PLANNING COMMISSION
Meeting Agenda
Monday, August 27, 2018
7:00 PM
City Council Chambers – 222 NE 2nd Avenue

Commissioner John Savory (Chair)

Commissioner Larry Boatright (Vice Chair) | **Commissioner John Serlet**
Commissioner Derrick Mottern | **Commissioner Tyler Hall**
Commissioner Shawn Varwig | **Commissioner Andrey Chernishov**

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1. CALL TO ORDER
a. Invocation and Pledge of Allegiance

2. CITIZEN INPUT ON NON-AGENDA ITEMS
(This is an opportunity for audience members to address the Planning Commission on items not on the agenda. Each person will be given 3 minutes to speak. You are first required to fill out a testimony/comment card prior to speaking and hand it to the Recording Secretary. These forms are available by the sign-in podium. Staff and the Planning Commission will make every effort to respond to questions raised during citizen input before tonight's meeting ends or as quickly as possible thereafter.

3. MINUTES
a. Approval of Planning Commission Minutes TBD.

4. NEW BUSINESS

5. PUBLIC HEARING
(To testify, please fill out a testimony/comment card and give to the Recording Secretary.)

a. Consider a request for approval of a 90-lot subdivision located in the SW Canby Development Concept Plan approved annexation area. **(Riverside Park Subdivision SUB 18-04).**

6. **FINAL DECISIONS - None**
(Note: These are final, written versions of previous oral decisions. No public testimony.)
- **Riverside Park Subdivision SUB 18-04).**

7. **ITEMS OF INTEREST/REPORT FROM PLANNING STAFF**
a. Next regularly scheduled Planning Commission meeting – Monday, September 10, 2018

8. ITEMS OF INTEREST/GUIDANCE FROM PLANNING COMMISSION

9. ADJOURNMENT

The meeting location is accessible to persons with disabilities. A request for an interpreter for the hearing impaired or for other accommodations for person with disabilities should be made at least 48 hours before the meeting at 503-266-7001. A copy of this agenda can be found on the City's web page at www.canbyoregon.gov . City Council and Planning Commission Meetings are broadcast live and can be viewed on OCTS Channel 5. For a schedule of the playback times, please call 503-263-6287.

PUBLIC HEARING FORMAT

The public hearing will be conducted as follows:

- **STAFF REPORT**
- **QUESTIONS** (If any, by the Planning Commission or staff)
- **OPEN PUBLIC HEARING FOR TESTIMONY**:
  - **APPLICANT** (Not more than 15 minutes)
  - **PROPONENTS** (Persons in favor of application) (Not more than 5 minutes per person)
  - **OPPONENTS** (Persons opposed to application) (Not more than 5 minutes per person)
  - **NEUTRAL** (Persons with no opinion) (Not more than 5 minutes per person)
  - **REBUTTAL** (By applicant, not more than 10 minutes)
- **CLOSE PUBLIC HEARING** (No further public testimony allowed)
- **QUESTIONS** (If any by the Planning Commission)
- **DISCUSSION** (By the Planning Commission)
- **DECISION** (By the Planning Commission)

- All interested persons in attendance shall be heard on the matter. If you wish to testify on this matter, please be sure to complete a Testimony Card and hand it to the Recording Secretary. When the Chair calls for Proponents, if you favor the application; or Opponents if you are opposed to the application please come forward and take a seat, speak into the microphone so the viewing public may hear you, and state your name, address, and interest in the matter. You may be limited by time for your statement, depending upon how many people wish to testify.

EVERYONE PRESENT IS ENCOURAGED TO TESTIFY, EVEN IF IT IS ONLY TO CONCUR WITH PREVIOUS TESTIMONY. All questions must be directed through the Chair. Any evidence to be considered must be submitted to the hearing body for public access.

Testimony and evidence must be directed toward the applicable review criteria contained in the staff report, the Comprehensive Plan, or other land use regulations which the person believes to apply to the decision.

Failure to raise an issue accompanied by statements or evidence sufficient to afford the decision-maker and interested parties an opportunity to respond to the issue, may preclude appeal to the City Council and the Land Use Board of Appeals based on that issue.

Failure of the applicant to raise constitutional or other issues relating to proposed conditions of approval with sufficient specificity to allow the local government to respond to the issue may preclude an action for damages in circuit court.

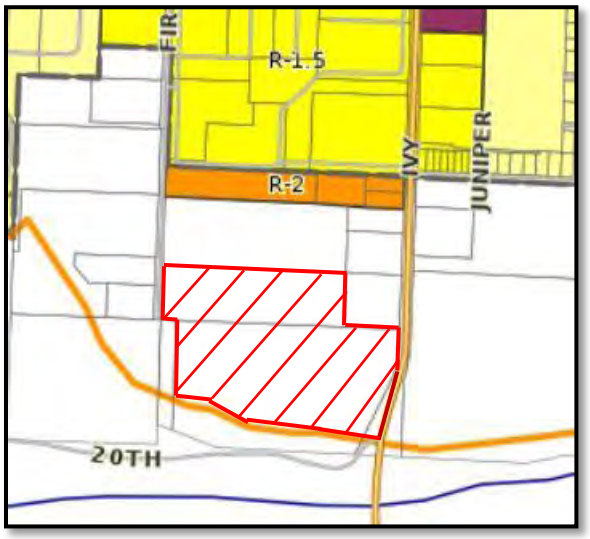
Before the conclusion of the initial evidentiary hearing, any participant may ask the hearings body for an opportunity to present additional relevant evidence or testimony that is within the scope of the hearing. The Planning Commission shall grant such requests by continuing the public hearing or leaving the record open for additional written evidence or testimony. Any such continuance of extension shall be subject to the limitations of the 120-day rule, unless the continuance or extension is requested or agreed to by the applicant.

If additional documents or evidence are provided by any party, the Planning Commission may, if requested, allow a continuance or leave the record open to allow the parties a reasonable opportunity to respond. Any such continuance or extension of the record requested by an applicant shall result in a corresponding extension of the 120-day time period.

City of Canby

RIVERSIDE PARK SUBDIVISION STAFF REPORT
FILE #: SUB 18-04
Prepared for the August 27, 2018 Planning Commission Meeting

LOCATION: 1901 S. Ivy Street.
ZONING: R-1, Low Density Residential/R-1.5, Medium Density Residential
TAX LOTS: 41E04D02000 and the south 300 feet of 41E04D01700 (Red-bordered property in map below)



OWNER: McMartin Farms, LLC
APPLICANT: RIVERSIDE PARK, LLC – Tucker Mayberry
REPRESENTATIVE: NW ENGINEERING – MATT NEWMAN
APPLICATION TYPE: Subdivision (Type III)
CITY FILE NUMBER: SUB 18-04

I. PROJECT OVERVIEW & EXISTING CONDITIONS

The properties are located at the southern limits of the Canby Urban Growth Boundary and extend between S. Ivy Street and S. Fir Street. Approximately 3.0 acres of the southernmost property (tax lot 41E04D02000) extends beyond the UGB and is under Clackamas County jurisdiction and is, subsequently, not part of this application. Additionally, only the southern 300 feet of tax lot 41E04D01700 (approximately 6.4 acres) is a part of this application. The properties were annexed under Ordinance No. 1472 on March 21, 2018 as a 29.24 net acre (31 gross acres) annexation that included a Zone Change Application which changed the zone of the subject properties from Clackamas County Exclusive Farm Use Zone to City of Canby R-1 Low Density Residential Zone and R-1.5 Medium Density Residential Zone in accordance with the

corresponding land use designation in the Canby Comprehensive Plan. The applicants propose to subdivide properties consisting of 24.68 total acres into a 90 lot subdivision in four phases for low-density (R-1) and medium-density (R-1.5) residential development. The development includes five tracts that are delineated as "Tract A," a 34,522 square foot (.70 ac) park. "Tract B," a 16,017 square foot (.36 ac) park, "Tract C," a 72,540 square foot (1.67 ac) park area that borders along the UGB, "Tract D," the area of the subject parcel that is outside the UGB, and "Tract E", a 1,304 square foot area for a planned sanitary sewer pump station. The existing two parcels are currently in residential/agriculture use. The parcels were included in the Southwest Canby Development Concept Plan (SCDCP) that was approved by the City Council in 2018. Although the subdivision comprises 24.68 acres of the approved SCDCP, it follows the development patterns delineated in the development concept plan map. The area designated as "Tract C" is also intended to include a portion of the subdivision along the Molalla River that is designated as a continuation of a pedestrian trail/park as indicated in the SCDCP and will have the option in the future to connect to an adjacent subdivision at the southwest corner of the development. Access will be onto S. Fir Street and eventually onto S. Ivy Street as development occurs. The properties are bordered by various sized parcels in residential and agriculture uses.

II. ATTACHMENTS

A. Application form
B. Application narrative
C. Pre-application meeting minutes
D. Neighborhood meeting notice, notes, and attendance sheet
E. Preliminary Plat Map and Associated Drawings
F. Agency Comments
G. Citizen Comments
H. Traffic Impact Analysis
I. Approved SCDCP

III. APPLICABLE CRITERIA & FINDINGS

Applicable criteria used in evaluating this application are listed in the following sections of the *City of Canby's Land Development and Planning Ordinance*:

- 16.08 General Provisions
- 16.10 Off-street Parking and Loading
- 16.16 R-1 Low Density Residential Zone
- 16.18 R-1.5 Medium Density Residential Zone
- 16.46 Access Limitations on Project Density
- 16.62 Subdivisions-Applications
- 16.64 Subdivisions-Design Standards
- 16.86 Street Alignments
- 16.88 General Standards & Procedures
- 16.89 Application and Review Procedures
- 16.120 Parks, Open Space, and Recreation Land General Provisions
- Southwest Canby Development Concept Plan

- City of Canby Comprehensive Plan

Findings:

As previously mentioned, the subject properties were included with a 31 acre annexation that involved the two separate parcels. Annexed parcels included in the subdivision, are tax lots 41E04D02000 and 41E04D01700. A Development Concept Plan for the properties was also approved by the City Council in 2018 and a copy is attached to the file. A Traffic Impact Study (TIS) for development resulting in future subdivisions was performed by DKS in September 2017 for the SCDCP which reached the following conclusions for the subdivision.

- *"The increase in vehicle trips associated with the proposed project (68 trips during the AM peak hour and 90 trips during the PM peak hour) would not significantly impact traffic operations along the surrounding transportation network.*
- *Site intersections shall be kept clear of objects (e.g. landscaping, objects, etc.) that could potentially limit vehicle sight distance."*

Public utilities are currently located at S. Fir Street along the east side of the proposed subdivision and also to the west from S. Ivy Street and can be extended as development occurs as indicated on the submitted Utility Plan. A new sanitary sewer pump station is planned at the southeast corner of the development. Storm drainage for streets is shown on the Utility Plan with storm sewer lines, catch basins, and drywells.

The subject properties are zoned R-1 and R-1.5 and only single-family homes are proposed within this subdivision. The zone boundary divides the two zones and extends east to west through the subject properties at the southern boundary of tax lot 41E04D01700 and reaches north approximately 300 feet to include the southern half of the tax lot. The northern half of 41E04D01700 is zoned R-2 and is not part of this subdivision. The applicant has designed the subdivision to accommodate the development standards of each zone, and none of the proposed lots cross a zone boundary.

Findings: The applicant indicates that a five foot wide sidewalk is proposed in the development. As required in Section 16.10.070(B), sidewalks are planned along both sides of the street frontages. However, a six foot sidewalk and a five foot planter strip adjacent to a 34 foot wide paved street is required. *The applicant must change the Preliminary Plat/Site Plan to show the six foot wide sidewalks as required under Figure 7-6 of the Canby TSP (Transportation System Plan) instead of the 5 foot currently shown.* A 12 foot PUE will be designated across all lot frontages adjacent to the street right-of-way and must be delineated on the Final Plat.

Chapter 16.84.040(A)(2) lists criteria for the Southwest Canby Development Concept Plan that implements the SDCP. Where practical, the proposed subdivision is designed to follow the development concept plan that was included as part of the annexation approval. Streets will

align with the shadow plat design of the plan for connectivity where non-participating properties outside the subdivision will be developed at a later date.

A minimum lot size of 7,000 square feet and a maximum of 10,000 square feet is allowed in the R-1 zone, under provisions in Section 16.16.030(A). According to the applicant's information, the lot sizes for the R-1 zoned portion of the subdivision are within those parameters. In the R-1.5 zone, no lots are under the minimum 5,000 square foot standard and none are over the 6.500 square foot maximum. Additionally, Section 16.16.030(C) of the R-1 zone requires a minimum lot width of 60 feet and Section 16.18.030(C) of the R-1.5 zone requires a 40 foot minimum lot width, and the lots meet those standards.

The applicant submitted a Street Tree Plan for approval. Street tree fees must be paid prior to release of the final plat.

As a condition of approval, the applicant shall pay the applicable Public Improvement Engineering Plan review fee prior to recording the final plat.

The subdivision will access onto S. Fir Street, classified a local street, with potential access onto S. Ivy Street which is an arterial street. A portion of S. Fir Street maybe under Clackamas County jurisdiction at this location, but is in the process of converting to City jurisdiction. Proposed 18th Avenue will extend east to west and connect S. Fir Street and S Holly Street, and 17th Avenue will connect to S. Ivy Street during future construction. Circulation through the subdivision will be on S Holly Street, S Grant Street, and S Fir Loop. A planned stub of 17th Avenue ends at adjacent property in the northeast corner of the subdivision. The adjacent property was included for future redevelopment in the SW Canby Development Concept Plan but is not part of this development. As a condition of approval, the applicant shall note on the final plat any additional right-of-way required by Clackamas County and the City for S. Fir Street and S. Ivy Street. The preliminary plat is showing 14 feet of additional right-of-way adjacent to S. Ivy Street and 17 feet of additional right-of-way along that portion of the subdivision adjacent to S. fir Street.

The applicant will dedicate approximately .79 acres for Tract A, .36 acres for Tract B, and 1.67 acres for Tract C, which includes a future trail, as parkland. In this particular case, park SDC fees credit for the parkland dedication will be determined based on a land value formula.

The formula for required park SDC fees credit can be based on an agreed upon $100,000/acre value or on appraised values if requested by the applicant. The value of park land dedication offsets the park SDC fee otherwise due.

Staff has reviewed the applicant's narrative and submitted material and finds that this subdivision application conforms to applicable review criteria and design standards, subject to conditions of approval, and the request is consistent with Comprehensive Plan policies.

IV. PUBLIC TESTIMONY/AGENCY COMMENTS

Notice of this application and opportunity to provide comment was mailed to owners and residents of lots within 500 feet of the subject properties and to all applicable public agencies. All citizen and agency comments that were received to date are available in the file.

Agency Comments: City Engineer, DirectLink

Public Comments: Diane Fataua, 1546 S. Fir St. #203, Ed Netter, 1847, 1960 S. Fir St., Susan Gallagher, 25261 S. Hwy 170, Julie Rushton, Tom Rushton.

V. Decision

Based on the application submitted and the facts, findings, and conclusions of this report, staff recommends that the Planning Commission **approve** Subdivision SUB 18-04 subject to the following Conditions of Approval.

General Public Improvement Conditions:

1. Prior to the start of any public improvement work, the applicant must schedule a pre-construction conference with the city and obtain construction plan sign-off from applicable agencies.
2. The development shall comply with all applicable City of Canby Public Works Design Standards.
3. **The final construction design plans shall conform to the comments provided by the City Engineer, when applicable, in his memorandum dated August 10, 2018.**
4. **The applicant shall comply with the applicable recommendations listed in the DKS Traffic Impact Study dated September 29, 2017 that states: The proposed project intersections shall be kept clear of visual obstructions such as signage, trees, etc. which may limit the vehicle sight distance.**
5. Public improvements such as sidewalk and street improvements on S. Elm Street and S. Fir Street are required during development.
6. **The applicant shall delineate or note 6' wide sidewalks within the subdivision on the Tentative Plat.**
7. A turnaround, at Lots 88 and 89, shall be as directed by Canby fire district.
8. The applicant shall pay the applicable Public Improvement Engineering Plan Review fee and Site Plan Development Engineering Plan Review fee approval of the civil engineering construction plan.

Fees/Assurances:

9. All public improvements are normally installed prior to the recordation of the final plat. If the applicant wishes to forgo construction of any portion of the public improvements until after the recordation of the final plat, then the applicant shall provide the City with appropriate performance security (subdivision performance bond or cash escrow) in the amount of 110% of the cost of the remaining public improvements to be installed.
10. If the applicant chooses to provide a subdivision performance bond for some or all of the required public improvements, the applicant shall obtain a certificate from the city engineer that states:
    a. The applicant has complied with the requirements for bonding or otherwise assured completion of required public improvements.

b. The total cost or estimate of the total cost for the development of the subdivision. This is to be accompanied by a final bid estimate of the subdivider's contractor, if there is a contractor engaged to perform the work, and the certificate of the total cost estimate must be approved by the city engineer.

11. The applicant must guarantee or warranty all public improvement work with a 1 year subdivision maintenance bond in accordance with 16.64.070(P).

Streets, Signage & Striping:

12. The street improvement plans for the interior streets shall conform to the TSP and Public Works standards as indicated by the city engineer.

13. A roadway striping plan shall be submitted by the applicant and shall be approved by city engineer and by the Public Works street department prior to the construction of public improvements.

14. A roadway signage plan shall be submitted by the applicant and shall be approved by the city engineer and by the Public Works street department prior to the construction of public improvements.

15. The applicant shall be responsible for installing all required street signage and striping at the time of construction of public improvements, unless other arrangements are agreed to by the City.

16. The applicant shall replace the lettered street names with the City streets names of Holly Street ("A" Street), Grant Street ("B" Street), and Fir Loop ("C" Loop).

Sewer:

17. The applicant shall submit documentation of DEQ approval of the sewer plans to the City Engineer prior to the construction of this public improvement with each phase of development.

Stormwater:

18. Stormwater systems shall be designed in compliance with the Canby Public Works Design Standards as determined by the City Engineer.

Grading/Erosion Control:

19. The applicant shall submit grading and erosion control plans for approval by Canby Public Works in conjunction with construction plan approval prior to the installation of public improvements and start of grading with each phase of development.

20. The applicant shall grade all areas of the site, including the proposed lots, to minimize the amount of soil to be removed or brought in for home construction.

Final plat conditions:

General Final Plat Conditions:

21. The applicant shall apply for final plat approval at the city and pay any applicable city fees to gain approval of the final subdivision plat. Prior to the recordation of the final plat at Clackamas County, it must be approved by the city and all other applicable agencies. The city will distribute the final plat to applicable agencies for comment prior to signing off on the final plat if deemed necessary.

22. All public improvements or submittal of necessary performance security assurance shall be made prior to the signing and release of the final plat for filing of record.

23. The final plat shall conform to the necessary information requirements of CMC

16.68.030, 16.68.040(B), and 16.68.050. The city engineer or county surveyor shall verify that these standards are met prior to the recordation of the subdivision plat.

24. All "as-built" of City public improvements installed shall be filed with Canby Public Works within sixty days of the completion of improvements.

25. Clackamas County Surveying reviews pending subdivision plat documents for Oregon Statutes and county requirements. A subdivision final plat prepared in substantial conformance with the approved tentative plat must be submitted to the City for approval within one year of approval of the tentative plat or formally request an extension of up to 6-months with a finding of good cause.

26. The applicant shall record the final plat at Clackamas County within 6 months of the date of the signature of the Planning Director.

27. The applicant shall assure that the city is provided with a copy of the final plat in a timely manner after it is recorded at Clackamas County, including any CC&Rs recorded in conjunction with the final plat.

28. The City shall assign addresses for each newly created subdivision lot and distribute that to the developer, and other agencies that have an interest.

Dedications

29. The applicant shall dedicate public streets shown on the Tentative Plat and on the Final Plat.

30. The applicant shall dedicate .79 acres as Tract "C", .36 acres as Tract "B", and 1.67 acres as Tract "C" for public parks.

Easements

31. A dual 12 foot utility, pedestrian, and temporary street tree easement along all of the lot street frontages shall be noted on the final plat. This easement may be combined with other easements and shall be measured from the property boundary.

32. Sidewalk easements are required along the frontage of the newly created private lots for any portion of the 6' public sidewalk that will lie on private property, if any.

Street Trees

33. A Street Tree Plan shall be approved prior to the final plat, and street tree fees paid prior to release of the final plat. The plan will allow the city to establish street trees per the Tree Regulation standards in Chapter 12.32 of the Canby Municipal Code. The total per tree fee amount is calculated at one tree per 30 linear feet of total street frontage on both sides of all internal streets and the adjacent side of external streets or as determined by an approved Street Tree Plan on a per tree basis.

Monumentation/Survey Accuracy Conditions

38. The county surveyor and/or city engineer shall verify that the lot, street, and perimeter monumentation shall meet the requirements set forth in Oregon Revised Statutes and conform with the additional survey and monumentation standards of 16.64.070(M)(1-3) prior to recordation of the final plat.

Residential Building Permits Conditions:

39. Construction of all required public improvements and recordation of the final subdivision plat must be completed prior to the construction of any homes.

40. The homebuilder shall apply for a City of Canby Site Plan Permit and County Building Permit for each home and satisfy the residential design standards of CMC 16.21.

41. The homebuilder shall apply for a City of Canby Erosion Control Permit.

42. All residential construction shall be in accordance with applicable Public Works Design Standards.

43. On-site stormwater management shall be designed in compliance with the Canby Public Works Design Standards.

44. Clackamas County Building Codes Division will provide structural, electrical, plumbing, and mechanical plan review and inspection services for home construction per contract with the City. The applicable county building permits are required prior to construction of each home.

45. Per the Canby Public Works Design Standards, minimum residential driveway widths at the inside edge of the sidewalk shall be 12 feet and the maximum residential driveways widths shall be 24 feet with an allowed exception for 28 feet for a home with 3 or more garages.

46. Sidewalks and planter strips shall be constructed by the developer and shown on the approved tentative plat.

47. All usual system development fees shall be collected with each home within this development, except for applicable Park SDC credit for parkland dedication.

NW Engineers, LLC
3409 NE John Olsen Avenue
Hillsboro, OR 97124
Phone (503) 601-4401
Fax (503) 601-4402
Website www.nw-eng.com

APPLICANT'S STATEMENT
For
"Riverside Park 90-Lot Subdivision"

REQUEST

Preliminary Plat Approval for a 90-Lot Subdivision in the R-1 and R-1.5 Districts

OWNER/APPLICANT

Riverside Park, LLC
10801 SW Riverside Drive
Portland, OR 97219

PLANNER

Matt Newman
NW Engineers, LLC
3409 NE John Olsen Avenue
Hillsboro, OR 97124

LEGAL DESCRIPTION

Tax Map 41E04D Tax Lots 1700 & 2000
City of Canby, Oregon

"Riverside Park Subdivision"

TABLE OF CONTENTS

City of Canby
Planning Department
222 NE 2nd Avenue
PO Box 930
Canby, OR 97013
(503) 266-7001

LAND USE APPLICATION

SUBDIVISION

Process Type III

APPLICANT INFORMATION: *(Check ONE box below for designated contact person regarding this application)*

☐ Applicant Name: RIVERSIDE PARK, LLC - TUCKER MAYBERRY Phone: 503-750-1122
Address: 10801 SW RIVERSIDE DR Email: tucker@mayberrygroup.com
City/State: PORTLAND OR Zip: 97219

☒ Representative Name: NW ENGINEERS, [illegible] Phone: 503-601-4481
Address: 3409 NE John Olsen Ave Email: martin@nw-eng.com
City/State: Hillsboro OR Zip: 97124

☐ Property Owner Name: McMartin Farms, LLC Phone: 503-723-7790
Signature: Helen J. McMartin
Address: 19236 Carmelita Dr Email:
City/State: Oregon City OR Zip: 97045

☐ Property Owner Name: Phone:
Signature:
Address: Email:
City/State: Zip:

NOTE: Property owners or contract purchasers are required to authorize the filing of this application and must sign above

- All property owners represent they have full legal capacity to and hereby do authorize the filing of this application and certify that the information and exhibits herewith submitted are true and correct.
- All property owners understand that they must meet all applicable Canby Municipal Code (CMC) regulations, including but not limited to CMC Chapter 16.49 Site and Design Review standards.
- All property owners hereby grant consent to the City of Canby and its officers, agents, employees, and/or independent contractors to enter the property identified herein to conduct any and all inspections that are considered appropriate by the City to process this application.

PROPERTY & PROJECT INFORMATION:

1901 S. Ivy St Street Address or Location of Subject Property	30.54 Total Size of Property	41E 4D 2000 1700 Assessor Tax Lot Number(s)
RESIDENCE Existing Use, Structures, Other Improvements on Site	R-1, R1.5 Zoning	RESIDENTIAL Comp Plan Designation

90-LOT SUBDIVISION
Describe the Proposed Development or Use of Subject Property

STAFF USE ONLY				
FILE #	DATE RECEIVED	RECEIVED BY	RECEIPT #	DATE APP COMPLETE

5/29/18

SUBDIVISION APPLICATION NARRATIVE (N0581)

Applicable Criteria: Canby Municipal Code Chapters

- **16.08 General Provisions**
  - **16.08.010 Compliance with title.**
  - ➢ *Comment: The preliminary plat for Riverside Park subdivision complies with lot area, yard and off-street parking or loading requirements for this Title. (See Sheet 4.)*
  - **16.08.020 Zoning map.**
  - ➢ *Comment: The preliminary plat for Riverside Park adheres to the current Zoning map and residential density requirements for the City of Canby.*
  - **16.08.030 Zone boundaries.**
  - ➢ *Comment: The lot configuration for Riverside Park preliminary plat follow lot lines separating the R-1.5 (MDR) and the R-1 (LDR) residential zones. (See Sheet 4.)*
  - **16.08.040 Zoning of annexed areas.**
  - ➢ *Comment: Final approval by the City Council of the South West Canby Development Concept Plan occurred on January 8, 2018.*
  - **16.08.080 Area and yard reductions.**
  - ➢ *Comment: All existing structures on the subject site will be demolished which in turn will not affect standard lot area and yard requirements for Riverside Park subdivision. (See Sheet 7.)*
  - **16.08.090 Sidewalks required.**
  - ➢ *Comment: Proposed 5ft wide sidewalks are indicated on the preliminary utility plan for Riverside Park. (See Sheet 6.)*
  - **16.08.100 Height allowances.**
  - ➢ *Comment: Proposed structures in Riverside Park subdivision will conform to the described "height allowances". (See Sheet 5.)*
  - **16.08.110 Fences.**
  - ➢ *Comment: Fences for the proposed parks in Riverside Park subdivision will comply with setback, height and material requirements as stated in this Municipal Code section. (See Sheet 8.)*
  - **16.08.120 Siting and review process for Wireless Telecommunications Systems Facilities.**
  - ➢ *Comment: At this time, no wireless telecommunications systems facilities are planned within Riverside Park subdivision.*
  - **16.08.130 Standard transportation improvements.**

- *Comment: The preliminary site plan for Riverside Park includes street circulation, bicycle and pedestrian facilities that conform to the South West Canby Development Concept Plan approved by the City of Canby on January 8, 2018. (See Sheet 5.)*

- **16.08.150 Traffic Impact Study (TIS).**

- *Comment: According to the Staff Report dated January 8, 2018, "a traffic analysis of the entire subject area was incorporated into the plan to address traffic impacts associated with anticipated full development of the properties in accordance with the applicable zoning designation. DKS Engineering provided a TIA dated September 29, 2017 that summarized how the requirements of Oregon Administrative Rule (OAR) 660-012-0060, the Transportation Planning Rule (TPR), are met for the subject properties as well as the SCDCP area. The surrounding roadways and intersections were found to have sufficient capacity to accommodate the proposed annexation, zone change, and for the development concept. The Transportation Planning Rule requirements of State Statue were determined to have been met as documented in the TIA."*

- **16.08.160 Safety and Functionality Standards.**

- *Comment: The proposed rights-of-way for interior streets within Riverside Park subdivision are at a minimum width of 56 ft (26 ft from centerline). Safe access, turnarounds (per Oregon Fire Code) and vision clearance requirements are addressed at each intersection and the temporary dead-end street. (See Sheet 8.) Adequate frontage improvements will be provided for both interior and adjoining exterior streets. Sanitary sewer and water lines are also shown on the proposed preliminary plat and will be sized according to City engineering standards. The proposed sanitary sewer force main will connect to the existing sanitary sewer line located to the north at S Ivy Street and SE 16th Avenue which is approximately 1,400 ft away from the proposed sanitary sewer pump station. The proposed water line will connect to the existing water line which is approximately 630 ft north of the proposed 18th Avenue. Storm water needs will be addressed by individual lot infiltration and a series of catch basins and dry wells.*

- **16.10 Off-Street Parking and Loading**

  - **16.10.010 Off-street parking required – exceptions.**

  - *Comment: A minimum of 2 off-street parking spaces will be provided per single-family residence.*

  - **16.10.050 Parking standards designated.**

  - *Comment: Minimum parking and loading requirements according to Table 16.10.050 in the Municipal Code will be observed in the design of this development.*

  - **16.10.070 Parking lots and access.**

  - *Comment: At this time, no parking lot is planned in Riverside Park subdivision. Should a parking lot be required as a result of the City's design review process, parking design*

standards will be followed according to the Municipal Code section including Table 16.10.070. In regards to vehicular and pedestrian access, standards for access and egress will also be satisfied according to Table 16.10.070(B) (8).

- **16.10.080 Streets.**
  - *Comment: A street tree plan is incorporated into the overall design plans for Riverside Park subdivision. (See Sheet 8.)*

- **16.16 R-1 Low Density Residential Zone**
  - **16.16.010 Uses permitted outright.**
    - *Comment: The preliminary plat for Riverside Park includes one single-family dwelling per lot for the R-1 zoned area.*
  - **16.16.030 Development standards.**
    - *Comment: The preliminary lot sizes for the southern portion (south of proposed 19th Ave) of Riverside Park subdivision is for a minimum lot size of 7,000 sf and a maximum lot size of 10,000 sf. The minimum lot frontage is 60 ft. (See Sheet 4.)*

- **16.18 R-1.5 Medium Density Residential Zone**
  - **16.18.010 Uses permitted outright.**
    - *Comment: The preliminary plat for Riverside Park includes one single-family dwelling per lot for the R-1.5 zoned area.*
  - **16.18.030 Development standards.**
    - *Comment: The preliminary lot sizes for the northern portion (north of proposed 19th Ave) of Riverside Park subdivision is for a minimum lot size of 5,000 sf and a maximum lot size of 6,500 sf. The minimum lot frontage is 40 ft. (See Sheet 4.)*

- **16.43 Outdoor Lighting Standards**
  - **16.43.110 Lighting Plan Required.**
    - *Comment: A Lighting Plan (by others) will be included as part of the final engineering design for the proposed subdivision.*

- **16.46 Access Standards**
  - **16.46.010 Number of units in residential development.**
    - *Comment: The development of Riverside Park subdivision will occur in 4 phases. Phase 1 will consist of 30 lots and gain access to S. Fir Street. For Phases 2, 3 and 4 access will also occur via S. Fir Street as well as the future extension of 17th Avenue to S. Ivy Street. The preliminary plat for all internal streets includes a 56ft right-of-way with 28ft from centerline. Also, included on the preliminary plat - at the temporary northern terminus*

of "C" Loop - is a proposed easement for a hammerhead turnaround per Oregon fire code. (See Sheet 4.)

- **16.46.020 Ingress and egress.**
  - *Comment: Ingress and egress to all 90 lots – including 3 potential future flag lots – are from a public street as shown on the preliminary plat.*
- **16.46.030 Access connection.**
  - *Comment: All street spacing shown on the preliminary plat conforms to the approved South West Canby Development Concept Plan.*

- **16.62 Subdivisions – Applications**
  - **16.62.010 Filing procedures.**
    - *Comment: Filing the subdivision application for Riverside Park follow the procedural requirements as stated in Chapter 16.89.*
  - **16.62.020 Standards and criteria.**
    - *Comment: Per the preliminary plat, utility plan and the grading and erosion control plan, the overall design and arrangement of lots address the building sites, utility easements and access facilities necessary for the development of the subject property and adjacent properties. Incorporated into the final design will be allowance for individual lot infiltration and a system of catch basins and dry wells to managed storm water runoff. (See Sheets 4, 6 & 7.)*

- **16.64 Subdivisions – Design Standards**
  - **16.64.010 Streets.**
    - *Comment: The location, width and grade of streets were considered in the development of the approved SCDCP for the subject area. Riverside Park subdivision follows that plan. Permeable surfaces including on-site stormwater and a system of catch basins and drywells will be incorporated into the final engineering design of Riverside Park subdivision. In regards to "Existing Streets", S. Ivy Street and S. Fir Street will require additional right-of-way and half-street improvements: S. Ivy Street will require an additional 14.0 ft. of right-of-way dedication and an 18.0 ft. half-street improvement; and S. Fir Street will require an additional 17.0 ft. of right-of-way dedication and a 16.0 half street improvement. (See Sheet 5.)*
  - **16.64.015 Access.**
    - *Comment: A network of 5-ft wide sidewalks and planter strips are shown on both sides of the street system and Tract "C" open space. (See Sheet 8.)*
  - **16.64.020 Blocks.**
    - *Comment: Block lengths, widths and shapes satisfy the requirements of this code section. (See Sheet 4.)*

- **16.64.030 Easements.**
  - *Comment: A 15ft wide sewer line easement from "C" Loop to the proposed pump station is shown on the preliminary utility plan of Riverside Park subdivision. In addition, two 15ft wide pedestrian ways are also shown from "C" Loop to Tract "C" Open Space along the Molalla River. (See Sheet 6.)*
- **16.64.040 Lots.**
  - *Comment: The proposed lot configuration for Riverside Park preliminary plat satisfies both the minimum and maximum lot size requirements for both the R-1.5 and R-1 residential zones. In regards to "minimum yard requirements", R-1 and R-1.5 requirements are listed on the preliminary site plan. Also, shown are the proposed building envelopes for each lot. (See Sheet 5.)*
- **16.64.050 Parks and recreation.**
  - *Comment: Parks and open spaces are reflected in the submitted preliminary plat. Tract "A" and Tract "B" are designated as parks with an approximate square footage of 50,539 sf and Tract "C" as open space with an approximate square footage of 72,540 sf.*
- **16.64.070 Improvements.**
  - *Comment: Proposed 8-inch sewer lines, manholes and clean outs and 8-inch water lines and blow off are indicated on the preliminary utility plan for Riverside Park. Other improvements such as street trees, parks and a bicycle and walking trail are also shown. (See Sheets 4, 6, 8 & 9.)*

- **16.86 Street Alignments**

  - **16.86.060 Street Connectivity.**
    - *Comment: According to the recently adopted SCDCP for the subject site, SE 13th Avenue and Ivy Street are designated arterial streets in the City of Canby Transportation System Plan. SE 13th Avenue provides convenient east-west trips between S Mulino and 99E. Because SE 13th Avenue is an arterial, intersections are limited to a spacing guideline established by the City. Ivy Street provides a north-south connection to downtown Canby and neighboring cities and communities to the south.*

      The preliminary plat shows an east-west street connection between Ivy and Fir Streets. These streets are referred to as 17th and 18th Avenues. 17th Avenue lines up with the flag pole of Tax Lot 1200, Map 4-1E-4D located on the east side of Ivy Street to create a major intersection. The Traffic Study addresses this intersection and recommends construction of a roundabout at this intersection to reduce high speeds on Ivy Street from north and south bound traffic.

      It should be noted that a second east-west street, 16th Avenue is located between Fir and Elm Streets on the Beck property directly across from the Hope Village access on the east

side of Fir Street. The 16th Avenue access of Elm Street is in the proper location for adequate sight distance in both directions. These 3 new east-west streets will connect the 3 north-south streets in the DCP area to provide an adequate traffic circulation system for the DCP area.

- **16.88 General Standards & Procedures**
  - **16.88.190 Conformance with Transportation System Plan and Transportation Planning Rule.**
  - ➢ *Comment: According to the Staff Report dated January 8, 2018, "a traffic analysis of the entire subject area was incorporated into the plan to address traffic impacts associated with anticipated full development of the properties in accordance with the applicable zoning designation. DKS Engineering provided a TIA dated September 29, 2017 that summarized how the requirements of Oregon Administrative Rule (OAR) 660-012-0060, the Transportation Planning Rule (TPR), are met for the subject properties as well as the SCDCP area. The surrounding roadways and intersections were found to have sufficient capacity to accommodate the proposed annexation, zone change, and for the development concept. The Transportation Planning Rule requirements of State Statue were determined to have been met as documented in the TIA."*
- **16.89 Application & Review Procedures**
  - **16.89.050 Type III procedure.**
  - ➢ *Comment: The Riverside Park subdivision application will follow the Type III procedure.*
  - **16.89.070 Neighborhood meetings.**
  - ➢ *Comment: The Neighborhood Meeting for the proposed 90-lot subdivision was held on Wednesday, May 16, 2018 at 7:00pm at Hope Village Community Center, 1535 S. Ivy Street, Canby, Oregon 97103. A summary of the Neighborhood meeting is included in the submittal of the formal subdivision application.*
- **16.120 Parks, Open Space & Recreation Land General Provisions**
  - **16.120.020 Minimum standards for park, open space and recreation land.**
  - ➢ *Comment: According to the SCDCP, two new pocket parks are planned for the subject site. These two proposed parks, totaling about 50,539 sf, are shown on the preliminary plat and will provide significant recreational opportunities for the residents in this area. (See Sheet 4.)*
  - **16.120.070 Minimum standards for open space.**
  - ➢ *Comment: Open space and a trail parallel to the Molalla River are planned for the Riverside Park subdivision. The approximate open space area will be 72,540 sf. (See Sheet 4.)*

- **SW Canby Development Concept Plan (SCDCP)**

  - *Comment: According to the City of Canby Staff Annexation Report dated January 8, 2018 for the proposed subdivision area, "the SCDCP provided an extensive packet of information to address City of Canby's future infrastructure requirements for the area, and engineering level work has gone into planning for how the concept plan defined would best be developed and served by all necessary infrastructure. A traffic analysis of the entire subject area was incorporated into the plan to address impacts associated with anticipated full development of the properties in accordance with the applicable zoning designation…The surrounding roadways and intersections were found to have sufficient capacity to accommodate the proposed annexation, zone change and for the development concept plan…All necessary utility services are generally or can be made available through service line extensions to the annexation…Stormwater management for street runoff will be handled with the installation of new public underground injection wells and the associated catch basins and pollution control manholes for water quality treatment. Private property runoff will be handled on-site with infiltration facilities on each lot within individual yard areas".*

- **City of Canby Comprehensive Plan**

  - *Comment: The development site is within the urban growth boundary which was recently annexed to the City of Canby. The approximately 24.68 acre site is designated R-1 and R-1.5 zone on the City Comprehensive Plan thus no comprehensive plan amendments are required.*

"Riverside Park Subdivision"

Exhibit No.	Exhibit Title
1	Cover Sheet
2	Aerial Photograph
3	Existing Conditions Plan
4	Preliminary Plat
5	Preliminary Site Plan
6	Preliminary Utility Plan
7	Preliminary Grading & Erosion Control Plan
8	Preliminary Street Tree Plan/Landscape Plan
9	Suggested Plant List & Landscape Features
10	Tax Map
11	Zoning Map
12	Pre-Application Notes Dated 3/9/17
13	Preliminary Drainage Report Prepared by Steve White, PE

"RIVERSIDE PARK"
90-LOT SUBDIVISION IN
THE R-1 AND R-1.5 DISTRICT

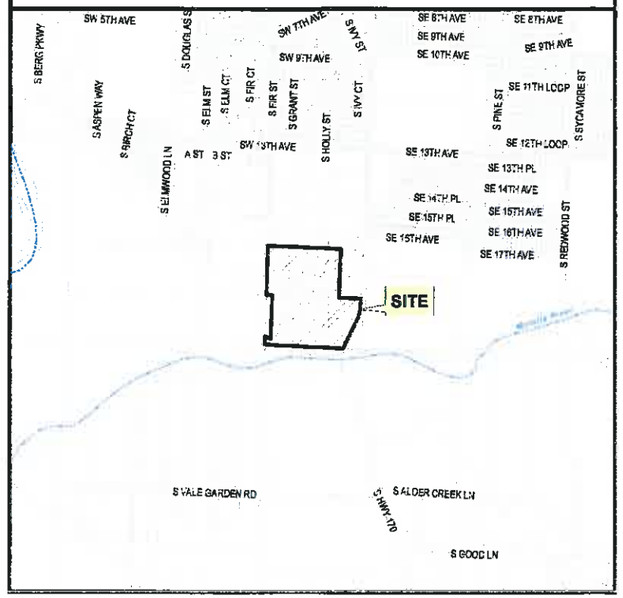
VICINITY MAP

SITE INFORMATION

APPLICANTS REPRESENTATIVE:	NW ENGINEERS, LLC MATT NEWMAN 3409 NE JOHN OLSEN AVE. HILLSBORO, OREGON 97124 PH: 503-601-4401 FAX: 503-601-4402	FIRE DISTRICT:	CANBY FIRE DISTRICT #62
		GARBAGE HAULER:	CANBY DISPOSAL
		SCHOOL DISTRICT:	CANBY
APPLICANT/CONTRACT PURCHASER:	RIVERSIDE PARK, LLC 10801 SW RIVERSIDE DR. PORTLAND, OREGON 97219 PH: 503-750-1122		
REQUEST:	PRELIMINARY PLAT APPROVAL FOR A 90-LOT SUBDIVISION		
SITE LEGAL DESCRIPTION:	TAX MAP: 41E04D TAX LOTS: 1700 & 2000 CITY OF CANBY, OREGON		
SUBJECT PROPERTY SIZE:	24.68 ACRES		
LOCATION:	41E04D 01700: NO SITUS 41E04D 02000: 1901 S IVY ST. CANBY, OR 97013		
ZONING DESGINATION:	R-1 & R-1.5		

INDEX OF DRAWINGS

LOCATION MAP



PROJECT TEAM

APPLICANT/CONTRACT PURCHASER

RIVERSIDE PARK, LLC
10801 SW RIVERSIDE DR.
PORTLAND, OREGON 97219
PH: 503-750-1122

ENGINEER / PLANNER

NW ENGINEERS, LLC
3409 NE JOHN OLSEN AVENUE
HILLSBORO, OR 97124
PH: 503-601-4401
FAX: 503-601-4402

SURVEYOR

CMT SURVEYING AND CONSULTING

20330 SE HIGHWAY 212
DAMASCUS, OR 97089
PHONE (503) 850-4672 FAX (503) 850-4590

NW ENGINEERS
Engineering & Planning
3409 NW John Olsen Place
Hillsboro, OR 97124
503 601 4401 fax

FOR: RIVERSIDE PARK, LLC
CONTACT: TUCKER MAYBERRY
10801 SW RIVERSIDE DRIVE
PORTLAND, OR 97219
SITE: TAX MAP 41E04D
TAX LOT 1700 & 2000
CITY OF CANBY, OREGON

RIVERSIDE PARK SUBDIVISION
N0581
COVER SHEET

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PCOV 1 of 9

LEGEND

- SUBJECT PROPERTIES
- EXISTING LOT LINE
- URBAN GROWTH BOUNDARY

NOTE:

SITE AERIAL PHOTOGRAPH FROM 2014, METRO.
AREA SOUTH OF SITE FROM ESRI BASEMAP.
DATE UNKNOWN.

