	REMOVE	BUILDING
2112	OREGON WHITE OAK	16	SIGNIFICANT	RETAIN	N/A
2113	OREGON WHITE OAK	10	SIGNIFICANT	RETAIN	N/A
2114	OREGON WHITE OAK	15	SIGNIFICANT	RETAIN	N/A
2115	OREGON WHITE OAK	12	SIGNIFICANT	RETAIN	N/A
2116	OREGON WHITE OAK	16	SIGNIFICANT	RETAIN	N/A
2117	DOUGLAS-FIR	40	SIGNIFICANT	RETAIN	N/A
2118	OREGON WHITE OAK	14	NON-SIGNIFICANT	REMOVE	BUILDING
2119	DOUGLAS-FIR	26	NON-SIGNIFICANT	REMOVE	BUILDING
2120	DOUGLAS-FIR	37	SIGNIFICANT	REMOVE	ROW
2121	BIG LEAF MAPLE	16	NON-SIGNIFICANT	REMOVE	GRADING
2122	OREGON WHITE OAK	18	NON-SIGNIFICANT	REMOVE	BUILDING
2123	OREGON WHITE OAK	13	SIGNIFICANT	REMOVE	GRADING
2124	OREGON WHITE OAK	20	SIGNIFICANT	REMOVE	BUILDING
2125	OREGON WHITE OAK	16	SIGNIFICANT	REMOVE	BUILDING
2126	OREGON WHITE OAK	16	SIGNIFICANT	REMOVE	BUILDING
2127	OREGON WHITE OAK	16	SIGNIFICANT	REMOVE	GRADING
2128	DOUGLAS-FIR	32	SIGNIFICANT	REMOVE	BUILDING

2129	OREGON WHITE OAK	7	NON-SIGNIFICANT	REMOVE	CONDITION
2130	OREGON WHITE OAK	16	SIGNIFICANT	REMOVE	BUILDING
2131	OREGON WHITE OAK	10	NON-SIGNIFICANT	REMOVE	BUILDING
2132	OREGON WHITE OAK	10	SIGNIFICANT	RETAIN	N/A
2133	OREGON WHITE OAK	14	SIGNIFICANT	RETAIN	N/A
2134	BIG LEAF MAPLE	2x9	NON-SIGNIFICANT	REMOVE	CONDITION
2135	OREGON WHITE OAK	12	SIGNIFICANT	RETAIN	N/A
2136	OREGON WHITE OAK	26	SIGNIFICANT	RETAIN	N/A
2137	OREGON WHITE OAK	8	NON-SIGNIFICANT	REMOVE	BUILDING
2138	DOUGLAS-FIR	42	SIGNIFICANT	REMOVE	BUILDING
2139	DOUGLAS-FIR	42	SIGNIFICANT	REMOVE	BUILDING
2140	DOUGLAS-FIR	15	NON-SIGNIFICANT	REMOVE	BUILDING
2142	DOUGLAS-FIR	36	NON-SIGNIFICANT	REMOVE	BUILDING
2143	DOUGLAS-FIR	28	NON-SIGNIFICANT	REMOVE	BUILDING
2145	OREGON WHITE OAK	10	NON-SIGNIFICANT	REMOVE	BUILDING
2146	BIG LEAF MAPLE	24	NON-SIGNIFICANT	REMOVE	BUILDING
2147	OREGON WHITE OAK	12, 18	SIGNIFICANT	REMOVE	BUILDING
2148	OREGON WHITE OAK	15	NON-SIGNIFICANT	REMOVE	BUILDING
2149	DOUGLAS-FIR	34	SIGNIFICANT	REMOVE	BUILDING
2150	OREGON WHITE OAK	14	SIGNIFICANT	REMOVE	BUILDING
2151	OREGON WHITE OAK	15	SIGNIFICANT	REMOVE	BUILDING
2152	OREGON ASH	21	NON-SIGNIFICANT	REMOVE	ROW
2153	OREGON ASH	26	NON-SIGNIFICANT	REMOVE	ROW
2154	OREGON WHITE OAK	16	NON-SIGNIFICANT	REMOVE	ROW
2155	OREGON WHITE OAK	12	NON-SIGNIFICANT	REMOVE	GRADING
2156	OREGON WHITE OAK	15	NON-SIGNIFICANT	REMOVE	GRADING
2157	DOUGLAS-FIR	36	NON-SIGNIFICANT	REMOVE	BUILDING
2158	OREGON WHITE OAK	12	NON-SIGNIFICANT	REMOVE	BUILDING
2159	OREGON WHITE OAK	2x10	NON-SIGNIFICANT	REMOVE	BUILDING
2160	OREGON WHITE OAK	12	NON-SIGNIFICANT	REMOVE	BUILDING
2161	OREGON WHITE OAK	15	NON-SIGNIFICANT	REMOVE	BUILDING
2162	DOUGLAS-FIR	22	SIGNIFICANT	REMOVE	BUILDING
2163	BIG LEAF MAPLE	15	NON-SIGNIFICANT	REMOVE	BUILDING
2164	OREGON WHITE OAK	12	NON-SIGNIFICANT	REMOVE	BUILDING
2165	DOUGLAS-FIR	34	NON-SIGNIFICANT	REMOVE	GRADING
2166	OREGON WHITE OAK	14	NON-SIGNIFICANT	REMOVE	ROW
2167	OREGON WHITE OAK	12	NON-SIGNIFICANT	REMOVE	ROW
2168	OREGON WHITE OAK	19	SIGNIFICANT	REMOVE	ROW
2169	OREGON WHITE OAK	16	SIGNIFICANT	REMOVE	ROW
2170	DOUGLAS-FIR	28	NON-SIGNIFICANT	REMOVE	ROW
2171	DOUGLAS-FIR	28	NON-SIGNIFICANT	REMOVE	ROW
2172	OREGON WHITE OAK	12, 16	SIGNIFICANT	REMOVE	ROW
2173	OREGON WHITE OAK	10	NON-SIGNIFICANT	REMOVE	GRADING
2174	OREGON WHITE OAK	14	NON-SIGNIFICANT	REMOVE	GRADING
2175	OREGON WHITE OAK	20	SIGNIFICANT	REMOVE	GRADING

DESIGN REVIEW 01/11/2016

REVISION SUMMARY BY DATE

TREE PRESERVATION DETAILS I
CHÊNE BLANC ESTATES
LAND USE DOCUMENTS
 1800 UPPER MIDHILL DRIVE, LLC
 WEST LINN, OR



3J JOB ID # | 15266
 LAND USE # | TBD
 TAX LOT # | 251E14CA 00200
 DESIGNED BY | JTE, CKW, JCP
 CHECKED BY | JTE

SHEET TITLE
TREE DETAILS I
 SHEET NUMBER

C111

TREE INVENTORY					
SURVEY POINT NUMBER	TREE SPECIES	NOMINAL CALIPER SIZE	SIGNIFICANT DESIGNATION	PROPOSED ACTION	REMOVE DUE TO CONDITION
2176	OREGON ASH	14	NON-SIGNIFICANT	REMOVE	CONDITION
2177	OREGON WHITE OAK	10	NON-SIGNIFICANT	REMOVE	CONDITION
2178	OREGON WHITE OAK	12	NON-SIGNIFICANT	REMOVE	BUILDING
2179	DOUGLAS-FIR	24	SIGNIFICANT	REMOVE	GRADING
2180	BIG LEAF MAPLE	17	NON-SIGNIFICANT	REMOVE	GRADING
2181	OREGON WHITE OAK	11	NON-SIGNIFICANT	REMOVE	CONDITION
2182	OREGON ASH	18	NON-SIGNIFICANT	REMOVE	ROW
2183	OREGON WHITE OAK	10	NON-SIGNIFICANT	REMOVE	ROW
2184	OREGON WHITE OAK	10	NON-SIGNIFICANT	REMOVE	ROW
2185	OREGON WHITE OAK	15	NON-SIGNIFICANT	REMOVE	ROW
2186	OREGON WHITE OAK	12	NON-SIGNIFICANT	REMOVE	ROW
2187	OREGON ASH	12	NON-SIGNIFICANT	REMOVE	ROW
2188	OREGON WHITE OAK	8, 20	SIGNIFICANT	REMOVE	GRADING
2189	BIG LEAF MAPLE	14	NON-SIGNIFICANT	REMOVE	GRADING
2190	OREGON WHITE OAK	20	SIGNIFICANT	RETAIN	N/A
2191	OREGON WHITE OAK	10	NON-SIGNIFICANT	REMOVE	GRADING
2192	OREGON WHITE OAK	16	SIGNIFICANT	REMOVE	GRADING
2193	OREGON WHITE OAK	10	SIGNIFICANT	REMOVE	GRADING
2194	OREGON WHITE OAK	28	SIGNIFICANT	REMOVE	BUILDING
2195	OREGON WHITE OAK	36	SIGNIFICANT	REMOVE	BUILDING
2196	OREGON ASH	16	NON-SIGNIFICANT	REMOVE	CONDITION
2197	OREGON WHITE OAK	18	SIGNIFICANT	REMOVE	BUILDING
2198	GRAND FIR	24	SIGNIFICANT	REMOVE	GRADING
2199	DOUGLAS-FIR	24	NON-SIGNIFICANT	REMOVE	ROW
2200	DOUGLAS-FIR	24	SIGNIFICANT	REMOVE	BUILDING
2201	OREGON WHITE OAK	10	NON-SIGNIFICANT	REMOVE	BUILDING
2202	BIG LEAF MAPLE	10, 12, 2x14	NON-SIGNIFICANT	REMOVE	GRADING
2203	DOUGLAS-FIR	18, 26	NON-SIGNIFICANT	REMOVE	ROW
2284	DOUGLAS-FIR	14	NON-SIGNIFICANT	REMOVE	ROW
2285	OREGON WHITE OAK	13	NON-SIGNIFICANT	REMOVE	ROW
2286	OREGON WHITE OAK	16	SIGNIFICANT	REMOVE	GRADING
2287	OREGON WHITE OAK	28	SIGNIFICANT	RETAIN	N/A
2288	OREGON WHITE OAK	28	SIGNIFICANT	REMOVE	BUILDING
2289	OREGON ASH	13	NON-SIGNIFICANT	REMOVE	CONDITION
2290	OREGON WHITE OAK	24	SIGNIFICANT	REMOVE	BUILDING
2291	OREGON WHITE OAK	27	SIGNIFICANT	REMOVE	GRADING
2292	OREGON WHITE OAK	16	SIGNIFICANT	REMOVE	ROW
2293	OREGON WHITE OAK	23	NON-SIGNIFICANT	REMOVE	ROW
2294	OREGON WHITE OAK	20	NON-SIGNIFICANT	REMOVE	BUILDING
2295	OREGON WHITE OAK	18	NON-SIGNIFICANT	REMOVE	BUILDING
2296	DOUGLAS-FIR	18	NON-SIGNIFICANT	REMOVE	BUILDING
2297	OREGON WHITE OAK	24	SIGNIFICANT	REMOVE	BUILDING
2298	OREGON WHITE OAK	12	NON-SIGNIFICANT	REMOVE	BUILDING
2299	SWEET CHERRY	15	NON-SIGNIFICANT	REMOVE	BUILDING

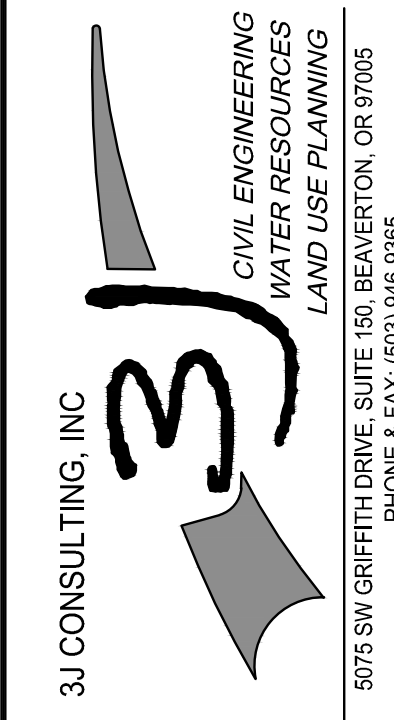
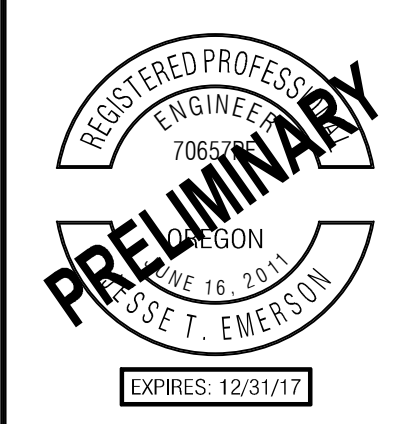
2300	OREGON WHITE OAK	24	SIGNIFICANT	REMOVE	BUILDING
2301	BIG LEAF MAPLE	10	NON-SIGNIFICANT	REMOVE	BUILDING
2302	MADRONE	24	SIGNIFICANT	REMOVE	BUILDING
2303	OREGON WHITE OAK	12	NON-SIGNIFICANT	REMOVE	BUILDING
2304	OREGON WHITE OAK	25	SIGNIFICANT	REMOVE	BUILDING
2305	BIG LEAF MAPLE	14	NON-SIGNIFICANT	REMOVE	BUILDING
2306	OREGON WHITE OAK	21	NON-SIGNIFICANT	REMOVE	BUILDING
2307	BIG LEAF MAPLE	10	NON-SIGNIFICANT	REMOVE	BUILDING
2308	BIG LEAF MAPLE	12	NON-SIGNIFICANT	REMOVE	BUILDING
2309	BIG LEAF MAPLE	12	NON-SIGNIFICANT	REMOVE	BUILDING
2310	BIG LEAF MAPLE	8	NON-SIGNIFICANT	REMOVE	BUILDING
2311	DOUGLAS-FIR	30	SIGNIFICANT	REMOVE	BUILDING
2312	DOUGLAS-FIR	10	NON-SIGNIFICANT	REMOVE	CONDITION
2313	DOUGLAS-FIR	18	NON-SIGNIFICANT	REMOVE	CONDITION
2314	DOUGLAS-FIR	18	NON-SIGNIFICANT	REMOVE	GRADING
2314	DOUGLAS-FIR	17	NON-SIGNIFICANT	REMOVE	GRADING
2315	BIG LEAF MAPLE	3x9	NON-SIGNIFICANT	REMOVE	ROW
2316	DOUGLAS-FIR	42	NON-SIGNIFICANT	REMOVE	ROW
2317	DOUGLAS-FIR	26	NON-SIGNIFICANT	REMOVE	ROW
2318	OREGON WHITE OAK	26	SIGNIFICANT	REMOVE	GRADING
2319	DOUGLAS-FIR	24	NON-SIGNIFICANT	REMOVE	BUILDING
2320	DOUGLAS-FIR	10	NON-SIGNIFICANT	REMOVE	BUILDING
2321	WESTERN RED CEDAR	12	NON-SIGNIFICANT	REMOVE	GRADING
2322	DOUGLAS-FIR	28	SIGNIFICANT	REMOVE	BUILDING
2323	BIG LEAF MAPLE	16	NON-SIGNIFICANT	REMOVE	GRADING
2324	RED ALDER	14	NON-SIGNIFICANT	REMOVE	GRADING
2325	OREGON WHITE OAK	26	SIGNIFICANT	REMOVE	ROW
2326	OREGON WHITE OAK	25	SIGNIFICANT	REMOVE	ROW
2327	DOUGLAS-FIR	16	NON-SIGNIFICANT	REMOVE	ROW
2328	OREGON WHITE OAK	12	NON-SIGNIFICANT	REMOVE	ROW
2329	DOUGLAS-FIR	30	SIGNIFICANT	REMOVE	ROW
2330	OREGON ASH	12	NON-SIGNIFICANT	REMOVE	GRADING
2331	OREGON ASH	8, 12	NON-SIGNIFICANT	REMOVE	GRADING
2332	WESTERN RED CEDAR	20	NON-SIGNIFICANT	REMOVE	GRADING
2333	WESTERN RED CEDAR	15	NON-SIGNIFICANT	REMOVE	BUILDING
2334	WESTERN RED CEDAR	10	NON-SIGNIFICANT	REMOVE	BUILDING
2335	DOUGLAS-FIR	18	NON-SIGNIFICANT	REMOVE	BUILDING
2336	DOUGLAS-FIR	21	NON-SIGNIFICANT	REMOVE	BUILDING
2337	DOUGLAS-FIR	26	NON-SIGNIFICANT	REMOVE	ROW
2338	DOUGLAS-FIR	24	NON-SIGNIFICANT	REMOVE	GRADING
2339	GRAND FIR	26	NON-SIGNIFICANT	REMOVE	BUILDING
2340	DOUGLAS-FIR	24	NON-SIGNIFICANT	REMOVE	BUILDING
2341	GRAND FIR	16	NON-SIGNIFICANT	REMOVE	ROW
2342	OREGON WHITE OAK	26	SIGNIFICANT	REMOVE	ROW
2343	OREGON ASH	11, 15	NON-SIGNIFICANT	REMOVE	ROW
2344	OREGON WHITE OAK	14	NON-SIGNIFICANT	REMOVE	GRADING