NORTH

1 inch = 100 ft.
11x17 SCALE: 1 inch = 200 ft.

NW ENGINEERS
Engineering & Planning

FOR: RIVERSIDE PARK, LLC
CONTACT: TUCKER MAYBERRY
10801 SW RIVERSIDE DRIVE
PORTLAND, OR 97219

SITE: TAX MAP 41E04D
TAX LOT 1700 & 2000
CITY OF CANBY, OREGON

RIVERSIDE PARK SUBDIVISION

N0581

AERIAL PHOTOGRAPH

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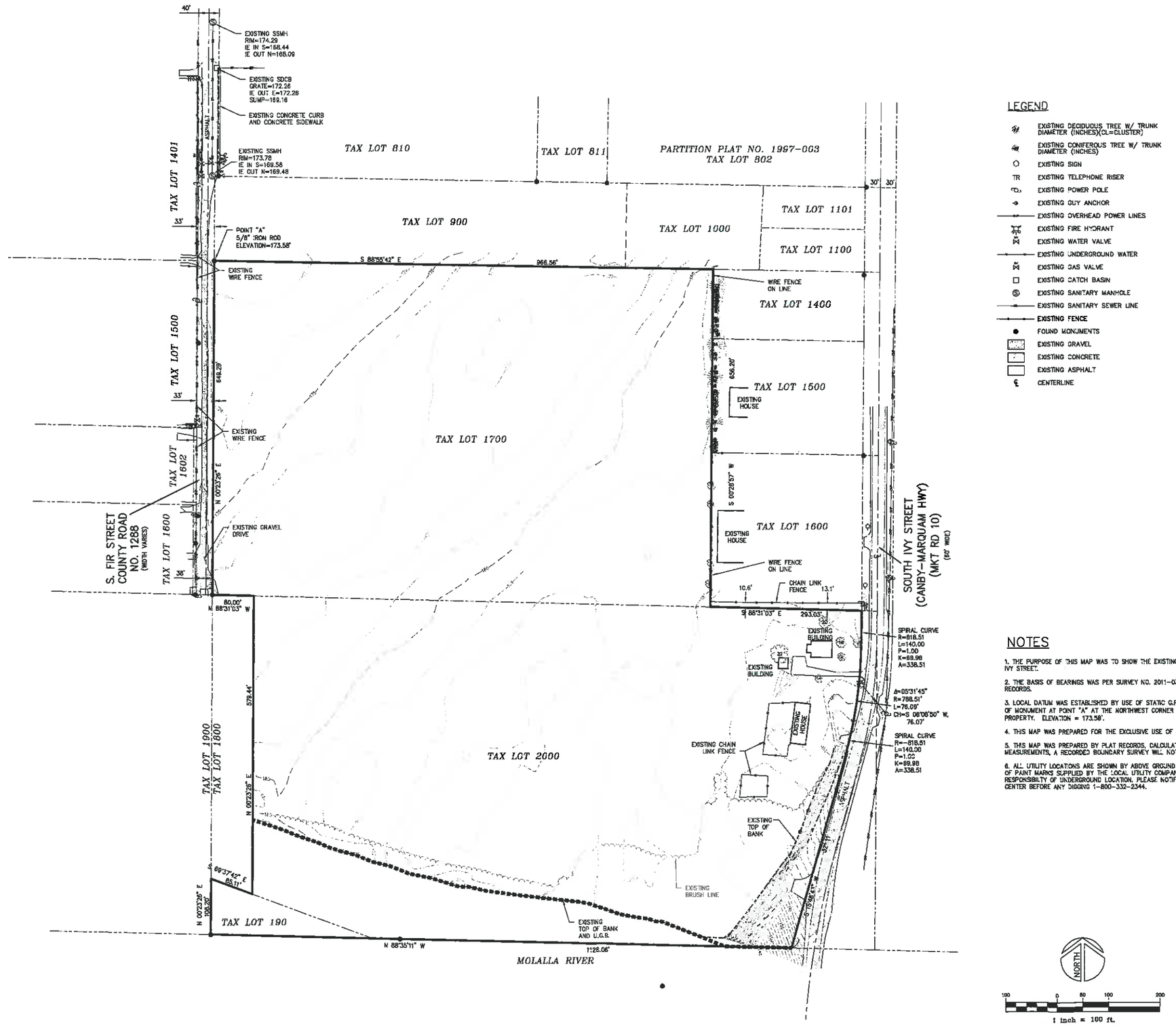

NOTES

1. THE PURPOSE OF THIS MAP WAS TO SHOW THE EXISTING CONDITIONS FOR 1901 S. IVY STREET.
2. THE BASIS OF BEARINGS WAS PER SURVEY NO. 2011-038, CLACKAMAS COUNTY RECORDS.
3. LOCAL DATUM WAS ESTABLISHED BY USE OF STATIC G.P.S. OBSERVATION OF TOP OF MONUMENT AT POINT "A" AT THE NORTHWEST CORNER OF THE SUBJECT PROPERTY. ELEVATION = 173.58'.
4. THIS MAP WAS PREPARED FOR THE EXCLUSIVE USE OF THE MAYBERRY GROUP.
5. THIS MAP WAS PREPARED BY PLAT RECORDS, CALCULATED DATA, AND FIELD MEASUREMENTS, A RECORDED BOUNDARY SURVEY WILL NOT BE FILED.
6. ALL UTILITY LOCATIONS ARE SHOWN BY ABOVE GROUND FEATURES AND LOCATION OF PAINT MARKS SUPPLIED BY THE LOCAL UTILITY COMPANIES. OWT TAKES NO RESPONSIBILITY OF UNDERGROUND LOCATION. PLEASE NOTIFY THE UTILITY NOTIFICATION CENTER BEFORE ANY DIGGING 1-800-332-2344.

AM ENGINEERS
Engineering & Planning
3400 NW John Olsen Place
Hillsboro, OR 97124
503.601.4401 503.601.4402 - fax

FOR: RIVERSIDE PARK, LLC
CONTACT: TUCKER MAYBERRY
10801 SW RIVERSIDE DRIVE
PORTLAND, OR 97219
SITE: TAX MAP 41E04D
TAX LOT 1700 & 2000
CITY OF CANBY, OREGON

RIVERSIDE PARK SUBDIVISION
N0581
EXISTING CONDITIONS

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EXCD 3 of 9

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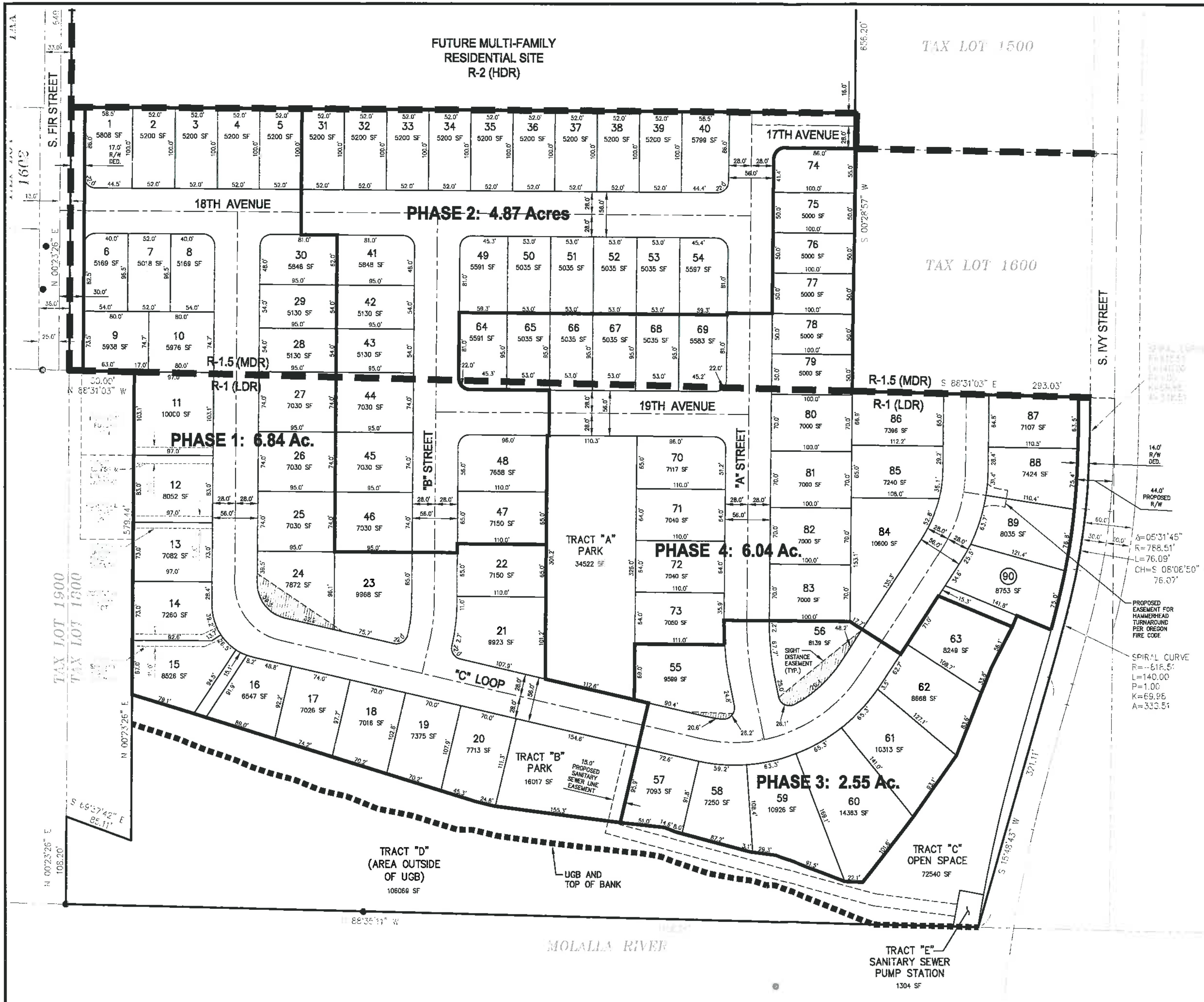

SITE INFORMATION

SITE LEGAL DESCRIPTION:	TAX MAP: 41E04D TAX LOTS: 1700 & 2000
JURISDICTION:	CITY OF CANBY, OREGON
LAND USE DISTRICT:	R-1: 17.26ACRES R-1.5: 7.42 ACRES
SITE SIZE:	24.68 ACRES
PROPOSED NUMBER OF UNITS:	90-LOTS

R-1:

MIN. LOT SIZE:	7,000 SF
MAX. LOT SIZE:	10,000 SF
MIN. LOT WIDTH AT FRONTAGE:	60 FT.

R-1.5:

MIN. LOT SIZE:	5,000 SF
MAX. LOT SIZE:	6,500 SF
MIN. LOT WIDTH AT FRONTAGE:	40 FT.

PHASE 1

R-1.5 (MDR) LOTS:	13
R-1 (LDR) LOTS:	17
TOTAL NUMBER OF LOTS:	30

PHASE 2

R-1.5 (MDR) LOTS:	19
R-1 (LDR) LOTS:	5
TOTAL NUMBER OF LOTS:	24

PHASE 3

R-1.5 (MDR) LOTS:	0
R-1 (LDR) LOTS:	9
TOTAL NUMBER OF LOTS:	9

PHASE 4

R-1.5 (MDR) LOTS:	12
R-1 (LDR) LOTS:	15
TOTAL NUMBER OF LOTS:	27

PARKS & OPEN SPACE:

TRACT "A" - PARK:	34,522 SF
TRACT "B" - PARK:	16,017 SF
TRACT "C" - OPEN SPACE:	72,540 SF
TRACT "D" - AREA OUTSIDE OF UGB:	106,069 SF
TRACT "E" - SANITARY SEWER PUMP STATION:	1,304 SF
TOTAL:	230,452 SF (5.29 ACRES)

MW ENGINEERS
Engineering & Planning
3400 NW John Olsen Place
Hillsboro, OR 97124
503 601 4401
503 601 4402 - fax

FOR: RIVERSIDE PARK, LLC
CONTACT: TUCKER MAYBERRY
10801 SW RIVERSIDE DRIVE
PORTLAND, OR 97219

SITE: TAX MAP 41E04D
TAX LOT 1700 & 2000
CITY OF CANBY, OREGON

RIVERSIDE PARK SUBDIVISION

N0581

PRELIMINARY PLAT

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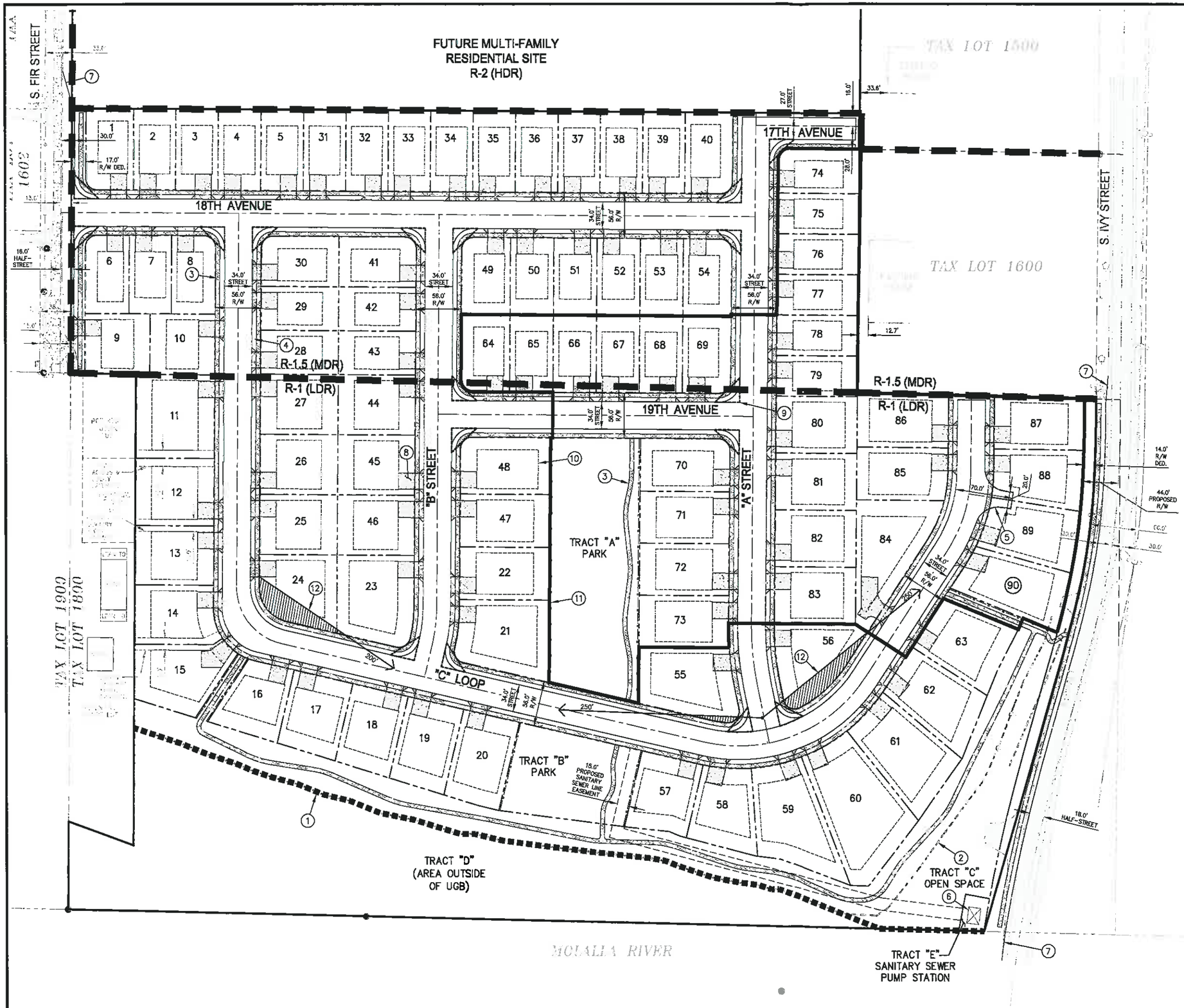

R-1: MINIMUM YARD REQUIREMENTS

1. Street yard: twenty feet on side with driveway; fifteen feet for all other street sides; except that street yards may be reduced to ten feet for covered porches only;
2. Rear yard: all corner lots, ten feet single story or fifteen feet two-story; all other lots, fifteen feet single story or twenty feet two-story. One story building components must meet the single story setback requirements; two story building components must meet the two-story setback requirements;
3. Interior yard: Seven feet, except as otherwise provided for zero-lot line housing.
4. Interior and rear yards may be reduced to three feet, or the width of any existing utility easement, whichever is greater, for detached accessory structures erected sixty feet or more from any street other than an alley. The height limitations noted in subsection E.2 below apply to such structures. Detached accessory dwellings are not eligible for the three foot reduction. Utility easements may only be reduced with the approval of all utility providers.
5. Infill standards may also apply. See CMC 16.21.050.

R-1.5 MINIMUM YARD REQUIREMENTS

1. Street yard: twenty feet on side with driveway; fifteen feet for all other street sides; except that street yards may be reduced to ten feet for covered porches only.
2. Rear yard: all corner lots, ten feet single story or fifteen feet two-story; all other lots: fifteen feet single story or twenty feet two-story. One story building components must meet the single story setback requirements; two story building components must meet the two-story setback requirements;
3. Interior yard: seven feet, except as otherwise provided for zero-lot line housing.
4. Interior and rear yards may be reduced to three feet, or the width of any existing utility easement, whichever is greater, for detached accessory structures, except accessory dwellings, erected sixty feet or more from any street other than an alley. The height limitations noted in subsection E.2 below apply. Utility easements may only be reduced with the approval of all utility providers.
5. Infill standards may also apply. See CMC 16.21.050.

KEY NOTES

1. EXISTING TOP OF BANK AND U.G.B.
2. EXISTING TOP OF BANK
3. PROPOSED 5' WIDE SIDEWALK
4. PROPOSED 5' WIDE PLANTER
5. PROPOSED HAMMERHEAD TURNAROUND PER OREGON FIRE CODE
6. PROPOSED SANITARY SEWER PUMP STATION
7. PROVIDE INBOUND AND OUTBOUND TAPERS PER SECTION 250.6.4 OF THE CLACKAMAS COUNTY ROADWAY STANDARDS
8. PROPOSED DRIVEWAY
9. VISION CLEARANCE AREA
10. BUIDLING ENVELOPE / SETBACK
11. PROPOSED 4 FT. HIGH PRIVACY FENCE ALONG PUBLIC PEDESTRIAN/BICYCLE PATHWAYS
12. PROPOSED SIGHT DISTANCE EASEMENT

ENGINEERS
Engineering & Planning
3409 NW John Olsen Place
Hillsboro, OR 97124
503 601.4401
503 601.4402 - fax

FOR: RIVERSIDE PARK, LLC
CONTACT: TUCKER MAYBERRY
10801 SW RIVERSIDE DRIVE
PORTLAND, OR 97219
SITE: TAX MAP 41E04D
TAX LOT 1700 & 2000
CITY OF CANBY, OREGON

RIVERSIDE PARK SUBDIVISION
N0581
PRELIMINARY SITE PLAN

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SHEET 5 of 9

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FUTURE MULTI-FAMILY
RESIDENTIAL SITE
R-2 (HDR)

S. FIR STREET

18TH AVENUE

19TH AVENUE

17TH AVE.

"B" STREET

"A" STREET

"C" LOOP

TRACT "A"
PARK

TRACT "B"
PARK

15.0' PROPOSED SANITARY SEWER LINE EASEMENT

TRACT "C"
OPEN SPACE

TRACT "D"
(AREA OUTSIDE
OF UGB)

TRACT "E"
SANITARY SEWER
PUMP STATION

S. IVY STREET

TAX LOT 1500

TAX LOT 1600

TAX LOT 1900

TAX LOT 1300

MOLALLA RIVER

LEGEND

- PROPOSED 8" SANITARY SEWER LINE
- PROPOSED SANITARY SEWER MANHOLE
- PROPOSED SANITARY SEWER CLEAN OUT
- PROPOSED 8" WATER LINE
- PROPOSED BLOW OFF
- PROPOSED STORM SEWER LINE
- PROPOSED STORM SEWER CATCH BASIN
- PROPOSED STORM SEWER MANHOLE
- PROPOSED DRYWELL

NOTE: INFILTRATION WILL OCCUR ON EACH LOT

KEY NOTES

1. EXISTING TOP OF BANK AND U.G.B.
2. EXISTING TOP OF BANK
3. PROPOSED 5' WIDE SIDEWALK
4. PROPOSED 5' WIDE PLANTER
5. PROPOSED HAMMERHEAD TURNAROUND PER OREGON FIRE CODE
6. PROPOSED SANITARY SEWER PUMP STATION
7. PROVIDE INBOUND AND OUTBOUND TAPERS PER SECTION 250.6.4 OF THE CLACKAMAS COUNTY ROADWAY STANDARDS
8. PROPOSED FORCE MAIN TO CONNECT TO EXISTING SANITARY SEWER LINE LOCATED TO THE NORTH AT S. IVY ST. AND SE 16TH AVE., WHICH IS APPROXIMATELY 1,400' AWAY FROM THE PROPOSED SANITARY SEWER PUMP STATION. (NOT SHOWN ON EXHIBIT)
9. PROPOSED WATER LINE TO CONNECT TO EXISTING WATER LINE, WHICH IS APPROXIMATELY 630' NORTH OF PROPOSED 18TH AVE. (NOT SHOWN ON EXHIBIT)
10. PROPOSED SIGHT DISTANCE EASEMENT

NORTH

1 inch = 60 ft.
11x17 PAPER: 1 inch = 120 ft.

ENGINEERS
Engineering & Planning
3409 NW John Olsen Place
Hillsboro, OR 97124
503 693 4402
503 693 4402 - fax

FOR: RIVERSIDE PARK, LLC
CONTACT: TUCKER MAYBERRY
10801 SW RIVERSIDE DRIVE
PORTLAND, OR 97219
SITE: TAX MAP 41E04D
TAX LOT 1700 & 2000
CITY OF CANBY, OREGON

RIVERSIDE PARK SUBDIVISION
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PRELIMINARY UTILITY PLAN

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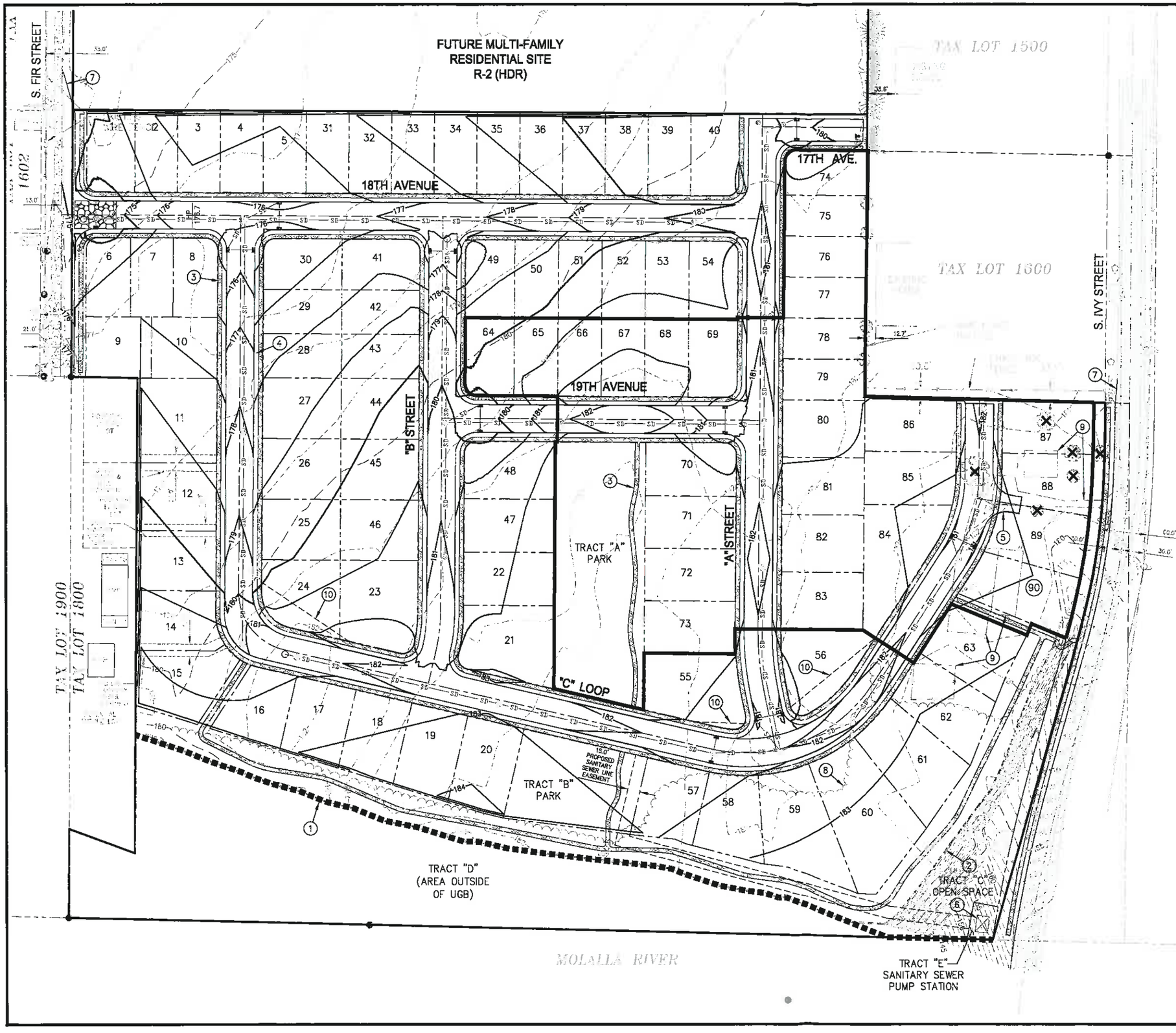

LEGEND

- EXISTING 5 FT CONTOUR
- EXISTING 1 FT CONTOUR
- PROPOSED 5 FT CONTOUR
- PROPOSED 1 FT CONTOUR
- CONSTRUCTION ENTRANCE
- EXISTING TREE TO BE REMOVED

KEY NOTES

1. EXISTING TOP OF BANK AND U.G.B.
2. EXISTING TOP OF BANK
3. PROPOSED 5' WIDE SIDEWALK
4. PROPOSED 5' WIDE PLANTER
5. PROPOSED HAMMERHEAD TURNAROUND PER OREGON FIRE CODE
6. PROPOSED SANITARY SEWER PUMP STATION
7. PROVIDE INBOUND AND OUTBOUND TAPERS PER SECTION 250.6.4 OF THE CLACKAMAS COUNTY ROADWAY STANDARDS
8. EXISTING BRUSH TO BE CLEARED
9. EXISTING SITE FEATURES TO BE REMOVED
10. PROPOSED SIGHT DISTANCE EASEMENT

NORTH

1 inch = 60 ft.
11x17 PAPER: 1 Inch = 120 ft.

ENGINEERS
Engineering & Planning
3400 NW John Olsen Place
Hillsboro, OR 97124
503 601 4401 fax
503 601 4401

FOR: RIVERSIDE PARK, LLC
CONTACT: TUCKER MAYBERRY
10801 SW RIVERSIDE DRIVE
PORTLAND, OR 97219
SITE: TAX MAP 41E04D
TAX LOT 1700 & 2000
CITY OF CANBY, OREGON

RIVERSIDE PARK SUBDIVISION

N0581

PRELIMINARY GRADING & EROSION CONTROL PLAN

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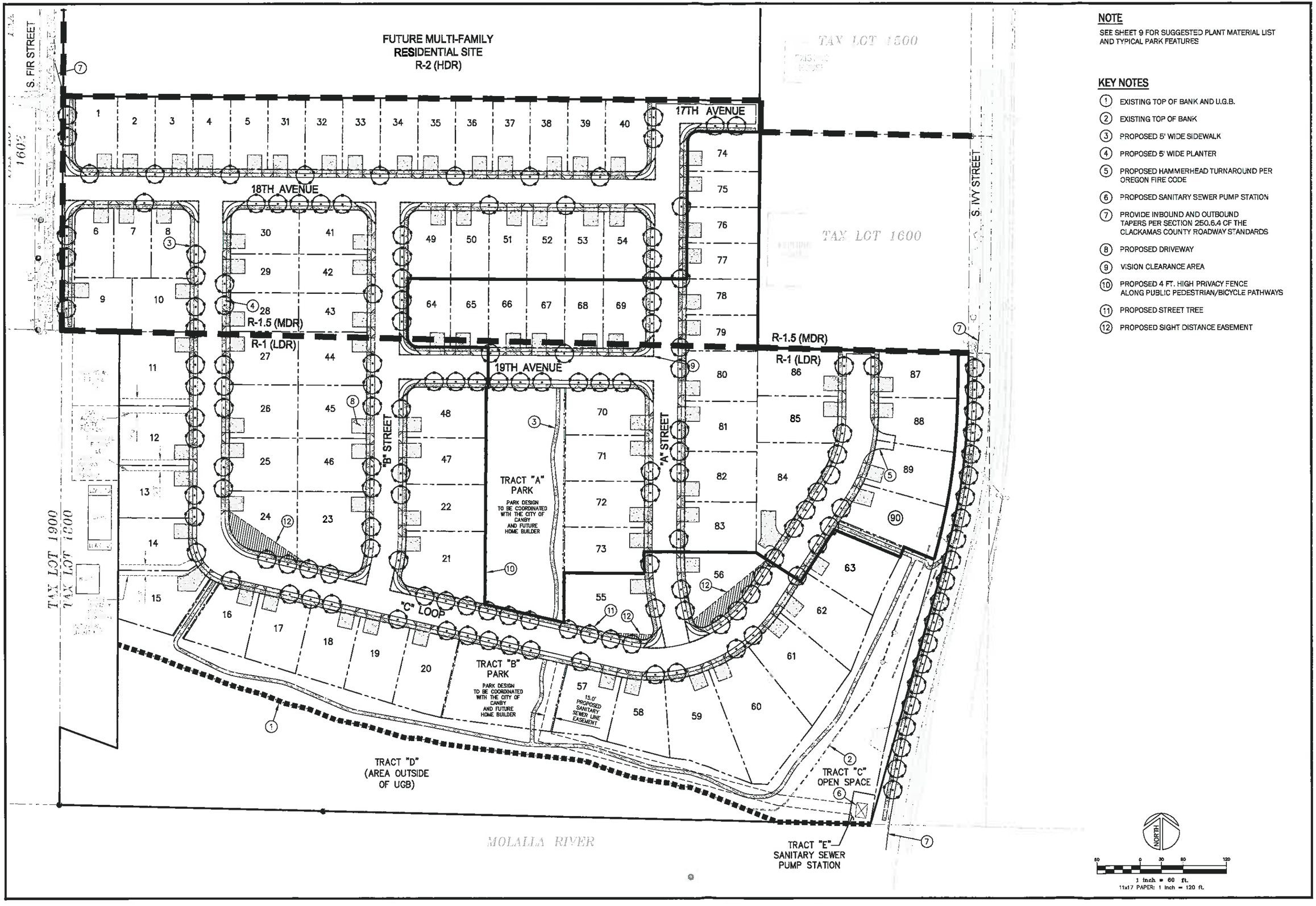

NOTE

SEE SHEET 9 FOR SUGGESTED PLANT MATERIAL LIST AND TYPICAL PARK FEATURES

KEY NOTES

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10. PROPOSED 4 FT. HIGH PRIVACY FENCE ALONG PUBLIC PEDESTRIAN/BICYCLE PATHWAYS
11. PROPOSED STREET TREE
12. PROPOSED SIGHT DISTANCE EASEMENT

AKS ENGINEERS
Engineering & Planning
3409 NW John Olsen Place
Hillsboro, OR 97124
503 601 4401
503 601 4402 - fax

FOR: RIVERSIDE PARK, LLC
CONTACT: TUCKER MAYBERRY
10801 SW RIVERSIDE DRIVE
PORTLAND, OR 97219
SITE: TAX MAP 41E04D
TAX LOT 1700 & 2000
CITY OF CANBY, OREGON

RIVERSIDE PARK SUBDIVISION
N0581
PRELIMINARY STREET TREE/
LANDSCAPE PLAN

	REVISION	BY	DATE
1			
2			
3			
4			
5			
6			
7			

DESIGNED | DRAWN | REVIEWED | SUBMITTAL

LSC1 8 of 9

TYPICAL LANDSCAPE FEATURES

PLAY STRUCTURE

WOOD FENCE

BENCH

GAZEBO

PICNIC TABLE

PARK LIGHT

NOTE

SEE SHEET 8 FOR PRELIMINARY STREET TREE/LANDSCAPE PLAN

SUGGESTED PLANT MATERIALS LIST

TYPE	BOTANICAL NAME / COMMON NAME
DECIDUOUS SHADE TREES	Acer platanoides 'Emerald Queen' / Emerald Queen Maple Fraxinus oxycarpa 'Raywood' / Raywood Ash Acer rubrum 'Red Sunset' / Red Sunset Maple Pyrus calleryana 'Aristocrat' / Aristocrat Flowering Pear Zelkova serrata 'Green Vase' / Green Vase Zelkova
EVERGREEN SCREEN TREES	Cedrus deodara / Deodar Cedar Pseudotsuga menziesii / Douglas Fir Thuja plicata / Western Red Cedar Pinus ponderosa / Ponderosa Pine
ORNAMENTAL FLOWERING TREES	Prunus serrulata 'Mt. Fuji' / Mt. Fuji Flowering Cherry Pyrus calleryana 'Chanticleer' / Chanticleer Pear
MUTLI-STEM DECIDUOUS TREES	Acer circinatum / Vine Maple Acer palmatum 'Sango Kaku' / Sango Kaku Japanese Maple Styrax japonicus / Japanese Snowbell
3-4' EVERGREEN & DECIDUOUS SHRUBS	Euonymus fortunei 'Emerald Gaiety' / Emerald Gaiety Euonymus Ilex crenata convexa / Convex Leaf Holly Nandina domestica 'Compacta' / Compact Heavenly Bamboo Pieris japonica 'Flame' / Flame Pieris Pinus mugho pumilio / Dwarf Mughe Pine Viburnum davidii / David Viburnum
5-6' EVERGREEN & DECIDUOJS SHRUBS	Berberis thunbergii 'Atropurpurea' / Purple Leaf Barberry Ligustrum japonica / Japanese Privet Cotoneaster parneyii / Parney Cotoneaster Euonymus alata 'Compacta' / Dwarf Winged Euonymus Prunus laurocerasus 'Otto Luyken' / Otto Luyken Laurel Viburnum tinus 'Spring Bouquet / Spring Bouquet Viburnum
ORNAMENTAL SHRUBS	Azalea varieties / Azalea Rhododendron 'Jean Marie' / Rhododendron Rhododendron 'Unique' / Rhododendron Rhododendron 'PJM' / Rhododendron Ornamental Roses / Roses
GROUNDCOVER	Cotoneaster dammeri 'Coral Beauty' / Bearberry Cotoneaster Vinca Minor / Periwinkle

NOTES:

1. ALL PLANTING BEDS SHALL RECEIVE A 2" MINIMUM LAYER OF FINE FRESH HEMLOCK OR FIR BARK MULCH.
2. ALL TREES PLANTED WITHIN 6 FT. OF ANY CURB, BUILDING OR PAVING SURFACE SHALL BE INSTALLED WITH A ROOT BARRIER BY "DEEP ROOT CORP." OR EQUAL.
3. ALL LANDSCAPE AREAS SHALL BE INSTALLED WITH A PERMANENT, AUTOMATIC UNDERGROUND IRRIGATION SYSTEM PROVIDING 100% COVERAGE OF ALL AREAS.
4. PROVIDE THE FOLLOWING CLEARANCES FOR PLANTING OF TREES:
   MAINTAIN VISION TRIANGLES AT ALL INTERSECTIONS & CORNERS
   15 FT. FROM ALL STREET LIGHTS
   10 FT. FROM FIRE HYDRANTS
   5 FT. FROM UTILITY VAULTS, METER BOXES ETC.
5. INSTALLATION MUST FULLY COMPLY WITH ALL CITY OF CANBY LANDSCAPE CODE REQUIREMENTS AND WITH THE CONDITIONS OF APPROVAL.

ENGINEERS
Engineering & Planning
3400 NW John Olsen Place
Hillsboro, OR 97124
503 601 4401 - fax
503 601 4400

FOR: RIVERSIDE PARK, LLC
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SITE: TAX MAP 4S1E04D
TAX LOT 1700 & 2000
CITY OF CANBY, OREGON

RIVERSIDE PARK SUBDIVISION

N0581

SUGGESTED PLANT LIST AND LANDSCAPE FEATURES

	REVISION	BY	DATE
1			
2			
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5			
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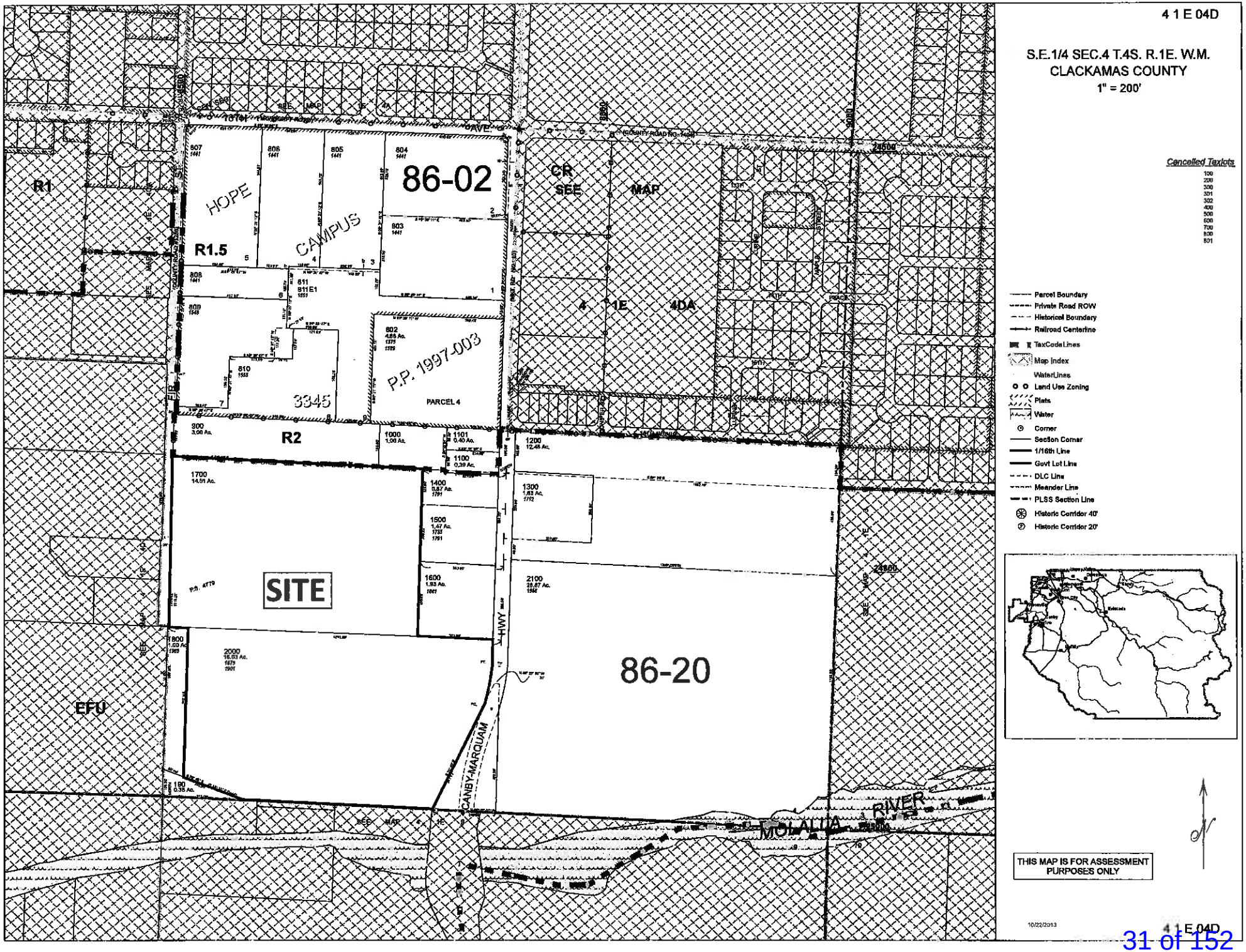
DESIGNED
DRAWN
REVIEWED
SUBMITTAL

LSC1

9 of 9

Christi, Plotted: Jun 25, 2018 - 10:48am, P:\N0581\dwg\Plan\PH1\N0581-09-LSC2.dwg


4 1 E 04D
S.E.1/4 SEC.4 T.4S. R.1E. W.M.
CLACKAMAS COUNTY
1" = 200'
86-02
86-20
SITE
R1
R1.5
R2
EFU
HOPE CAMPUS
P.P. 1997-003
PARCEL 4
3345
CR SEE MAP
4 1E 4DA
HWY
CANBY-MARQUAM
MOLALLA RIVER
Cancelled Taxlots
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
10/22/2013
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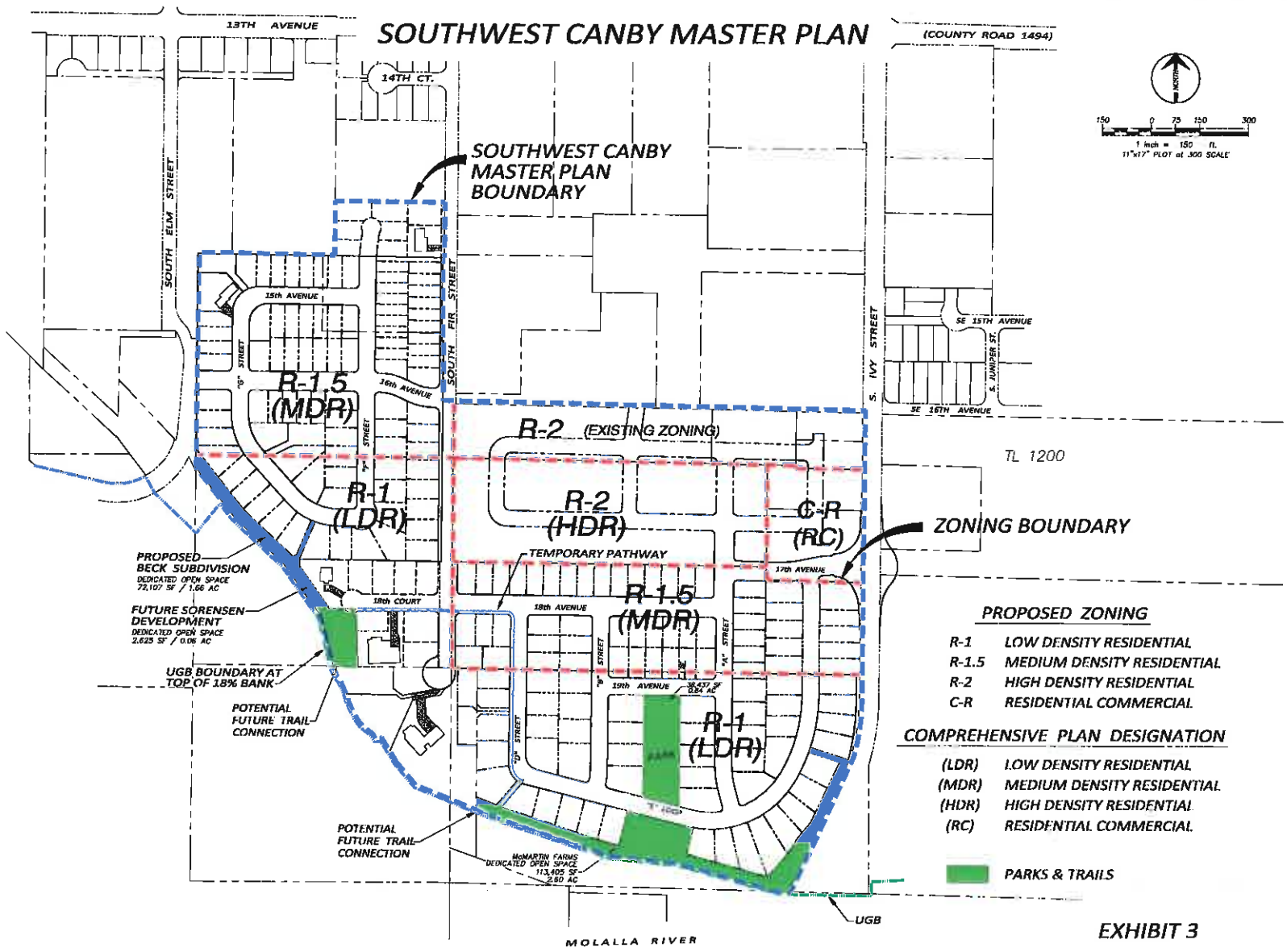

SOUTHWEST CANBY MASTER PLAN
13TH AVENUE
14TH CT.
(COUNTY ROAD 1494)
SOUTHWEST CANBY MASTER PLAN BOUNDARY
SOUTH ELM STREET
SOUTH FIR STREET
S. IVY STREET
15th AVENUE
16th AVENUE
SE 15TH AVENUE
SE 16TH AVENUE
S. JUNIPER ST.
"G" STREET
"F" STREET
R-1.5 (MDR)
R-2 (EXISTING ZONING)
TL 1200
R-1 (LDR)
R-2 (HDR)
C-R (RC)
ZONING BOUNDARY
PROPOSED BECK SUBDIVISION
DEDICATED OPEN SPACE
72,107 SF / 1.66 AC
TEMPORARY PATHWAY
17th AVENUE
18th COURT
18th AVENUE
R-1.5 (MDR)
"A" STREET
FUTURE SORENSEN DEVELOPMENT
DEDICATED OPEN SPACE
2,625 SF / 0.06 AC
UGB BOUNDARY AT TOP OF 18% BANK
"D" STREET
19th AVENUE
38,437 SF 0.84 AC
R-1 (LDR)
POTENTIAL FUTURE TRAIL CONNECTION
POTENTIAL FUTURE TRAIL CONNECTION
McMARTIN FARMS DEDICATED OPEN SPACE
113,405 SF 2.60 AC
UGB
MOLALLA RIVER
PROPOSED ZONING
R-1 LOW DENSITY RESIDENTIAL
R-1.5 MEDIUM DENSITY RESIDENTIAL
R-2 HIGH DENSITY RESIDENTIAL
C-R RESIDENTIAL COMMERCIAL
COMPREHENSIVE PLAN DESIGNATION
(LDR) LOW DENSITY RESIDENTIAL
(MDR) MEDIUM DENSITY RESIDENTIAL
(HDR) HIGH DENSITY RESIDENTIAL
(RC) RESIDENTIAL COMMERCIAL
PARKS & TRAILS
150 0 75 150 300
1 inch = 150 ft.
11"x17" PLOT at 300 SCALE
EXHIBIT 3
1-23-18
SOUTHWEST CANBY
TAX MAP 7 4S, R1E, SECTION 4
CITY OF CANBY, OREGON
STAFFORD
DEVELOPMENT COMPANY, LLC
485 SOUTH STATE STREET
LAKE OSWEGO, OREGON 97034
SOUTHWEST CANBY MASTER PLAN
REVISIONS
NO. DATE DESCRIPTION
1 1-11-18 REVISIONS PER 1-8-18 PLANNING COMMISSION WORK SESSION
2 1-22-18 REVISED EXHIBIT 3 TO INCLUDE STEINKE PROPERTY
PLANNING & LAND DESIGN
1882 NE ESTATE DRIVE
HILLSBORO, OREGON 97124
RYAN O'BRIEN
(503)780-4061
SHEET
OF

Pre-application Meeting

65 Lot Subdivision
March 9, 2017
10:30 am

Attended by:

Ryan O'Brien, Planning and Land Designs, 503-708-4051
Hassan Ibrahim, Curran-McLeod Engineering, 503-684-3478
Levi Levasa, Stafford Development, 503-250-3651
Doug Quan, Canby Utility, Water Department, 971-563-6314
Tim Gettel, Wave Broadband, 503-307-0029
Bryan Brown, Planning Department, 503-266-0702
Gordon Root, Stafford Development, 503-720-0914
Gary Stockwell, Canby Utility Electric, 503-263-4307
Jim Stuart, Canby Utility, 971-563-1375

This document is for preliminary use only and is not a contractual document.

STAFFORD DEVELOPMENT, Gordon Root

- We are bringing in this property between S Ivy and S Fir Streets and on the west side of S Fir Street. There are multiple properties involved in this project area and I want to clarify with the process of the subdivision application with annexation, can it be concurrent and Bryan said no, you will have to annex first. Gordon gave a list of the properties:
  - Rodney Beck
  - Nadine Beck
  - McMartins
  - Mootz
  - Hope Village

  The different zonings will have multiple uses. The R-2 as shown on the master plan is the McMartin's property and Hope Village wants to purchase it and expand their overall site. The Mootz property and Hope Village are presently negotiating to purchase the property and they have tentatively reached an agreement in principal.
- We are thinking of bringing a future extension of SW 17th Avenue connecting S Ivy to S Fir Street. This will be on the southern section of the Mootz's property line and it will be the dividing line between the R-2 HDR property and the lower density residential property.
- We anticipate doing the extension of S Fir Street all the down into and through our project. We have been in discussions with Ed Netter who owns a 1 acre parcel and along with the Beck's. We are trying to get the majority of landowners in the projected area to go along with the annexation.
- Gordon said Hope Village will be coming in for their application and Doug asked if this will be a separate application. Gordon said this will be combined for annexation and the land use application will be separate. Doug said the construction will be separate from yours and the answer was yes, but we will construction SW 17th Avenue.

CANBY UTILITY, ELECTRIC DEPARTMENT, Gary Stockwell

- Are you going to piece meal the construction of the project or annex it all at once? Gordon said it will be driven by the gravity fed sewer mains and we will start with the Beck's property first being fed into S Elm Street.
- Before I will be able to do any electrical design work, even the Beck property, I will need the comprehensive plan and have the city's approval because there will be a lot of infrastructure to serve in its entirety. The master plan will be very important to me to be able to put together an electrical plan. Bryan said you will need to make sure everything has been adopted and Gary agreed. Gary said some of the work to be done will be placing the overhead lines underground for the homes that are staying.
- We have worked together on previous jobs and you know our scope of work. You will provide the trenching, staking, grading and backfill and we will provide the conduit, vaults and transformers.
- Depending on the street section where the transformers and vaults will be located behind sidewalk and we may need addition easement to make it fit, especially in the high density areas.
- On the private streets we no longer offer leased street lighting and the private street lighting will be your responsibility.

CURRAN-MCLEOD ENGINEERING, Hassan Ibrahim

- S Fir Street is currently a county street, but as a result of the annexation it will become a city street. It is classified in the Transportation System Plan (TSP) as a local street and you have proposed a 60 ft right-of-way (ROW). We have 36 ft wide streets and we will continue with the 60 ft ROW, making 18 ft half streets. If the other half is not improved then we need to make sure it will be a 20 ft wide minimum allowable two lanes of traffic.
- S Ivy Street is an arterial county street and it will remain a county street. You will have to go through the process with the county on the access spacing and all permits necessary through them. Hassan handed Ryan a drawing from Dinsmore Estates phase 3 to show what the parameters would be for S Ivy Street and it will need to be continued. It is 23 ft from center line, 46 ft pavement in a 60 ROW.
- Any of the city's streets will have to be built to our current design standards and the cul-de-sac has to be 48 ft to the curb line in a 54 ft ROW. I noticed you have not met the 50 ft minimum tangent point coming out of the intersection before you turn the radius. The minimum radius is 165 ft for the local streets onto local streets we have allowed a 50 ft ROW if you cannot meet the lot minimum size and the sidewalks can be in the easement. Ryan said we will need to have a 6 ft sidewalk and a 4-1/2 ft minimum planter strip with 1/2 foot curb (face of the curb to the front of the walk). Hassan said you will need a larger ROW if we put the sidewalks in the easement. Gary said do not forget the public utility easement (PUE) will be behind the sidewalks and Ryan asked how much and Hassan stated the frontage PUE is 12 ft from the ROW line. Gary said I will need to make sure we have enough PUE for our utilities and typically we will need at least 6 ft behind the sidewalk for trenching and when you come to a property line where we place a transformer you will need to bump out the PUE to 12 ft.

- Clackamas County sent in their comments and due to the large size of the development there will be a traffic study required to see what the impacts are on the signal light on SE/SW 13th Avenue and S Ivy Street. Signal modifications may be required.
- We tentatively think we can serve this area with gravity feed sewers and it is not budgeted to build the pump station yet and until we know for sure this development is going in and it is warranted and needed. We do not want to build the lift station and let it sit. As the project progresses and we move into building this phase here we will budget it and Bryan said what may also trigger it will be Hope Village's development. Hassan said if Hope Village decides to build it the sewers should be deep enough right now at 8 or 9 ft.
- Gordon asked what they were responsible for and Hassan said we will be responsible for the pump station and the forced main and everything else will be the responsibility of the developer and you will need to provide a 15 ft easement. Bryan asked if we needed to purchase the land for the pump station and Hassan said he thought we had adequate ROW in this area. Bryan said this information will need to be put in your narrative when you submit for your annexation and the concept plan. We have to have this service pinned down for the entire concept plan area and show the council we have thought and know about all of the parts can be served and how the financing is going to work. Bryan asked how long does it take for a pump station to be built and Hassan said it usually takes 3 to 4 months normally.
- The storm drainage for each tax lot will stay on site. You will need to figure out the public street stormwater system and if you want to do retention ponds or drywells. The drywells will be at a 26 ft minimum with a 4 ft diameter and it will be preceded by a water quality sedimentation manhole. Ryan asked if we have public works standards and Hassan said they will provide them to you.
- There is a 267 ft restriction radius of placing a drywell near any existing water wells.
- Ryan asked about the sewer treatment plant capacity and Hassan stated we are at 50 percent capacity as of this morning.
- Street lights will be required throughout the project and Canby Utility installs them and Gary said they will be included in the construction costs I will send to you.

CANBY UTILITY, WATER DEPARTMENT, Doug Quan

- The water system will be interesting to say the least since you have multiple developments. Hope Village will be addressed with Hope Village's application because it is not a part of your construction. As far as the Beck property it looks like we may have conflicts with the sewer system and there are standard state requirements for separation between water and sewer. The water line is at a depth of 36 inches with cover and we have specifications in our construction guidelines and if the sewer line for the property is above the water line you will have to use a one piece length of HDPE pipe from cleanout to main. Ryan said this is conceptual and we do not know the exact elevation. Doug said fusion couplings are allowed if you cannot do a 20 ft length of pipe, which is a standard pipe length for most of the 6 inch.
- You can access water in both S Fir (10 inch main) and S Ivy (12 inch main) Streets. All your dead ends will require a hydro guard HD 4 automatic flushing station with dechlorination and piped into the storm system. Gordon asked what water main size are you wanting in SW 17th Avenue and Doug said 12 inch water main.

- Depending on how you want to set the fire hydrant for the cul-de-sac you can reduce the line size going into the cul-de-sac and as long as you meet the fire department's rule for fire suppression.
- Construction standards are on the Canby Utility's website.
- We have gone to a sole source hydrant and we have changed our meter boxes to a poly-meter box that is 20 K rated along with a 20 K rated lid. These will all be located in the planter strips.
- If there are any wells in the area you need to let us know if they will be decommissioned and going away, Canby Utility would like the water rights transferred to the city. If they are not going away because we need to look at the properties they will serve and get the proper back flow devices. Gordon said we plan on keeping the well on the Beck's property and Doug asked if they will remain on the well and the answer was yes. Doug asked if the developer is going to put in a service to the property with the well for future needs and the answer was yes. Ryan asked if the rule for drywells still stand being 267 ft from any existing well and the answer was yes. Gordon stated that could dictate us abandoning the well and Hassan said yes, if the drywell happened to be in the low point and it was within the 267 ft.

WAVE BROADBAND, Tim Gettel

- Let us know when the trenches are open and if we can get a copy of the power schematic it helps us with our plan. Hassan said also in the trench line is DirectLink and NW Natural.

CITY OF CANBY, PLANNING DEPARTMENT, Bryan Brown

- The annexation application is not necessarily including all 15 property owners in the master plan area or are you attempting it? Gordon said he was initially going to do both Beck and McMartin properties, but since then we have decided the Mootz property needs to be in this annexation. Bryan said this further complicates issues and we would need to have our comprehensive plan show the different designations within the projected area and therefore you will be amending the comprehensive plan to make that designation. It is a separate application to be completed. Discussion ensued. Bryan said the annexation is whoever wants to annex now, but the concept development plan is for the whole acreage and it will get adopted and be official for anyone annexing in the future and they have to know they will be conforming to that plan. You will need to contact all the land owners in this projected amendment area and have a neighborhood meeting. You have to have a concept plan that the city feels it is very reasonable and efficient way for this to develop and addresses all the basic criteria in the concept plan.
- It is not in our code right now, but we do not allow 28 ft streets unless you are willing to prohibit parking on one side. Ryan asked how many feet does a street have to be in order to have parking on both sides and Bryan said 34 ft.
- Ryan asked if they needed to do a topographical map to get to the 18 percent line and Bryan said the 18 percent is not an absolute magic number and it is more of a guide we use since our concept plan does not tell us where the top of bluff is. Discussion followed.
- Clackamas County is certainly requiring a traffic study and the city will also. There is a minimum requirement by state law we do a transportation planning rule (TPR) analysis for all the properties being rezoned for an annexation. What this means is the properties you are

annexing will have to be a part of a traffic analysis demonstrating a conformance with the TPR and it can be in simple terms of traffic studies. If everything was accounted for and you are following the comprehensive zone designations in our adopted transportation system plan (TSP) and our traffic consultants can demonstrate it in a paragraph from the data they have collected during the TSP. We need to satisfy the state requirement by accounting for all the expected traffic if this develops under these scenarios. We will also need some sort of generalized traffic analysis for the entire master plan area and we have the assurance in front of the council stating if this all develops and is annexed as proposed by the master plan, we have an adequate circulatory internal streets and on the edge to handle it. The traffic study should tell us and the county on what impact this development will have on the intersection of SE/SW 13th Avenue and S Ivy Street. The scope of work is for this type of informational studies and even where SW 17th Avenue comes out and I am hopeful you have the best location for it, but sight distances up and down the roadway. Hassan said the county has access spacing requirements on the arterial streets. Bryan said the third item will be a detailed traffic study for the Beck subdivision and since you are following up with it right away, it is possible to have the traffic study with all three components and you do not have to do them separately. You could do a generalized study for the annexation and a TPR and do another focused traffic study for the Beck subdivision when you make that application. One of the main things the professional traffic consultants state in an annexation or a TPR analysis is not the same as a specific development, which is what you are proposing and that kind of study is different on what they look at when they do a generalized reasonable worst case scenario because we do not know how you are going to develop it. You need to get this traffic study started so it does not delay your annexation plans and I would suggest you think about your options and bring us a deposit for $500 to start the scope. Just for your information once you get approval for annexation it takes the state several months to validate it.

- Gordon asked Bryan about SE 16th Avenue and Bryan said Hope Village had discussed bringing SE 16th Avenue across. Gordon said it would be good to have SE 16th Avenue go across and I will talk to them about making their parking lot a street. Discussion ensued. Bryan said it could come out of the traffic study and Hassan said the county may have a problem with the spacing. Gordon asked what the spacing was and Hassan said his best guestimate was 500 ft. You will have to go to the county on the spacing requirements.
- I need to get some more information on the master plan, the urban growth boundary and how it relates to the river, the actual tax lots and the ownership of the property. I know a couple of years ago the legislature passed a law that would allow the property to be partitioned where an urban growth boundary was. Ryan said you have the option of annexing or partitioning if part of the property is in the city and part is out and you can annex the entire piece of property or they allow you to partition without meeting the code requirements of the EFU zone. Bryan said part of our answer lies in our master parks plan that has our Emerald Trail following the Molalla River and if there are ownerships going out beyond the urban growth boundary and there may be some advantage to have it annexed and dedicated as a conservation easement and/or a pedestrian easement for the city's use. Discussion ensued. Bryan said we need park land in this part of town and we are basically requiring you to dedicate per the ordinance requirements in the code. It will tell you the total acreage of the

master plan you need to dedicate for a park to avoid any system development charges (SDC). We still have to get the acceptance of the city administrator and he knows this project is going through and we are going to have the same issue of park maintenance. I need to get answer on whether we force you to dedicate the required amount of land and if the land can be partly the trail with something internal. There is a question on whether we can build a walking trail on the 18 percent slope and I think it is not a good idea, we need it down at the bottom or right at the top on the UG boundary where we can build it. You need to help us to determine it or we are going to say no because you are not meeting our parks master plan requirements to have a trail connect from S Ivy to S Elm Streets. The easements for the trail system is a minimum of 15 ft wide but 20 ft is better.

- Bryan asked who owned S 20th Avenue adjacent to the Molalla River and Gary said it is a private road for Canby Sand and Gravel and Parker NW Paving Company. Bryan said the properties we are discussing today do not actually go to the Molalla River and the answer was no.
- Ryan asked Bryan about the 3 year supply with an annexation. Bryan said we are using a policy and it is interpreted by a 3 year land supply based upon platted lots. The charts are available to assist you and Gordon said he used Pat Sisul's information for our annexation and Bryan said we can help you also. The council and the Planning Commission look at this information in regards to accepting new annexations for our 3 year supply.
- You are required by the code to have a neighborhood meeting prior to annexation. You will need to get all the names of the property owners within the radius and all the names of the owners within the master plan area. You will need to share with them the master plan and tell them they will have to follow it when they decide to develop or if any one sells their property.
- Timing wise it takes at least three weeks to do a traffic scope and a study could take six weeks. Ryan asked who is our traffic engineer and Bryan said DKS Associates. To get this started you need to send a $500 deposit to us and by city ordinance the city with help from our traffic engineer is required to produce the scope of work. You have the option to choose another traffic firm to do the study and they will have to follow the task set for them. Our engineer will review the study and make sure they followed the proper procedures and all the tasks. You will need to have the traffic study done to hold the public hearings with the Planning Commission.
- You will need to pin down the parks dedication through the formula in the code, identifying where you are going to put it in the master plan for a trail and it is very important because we need the emerald necklace trail and/or a park.
- Gordon asked what the timing would be for this process and Bryan stated you will need to have a traffic study complete (6 to 8 weeks), a neighborhood meeting, your application reviewing the criteria in the annexation section of the code, Chapter 16.54 are amendments to the zoning map. Once you submit your application and in 45 days you will have a Planning Commission hearing date. We do send a 35-day notice once you have made an application for a proposed re-zone and an annexation. Gordon said 60 days to be deemed possibly complete and Bryan said the Planning Commission meets twice a month. Gordon asked after the Planning Commission what time factor do we have and Bryan said in approximately 25 days you will be in front of the council and they make the final decision and after that a 20

day appeal period. Then we send the annexation and rezoning ordinance to the Secretary of the State's office.

RIVERSIDE PARK SUBDIVISION

NEIGHBORHOOD MEETING MINUTES

5-16-18

The Neighborhood Meeting was conducted on Wednesday, May 16, 2018 from 7-7:45pm at the Hope Village Community Center, 1535 S. Ivy Street, Canby, Oregon. A total of 51 neighbors attended the meeting (see attached Attendance Roster). Matt Newman and Dale Himes from NW Engineers, Tucker Mayberry, Riverside Park, LLC and Craig Gingerich, Hope Village were representatives for the proposed development.

The attached plan set dated 5-16-18 for "Riverside Park" (including cover sheet, aerial photograph, existing conditions, preliminary plat, preliminary site plan and preliminary utility plan) and a preliminary site plan for "Hope Village South" dated 8-31-17 were handed out to each attendee. Matt Newman, Tucker Mayberry and Craig Gingerich made the presentation to the attendees. The issues discussed at the meeting were as follows:

1. Attendees had several questions regarding access to Riverside Park from S. Fir and S. Ivy Streets especially in regards to when the property owner of tax lot 1500 would agree to sell and allow the extension of proposed 17th Avenue to S. Ivy Street. Mr. Mayberry explained that no agreement has been reached to purchase the property but that a roundabout is planned in the future as the connection to S. Ivy Street. In regards access to S. Fir Street, it was further explained that only Phase 1 (about 30 houses) would have access upon commencement of development. Ed Netter, property owner, also explained that a third access from Riverside Park was also planned to Elm Street for subsequent phases.

2. One attendee asked about the anticipated speed on S. Ivy Street. Mr. Mayberry responded that a traffic engineering study would be required to determine the actual speed.

3. Another attendee asked about when the project would start. Mr. Mayberry explained that the subject site has already gone through the master planning process and that holding a neighborhood meeting was next, followed by a formal subdivision application and finally a review of the subdivision at a Planning Commission public hearing. With all of this said, Mr. Mayberry indicated that breaking ground might occur next spring.

4. Several attendees inquired about the size of the lots and the size of the homes to be built. Mr. Newman and Mr. Mayberry explained the minimum and maximum allowed lot sizes for the R-I and R-1.5 residential zones as noted on the preliminary plat. The approximate house sizes would be 1-2 stories - some with 3-car garages. On-site and off-street parking was also being

included in the design of the development. It was also further explained that there would be about 30 lots developed for each of the three phases.

5. One attendee asked about planned sewer service and the pump station shown on the preliminary plat at the southeast corner of Riverside Park. Mr. Mayberry explained that the City of Canby is planning on installing a pump station there connected to a pressurized line situated north along S. Ivy Street to a gravity line.

6. Finally, several attendees asked about Hope Villages potential plan for the HDR zoned lot just north and adjacent to Riverside Park. Mr. Gingerich explained the preliminary concept plan for the site and emphasized that it was not a final design. He basically explained that about 73 units were being planned for the site which is about half the permitted density.

NEIGHBORHOOD MEETING ATTENDANCE ROSTER

PROJECT: Riverside Park **MEETING DATE:** May 16, 2018

PLEASE PRINT LEGIBLY!

NAME	MAILING ADDRESS	CITY, STATE	ZIP CODE	PHONE #
NW Engineers Mat Newman	3409 NE John Olsen Ave	Hillsboro	97124	503-601-4401
Ed Netter	1847 & 1960 S Fir	Canby	97013	503-314-8381
Judy Quesnell	1546 S. Ivy #115	Canby Or.	97015	503-266-7115
NW Engineers Dale Hivies	3409 NE John Olsen Ave	Hillsboro	97124	503-601-4401
Bob and Nancy Friesen	1441 S Ivy St #1104	Canby	97013	503-266-6011
Judy Tenderent	1441 S. Ivy #903	Canby	97013	503 651-1204
Rose Berg	1441 S. Ivy #501	Canby	97013	(503) 266-9625
Nevia Turner	1555 S. Ivy St. #206	Canby	97013	503) 314-3449
Maureen Lynch	1440 S Ivy St #606	Canby	97013	503 252 5830
Fran McClurken	1546 S. First St #104	"	"	206-703-5754
Judie & Don STONE	405 SW Pac Crest Dr	"	"	

NEIGHBORHOOD MEETING ATTENDANCE ROSTER

PROJECT: Riverside Park **MEETING DATE:** 5-16-18

PLEASE PRINT LEGIBLY!

NAME	MAILING ADDRESS	CITY, STATE	ZIP CODE	PHONE #
Patty Russell	1546 S Fir #109	Canby OR	97013	503-263-1782
Pat Dranger	1546 S. Fir # 219	Canby OR	97013	503-616-0929
GEORGIA & DEL THOMAS	1441 S. Ivy #810	CANBY, OR	97013	503-616-0927
Karen Joy	1441 S. Ivy St #1103	Canby OR	97013	503-266-7074
Mae Goosen	1441 S Ivy 712	Canby OR	97013	5032662335
Ruby Scruggs	" " #708	" "	"	
K. Losch	" " #402	" "	"	263-6375
Sue Nichols	" " #206	" "	"	266-5843
Delores Ellis	1555 S. Ivy #204	canby	97013	592-8064
Jonnie Lee & Milt KINGSLAND	1441 S. Ivy #104	Canby	97013	263-8787
Gloria Krapf	1441 S. Ivy # 308	Canby	97013	~~263-1827~~ 266-3327

NEIGHBORHOOD MEETING ATTENDANCE ROSTER

PROJECT: Riverside Park **MEETING DATE:** 5-16-18

PLEASE PRINT LEGIBLY!

NAME	MAILING ADDRESS	CITY, STATE	ZIP CODE	PHONE #
Bob Kauffman	1441 S Ivy # 102	Canby Or	97013	
Diana Dahlstrom	1441 S Ivy St #703,	Canby, OR	97013	
Susan & Dale Williamson				
Susan & Dale Williamson	1441 S. Ivy St. #1005	Canby, OR	97013	
Judy Brandt	1441 S Ivy #807	Canby, OR	97013	
Jan Bluth	1441 S Ivy #806	" "	"	
Dale Rushton	441 S. Ivy Unit 1102	Canby	97013	
Yvonne Recker	" " 610	"	"	
Tom Rushton	1441 S. Ivy Unit 906	Canby	97013	
Julie Rushton	"	"	"	
Lorann Horne	415 SW Pacific Cr.	"	"	
MARY Butler	1441 S. IVY # 705	CANBY	97013	

NEIGHBORHOOD MEETING ATTENDANCE ROSTER

PROJECT: Riverside Park **MEETING DATE:** 5-16-18

PLEASE PRINT LEGIBLY!

NAME	MAILING ADDRESS	CITY, STATE	ZIP CODE	PHONE #
Cheryl Steinke	1547 S Fir	Canby	OR 97013	0 5032661547
Rindd Collins	1441 S Ivy St 605	CANBY	OR	503-266-23[illegible]
Melissa Blodgett	1441 S Ivy St 1204	Canby	OR	503-266-763[illegible]
Ken Blodgett	"	"	"	"
Jim Gadberry	284 SE 16th Ave	"	"	360-601-0625
Dar Gadberry	"	"	"	360-601-05[illegible]
Wendy Leatzan	132 SE 16th Ave	Canby	OR	503 307 6409
Marilyn Thompson	1441 S Ivy # 101	Canby	OR	503-266-3860
Bill Vermillion	1441 S Ivy #503	Canby	OR	503-266-93[illegible]

NEIGHBORHOOD MEETING ATTENDANCE ROSTER

PROJECT: Riverside Park **MEETING DATE:** 5-16-18

PLEASE PRINT LEGIBLY!

NAME	MAILING ADDRESS	CITY, STATE	ZIP CODE	PHONE #
Marian Lawson	1441 So. Ivy St #505	Canby OR	97013	503-266-2800
Rose Sun	1441 S Ivy # 300	Canby OR	97013	266-5778
Ray Godson	132 SE 16th Ave	Canby Or	97013	503 307.6409
[illegible]				
Maynard Nyberg	1441 S. Ivy 412	Canby Or	97013	503-651-2476
JOE Chorizo	910 SW Pacific Crest Dr	CANBY	97013	503-407-7156

NW Engineers, LLC
3409 NE John Olsen Avenue
Hillsboro, OR 97124
Phone (503) 601-4401
Fax (503) 601-4402
Website www.nw-eng.com

May 3, 2018

Dear Property Owner/Resident:

Re: Neighborhood Meeting for a proposed 90-lot subdivision for a property in the R-1 & R-1.5 zones.

NW Engineers represents USA Growth Fund, LLC, the developer of the property identified by the Clackamas County assessor as Tax Lots 41E04D 22C 1700 & 2000. The properties are further described as 1901 S Ivy Street, Canby, Oregon 97013.

The applicant is proposing an approximate 90-Lot Subdivision for 90 single-family residential detached homes. The project will likely be developed in 3 phases with ultimate access from S. Fir Street and S. Ivy Street. The existing structures will be demolished. The development site within the Urban Growth boundary which is being annexed to the City of Canby is approximately 24.3 acres in area, and designated R-1 & R-1.5 zone on the Canby Comprehensive Plan.

Prior to submitting the development application to the City of Canby for review and approval, we wish to discuss the proposal in more detail with the surrounding property owners and residents. Accordingly, you are invited to attend an informational meeting for the proposal at the following date, time and location:

DATE: **Wednesday May 16, 2018**

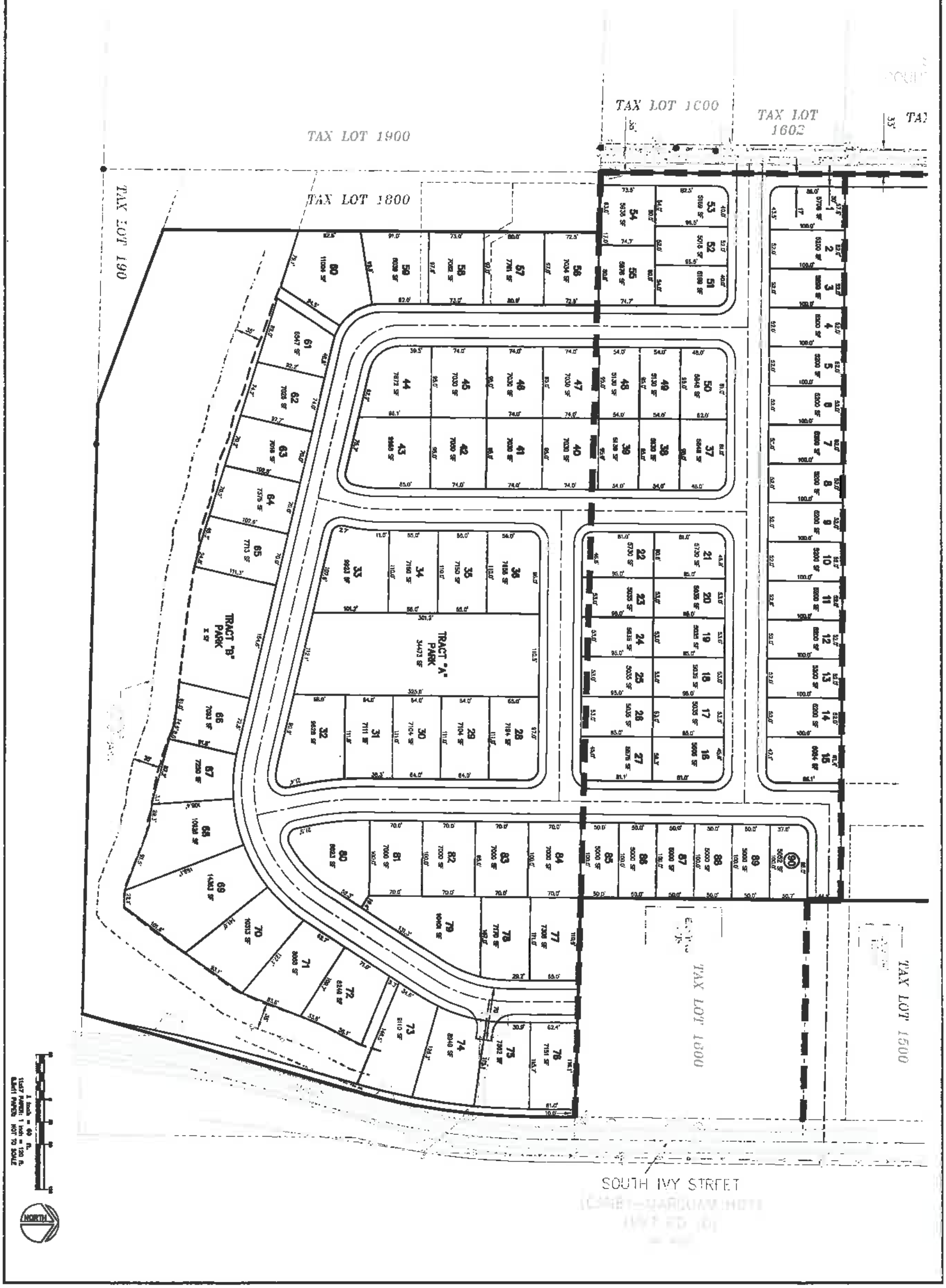
TIME: **7:00 p.m.**

PLACE: **Hope Village**
Community Center
1535 S. Ivy St.
Canby, Oregon 97013

This will be an informational meeting to review and discuss the preliminary development plans. The plans may be altered prior to submittal of the application to the City of Canby. Feel free to email to mattn@nw-eng.com if you will be unable to attend the meeting. Please contact us at least one week in advance of the meeting if you need any accommodations to attend the meeting. We look forward to discussing this proposal with you.

Sincerely,

Matthew Newman
Manager



PPLT 4 of X	DESIGNED / DRAWN / REVIEWED / SUBMITTAL	REVISION / BY / DATE (1–7)	SOUTH CANBY SUBDIVISION N0581 PRELIMINARY PLAT	FOR RIVERSIDE PARK, LLC CONTACT TUCKER MAYBERRY 10801 SW RIVERSIDE DRIVE PORTLAND, OR 97219 SITE TAX MAP 41E04D TAX LOT 1700 & 2000 CITY OF CANBY, OREGON	NW ENGINEERS Engineering & Planning

Chris, Plotted: May 03, 2018 – 2:09pm, P:\N0581\dwg\Plan\Prl\N0581-04-PPLT.dwg

CURRAN-McLEOD, INC.
CONSULTING ENGINEERS
6655 S.W. HAMPTON STREET, SUITE 210
PORTLAND, OREGON 97223

August 10, 2018

MEMORANDUM

TO: Public Comments
City of Canby

FROM: Hassan Ibrahim, P.E.
Curran-McLeod, Inc.

RE: **CITY OF CANBY**
RIVERSIDE PARK SUBDIVISION (SUB 18-04)

We have reviewed the submitted preliminary plans on the above mentioned project and have the following comments:

1. S Ivy Street is a County Arterial Street, the developer will be required to comply with the Clackamas County requirements for this section of the roadway.

2. All interior streets within the subdivision shall be designed to City local street standards with 34-foot paved width, curbs, 4.5-foot wide planter with street trees, 6-foot wide sidewalks, street lights and utilities within 56-foot right of way dedications in conformance with Chapter 2 of the City of Canby Public Works Design Standards, dated June 2012.

3. Half street improvements will be required on 17th Avenue and S Fir Street to local street standards as outlined in Chapter 2 of the City of Canby Public Works Design Standards, dated June 2012. The improvements shall include a minimum paved width of 20 feet, curbs, 4.5-foot wide planter with street trees, 6-foot wide sidewalks, street lights and utilities. The ultimate right-of-way width for 17th Avenue shall be 56 feet, the developer is proposing to dedicate 44 feet as part of this development (28 feet half street plus 16 feet) which is adequate. For S Fir Street the proposed right of way dedication of 17 feet is adequate constituting an ultimate right of way width of 60 feet for the full street.

4. Temporary fire truck turnarounds may be required at the east and west ends of "C" Loop at the phase lines where the roadway is in excess of 150 feet in length. The geometric turnaround and location shall meet the City of Canby Fire Department requirements.

PHONE: (503) 684-3478 E-MAIL: cmi@curran-mcleod.com FAX: (503) 624-8247

5. A minimum of 10 feet wide paved trail shall be constructed along the top of the bluff and connects to "C" Loop through the tract located between lots 63 and 90. Removable bollards must be installed at the connection with "C" Loop.

6. All corner ADA ramps and sidewalks at the existing house to remain frontage shall be constructed as part of this development.

7. The developer's design engineer will be required to submit as part of the construction plans a signing and striping plan. All street names and traffic signs shall be installed by the developer at his expense and as part of this development. The City may supply the required traffic and street name signs based on a mutually agreed cost.

8. As part of the final design, the developer's design engineer shall provide a minimum of 200-foot future centerline street profile design to assure future grades can be met at all the adjoining properties ("A" Street, "C" Loop, 17th Avenue, 8th Avenue and 19th Avenue).

9. An erosion control permit will be required from the City of Canby prior to any on-site disturbance.

10. A demolition permit will be required from the City prior to demoing any existing structures on lots 87 thru 90.

11. Any existing domestic or irrigation wells shall be abandoned in conformance with OAR 690-220-0030. A copy of Oregon water Rights Department (OWRD) abandonment certificate shall be submitted to the City.

12. Any existing on-site sewage disposal system shall be abandoned in conformance with DEQ and Clackamas County Water Environmental Services (WES) regulations. A copy of the septic tank removal certificate shall be submitted to the City.

13. The City continues to work with Clackamas County on a location for the sanitary sewerage pump station within S Ivy Street public right-of-way. The pump station will be required to serve this development and adjoining properties on the east side of S Ivy Street. If a location is not agreed upon with Clackamas County, the developer has agreed at the pre-application meeting to work with the City on an on-site location for the sewerage pump station if necessary.

14. The City will construct the sewerage pump station and the pressure main in order to provide the developer access to the City sanitary sewer system. The developer will be required to extend an 8-inch main line from S Ivy Street to this development.

15. A storm drainage plan has not been submitted as part of this application. The storm drainage runoff can be discharged the Molalla River or using on-site drywells. Discharging storm runoff directly to the Molalla River will require water quality treatment prior to any discharge and may require DEQ approval. Using drywells (UIC) as a means to discharge storm runoff from the public streets must meet the following criteria: The UIC structures location shall meet at least one of the two conditions: (1) the vertical separation distance between the UIC and seasonal high groundwater is more than 2.5 feet or (2) the horizontal separation distance between the UIC and any water well is a minimum of 267 feet in accordance of the City of Canby Stormwater Master Plan, Appendix "C", Groundwater Protectiveness Demonstration and Risk Prioritization for Underground Injection Control (UIC) Devices. A final storm drainage report shall be prepared by a registered professional engineer and submitted with the final construction plans. The report shall meet Chapter 4 of the City of Canby Public Works Design Standards dated June 2012.

16. All private storm drainage runoff shall be disposed on the individual lots as per Chapter 4 of the City of Canby Public Works Design Standards dated June 2012.

Should you have any questions or need additional information, please let me know.

Laney Fouse

From: Alan Gallagher <gallagheralan2000@yahoo.com>
Sent: Wednesday, August 15, 2018 5:28 AM
To: PublicComments
Subject: City File # SUB 18-04 & Canby's Need for Scenic Landscapes

August 15, 2018
Canby Planning Department: PublicComments@canbyoregon.gov
222 NE 2nd St.
Canby, Oregon 97013
Re: City File # SUB 18-04. Riverside Park Subdivision
Comment: [Please include in File]

(1) Identification and Preservation of land dedicated to parks/trails
(2) Protection of Canby's visual landscape as an essential part of Canby—Scenic Landscapes

'I am content when wakened birds,
Before they fly, test the reality
Of misty fields, by their sweet questionings;
But when the birds are gone, and their warm fields
Return no more, where, then, is paradise?' (Wallace Stevens, *Sunday Morning*)

To the Planning Department:

First of all, **Thank you** for your courtesy and professionalism in assisting citizens and presenting matters to the City. We do not expect everyone to agree with this or that point, but do appreciate being respectfully heard and assisted as the City makes and carries out its decisions.

Second, with respect to the above project, we ask that that City take steps to assure **that the land promised by the developers and approved by the City for parks and the river buffer trail be formally identified and protected as such.** While the buffer zone is on the most current map, at the bluff over the river, it is not labelled as park or protected area. We have testified and submitted written material previously seeking protection for the river and river properties, and a buffer which minimized impact upon the river and prevented access from the development (The developers have **promised** fencing and the like, to seal off the project from the River, and to protect from the attractive nuisance which the river offers and will offer as more development occurs). We understand from the Planning Department that it wishes such clear identification, and we support the Department in that respect. We wish to assure that this is not somehow "lost" as planning progresses, and concept becomes reality.

Protection of the river requires careful control of access points. This is a lesson of long experience policing the Molalla River, and observing and exchanging experiences of like situations. Without such control, the "tragedy of the commons" produces anarchy and destruction.

Canby's Need for Scenic Landscapes:

I walked the river road yesterday, by myself and with surveyors, noting Kingfishers, Robins, Cedar Waxwings, Willow Flycatchers, Red-breasted Nuthatches, Black-capped Chickadees, Pileated Woodpeckers and Red-breasted Sapsuckers, Canada Geese, Osprey, and tracks and scat of small mammals. Over the years, we have observed in the river valley over 40 species of mammals and over 150 species of birds, not to mention trees, plants, reptiles, and amphibians. Much of the year, we can easily see 30-50 species of birds each day without effort. In effect, the river and adjoining lands are a **wildlife refuge**, treasured and protected by those who own or live along the river. The Molalla River is only 50 miles long, a free-flowing river from Table Rock

Wilderness, to where it flattens out into floodplain just before the city of Molalla, and flows finally past City Park, past the Pudding River floodplain, into the Willamette River at Molalla River State Park. In the valley out South Ivy Street, we find cougar, deer, and elk, several species of owls and hawks, fox, coyote, mink, otter, beaver, several species of bats, and fascinating species such as the Harlequin Duck which goes from the surf of the Oregon ocean coast upriver to nest. Canby's winter sky is full of the sight and sound of huge Vs of Canada Geese, flying back and forth overhead, with Great Blue Herons, Bald Eagles, and Osprey, all nesting in or near the city, and other signature species part of the **daily visual landscape**. It is these which make Canby the wonderful city it is, so long as these aspects are protected. Our constant concern is that, as people move to and develop in Canby for its unique qualities, their access may diminish or even eliminate those very qualities. Soon, that wonderful view of Mt. Hood across the field on S. Ivy Street will be but a memory, no longer part of the Canby landscape, replaced by new housing which could be Anywhere, USA. Canby is losing its landscapes. Some of us remember when Canby was a farm town of a couple of thousand people, with the grain elevator, and where its school children lived and worked on farms. Now, it has become suburbia, where school children take field trips, not to real farms but to Fir Point or even Sauvie Island, to see what a "farm" looks like.