2345	OREGON WHITE OAK	12	NON-SIGNIFICANT	REMOVE	GRADING
2346	DOUGLAS-FIR	20	NON-SIGNIFICANT	REMOVE	GRADING
2347	DOUGLAS-FIR	36	SIGNIFICANT	REMOVE	GRADING
2348	OREGON WHITE OAK	2x8	NON-SIGNIFICANT	REMOVE	GRADING
2349	OREGON WHITE OAK	26	SIGNIFICANT	REMOVE	BUILDING
2350	OREGON ASH	20	NON-SIGNIFICANT	REMOVE	GRADING
2351	OREGON WHITE OAK	26	SIGNIFICANT	REMOVE	GRADING
2352	OREGON ASH	10	NON-SIGNIFICANT	REMOVE	ROW
2353	OREGON WHITE OAK	22	SIGNIFICANT	REMOVE	ROW
2354	OREGON WHITE OAK	11	SIGNIFICANT	REMOVE	ROW
2355	DOUGLAS-FIR	24	NON-SIGNIFICANT	REMOVE	BUILDING
2356	DOUGLAS-FIR	35	SIGNIFICANT	REMOVE	GRADING
2357	OREGON WHITE OAK	19	NON-SIGNIFICANT	REMOVE	BUILDING
2358	OREGON ASH	8	NON-SIGNIFICANT	REMOVE	BUILDING
2359	OREGON WHITE OAK	12	NON-SIGNIFICANT	REMOVE	ROW
2360	BIG LEAF MAPLE	13	NON-SIGNIFICANT	REMOVE	ROW
2361	OREGON WHITE OAK	29	SIGNIFICANT	REMOVE	ROW
2362	DEC	10	NON-SIGNIFICANT	REMOVE	BUILDING
2363	OREGON WHITE OAK	24	SIGNIFICANT	REMOVE	BUILDING
2364	OREGON WHITE OAK	20	NON-SIGNIFICANT	REMOVE	CONDITION
2365	DOUGLAS-FIR	18	NON-SIGNIFICANT	REMOVE	CONDITION
2366	OREGON WHITE OAK	18	SIGNIFICANT	REMOVE	BUILDING
2367	DOUGLAS-FIR	24	NON-SIGNIFICANT	REMOVE	BUILDING
2368	OREGON WHITE OAK	28	SIGNIFICANT	REMOVE	BUILDING
2369	DOUGLAS-FIR	12	NON-SIGNIFICANT	REMOVE	BUILDING
2370	BIG LEAF MAPLE	10	NON-SIGNIFICANT	REMOVE	BUILDING
2371	BIG LEAF MAPLE	10	NON-SIGNIFICANT	REMOVE	BUILDING
2372	BIG LEAF MAPLE	6	NON-SIGNIFICANT	REMOVE	BUILDING
2373	BIG LEAF MAPLE	10	NON-SIGNIFICANT	REMOVE	BUILDING
2374	BIG LEAF MAPLE	12	NON-SIGNIFICANT	REMOVE	BUILDING
2375	BIG LEAF MAPLE	18	NON-SIGNIFICANT	REMOVE	BUILDING
2376	BIG LEAF MAPLE	10	NON-SIGNIFICANT	REMOVE	BUILDING
2377	OREGON WHITE OAK	20, 26	SIGNIFICANT	REMOVE	BUILDING
2378	BIG LEAF MAPLE	8	NON-SIGNIFICANT	REMOVE	CONDITION
2379	BIG LEAF MAPLE	8	NON-SIGNIFICANT	REMOVE	BUILDING
2380	DOUGLAS FIR	29	SIGNIFICANT	RETAIN	N/A
2381	BIG LEAF MAPLE	12	NON-SIGNIFICANT	RETAIN	N/A
2382	BIG LEAF MAPLE	11	NON-SIGNIFICANT	RETAIN	N/A
2383	DOUGLAS FIR	32	SIGNIFICANT	RETAIN	N/A
2384	BIG LEAF MAPLE	10, 14, 18, 22	NON-SIGNIFICANT	REMOVE	CONDITION
2385	BIG LEAF MAPLE	6, 8	NON-SIGNIFICANT	REMOVE	BUILDING
2394	SWEET CHERRY	10	NON-SIGNIFICANT	REMOVE	BUILDING
2395	BIG LEAF MAPLE	8	NON-SIGNIFICANT	REMOVE	BUILDING
2396	OREGON WHITE OAK	17	SIGNIFICANT	REMOVE	GRADING
2458	BIG LEAF MAPLE	7	NON-SIGNIFICANT	REMOVE	ROW
2459	DOUGLAS FIR	16	NON-SIGNIFICANT	REMOVE	GRADING

DESIGN REVIEW 01/11/2016

REVISION SUMMARY BY DATE

TREE PRESERVATION DETAILS II
 CHÈNE BLANC ESTATES
 LAND USE DOCUMENTS
 1800 UPPER MIDHILL DRIVE, LLC
 WEST LINN, OR



3J JOB ID # | 15266
 LAND USE # | TBD
 TAX LOT # | 251E14CA 00200
 DESIGNED BY | JTE, CKW, JCP
 CHECKED BY | JTE

SHEET TITLE
 TREE DETAILS II
 SHEET NUMBER
C112

TREE INVENTORY					
SURVEY POINT NUMBER	TREE SPECIES	NOMINAL CALIPER SIZE	SIGNIFICANT DESIGNATION	PROPOSED ACTION	REMOVE DUE TO CONDITION
2461	DOUGLAS FIR	24	SIGNIFICANT	REMOVE	GRADING
2462	OREGON WHITE OAK	12	NON-SIGNIFICANT	REMOVE	BUILDING
2463	DOUGLAS FIR	30	SIGNIFICANT	REMOVE	BUILDING
2464	DOUGLAS FIR	26	SIGNIFICANT	REMOVE	BUILDING
2469	SWEET CHERRY	15	NON-SIGNIFICANT	REMOVE	GRADING
2470	OREGON WHITE OAK	14	NON-SIGNIFICANT	REMOVE	ROW
2471	DOUGLAS FIR	26	SIGNIFICANT	REMOVE	ROW
2472	OREGON WHITE OAK	10	NON-SIGNIFICANT	REMOVE	ROW
2473	GRAND FIR	23	SIGNIFICANT	REMOVE	ROW
2474	BIG LEAF MAPLE	10	NON-SIGNIFICANT	REMOVE	ROW
2475	DOUGLAS FIR	30	SIGNIFICANT	REMOVE	ROW
2476	DOUGLAS FIR	26	SIGNIFICANT	REMOVE	ROW
2477	DOUGLAS FIR	22	SIGNIFICANT	REMOVE	ROW
2478	DOUGLAS FIR	15	NON-SIGNIFICANT	REMOVE	ROW
2479	DOUGLAS FIR	32	NON-SIGNIFICANT	REMOVE	GRADING
2480	OREGON WHITE OAK	18	NON-SIGNIFICANT	REMOVE	GRADING
2481	OREGON ASH	18	NON-SIGNIFICANT	REMOVE	GRADING
2482	OREGON WHITE OAK	36	SIGNIFICANT	REMOVE	BUILDING
2483	OREGON ASH	20	NON-SIGNIFICANT	REMOVE	BUILDING
2484	OREGON WHITE OAK	27	SIGNIFICANT	REMOVE	ROW
2485	OREGON ASH	8	NON-SIGNIFICANT	REMOVE	BUILDING
2486	MADRONE	7	NON-SIGNIFICANT	REMOVE	BUILDING
2487	OREGON WHITE OAK	28	SIGNIFICANT	REMOVE	ROW
2488	OREGON WHITE OAK	14	SIGNIFICANT	RETAIN	BUILDING
2489	OREGON WHITE OAK	12	SIGNIFICANT	RETAIN	BUILDING
2490	OREGON WHITE OAK	12, 18	NON-SIGNIFICANT	REMOVE	BUILDING
2491	OREGON ASH	13	NON-SIGNIFICANT	REMOVE	BUILDING
2492	OREGON ASH	6	NON-SIGNIFICANT	REMOVE	BUILDING
2493	OREGON WHITE OAK	19	NON-SIGNIFICANT	REMOVE	ROW
2494	OREGON ASH	2x6, 9	NON-SIGNIFICANT	REMOVE	CONDITION
2495	ENGLISH HOLLY	6	NON-SIGNIFICANT	REMOVE	CONDITION
2496	OREGON WHITE OAK	10	NON-SIGNIFICANT	REMOVE	BUILDING
2497	DOUGLAS FIR	10	NON-SIGNIFICANT	REMOVE	CONDITION
2498	OREGON WHITE OAK	20	SIGNIFICANT	REMOVE	BUILDING
2499	OREGON ASH	10	NON-SIGNIFICANT	REMOVE	BUILDING
2500	OREGON WHITE OAK	24	SIGNIFICANT	REMOVE	BUILDING
2501	OREGON WHITE OAK	28	SIGNIFICANT	REMOVE	BUILDING
2502	OREGON WHITE OAK	18	SIGNIFICANT	REMOVE	BUILDING
2503	OREGON ASH	10	NON-SIGNIFICANT	REMOVE	GRADING
2504	OREGON WHITE OAK	24	SIGNIFICANT	REMOVE	GRADING
2505	OREGON WHITE OAK	12	SIGNIFICANT	REMOVE	BUILDING
2506	OREGON ASH	6	NON-SIGNIFICANT	REMOVE	BUILDING
2507	BIG LEAF MAPLE	12	NON-SIGNIFICANT	REMOVE	BUILDING
2508	SWEET CHERRY	8	NON-SIGNIFICANT	REMOVE	GRADING

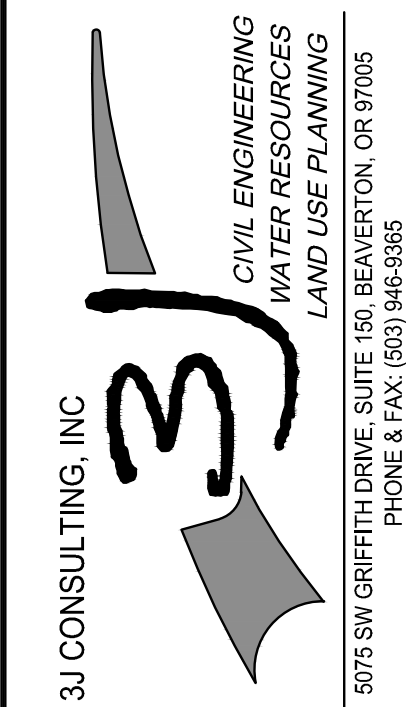
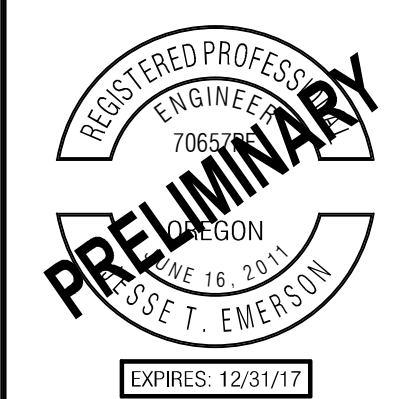
2509	OREGON WHITE OAK	10, 12	NON-SIGNIFICANT	REMOVE	BUILDING
2510	SWEET CHERRY	6	NON-SIGNIFICANT	REMOVE	BUILDING
2511	OREGON WHITE OAK	12	NON-SIGNIFICANT	REMOVE	BUILDING
2512	OREGON WHITE OAK	14	NON-SIGNIFICANT	REMOVE	BUILDING
2513	DOUGLAS FIR	14	NON-SIGNIFICANT	REMOVE	BUILDING
2514	OREGON WHITE OAK	10	NON-SIGNIFICANT	REMOVE	BUILDING
2515	DOUGLAS FIR	15	NON-SIGNIFICANT	REMOVE	BUILDING
2516	MADRONE	23	SIGNIFICANT	REMOVE	BUILDING
2517	OREGON WHITE OAK	10	NON-SIGNIFICANT	REMOVE	GRADING
2518	DOUGLAS FIR	24	NON-SIGNIFICANT	REMOVE	CONDITION
2519	OREGON ASH	8	NON-SIGNIFICANT	RETAIN	N/A
2520	ENGLISH HAWTHORN	6	NON-SIGNIFICANT	REMOVE	CONDITION
2521	OREGON WHITE OAK	13, 20	SIGNIFICANT	REMOVE	BUILDING
2522	OREGON ASH	12	NON-SIGNIFICANT	RETAIN	N/A
2523	OREGON WHITE OAK	20, 24	SIGNIFICANT	RETAIN	N/A
2524	OREGON WHITE OAK	10, 16	SIGNIFICANT	REMOVE	BUILDING
2525	OREGON ASH	20	NON-SIGNIFICANT	RETAIN	N/A
2526	DOUGLAS FIR	29	SIGNIFICANT	RETAIN	N/A
2527	OREGON ASH	12	NON-SIGNIFICANT	RETAIN	N/A
2528	DOUGLAS FIR	19	SIGNIFICANT	RETAIN	N/A
2529	OREGON ASH	15	NON-SIGNIFICANT	RETAIN	N/A
2530	DOUGLAS FIR	20	NON-SIGNIFICANT	REMOVE	BUILDING
2531	OREGON ASH	7	NON-SIGNIFICANT	RETAIN	N/A
2532	MADRONE	8	SIGNIFICANT	RETAIN	N/A
2533	DOUGLAS FIR	24	SIGNIFICANT	REMOVE	BUILDING
2534	OREGON WHITE OAK	13	NON-SIGNIFICANT	RETAIN	N/A
2536	OREGON ASH	14	NON-SIGNIFICANT	REMOVE	BUILDING
2537	OREGON WHITE OAK	16	SIGNIFICANT	REMOVE	BUILDING
2538	OREGON WHITE OAK	24	SIGNIFICANT	REMOVE	BUILDING
2539	OREGON ASH	2x10	NON-SIGNIFICANT	REMOVE	BUILDING
2540	OREGON ASH	16	NON-SIGNIFICANT	REMOVE	BUILDING
2541	OREGON WHITE OAK	9	NON-SIGNIFICANT	REMOVE	BUILDING
2542	OREGON ASH	10	NON-SIGNIFICANT	RETAIN	N/A
2543	OREGON ASH	12, 16, 18, 24	NON-SIGNIFICANT	REMOVE	BUILDING
2544	OREGON ASH	10	NON-SIGNIFICANT	RETAIN	N/A
2545	DOUGLAS FIR	8	NON-SIGNIFICANT	RETAIN	N/A
2546	OREGON WHITE OAK	26	SIGNIFICANT	RETAIN	N/A
2547	DOUGLAS FIR	8	NON-SIGNIFICANT	RETAIN	N/A
2548	OREGON WHITE OAK	20	SIGNIFICANT	RETAIN	N/A
2549	OREGON WHITE OAK	20	SIGNIFICANT	RETAIN	N/A
2550	OREGON WHITE OAK	24	SIGNIFICANT	RETAIN	N/A
2551	ENGLISH HAWTHORN	8	NON-SIGNIFICANT	REMOVE	CONDITION
2552	OREGON ASH	2x12	NON-SIGNIFICANT	RETAIN	N/A
2553	OREGON WHITE OAK	2x8	NON-SIGNIFICANT	RETAIN	N/A
2554	OREGON ASH	2x16	NON-SIGNIFICANT	RETAIN	N/A
2555	OREGON ASH	6, 8, 12	NON-SIGNIFICANT	REMOVE	BUILDING

2556	OREGON WHITE OAK	18	SIGNIFICANT	RETAIN	N/A
2557 A&B	OREGON ASH	18	NON-SIGNIFICANT	RETAIN	N/A
2558	OREGON ASH	8	NON-SIGNIFICANT	RETAIN	N/A
2559	OREGON ASH	15	NON-SIGNIFICANT	RETAIN	N/A
2561	DOUGLAS FIR	9	NON-SIGNIFICANT	RETAIN	N/A
2562	OREGON ASH	2x8	NON-SIGNIFICANT	RETAIN	N/A
2563	OREGON ASH	12	NON-SIGNIFICANT	RETAIN	N/A
2564	OREGON ASH	24	NON-SIGNIFICANT	RETAIN	N/A
2565	DOUGLAS FIR	24	NON-SIGNIFICANT	RETAIN	N/A
2566	OREGON WHITE OAK	24	SIGNIFICANT	RETAIN	N/A
2567	SWEET CHERRY	6	NON-SIGNIFICANT	REMOVE	CONDITION
2569	OREGON WHITE OAK	10, 20	NON-SIGNIFICANT	REMOVE	BUILDING
2570	DOUGLAS FIR	26	SIGNIFICANT	REMOVE	GRADING
2571	OREGON WHITE OAK	9	NON-SIGNIFICANT	REMOVE	CONDITION
2572	OREGON WHITE OAK	16	NON-SIGNIFICANT	RETAIN	N/A
2573	OREGON WHITE OAK	24	NON-SIGNIFICANT	RETAIN	N/A
2574	OREGON WHITE OAK	9	NON-SIGNIFICANT	RETAIN	N/A
2575	OREGON ASH	14, 22, 24	NON-SIGNIFICANT	RETAIN	N/A
2576	OREGON WHITE OAK	30	SIGNIFICANT	RETAIN	N/A
2577a	OREGON ASH	16, 20, 22	NON-SIGNIFICANT	RETAIN	N/A
2577b	OREGON WHITE OAK	10, 16	NON-SIGNIFICANT	RETAIN	N/A
2578	OREGON ASH	20	NON-SIGNIFICANT	RETAIN	N/A
2579	OREGON WHITE OAK	26	SIGNIFICANT	RETAIN	N/A
2580	OREGON ASH	10, 16	NON-SIGNIFICANT	RETAIN	N/A
2581	OREGON WHITE OAK	25	SIGNIFICANT	REMOVE	BUILDING
2582	OREGON WHITE OAK	18	SIGNIFICANT	REMOVE	BUILDING
2583	OREGON WHITE OAK	20	SIGNIFICANT	REMOVE	BUILDING
2584	BIG LEAF MAPLE	8	NON-SIGNIFICANT	REMOVE	ROW
2585	BIG LEAF MAPLE	14	NON-SIGNIFICANT	REMOVE	BUILDING
2586	DOUGLAS FIR	9	NON-SIGNIFICANT	REMOVE	BUILDING
2587	DOUGLAS FIR	36	SIGNIFICANT	REMOVE	GRADING
2588	OREGON ASH	8	NON-SIGNIFICANT	REMOVE	BUILDING
2662	OREGON WHITE OAK	18	SIGNIFICANT	RETAIN	N/A
2663	DOUGLAS FIR	10	NON-SIGNIFICANT	REMOVE	GRADING
2664	DOUGLAS FIR	30	SIGNIFICANT	RETAIN	N/A
2665	OREGON ASH	18	NON-SIGNIFICANT	RETAIN	N/A
2666	OREGON WHITE OAK	16	NON-SIGNIFICANT	REMOVE	BUILDING
2667	OREGON WHITE OAK	15	NON-SIGNIFICANT	RETAIN	N/A
2668	OREGON ASH	16	NON-SIGNIFICANT	REMOVE	GRADING
2669	OREGON ASH	14	NON-SIGNIFICANT	REMOVE	BUILDING
2670	OREGON ASH	8	NON-SIGNIFICANT	REMOVE	BUILDING
2671	OREGON ASH	7, 12	NON-SIGNIFICANT	REMOVE	BUILDING
2672	OREGON ASH	16	NON-SIGNIFICANT	REMOVE	BUILDING

DESIGN REVIEW 01/11/2016

REVISION SUMMARY BY DATE

TREE PRESERVATION DETAILS III
CHÈNE BLANC ESTATES
LAND USE DOCUMENTS
 1800 UPPER MIDHILL DRIVE, LLC
 WEST LINN, OR



3J JOB ID # | 15266
 LAND USE # | TBD
 TAX LOT # | 251E14CA 00200
 DESIGNED BY | JTE, CKW, JCP
 CHECKED BY | JTE

SHEET TITLE
TREE DETAILS III
 SHEET NUMBER

C113

TREE INVENTORY

SURVEY POINT NUMBER	TREE SPECIES	NOMINAL CALIPER SIZE	SIGNIFICANT DESIGNATION	PROPOSED ACTION	REMOVE DUE TO CONDITION
2673	OREGON WHITE OAK	13	NON-SIGNIFICANT	REMOVE	ROW
2675	OREGON WHITE OAK	16	SIGNIFICANT	RETAIN	N/A
2676	OREGON ASH	20, 24	NON-SIGNIFICANT	RETAIN	N/A
2677	OREGON WHITE OAK	16	SIGNIFICANT	RETAIN	N/A
2678	DOUGLAS FIR	30	SIGNIFICANT	RETAIN	N/A
2679	DOUGLAS FIR	30	SIGNIFICANT	RETAIN	N/A
2680	OREGON WHITE OAK	30	SIGNIFICANT	RETAIN	N/A
2681	OREGON ASH	24	NON-SIGNIFICANT	REMOVE	CONDITION
2682	OREGON ASH	20	NON-SIGNIFICANT	RETAIN	N/A
2683	DOUGLAS FIR	16	NON-SIGNIFICANT	RETAIN	N/A
2684	DOUGLAS FIR	16	NON-SIGNIFICANT	RETAIN	N/A
2685	OREGON ASH	10, 14	NON-SIGNIFICANT	RETAIN	N/A
2686	OREGON ASH	20	NON-SIGNIFICANT	RETAIN	N/A
2687	BIG LEAF MAPLE	7, 12	NON-SIGNIFICANT	RETAIN	N/A
2688	OREGON ASH	8	NON-SIGNIFICANT	RETAIN	N/A
2689	OREGON ASH	30	NON-SIGNIFICANT	RETAIN	N/A
2690	OREGON WHITE OAK	40	SIGNIFICANT	RETAIN	N/A
2691	BIG LEAF MAPLE	12	NON-SIGNIFICANT	REMOVE	BUILDING
2692	OREGON ASH	14	NON-SIGNIFICANT	REMOVE	BUILDING
2693	BIG LEAF MAPLE	3x12	NON-SIGNIFICANT	REMOVE	BUILDING
2694	WESTERN RED CEDAR	24	NON-SIGNIFICANT	REMOVE	BUILDING
2695	DOUGLAS FIR	24	NON-SIGNIFICANT	REMOVE	GRADING
2696	OREGON WHITE OAK	24	NON-SIGNIFICANT	REMOVE	GRADING
2697	BIG LEAF MAPLE	8, 14, 16	NON-SIGNIFICANT	REMOVE	GRADING
2698	DOUGLAS FIR	24	NON-SIGNIFICANT	REMOVE	GRADING
2699	OREGON WHITE OAK	30	NON-SIGNIFICANT	RETAIN	N/A
2700	OREGON WHITE OAK	20	NON-SIGNIFICANT	REMOVE	GRADING
2701	BIG LEAF MAPLE	2x8	NON-SIGNIFICANT	RETAIN	N/A
2702	BIG LEAF MAPLE	8	NON-SIGNIFICANT	RETAIN	N/A
2703	ENGLISH HAWTHORN	18	NON-SIGNIFICANT	RETAIN	N/A
2704	DOUGLAS FIR	12	NON-SIGNIFICANT	OFF-SITE	N/A
2705	DECIDUOUS	20	NON-SIGNIFICANT	OFF-SITE	N/A
2706	WESTERN RED CEDAR	24	SIGNIFICANT	REMOVE	BUILDING
2707	SWEET CHERRY	12	NON-SIGNIFICANT	REMOVE	BUILDING
2708	SWEET CHERRY	8	NON-SIGNIFICANT	REMOVE	CONDITION
2709	SWEET CHERRY	12	NON-SIGNIFICANT	REMOVE	CONDITION
2710	OREGON WHITE OAK	14	SIGNIFICANT	RETAIN	N/A
2711	OREGON WHITE OAK	14	NON-SIGNIFICANT	RETAIN	N/A
2712	OREGON WHITE OAK	20	SIGNIFICANT	REMOVE	ROW
2713	DOUGLAS FIR	28	NON-SIGNIFICANT	REMOVE	GRADING
2714	DOUGLAS FIR	24	NON-SIGNIFICANT	REMOVE	GRADING
2715	DOUGLAS FIR	18	NON-SIGNIFICANT	REMOVE	BUILDING
3430	DOUGLAS FIR	16	NON-SIGNIFICANT	REMOVE	BUILDING
3431	DOUGLAS FIR	36	NON-SIGNIFICANT	REMOVE	BUILDING