Preservation of Canby's scenic landscapes and essential character should be part of its planning. This includes its location as part of the Molalla River Watershed, essential to its health, its parks and schools, the Fair Grounds, the Dahlia Fields, the Logging Road, City Park, Molalla River State Park, the Pudding River floodplain, the farm fields, its fir trees, its rich natural history.

Respectfully,

Susan M. Gallagher
25261 S. Highway 170
Canby, Oregon 97013 SusanG@Canby.com
Alan L. Gallagher, Gallagheralan2000@yahoo.com

Alan L. Gallagher alg Gallagheralan2000@yahoo.com 503-784-2169

Professor: US History/Government/Criminal Justice. **AP Teacher**: Ph.D. (abd): **Capella University. 3.8+GPA. (134 credits).**
Faculty: CTC/NCPACE, KORAF, Kaplan U. HCI (Korea). Consultant/Interpreter/Translator
Dissertation: Collateral Consequences of Criminal Convictions (2018).

---Memberships: Royal Asiatic Society Korean Branch. Acting President: Molalla River Improvement District. Law & Society Assn. AMCHAM (American Chambers of Commerce, Korea, Okinawa). Academy of Criminal Justice Sciences.
---Education: Computer Certificates. ***AS***: Computers (Point Park U). ***BA*** Anthropology, ***JD*** (U of Pittsburgh). Certified Manager(***CM***) (ICPM @ James Madison U). ***MA***. History (Portland State U). ***MAIS***. History/Political Science (Texas A&M U). ***Ph.D.(abd)*** History (U of Washington: Areas: Legal History, Modern Britain, Early & 20th Century America). **Ph.D.(Hon)**. Irish Literature (Pioneer Pacific College). 35 years of annual ***CLE*** Programs @ 15 credits/year. **Ph.D. (abd):** Public Service Leadership (Criminal Justice) (Capella University). University of Salamanca (Advanced Spanish).
---Law: 35+ years Law Practice. State/Federal Hearing/Trials/Appeals. Prosecutor, Federal/State Public Defender, Judge. Immigration hearing/appeals.
---Teaching: Washington State U. Arkansas State U. Delmar College. Pioneer Pacific College. Central Texas College/NCPACE (US Navy College--on USS BLUE RIDGE). Jesuit High School. CIA/CheongShim International Academy. Mohave Community College. Kaplan U. U of Maryland University College-Asia. Taejeon C. International School (TCIS). **HCI (Korea)**.
---Languages: English. Fluent ***Spanish*** (DELE C-2, PRAXIS II, CLEP, U of Salamanca), German. Latin.
BA: Cum laude. U of WA Honors Field Exams. National History Honor Society (Phi Alpha Theta:1985). National Criminal Justice Honor Society (Alpha Phi Sigma: 2016).
2015: University of Oxford: Reader at Bodleian Library: Magdalen College.
2015: University of Salamanca: Certs. In Advanced Spanish Language & Literature ("Sobresaliente").
2015: Reid & Assocs. Certs. In Basic & Advance Interviewing & Interrogation.

Laney Fouse

From: trgif@juno.com
Sent: Tuesday, August 14, 2018 8:15 PM
To: PublicComments
Subject: SUB 18-04 Riverside Park comments

City File #: SUB 18-04 Riverside Park Subdivision - public comments
Bryan Brown, Canby planning dept and Canby planning commission,

My comments & concerns around this development remain the same and may sound like a broken record. Whatever the outcome, the reality of the severe impact to our neighborhood will remain the same.

The city operated sewer pumping station at S Ivy and the Mollala River may operate fine till there's a major power outage or, even worse, when the Cascadia earthquake occurs. Will this pumping station uphill from the Mollala river be built to withstand a 9.0 earthquake? A 7.0 earthquake? Or are you just hoping Canby will get nothing stronger than the "spring break quake" back the early 1990's?
This is a serious issue and has to do with triage during a disaster; saving children from under a collapsed school will far out weigh the importance of stopping the flow of raw sewage into the Mollala river.

The narrowing of S Fir St to 24 feet wide a block and a half south of S 13th may be up to County code, but it still poses a real danger to the neighborhood. Meeting a large dump truck at this narrowing of S Fir St is a safety hazard. The majority of drivers in this neighborhood are well over 65 years old and this increased traffic through this bottleneck on S Fir St will surely result in accidents. Hopefully no one has to die here before the problem is taken seriously.

The 2 cul de sac neighborhoods off S Fir will be greatly impacted. Getting out of their neighborhoods on to S Fir will be a daily challenge in the near future. Although these neighborhoods are not part of the Riverside Park Subdivision, they will be seriously impacted by this subdivision, as well as Beck Pond and whatever Hope Village plans to build in the future. S Fir will bear the brunt of traffic for dump trucks until the new connecting road to S Elm St opens up.

Finally, the whole citizen input system for the City of Canby is completely backwards. How can citizens have intelligent comments in by the 15th for this, when the staff report isn't out till the 17th? That is just dumb.

City staff consistently denies access to information requested by citizens. This has been an ongoing theme throughout meetings since the annexation process began last year. I have experienced this personally, despite several visits to planning dept requesting information & requesting to be added to email lists, the process of land annexation was approved before I was notified the process was under way.

Development is going to happen, I get that. All I'm saying is that if this "citizen input" is just a box to check off to go to the next level, then well done.
Thank You,
Tom Rushton

City of Canby File # SUB 18-04 Riverside Park Subdivision Public Comment

Throughout the process of Annexation in the SE Neighborhood of Canby there has been a dismal failure to respond to citizen concerns in a number of areas. This continues with the Riverside Park Subdivision application. They include:

1. Traffic safety concerns throughout the project, on 13th, on Ivy St, in Hope Village, around school zones, around Senior Center.
2. Inadequate entrance and exits to all building sites. Forcing all construction traffic down Fir St can only mean an alarming increase in accidents in this area.
3. Sewer pump station concerns have not been adequately addressed. What happens if the pump fails?
4. Highly reduced livability in the area surrounding Hope Village, both during the construction process and upon complete build out.

Access to information requested by citizens has been limited by City Staff. Information has been intentionally withheld when requested by citizens.

Deadlines in Public Hearing Notices do not allow adequate time for citizens to access or respond to information.

Citizens have experienced negative financial impacts as a result of the failure to respond in a timely manner to citizen concerns.

The overall lack of response to citizen concerns throughout the Annexation and subsequent subdivision applications seriously diminishes the credibility of City Staff, the Planning Commission and the City Council.

It is time for citizen concerns to be properly addressed instead of dismissed. Please consider doing so.

Julie Rushton

CITY OF CANBY –COMMENT FORM

If you are unable to attend the Public Hearing, you may submit written comments on this form or in a letter addressing the Planning Commission. Please send comments to the City of Canby Planning Department:

By mail: Planning Department, PO Box 930, Canby, OR 97013
In person: Planning Department at 222 NE 2nd Ave, Canby, OR 97013
E-mail: PublicComments@canbyoregon.gov

Written comments to be included in the Planning Commission's meeting packet are due by Noon on Wednesday, August 15, 2018. Written comments can also be submitted up to the time of the Public Hearing on Monday, August 27, 2018 and may be delivered in person to the Planning Commission during the Public Hearing at 7 pm in the City Council Chambers, 222 NE 2nd Avenue, 1st Floor.

Application: SUB 18-04 RIVERSIDE PARK SUBDIVISION/TUCKER MAYBERRY, RIVERSIDE PARK, LLC

COMMENTS:

I'm in favor of the Subdivision.
I do have 1 request. My well at 1960 S Fir
Sits Four Feet From the property line. My request
is That The developer Hooks me up to City
water & City sewer as soon as possible.
The well was installed in the 1930's.
Being Four Feet off the property line
I'm Concerned That something may Happen
To the Quality of the water.

Thanks Ed Netter

NAME: Ed Netter
EMAIL: netterhomes@hotmail.com
ADDRESS: 1847 & 1960 S Fir
PHONE # (optional): 503-314-8381
DATE: 8-15-18

PLEASE EMAIL COMMENTS TO
PublicComments@canbyoregon.gov

Thank You!

AGENCIES: Please check one box and fill in your Name/Agency/Date below:

☐ Adequate Public Services (of your agency) are available

☐ Adequate Public Services will become available through the development

☐ Conditions are needed, as indicated

☐ Adequate public services are not available and will not become available

☐ No Comments

NAME: _____
AGENCY: _____
DATE: _____

CITY OF CANBY –COMMENT FORM

If you are unable to attend the Public Hearing, you may submit written comments on this form or in a letter addressing the Planning Commission. Please send comments to the City of Canby Planning Department:

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Application: SUB 18-04 RIVERSIDE PARK SUBDIVISION/TUCKER MAYBERRY, RIVERSIDE PARK, LLC

COMMENTS: Where does the growth stop? Most Canby residents live here because it is a small safe little town. We love it that way!

The noise and dust is a big issue for the the older residents of Hope Village. The building process will be bad enough but adding traffic to our neighborhood will cause safety issues for our older citizens and children nearby alike.

By the way no one in Canby likes the new 3 story building downtown. It was a huge mistake for our little community!!!

Why are we pushing to make Canby larger??

NAME: Diane Fatzua
EMAIL:
ADDRESS: 1546 S. Fir, #203, Canby
PHONE # (optional):
DATE: 8/10/18

PLEASE EMAIL COMMENTS TO
PublicComments@canbyoregon.gov

Thank You!

AGENCIES: Please check one box and fill in your Name/Agency/Date below:

☐ Adequate Public Services (of your agency) are available

☐ Adequate Public Services will become available through the development

☐ Conditions are needed, as indicated

☐ Adequate public services are not available and will not become available

☐ No Comments

Recieved
Aug. 14, 2018
By City of Canby

NAME:
AGENCY:
DATE:

Traffic Impact Analysis

CANBY STAFFORD ANNEXATION DEVELOPMENT CONCEPT PLAN (DCP)

CITY OF CANBY, OR

Prepared by

DKS

Project No. 17118-000
Submitted September 29th, 2017

***DKS** Associates*
Chris Maciejewski, P.E., PTOE
Jeffrey Heald, P.E. (CA)
Rohit Itadkar, T.E. (CA)

720 SW Washington Street
Suite 500
Portland, OR
Telephone (503) 243-3500

DKS

TABLE OF CONTENTS

APPENDICES

1.0 INTRODUCTION

The following presents the Traffic Impact Analysis (TIA) prepared by DKS Associates (DKS) for the annexation of the Stafford Development Concept Plan (DCP) area in City of Canby. The purpose of this study is to identify potential transportation system impacts (and potential mitigations) triggered by this project. The Stafford DCP area is located in unincorporated Clackamas County inside the Canby Urban Growth Boundary and is within the boundaries of a designated DCP area.

This TIA has been prepared consistent with the policies of the City of Canby Transportation System Plan, and Clackamas County Comprehensive Plan. Additionally, a TIA for the proposed near-term Beck Subdivision development was also conducted in accordance with the City's and County's requirements. The Beck Subdivision development TIA technical memorandum is presented in Appendix A.

Site Location and Study Area

The DCP is located in the southwest part of Canby. The DCP area spans 71.88 acres and consists of 15 tax lots which are bounded by S Ivy Street on the east, S Elm Street on the west, city limits on the north and the Urban Growth Boundary (UGB) on the south. The access to the project site is proposed to be provided by one new local street on S Ivy Street and three new local streets on S Fir Street. The study area is shown in Figure 1. In addition to the four proposed project intersections, the following three intersections have been identified as study area intersections, with their traffic controls listed:

Figure 1: Study Area

- SW 13th Avenue/S Ivy Street (Signalized)
- SW 13th Avenue/S Fir Street (Two-way Stop)
- S Ivy Street/SE 16th Avenue (Two-way Stop)

2.0 EXISTING CONDITIONS

Pedestrian and Bicycle Facilities

An inventory of existing pedestrian and bicycle facilities was conducted to determine the current locations of sidewalks and bicycle lanes within the study area. For the purpose of this inventory, "bike lanes" included areas on roadways where shoulders were specifically designated for bicycle use through pavement markings, as well as other paved shoulders of at least five feet in width that could be used for bicycle travel. Table 1 presents the study area roadways with pedestrian and bicycle facilities.

Table 1: Existing Pedestrian and Bicycle Facilities

Roadway	Sidewalks	Bike Facilities
SW 13th Avenue	Both Sides	Both Sides
S Fir Street	East Side Only	None
S Ivy Street	None	Both Sides

Existing pedestrian facilities are provided along SW 13th Avenue and S Fir Street. A side walk is provided on the east side of S Fir Street. There are no sidewalks along the S Fir Street through the project site. There are also existing bicycle facilities along SW 13th Avenue. A Class II bike lane is provided on both sides of this roadway. Along S Ivy Street, marked shoulders on both sides of the roadway can be used as bike lanes.

Pedestrian and bicycle count data was also collected during the AM and PM peak period at study area intersections. The observed pedestrian activity was low at all study intersections but could be significantly higher on school days.[1] Maximum pedestrians are observed at the intersection of SW 13th Avenue/S Fir Street (6 pedestrians during AM and PM peak hour). No bicycle activity was observed at any of the study intersections.

Transit Facilities

Transit service in Canby is provided by Canby Area Transit (CAT). CAT provides a fixed route bus service and Dial-a-ride within the City and to neighboring communities. There are four CAT routes (Green Line, Blue Line, Purple Line, and Orange Line) which run five days a week. There is a transit stop along 16th Avenue between S Fir Street and S Ivy Street which gets served approximately on an hourly basis during a 24 hour period by the Blue line.

[1] Based on intersection turn movement counts conducted on July 11th, 2017.

3.0 SUMMARY OF 2010 CANBY TSP

The 2010 Canby Transportation System Plan (TSP)[2] identified specific transportation improvement projects and programs needed throughout Canby to guide the City's transportation investment. These projects and programs support the City's goals and policies, serve planned growth through the year 2030, and improve safety and mobility for all travel modes in Canby. The TSP addressed all areas of Canby, including the Stafford development area.

The sections from the 2010 TSP that are most applicable to the current Stafford planning effort are summarized in the paragraphs below. Corresponding clips of figures—which are zoomed in on the project area—are also provided.

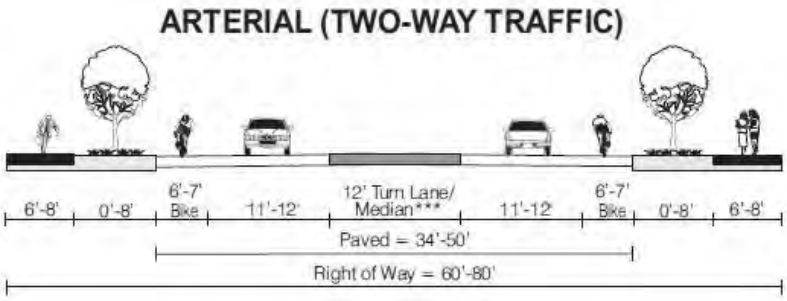
Functional Roadway Classification and Cross Sections

Canby's functional roadway classification hierarchy includes Arterials, Collectors, Neighborhood Routes, and Local Streets. As shown in Figure 7-1 from the City's TSP, S Ivy Street and SW 13th Avenue are classified as Arterials, while S Fir Street is a Local Street. All the remaining streets that may be constructed within the project site would likely become Local Streets.

TSP Figure 7-1: Functional Classification

The Canby TSP provides Standard Cross-Sections for each of the City's functional classifications as shown in Figure 7-4 and 7-6 in the City's TSP. The Arterial cross-section includes two travel lanes with center turn lane that may be used for turning vehicles or a median. It also includes bike lanes and sidewalks. Neighborhood Traffic Management (NTM) may also be used under special conditions. The Local Street consists of two travel lanes separated by a center line marking. It included on-street parking and sidewalks on both sides of the roadway.

[2] *Canby Transportation System Plan (TSP)*, December 2010.



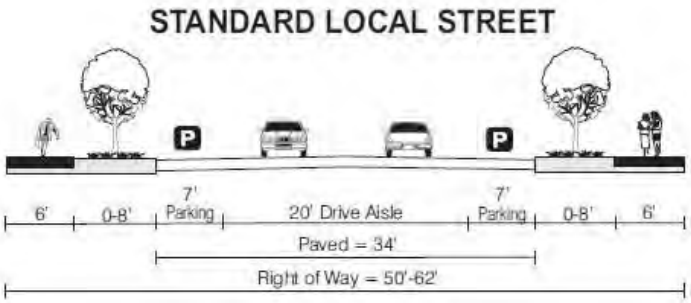
Notes:

* On-Street Parking is only allowed on arterial roadways within downtown commercial district. Diagonal or parallel parking may be provided on one or both sides interchangeably.

** When on-street parking is provided, bike lanes should only be provided adjacent to parallel parking (not head-in diagonal parking). If diagonal parking is provided on both sides and speeds are 25 miles per hour or less, then bike lanes are not required.

*** Turn Lane/Median section is optional and may consist of one of the following:

A. 12' Left-Turn Lane or Two-Way Left-Turn Lane with No Raised Median
B. 10' Raised, Landscaped Median with 1' Shy Distance on Either Side
C. 10' Pedestrian Refuge (Level with Roadway) with 1' Shy Distance on Either Side



TSP Figure 7-4 and 7-6: Standard Cross-Sections

Truck Routes

The truck routes are shown in Figure 7-2a from the City's TSP. S Ivy Street and SW 13th Avenue are currently designated as truck routes. S Fir Street is not a truck route. S Ivy Street could be used a key access route to and from the Cities located south of Canby.

TSP Figure 7-2a: Existing Truck Routes

Local Street Connectivity

The TSP also specifies the general locations where new local streets should be constructed as the project site develops. The proposed local street connectivity is shown in Figure 7-8 from the City's TSP. The arrows in the figure represent *potential* connections and the general direction for the placement of the connection.[3] The purpose of these connections is to ensure that the new development site accommodates future local circulation between adjacent neighborhoods to improve connectivity for all modes of transportation. The guidelines that should be followed when selecting local street connections includes:

TSP Figure 7-8: Local Street Connectivity

- Provide full street connections with spacing of no more than 500 feet between connections, except where prevented by barriers
- Provide bike and pedestrian access ways with spacing of no more than 300 feet, except where prevented by barriers (bike and pedestrian access ways should be considered at the end of cul-de-sacs)
- Limit use of cul-de-sacs and other closed-end street systems to situations where barriers prevent full street connections or to locations where pedestrian/bike accesses are to be provided (approximately halfway between vehicular accesses)
- Include no close-end street longer than 150 feet or having no more than 30 dwelling units

[3] Other local street connections may be required as the City conducts development review.

- Include street cross-sections demonstrating dimensions of ROW improvements, with streets designed for posted or expected speed limits

Topography, railroads, and environmental conditions (such as wetland areas) limit the level of connectivity in Canby. Some stub end streets may become cul-de-sacs, extended cul-de-sacs, or only provide local connections. Pedestrian connections from the end of any stub end street that results in a cul-de-sac will be mandatory as future development occurs (with the exception of locations where topography, railroads, and environmental conditions make such connections infeasible). The goal is to improve city connectivity for all modes of transportation as feasible.

Financially Constrained Motor Vehicle Improvements

Based on the City's existing and future motor vehicle needs, multiple improvement projects were identified throughout Canby. As shown in Figure 7-10 from the City's TSP, the only motor vehicle project in the immediate project vicinity is the potential non-capacity improvements along 13th Avenue. The project consists of performing safety study and constructing traffic calming and other safety improvements prior to constructing Sequoia Parkway extension to SE 13th Avenue. The project is included in the financially-constrained solutions package.

TSP Figure 7-10: Financially Constrained Motor Vehicle

Neighborhood Traffic Management (NTM)

Neighborhood Traffic Management (NTM) is a term used to describe traffic control devices typically used in residential neighborhoods to slow traffic or possibly reduce the volume of traffic. The City of Canby currently has limited NTM elements, mainly the use of narrow road widths that manage vehicle speed. However, the TSP recognized that as traffic congestion increases in the future, protecting the livability of neighborhoods may become an increasing need that requires the ability to mitigate impact.

An important consideration of NTM is the need to manage vehicle speeds and volumes with the need to maintain mobility, circulation, and function for service providers (e.g. emergency response). Table 7-5 lists common NTM applications and suggests which devices may be supported by the Canby Fire District. If NTM is considered for S Ivy Street, SW 13th Avenue, S Fir Street or any local streets planned for the project site, then coordination will be needed with emergency agency staff to ensure public safety is not

compromised. The proposed project intersection along S Ivy Street is planned to be a roundabout to reduce the speeds along S Ivy Street.

Table 7-5: Allowed Traffic Calming Measures by Roadway Functional Classification

Traffic Calming Measure	Is Measure Supported? (per Roadway Classification)[a]		
	Arterial	*Collector*	*Neighborhood Route/ Local Street*
Curb Extensions	Supported	Supported	Calming measures are supported on roads that have connectivity (more than two accesses) and are accepted and field tested by the Canby Fire District.
Roundabouts	Supported	Supported	
Medians and Pedestrian Islands	Supported	Supported	
Pavement Texture	Supported	Supported	
Speed Hump	Not Supported	Not Supported	
Raised Crosswalk	Not Supported	Not Supported	
Speed Cushion (provides emergency pass-through with no vertical deflection)	Not Supported	Not Supported	
Choker	Not Supported	Not Supported	
Traffic Circle	Not Supported	Not Supported	
Diverter (with emergency vehicle pass through)	Not Supported	Supported	
Chicanes	Not Supported	Not Supported	

[a] Traffic calming measures are supported with the qualification that they meet Canby Fire District guidelines including minimum street width, emergency vehicle turning radius, and accessibility/connectivity.

Access Spacing Standards

Access spacing standards along City roadways is another important consideration when developing or redeveloping a parcel of land. Table 7-2 of the Canby TSP specifies access spacing standards for City roadways based on functional classification. Non-conforming access should work to achieve a condition as close to standard as possible. For example, consolidated or shared accesses should be explored; however, parcels shall not be landlocked by access spacing policies.

For the purpose of reviewing the access spacing along S Ivy Street which is a County roadway, the access spacing standards from the Clackamas County Roadway Standards would be used. The minimum spacing for local street intersections along a Major Arterial (S Ivy Street is classified as a Major Arterial in the County's Transportation System Plan) is 250'. [4]

[4] Table 2-2, Clackamas County Roadway Standards, February 2013.

Table7-2: Access Spacing Standards for City Street Facilities[a]

Street Facility	Maximum spacing[b] of roadways	Minimum spacing[b] of roadways	Minimum spacing[b] of roadway to driveway[c]	Minimum Spacing[b] driveway to driveway[c]
Arterial	1,000 feet	660 feet	330 feet	330 feet or combine
Collector	600 feet	250 feet	100 feet	100 feet or combine
Neighborhood/Local	600 feet	150 feet	50 feet	10 feet

[a] Exceptions may be made in the downtown commercial district, if approved by the City Engineering or Public Works Department, where alleys and historic street grids do not conform to access spacing standards.

[b] Measured centerline to centerline

[c] Private access to arterial roadways shall only be granted through a requested variance of access spacing policies when access to a lower classification facility is not feasible (which shall include an access management plan evaluation)

4.0 DATA COLLECTION

Existing Traffic Volumes

Vehicle turn movement counts were conducted at all study area intersections during the weekday AM peak period (7:00 am to 9:00 am) and PM peak period (4:00 pm to 6:00 pm) on July 11, 2017. Since the counts collected were during the beginning of summer season when the Canby Public Schools are not in session, the counts did not include the on-street traffic occurring when school is in session. Therefore, the counts were adjusted with school traffic during both peak hours. The City of Canby Travel Forecast Tool developed for the City's Transportation System Plan was utilized for the traffic counts data adjustment. The weekday AM and PM peak hour volumes developed for the study intersections are presented in Figure 2. The raw traffic counts data is included in Appendix B.

In addition to the turning movement counts at the study intersections, 24-hour vehicles counts, classification counts and speed data was collected during a typical weekday on S Fir Street adjacent to SW 14th Court.

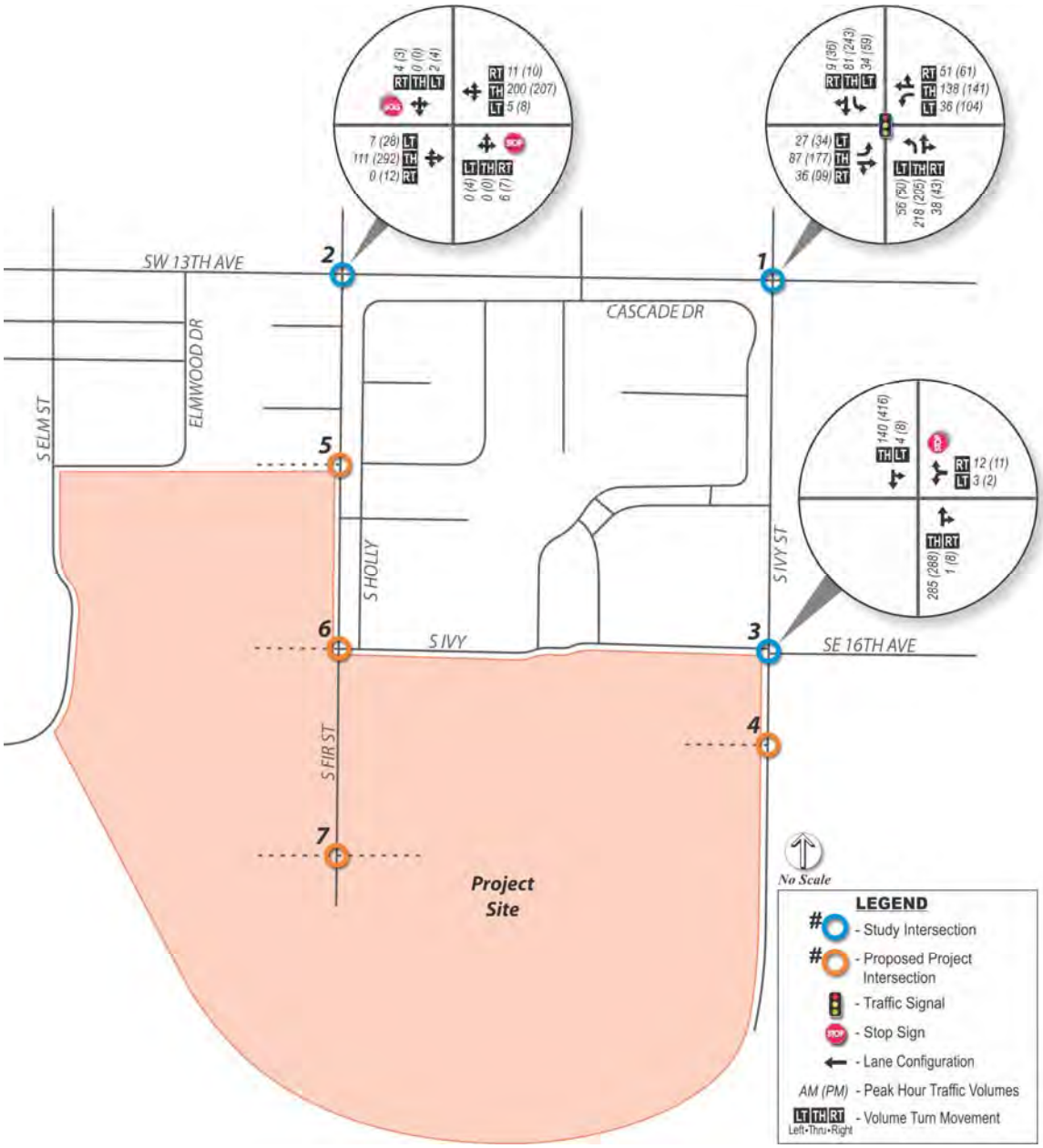


Figure 2: Existing Peak Hour Intersection Volumes

Safety Analysis

The most recent three years (2013 – 2015) of available collision data for the study area was obtained from ODOT and used to evaluate the collision history.[5] The individual collision types at study intersections were examined to see if any patterns would emerge. Table 2 breaks down the collision types and severities experienced, showing quantities of each. Of the total 9 collisions at study intersections, one was a rear-end collision, six were angled collision, and two were turning movement collision. There were no fatal collisions at the study intersections during this three-year period.

Observed crash rates at the study intersections were calculated to identify problem areas in need of safety mitigation. The total number of crashes experienced at an intersection is typically proportional to the number of vehicles entering it. Therefore, a crash rate describing the frequency of crashes per million entering vehicles (MEV) based on the critical crash rate procedure in the Highway Safety Manual (HSM) Network Screening chapter is used to evaluate each intersection.[6] Intersections with an observed crash rate greater than the critical crash rate warrant further review.

Table 2 displays the total reported collisions at each study intersection as well as the calculated observed crash rate and the critical crash rates for similar intersections. As shown in Table, the observed crash rates do not exceed the critical crash rates at all study intersections.

Table 2: Summary of Intersection Collection History

Intersection	Total Crashes	Crash Type				Crash Severity			Observed Crash Rate (per MEV*)	Critical Crash Rate (per MEV*)
		Rear-End	Angle	Turn	Other	PDO**	Minor Injury	Major Injury		
SW 13th Avenue/S Ivy Street	6	1	4	1	0	0	6	0	0.26	0.65
SW 13th Avenue/S Fir Street	3	0	2	1	0	0	1	2	0.28	0.78
S Ivy Street/SE 16th Avenue	0	0	0	0	0	0	0	0	0.0	1.31

*MEV: Million Entering Vehicles
**PDO: Property Damage Only

[5] ODOT reported collisions for January 1, 2013 through December 31, 2015.
[6] *2010 Highway Safety Manual* (HSM), Chapter 4, Page 4-11: The critical crash rate is a threshold value that allows for relative comparison among site with similar characteristics. The critical crash rate depends on the average crash rate at similar sites, traffic volume, and a statistical constant that represents a desired level of significance.

5.0 DCP TRANSPORTATION NETWORK EVALUATION

Land Use Summary

The preliminary zoning proposal for the Stafford DCP area is consistent with the Canby Comprehensive Plan designations. The DCP site plan is presented in Figure 3. As shown in the figure, below are the detailed land use designations within the site:

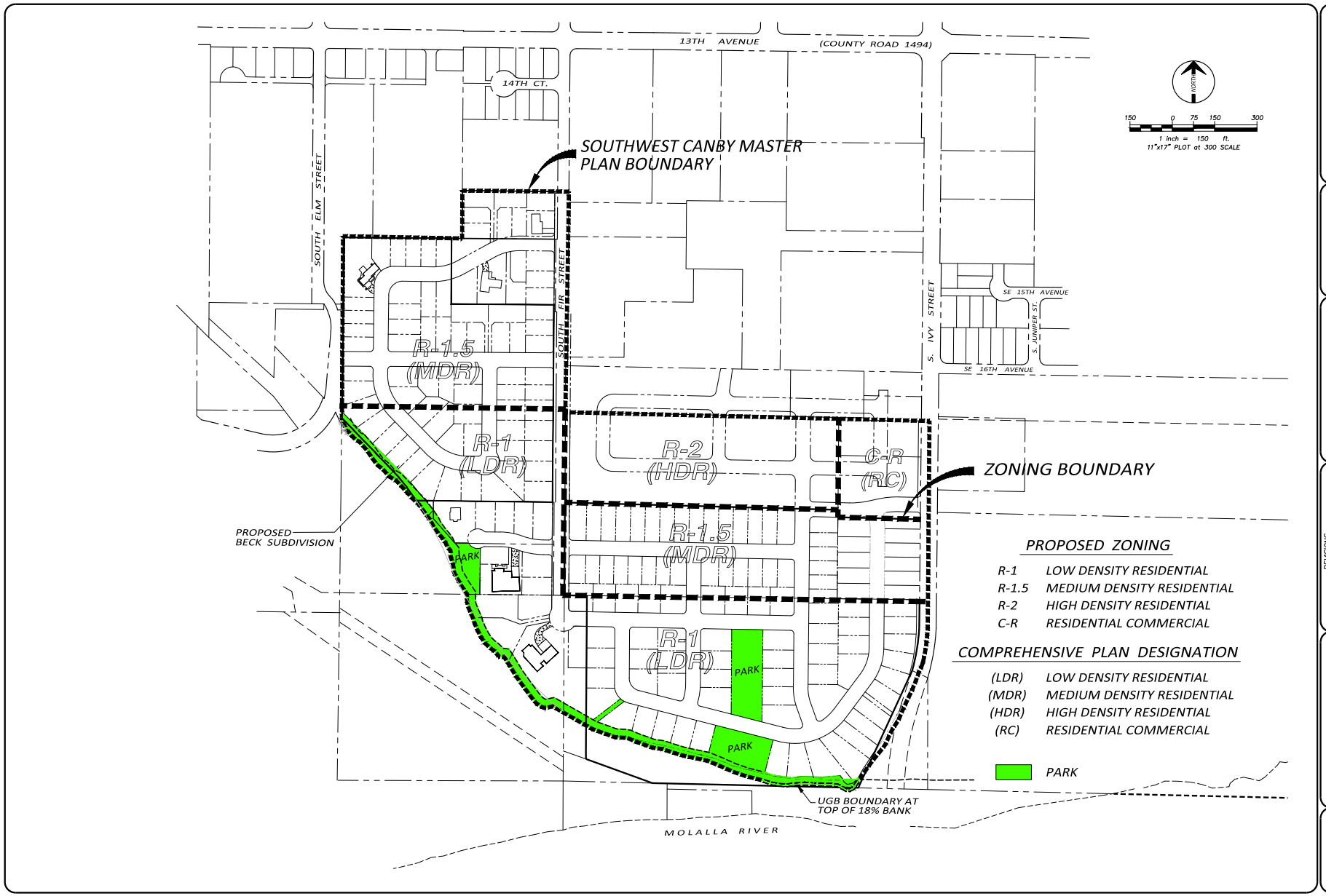
- The northwest part (between S Fir Street and S Elm Street) and the central part (between S Fir Street and S Ivy Street) of the DCP area are proposed to be zoned as R-1.5, which is medium density residential.
- The southern part is proposed to be zoned as R-1 which is low density residential.
- The northeast part is proposed to be zoned as C-R which is residential commercial.
- The northern part (east of S Fir Street) is proposed to be zoned as R-2 which is high density residential.

The project is proposed to build a total of 193 single family residential units in the entire DCP area except the northeast part which is planned to be designated as residential commercial. This designation allows the site to be developed as multifamily residential along with limited commercial use. The northeast part of the DCP (Hope Village) is proposed to have 55 multifamily units in the future. Therefore, the entire DCP area is proposed to have a total of 248 residential units.

Internal Roadway Cross-Section

The proposed development proposes three new accesses from S Fir Street and one new access from S Ivy Street. The connection to S Ivy Street will be a three legged intersection with its west leg serving as an access to the DCP site. This intersection would serve as an access to the future DCP area in the east. Based on the review of the site plan, the internal network of streets within the DCP is proposed to have a right-of-way width of 52 feet. For a typical residential street, the functional classification is a Local Street. The minimum right-of-way width for a Local Street is 50'. [7] Therefore, the proposed right-of-way width which is provided in the site plan satisfies the requirements of the City's TSP.

[7] Figure 7-6, *Canby Transportation System Plan (TSP)*, December 2010.



SOUTHWEST CANBY
TAX MAP T4S, R1E, SECTION 4
SEC. 4C LOTS 1401, 1800, 1802 & 1900
SEC. 4D, LOTS 900,1000,1100,1101,1400,1500,1600,1700,1800 & 2000
SEC. 4DA, LOTS 1400,1800 & 1900
CITY OF CANBY, OREGON

STAFFORD LAND COMPANY
485 SOUTH STATE STREET
LAKE OSWEGO, OREGON 97034

SOUTHWEST CANBY
MASTER PLAN
9/13/17

REVISIONS

NO.	DATE	DESCRIPTION
	2-12-17	

PLANNING & LAND DESIGN
1862 NE ESTATE DRIVE
HILLSBORO, OREGON 97124
RYAN O'BRIEN
(503)780-4061

SHEET 2 OF 2

MasterPlan, 9/13/2017 4:58:35 AM

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No Scale

Figure **3**

Site Plan

Internal Circulation and Sight Distance

Based on the site plan, the proposed project internal roadway network appears to provide adequate circulation in and out of the development.

The proposed development proposes three new accesses from S Fir Street and one new access from S Ivy Street. S Fir Street and S Ivy Street are designated as a Local Street and Arterial respectively. [8] Based on the field review; S Fir Street and S Ivy Street meet the cross-section requirements of a typical Local Street and Arterial respectively. Therefore, the existing roadway configuration will be able to accommodate the added traffic due to the project.

All site roadway connections will need to meet American Association of State Highway and Transportation Officials (AASHTO) sight distance requirements.[9] This includes providing adequate sight triangles at intersections that are clear of objects (large signs, landscaping, parked cars, etc.) that could potentially limit vehicle sight distance.

Based on preliminary review of the sight distance of the existing locations of the proposed intersections, there is adequate sight distance available at the all proposed access locations. Prior to occupancy, sight distance at any existing access points will need to be verified, documented, and stamped by a registered professional Civil or Traffic Engineer licensed in the State of Oregon.

Access Spacing

The proposed project intersection along S Ivy Street is located south of 16th Avenue. Based on the review of the access spacing standards in the County's Roadway Standards, it is recommended that the proposed intersection be at least 250 feet from the adjacent roadway intersections along a Major Arterial roadway facility.[10] Based on the review of the site plan, the distance of the proposed project intersection south of 16th Avenue is more than 250' from the intersection of S Ivy Street/16th Avenue.

The proposed access to DCP site from S Fir Street is provided by three new intersections. Based on the review of the access spacing standards in the City's TSP, it is recommended that the intersection spacing be at least 50 feet from the adjacent proposed intersection. Based on the review of the site plan, the minimum intersection spacing is more than the minimum requirement of the access spacing standards in the City's TSP.

Multi-Modal Connectivity

This section examines the multi-modal connectivity along S Ivy Street and S Fir Street adjacent to the project site. There are currently no sidewalks along S Ivy Street and S Fir

[8] Figure 7-1, *Canby Transportation System Plan (TSP)*, December 2010.
[9] *Geometric Design of Highways and Streets,* AASHTO, 2011.
[10] Table 2-2, Clackamas County Roadway Standards, February 2013.

Street directly adjacent to the site. There is a five feet sidewalk on the west side of S Ivy Street which terminates at the northern perimeter of the site. There is intermittent sidewalk on the east side of the street which is six feet wide.

To meet the City's Arterial standards along the S Ivy Street adjacent to the project site, the roadway would need to be widened and rebuilt. Arterial standards call for a six to seven foot bike lane, an optional landscaping strip, and a six to eight foot sidewalk on each side of the road. Along the site's east frontage to S Ivy Street, it is recommended that the development provide half-street roadway improvements including curb, sidewalks, and appropriate set-back for bike lanes in the future. These improvements should be coordinated with City staff, and may include half-street improvements to County standards. Internal connectivity should be provided when the site develops, and external connections to the existing street sidewalk network would allow for good pedestrian connectivity.

To meet the City's Local Street standards along the S Fir Street adjacent to the project site, the roadway would need to be widened and rebuilt. Local standards call for a seven foot on-street parking, an optional landscaping strip, and a six foot sidewalk on each side of the road. Along the site's frontage to S Fir Street, it is recommended that the development provide street roadway improvements including curb, and sidewalks, and in the future. Since the vehicular speed will most likely be less than 25 MPH and the average daily traffic is estimated to be less than 2,000 vph, it is safe for bicycles to use this street.

There is currently poor bicycle connectivity to the site along both S Ivy Street and S Fir Street due to narrow roadway width and lack of bicycle lanes. There are shoulders along S Ivy Street which could be used as bicycle lanes. If the roadway is rebuilt to the designated standards as required by their corresponding functional classification, the street's bicycle lanes would create connectivity with the nearest major roadway SW 13th Avenue, which currently has bicycle lanes.

Intersection Operations Analysis

This section covers the intersection operating conditions in the study area. Included is a description of the intersection performance measures, jurisdictional operational standards, and traffic operational analysis.

Intersection Performance Measures

Level of service (LOS) and volume-to-capacity (v/c) ratios are two commonly used performance measures that provide a gauge of intersection operations. In addition, they are often incorporated into agency mobility standards.
Descriptions are given below:

- **Level of service (LOS):** A "report card" rating (A through F) based on the average delay experienced by vehicles at the intersection. LOS A, B, and C indicate conditions where traffic moves without significant delays over periods of peak

hour travel demand. LOS D and E are progressively worse operating conditions. LOS F represents conditions where average vehicle delay has become excessive and demand has exceeded capacity. This condition is typically evident in long queues and delays.

- **Volume-to-capacity (v/c) ratio:** A decimal representation (between 0.00 and 1.00) of the proportion of capacity that is being used (i.e., the saturation) at a turn movement, approach leg, or intersection. It is determined by dividing the peak hour traffic volume by the hourly capacity of a given intersection or movement. A lower ratio indicates smooth operations and minimal delays. As the ratio approaches 1.00, congestion increases and performance is reduced. If the ratio is greater than 1.00, the turn movement, approach leg, or intersection is oversaturated and usually results in excessive queues and long delays.

Jurisdictional Operational Standards

All study intersections must operate at or below the operating standards or mitigation may be necessary to approve future growth. The intersection performance measures vary by jurisdiction of the roadways. All study intersections are under the jurisdiction of City of Canby and Clackamas County and must comply with the intersection evaluation methodology stated in the City's TSP and Clackamas Roadway County Standards.[11] The study intersections must comply with the v/c targets in the Clackamas County Comprehensive Plan which specifies a v/c target of 0.90 and LOS E for the study area.[12]

Existing Intersection Operations Analysis

The existing traffic operating conditions at the study intersections was determined for the PM peak hour based on the 2000 Highway Capacity Manual methodology[13] for signalized intersections and 2010 Highway Capacity Manual methodology for unsignalized intersections.[14] The conditions include the estimated average delay, level of service (LOS), and volume-to-capacity (v/c) ratio of the study intersections.

Weekday PM peak hour intersection operations are shown in Table 3. During the PM peak hour, all study area intersections operate within the adopted mobility targets. Detailed HCM intersection analysis reports are included in Appendix C.

[11] Section 295, Clackamas County Roadway Standards, February 1, 2013.
[12] Table 5-2b, Clackamas County Comprehensive Plan.
[13] *2000 Highway Capacity Manual*, Transportation Research Board, Washington DC, 2000.
[14] *2010 Highway Capacity Manual*, Transportation Research Board, Washington DC, 2010.

Table 3: Existing PM Peak Hour Intersection Operations

No.	Intersections	Control Type	PM Peak Hour	
			v/c	LOS
1.	SW 13th Avenue/S Ivy Street	Signal	0.45	B
2.	SW 13th Avenue/S Fir Street	TWSC*	0.02	A/B
3.	S Ivy Street/SE 16th Avenue	TWSC*	0.02	A/B

TWSC – Two-way Stop Controlled
LOS – Level of Service
*Volume-to capacity ratio for two-way stop intersections report for the worst movement and LOS report for the worst major street/minor street movements.