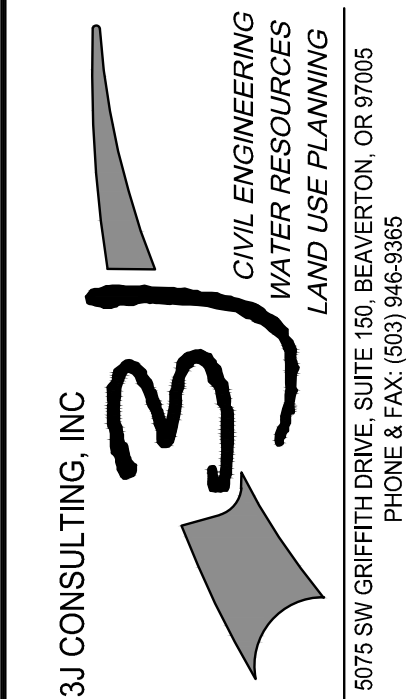
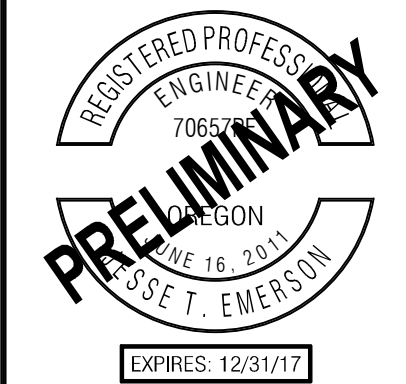
3432	DOUGLAS FIR	26	NON-SIGNIFICANT	REMOVE	BUILDING
3433	DOUGLAS FIR	20	NON-SIGNIFICANT	REMOVE	BUILDING
3434	DOUGLAS FIR	18	NON-SIGNIFICANT	REMOVE	BUILDING
3435	OREGON WHITE OAK	7	NON-SIGNIFICANT	REMOVE	BUILDING
3436	OREGON WHITE OAK	9	NON-SIGNIFICANT	REMOVE	BUILDING
3437	OREGON ASH	12	NON-SIGNIFICANT	REMOVE	BUILDING
3438	OREGON ASH	8	NON-SIGNIFICANT	REMOVE	BUILDING
3439	BIG LEAF MAPLE	10, 20, 24	NON-SIGNIFICANT	REMOVE	GRADING
3440	OREGON WHITE OAK	30	SIGNIFICANT	RETAIN	N/A
3441	OREGON ASH	12	NON-SIGNIFICANT	REMOVE	CONDITION
3442	OREGON ASH	7	NON-SIGNIFICANT	RETAIN	N/A
3443	OREGON ASH	7	NON-SIGNIFICANT	RETAIN	N/A
3444	YEW	7	SIGNIFICANT	RETAIN	N/A
3445	SWEET CHERRY	10	NON-SIGNIFICANT	RETAIN	N/A
3446	DOUGLAS FIR	30	SIGNIFICANT	REMOVE	BUILDING
3447	BLACK HAWTHORN	12	NON-SIGNIFICANT	REMOVE	ROW
3448	OREGON WHITE OAK	20	SIGNIFICANT	REMOVE	GRADING
3449	OREGON WHITE OAK	17	SIGNIFICANT	REMOVE	ROW
3450	OREGON WHITE OAK	9	NON-SIGNIFICANT	REMOVE	ROW
3451	BIG LEAF MAPLE	13	NON-SIGNIFICANT	REMOVE	ROW
3452	OREGON WHITE OAK	15	SIGNIFICANT	REMOVE	ROW
3453	OREGON WHITE OAK	2x16	SIGNIFICANT	REMOVE	BUILDING
3454	OREGON WHITE OAK	15	NON-SIGNIFICANT	REMOVE	BUILDING
3504	OREGON WHITE OAK	9	NON-SIGNIFICANT	REMOVE	BUILDING
3505	OREGON WHITE OAK	10	NON-SIGNIFICANT	REMOVE	BUILDING
3506	OREGON WHITE OAK	12	SIGNIFICANT	REMOVE	BUILDING
3507	OREGON WHITE OAK	16	SIGNIFICANT	REMOVE	BUILDING
3508	OREGON WHITE OAK	10	SIGNIFICANT	REMOVE	BUILDING
3509	BIG LEAF MAPLE	10	NON-SIGNIFICANT	REMOVE	BUILDING
3510	OREGON WHITE OAK	9	SIGNIFICANT	REMOVE	GRADING
3511	PINE	11	NON-SIGNIFICANT	RETAIN	N/A
3512	WESTERN RED CEDAR	5, 8	NON-SIGNIFICANT	RETAIN	N/A
3513	BIG LEAF MAPLE	2x8	NON-SIGNIFICANT	RETAIN	N/A
3514	WESTERN RED CEDAR	7	NON-SIGNIFICANT	RETAIN	N/A
3515	WESTERN RED CEDAR	8	NON-SIGNIFICANT	RETAIN	N/A
3516	OREGON ASH	17	NON-SIGNIFICANT	RETAIN	N/A
3517	EUROPEAN WHITE BIRCH	9	NON-SIGNIFICANT	REMOVE	CONDITION
3518	DECIDUOUS	4, 8	NON-SIGNIFICANT	REMOVE	CONDITION
3520	BIG LEAF MAPLE	10	NON-SIGNIFICANT	REMOVE	BUILDING
3521	DOUGLAS FIR	30	NON-SIGNIFICANT	REMOVE	BUILDING
3522	OREGON WHITE OAK	16	SIGNIFICANT	REMOVE	BUILDING
3523	OREGON WHITE OAK	16	NON-SIGNIFICANT	REMOVE	CONDITION
3524	DOUGLAS FIR	15	NON-SIGNIFICANT	REMOVE	CONDITION
3525	OREGON WHITE OAK	22	SIGNIFICANT	RETAIN	N/A
3526	OREGON WHITE OAK	20	SIGNIFICANT	RETAIN	N/A
3537	OREGON WHITE OAK	18	NON-SIGNIFICANT	REMOVE	BUILDING

3539	OREGON WHITE OAK	22	SIGNIFICANT	REMOVE	ROW
3677	DOUGLAS FIR	30	SIGNIFICANT	REMOVE	ROW
3775	SCOULER'S WILLOW	18	NON-SIGNIFICANT	REMOVE	ROW
3776	DOUGLAS FIR	28	NON-SIGNIFICANT	REMOVE	BUILDING
3777	OREGON WHITE OAK	15	NON-SIGNIFICANT	REMOVE	BUILDING
3778	OREGON ASH	10	NON-SIGNIFICANT	REMOVE	BUILDING
3779	DOUGLAS FIR	18	NON-SIGNIFICANT	REMOVE	BUILDING
3780	DOUGLAS FIR	15	NON-SIGNIFICANT	REMOVE	BUILDING

DESIGN REVIEW 01/11/2016

REVISION SUMMARY BY DATE

TREE PRESERVATION DETAILS IV
CHÈNE BLANC ESTATES
LAND USE DOCUMENTS
 1800 UPPER MIDHILL DRIVE, LLC
 WEST LINN, OR

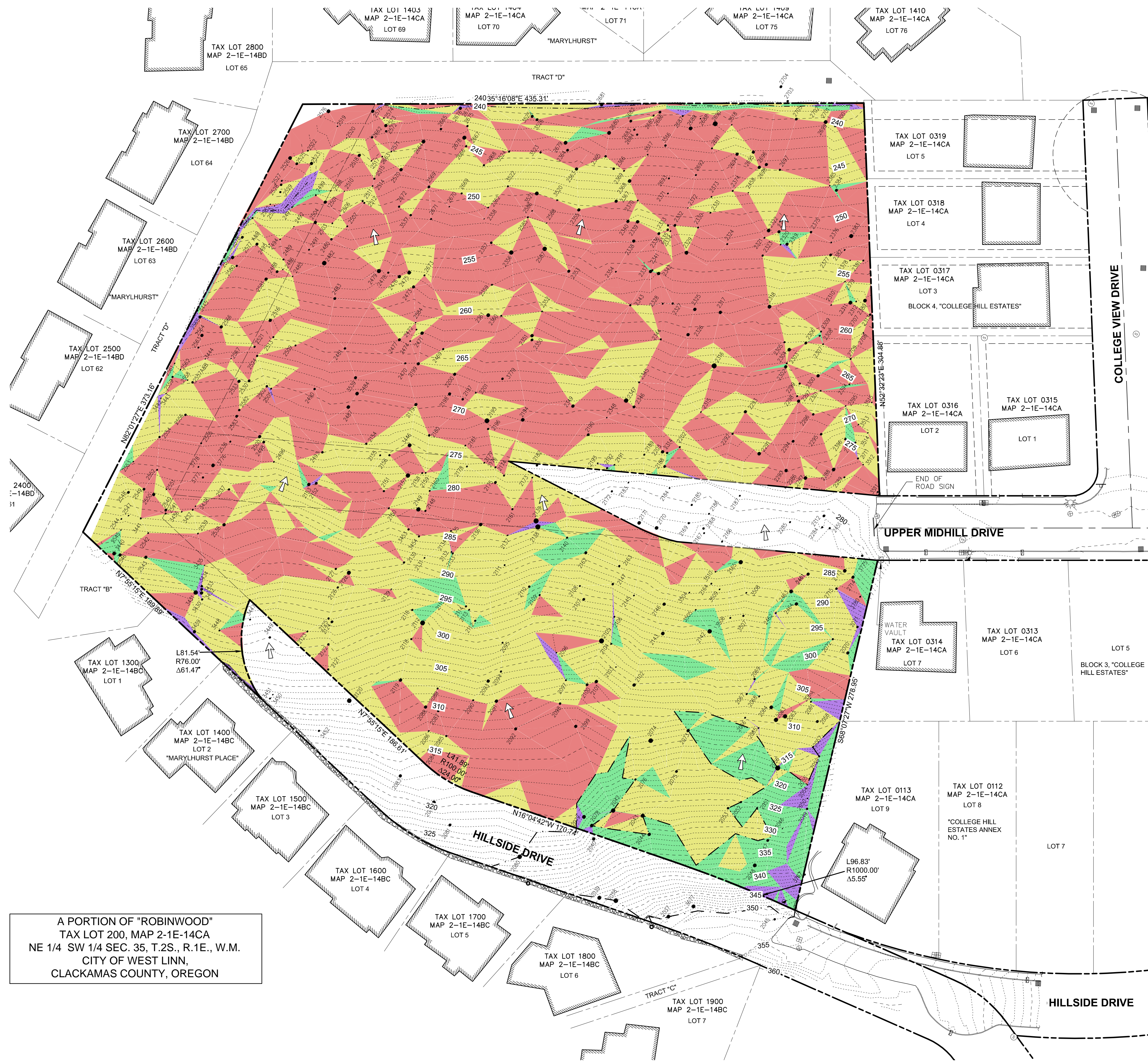


3J JOB ID # | 15266
 LAND USE # | TBD
 TAX LOT # | 251E14CA 00200
 DESIGNED BY | JTE, CKW, JCP
 CHECKED BY | JTE

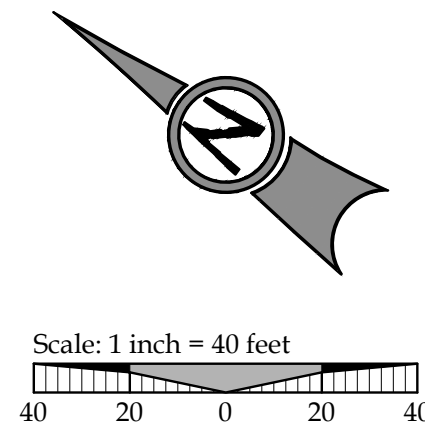
SHEET TITLE
TREE DETAILS IV
 SHEET NUMBER
C114

NOT FOR CONSTRUCTION

P:\15266-UPPER MIDHILL ESTATES (REESMAN)\CAD\DD\C130 SLOPE ANALYSIS PLAN.DWG



A PORTION OF "ROBINWOOD"
 TAX LOT 200, MAP 2-1E-14CA
 NE 1/4 SW 1/4 SEC. 35, T.2S., R.1E., W.M.
 CITY OF WEST LINN,
 CLACKAMAS COUNTY, OREGON



LEGEND

- PROJECT BOUNDARY LINE
- RIGHT OF WAY LINE
- PROPOSED PROPERTY LINE
- ROADWAY CENTER LINE
- ADJACENT PROPERTY BOUNDARY
- EASEMENT LINE
- GROUND SLOPE DIRECTION
- EXISTING TREE & TAG NUMBER (SEE C110 - C114) FOR FURTHER INFORMATION
- EXISTING MAJOR CONTOUR (5FT)
- EXISTING MINOR CONTOUR (1FT)

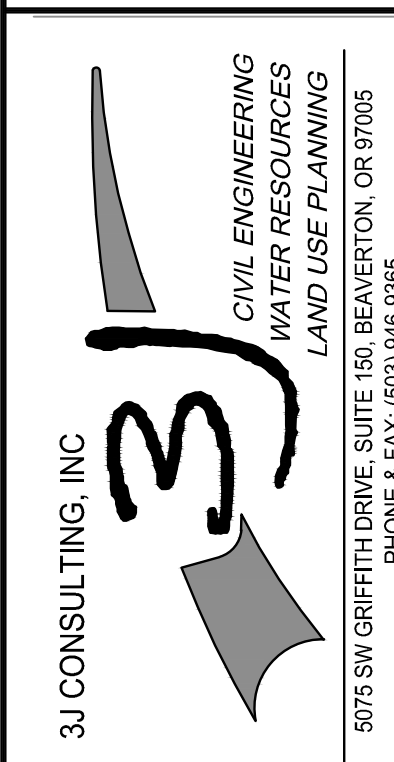
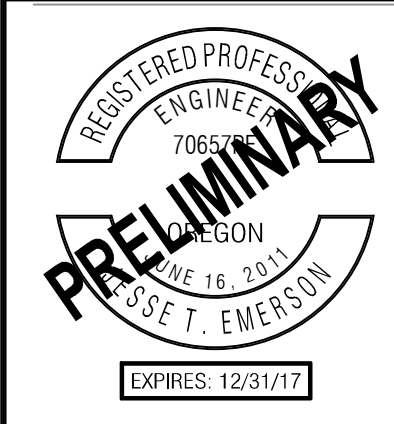
SLOPE STATISTICS

MINIMUM SLOPE	MAXIMUM SLOPE	AREA (SF)	COLOR
0%	15%	128,584	
15%	25%	115,769	
25%	35%	17,018	
35%	35% OR GREATER	3,668	

DESIGN REVIEW 01/11/2016

REVISION SUMMARY	BY	DATE

SLOPE ANALYSIS PLAN
CHÊNE BLANC ESTATES
 LAND USE DOCUMENTS
 1800 UPPER MIDHILL DRIVE, LLC
 WEST LINN, OR



3J JOB ID #	15266
LAND USE #	TBD
TAX LOT #	251E14CA 00200
DESIGNED BY	JTE, CKW, JCP
CHECKED BY	JTE

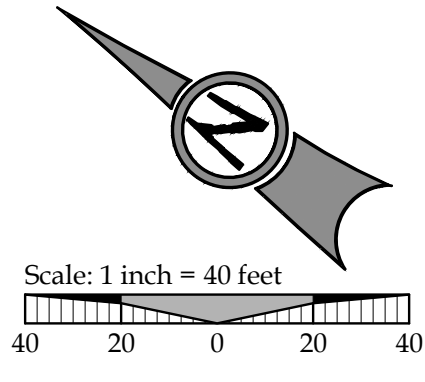
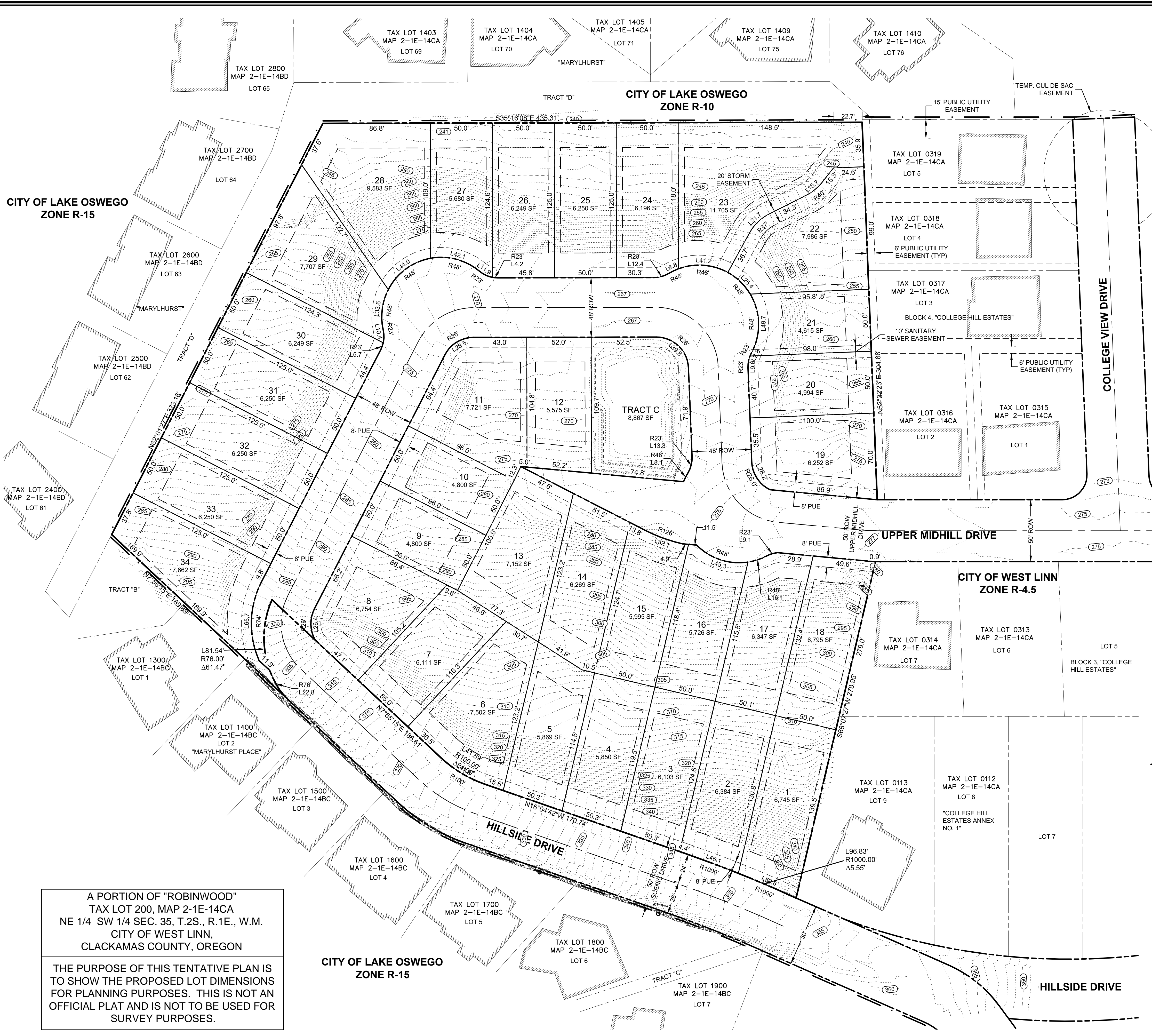
SHEET TITLE
SLOPE ANALYSIS

SHEET NUMBER
C130



NOT FOR CONSTRUCTION

P:\15266-UPPER MIDHILL ESTATES (REESMAN)\CADD\C200 PRELIMINARY PLAT.DWG



LEGEND

- PROJECT BOUNDARY LINE
- RIGHT OF WAY LINE
- PROPOSED PROPERTY LINE
- ROADWAY CENTER LINE
- ADJACENT PROPERTY BOUNDARY
- EASEMENT LINE
- PROPOSED LOT LINE
- PROPOSED EASEMENT LINE
- PROPOSED RIGHT OF WAY
- PROPOSED SETBACK LINE
- CITY BOUNDARY LINE
- 1 FOOT CONTOUR
- 5 FOOT CONTOUR

SITE STATISTICS

SITE ADDRESS	18000 UPPER MIDHILL DRIVE, WEST LINN, OREGON
TAX LOT	2S1E14CA 00200
JURISDICTION	CITY OF WEST LINN
GROSS SITE AREA	265,860 +/- SF (6.10 AC)
PROPERTY ZONING	R-4.5
FLOOD HAZARD MAP NUMBER	41005C0019D ZONE X (UNSHADED)

SUBDIVISION STATISTICS

RIGHT OF WAY DEDICATION	34,637 SF (0.80 AC)
MINIMUM ALLOWABLE EFFECTIVE LOT SIZE	4,500 SF
MINIMUM LOT DENSITY	6.67 LOTS / ACRE
MAXIMUM LOT DENSITY	9.61 LOTS / ACRE
PROPOSED LOT DENSITY	6.67 LOTS / ACRE
MAXIMUM BUILDING HEIGHT	35 FEET

SETBACKS

SETBACK LOCATION	STANDARD:
FRONT	20'
SIDE	5'
REAR	20'
STREET SIDE	15'

SURVEYOR'S NOTE

1. VERTICAL DATUM: NAVD88 UTILIZING GPS POSITIONING TIED TO THE ORGN WITH REAL TIME CORRECTORS REFERENCED TO DATUM NAD 83(2011) EPOCH 2010.00. THIS DATUM REALIZATION WAS VERIFIED THROUGH DIRECT OBSERVATION TO NGS CONTROL POINT Q723 HAVING A POINT IDENTIFICATION OF RD1491. THIS POINT IS DESCRIBED AS A STAINLESS STEEL ROD W/ SLEEVE NEAR THE INTERSECTION OF STATE HIGHWAY 224 AND LAKE ROAD. THE ELEVATION OF THIS POINT IS PUBLISHED AS 31.131 AND WAS ESTABLISHED BY NGS THROUGH DIFFERENTIAL LEVELING AND ADJUSTED BY THE NATIONAL GEODETIC SURVEY IN JUNE 1991 AND HAS A VERTICAL ORDER OF FIRST CLASS II.

2. BASIS OF BEARINGS: CENTERLINE OF UPPER MIDHILL DRIVE AS PER THE PLAT OF "COLLEGE HILL ESTATES"

PROJECT TEAM

OWNER / APPLICANT
UPPER MIDHILL ESTATES, LLC
C/O: RYAN ZYGAR
981 SW KING AVENUE
PORTLAND, OR 97205
PHONE: (360) 798-4838
EMAIL: ryan@zygar.com

PLANNING CONSULTANT
3J CONSULTING, INC
5075 SW GRIFFITH DRIVE, SUITE 150
BEAVERTON, OR 97006
CONTACT: ANDREW TULL
PHONE: 503-946-9365
EMAIL: andrew.tull@3j-consulting.com

LAND SURVEYOR
COMPASS SURVEYING
4107 SE INTERNATIONAL WAY, SUITE 705
MILWAUKIE, OR 97222
CONTACT: DON DEVLAMINCK, PLS
PHONE: 503-653-9033
EMAIL: dond@compass-engineering.com

GEOTECHNICAL CONSULTANT
GEOPACIFIC ENGINEERING, INC.
14835 SW 72ND AVENUE
PORTLAND, OR 97224
CONTACT: JIM IMBRIE
PHONE: (503) 625-4455
EMAIL: jimbrie@geopacificeng.com

CIVIL ENGINEER
3J CONSULTING, INC.
5075 SW GRIFFITH DRIVE, SUITE 150
BEAVERTON, OR 97005
CONTACTS:
JESSE EMERSON, PE
PHONE: (503) 946-9365 x202
EMAIL: jesse.emerson@3j-consulting.com
AARON MURPHY, PE
PHONE: (503) 946-9365 x 218
EMAIL: aaron.murphy@3j-consulting.com



A PORTION OF "ROBINWOOD"
TAX LOT 200, MAP 2-1E-14CA
NE 1/4 SW 1/4 SEC. 35, T.2S., R.1E., W.M.
CITY OF WEST LINN,
CLACKAMAS COUNTY, OREGON

THE PURPOSE OF THIS TENTATIVE PLAN IS TO SHOW THE PROPOSED LOT DIMENSIONS FOR PLANNING PURPOSES. THIS IS NOT AN OFFICIAL PLAT AND IS NOT TO BE USED FOR SURVEY PURPOSES.

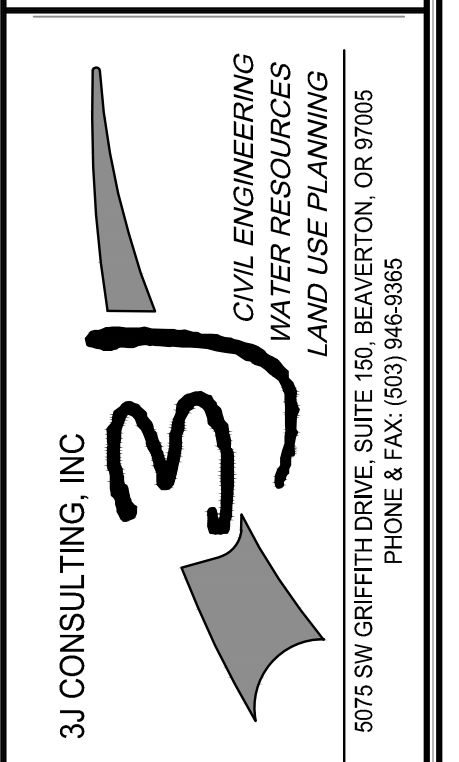
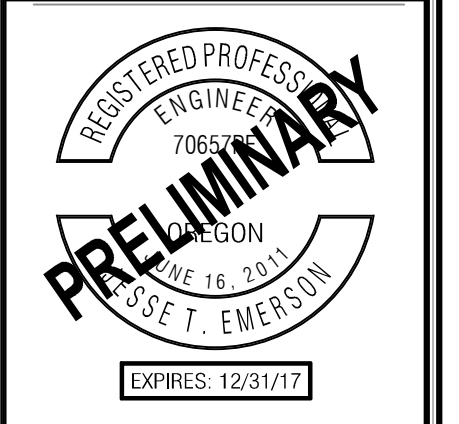
CITY OF LAKE OSWEGO
ZONE R-15

CITY OF WEST LINN
ZONE R-4.5

DESIGN REVIEW

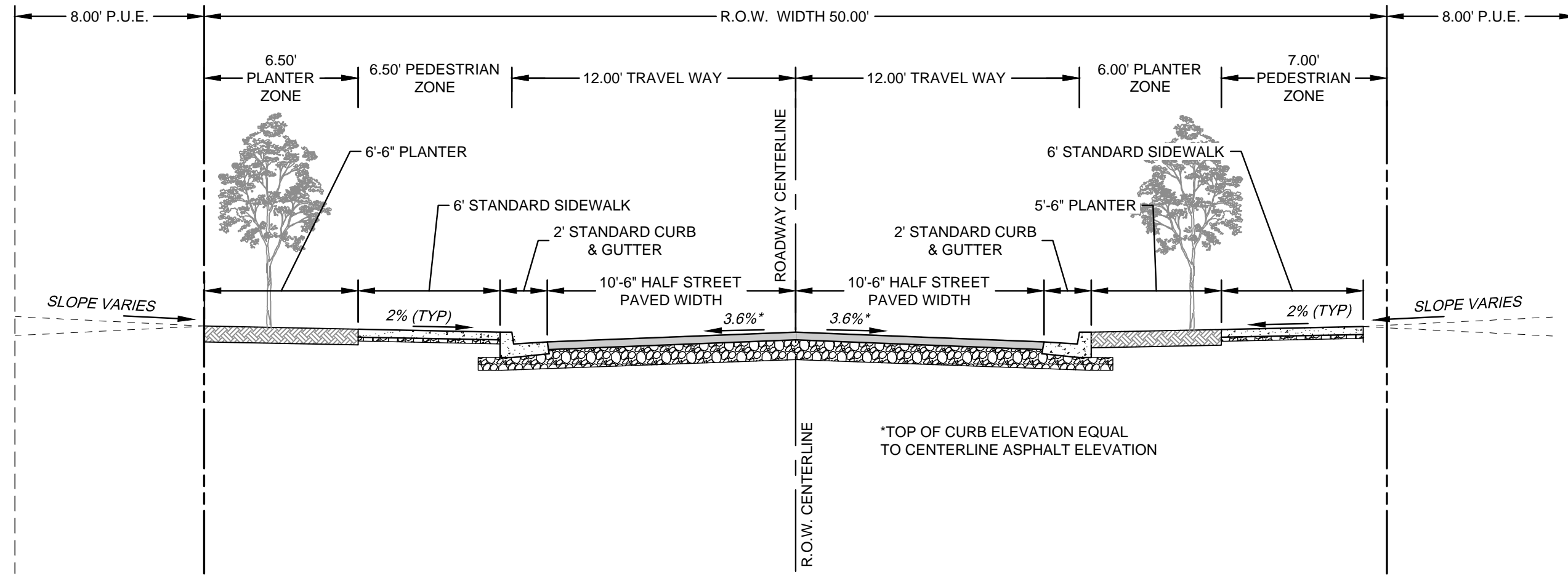
DATE	01/11/2016
BY	
REVISION SUMMARY	

TENTATIVE PLAN
CHÊNE BLANC ESTATES
LAND USE DOCUMENTS
1800 UPPER MIDHILL DRIVE, LLC
WEST LINN, OR



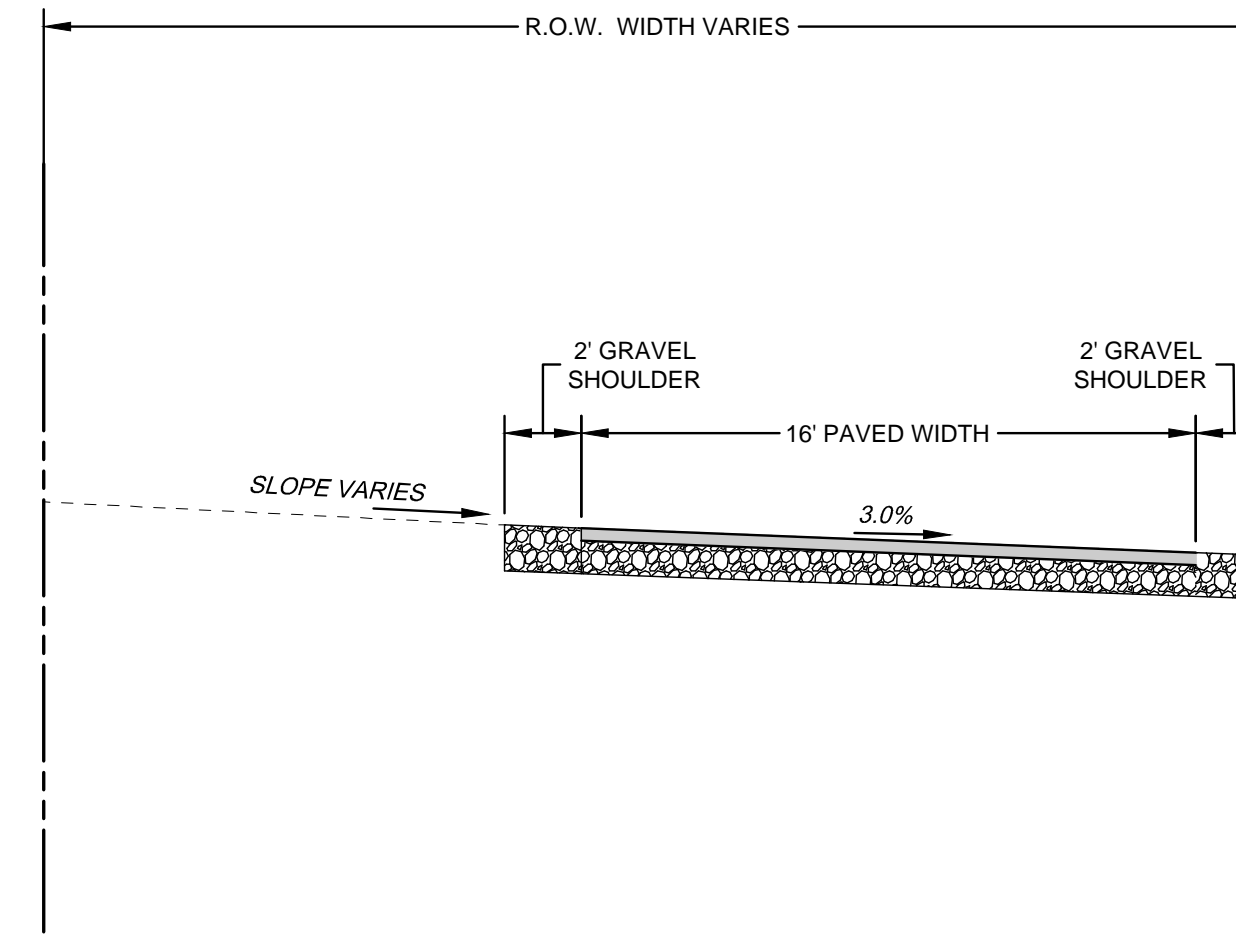
3J JOB ID #	I 15266
LAND USE #	I TBD
TAX LOT #	I 2S1E14CA 00200
DESIGNED BY	I JTE, CKW, JCP
CHECKED BY	I JTE
SHEET TITLE	TENT. PLAN
SHEET NUMBER	C200