Future 2035 Plus Project Scenario

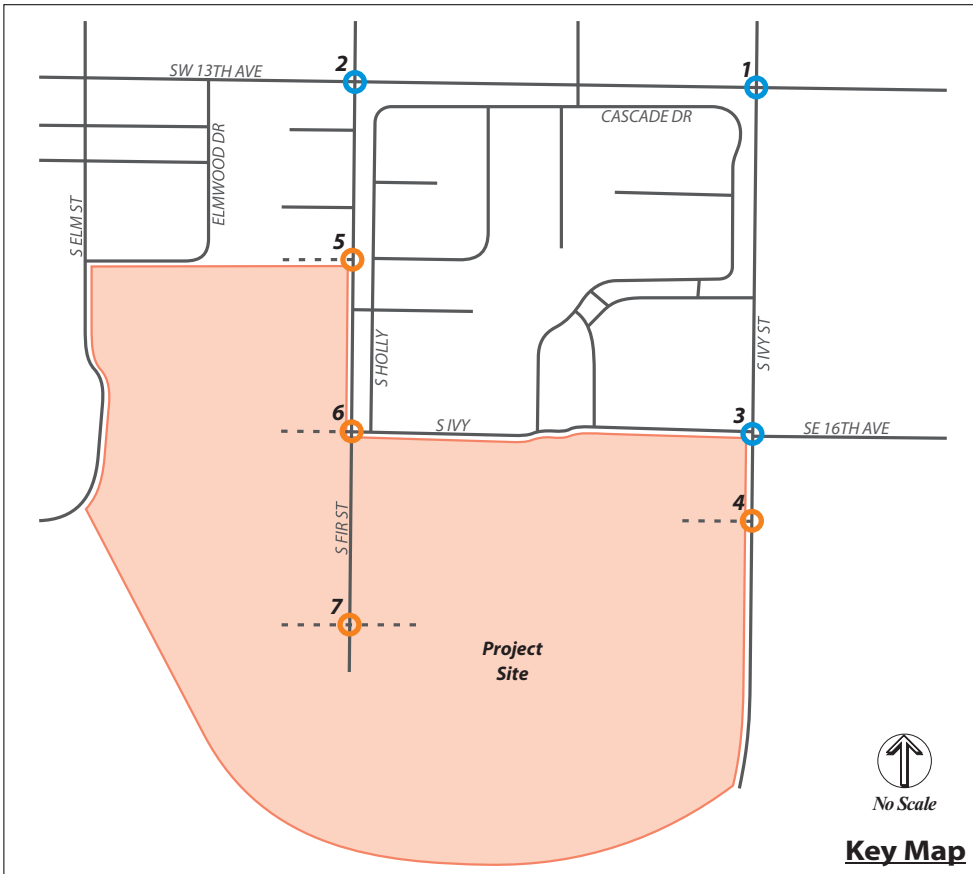
Forecasting Method Summary

The future 2035 plus project volumes at all existing study intersections and proposed project intersections during the PM peak hour were determined by utilizing the City of Canby's Travel Forecast model developed for the City's Transportation System Plan. The model forecasted the future volumes till the year 2030. The future 2035 volumes were estimated by adding an annual growth rate of 2%.[15] The future 2035 plus project peak hour turn volumes during the PM peak hour are presented in Figure 4.

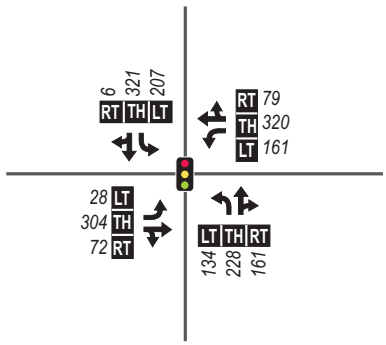
The land uses assumed in the City's TSP were consistent with the proposed zoning for the DCP, but were slightly different in units than the land uses in the proposed project. The transportation analysis zones (TAZ), which are specific to the travel model do not exactly align with the study area. The study area overlaps with two TAZs. The northern portion of the study area west of S Ivy Street and east of S Fir Street includes only a portion of TAZ 142, while the remaining portion of the study area encompasses the entire area of TAZ 143.

The portion of the study area within the TAZ 142 was assumed to have 11 more households in the City's TSP. Thus, the City's TSP overestimated the development in that area compared to the proposed project. The remaining portion of the study area (TAZ 143) was expected to have 213 households in the City's TSP, while the proposed plan anticipates 225 households in the same area. Thus, the City's TSP underestimated the development (12 less households) in that area. However, the net difference between the City's TSP and the proposed project is only one household.

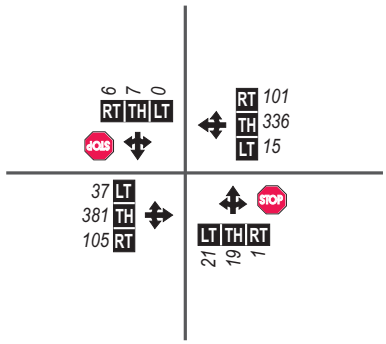
[15] *Table 4-1, Canby Transportation System Plan (TSP)*, December 2010.



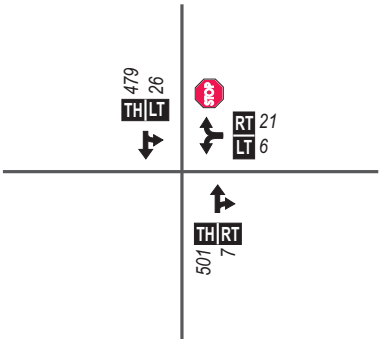
1. *SW 13th Ave. @ S Ivy St.*



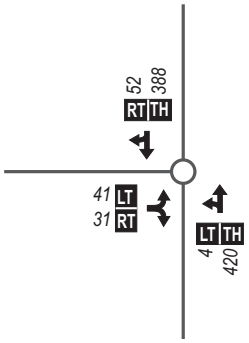
2. *SW 13th Ave. @ S Fir St.*



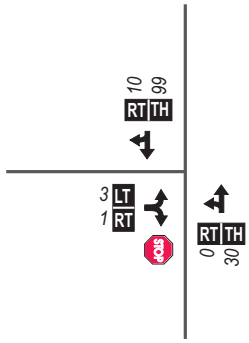
3. *S Ivy St. @ SE 16th Ave.*



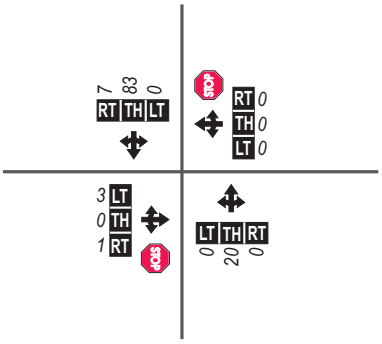
4. *S Ivy St. @ Driveway 1*



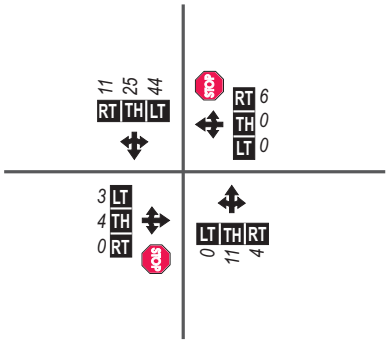
5. *S Fir St. @ Driveway 1*



6. *S Fir St. @ Driveway 2*



7. *S Fir St. @ Driveway 3*



LEGEND

- # - Study Intersection
- # - Proposed Project Intersection
- Traffic Signal
- Stop Sign
- ← - Lane Configuration
- *PM* - Peak Hour Traffic Volumes
- LT TH RT - Volume Turn Movement (Left•Thru•Right)

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Figure 4

Future (2035) Plus Project PM Peak Hour Traffic Volumes

The City's TSP did not assume any employment growth in TAZ 142 which is consistent with the proposed project. The City's TSP assumed 3 employees in TAZ 143, while this analysis assumed 15 employees. Table 4 shows the updated household and employment assumptions used for this analysis.

Table 4: Existing and Future Year Household and Employment Assumptions

TAZ	Existing Year		Future Year		Growth	
	HH	EMP	HH	EMP	HH	EMP
142	239	10	277	10	38	0
143	9	0	225	15	216	15

HH: Household, EMP: Employment

The Hope Village expansion includes a portion of Residential-Commercial (RC) zoning. For TPR purposes, the travel forecast model assumed employment growth within this area. The final proposed plan with the DCP does not include employment growth. However, the trips generated by the assumed employment growth are higher than the trips that would be generated by the residential development in the proposed project. From a trip generation perspective, the land use assumed is consistent with the proposed plan (i.e. the number of trips generated by the assumed employment growth in that area is representative of the number of trips generated by the proposed household growth in that area).

In the end, the land uses assumed to develop model forecasted future volumes slightly overestimates the number of trips expected as compared to the land uses in the proposed project. Therefore, the analysis is slightly conservative and adequate to represent the land use in the DCP.

Future 2035 Plus Project Intersection Operations Analysis

The future 2035 plus project PM peak hour intersection operations are shown in Table 5. As shown in the table, all study area intersections operate within the adopted mobility targets. Therefore, the proposed project would have no significant impact to any of the study intersections and proposed intersections. As a result, no mitigation measures are recommended as part of this project. Detailed HCM intersection analysis reports are included in Appendix D.

Table 5: Future 2035 PM Peak Hour Intersection Operations

No.	Intersections	Control Type	PM Peak Hour	
			v/c	LOS
1.	SW 13th Avenue/S Ivy Street	Signal	0.75	C
2.	SW 13th Avenue/S Fir Street	TWSC*	0.22	A/D
3.	S Ivy Street/SE 16th Avenue	TWSC*	0.07	A/B
4.	S Ivy Street/Project Driveway 1	TWSC*	0.01	A/A
5.	S Fir Street/Project Driveway 1	TMSC*	0.01	A/A
6.	S Fir Street/Project Driveway 2	TMSC*	0.01	A/A
7.	S Fir Street/Project Driveway 3	TMSC*	0.03	A/A

TWSC – Two-way Stop Controlled
LOS – Level of Service
*Volume-to capacity ratio for two-way stop intersections report for the worst movement and LOS report for the worst major street/minor street movements.

Area Safety and Urban Design

S Ivy Street connects the City of Canby with the unincorporated Clackamas County located in the South. Vehicles travelling north along S Ivy Street (Canby-Marquam Highway) into the City along experience a profound change in land use density and posted speed. The area within the City is characterized by large residential neighborhoods, retirement homes, an adult center, schools, and an aquatic center. The speed along S Ivy Street (Canby-Marquam Highway) through the rural area is 55 MPH. In order to promote the reduction in speed and help vehicles transition from a rural area to an urban environment, which would significantly enhance safety in an area with high potential for pedestrian and bicycle travel, a roundabout treatment should be considered at the new intersection on S Ivy Street (south of 16th Avenue) created by the DCP. The roundabout could also act as a gateway treatment for urban design aesthetics for the entry into Canby.

The safety benefit of roundabouts can be seen from national research[16] on their effectiveness of reducing crashes, where data has shown a reduction of 35% of total crashes, 76% in injury crashes and 89% in fatalities. This is partially due to reducing the number of conflict points, but also points to the benefit of effectively reducing vehicle speeds where potential conflicts occur. The benefits of this reduction in speed would then provide benefit to the S Ivy Street corridor to the north. A sketch for the potential

[16] *Federal Highway Administration, Roundabouts, Section 2:Benefits of Roundabouts*

roundabout location is presented in Appendix E to illustrate the potential footprint and land-use impact of the improvement.
To advance the roundabout concept, additional conversation would be required with Clackamas County (who has authority over the roadway) to discuss the feasibility of implementation, including factors such as designing for farm vehicles and trucks that would travel through the roundabout.

Transportation Planning Rule (TPR) Evaluation

The proposed annexation of the Stafford Development Concept Plan (DCP) area includes changes in the land use. However, the proposed rezone could potentially allow more intense uses to develop on the site compared to either the existing zoning or the average land use density assumed in the City's TSP. Therefore, the analysis documented in Appendix F would determine to see if the proposed zone change would cause significant impact to the transportation system in addition to what was accounted for in the City's TSP. Based on the TPR evaluation in the appendix, the proposed zone change is consistent with the comprehensive plan designations and City's TSP.

Recommendations

Based upon the analysis presented in this report, it was determined that the proposed project would not generate significant off-site traffic impacts. Therefore, no off-site mitigation is recommended for the proposed project as a result of traffic impacts. However, there are some site-access and circulation related improvements which DKS would recommend to improve traffic flow and safety, which includes:

1) Proposed project intersections shall be kept clear of visual obstructions such as signage, trees etc. which may limit the vehicle sight distance.
2) A roundabout at a proposed project intersection along S Ivy Street would be a significant safety enhancement. However, coordination with Clackamas County is required to determine the feasibility of including design standards for farm vehicles and trucks.

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APPENDIX A

Becks Subdivision Traffic Impact Study

DRAFT MEMORANDUM

720 SW Washington St.
Suite 500
Portland, OR 97205
503.243.3500
www.dksassociates.com

DATE: September 29th, 2017

TO: Bryan Brown, City of Canby

FROM: Chris Maciejewski, PE, PTOE
Jeff Heald, PE (CA)
Rohit Itadkar, TE (CA)

SUBJECT: **Traffic Impact Analysis for Beck Subdivision Development** P#17118-000

This memorandum summarizes the transportation impacts associated with the proposed Beck Subdivision development within the Stafford Development Concept Plan (DCP) in Canby, Oregon. The proposed development proposes 41 lots spread over 8.70 acres with 24 additional tax lots to be added in the development during second phase of the project. The proposed project will be designated as R-1.5 (medium density residential) in the north and R-1 (low density residential) in the south of the site. This would add a total of 90 single family residential units. The project site is located within the Stafford DCP site between S Fir Street and S Elm Street.

Access to the site will be provided by three proposed intersections from S Fir Street. The study area is shown in Figure 1. The following three intersections have been identified as study area intersections, with their traffic controls listed:

- SW 13th Avenue/S Ivy Street
- SW 13th Avenue/S Fir Street
- S Ivy Street/SE 16th Avenue

Figure 1: Study Area

Existing No Project Intersection Operations Analysis

Intersection Performance Measures

Level of service (LOS) and volume-to-capacity (v/c) ratios are two commonly used performance measures that provide a gauge of intersection operations. In addition, they are often incorporated into agency mobility standards.

Descriptions are given below:

- **Level of service (LOS):** A "report card" rating (A through F) based on the average delay experienced by vehicles at the intersection. LOS A, B, and C indicate conditions where traffic moves without significant delays over periods of peak hour travel demand. LOS D and E are progressively worse operating conditions. LOS F represents conditions where average vehicle delay has become excessive and demand has exceeded capacity. This condition is typically evident in long queues and delays.
- **Volume-to-capacity (v/c) ratio:** A decimal representation (between 0.00 and 1.00) of the proportion of capacity that is being used (i.e., the saturation) at a turn movement, approach leg, or intersection. It is determined by dividing the peak hour traffic volume by the hourly capacity of a given intersection or movement. A lower ratio indicates smooth operations and minimal delays. As the ratio approaches 1.00, congestion increases and performance is reduced. If the ratio is greater than 1.00, the turn movement, approach leg, or intersection is oversaturated and usually results in excessive queues and long delays.

Jurisdictional Operational Standards

All study intersections must operate at or below the operating standards or mitigation may be necessary to approve future growth. The intersection performance measures vary by jurisdiction of the roadways. All study intersections are under the jurisdiction of City of Canby and Clackamas County and must comply with the intersection evaluation methodology stated in the City's TSP and Clackamas Roadway County Standards.[1] The study intersections must comply with the v/c targets in the Clackamas County Comprehensive Plan which specifies a v/c target of 0.90 and LOS E for the study area.[2]

[1] Section 295, Clackamas County Roadway Standards, February 1, 2013.
[2] Table 5-2b, Clackamas County Comprehensive Plan.

Volumes

The existing no project volumes were used from the counts conducted as part of the Stafford Annexation DCP traffic study. [3]

Level of Service Analysis

The existing traffic operating conditions at the study intersections was determined for the AM and PM peak hour based on the 2000 Highway Capacity Manual methodology[4] for signalized intersections and 2010 Highway Capacity Manual methodology for unsignalized intersections.[5] The conditions include the estimated average delay, level of service (LOS), and volume-to-capacity (v/c) ratio of the study intersections. Weekday AM and PM peak hour intersection operations are shown in Table 1. During the AM and PM peak hour, all study area intersections operate within the adopted mobility targets.

Table 1: Existing Peak Hour Intersection Operations

No.	Intersections	Control Type	AM Peak Hour		PM Peak Hour	
			v/c	LOS	v/c	LOS
1.	SW 13th Avenue/S Ivy Street	Signal	0.39	B	0.45	B
2.	SW 13th Avenue/S Fir Street	TWSC*	0.01	A/B	0.02	A/B
3.	S Ivy Street/SE 16th Avenue	TWSC*	0.02	A/B	0.02	A/B

TWSC – Two-way Stop Controlled
LOS – Level of Service
*Volume-to capacity ratio for two-way stop intersections report for the worst movement and LOS report for the worst major street/minor street movements.

Project Trip Generation

The proposed Beck Subdivision development is shown in Figure 2. The amount of new vehicle trips generated by the additional 90 single family dwelling units was estimated using the ITE Trip Generation Manual for similar land use type[6]. Trip generation estimates for the proposed project are provided for daily, morning and evening peak hours and are summarized in Table 2. As shown in Table, the proposed site is expected to generate 68 (17 in, 51 out) AM peak hour trips, 90 (57 in, 33 out) PM peak hour trips, and 857 daily trips.

[3] Figure 2, Canby Stafford Annexation Development Concept Plan Traffic Impact Analysis, September 2017.
[4] *2000 Highway Capacity Manual*, Transportation Research Board, Washington DC, 2000.
[5] *2010 Highway Capacity Manual*, Transportation Research Board, Washington DC, 2010.
[6] Trip Generation Manual, Institute of Transportation Engineers, 9th Edition.

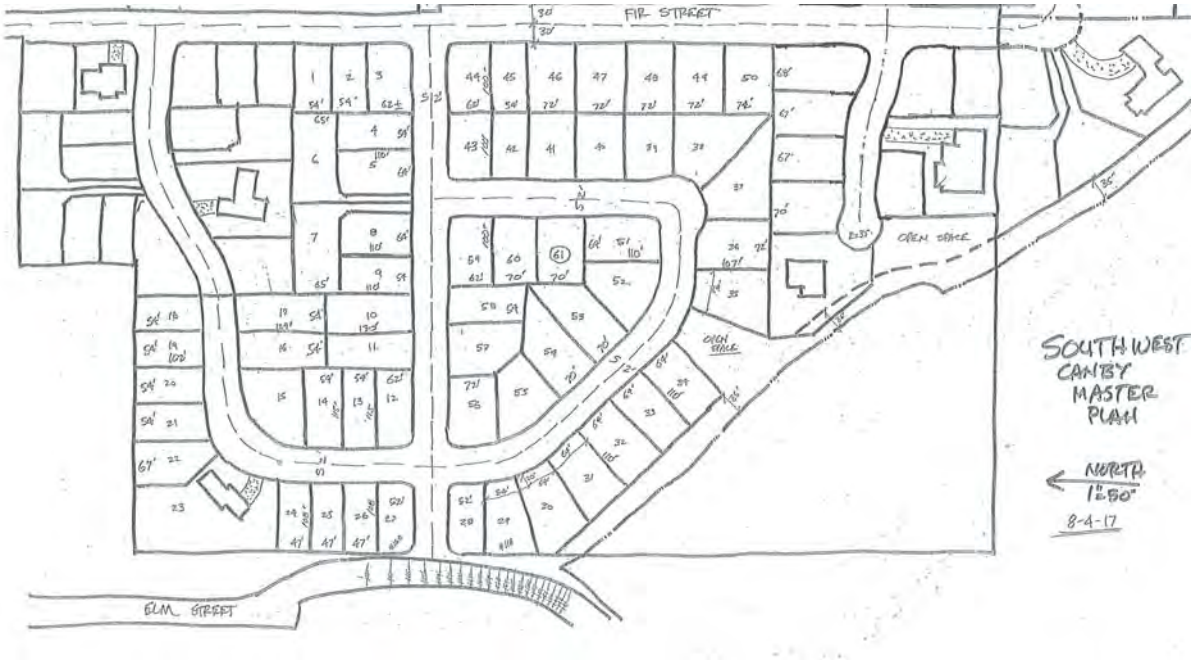


Figure 2: Project Site Plan

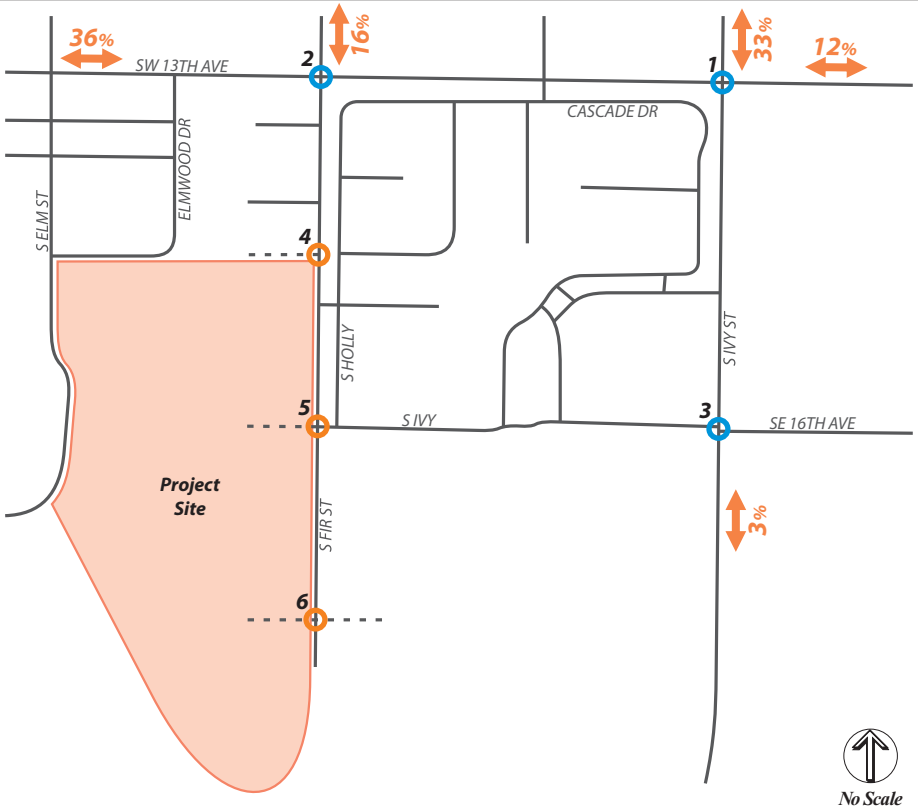
Table 2: Project Trip Generation Summary

Land Use	Size	Daily	AM Peak Hour			PM Peak Hour		
Trip Rates								
Single Family Detached (210)	Per Dwelling Unit (DU)	9.52	0.19	0.56	0.75	0.63	0.37	1.00
Trip Generation								
Single Family Detached (210)	90 DU	857	17	51	68	57	33	90

Project Trip Generation

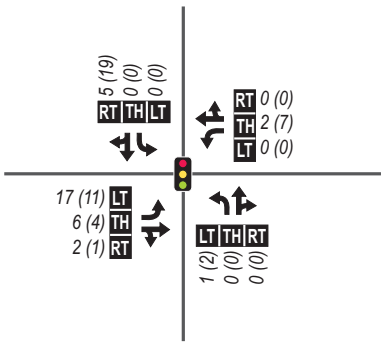
Trip distribution reflects how site generated traffic will leave and arrive at the proposed site and what roads those trips will take. The trip distribution for the proposed project was estimated based on City of Canby Travel Forecast Tool.[7] The assumed trip distribution and assignment is shown in Figure 3.

[7] Canby Travel Forecast Tool, Canby Transportation System Plan, DKS Associates.

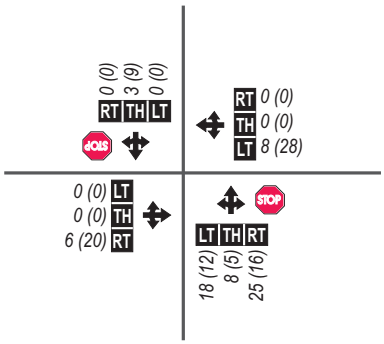


Key Map

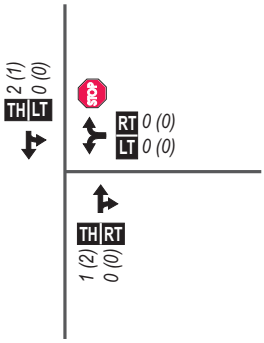
1. *SW 13th Ave. @ S Ivy St.*



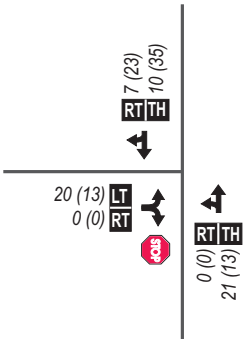
2. *SW 13th Ave. @ S Fir St.*



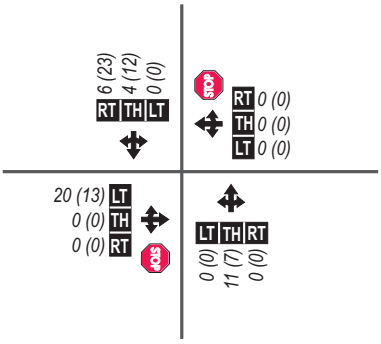
3. *S Ivy St. @ SE 16th Ave.*



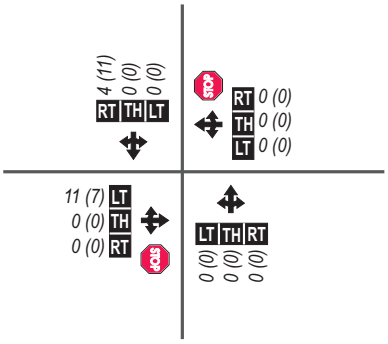
4. *S Fir St. @ Driveway 1*



5. *S Fir St. @ Driveway 2*



6. *S Fir St. @ Driveway 3*



LEGEND

- # - Study Intersection
- # - Proposed Project Intersection
- Traffic Signal
- STOP - Stop Sign
- 00% - Trip Distribution Percentage
- Lane Configuration
- AM (PM) - Peak Hour Traffic Volumes
- LT TH RT (Left•Thru•Right) - Volume Turn Movement

DKS

Figure **3**

Project Trip Distribution and Assignment

Existing Plus Project Intersection Operations Analysis

Volumes

The study area intersection operations were evaluated for the Existing Plus Project scenario to determine if the proposed project would cause any intersections to not meet jurisdictional standards. The Existing Plus Project scenario includes the existing traffic volumes, and the trips added by the proposed project. The Existing (2017) Plus Project traffic volumes are shown in Figure 4.

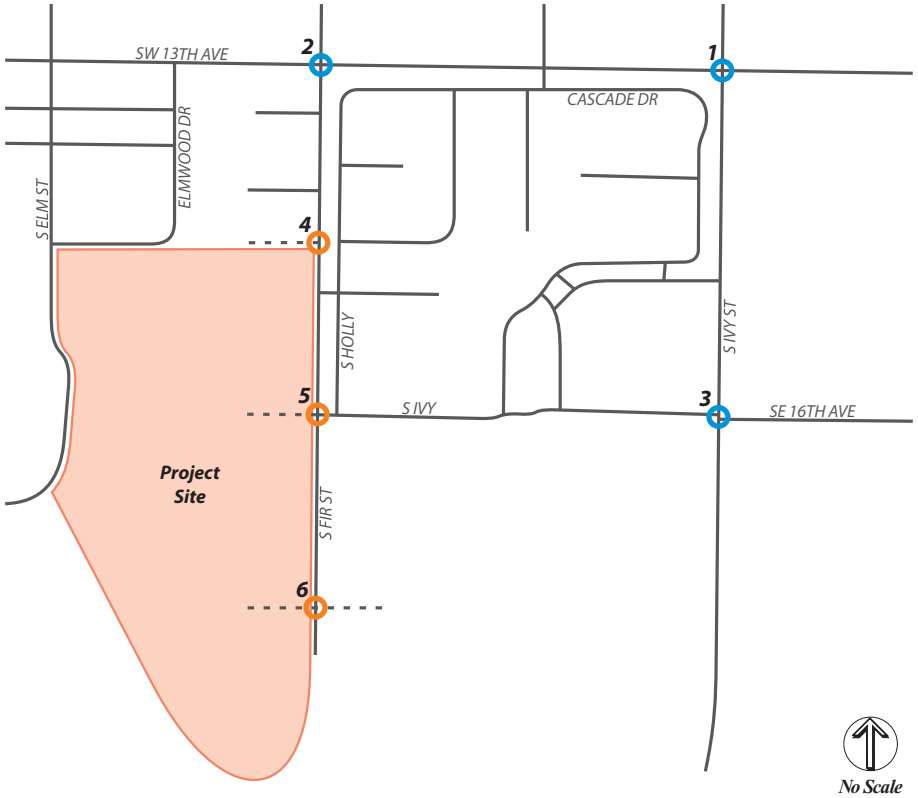
Level of Service Analysis

The existing plus project traffic operating conditions at the study intersections was determined for the AM and PM peak hour are shown in Table 3. During the AM and PM peak hour, all study area intersections operate within the adopted mobility targets. Therefore, there are no significant impacts on the study intersections. As a result no mitigation measures are recommended as part of this project.

Table 3: Existing Peak Hour Intersection Operations

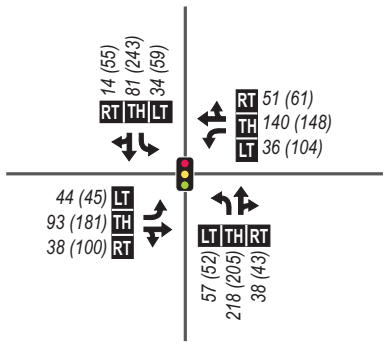
No.	Intersections	Control Type	AM Peak Hour		PM Peak Hour	
			v/c	LOS	v/c	LOS
1.	SW 13th Avenue/S Ivy Street	Signal	0.39	B	0.47	B
2.	SW 13th Avenue/S Fir Street	TWSC*	0.09	A/B	0.12	A/C
3.	S Ivy Street/SE 16th Avenue	TWSC*	0.20	A/B	0.20	A/B
4.	S Fir Street/Project Driveway 1	TWSC*	0.02	A/A	0.02	A/A
5.	S Fir Street/Project Driveway 2	TWSC*	0.02	A/A	0.01	A/A
6.	S Fir Street/Project Driveway 3**	TWSC*	--	--	--	--

TWSC – Two-way Stop Controlled
LOS – Level of Service
*Volume-to capacity ratio for two-way stop intersections report for the worst movement and LOS report for the worst major street/minor street movements.
** No LOS reported since there are no conflicting movements.

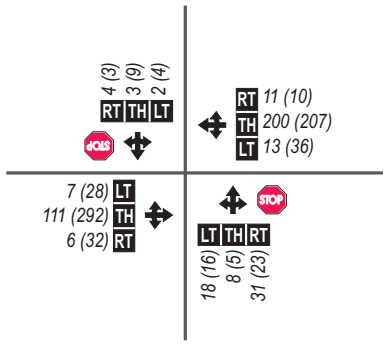


Key Map

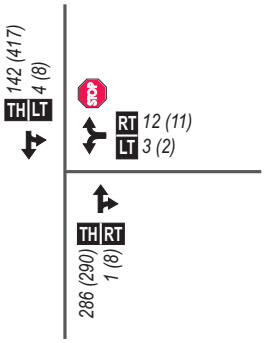
1. ***SW 13th Ave. @ S Ivy St.***



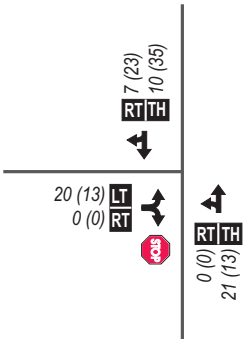
2. ***SW 13th Ave. @ S Fir St.***



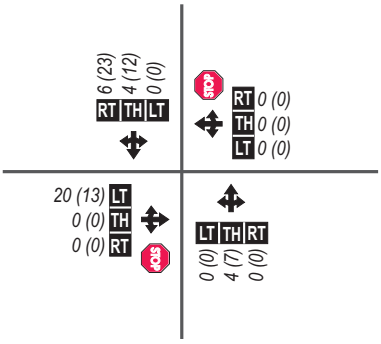
3. ***S Ivy St. @ SE 16th Ave.***



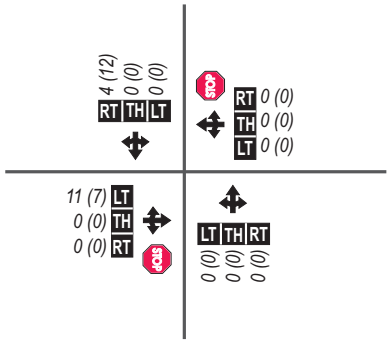
4. ***S Fir St. @ Driveway 1***



5. ***S Fir St. @ Driveway 2***



6. ***S Fir St. @ Driveway 3***



LEGEND

- # - Study Intersection
- # - Proposed Project Intersection
- Traffic Signal
- Stop Sign
- Lane Configuration
- AM (PM) - Peak Hour Traffic Volumes
- LT TH RT - Volume Turn Movement (Left•Thru•Right)

DKS

Figure 4

Existing Plus Project Peak Hour Traffic Volumes

Queuing Analysis

An estimate of the 95th percentile vehicle queues were determined for each of the intersection approach movements under both the Existing and Existing Plus Project scenarios. 95th percentile vehicle queues are queue lengths that would not be exceeded in 95 percent of the queues formed during the peak hour are estimated. When vehicle queues extend past available storage bays, turning queues can block through movements and through movements can block upstream intersections. The result is an increased potential for rear-end collisions and a significant loss in system capacity. The queue formation for left turning traffic at all study intersections except SW 13th Avenue/S Ivy Street is less than 25'. Queuing results for the intersection of SW 13th Avenue/S Ivy Street are summarized in Table 4.

Table 4: Queuing Summary at SW 13th Avenue/S Ivy Street

Movement	Available Storage (feet)	95th Percentile Queue for Existing Plus Project (feet)	
		AM Peak Hour	PM Peak Hour
Northbound Left	120	20	20
Southbound Left	125	20	20
Eastbound Left	120	40	40
Westbound Left	130	20	60

The queue formations in all directions are within the available storage. Overall, the proposed project is not expected to have a negative impact on the queuing at any study intersections.

Neighborhood Through Traffic Study

To protect livability in neighborhood areas, the City of Canby has adopted traffic impact thresholds for residential streets. Developments anticipated to add significant traffic levels to residential streets are required to develop mitigations that will reduce the impact. A development is considered to have a potentially significant impact when it adds 30 through-vehicle trips during a peak hour to an adjacent residential street with an average daily traffic (ADT) volume of 1,200 or higher and/or a 85th percentile speed greater than 28 miles per hour.

Based on zoning and fronting land uses S Fir Street south of 13th Avenue is the only roadway within the study area that would be classified as residential streets and may be significantly impacted by the proposed project. 24-hour bidirectional traffic volume and speed data was collected on the roadway

section. The data for S Ivy Street showed an ADT volume lower than 1,200 vehicles (1,107 vehicles) and an 85th percentile speed of 17 miles per hour, which is lower than the threshold of 28 miles per hour.

The proposed project is expected to add more than 30 vehicles during peak hours to S Fir Street along the residential portions. Therefore, the project would add significant traffic levels to this street and increase the ADT to above 1,200 vehicles (1,970 vehicles per day). Potential volume reduction measures to address this impact could include diverters, movement closures, and decrease route speed by modifying geometry and/or traffic control (some speed reduction can also have a secondary effect of reducing traffic volume (by making a route less attractive).

A review of potential measure for offsetting the traffic volume increase found that the options would simply shift the through traffic from one neighborhood street to another, as there are only local residential streets that connect the area to the surrounding arterial network. As the observed traffic speeds are significantly below speed thresholds for neighborhood livability, we recommend not implementing mitigation measures that would restrict volumes (i.e., diverters or closures). In this circumstance, maximizing connectivity (i.e., via the proposed connection to S Ivy Street) appears to be the optimal strategy for neighborhood traffic management.

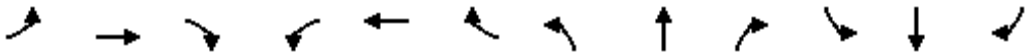
Conclusions

- The increase in vehicle trips associated with the proposed project (68 trips during the AM peak hour and 90 trips during the PM peak hour) would not significantly impact traffic operations along the surrounding transportation network.
- Site intersections shall be kept clear of objects (e.g. landscaping, objects, etc.) that could potentially limit vehicle sight distance.

Attachments

Existing (2017) No Project Level of Service Worksheets

Existing (2017) Plus Project Level of Service Worksheets



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	27	87	36	36	138	51	56	218	38	34	81	9
Future Volume (vph)	27	87	36	36	138	51	56	218	38	34	81	9
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	4.5	4.5		4.5	4.5		4.0	5.0		4.0	5.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.96		1.00	0.96		1.00	0.98		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1630	1641		1630	1646		1630	1678		1630	1690	
Flt Permitted	0.57	1.00		0.67	1.00		0.67	1.00		0.59	1.00	
Satd. Flow (perm)	982	1641		1149	1646		1149	1678		1005	1690	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	30	97	40	40	153	57	62	242	42	38	90	10
RTOR Reduction (vph)	0	33	0	0	30	0	0	8	0	0	5	0
Lane Group Flow (vph)	30	104	0	40	180	0	62	276	0	38	95	0
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	8.3	8.3		8.3	8.3		26.8	24.4		25.2	23.6	
Effective Green, g (s)	8.3	8.3		8.3	8.3		26.8	24.4		25.2	23.6	
Actuated g/C Ratio	0.17	0.17		0.17	0.17		0.56	0.51		0.53	0.49	
Clearance Time (s)	4.5	4.5		4.5	4.5		4.0	5.0		4.0	5.0	
Vehicle Extension (s)	2.5	2.5		2.5	2.5		2.5	4.0		2.5	4.0	
Lane Grp Cap (vph)	170	284		199	285		668	856		550	834	
v/s Ratio Prot		0.06			c0.11		c0.00	c0.16		0.00	0.06	
v/s Ratio Perm	0.03			0.03			0.05			0.03		
v/c Ratio	0.18	0.37		0.20	0.63		0.09	0.32		0.07	0.11	
Uniform Delay, d1	16.8	17.4		16.9	18.3		4.8	6.9		5.5	6.5	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.4	0.6		0.4	4.0		0.0	1.0		0.0	0.3	
Delay (s)	17.2	18.0		17.3	22.3		4.8	7.9		5.5	6.8	
Level of Service	B	B		B	C		A	A		A	A	
Approach Delay (s)		17.9			21.5			7.3			6.4	
Approach LOS		B			C			A			A	

Intersection Summary			
HCM 2000 Control Delay	13.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.39		
Actuated Cycle Length (s)	47.8	Sum of lost time (s)	13.5
Intersection Capacity Utilization	48.7%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Intersection	
Int Delay, s/veh	0.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	7	111	0	5	200	11	0	0	6	2	0	4
Future Vol, veh/h	7	111	0	5	200	11	0	0	6	2	0	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	89	89	89	89	89	89	89	89	89	89	89	89
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	8	125	0	6	225	12	0	0	7	2	0	4

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	237	0	0	125	0	0	384	388	125	386	382	231
Stage 1	-	-	-	-	-	-	140	140	-	242	242	-
Stage 2	-	-	-	-	-	-	244	248	-	144	140	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1330	-	-	1462	-	-	574	547	926	573	551	808
Stage 1	-	-	-	-	-	-	863	781	-	762	705	-
Stage 2	-	-	-	-	-	-	760	701	-	859	781	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1330	-	-	1462	-	-	566	541	926	564	545	808
Mov Cap-2 Maneuver	-	-	-	-	-	-	566	541	-	564	545	-
Stage 1	-	-	-	-	-	-	858	776	-	757	701	-
Stage 2	-	-	-	-	-	-	752	697	-	848	776	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.5	0.2	8.9	10.1
HCM LOS			A	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	926	1330	-	-	1462	-	-	706
HCM Lane V/C Ratio	0.007	0.006	-	-	0.004	-	-	0.01
HCM Control Delay (s)	8.9	7.7	0	-	7.5	0	-	10.1
HCM Lane LOS	A	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0	0	-	-	0	-	-	0

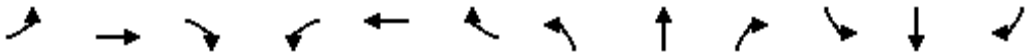
Intersection	
Int Delay, s/veh	0.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	3	12	285	1	4	140
Future Vol, veh/h	3	12	285	1	4	140
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	3	13	313	1	4	154

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	477	314	0	0	314	0
Stage 1	314	-	-	-	-	-
Stage 2	163	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	547	726	-	-	1246	-
Stage 1	741	-	-	-	-	-
Stage 2	866	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	545	726	-	-	1246	-
Mov Cap-2 Maneuver	545	-	-	-	-	-
Stage 1	741	-	-	-	-	-
Stage 2	863	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.4	0	0.2
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	681	1246	-
HCM Lane V/C Ratio	-	-	0.024	0.004	-
HCM Control Delay (s)	-	-	10.4	7.9	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	34	177	99	104	141	61	50	205	43	59	243	36
Future Volume (vph)	34	177	99	104	141	61	50	205	43	59	243	36
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	4.5	4.5		4.5	4.5		4.0	5.0		4.0	5.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.95		1.00	0.95		1.00	0.97		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1630	1623		1630	1638		1630	1671		1630	1682	
Flt Permitted	0.61	1.00		0.46	1.00		0.58	1.00		0.57	1.00	
Satd. Flow (perm)	1042	1623		791	1638		998	1671		985	1682	
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)	35	184	103	108	147	64	52	214	45	61	253	38
RTOR Reduction (vph)	0	41	0	0	32	0	0	12	0	0	8	0
Lane Group Flow (vph)	35	246	0	108	179	0	52	247	0	61	283	0
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	11.4	11.4		11.4	11.4		22.0	20.5		23.8	21.4	
Effective Green, g (s)	11.4	11.4		11.4	11.4		22.0	20.5		23.8	21.4	
Actuated g/C Ratio	0.24	0.24		0.24	0.24		0.46	0.43		0.50	0.45	
Clearance Time (s)	4.5	4.5		4.5	4.5		4.0	5.0		4.0	5.0	
Vehicle Extension (s)	2.5	2.5		2.5	2.5		2.5	4.0		2.5	4.0	
Lane Grp Cap (vph)	248	387		188	390		479	716		522	753	
v/s Ratio Prot		c0.15			0.11		0.00	0.15		c0.01	c0.17	
v/s Ratio Perm	0.03			0.14			0.05			0.05		
v/c Ratio	0.14	0.64		0.57	0.46		0.11	0.34		0.12	0.38	
Uniform Delay, d1	14.3	16.3		16.1	15.6		7.2	9.1		6.3	8.8	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.2	3.0		3.5	0.6		0.1	1.3		0.1	1.4	
Delay (s)	14.5	19.3		19.5	16.2		7.3	10.5		6.3	10.2	
Level of Service	B	B		B	B		A	B		A	B	
Approach Delay (s)		18.8			17.3			9.9			9.5	
Approach LOS		B			B			A			A	