NOT FOR CONSTRUCTION



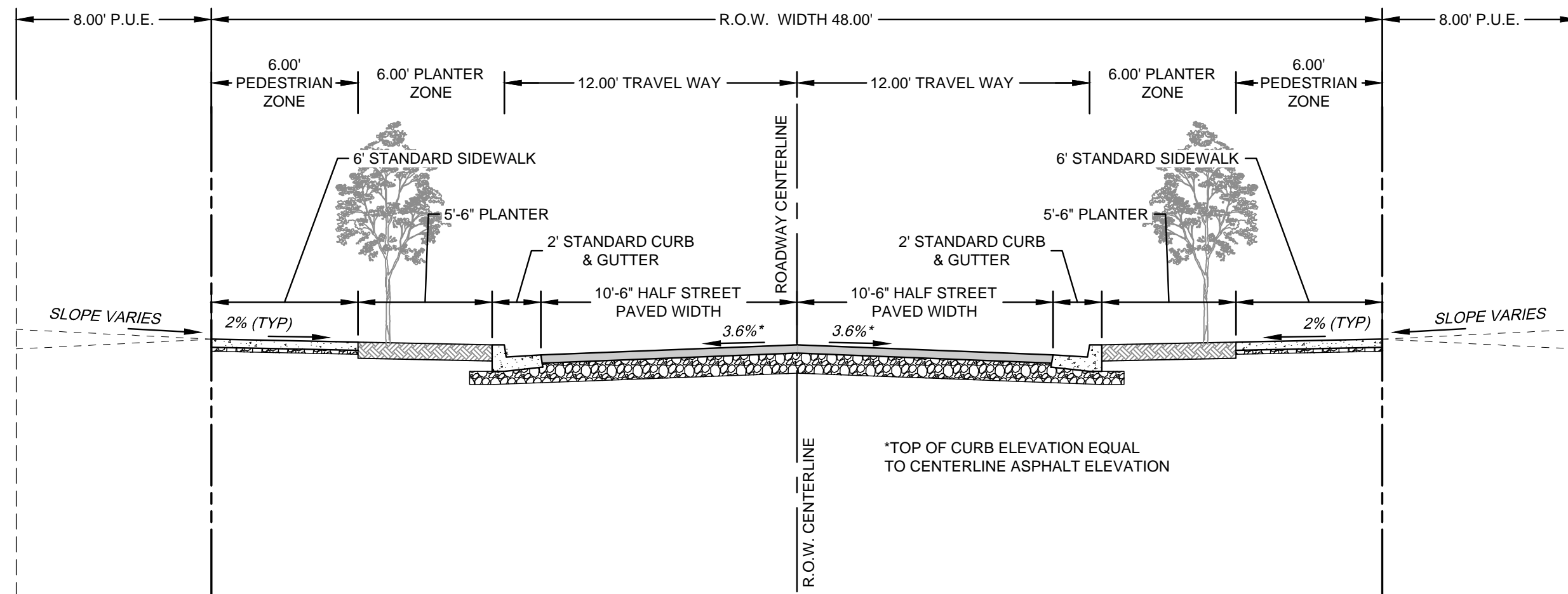
SECTION A-A: LOCAL ROAD W/ CURB TIGHT SIDEWALK (LEFT)

N.T.S.



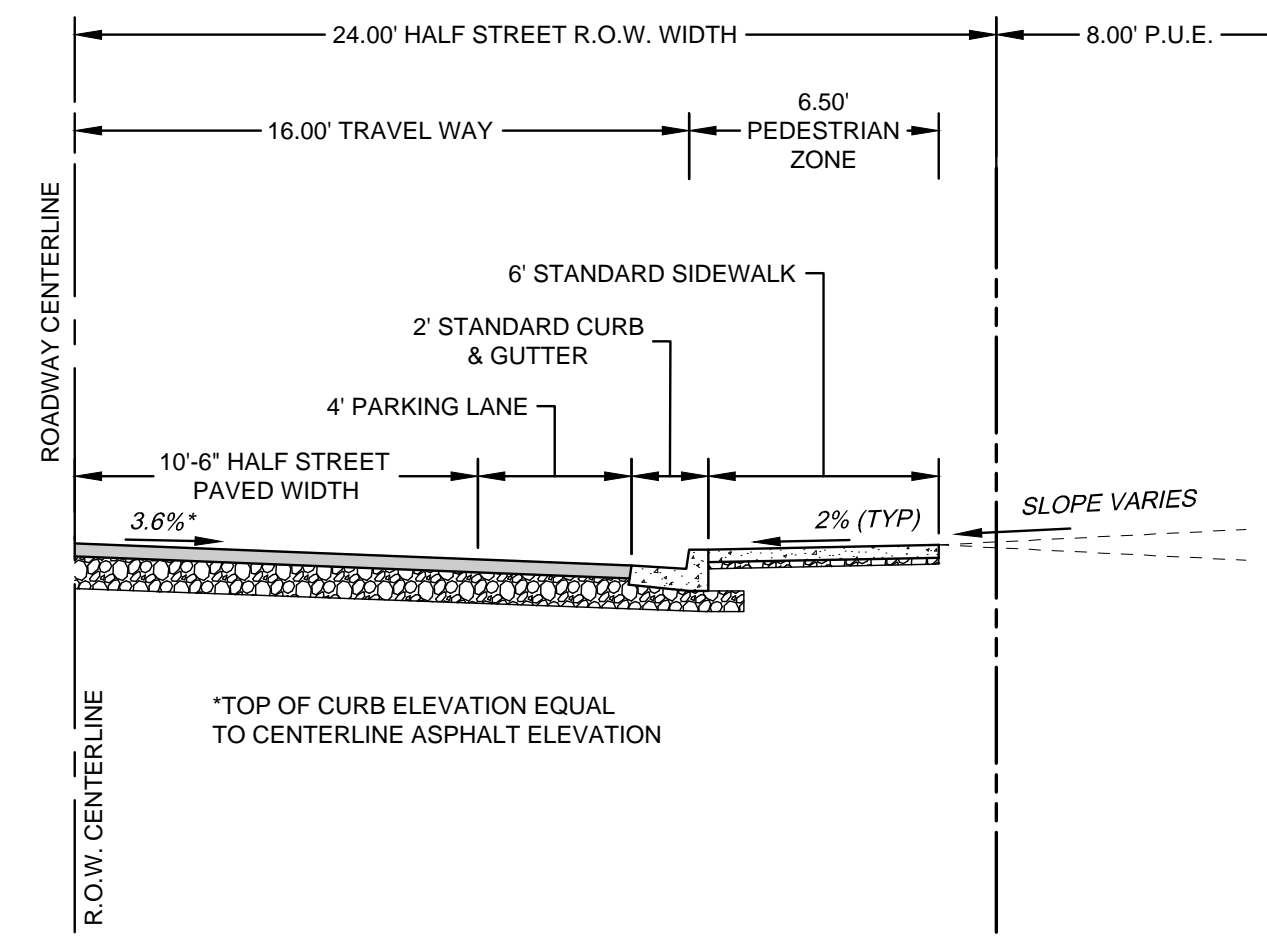
SECTION C-C: COMMON LOT ACCESS DRIVE SECTION

N.T.S.



SECTION B-B: LOCAL ROAD W/ DETACHED SIDEWALK

N.T.S.



SECTION D-D: LOCAL ROAD W/ ON-STREET PARKING

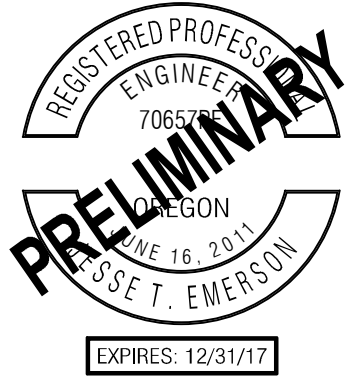
N.T.S.

P:\15266-UPPER MIDHILL ESTATES (REESMAN)\CADD\C201 TYPICAL SECTIONS.DWG

DESIGN REVIEW 01/11/2016

REVISION SUMMARY BY DATE

TYPICAL SECTIONS
CHÊNE BLANC ESTATES
 LAND USE DOCUMENTS
 1800 UPPER MIDHILL DRIVE, LLC
 WEST LINN, OR



3J JOB ID # | 15266
 LAND USE # | TBD
 TAX LOT # | 251E14CA 00200
 DESIGNED BY | JTE, CKW, JCP
 CHECKED BY | JTE

SHEET TITLE
TYPICAL SECTIONS

SHEET NUMBER

C201

NOT FOR CONSTRUCTION

P:\15266-UPPER MIDHILL ESTATES (REESMAN)\CADD\C210 SITE PLAN.DWG



A PORTION OF "ROBINWOOD"
 TAX LOT 200, MAP 2-1E-14CA
 NE 1/4 SW 1/4 SEC. 35, T.2S., R.1E., W.M.
 CITY OF WEST LINN,
 CLACKAMAS COUNTY, OREGON

LEGEND

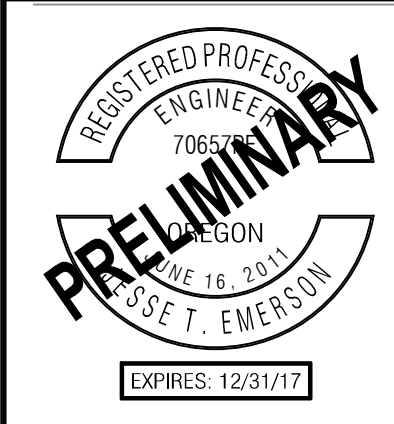
- PROJECT BOUNDARY LINE
- RIGHT OF WAY LINE
- PROPOSED PROPERTY LINE
- ROADWAY CENTER LINE
- ADJACENT PROPERTY BOUNDARY
- EASEMENT LINE
- EXISTING CONCRETE
- EXISTING CURB
- EXISTING FENCE LINE
- PROPOSED CURB FACE
- PROPOSED CURB BACK
- PROPOSED LIP OF GUTTER
- PROPOSED LOT LINE
- PROPOSED EASEMENT LINE
- PROPOSED RIGHT OF WAY
- PROPOSED ASPHALT
- PROPOSED CONCRETE
- EXISTING ROCK WALL
- PROPOSED RETAINING WALL
- PROPOSED STREET SECTION - SEE SHEET C201
- PROPOSED ON-STREET PARKING

- SITE NOTES**
- 1 CONSTRUCT STANDARD CURB & GUTTER PER CITY OF WEST LINN STANDARD DETAIL WL-501 (TYPICAL CURBS).
 - 2 CONSTRUCT 6 FT WIDE DETACHED SIDEWALK PER CITY OF WEST LINN STANDARD DETAIL WL-508 (CONCRETE SIDEWALK CROSS SECTION).
 - 3 CONSTRUCT 6 FT CURB TIGHT SIDEWALK PER CITY OF WEST LINN STANDARD DETAIL WL-508 (CONCRETE SIDEWALK CROSS SECTION).
 - 4 INSTALL ASPHALT SECTION. SEE TYPICAL SECTIONS A-A' AND B-B' ON SHEET C201.
 - 5 INSTALL ACCESS DRIVE. SEE TYPICAL SECTION C-C' ON SHEET C201.
 - 6 INSTALL RETAINING WALL.
 - 7 NOT USED.
 - 8 ROADWAY TAPER PER AASHTO STANDARDS TO MEET EXISTING ROAD WIDTHS ON UPPER MIDHILL DRIVE. STA: 1+12 TO 2+28.
 - 9 ROADWAY TAPER PER AASHTO STANDARDS TO MEET EXISTING ROAD WIDTHS ON HILLSIDE DRIVE. STA: 14+10 TO 14+91.
 - 10 TRANSITION SIDEWALK TO CURB TIGHT. MATCH EXISTING CURB TIGHT SIDEWALK AS SHOWN.
 - 11 PROVIDE CORNERING "EYE BROW" PER CLACKAMAS COUNTY ROADWAY STANDARD DRAWING C400.
 - 12 INSTALL STREET SIGN "UPPER MIDHILL DRIVE" AND "HILLSIDE DRIVE".