Intersection Summary			
HCM 2000 Control Delay	13.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.45		
Actuated Cycle Length (s)	47.8	Sum of lost time (s)	13.5
Intersection Capacity Utilization	57.5%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Intersection	
Int Delay, s/veh	0.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	28	292	12	8	207	10	4	0	7	4	0	3
Future Vol, veh/h	28	292	12	8	207	10	4	0	7	4	0	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	31	321	13	9	227	11	4	0	8	4	0	3

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	238	0	0	334	0	0	641	645	327	644	647	233
Stage 1	-	-	-	-	-	-	389	389	-	251	251	-
Stage 2	-	-	-	-	-	-	252	256	-	393	396	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1329	-	-	1225	-	-	388	391	714	386	390	806
Stage 1	-	-	-	-	-	-	635	608	-	753	699	-
Stage 2	-	-	-	-	-	-	752	696	-	632	604	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1329	-	-	1225	-	-	376	377	714	371	376	806
Mov Cap-2 Maneuver	-	-	-	-	-	-	376	377	-	371	376	-
Stage 1	-	-	-	-	-	-	617	590	-	731	693	-
Stage 2	-	-	-	-	-	-	743	690	-	607	586	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.7	0.3	11.8	12.6
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	538	1329	-	-	1225	-	-	483
HCM Lane V/C Ratio	0.022	0.023	-	-	0.007	-	-	0.016
HCM Control Delay (s)	11.8	7.8	0	-	8	0	-	12.6
HCM Lane LOS	B	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0.1	0.1	-	-	0	-	-	0

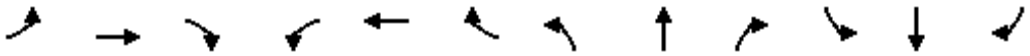
Intersection	
Int Delay, s/veh	0.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	2	11	288	8	8	416
Future Vol, veh/h	2	11	288	8	8	416
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	2	12	316	9	9	457

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	796	321	0	0	325	0
Stage 1	321	-	-	-	-	-
Stage 2	475	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	356	720	-	-	1235	-
Stage 1	735	-	-	-	-	-
Stage 2	626	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	352	720	-	-	1235	-
Mov Cap-2 Maneuver	352	-	-	-	-	-
Stage 1	735	-	-	-	-	-
Stage 2	620	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.9	0	0.1
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	620	1235	-
HCM Lane V/C Ratio	-	-	0.023	0.007	-
HCM Control Delay (s)	-	-	10.9	7.9	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	44	93	38	36	140	51	57	218	38	34	81	14
Future Volume (vph)	44	93	38	36	140	51	57	218	38	34	81	14
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	4.5	4.5		4.5	4.5		4.0	5.0		4.0	5.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.96		1.00	0.96		1.00	0.98		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1630	1641		1630	1647		1630	1678		1630	1677	
Flt Permitted	0.57	1.00		0.66	1.00		0.67	1.00		0.59	1.00	
Satd. Flow (perm)	970	1641		1140	1647		1143	1678		1005	1677	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	49	103	42	40	156	57	63	242	42	38	90	16
RTOR Reduction (vph)	0	33	0	0	30	0	0	8	0	0	8	0
Lane Group Flow (vph)	49	112	0	40	183	0	63	276	0	38	98	0
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	8.4	8.4		8.4	8.4		26.8	24.4		25.2	23.6	
Effective Green, g (s)	8.4	8.4		8.4	8.4		26.8	24.4		25.2	23.6	
Actuated g/C Ratio	0.18	0.18		0.18	0.18		0.56	0.51		0.53	0.49	
Clearance Time (s)	4.5	4.5		4.5	4.5		4.0	5.0		4.0	5.0	
Vehicle Extension (s)	2.5	2.5		2.5	2.5		2.5	4.0		2.5	4.0	
Lane Grp Cap (vph)	170	287		199	288		663	854		549	826	
v/s Ratio Prot		0.07			c0.11		c0.00	c0.16		0.00	0.06	
v/s Ratio Perm	0.05			0.04			0.05			0.03		
v/c Ratio	0.29	0.39		0.20	0.64		0.10	0.32		0.07	0.12	
Uniform Delay, d1	17.2	17.5		16.9	18.3		4.8	6.9		5.5	6.5	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.7	0.6		0.4	4.0		0.0	1.0		0.0	0.3	
Delay (s)	17.8	18.1		17.2	22.3		4.9	7.9		5.5	6.8	
Level of Service	B	B		B	C		A	A		A	A	
Approach Delay (s)		18.1			21.5			7.4			6.5	
Approach LOS		B			C			A			A	

Intersection Summary			
HCM 2000 Control Delay	13.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.39		
Actuated Cycle Length (s)	47.9	Sum of lost time (s)	13.5
Intersection Capacity Utilization	48.8%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Intersection	
Int Delay, s/veh	2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	7	111	6	13	200	11	18	8	31	2	3	4
Future Vol, veh/h	7	111	6	13	200	11	18	8	31	2	3	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	89	89	89	89	89	89	89	89	89	89	89	89
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	8	125	7	15	225	12	20	9	35	2	3	4

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	237	0	0	131	0	0	408	410	128	426	407	231
Stage 1	-	-	-	-	-	-	144	144	-	260	260	-
Stage 2	-	-	-	-	-	-	264	266	-	166	147	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1330	-	-	1454	-	-	554	531	922	539	533	808
Stage 1	-	-	-	-	-	-	859	778	-	745	693	-
Stage 2	-	-	-	-	-	-	741	689	-	836	775	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1330	-	-	1454	-	-	541	521	922	505	523	808
Mov Cap-2 Maneuver	-	-	-	-	-	-	541	521	-	505	523	-
Stage 1	-	-	-	-	-	-	854	773	-	741	685	-
Stage 2	-	-	-	-	-	-	724	681	-	790	770	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.4	0.4	10.7	11
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	693	1330	-	-	1454	-	-	614
HCM Lane V/C Ratio	0.092	0.006	-	-	0.01	-	-	0.016
HCM Control Delay (s)	10.7	7.7	0	-	7.5	0	-	11
HCM Lane LOS	B	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0.3	0	-	-	0	-	-	0.1

Intersection	
Int Delay, s/veh	0.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	3	12	286	1	4	142
Future Vol, veh/h	3	12	286	1	4	142
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	3	13	314	1	4	156

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	480	315	0	0	315	0
Stage 1	315	-	-	-	-	-
Stage 2	165	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	545	725	-	-	1245	-
Stage 1	740	-	-	-	-	-
Stage 2	864	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	543	725	-	-	1245	-
Mov Cap-2 Maneuver	543	-	-	-	-	-
Stage 1	740	-	-	-	-	-
Stage 2	861	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.4	0	0.2
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	679	1245	-
HCM Lane V/C Ratio	-	-	0.024	0.004	-
HCM Control Delay (s)	-	-	10.4	7.9	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0	-

Intersection	
Int Delay, s/veh	3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	20	0	0	21	10	7
Future Vol, veh/h	20	0	0	21	10	7
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	22	0	0	23	11	8

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	38	15	18	0	-	0
Stage 1	15	-	-	-	-	-
Stage 2	23	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	974	1065	1599	-	-	-
Stage 1	1008	-	-	-	-	-
Stage 2	1000	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	974	1065	1599	-	-	-
Mov Cap-2 Maneuver	974	-	-	-	-	-
Stage 1	1008	-	-	-	-	-
Stage 2	1000	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.8	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1599	-	974	-	-
HCM Lane V/C Ratio	-	-	0.022	-	-
HCM Control Delay (s)	0	-	8.8	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

Intersection	
Int Delay, s/veh	4.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	20	0	0	11	4	6
Future Vol, veh/h	20	0	0	11	4	6
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	22	0	0	12	4	7

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	20	8	11	0	-	0
Stage 1	8	-	-	-	-	-
Stage 2	12	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	997	1074	1608	-	-	-
Stage 1	1015	-	-	-	-	-
Stage 2	1011	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	997	1074	1608	-	-	-
Mov Cap-2 Maneuver	997	-	-	-	-	-
Stage 1	1015	-	-	-	-	-
Stage 2	1011	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.7	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1608	-	997	-	-
HCM Lane V/C Ratio	-	-	0.022	-	-
HCM Control Delay (s)	0	-	8.7	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

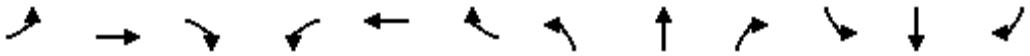
Intersection	
Int Delay, s/veh	0

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	11	0	0	0	0	0	0	0	0	0	0	4
Future Vol, veh/h	11	0	0	0	0	0	0	0	0	0	0	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	12	0	0	0	0	0	0	0	0	0	0	4

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	2	2	2	2	4	0	4	0	0	0	0	0
Stage 1	2	2	-	0	0	-	-	-	-	-	-	-
Stage 2	0	0	-	2	4	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	1020	894	1082	1020	891	-	1618	-	-	-	-	-
Stage 1	1021	894	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	1021	892	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	-	894	1082	1020	891	-	1618	-	-	-	-	-
Mov Cap-2 Maneuver	-	894	-	1020	891	-	-	-	-	-	-	-
Stage 1	1021	894	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	1021	892	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s		0	0	0
HCM LOS	-	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1618	-	-	-	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-	-	-	-
HCM Control Delay (s)	0	-	-	-	0	0	-	-
HCM Lane LOS	A	-	-	-	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	-	-	-	-	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	45	181	100	104	148	61	52	205	43	59	243	55
Future Volume (vph)	45	181	100	104	148	61	52	205	43	59	243	55
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	4.5	4.5		4.5	4.5		4.0	5.0		4.0	5.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.95		1.00	0.96		1.00	0.97		1.00	0.97	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1630	1624		1630	1640		1630	1671		1630	1668	
Flt Permitted	0.60	1.00		0.45	1.00		0.57	1.00		0.57	1.00	
Satd. Flow (perm)	1022	1624		776	1640		981	1671		984	1668	
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)	47	189	104	108	154	64	54	214	45	61	253	57
RTOR Reduction (vph)	0	41	0	0	30	0	0	12	0	0	13	0
Lane Group Flow (vph)	47	252	0	108	188	0	54	247	0	61	297	0
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	11.5	11.5		11.5	11.5		21.8	20.3		23.6	21.2	
Effective Green, g (s)	11.5	11.5		11.5	11.5		21.8	20.3		23.6	21.2	
Actuated g/C Ratio	0.24	0.24		0.24	0.24		0.46	0.43		0.49	0.44	
Clearance Time (s)	4.5	4.5		4.5	4.5		4.0	5.0		4.0	5.0	
Vehicle Extension (s)	2.5	2.5		2.5	2.5		2.5	4.0		2.5	4.0	
Lane Grp Cap (vph)	246	391		187	395		468	711		519	741	
v/s Ratio Prot		c0.16			0.11		0.00	0.15		c0.01	c0.18	
v/s Ratio Perm	0.05			0.14			0.05			0.05		
v/c Ratio	0.19	0.64		0.58	0.48		0.12	0.35		0.12	0.40	
Uniform Delay, d1	14.4	16.3		16.0	15.5		7.3	9.2		6.3	9.0	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.3	3.2		3.5	0.7		0.1	1.3		0.1	1.6	
Delay (s)	14.7	19.5		19.5	16.2		7.4	10.6		6.4	10.6	
Level of Service	B	B		B	B		A	B		A	B	
Approach Delay (s)		18.8			17.3			10.0			9.9	
Approach LOS		B			B			B			A	

Intersection Summary			
HCM 2000 Control Delay	13.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.47		
Actuated Cycle Length (s)	47.7	Sum of lost time (s)	13.5
Intersection Capacity Utilization	59.1%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Intersection	
Int Delay, s/veh	2.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	28	292	32	36	207	10	16	5	23	4	9	3
Future Vol, veh/h	28	292	32	36	207	10	16	5	23	4	9	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	31	321	35	40	227	11	18	5	25	4	10	3

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	238	0	0	356	0	0	719	718	338	727	730	233
Stage 1	-	-	-	-	-	-	400	400	-	312	312	-
Stage 2	-	-	-	-	-	-	319	318	-	415	418	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1329	-	-	1203	-	-	344	355	704	339	349	806
Stage 1	-	-	-	-	-	-	626	602	-	699	658	-
Stage 2	-	-	-	-	-	-	693	654	-	615	591	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1329	-	-	1203	-	-	318	332	704	306	326	806
Mov Cap-2 Maneuver	-	-	-	-	-	-	318	332	-	306	326	-
Stage 1	-	-	-	-	-	-	608	585	-	679	633	-
Stage 2	-	-	-	-	-	-	654	629	-	570	574	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.6	1.2	14	15.5
HCM LOS			B	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	449	1329	-	-	1203	-	-	360
HCM Lane V/C Ratio	0.108	0.023	-	-	0.033	-	-	0.049
HCM Control Delay (s)	14	7.8	0	-	8.1	0	-	15.5
HCM Lane LOS	B	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	0.4	0.1	-	-	0.1	-	-	0.2

Intersection	
Int Delay, s/veh	0.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	2	11	290	8	8	417
Future Vol, veh/h	2	11	290	8	8	417
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	2	12	319	9	9	458

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	799	323	0	0	327	0
Stage 1	323	-	-	-	-	-
Stage 2	476	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	355	718	-	-	1233	-
Stage 1	734	-	-	-	-	-
Stage 2	625	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	351	718	-	-	1233	-
Mov Cap-2 Maneuver	351	-	-	-	-	-
Stage 1	734	-	-	-	-	-
Stage 2	619	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	11	0	0.1
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	619	1233	-
HCM Lane V/C Ratio	-	-	0.023	0.007	-
HCM Control Delay (s)	-	-	11	7.9	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0	-

Intersection	
Int Delay, s/veh	1.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	13	0	0	13	35	23
Future Vol, veh/h	13	0	0	13	35	23
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	14	0	0	14	38	25

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	65	51	63	0	-	0
Stage 1	51	-	-	-	-	-
Stage 2	14	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	941	1017	1540	-	-	-
Stage 1	971	-	-	-	-	-
Stage 2	1009	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	941	1017	1540	-	-	-
Mov Cap-2 Maneuver	941	-	-	-	-	-
Stage 1	971	-	-	-	-	-
Stage 2	1009	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.9	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1540	-	941	-	-
HCM Lane V/C Ratio	-	-	0.015	-	-
HCM Control Delay (s)	0	-	8.9	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

Intersection	
Int Delay, s/veh	2.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	13	0	0	7	12	23
Future Vol, veh/h	13	0	0	7	12	23
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	14	0	0	8	13	25

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	34	26	38	0	-	0
Stage 1	26	-	-	-	-	-
Stage 2	8	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	979	1050	1572	-	-	-
Stage 1	997	-	-	-	-	-
Stage 2	1015	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	979	1050	1572	-	-	-
Mov Cap-2 Maneuver	979	-	-	-	-	-
Stage 1	997	-	-	-	-	-
Stage 2	1015	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.7	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1572	-	979	-	-
HCM Lane V/C Ratio	-	-	0.014	-	-
HCM Control Delay (s)	0	-	8.7	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	7	0	0	0	0	0	0	0	0	0	0	12
Future Vol, veh/h	7	0	0	0	0	0	0	0	0	0	0	12
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	8	0	0	0	0	0	0	0	0	0	0	13

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	7	7	7	7	13	0	13	0	0	0	0	0
Stage 1	7	7	-	0	0	-	-	-	-	-	-	-
Stage 2	0	0	-	7	13	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	1013	888	1075	1013	881	-	1606	-	-	-	-	-
Stage 1	1015	890	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	1015	885	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	-	888	1075	1013	881	-	1606	-	-	-	-	-
Mov Cap-2 Maneuver	-	888	-	1013	881	-	-	-	-	-	-	-
Stage 1	1015	890	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	1015	885	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s		0	0	0
HCM LOS	-	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1606	-	-	-	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-	-	-	-
HCM Control Delay (s)	0	-	-	-	0	0	-	-
HCM Lane LOS	A	-	-	-	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	-	-	-	-	-

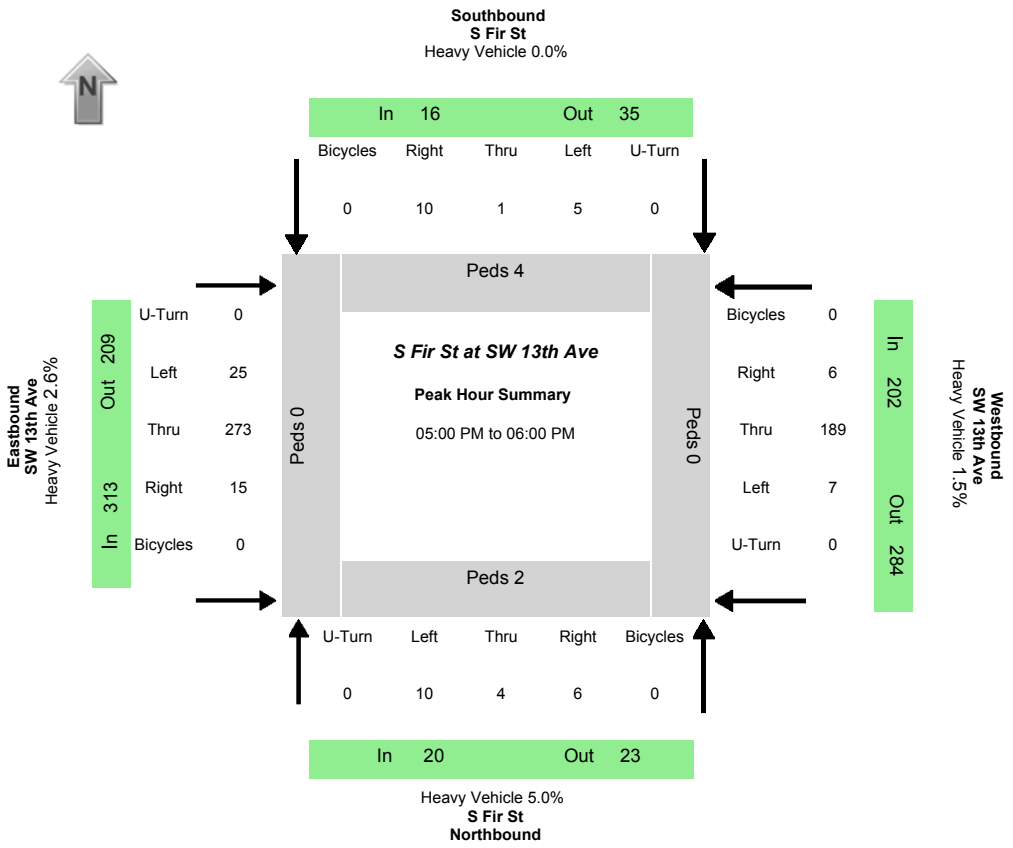
DKS

APPENDIX B

Existing Counts

K-D-N
KEY DATA NETWORK

Data Provided by K-D-N.com 503-594-4224	
N/S street	*S Fir St*
E/W street	*SW 13th Ave*
City, State	Canby OR
Site Notes	
Location	45.252166 - -122.691978
Start Date	Tuesday, July 11, 2017
Start Time	04:00:00 PM
Weather	
Study ID #	
Peak Hour Start	05:00:00 PM
Peak 15 Min Start	05:10:00 PM
PHF (15-Min Int)	0.91



Peak-Hour Volumes (PHV)																								
Northbound				**Southbound**				**Eastbound**				**Westbound**				**Entering**				**Leaving**			
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	NB	SB	EB	WB	NB	SB	EB	WB
10	4	6	0	5	1	10	0	25	273	15	0	7	189	6	0	20	16	313	202	23	35	209	284
Percent Heavy Vehicles																							
0.0%	0.0%	16.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	2.6%	6.7%	0.0%	0.0%	1.6%	0.0%	0.0%	5.0%	0.0%	2.6%	1.5%	4.3%	0.0%	1.4%	2.8%

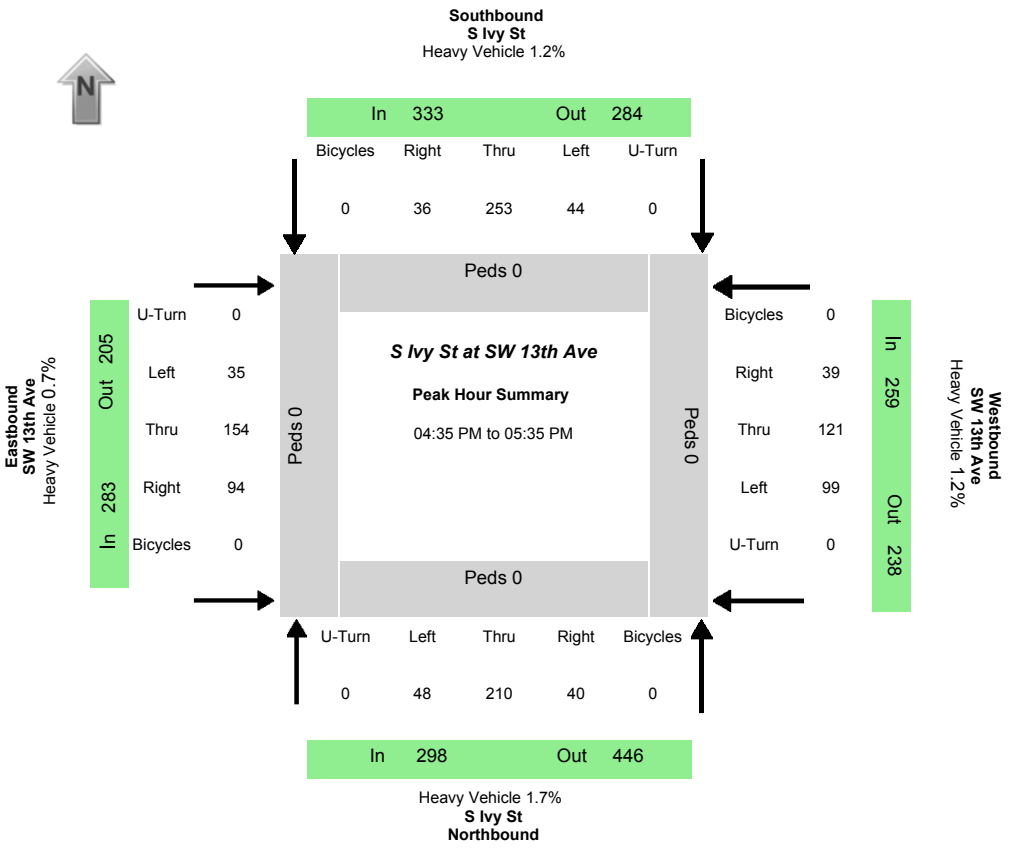
PHV- Bicycles																	PHV - Pedestrians					
Northbound				**Southbound**				**Eastbound**				**Westbound**					in Crosswalk				
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	**Sum**	NB	SB	EB	WB	**Sum**
0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	2	4	0	0	6

All Vehicle Volumes

	Northbound S Fir St				**Southbound** S Fir St				**Eastbound** SW 13th Ave				**Westbound** SW 13th Ave				15 Min	1 HR
Time	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Sum	Sum
04:00:00 PM	2	0	0	0	1	0	2	0	3	23	3		3	16	2	0		
04:05:00 PM	0	0	1	0	3	0	0	0	1	19	2		0	17	2	0		
04:10:00 PM	2	0	0	0	0	1	1	0	4	18	1		0	14	2	0	143	
04:15:00 PM	0	0	1	0	1	1	2	0	1	30	0		1	21	1	0	147	
04:20:00 PM	3	0	0	0	0	0	1	0	0	20	2		2	16	0	0	146	
04:25:00 PM	2	0	0	0	0	0	0	0	0	19	1		0	15	1	0	141	
04:30:00 PM	2	1	0	0	0	0	1	0	2	15	0		0	6	1	0	110	
04:35:00 PM	1	0	0	0	0	0	1	0	3	23	1		2	15	0	0	112	
04:40:00 PM	0	0	0	0	0	0	3	0	0	26	1		1	15	1	0	121	
04:45:00 PM	4	0	1	0	1	1	2	0	3	23	1		1	16	0	0	146	
04:50:00 PM	1	0	0	0	0	0	1	0	3	17	1		0	18	0	0	141	
04:55:00 PM	2	0	0	0	1	0	1	0	1	16	0		1	10	0	0	126	531
05:00:00 PM	2	1	0	0	1	1	0	0	2	28	4		0	19	0	0	131	534
05:05:00 PM	0	0	0	0	1	0	1	0	0	17	1		0	13	0	0	123	522
05:10:00 PM	0	0	0	0	0	0	0	0	2	23	2		1	14	2	0	135	523
05:15:00 PM	0	1	0	0	1	0	1	0	2	23	1		1	19	1	0	127	514
05:20:00 PM	0	0	1	0	0	0	1	0	3	32	0		2	19	0	0	152	528
05:25:00 PM	0	0	1	0	0	0	0	0	0	15	1		0	16	0	0	141	523
05:30:00 PM	4	0	0	0	1	0	3	0	3	22	1		0	17	1	0	143	547
05:35:00 PM	0	2	0	0	0	0	1	0	1	22	1		0	14	0	0	126	542
05:40:00 PM	2	0	1	0	0	0	2	0	4	21	1		2	19	1	0	146	548
05:45:00 PM	2	0	1	0	0	0	1	0	5	18	1		1	14	1	0	138	539
05:50:00 PM	0	0	1	0	0	0	0	0	1	32	0		0	10	0	0	141	542
05:55:00 PM	0	0	1	0	1	0	0	0	2	20	2		0	15	0	0	129	551

K-D-N
KEY DATA NETWORK

Data Provided by K-D-N.com 503-594-4224	
N/S street	*S Ivy St*
E/W street	*SW 13th Ave*
City, State	Canby OR
Site Notes	
Location	45.252157 - -122.686946
Start Date	Tuesday, July 11, 2017
Start Time	04:00:00 PM
Weather	
Study ID #	
Peak Hour Start	04:35:00 PM
Peak 15 Min Start	04:55:00 PM
PHF (15-Min Int)	0.96



Peak-Hour Volumes (PHV)																								
Northbound				**Southbound**				**Eastbound**				**Westbound**				**Entering**				**Leaving**			
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	NB	SB	EB	WB	NB	SB	EB	WB
48	210	40	0	44	253	36	0	35	154	94	0	99	121	39	0	298	333	283	259	446	284	205	238
Percent Heavy Vehicles																							
0.0%	2.4%	0.0%	0.0%	0.0%	1.6%	0.0%	0.0%	0.0%	1.3%	0.0%	0.0%	2.0%	0.8%	0.0%	0.0%	1.7%	1.2%	0.7%	1.2%	1.3%	1.8%	0.5%	0.8%

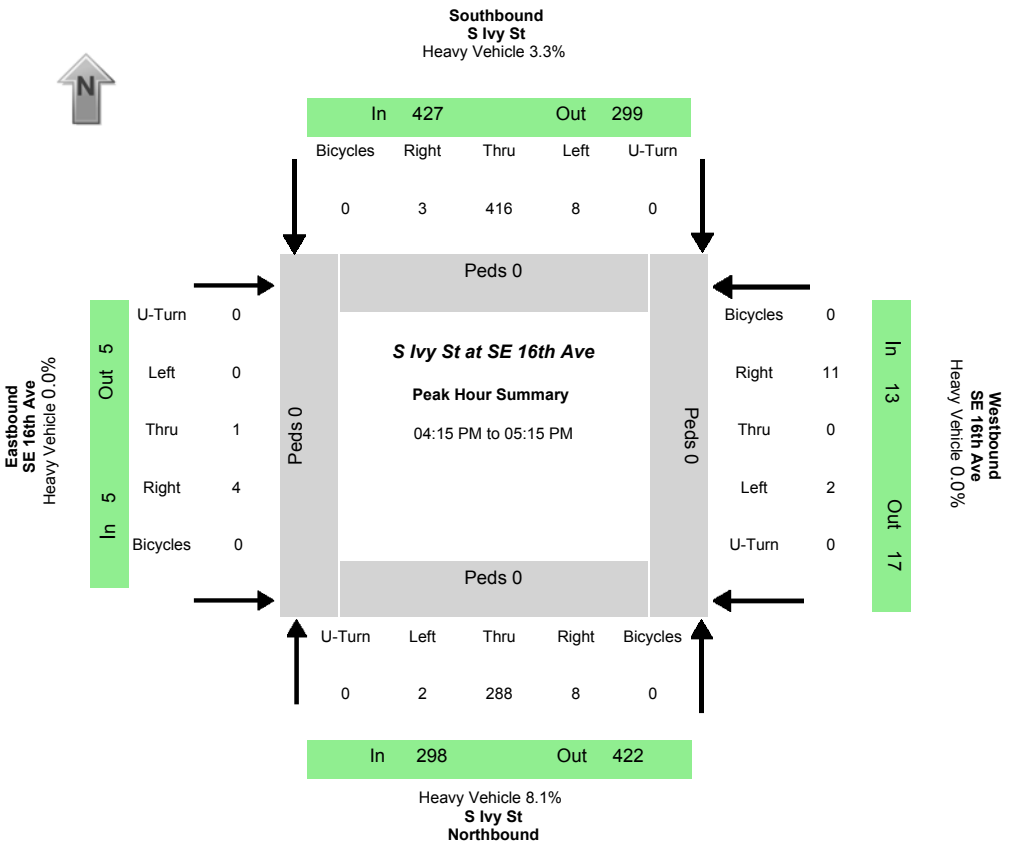
PHV- Bicycles																	PHV - Pedestrians					
Northbound				**Southbound**				**Eastbound**				**Westbound**					in Crosswalk				
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	**Sum**	NB	SB	EB	WB	**Sum**
0	0	0	0	0	0	0	0	0	0	0		0	0	0		0	0	0	0	0	0

All Vehicle Volumes

	Northbound S Ivy St				**Southbound** S Ivy St				**Eastbound** SW 13th Ave				**Westbound** SW 13th Ave				15 Min	1 HR
Time	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Sum	Sum
04:00:00 PM	6	17	3	0	0	15	7	0	3	12	6		8	11	6			
04:05:00 PM	9	23	7	0	4	18	4	0	2	13	11		12	12	5			
04:10:00 PM	1	12	5	0	0	11	1	0	1	10	5		8	15	2		285	
04:15:00 PM	7	25	4	0	3	13	2	0	2	21	8		8	11	3		298	
04:20:00 PM	4	28	6	0	6	18	3	0	0	16	5		8	10	1		283	
04:25:00 PM	5	20	5	0	0	22	3	0	1	10	2		12	10	2		304	
04:30:00 PM	1	18	4	0	0	18	1	0	0	13	2		12	5	3		274	
04:35:00 PM	1	17	3	0	0	21	5	0	0	18	7		9	13	7		270	
04:40:00 PM	2	15	1	0	3	17	3	0	1	9	9		6	8	1		253	
04:45:00 PM	9	16	7	0	3	31	2	0	6	13	5		6	10	3		287	
04:50:00 PM	3	19	2	0	4	20	3	0	5	13	5		11	8	4		283	
04:55:00 PM	4	16	4	0	4	25	2	0	2	10	3		12	6	4		300	1142
05:00:00 PM	8	18	5	0	5	25	3	0	6	12	6		12	7	6		302	1161
05:05:00 PM	6	17	4	0	5	20	2	0	4	12	11		10	9	2		307	1143
05:10:00 PM	2	23	3	0	6	13	1	0	2	11	10		9	8	2		305	1162
05:15:00 PM	3	20	4	0	4	18	5	0	3	11	11		6	20	1		298	1161
05:20:00 PM	5	14	2	0	4	19	6	0	3	22	10		6	10	1		298	1158
05:25:00 PM	1	21	3	0	3	22	2	0	1	11	8		4	12	4		300	1158
05:30:00 PM	4	14	2	0	3	22	2	0	2	12	9		8	10	4		286	1173
05:35:00 PM	4	17	4	0	5	14	2	0	3	10	9		12	9	3		276	1164
05:40:00 PM	5	9	3	0	1	17	3	0	6	9	5		10	11	4		267	1172
05:45:00 PM	4	16	5	0	5	16	0	0	2	10	6		10	12	3		264	1150
05:50:00 PM	0	14	7	0	9	15	0	0	4	21	9		10	11	2		274	1155
05:55:00 PM	3	12	4	0	2	13	1	0	0	8	8		4	12	2		260	1132

K-D-N
KEY DATA NETWORK

Data Provided by K-D-N.com 503-594-4224	
N/S street	*S Ivy St*
E/W street	*SE 16th Ave*
City, State	Canby OR
Site Notes	
Location	45.249 - -122.686981
Start Date	Tuesday, July 11, 2017
Start Time	04:00:00 PM
Weather	
Study ID #	
Peak Hour Start	04:15:00 PM
Peak 15 Min Start	05:00:00 PM
PHF (15-Min Int)	0.91



Peak-Hour Volumes (PHV)

Northbound				Southbound				Eastbound				Westbound				Entering				Leaving			
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	NB	SB	EB	WB	NB	SB	EB	WB
2	288	8	0	8	416	3	0	0	1	4	0	2	0	11	0	298	427	5	13	422	299	5	17

Percent Heavy Vehicles

0.0%	8.3%	0.0%	0.0%	0.0%	3.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	8.1%	3.3%	0.0%	0.0%	3.3%	8.0%	0.0%	0.0%

PHV- Bicycles

Northbound				Southbound				Eastbound				Westbound				
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Sum
0	0	0	0	0	0	0	0	0	0	0		0	0	0		0

PHV - Pedestrians

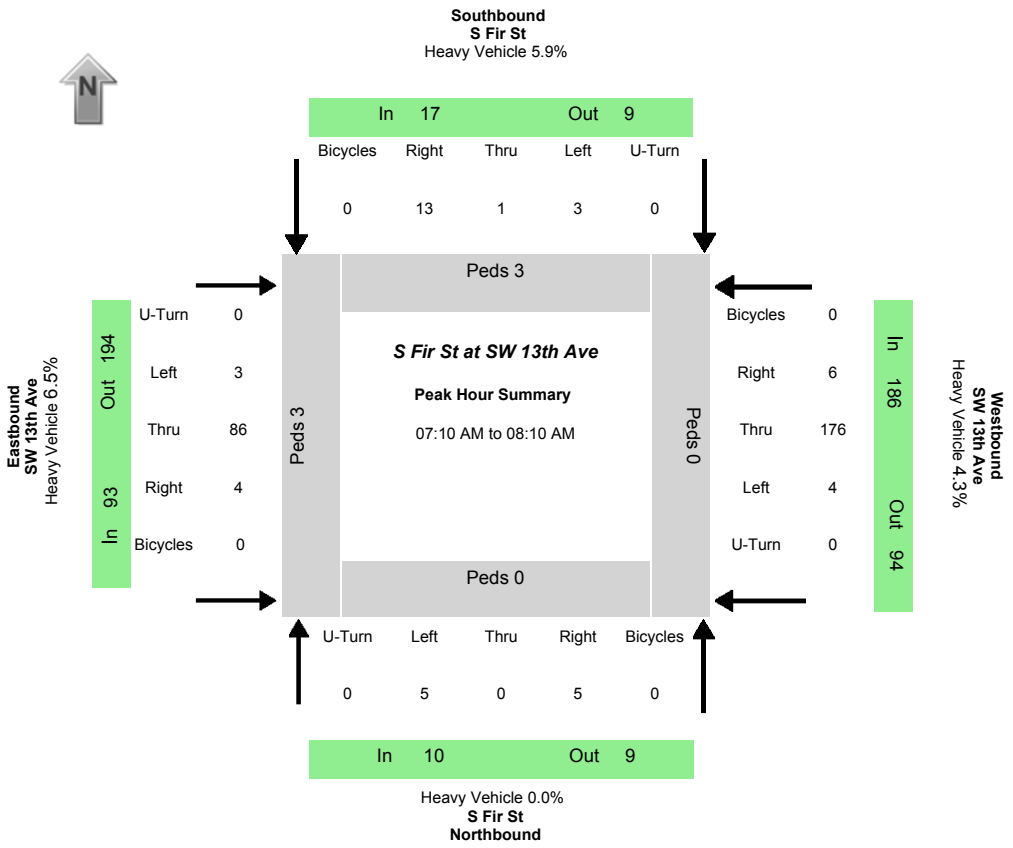
in Crosswalk				
NB	SB	EB	WB	Sum
0	0	0	0	0

All Vehicle Volumes

	Northbound S Ivy St				Southbound S Ivy St				Eastbound SE 16th Ave				Westbound SE 16th Ave				15 Min	1 HR
Time	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Sum	Sum
04:00:00 PM	0	27	0	0	0	27	0	0	0	0	0		1	0	0			
04:05:00 PM	0	22	1	0	1	34	0	0	0	0	0		0	0	1			
04:10:00 PM	0	21	0	0	1	24	1	0	0	0	0		0	0	0		161	
04:15:00 PM	0	35	0	0	1	32	0	0	0	0	0		0	0	1		175	
04:20:00 PM	0	24	2	0	0	30	0	0	0	0	1		0	0	1		174	
04:25:00 PM	0	30	0	0	0	32	3	0	0	0	0		0	0	0		192	
04:30:00 PM	1	20	0	0	0	29	0	0	0	0	0		0	0	0		173	
04:35:00 PM	0	16	0	0	0	33	0	0	0	0	0		1	0	0		165	
04:40:00 PM	0	15	0	0	1	35	0	0	0	0	0		0	0	1		152	
04:45:00 PM	0	33	1	0	0	47	0	0	0	0	0		0	0	1		184	
04:50:00 PM	1	16	1	0	1	24	0	0	0	0	1		0	0	1		179	
04:55:00 PM	0	25	0	0	0	42	0	0	0	0	0		0	0	1		195	700
05:00:00 PM	0	22	1	0	2	33	0	0	0	0	2		0	0	1		174	706
05:05:00 PM	0	24	1	0	1	37	0	0	0	0	0		1	0	1		194	712
05:10:00 PM	0	28	2	0	2	42	0	0	0	1	0		0	0	3		204	743
05:15:00 PM	1	27	0	0	0	34	0	0	0	0	0		0	0	0		205	736
05:20:00 PM	0	17	2	0	0	36	0	0	0	0	0		2	0	0		197	735
05:25:00 PM	0	21	0	0	0	29	0	0	0	0	0		0	0	0		169	720
05:30:00 PM	0	18	0	0	2	33	0	0	0	0	0		1	0	2		163	726
05:35:00 PM	0	25	0	0	1	36	0	0	0	0	0		1	0	0		169	739
05:40:00 PM	0	15	0	0	3	30	1	0	0	0	0		0	0	1		169	737
05:45:00 PM	3	24	0	0	0	32	0	0	0	0	0		3	0	1		176	718
05:50:00 PM	0	15	1	0	1	28	0	0	0	0	0		0	0	0		158	718
05:55:00 PM	0	20	1	0	2	27	1	0	0	0	0		1	0	1		161	703

K-D-N
KEY DATA NETWORK

Data Provided by K-D-N.com 503-594-4224	
N/S street	*S Fir St*
E/W street	*SW 13th Ave*
City, State	Canby OR
Site Notes	
Location	45.252166 - -122.691978
Start Date	Tuesday, July 11, 2017
Start Time	07:00:00 AM
Weather	
Study ID #	
Peak Hour Start	07:10:00 AM
Peak 15 Min Start	07:20:00 AM
PHF (15-Min Int)	0.89



Peak-Hour Volumes (PHV)

Northbound				Southbound				Eastbound				Westbound				Entering				Leaving			
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	NB	SB	EB	WB	NB	SB	EB	WB
5	0	5	0	3	1	13	0	3	86	4	0	4	176	6	0	10	17	93	186	9	9	194	94

Percent Heavy Vehicles

0.0%	0.0%	0.0%	0.0%	33.3%	0.0%	0.0%	0.0%	0.0%	7.0%	0.0%	0.0%	0.0%	4.0%	16.7%	0.0%	0.0%	5.9%	6.5%	4.3%	0.0%	11.1%	3.6%	7.4%

PHV- Bicycles

Northbound				Southbound				Eastbound				Westbound				
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	**Sum**
0	0	0	0	0	0	0	0	0	0	0		0	0	0		0

PHV - Pedestrians

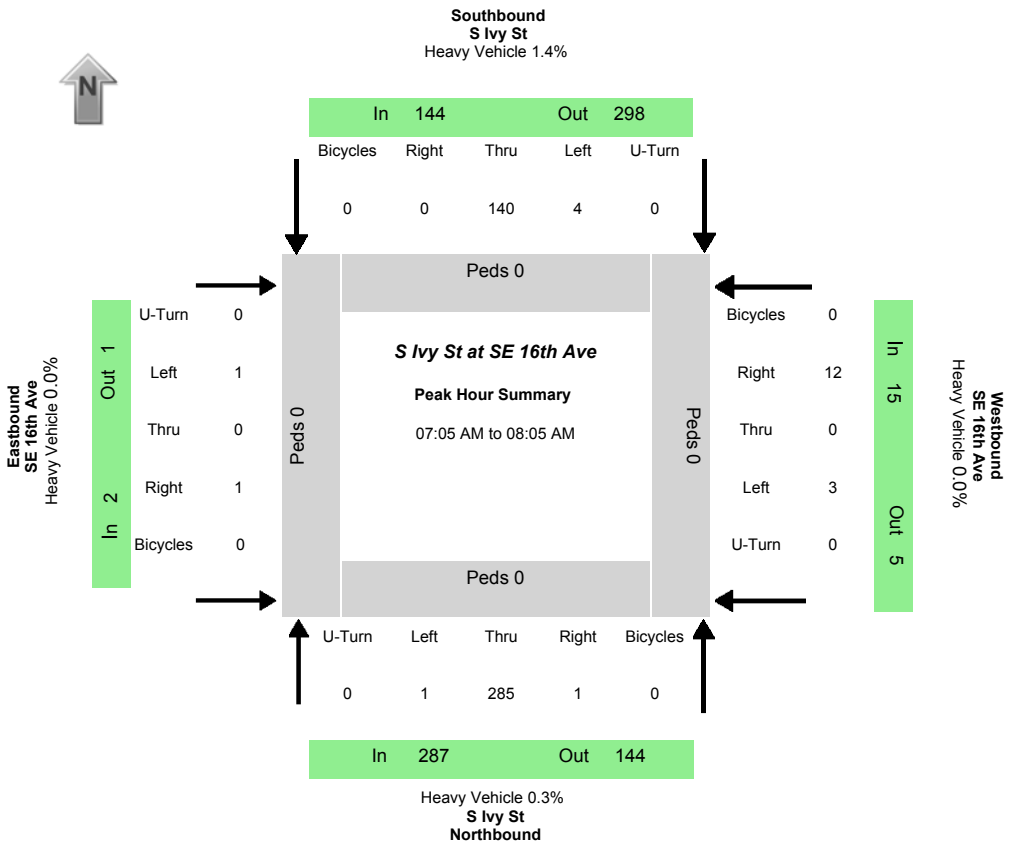
in Crosswalk				
NB	SB	EB	WB	**Sum**
0	3	3	0	6

All Vehicle Volumes

	Northbound S Fir St				Southbound S Fir St				Eastbound SW 13th Ave				Westbound SW 13th Ave				15 Min	1 HR
Time	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Sum	Sum
07:00:00 AM	0	0	0	0	0	0	1	0	0	3	1		1	7	2			
07:05:00 AM	0	0	0	0	0	0	2	0	0	8	0		0	9	0			
07:10:00 AM	1	0	0	0	0	0	2	0	0	3	1		0	15	0		56	
07:15:00 AM	1	0	0	0	0	0	0	0	0	7	0		0	12	0		61	
07:20:00 AM	0	0	0	0	0	0	2	0	0	7	0		0	22	0		73	
07:25:00 AM	0	0	1	0	1	0	0	0	0	11	1		0	10	1		76	
07:30:00 AM	0	0	2	0	1	0	2	0	0	8	1		1	15	0		86	
07:35:00 AM	0	0	1	0	0	0	1	0	0	5	0		0	14	1		77	
07:40:00 AM	0	0	0	0	1	0	0	0	1	5	0		0	23	1		83	
07:45:00 AM	0	0	1	0	0	0	3	0	1	7	0		1	15	0		81	
07:50:00 AM	1	0	0	0	0	0	1	0	0	9	0		0	14	1		85	
07:55:00 AM	1	0	0	0	0	0	1	0	1	9	1		1	13	1		82	297
08:00:00 AM	0	0	0	0	0	0	0	0	0	9	0		1	13	0		77	305
08:05:00 AM	1	0	0	0	0	1	1	0	0	6	0		0	10	1		71	306
08:10:00 AM	0	0	1	0	0	0	1	0	0	5	0		0	10	0		60	301
08:15:00 AM	0	0	0	0	0	0	2	0	0	11	0		0	8	0		58	302
08:20:00 AM	2	0	0	0	0	0	1	0	0	6	0		0	10	0		57	290
08:25:00 AM	0	0	0	0	0	0	1	0	1	7	1		1	15	0		66	291
08:30:00 AM	1	0	0	0	1	1	0	0	2	6	1		0	8	0		65	281
08:35:00 AM	2	0	2	0	1	0	1	0	1	1	1		0	8	0		63	276
08:40:00 AM	2	0	0	0	0	0	2	0	0	11	2		0	13	0		67	275
08:45:00 AM	1	0	2	0	1	0	1	0	0	13	0		0	17	0		82	282
08:50:00 AM	0	0	0	0	0	0	0	0	1	10	0		1	13	0		90	281
08:55:00 AM	1	0	0	0	0	1	0	0	1	12	0		1	14	0		90	283

K-D-N
KEY DATA NETWORK

Data Provided by K-D-N.com 503-594-4224	
N/S street	*S Ivy St*
E/W street	*SE 16th Ave*
City, State	Canby OR
Site Notes	
Location	45.249 - -122.686981
Start Date	Tuesday, July 11, 2017
Start Time	07:00:00 AM
Weather	
Study ID #	
Peak Hour Start	07:05:00 AM
Peak 15 Min Start	07:20:00 AM
PHF (15-Min Int)	0.86



Peak-Hour Volumes (PHV)

Northbound				Southbound				Eastbound				Westbound				Entering				Leaving			
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	NB	SB	EB	WB	NB	SB	EB	WB
1	285	1	0	4	140	0	0	1	0	1	0	3	0	12	0	287	144	2	15	144	298	1	5

Percent Heavy Vehicles

0.0%	0.4%	0.0%	0.0%	0.0%	1.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.3%	1.4%	0.0%	0.0%	1.4%	0.3%	0.0%	0.0%

PHV- Bicycles

Northbound				Southbound				Eastbound				Westbound				
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	**Sum**
0	0	0	0	0	0	0	0	0	0	0		0	0	0		0

PHV - Pedestrians

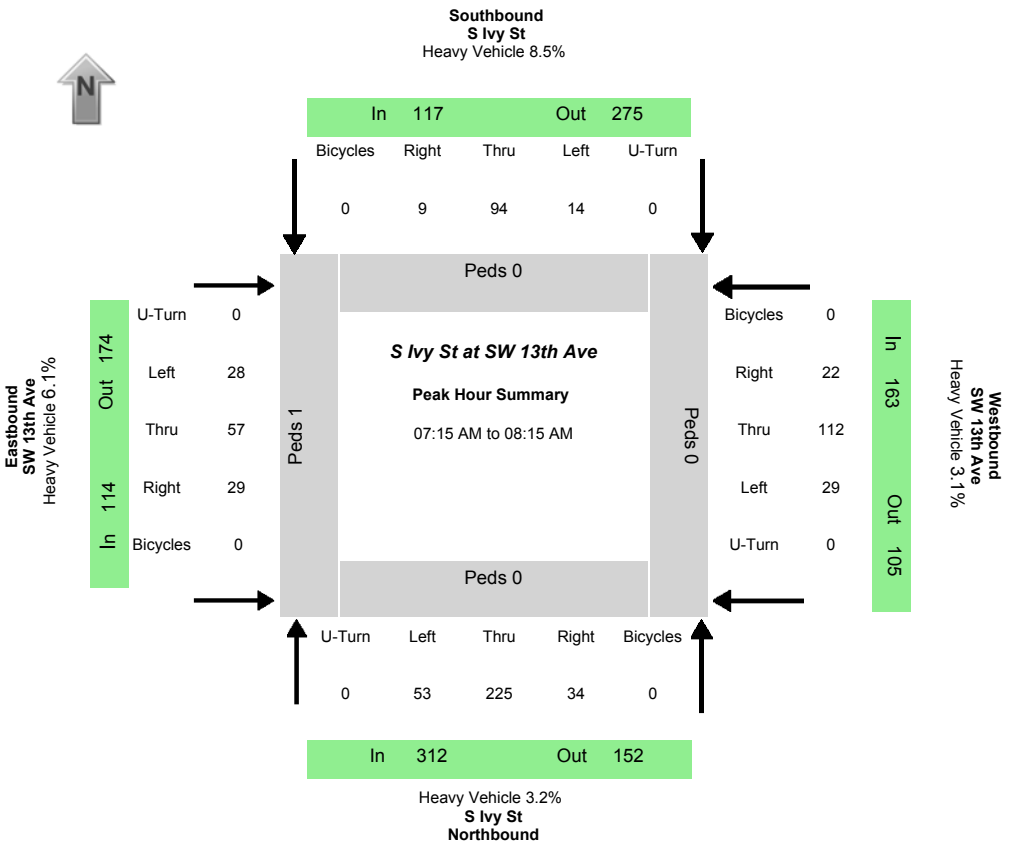
in Crosswalk				
NB	SB	EB	WB	**Sum**
0	0	0	0	0

All Vehicle Volumes

	Northbound S Ivy St				Southbound S Ivy St				Eastbound SE 16th Ave				Westbound SE 16th Ave				15 Min	1 HR
Time	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Sum	Sum
07:00:00 AM	0	18	0	0	0	13	0	0	0	0	0		0	0	2			
07:05:00 AM	1	20	0	0	0	14	0	0	0	0	0		0	0	1			
07:10:00 AM	0	12	1	0	0	5	0	0	0	0	0		0	0	3		90	
07:15:00 AM	0	29	0	0	0	8	0	0	0	0	0		0	0	1		95	
07:20:00 AM	0	19	0	0	0	15	0	0	0	0	1		1	0	1		96	
07:25:00 AM	0	29	0	0	2	11	0	0	0	0	0		0	0	0		117	
07:30:00 AM	0	27	0	0	0	23	0	0	1	0	0		0	0	0		130	
07:35:00 AM	0	20	0	0	0	9	0	0	0	0	0		0	0	0		122	
07:40:00 AM	0	20	0	0	0	6	0	0	0	0	0		0	0	2		108	
07:45:00 AM	0	37	0	0	0	11	0	0	0	0	0		0	0	1		106	
07:50:00 AM	0	30	0	0	2	8	0	0	0	0	0		0	0	0		117	
07:55:00 AM	0	20	0	0	0	16	0	0	0	0	0		1	0	2		128	443
08:00:00 AM	0	22	0	0	0	14	0	0	0	0	0		1	0	1		117	448
08:05:00 AM	0	27	0	0	0	5	0	0	0	0	0		0	0	1		110	445
08:10:00 AM	0	2	0	0	1	6	0	0	0	0	0		0	0	0		80	433
08:15:00 AM	0	9	0	0	0	7	0	0	0	0	0		0	0	1		59	412
08:20:00 AM	0	39	0	0	0	28	2	0	0	0	0		0	0	1		96	445
08:25:00 AM	0	13	0	0	1	8	0	0	0	0	0		0	0	1		110	426
08:30:00 AM	1	18	1	0	0	12	1	0	0	0	0		0	0	0		126	408
08:35:00 AM	0	24	0	0	0	12	0	0	0	0	0		0	0	0		92	415
08:40:00 AM	0	13	0	0	1	8	0	0	0	0	0		0	0	0		91	409
08:45:00 AM	0	21	0	0	0	15	1	0	0	0	0		0	0	0		95	397
08:50:00 AM	0	30	0	0	1	10	0	0	0	0	0		0	0	2		102	400
08:55:00 AM	0	17	1	0	0	17	0	0	0	0	0		0	0	0		115	396

K-D-N
KEY DATA NETWORK

Data Provided by K-D-N.com 503-594-4224	
N/S street	*S Ivy St*
E/W street	*SW 13th Ave*
City, State	Canby OR
Site Notes	
Location	45.252157 - -122.686946
Start Date	Tuesday, July 11, 2017
Start Time	07:00:00 AM
Weather	
Study ID #	
Peak Hour Start	07:15:00 AM
Peak 15 Min Start	07:45:00 AM
PHF (15-Min Int)	0.90



Peak-Hour Volumes (PHV)

Northbound				Southbound				Eastbound				Westbound				Entering				Leaving			
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	NB	SB	EB	WB	NB	SB	EB	WB
53	225	34	0	14	94	9	0	28	57	29	0	29	112	22	0	312	117	114	163	152	275	174	105

Percent Heavy Vehicles

0.0%	4.0%	2.9%	0.0%	7.1%	9.6%	0.0%	0.0%	0.0%	10.5%	3.4%	0.0%	0.0%	4.5%	0.0%	0.0%	3.2%	8.5%	6.1%	3.1%	6.6%	3.3%	2.9%	7.6%

PHV- Bicycles

Northbound				Southbound				Eastbound				Westbound				
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	**Sum**
0	0	0	0	0	0	0	0	0	0	0		0	0	0		0

PHV - Pedestrians

in Crosswalk				
NB	SB	EB	WB	**Sum**
0	0	1	0	1

All Vehicle Volumes

	Northbound S Ivy St				Southbound S Ivy St				Eastbound SW 13th Ave				Westbound SW 13th Ave				15 Min	1 HR
Time	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Sum	Sum
07:00:00 AM	0	17	2	0	0	11	0	0	1	0	1		2	7	3			
07:05:00 AM	1	20	4	0	2	7	0	0	3	6	1		6	8	3			
07:10:00 AM	6	7	2	0	0	4	0	0	0	1	0		0	9	0		134	
07:15:00 AM	5	18	2	0	0	5	1	0	0	8	0		2	12	1		144	
07:20:00 AM	7	19	3	0	0	7	0	0	0	4	7		4	13	3		150	
07:25:00 AM	3	16	3	0	1	3	0	0	2	6	3		4	5	1		168	
07:30:00 AM	1	22	4	0	2	12	1	0	2	4	5		1	15	1		184	
07:35:00 AM	1	15	3	0	0	9	0	0	4	4	2		3	10	1		169	
07:40:00 AM	4	18	1	0	1	5	1	0	4	1	0		0	15	2		174	
07:45:00 AM	9	29	3	0	0	8	1	0	2	5	1		3	6	1		172	
07:50:00 AM	8	18	3	0	2	11	2	0	6	5	1		1	5	2		184	
07:55:00 AM	1	22	1	0	2	9	2	0	3	5	1		5	10	3		196	672
08:00:00 AM	4	18	1	0	1	7	1	0	1	8	3		3	12	3		190	690
08:05:00 AM	6	18	5	0	3	7	0	0	2	3	0		2	4	2		178	681
08:10:00 AM	4	12	5	0	2	11	0	0	2	4	6		1	5	2		168	706
08:15:00 AM	5	5	2	0	0	6	0	0	0	4	2		2	2	2		136	682
08:20:00 AM	2	12	7	0	2	10	0	0	2	4	1		4	8	2		138	669
08:25:00 AM	5	13	2	0	2	8	1	0	2	1	4		3	8	2		135	673
08:30:00 AM	4	17	3	0	1	11	1	0	3	4	2		2	4	3		160	658
08:35:00 AM	3	14	2	0	1	9	0	0	2	1	0		3	6	2		149	649
08:40:00 AM	3	13	3	0	0	4	0	0	4	6	3		4	11	3		152	651
08:45:00 AM	6	13	4	0	2	15	0	0	3	5	5		2	13	2		167	653
08:50:00 AM	5	17	3	0	0	6	1	0	1	7	4		2	7	1		178	643
08:55:00 AM	3	19	1	0	4	12	2	0	0	6	3		2	9	3		188	643

KEY DATA NETWORK
K-D-N.com
Tualatin, OR 97062
503-804-3294

Fir St south of 13th

Date Start: 13-Jul-17

Latitude: 0' 0.0000 Undefined
Longitude: 0' 0.0000 Undefined

SB

Start Time	Bikes	Cars & Trailer	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Not Classe	Total
07/13/17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
00:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
00:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
00:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:15	2	1	0	0	0	0	0	0	0	0	0	0	0	0	3
03:30	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
03:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2	2	0	0	0	0	0	0	0	0	0	0	0	0	4
04:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:15	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
05:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:45	0	6	0	0	0	0	0	0	0	0	0	0	0	0	6
	0	7	0	0	0	0	0	0	0	0	0	0	0	0	7
06:00	0	2	0	0	0	0	0	0	0	0	0	0	0	0	2
06:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06:30	0	2	0	0	0	0	0	0	0	0	0	0	0	0	2
06:45	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
	0	4	0	0	0	0	0	0	0	0	0	0	0	1	5
07:00	0	0	2	0	0	0	0	0	0	0	0	0	0	0	2
07:15	0	0	3	0	0	0	0	0	0	0	0	0	0	0	3
07:30	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
07:45	0	1	2	0	0	0	0	0	0	0	0	0	0	0	3
	0	2	7	0	0	0	0	0	0	0	0	0	0	0	9
08:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:15	0	4	0	0	0	0	0	0	0	0	0	0	0	0	4
08:30	0	2	1	1	0	0	0	0	0	0	0	0	0	0	4
08:45	0	6	0	0	1	0	0	0	0	0	0	0	0	0	7
	0	12	1	1	1	0	0	0	0	0	0	0	0	0	15
09:00	0	6	0	0	0	0	0	0	0	0	0	0	0	0	6
09:15	0	7	2	0	0	0	0	0	0	0	0	0	0	0	9
09:30	0	4	1	0	1	0	0	0	0	0	0	0	0	0	6
09:45	0	1	0	0	1	0	0	0	0	0	0	0	0	0	2
	0	18	3	0	2	0	0	0	0	0	0	0	0	0	23
10:00	0	6	1	0	1	0	0	0	0	0	0	0	0	0	8
10:15	0	4	0	0	0	0	0	0	0	0	0	0	0	0	4
10:30	0	2	0	0	1	0	0	0	0	0	0	0	0	0	3
10:45	0	4	0	0	0	0	0	0	0	0	0	0	0	0	4
	0	16	1	0	2	0	0	0	0	0	0	0	0	0	19
11:00	0	5	1	0	0	0	0	0	0	0	0	0	0	0	6
11:15	0	5	2	0	1	0	0	0	0	0	0	0	0	0	8
11:30	0	3	0	0	0	0	0	0	0	0	0	0	0	1	4
11:45	0	7	0	0	1	0	0	0	0	0	0	0	0	0	8
	0	20	3	0	2	0	0	0	0	0	0	0	0	1	26
Total	2	81	15	1	7	0	0	0	0	0	0	0	0	2	108
Percent	1.9%	75.0%	13.9%	0.9%	6.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	1.9%	

KEY DATA NETWORK
K-D-N.com
Tualatin, OR 97062
503-804-3294

Fir St south of 13th

Date Start: 13-Jul-17

Latitude: 0' 0.0000 Undefined
Longitude: 0' 0.0000 Undefined

SB

Start Time	Bikes	Cars & Trailer	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Not Classe	Total
12 PM	0	8	0	0	0	0	0	0	0	0	0	0	0	0	8
12:15	0	3	1	0	1	0	0	0	0	0	0	0	0	0	5
12:30	0	9	1	0	1	0	0	0	0	0	0	0	0	1	12
12:45	2	6	0	0	0	0	0	0	0	0	0	0	0	0	8
	2	26	2	0	2	0	0	0	0	0	0	0	0	1	33
13:00	0	11	0	0	0	0	0	0	0	0	0	0	0	0	11
13:15	0	3	1	0	2	0	0	0	0	0	0	0	0	0	6
13:30	0	3	2	0	0	0	0	0	0	0	0	0	0	0	5
13:45	0	9	2	0	0	0	0	0	0	0	0	0	0	0	11
	0	26	5	0	2	0	0	0	0	0	0	0	0	0	33
14:00	0	2	0	0	1	0	0	0	0	0	0	0	0	0	3
14:15	1	5	2	0	0	0	0	0	0	0	0	0	0	0	8
14:30	0	5	1	0	0	0	0	0	0	0	0	0	0	0	6
14:45	1	4	0	0	0	0	0	0	0	0	0	0	0	0	5
	2	16	3	0	1	0	0	0	0	0	0	0	0	0	22
15:00	1	6	0	0	0	0	0	0	0	0	0	0	0	0	7
15:15	0	9	0	0	1	0	0	0	0	0	0	0	0	0	10
15:30	1	6	1	0	1	0	0	0	0	0	0	0	0	0	9
15:45	0	4	1	0	0	0	0	0	0	0	0	0	0	0	5
	2	25	2	0	2	0	0	0	0	0	0	0	0	0	31
16:00	1	3	0	0	0	0	0	0	0	0	0	0	0	0	4
16:15	0	3	1	0	1	0	0	0	0	0	0	0	0	2	7
16:30	0	2	0	0	0	0	0	0	0	0	0	0	0	1	3
16:45	0	8	1	0	0	0	0	0	0	0	0	0	0	1	10
	1	16	2	0	1	0	0	0	0	0	0	0	0	4	24
17:00	0	6	3	0	0	0	0	0	0	0	0	0	0	0	9
17:15	0	3	0	0	0	0	0	0	0	0	0	0	0	0	3
17:30	0	4	0	0	0	0	0	0	0	0	0	0	0	0	4
17:45	0	2	0	0	1	0	0	0	0	0	0	0	0	0	3
	0	15	3	0	1	0	0	0	0	0	0	0	0	0	19
18:00	1	3	3	0	1	0	0	0	0	0	0	0	0	0	8
18:15	0	4	0	0	0	0	0	0	0	0	0	0	0	0	4
18:30	0	7	1	0	0	0	0	0	0	0	0	0	0	0	8
18:45	0	5	0	0	0	0	0	0	0	0	0	0	0	0	5
	1	19	4	0	1	0	0	0	0	0	0	0	0	0	25
19:00	0	2	1	0	0	0	0	0	0	0	0	0	0	0	3
19:15	0	3	1	0	1	0	0	0	0	0	0	0	0	0	5
19:30	0	3	0	0	0	0	0	0	0	0	0	0	0	0	3
19:45	0	3	1	0	0	0	0	0	0	0	0	0	0	0	4
	0	11	3	0	1	0	0	0	0	0	0	0	0	0	15
20:00	0	1	1	0	0	0	0	0	0	0	0	0	0	0	2
20:15	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
20:30	0	2	2	0	0	0	0	0	0	0	0	0	0	1	5
20:45	1	1	1	0	0	0	0	0	0	0	0	0	0	0	3
	1	5	4	0	0	0	0	0	0	0	0	0	0	1	11
21:00	0	4	1	0	1	0	0	0	0	0	0	0	0	0	6
21:15	0	5	0	0	1	0	0	0	0	0	0	0	0	0	6
21:30	0	3	0	0	0	0	0	0	0	0	0	0	0	0	3
21:45	0	3	1	0	0	0	0	0	0	0	0	0	0	0	4
	0	15	2	0	2	0	0	0	0	0	0	0	0	0	19
22:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22:15	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
22:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
23:00	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
23:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
Total	9	176	30	0	13	0	0	0	0	0	0	0	0	6	234
Percent	3.8%	75.2%	12.8%	0.0%	5.6%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	2.6%	
Grand Total	11	257	45	1	20	0	0	0	0	0	0	0	0	8	342
Percent	3.2%	75.1%	13.2%	0.3%	5.8%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	2.3%	

KEY DATA NETWORK
K-D-N.com
Tualatin, OR 97062
503-804-3294

Fir St south of 13th

Date Start: 13-Jul-17

Latitude: 0' 0.0000 Undefined
Longitude: 0' 0.0000 Undefined

NB

Start Time	Bikes	Cars & Trailer	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Not Classe	Total
07/13/17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
00:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
00:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
00:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:15	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
03:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
04:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:30	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
04:45	1	0	0	0	0	0	0	0	0	0	0	0	0	1	2
	1	1	0	0	0	0	0	0	0	0	0	0	0	1	3
05:00	0	2	0	0	0	0	0	0	0	0	0	0	0	0	2
05:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:30	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1
05:45	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1
	0	2	2	0	0	0	0	0	0	0	0	0	0	0	4
06:00	0	2	1	0	0	0	0	0	0	0	0	0	0	0	3
06:15	0	4	0	0	0	0	0	0	0	0	0	0	0	0	4
06:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06:45	0	6	1	0	0	0	0	0	0	0	0	0	0	1	8
	0	12	2	0	0	0	0	0	0	0	0	0	0	1	15
07:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15	1	2	1	0	0	1	0	0	0	0	0	0	0	0	5
07:30	0	2	0	0	0	0	0	0	0	0	0	0	0	0	2
07:45	0	2	1	0	0	0	0	0	0	0	0	0	0	0	3
	1	6	2	0	0	1	0	0	0	0	0	0	0	0	10
08:00	0	5	1	0	0	0	0	0	0	0	0	0	0	0	6
08:15	0	2	0	0	0	0	0	0	0	0	0	0	0	0	2
08:30	0	3	0	0	0	0	0	0	0	0	0	0	0	0	3
08:45	0	7	0	0	1	0	0	0	0	0	0	0	0	0	8
	0	17	1	0	1	0	0	0	0	0	0	0	0	0	19
09:00	1	3	1	0	0	0	0	0	0	0	0	0	0	0	5
09:15	0	2	2	0	0	0	0	0	0	0	0	0	0	0	4
09:30	0	2	1	0	1	0	0	0	0	0	0	0	0	0	4
09:45	0	6	1	0	0	0	0	0	0	0	0	0	0	0	7
	1	13	5	0	1	0	0	0	0	0	0	0	0	0	20
10:00	0	7	0	0	0	0	0	0	0	0	0	0	0	0	7
10:15	0	4	1	0	0	0	0	0	0	0	0	0	0	0	5
10:30	0	3	3	0	1	0	0	0	0	0	0	0	0	0	7
10:45	0	7	2	0	0	0	0	0	0	0	0	0	0	2	11
	0	21	6	0	1	0	0	0	0	0	0	0	0	2	30
11:00	0	9	2	0	0	0	0	0	0	0	0	0	0	0	11
11:15	0	6	1	0	0	0	0	0	0	0	0	0	0	0	7
11:30	0	6	1	0	0	0	0	0	0	0	0	0	0	1	8
11:45	0	2	1	0	0	0	0	0	0	0	0	0	0	0	3
	0	23	5	0	0	0	0	0	0	0	0	0	0	1	29
Total	3	95	23	0	3	1	0	0	0	0	0	0	0	6	131
Percent	2.3%	72.5%	17.6%	0.0%	2.3%	0.8%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	4.6%	

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503-804-3294

Fir St south of 13th

Date Start: 13-Jul-17

Latitude: 0' 0.0000 Undefined
Longitude: 0' 0.0000 Undefined

NB

Start Time	Bikes	Cars & Trailer	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Not Classe	Total
12 PM	0	8	0	0	1	0	0	0	0	0	0	0	0	0	9
12:15	0	6	0	0	0	0	0	0	0	0	0	0	0	0	6
12:30	0	7	2	0	0	0	0	0	0	0	0	0	0	0	9
12:45	0	8	2	0	0	0	0	0	0	0	0	0	0	0	10
	0	29	4	0	1	0	0	0	0	0	0	0	0	0	34
13:00	1	2	1	0	1	0	0	0	0	0	0	0	0	1	6
13:15	0	5	2	0	0	0	0	0	0	0	0	0	0	0	7
13:30	0	6	1	0	1	0	0	0	0	0	0	0	0	0	8
13:45	0	2	0	0	0	0	0	0	0	0	0	0	0	0	2
	1	15	4	0	2	0	0	0	0	0	0	0	0	1	23
14:00	0	8	1	0	0	0	0	0	0	0	0	0	0	0	9
14:15	0	6	3	0	2	0	0	0	0	0	0	0	0	2	13
14:30	0	5	1	0	1	0	0	0	0	0	0	0	0	0	7
14:45	0	6	0	0	0	0	0	0	0	0	0	0	0	0	6
	0	25	5	0	3	0	0	0	0	0	0	0	0	2	35
15:00	1	6	0	0	0	0	0	0	0	0	0	0	0	0	7
15:15	0	4	0	0	1	0	0	0	0	0	0	0	0	0	5
15:30	0	5	0	0	1	0	0	0	0	0	0	0	0	0	6
15:45	0	4	1	0	0	0	0	0	0	0	0	0	0	0	5
	1	19	1	0	2	0	0	0	0	0	0	0	0	0	23
16:00	1	5	1	0	0	0	0	0	0	0	0	0	0	0	7
16:15	0	3	1	0	0	0	0	0	0	0	0	0	0	3	7
16:30	2	1	2	0	0	0	0	0	0	0	0	0	0	0	5
16:45	0	6	1	0	0	0	0	0	0	0	0	0	0	0	7
	3	15	5	0	0	0	0	0	0	0	0	0	0	3	26
17:00	3	6	0	0	0	0	0	0	0	0	0	0	0	0	9
17:15	1	2	1	0	0	0	0	0	0	0	0	0	0	0	4
17:30	2	4	0	0	0	0	0	0	0	0	0	0	0	0	6
17:45	4	6	0	0	0	0	0	0	0	0	0	0	0	0	10
	10	18	1	0	0	0	0	0	0	0	0	0	0	0	29
18:00	2	6	2	0	0	0	0	0	0	0	0	0	0	0	10
18:15	3	5	0	0	0	0	0	0	0	0	0	0	0	0	8
18:30	0	5	2	0	0	0	0	0	0	0	0	0	0	0	7
18:45	0	6	2	0	0	0	0	0	0	0	0	0	0	0	8
	5	22	6	0	0	0	0	0	0	0	0	0	0	0	33
19:00	0	8	1	0	0	0	0	0	0	0	0	0	0	0	9
19:15	0	3	0	0	0	0	0	0	0	0	0	0	0	0	3
19:30	0	2	0	0	0	0	0	0	0	0	0	0	0	0	2
19:45	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
	0	14	1	0	0	0	0	0	0	0	0	0	0	0	15
20:00	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
20:15	0	2	0	0	0	0	0	0	0	0	0	0	0	0	2
20:30	0	3	3	0	0	0	0	0	0	0	0	0	0	0	6
20:45	0	1	1	0	0	0	0	0	0	0	0	0	0	0	2
	0	7	4	0	0	0	0	0	0	0	0	0	0	0	11
21:00	0	2	1	0	0	0	0	0	0	0	0	0	0	0	3
21:15	1	2	0	0	0	0	0	0	0	0	0	0	0	0	3
21:30	0	3	0	0	0	0	0	0	0	0	0	0	0	0	3
21:45	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1
	1	7	2	0	0	0	0	0	0	0	0	0	0	0	10
22:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22:30	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
22:45	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
	0	2	0	0	0	0	0	0	0	0	0	0	0	0	2
23:00	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
23:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
Total	21	174	33	0	8	0	0	0	0	0	0	0	0	6	242
Percent	8.7%	71.9%	13.6%	0.0%	3.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	2.5%	
Grand Total	24	269	56	0	11	1	0	0	0	0	0	0	0	12	373
Percent	6.4%	72.1%	15.0%	0.0%	2.9%	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	3.2%	

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Fir St south of SW 13th

Date Start: 12-Jul-17

Latitude: 0' 0.0000 Undefined
Longitude: 0' 0.0000 Undefined

SB

Start Time	1 20	21 22	23 24	25 26	27 28	29 30	31 32	33 34	35 36	37 38	39 40	41 42	43 44	45 999	Total	85th Percent	95th Percent
07/12/17	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
01:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
02:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
03:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
04:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
05:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
06:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
07:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
08:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
09:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
10:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
11:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
12 PM	19	0	0	0	0	0	0	0	0	0	0	0	0	0	19	17	19
13:00	**24**	1	0	0	0	0	0	0	0	0	0	0	0	0	**25**	17	19
14:00	19	1	0	0	0	0	0	0	0	0	0	0	0	0	20	17	20
15:00	21	**2**	**1**	0	0	0	0	0	0	0	0	0	0	0	24	19	21
16:00	18	1	0	0	0	0	0	0	0	0	0	0	0	0	19	17	20
17:00	21	1	0	0	0	0	0	0	0	0	0	0	0	0	22	17	19
18:00	19	0	0	0	0	0	0	0	0	0	0	0	0	0	19	17	19
19:00	19	1	0	0	0	0	0	0	0	0	0	0	0	0	20	17	20
20:00	17	0	0	0	0	0	0	0	0	0	0	0	0	0	17	17	19
21:00	13	0	0	0	0	0	0	0	0	0	0	0	0	0	13	16	19
22:00	3	0	0	0	0	0	0	0	0	0	0	0	0	0	3	17	19
23:00	2	0	0	0	0	0	0	0	0	0	0	0	0	0	2	17	19
Total	195	7	1	0	0	0	0	0	0	0	0	0	0	0	203		
Percent	96.1%	3.4%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%			
AM Peak Vol.																	
PM Peak Vol.	13:00 24	15:00 2	15:00 1												13:00 25		

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SB

Start Time	1 20	21 22	23 24	25 26	27 28	29 30	31 32	33 34	35 36	37 38	39 40	41 42	43 44	45 999	Total	85th Percent	95th Percent
07/13/17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
01:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
02:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
03:00	4	0	0	0	0	0	0	0	0	0	0	0	0	0	4	17	19
04:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
05:00	7	0	0	0	0	0	0	0	0	0	0	0	0	0	7	16	19
06:00	5	0	0	0	0	0	0	0	0	0	0	0	0	0	5	17	19
07:00	9	0	0	0	0	0	0	0	0	0	0	0	0	0	9	16	19
08:00	15	0	0	0	0	0	0	0	0	0	0	0	0	0	15	17	19
09:00	21	**2**	0	0	0	0	0	0	0	0	0	0	0	0	23	18	20
10:00	19	0	0	0	0	0	0	0	0	0	0	0	0	0	19	17	19
11:00	**23**	2	**1**	0	0	0	0	0	0	0	0	0	0	0	**26**	19	21
12 PM	**33**	0	0	0	0	0	0	0	0	0	0	0	0	0	**33**	16	19
13:00	32	0	0	**1**	0	0	0	0	0	0	0	0	0	0	33	17	19
14:00	22	0	0	0	0	0	0	0	0	0	0	0	0	0	22	17	19
15:00	31	0	0	0	0	0	0	0	0	0	0	0	0	0	31	17	19
16:00	21	**2**	**1**	0	0	0	0	0	0	0	0	0	0	0	24	19	21
17:00	16	2	0	1	0	0	0	0	0	0	0	0	0	0	19	20	24
18:00	25	0	0	0	0	0	0	0	0	0	0	0	0	0	25	17	19
19:00	14	1	0	0	0	0	0	0	0	0	0	0	0	0	15	18	20
20:00	10	1	0	0	0	0	0	0	0	0	0	0	0	0	11	18	20
21:00	18	0	1	0	0	0	0	0	0	0	0	0	0	0	19	17	22
22:00	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	17	19
23:00	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	23	23
Total	326	10	4	2	0	0	0	0	0	0	0	0	0	0	342		
Percent	95.3%	2.9%	1.2%	0.6%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%			
AM Peak	11:00	09:00	11:00												11:00		
Vol.	23	2	1												26		
PM Peak	12:00	16:00	16:00	13:00											12:00		
Vol.	33	2	1	1											33		
Grand Total	521	17	5	2	0	0	0	0	0	0	0	0	0	0	545		
Percent	95.6%	3.1%	0.9%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%			

15th Percentile :	3 MPH
50th Percentile :	10 MPH
85th Percentile :	17 MPH
95th Percentile :	19 MPH

Statistics

10 MPH Pace Speed :	1-10 MPH
Number in Pace :	261
Percent in Pace :	47.9%
Number of Vehicles > 35 MPH :	0
Percent of Vehicles > 35 MPH :	0.0%
Mean Speed(Average) :	11 MPH

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Longitude: 0' 0.0000 Undefined

NB

Start Time	1 20	21 22	23 24	25 26	27 28	29 30	31 32	33 34	35 36	37 38	39 40	41 42	43 44	45 999	Total	85th Percent	95th Percent
07/12/17	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
01:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
02:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
03:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
04:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
05:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
06:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
07:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
08:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
09:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
10:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
11:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
12 PM	18	0	0	0	0	0	0	0	0	0	0	0	0	0	18	16	19
13:00	25	0	0	0	0	0	0	0	0	0	0	0	0	0	25	17	19
14:00	**31**	0	0	0	0	0	0	0	0	0	0	0	0	0	**31**	17	19
15:00	17	0	0	0	0	0	0	0	0	0	0	0	0	0	17	17	19
16:00	17	**1**	0	0	0	0	0	0	0	0	0	0	0	0	18	18	20
17:00	23	0	0	0	0	0	0	0	0	0	0	0	0	0	23	17	19
18:00	23	0	0	0	0	0	0	0	0	0	0	0	0	0	23	17	19
19:00	11	0	0	0	0	0	0	0	0	0	0	0	0	0	11	17	19
20:00	11	0	0	0	0	0	0	0	0	0	0	0	0	0	11	17	19
21:00	4	0	0	0	0	0	0	0	0	0	0	0	0	0	4	17	19
22:00	4	0	0	0	0	0	0	0	0	0	0	0	0	0	4	17	19
23:00	4	0	0	0	0	0	0	0	0	0	0	0	0	0	4	17	19
Total	188	1	0	0	0	0	0	0	0	0	0	0	0	0	189		
Percent	99.5%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%			
AM Peak Vol.																	
PM Peak Vol.	14:00 31	16:00 1													14:00 31		

KEY DATA NETWORK

K-D-N.com
Tualatin, OR 97062
503-804-3294

Fir St south of SW 13th

Date Start: 12-Jul-17

Latitude: 0' 0.0000 Undefined
Longitude: 0' 0.0000 Undefined

NB

Start Time	1 20	21 22	23 24	25 26	27 28	29 30	31 32	33 34	35 36	37 38	39 40	41 42	43 44	45 999	Total	85th Percent	95th Percent
07/13/17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
01:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
02:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
03:00	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	17	19
04:00	3	0	0	0	0	0	0	0	0	0	0	0	0	0	3	17	19
05:00	4	0	0	0	0	0	0	0	0	0	0	0	0	0	4	17	19
06:00	15	0	0	0	0	0	0	0	0	0	0	0	0	0	15	17	19
07:00	10	0	0	0	0	0	0	0	0	0	0	0	0	0	10	17	19
08:00	19	0	0	0	0	0	0	0	0	0	0	0	0	0	19	17	19
09:00	20	0	0	0	0	0	0	0	0	0	0	0	0	0	20	17	19
10:00	**29**	**1**	0	0	0	0	0	0	0	0	0	0	0	0	**30**	17	19
11:00	29	0	0	0	0	0	0	0	0	0	0	0	0	0	29	17	19
12 PM	34	0	0	0	0	0	0	0	0	0	0	0	0	0	34	17	19
13:00	22	**1**	0	0	0	0	0	0	0	0	0	0	0	0	23	17	19
14:00	**35**	0	0	0	0	0	0	0	0	0	0	0	0	0	**35**	17	19
15:00	23	0	0	0	0	0	0	0	0	0	0	0	0	0	23	17	19
16:00	26	0	0	0	0	0	0	0	0	0	0	0	0	0	26	16	19
17:00	29	0	0	0	0	0	0	0	0	0	0	0	0	0	29	17	19
18:00	33	0	0	0	0	0	0	0	0	0	0	0	0	0	33	16	19
19:00	15	0	0	0	0	0	0	0	0	0	0	0	0	0	15	17	19
20:00	11	0	0	0	0	0	0	0	0	0	0	0	0	0	11	17	19
21:00	10	0	0	0	0	0	0	0	0	0	0	0	0	0	10	17	19
22:00	2	0	0	0	0	0	0	0	0	0	0	0	0	0	2	17	19
23:00	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	17	19
Total	371	2	0	0	0	0	0	0	0	0	0	0	0	0	373		
Percent	99.5%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%			
AM Peak	10:00	10:00													10:00		
Vol.	29	1													30		
PM Peak	14:00	13:00													14:00		
Vol.	35	1													35		
Grand Total	559	3	0	0	0	0	0	0	0	0	0	0	0	0	562		
Percent	99.5%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%			

15th Percentile :	3 MPH
50th Percentile :	10 MPH
85th Percentile :	17 MPH
95th Percentile :	19 MPH

Statistics

10 MPH Pace Speed :	11-20 MPH
Number in Pace :	279
Percent in Pace :	49.6%
Number of Vehicles > 35 MPH :	0
Percent of Vehicles > 35 MPH :	0.0%
Mean Speed(Average) :	11 MPH

KEY DATA NETWORK
K-D-N.com
Tualatin, OR 97062
503-804-3294

Fir St south of 13th

Date Start: 7/12/2017

Latitude: 0' 0.0000 Undefined
Longitude: 0' 0.0000 Undefined

Start Time	7/12/2017 Wed	SB	NB	Combined Total
12:00 AM		*	*	*
01:00		*	*	*
02:00		*	*	*
03:00		*	*	*
04:00		*	*	*
05:00		*	*	*
06:00		*	*	*
07:00		*	*	*
08:00		*	*	*
09:00		*	*	*
10:00		*	*	*
11:00		*	*	*
12:00 PM		19	18	37
01:00		25	25	50
02:00		20	31	51
03:00		24	17	41
04:00		19	18	37
05:00		22	23	45
06:00		19	23	42
07:00		20	11	31
08:00		17	11	28
09:00		13	4	17
10:00		3	4	7
11:00		2	4	6
Total		203	189	392
Percent		51.8%	48.2%	

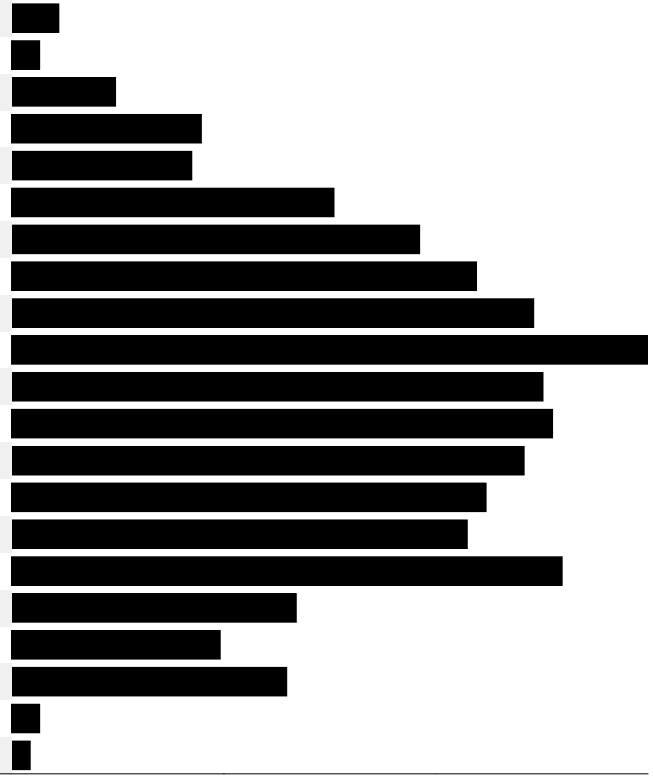
KEY DATA NETWORK
K-D-N.com
Tualatin, OR 97062
503-804-3294

Fir St south of 13th

Date Start: 7/12/2017

Latitude: 0' 0.0000 Undefined
Longitude: 0' 0.0000 Undefined

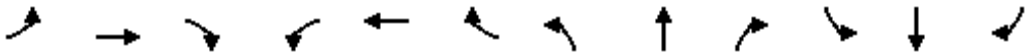
Start Time	7/13/2017 Thu	SB	NB	Combined Total
12:00 AM		0	0	0
01:00		0	0	0
02:00		0	0	0
03:00		4	1	5
04:00		0	3	3
05:00		7	4	11
06:00		5	15	20
07:00		9	10	19
08:00		15	19	34
09:00		23	20	43
10:00		19	30	49
11:00		26	29	55
12:00 PM		33	34	67
01:00		33	23	56
02:00		22	35	57
03:00		31	23	54
04:00		24	26	50
05:00		19	29	48
06:00		25	33	58
07:00		15	15	30
08:00		11	11	22
09:00		19	10	29
10:00		1	2	3
11:00		1	1	2
Total		342	373	715
Percent		47.8%	52.2%	
Grand Total		545	562	
Percentage		49.2%	50.8%	
ADT		ADT 627		AADT 627



DKS

APPENDIX C

Existing (2017) Level of Service Worksheet



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	34	177	99	104	141	61	50	205	43	59	243	36
Future Volume (vph)	34	177	99	104	141	61	50	205	43	59	243	36
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	4.5	4.5		4.5	4.5		4.0	5.0		4.0	5.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.95		1.00	0.95		1.00	0.97		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1630	1623		1630	1638		1630	1671		1630	1682	
Flt Permitted	0.61	1.00		0.46	1.00		0.58	1.00		0.57	1.00	
Satd. Flow (perm)	1042	1623		791	1638		998	1671		985	1682	
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)	35	184	103	108	147	64	52	214	45	61	253	38
RTOR Reduction (vph)	0	41	0	0	32	0	0	12	0	0	8	0
Lane Group Flow (vph)	35	246	0	108	179	0	52	247	0	61	283	0
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	11.4	11.4		11.4	11.4		22.0	20.5		23.8	21.4	
Effective Green, g (s)	11.4	11.4		11.4	11.4		22.0	20.5		23.8	21.4	
Actuated g/C Ratio	0.24	0.24		0.24	0.24		0.46	0.43		0.50	0.45	
Clearance Time (s)	4.5	4.5		4.5	4.5		4.0	5.0		4.0	5.0	
Vehicle Extension (s)	2.5	2.5		2.5	2.5		2.5	4.0		2.5	4.0	
Lane Grp Cap (vph)	248	387		188	390		479	716		522	753	
v/s Ratio Prot		c0.15			0.11		0.00	0.15		c0.01	c0.17	
v/s Ratio Perm	0.03			0.14			0.05			0.05		
v/c Ratio	0.14	0.64		0.57	0.46		0.11	0.34		0.12	0.38	
Uniform Delay, d1	14.3	16.3		16.1	15.6		7.2	9.1		6.3	8.8	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.2	3.0		3.5	0.6		0.1	1.3		0.1	1.4	
Delay (s)	14.5	19.3		19.5	16.2		7.3	10.5		6.3	10.2	
Level of Service	B	B		B	B		A	B		A	B	
Approach Delay (s)		18.8			17.3			9.9			9.5	
Approach LOS		B			B			A			A	