DESIGN REVIEW	01/11/2016
REVISION SUMMARY	BY DATE

PRELIMINARY SITE PLAN
CHÈNE BLANC ESTATES
 LAND USE DOCUMENTS
 1800 UPPER MIDHILL DRIVE, LLC
 WEST LINN, OR

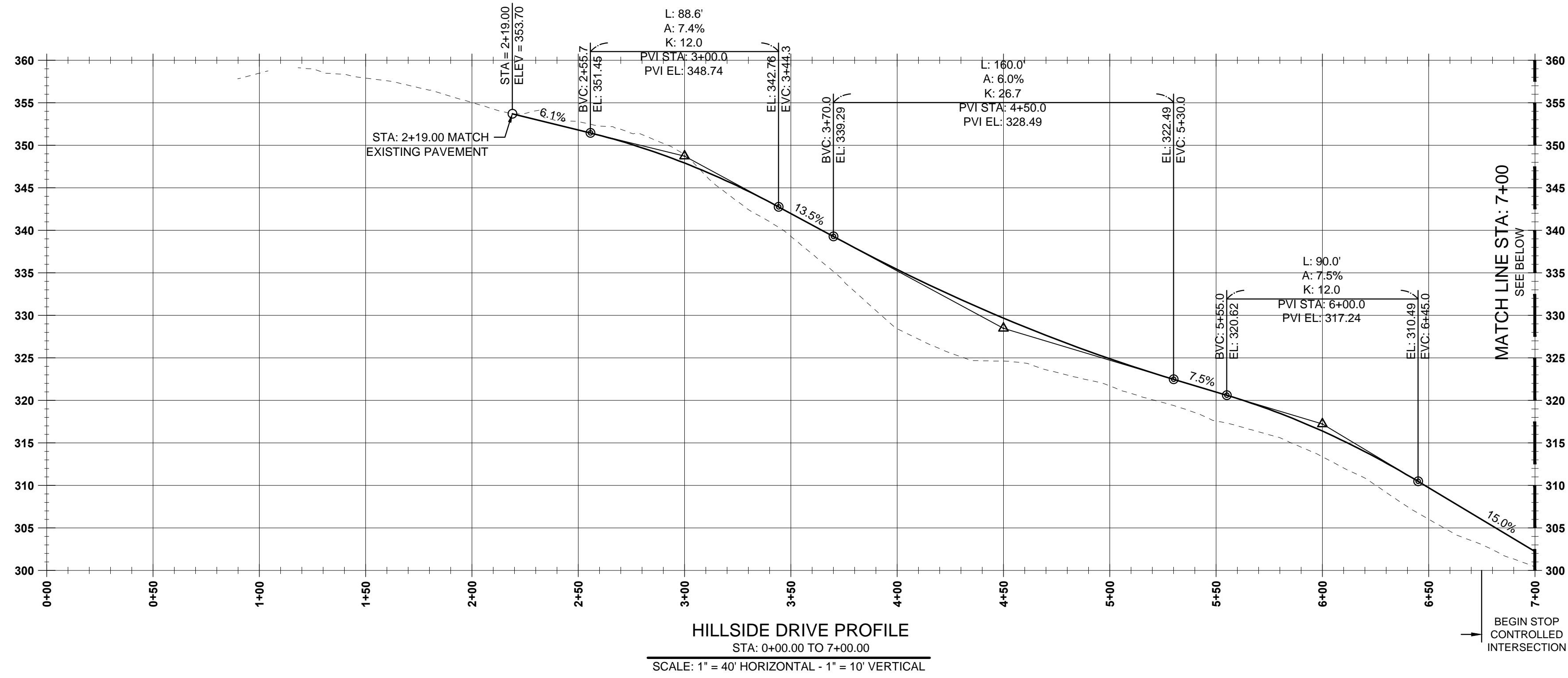


3J CONSULTING, INC

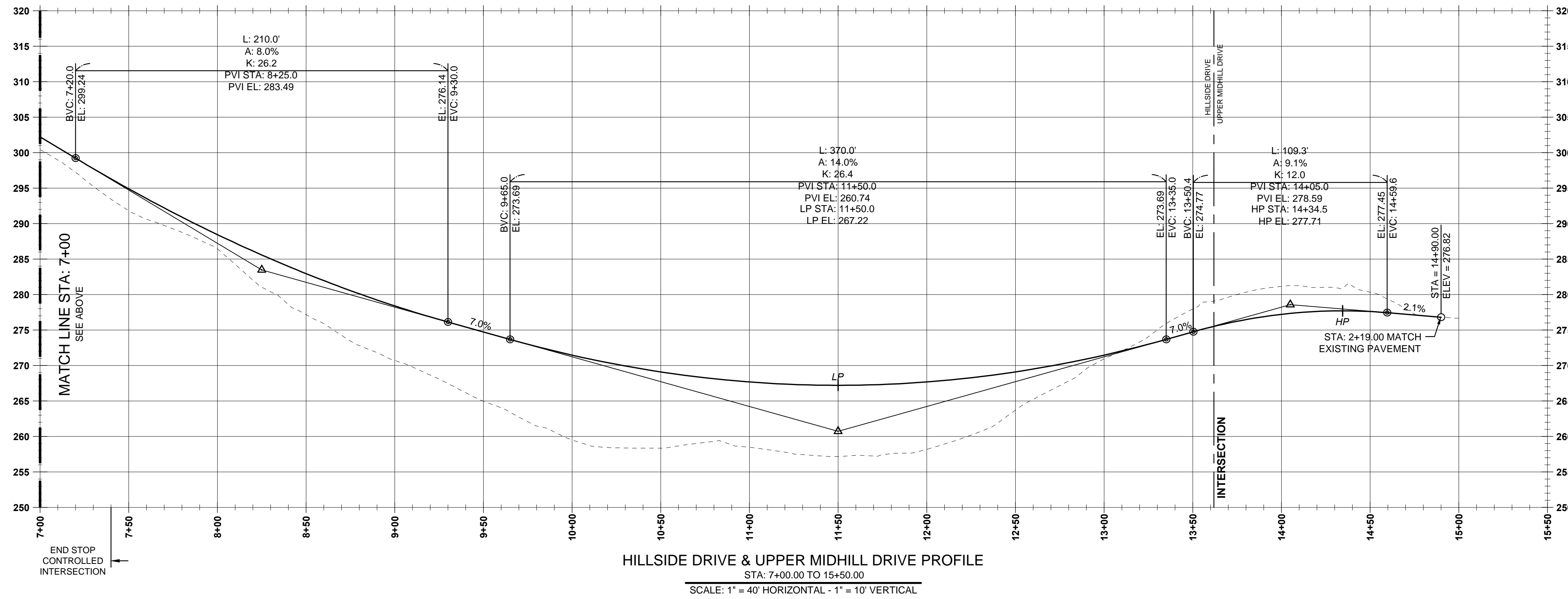
 CIVIL ENGINEERING
 WATER RESOURCES
 LAND USE PLANNING
 5075 SW GRIFFITH DRIVE, SUITE 150, BEAVERTON, OR 97005
 PHONE & FAX: (503) 946-5365

3J JOB ID #	15266
LAND USE #	TBD
TAX LOT #	251E14CA 00200
DESIGNED BY	JTE, CKW, JCP
CHECKED BY	JTE

SHEET TITLE
 SITE PLAN
 SHEET NUMBER
C210

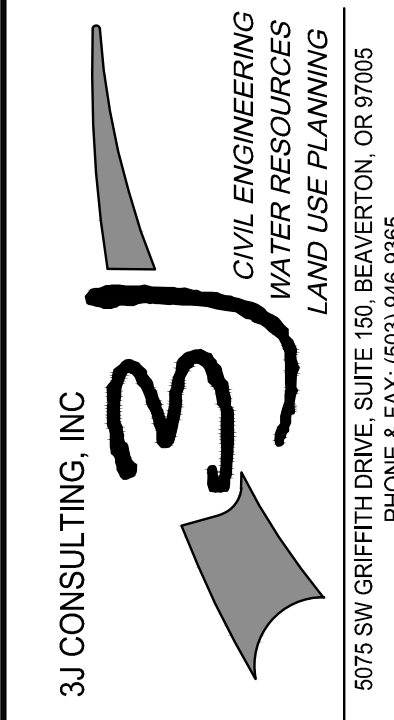
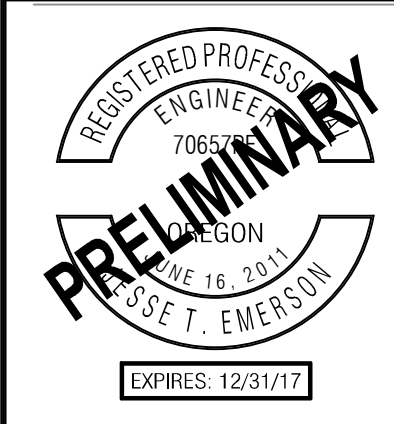


STREET DESIGN REQUIREMENTS	
DESIGN SPEED	25 MPH
HORIZONTAL CURVES RADIUS (MIN. @ CL.)	165'
STOPPING SIGHT DISTANCE (MIN. K VALUE)	
CREST	12
SAG	26
VERTICAL GRADES (MAX)	15%
VERTICAL GRADE CHANGE (MAX)	1%
INTERIOR CURB RADIUS (MIN)	25'



DESIGN REVIEW	01/11/2016
REVISION SUMMARY	BY
	DATE

ROADWAY PROFILES
CHÊNE BLANC ESTATES
 LAND USE DOCUMENTS
 1800 UPPER MIDHILL DRIVE, LLC
 WEST LINN, OR



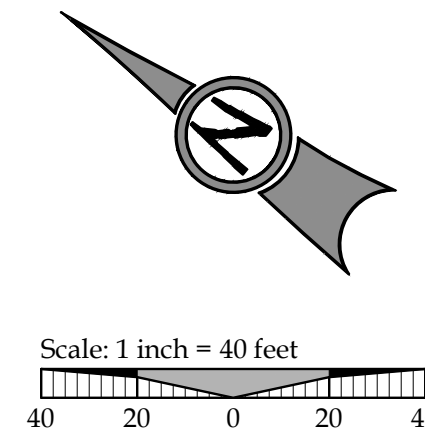
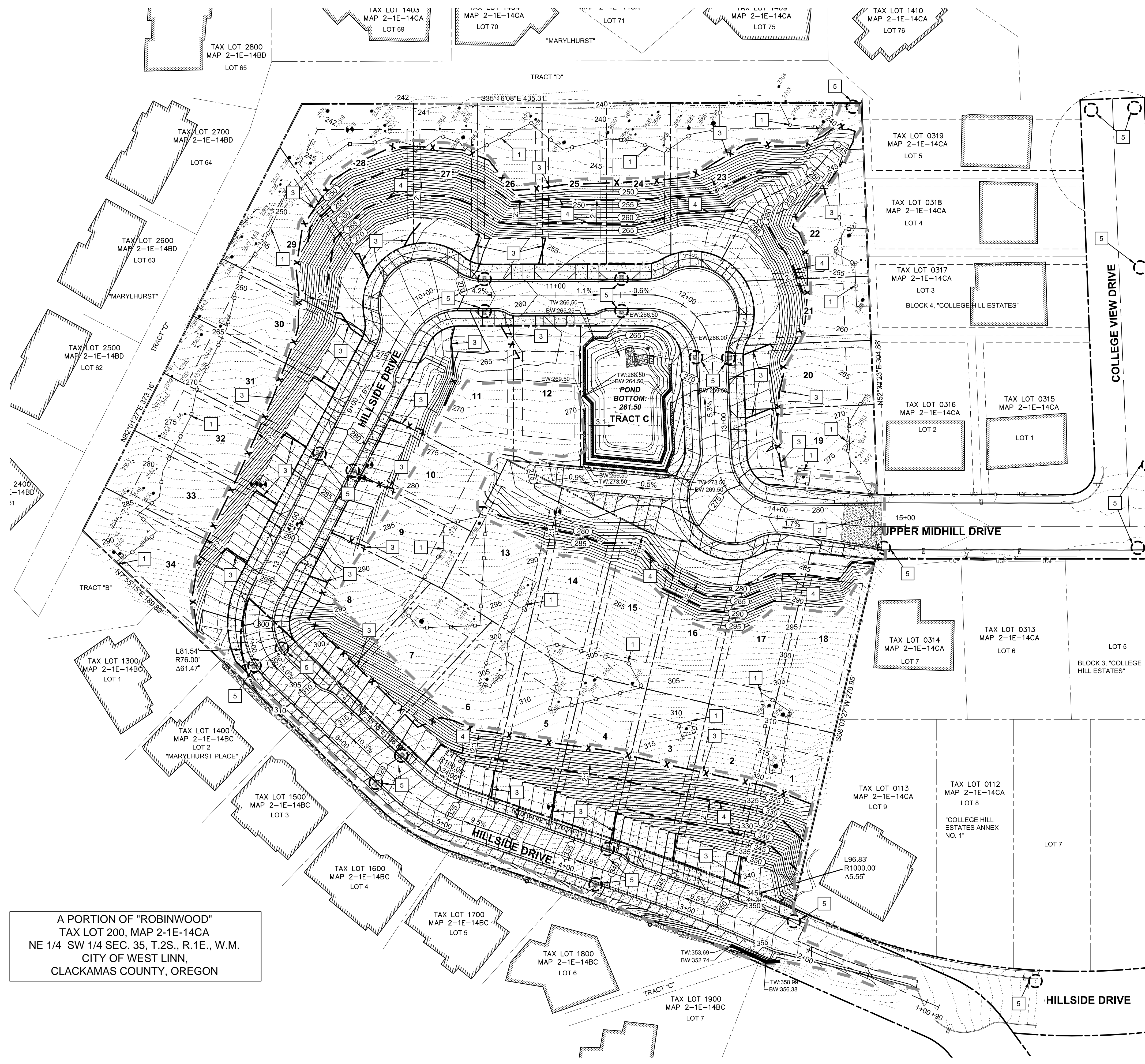
3J JOB ID #	15266
LAND USE #	TBD
TAX LOT #	251E14CA 00200
DESIGNED BY	JTE, CKW, JCP
CHECKED BY	JTE

SHEET TITLE
ROADWAY PROF.

SHEET NUMBER
C220

NOT FOR CONSTRUCTION

P:\15266-UPPER MIDHILL ESTATES (REESMAN)\CADD\C230 PHASE 2 GRADING AND EROSION CONTROL.DWG



LEGEND

- PROJECT BOUNDARY LINE
- RIGHT OF WAY LINE
- PROPOSED PROPERTY LINE
- ROADWAY CENTER LINE
- ADJACENT PROPERTY BOUNDARY
- EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- PROPOSED MAJOR CONTOUR
- PROPOSED MINOR CONTOUR
- EASEMENT LINE
- PROPOSED RETAINING WALL
- STRAW WATTLE
- SILT FENCE
- LIMITS OF DISTURBANCE
- CONSTRUCTION ENTRANCE
- INLET PROTECTION
- SURFACE RUNOFF FLOW ARROW
- TOP OF WALL SURFACE ELEVATION
- BOTTOM OF WALL SURFACE ELEVATION

GRADING KEY NOTES

- 1 MAINTAIN TREE PROTECTION FENCING THROUGHOUT CONSTRUCTION.
- 2 CONSTRUCT STABILIZED CONSTRUCTION ENTRANCE AT LOCATION SHOWN.
- 3 PLACE SILT FENCING AT LIMITS OF GRADING AND CONSTRUCTION WHERE SHOWN.
- 4 INSTALL STRAW WATTLE AT LOCATIONS SHOWN.
- 5 INSTALL INLET PROTECTION AT LOCATIONS SHOWN.
- 6 INSTALL RETAINING WALL FOR EXISTING GRADE TRANSITION, DESIGN BY OTHERS.