Intersection Summary			
HCM 2000 Control Delay	13.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.45		
Actuated Cycle Length (s)	47.8	Sum of lost time (s)	13.5
Intersection Capacity Utilization	57.5%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Intersection	
Int Delay, s/veh	0.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	28	292	12	8	207	10	4	0	7	4	0	3
Future Vol, veh/h	28	292	12	8	207	10	4	0	7	4	0	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	31	321	13	9	227	11	4	0	8	4	0	3

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	238	0	0	334	0	0	641	645	327	644	647	233
Stage 1	-	-	-	-	-	-	389	389	-	251	251	-
Stage 2	-	-	-	-	-	-	252	256	-	393	396	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1329	-	-	1225	-	-	388	391	714	386	390	806
Stage 1	-	-	-	-	-	-	635	608	-	753	699	-
Stage 2	-	-	-	-	-	-	752	696	-	632	604	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1329	-	-	1225	-	-	376	377	714	371	376	806
Mov Cap-2 Maneuver	-	-	-	-	-	-	376	377	-	371	376	-
Stage 1	-	-	-	-	-	-	617	590	-	731	693	-
Stage 2	-	-	-	-	-	-	743	690	-	607	586	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.7	0.3	11.8	12.6
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	538	1329	-	-	1225	-	-	483
HCM Lane V/C Ratio	0.022	0.023	-	-	0.007	-	-	0.016
HCM Control Delay (s)	11.8	7.8	0	-	8	0	-	12.6
HCM Lane LOS	B	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0.1	0.1	-	-	0	-	-	0

Intersection	
Int Delay, s/veh	0.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	2	11	288	8	8	416
Future Vol, veh/h	2	11	288	8	8	416
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	2	12	316	9	9	457

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	796	321	0	0	325	0
Stage 1	321	-	-	-	-	-
Stage 2	475	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	356	720	-	-	1235	-
Stage 1	735	-	-	-	-	-
Stage 2	626	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	352	720	-	-	1235	-
Mov Cap-2 Maneuver	352	-	-	-	-	-
Stage 1	735	-	-	-	-	-
Stage 2	620	-	-	-	-	-

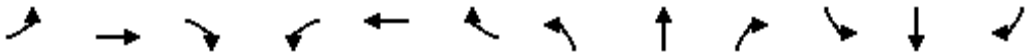
Approach	WB	NB	SB
HCM Control Delay, s	10.9	0	0.1
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	620	1235	-
HCM Lane V/C Ratio	-	-	0.023	0.007	-
HCM Control Delay (s)	-	-	10.9	7.9	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0	-

DKS

APPENDIX D

Future (2035) Plus Project Level of Service Worksheet



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	28	304	72	161	320	79	134	228	161	207	321	6
Future Volume (vph)	28	304	72	161	320	79	134	228	161	207	321	6
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	4.5	4.5		4.5	4.5		4.0	5.0		4.0	5.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.97		1.00	0.97		1.00	0.94		1.00	1.00	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1630	1666		1630	1665		1630	1609		1630	1711	
Flt Permitted	0.30	1.00		0.34	1.00		0.51	1.00		0.37	1.00	
Satd. Flow (perm)	523	1666		578	1665		867	1609		637	1711	
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)	29	317	75	168	333	82	140	238	168	216	334	6
RTOR Reduction (vph)	0	16	0	0	17	0	0	45	0	0	1	0
Lane Group Flow (vph)	29	376	0	168	398	0	140	361	0	216	339	0
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	16.6	16.6		16.6	16.6		23.4	19.9		25.4	20.9	
Effective Green, g (s)	16.6	16.6		16.6	16.6		23.4	19.9		25.4	20.9	
Actuated g/C Ratio	0.30	0.30		0.30	0.30		0.43	0.37		0.47	0.38	
Clearance Time (s)	4.5	4.5		4.5	4.5		4.0	5.0		4.0	5.0	
Vehicle Extension (s)	2.5	2.5		2.5	2.5		2.5	4.0		2.5	4.0	
Lane Grp Cap (vph)	159	507		176	507		421	587		378	656	
v/s Ratio Prot		0.23			0.24		0.02	c0.22		c0.05	0.20	
v/s Ratio Perm	0.06			c0.29			0.12			0.22		
v/c Ratio	0.18	0.74		0.95	0.79		0.33	0.61		0.57	0.52	
Uniform Delay, d1	14.0	17.0		18.6	17.3		9.7	14.2		9.4	12.9	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.4	5.5		54.2	7.6		0.3	4.8		1.7	2.9	
Delay (s)	14.4	22.5		72.7	24.9		10.1	18.9		11.1	15.8	
Level of Service	B	C		E	C		B	B		B	B	
Approach Delay (s)		22.0			38.7			16.7			14.0	
Approach LOS		C			D			B			B	

Intersection Summary			
HCM 2000 Control Delay	23.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	54.5	Sum of lost time (s)	13.5
Intersection Capacity Utilization	83.0%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Intersection	
Int Delay, s/veh	1.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	37	381	105	15	336	101	21	19	1	0	7	6
Future Vol, veh/h	37	381	105	15	336	101	21	19	1	0	7	6
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	41	419	115	16	369	111	23	21	1	0	8	7

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	480	0	0	534	0	0	1023	1071	476	1027	1073	425
Stage 1	-	-	-	-	-	-	558	558	-	458	458	-
Stage 2	-	-	-	-	-	-	465	513	-	569	615	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1082	-	-	1034	-	-	214	221	589	213	220	629
Stage 1	-	-	-	-	-	-	514	512	-	583	567	-
Stage 2	-	-	-	-	-	-	578	536	-	507	482	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1082	-	-	1034	-	-	194	204	589	185	204	629
Mov Cap-2 Maneuver	-	-	-	-	-	-	194	204	-	185	204	-
Stage 1	-	-	-	-	-	-	486	484	-	551	555	-
Stage 2	-	-	-	-	-	-	552	525	-	458	455	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.6	0.3	27.9	17.8
HCM LOS			D	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	202	1082	-	-	1034	-	-	296
HCM Lane V/C Ratio	0.223	0.038	-	-	0.016	-	-	0.048
HCM Control Delay (s)	27.9	8.5	0	-	8.5	0	-	17.8
HCM Lane LOS	D	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	0.8	0.1	-	-	0	-	-	0.2

Intersection	
Int Delay, s/veh	0.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	6	21	501	7	26	479
Future Vol, veh/h	6	21	501	7	26	479
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	7	23	551	8	29	526

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1138	554	0	0	558	0
Stage 1	554	-	-	-	-	-
Stage 2	584	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	223	532	-	-	1013	-
Stage 1	575	-	-	-	-	-
Stage 2	557	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	214	532	-	-	1013	-
Mov Cap-2 Maneuver	214	-	-	-	-	-
Stage 1	575	-	-	-	-	-
Stage 2	535	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	14.7	0	0.4
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	400	1013	-
HCM Lane V/C Ratio	-	-	0.074	0.028	-
HCM Control Delay (s)	-	-	14.7	8.7	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0.2	0.1	-

Intersection	
Intersection Delay (sec/veh):	0

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Volume (vph)	41	0	31	0	0	0	4	420	0	0	388	52
Conflicting Peds.(#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
Right Turn Channelized	None	None	None	None	None	None	None	None	None	None	None	None
Storage Length	0		0	0		0	0		0	0		0
Median Width		0			0			0			0	
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
Heavy Vehicles(%)	2	2	2	2	2	2	2	2	2	2	2	2
Movement Flow Rate	45	0	34	0	0	0	4	457	0	0	422	57
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Major/Minor	Minor 1			Minor 1			Major 1			Major 2		
Conflicting Flow Rate - All	915	915	450	-	943	-	478	0	-	-	0	0
Stage 1	450	450	0	-	465	-	0	0	-	-	0	0
Stage 2	465	465	0	-	478	-	0	0	-	-	0	0
Follow-up Headway	3.518	4.018	3.318	-	4.018	-	2.218	-	-	-	0	0
Pot Capacity-1 Maneuver	253	273	609	-	263	-	1083	-	-	-	-	-
Stage 1	589	572	-	-	563	-	-	-	-	-	-	-
Stage 2	578	563	-	-	556	-	-	-	-	-	-	-
Mov Capacity-1 Maneuver	-	271.9	609	-	261.9	-	1083	-	-	-	-	-
Mov Capacity-2 Maneuver	-	271.9	-	-	261.9	-	-	-	-	-	-	-
Stage 1	589	0	-	-	560.7	-	-	-	-	-	-	-
Stage 2	575.7	560.7	-	-	0	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay (s)	-	0	0.1	0
HCM LOS	-	A	A	A

Lane	NBL	NBT	EBLn1	WBLn1	SBT	SBR
Capacity (vph)			-	-		
HCM Control Delay (s)	8.337	0	-	0	-	-
HCM Lane VC Ratio	0.004	-	-	-	0	-
HCM Lane LOS	A	-	-	A	-	-
HCM 95th Percentile Queue (veh)	0.012	-	-	-	0	-

Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	3	1	0	30	99	10
Future Vol, veh/h	3	1	0	30	99	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	3	1	0	33	108	11

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	146	113	118	0	-	0
Stage 1	113	-	-	-	-	-
Stage 2	33	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	846	940	1470	-	-	-
Stage 1	912	-	-	-	-	-
Stage 2	989	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	846	940	1470	-	-	-
Mov Cap-2 Maneuver	846	-	-	-	-	-
Stage 1	912	-	-	-	-	-
Stage 2	989	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.2	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1470	-	868	-	-
HCM Lane V/C Ratio	-	-	0.005	-	-
HCM Control Delay (s)	0	-	9.2	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	3	1	0	22	83	7
Future Vol, veh/h	3	1	0	22	83	7
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	3	1	0	24	90	8

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	118	94	98	0	-	0
Stage 1	94	-	-	-	-	-
Stage 2	24	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	878	963	1495	-	-	-
Stage 1	930	-	-	-	-	-
Stage 2	999	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	878	963	1495	-	-	-
Mov Cap-2 Maneuver	878	-	-	-	-	-
Stage 1	930	-	-	-	-	-
Stage 2	999	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1495	-	898	-	-
HCM Lane V/C Ratio	-	-	0.005	-	-
HCM Control Delay (s)	0	-	9	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

Intersection	
Int Delay, s/veh	4.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	3	4	0	0	0	6	0	11	4	44	25	11
Future Vol, veh/h	3	4	0	0	0	6	0	11	4	44	25	11
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	3	4	0	0	0	7	0	12	4	48	27	12

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	146	145	33	145	149	14	39	0	0	16	0	0
Stage 1	129	129	-	14	14	-	-	-	-	-	-	-
Stage 2	17	16	-	131	135	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	823	746	1041	824	743	1066	1571	-	-	1602	-	-
Stage 1	875	789	-	1006	884	-	-	-	-	-	-	-
Stage 2	1002	882	-	873	785	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	799	723	1041	801	720	1066	1571	-	-	1602	-	-
Mov Cap-2 Maneuver	799	723	-	801	720	-	-	-	-	-	-	-
Stage 1	875	765	-	1006	884	-	-	-	-	-	-	-
Stage 2	996	882	-	841	761	-	-	-	-	-	-	-

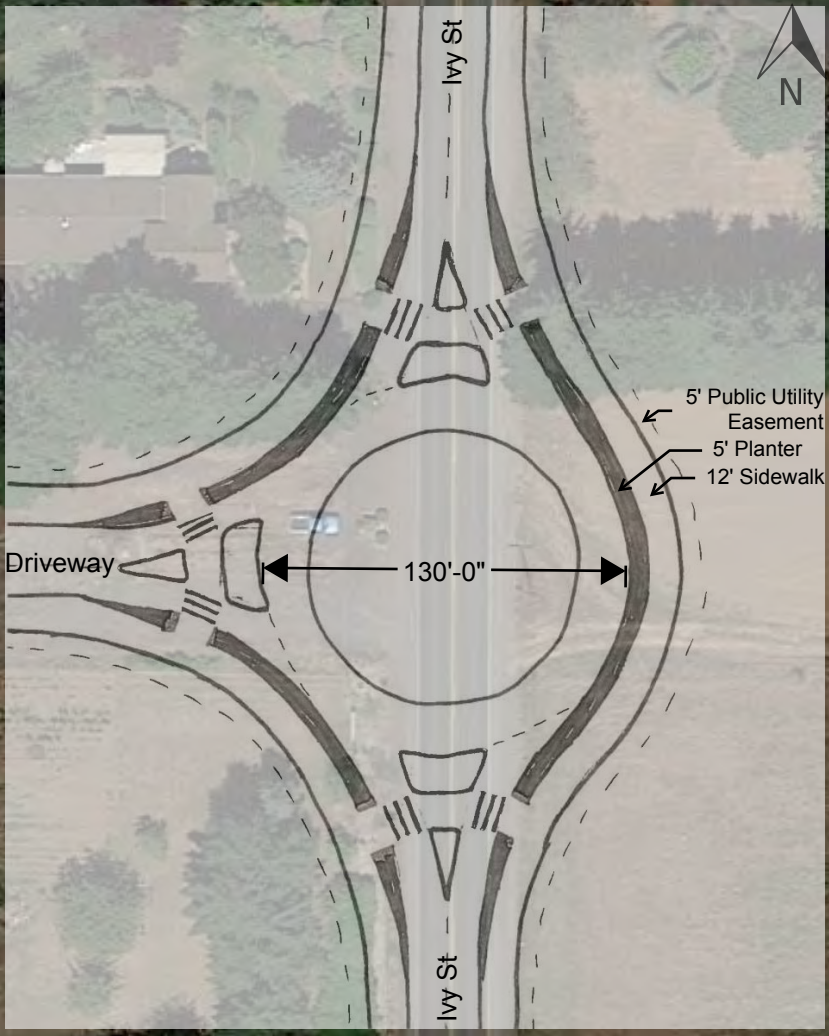
Approach	EB	WB	NB	SB
HCM Control Delay, s	9.8	8.4	0	4
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1571	-	-	754	1066	1602	-	-
HCM Lane V/C Ratio	-	-	-	0.01	0.006	0.03	-	-
HCM Control Delay (s)	0	-	-	9.8	8.4	7.3	0	-
HCM Lane LOS	A	-	-	A	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0	0	0.1	-	-

DKS

APPENDIX E

Roundabout Sketch


Ivy St
N
5' Public Utility Easement
5' Planter
12' Sidewalk
Driveway
130'-0"
Ivy St

Scale 50'-0"

DKS

APPENDIX F

Transportation Planning Rule (TPR) Evaluation

DKS

Transportation Planning Rule (TPR) Evaluation

This memorandum summarizes how the requirements of Oregon Administrative Rule (OAR) 660-012-0060, the Transportation Planning Rule (TPR), are met for the proposed zone changes within the Stafford Development Concept Plan Area in Canby, Oregon. The following section describes the land use applications consistency with both the City's Comprehensive Plan and Transportation System Plan.

Transportation Planning Rule Findings

The Stafford Development Concept Plan Area is located inside Canby's Urban Growth Boundary (UGB) in unincorporated Clackamas County. The area is proposed to have a mix of zoning types through annexation to the City of Canby, which is consistent with the City's adopted Comprehensive Plan designation.

The requirements of Oregon Administrative Rule (OAR) 660-012-0060, the Transportation Planning Rule (TPR), must be met for proposed changes in land use zoning. The intent of the TPR (OAR 660-12-0060) is to ensure that future land use and traffic growth is consistent with transportation system planning, and does not create a significant impact on the surrounding transportation system beyond currently allowed uses. The TPR allows a change in land use zoning in the event that a zone change would make the designation consistent with both the Comprehensive Plan and the Transportation System Plan. The allowance (found in Section 9) was added to the TPR in December 2011 and fits the circumstances of the project parcels. Specifically, section 9 states:
Notwithstanding section (1) of this rule, a local government may find that an amendment to a zoning map does not significantly affect an existing or planned transportation facility if all of the following requirements are met.

(a) The proposed zoning is consistent with the existing comprehensive plan map designation and the amendment does not change the comprehensive plan map;
(b) The local government has an acknowledged TSP and the proposed zoning is consistent with the TSP;
(c) The area subject to the zoning map amendment was not exempted from this rule at the time of an urban growth boundary amendment as permitted in OAR 660-024-0020(1)(d), or the area was exempted from this rule but the local government has a subsequently acknowledged TSP amendment that accounted for urbanization of the area
The City of Canby makes the finding that all three criteria are satisfied; therefore, the proposed rezone will not have a significant effect on the transportation system. The proposed rezoning is consistent with the existing comprehensive plan map designation as shown in Table 1. Additionally, the transportation assessment performed as part of the City's TSP and Stafford Development Concept Plan account for the proposed uses

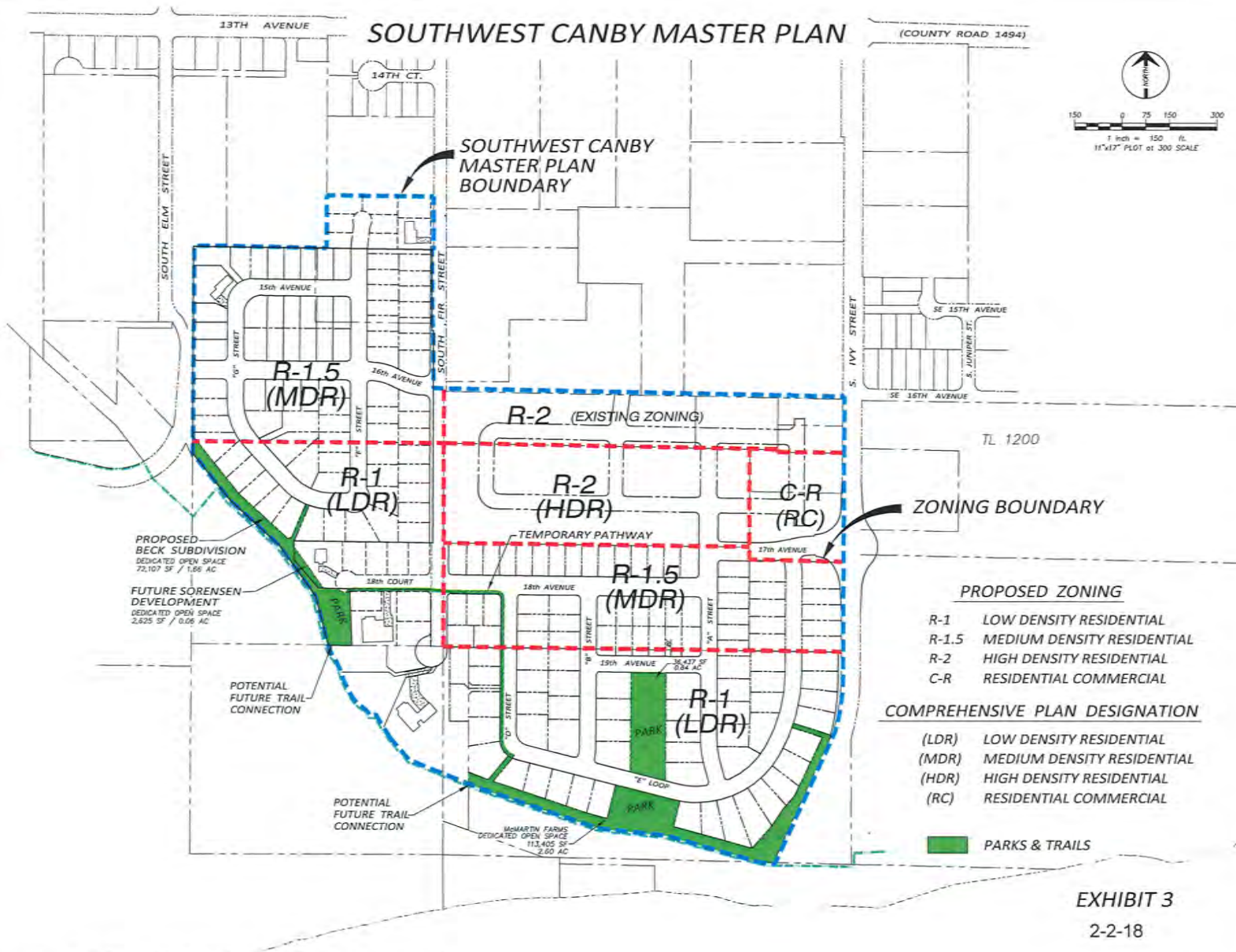
related to annexation of the Stafford Development Area, therefore the proposed rezoning is consistent with the acknowledged transportation system plan. Lastly, subsection (c) applies if the area was added to the urban growth boundary (UGB). Since the parcels are already within the UGB, provisions from subsection (c) would not apply.

Table 1: Land Use Summary

Tax Lots	City of Canby Comprehensive Plan Land Use	Proposed Land Use
1500, 1600, 1602, 1800, 2000	R-1 (Low Density Residential)	R-1 (Low Density Residential)
1401, 1500, 1400, 1700, 1600	R-1.5 (Medium Density Residential)	R-1.5 (Medium Density Residential)
1700	R-2 (High Density Residential)	R-2 (High Density Residential)
1400, 1500	C-R (Residential Commercial)	C-R (Residential Commercial)

Southwest Canby Development Concept Plan

Prepared by Planning & Land Design LLC
1862 NE Estate Drive, Hillsboro, Oregon 97124
Ryan O'Brien Phone (503) 780-4061
ryanobrien1@frontier.com



NOTE: Property owners are not bound to lot size and lines as proposed

SOUTHWEST CANBY
TAX MAP T4S, R1E, SECTION 4
CITY OF CANBY, OREGON

STAFFORD DEVELOPMENT COMPANY, LLC
485 SOUTH STATE STREET
LAKE OSWEGO, OREGON 97034

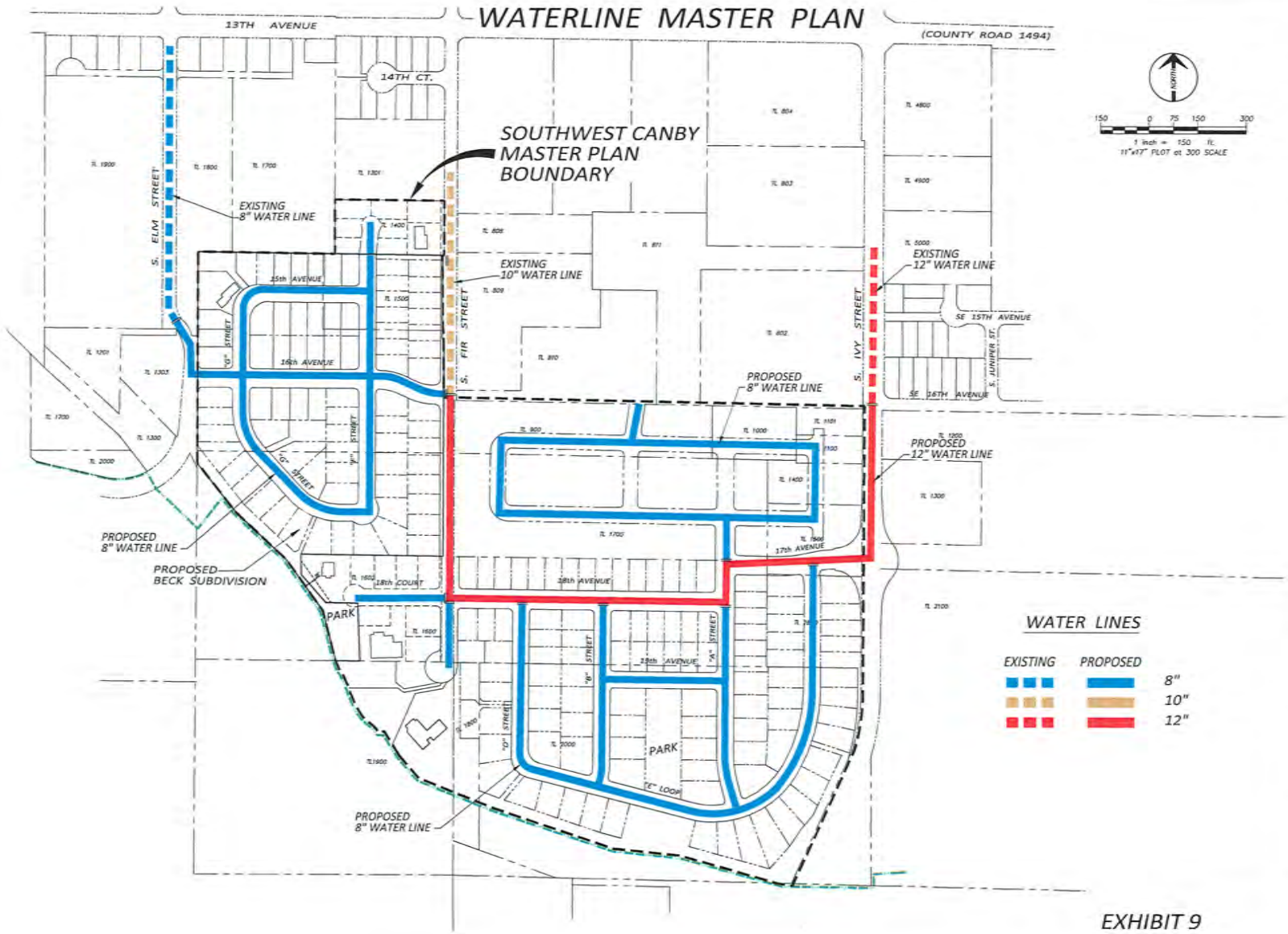
SOUTHWEST CANBY MASTER PLAN

REVISIONS

NO	DATE	DESCRIPTION
1	1-11-18	REVISIONS PER 1-8-18 PLANNING COMMISSION MEETING
2	1-22-18	UPDATE BECK POND SUBDIVISION TO INCLUDE STRAWE PROPERTY

PLANNING & LAND DESIGN
1862 NE ESTATE DRIVE
HILLSBORO, OREGON 97124
RYAN O'BRIEN
(503)780-4061

SHEET
OF



NOTE: Property owners are not bound to lot size and lines as proposed

SOUTHWEST CANBY
TAX MAP T4S, R1E, SECTION 4
SEC. 4C LOTS 1401, 1600, 1602 & 1900
SEC. 4D LOTS 1400, 1500, 1501, 1600 & 1800
SEC. 4DA LOTS 1400 1500 & 1900
CITY OF CANBY, OREGON

STAFFORD
DEVELOPMENT COMPANY, LLC
485 SOUTH STATE STREET
LAKE OSWEGO, OREGON 97034

WATER LINE
MASTER PLAN

REVISIONS

NO.	DATE	DESCRIPTION
1	1-12-18	REVISIONS PER 1-8-18 PLANNING COMMISSION MEETING
2	1-25-18	UPDATE BECK POND SUBDIVISION TO INCLUDE STEINKE PROPERTY

PLANNING & LAND DESIGN
1862 NE ESTATE DRIVE
HILLSBORO, OREGON 97124
RYAN O'BRIEN
(503)780-4061

SHEET
OF

SANITARY SEWER MASTER PLAN

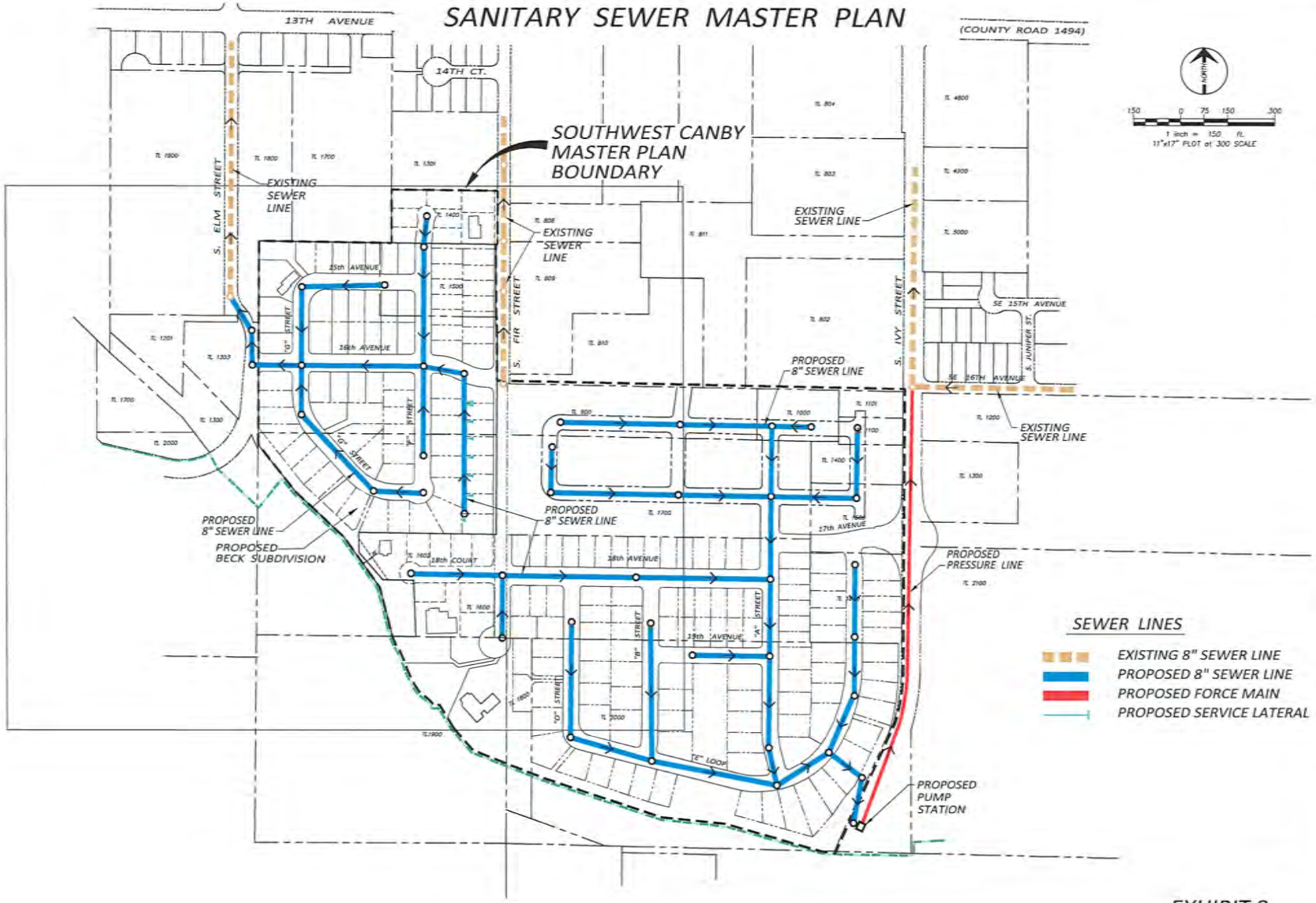


EXHIBIT 8
2-2-18

NOTE: Property owners are not bound to lot size and lines as proposed

SOUTHWEST CANBY
TAX MAP T4S, R1E, SECTION 4
CITY OF CANBY, OREGON

STAFFORD DEVELOPMENT COMPANY, LLC
485 SOUTH STATE STREET
LAKE OSWEGO, OREGON 97034

SANITARY SEWER MASTER PLAN

REVISIONS		
NO.	DATE	DESCRIPTION
1	1-12-18	REVISIONS PER 1-18 PLANNING COMMISSION MEETING
2	1-25-18	UPDATE BECK POND SUBDIVISION TO INCLUDE STEINKE PROPERTY

PLANNING & LAND DESIGN
1862 NE ESTATE DRIVE
HILLSBORO, OREGON 97124
RYAN O'BRIEN
(503)780-4061

SHEET
OF

VIII. City Approval

I CERTIFY THAT THIS ORDER recommending **APPROVAL** of the **SOUTHWEST CANBY DEVELOPMENT CONCEPT PLAN** was presented to and **APPROVED** by the City Council of the City of Canby.

DATED this 21 st day of February, 2018

[redacted]

Brian Hodson
Mayor

[redacted]

Bryan C. Brown
Planning Director

ORAL DECISION - February 7, 2018
AYES: Smith, Parker, Hensley, Dale, Heidt & Spoon
NOES: none.
ABSTAIN: none.
ABSENT: 0

WRITTEN FINDINGS – February 21, 2018
AYES: Smith, Parker, Hensley, Dale, Heidt & Spoon
NOES: none.
ABSTAIN: none.
ABSENT: none.

ATTEST:

[redacted]

Kimberly Scheafer, MMC
City Recorder

BEFORE THE PLANNING COMMISSION
OF THE CITY OF CANBY

A REQUEST FOR A SUBDIVISION	**)**	**FINDINGS, CONCLUSION & FINAL ORDER**
1901 S. IVY STREET	**)**	**SUB 18-04 RIVERSIDE PARK SUBDIVISION**
90 LOT SUBDIVISION	**)**	**RIVERSIDE PARK, LLC/MCMARTIN FARMS, LLC**

NATURE OF THE APPLICATION

The Applicant has sought approval for a Subdivision Application (SUB 18-04) to divide two parcel of 20.3 acres into an 90 lot subdivision on property located approximately at 1901 S. Ivy Street and at the southern boundary of the Canby UGB and described as Tax Map/Lot 41E004D02000 and a portion of 41E04D01700 Clackamas County, Oregon. The property is zoned Low Density Residential (R-1) and Medium Density Residential (R-1.5) under the Canby Municipal Code (CMC).

HEARINGS

The Planning Commission considered application SUB 18-04 after the duly noticed hearing on August 27, 2018 during which the Planning Commission approved SUB 18-04. These findings are entered to document the approval.

CRITERIA AND STANDARDS

In judging whether or not a Subdivision Application shall be approved, the Planning Commission determines whether criteria from the *City of Canby Land Development and Planning Ordinance* are met, or can be met by observance of conditions. Applicable code criteria and standards were reviewed in the Staff Report dated August 15, 2018 and presented at the August 27, 2018 meeting of the Canby Planning Commission.

FINDINGS AND REASONS

The Staff Report was presented, and written and oral testimony was received at the public hearing. Staff recommended approval of the Subdivision Application and applied Conditions of Approval in order to ensure that the proposed development will meet all required *City of Canby Land Development and Planning Ordinance* approval criteria.

After accepting public testimony, the Planning Commission closed the public hearing and made the following additional findings beyond those contained in the staff report to arrive at their decision and support their recommended Conditions of Approval and the exact wording thereof:

CONCLUSION

In summary, the Planning Commission adopted the findings contained in the Staff Report along with the additional findings concluded at the public hearing and noted herein, concluding that the residential Subdivision Application met all applicable approval criteria, and recommending that File SUB 18-04 be approved with the Conditions of Approval reflected in the written Order below.

ORDER

The Planning Commission concludes that, with the following conditions, the application meets the requirements for Subdivision approval. Therefore, **IT IS ORDERED BY THE PLANNING COMMISSION** of the City of Canby that **SUB 18-04** is approved, subject to the following conditions:

General Public Improvement Conditions:

1. Prior to the start of any public improvement work, the applicant must schedule a pre-construction conference with the city and obtain construction plan sign-off from applicable agencies.
2. The development shall comply with all applicable City of Canby Public Works Design Standards.
3. **The final construction design plans shall conform to the comments provided by the City Engineer, when applicable, in his memorandum dated August 10, 2018.**
4. **The applicant shall comply with the applicable recommendations listed in the DKS Traffic Impact Study dated September 29, 2017 that states: The proposed project intersections shall be kept clear of visual obstructions such as signage, trees, etc. which may limit the vehicle sight distance.**
5. Public improvements such as sidewalk and street improvements on S. Elm Street and S. Fir Street are required during development.
6. **The applicant shall delineate or note 6' wide sidewalks within the subdivision on the Tentative Plat.**
7. A turnaround, at Lots 88 and 89, shall be as directed by Canby fire district.
8. The applicant shall pay the applicable Public Improvement Engineering Plan Review fee and Site Plan Development Engineering Plan Review fee approval of the civil engineering construction plan.

Fees/Assurances:

9. All public improvements are normally installed prior to the recordation of the final plat. If the applicant wishes to forgo construction of any portion of the public improvements until after the recordation of the final plat, then the applicant shall provide the City with appropriate performance security (subdivision performance bond or cash escrow) in the amount of 110% of the cost of the remaining public improvements to be installed.
10. If the applicant chooses to provide a subdivision performance bond for some or all of the required public improvements, the applicant shall obtain a certificate from the city engineer that states:
    a. The applicant has complied with the requirements for bonding or otherwise assured completion of required public improvements.
    b. The total cost or estimate of the total cost for the development of the subdivision. This is to be accompanied by a final bid estimate of the subdivider's contractor, if there is a contractor engaged to perform the work, and the certificate of the total cost estimate

must be approved by the city engineer.

11. The applicant must guarantee or warranty all public improvement work with a 1 year subdivision maintenance bond in accordance with 16.64.070(P).

Streets, Signage & Striping:

12. The street improvement plans for the interior streets shall conform to the TSP and Public Works standards as indicated by the city engineer.
13. A roadway striping plan shall be submitted by the applicant and shall be approved by city engineer and by the Public Works street department prior to the construction of public improvements.
14. A roadway signage plan shall be submitted by the applicant and shall be approved by the city engineer and by the Public Works street department prior to the construction of public improvements.
15. The applicant shall be responsible for installing all required street signage and striping at the time of construction of public improvements, unless other arrangements are agreed to by the City.
16. The applicant shall replace the lettered street names with the City streets names of Holly Street ("A" Street), Grant Street ("B" Street), and Fir Loop ("C" Loop).

Sewer:

17. The applicant shall submit documentation of DEQ approval of the sewer plans to the City Engineer prior to the construction of this public improvement with each phase of development.

Stormwater:

18. Stormwater systems shall be designed in compliance with the Canby Public Works Design Standards as determined by the City Engineer.

Grading/Erosion Control:

19. The applicant shall submit grading and erosion control plans for approval by Canby Public Works in conjunction with construction plan approval prior to the installation of public improvements and start of grading with each phase of development.
20. The applicant shall grade all areas of the site, including the proposed lots, to minimize the amount of soil to be removed or brought in for home construction.

Final plat conditions:

General Final Plat Conditions:

21. The applicant shall apply for final plat approval at the city and pay any applicable city fees to gain approval of the final subdivision plat. Prior to the recordation of the final plat at Clackamas County, it must be approved by the city and all other applicable agencies. The city will distribute the final plat to applicable agencies for comment prior to signing off on the final plat if deemed necessary.
22. All public improvements or submittal of necessary performance security assurance shall be made prior to the signing and release of the final plat for filing of record.
23. The final plat shall conform to the necessary information requirements of CMC 16.68.030, 16.68.040(B), and 16.68.050. The city engineer or county surveyor shall verify that these standards are met prior to the recordation of the subdivision plat.
24. All "as-built" of City public improvements installed shall be filed with Canby Public Works within sixty days of the completion of improvements.
25. Clackamas County Surveying reviews **pending subdivision plat documents for Oregon**

Statutes and county requirements. A subdivision final plat prepared in substantial conformance with the approved tentative plat must be submitted to the City for approval within one year of approval of the tentative plat or formally request an extension of up to 6-months with a finding of good cause.

26. The applicant shall record the final plat at Clackamas County within 6 months of the date of the signature of the Planning Director.

27. The applicant shall assure that the city is provided with a copy of the final plat in a timely manner after it is recorded at Clackamas County, including any CC&Rs recorded in conjunction with the final plat.

28. The City shall assign addresses for each newly created subdivision lot and distribute that to the developer, and other agencies that have an interest.

Dedications

29. The applicant shall dedicate public streets shown on the Tentative Plat and on the Final Plat.

30. The applicant shall dedicate .79 acres as Tract "C", .36 acres as Tract "B", and 1.67 acres as Tract "C" for public parks.

Easements

31. A dual 12 foot utility, pedestrian, and temporary street tree easement along all of the lot street frontages shall be noted on the final plat. This easement may be combined with other easements and shall be measured from the property boundary.

32. Sidewalk easements are required along the frontage of the newly created private lots for any portion of the 6' public sidewalk that will lie on private property, if any.

Street Trees

33. A Street Tree Plan shall be approved prior to the final plat, and street tree fees paid prior to release of the final plat. The plan will allow the city to establish street trees per the Tree Regulation standards in Chapter 12.32 of the Canby Municipal Code. The total per tree fee amount is calculated at one tree per 30 linear feet of total street frontage on both sides of all internal streets and the adjacent side of external streets or as determined by an approved Street Tree Plan on a per tree basis.

Monumentation/Survey Accuracy Conditions

38. The county surveyor and/or city engineer shall verify that the lot, street, and perimeter monumentation shall meet the requirements set forth in Oregon Revised Statutes and conform with the additional survey and monumentation standards of 16.64.070(M)(1-3) prior to recordation of the final plat.

Residential Building Permits Conditions:

39. Construction of all required public improvements and recordation of the final subdivision plat must be completed prior to the construction of any homes.

40. The homebuilder shall apply for a City of Canby Site Plan Permit and County Building Permit for each home and satisfy the residential design standards of CMC 16.21.

41. The homebuilder shall apply for a City of Canby Erosion Control Permit.

42. All residential construction shall be in accordance with applicable Public Works Design Standards.

43. On-site stormwater management shall be designed in compliance with the Canby Public Works Design Standards.

44. Clackamas County Building Codes Division will provide structural, electrical, plumbing, and

mechanical plan review and inspection services for home construction per contract with the City. The applicable county building permits are required prior to construction of each home.

45. Per the Canby Public Works Design Standards, minimum residential driveway widths at the inside edge of the sidewalk shall be 12 feet and the maximum residential driveways widths shall be 24 feet with an allowed exception for 28 feet for a home with 3 or more garages.

46. Sidewalks and planter strips shall be constructed by the developer and shown on the approved tentative plat.

47. All usual system development fees shall be collected with each home within this development, except for applicable Park SDC credit for parkland dedication.

I CERTIFY THAT THIS ORDER approving **SUB 18-04 Riverside Park Subdivision** which was presented to and **APPROVED** by the Planning Commission of the City of Canby.
DATED this 27th day of August, 2018.

_____
John Savory
Planning Commission Chair

_____
Bryan Brown
Planning Director

_____
Laney Fouse, Attest
Recording Secretary

ORAL DECISION: August 27, 2018

Name	*Aye*	*No*	*Abstain*	*Absent*
John Savory				
John Serlet				
Larry Boatright				
Derrick Mottern				
Tyler Hall				
Shawn Varwig				
Andrey Chernishov				

WRITTEN DECISION: August 27, 2018

Name	*Aye*	*No*	*Abstain*	*Absent*
John Savory				
John Serlet				
Larry Boatright				
Derrick Mottern				
Tyler Hall				
Shawn Varwig				
Andrey Chernishov				