SITE GRADING INFORMATION

SITE STRIPPING*	10,037 CY
NEAT LINE CUT	5,860 CY
NEAT LINE FILL	35,460 CY
NEAT LINE NET BALANCE	29,600 CY (FILL)
MAXIMUM CUT DEPTH	12.2 FT
MAXIMUM FILL DEPTH	20.5 FT
MAXIMUM PROPOSED SLOPE	2H:1V
TOTAL AREA OF DISTURBANCE	4.15 ACRES

*STRIPPINGS:
 ASSUMED REPLACEMENT / STOCKPILE ON SITE OUTSIDE BUILDING ENVELOPE
 ASSUMED 18 INCHES REMOVAL OVER TOTAL AREA OF DISTURBANCE

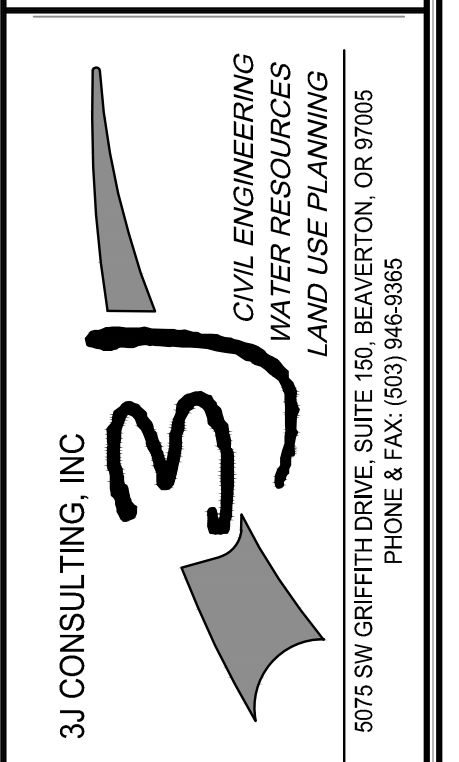
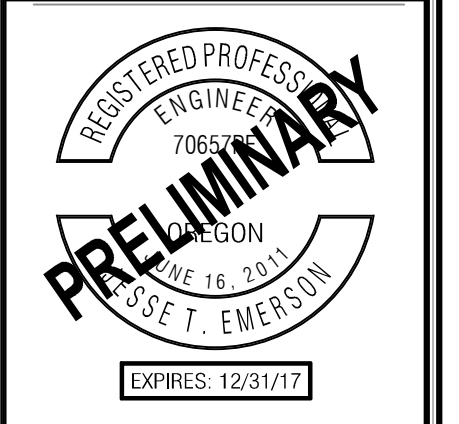
GRADING GENERAL NOTES

1. REFER TO "PRELIMINARY GEOTECHNICAL ENGINEERING REPORT AND LANDSLIDE HAZARD STUDY" BY GEOPACIFIC ENGINEERING, DATED AUGUST 6, 2015. ALL SITE EARTHWORK PREPARATION AND EXECUTION SHALL CONFORM IN ALL RESPECTS TO THE RECOMMENDATIONS AND DESIGN REQUIREMENTS OF THIS DOCUMENT.
2. ALL PROPOSED GRADING SHOWN IS REFERENCED TO FINISHED GRADE.
3. ALL PROPOSED GRADING SHALL CONFORM TO THE REQUIREMENTS OF THE BUILDING CODE (CURRENT EDITION), INCLUDING APPENDIX J.

A PORTION OF "ROBINWOOD"
 TAX LOT 200, MAP 2-1E-14CA
 NE 1/4 SW 1/4 SEC. 35, T.2S., R.1E., W.M.
 CITY OF WEST LINN,
 CLACKAMAS COUNTY, OREGON

DESIGN REVIEW	01/11/2016
REVISION SUMMARY	BY DATE

PHASE 2 GRADING AND EROSION CONTROL
CHÈNE BLANC ESTATES
LAND USE DOCUMENTS
 1800 UPPER MIDHILL DRIVE, LLC
 WEST LINN, OR



3J JOB ID #	15266
LAND USE #	TBD
TAX LOT #	251E14CA 00200
DESIGNED BY	JTE, CKW, JCP
CHECKED BY	JTE

SHEET TITLE
PH2 GRADE & E.C.

SHEET NUMBER
C230

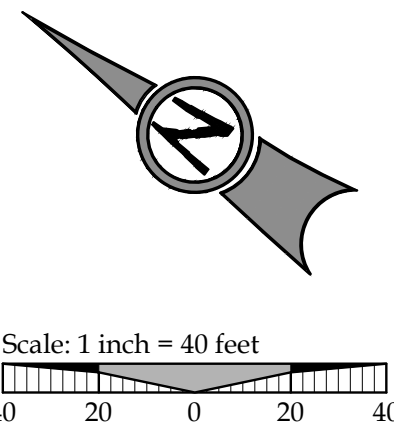


NOT FOR CONSTRUCTION

P:\15266-UPPER MIDHILL ESTATES (REESMAN)\CADD\C280 PHOTOMETRICS PLAN.DWG



A PORTION OF "ROBINWOOD"
 TAX LOT 200, MAP 2-1E-14CA
 NE 1/4 SW 1/4 SEC. 35, T.2S., R.1E., W.M.
 CITY OF WEST LINN,
 CLACKAMAS COUNTY, OREGON



LEGEND

- 0.5 FOOT CANDLE ISO-ILLUMINATION CONTOUR
- 0.1 FOOT CANDLE ISO-ILLUMINATION CONTOUR
- ILLUMINATION ANALYSIS POINT (FC)
- FOOT CANDLE UNIT
- PROPOSED LUMINAIRE

SCENIC DRIVE	PROPOSED	REQUIRED*
EXISTING LIGHT(S) INCLUDED	0 EA	
NEW LIGHTS PROPOSED	11 EA	
MAX. ILLUMINATION	1.1 FC	
MIN. ILLUMINATION	0.1 FC	
AVERAGE ILLUMINATION	0.6 FC	0.40 FC (MIN)
UNIFORMITY (AVG/MIN)	5.5	6.00 (MAX)

*PER CITY OF WEST LINN PUBLIC WORKS DESIGN STANDARDS

LUMINAIRE
 CREE LEDWAY IP66 STREET LIGHT - TYPE 2 MEDIUM
 STR-LWY-2M-HT-02-E-UL-BZ-700-40K-R-UTL-SPX

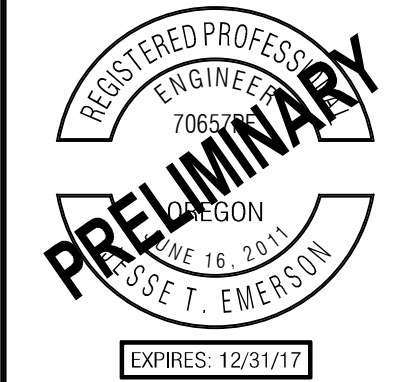
POST AND ARM
 30 FT BRONZE POLE / 25 FT MOUNTING HEIGHT
 6' BRONZE MAST ARM

SITE NOTES
 1 INSTALL NEW BRONZE POLE, 6-FT MAST ARM, AND LED BETA FIXTURE.

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PHOTOMETRICS PLAN
CHÊNE BLANC ESTATES
LAND USE DOCUMENTS
 1800 UPPER MIDHILL DRIVE, LLC
 WEST LINN, OR



3J CONSULTING, INC

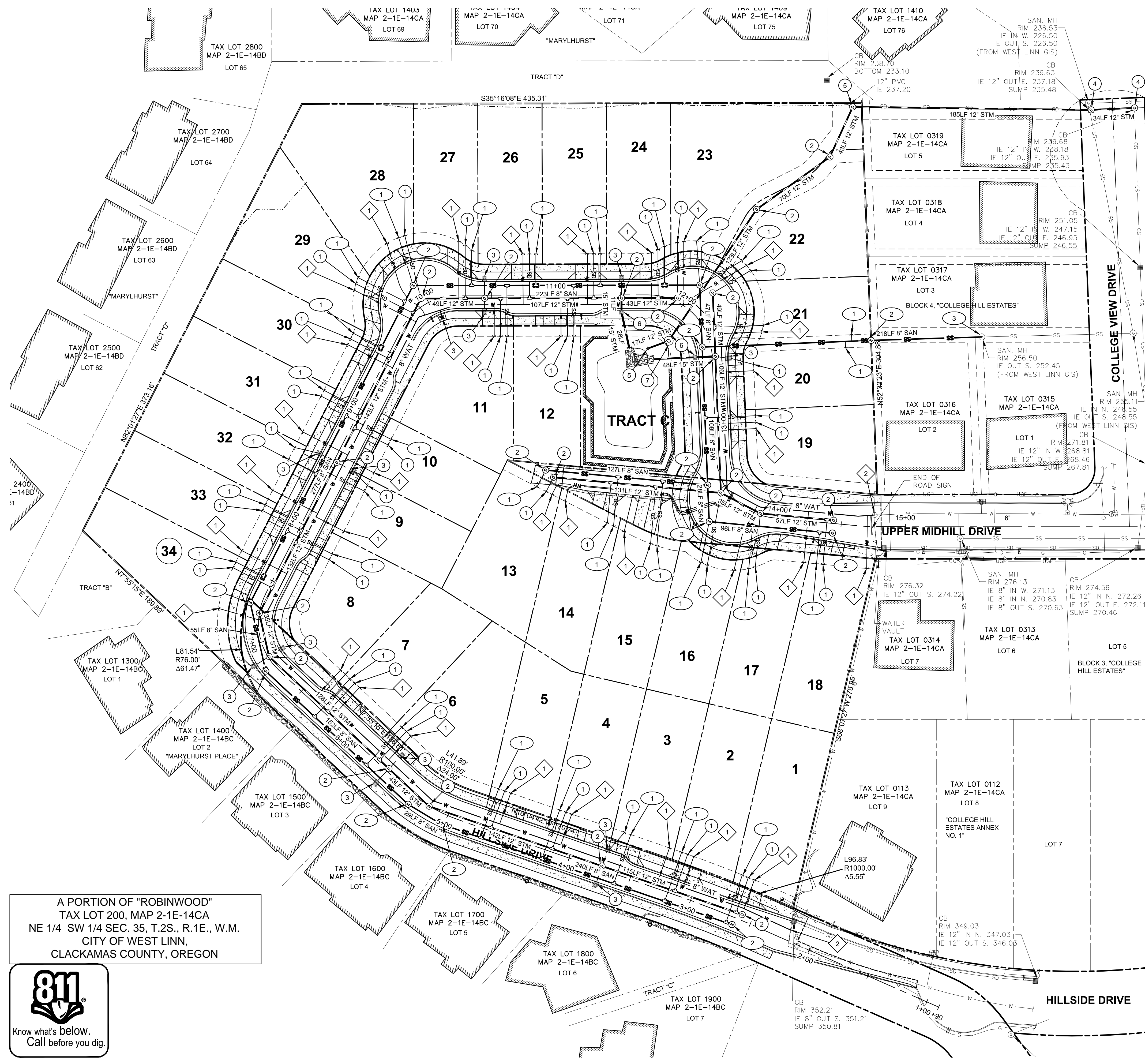
 CIVIL ENGINEERING
 WATER RESOURCES
 LAND USE PLANNING
 5075 SW GRIFFITH DRIVE, SUITE 150, BEAVERTON, OR 97005
 PHONE & FAX: (503) 946-5365

3J JOB ID #	15266
LAND USE #	TBD
TAX LOT #	251E14CA 00200
DESIGNED BY	JTE, CKW, JCP
CHECKED BY	JTE

SHEET TITLE
PHOTOMETRICS

SHEET NUMBER
C280





LEGEND

	PROJECT BOUNDARY LINE
	RIGHT OF WAY LINE
	PROPOSED PROPERTY LINE
	ROADWAY CENTER LINE
	ADJACENT PROPERTY BOUNDARY
	PROP. EASEMENT LINE
	PROP. BUILDING SETBACK LINE
	EXIST. DRAINAGE DITCH
	PROP. STORM MAIN
	PROP. STORM LATERAL / LEAD
	PROP. SANITARY MAIN
	PROP. SANITARY LATERAL
	PROP. WATER MAIN
	PROP. WATER SERVICE
	EXIST. SANITARY SEWER
	EXIST. STORM DRAIN
	EXIST. WATER MAIN
	PROP. TEE FITTING, STORM / SANITARY
	PROP. COMBINATION CURB INLET
	PROP. CG-48 MANHOLE
	PIPE CAP / STUB
	LINE CONTINUATION
	PROP. SEWER MANHOLE
	PROP. SEWER CLEANOUT
	PROP. STORM MANHOLE
	PROP. STORM CLEANOUT
	FIRE HYDRANT
	EXIST. WATER VALVE
	EXIST. BLOW-OFF VALVE
	EXIST. SANITARY MANHOLE
	EXIST. SANITARY CLEANOUT
	EXIST. STORM MANHOLE
	EXIST. STORM CLEANOUT
	EXIST. STORM INLET

- WATER KEY NOTES**
- INSTALL SINGLE WATER METER FOR INDIVIDUAL LOT SERVICE. EXTEND 1" SERVICE LATERAL 3' BEYOND PUE.
 - INSTALL / CONNECT TO EXISTING.
 - INSTALL FIRE HYDRANT AT LOCATIONS SHOWN.

- STORM KEY NOTES**
- PROVIDE NEW 4" PRIVATE STORM DRAIN LATERAL CONNECTION FOR INDIVIDUAL LOT SERVICE. EXTEND SERVICE LATERAL 3' BEYOND PUE.
 - CONSTRUCT STANDARD 48" STORM SEWER MANHOLE.
 - CONSTRUCT COMBINATION CURB INLET WITH 10" STORM LINE.
 - CONSTRUCT 48" STORM SEWER MANHOLE WITH GRATE LID.
 - CONSTRUCT 48" INLET MANHOLE
 - CONSTRUCT CG-48 CURB INLET MANHOLE.
 - CONSTRUCT FLOW CONTROL MANHOLE.

- SANITARY SEWER KEY NOTES**
- PROVIDE NEW 4" SANITARY SEWER LATERAL FOR INDIVIDUAL LOT SERVICE. EXTEND SERVICE LATERAL 3' BEYOND PUE.
 - CONSTRUCT STANDARD 48" SANITARY SEWER MANHOLE
 - CORE DRILL NEW 8" CONNECTION ON EXISTING MANHOLE. CONNECT TO EXISTING MANHOLE.

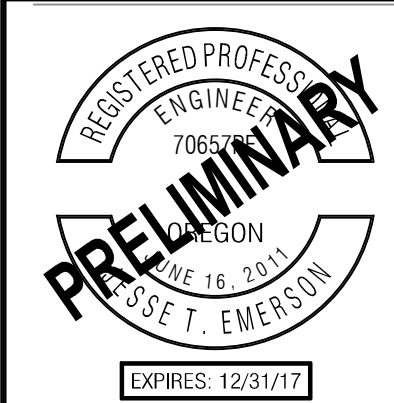
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TAX LOT 200, MAP 2-1E-14CA
NE 1/4 SW 1/4 SEC. 35, T.2S., R.1E., W.M.
CITY OF WEST LINN,
CLACKAMAS COUNTY, OREGON



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COMPOSITE UTILITY PLAN
CHÈNE BLANC ESTATES
LAND USE DOCUMENTS
1800 UPPER MIDHILL DRIVE, LLC
WEST LINN, OR



3J CONSULTING, INC

CIVIL ENGINEERING
WATER RESOURCES
LAND USE PLANNING

5075 SW GRIFFITH DRIVE, SUITE 150, BEAVERTON, OR 97005
PHONE & FAX: (503) 946-5365

3J JOB ID #	15266
LAND USE #	TBD
TAX LOT #	251E14CA 00200
DESIGNED BY	JTE, CKW, JCP
CHECKED BY	JTE

SHEET TITLE
COMP. UTIL.

SHEET NUMBER
C300