

AGENDA CANBY PLANNING COMMISSION Meetings can be viewed on CTV Channel 5 or Canby YouTube Monday, February 8, 2021 7:00 PM (Virtual Zoom Meeting)

Commissioner John Savory (Chair)

Commissioner Larry Boatright (Vice Chair)	Commissioner Jennifer Trundy
Commissioner Jeff Mills	Commissioner Michael Hutchinson
Commissioner Jason Taylor	Commissioner (Vacant)

1. CALL TO ORDER

- a. Invocation
- **b.** 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. Staff and the Planning Commission will make every effort to respond to questions raised during citizens input before the meeting ends or as quickly as possible thereafter. ***If you would like to speak on non-agenda items, please email or call the Recording Secretary no later than 3 pm on the meeting date and provide your name, the topic you'd like to speak on, and your email address. Email: <u>fousel@canbyoregon.gov</u> or call: 503-266-0685. Once your information is received, you will be sent instructions for signing into Zoom. Commissioners and Staff will be attending this meeting virtually.

- 3. MINUTES Planning Commission Minutes for January 11, 2020.
- 4. NEW BUSINESS None
- **5. PUBLIC HEARING** To testify, please email or call the Recording Secretary no later than 3 pm on the meeting date and provide your name and email address. Email: <u>fousel@canbyoregon.gov</u> or Call: 503-266-0685. Once your information is received, you will be sent instructions for signing into Zoom. Commissioners and Staff will be attending this meeting virtually.

a. <u>THIS PUBLIC HEARING WILL BE CONTINUED TO A DATE CERTAIN OF FEBRUARY</u>

22, 2021. To consider a request to build a two-story, 56,000 SF assisted living facility building with 102 units with a memory care endorsement, and 8 cottages on site for Independent Living that will be in separate 1-story, 700 SF duplexes, at the corner of 1300 S Ivy St. (**DR 20-03, CUP 20-02 Memory Care Facility**).

- **b.** To consider a request to subdivide three parcels consisting of approximately 4.59 acres into 44 separate legal lots located on N Redwood St. (SUB 20-04 Redwood Landing III Subdivision).
- 6. FINAL DECISIONS These are the final, written versions of previous oral decisions. No public testimony is taken.
 - a. SUB 20-04 Redwood Landing III

7. ITEMS OF INTEREST/REPORT FROM PLANNING STAFF-

a. Next regularly scheduled Planning Commission meeting – Monday, February 22, 2021.

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 <u>www.canbyoregon.gov</u>. City Council and Planning Commission Meetings are broadcast live and can be viewed on CTV Channel 5. For a schedule of the playback times, please call 503-263-6287.

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MINUTES CANBY PLANNING COMMISSION 7:00 PM – Monday, January 11, 2021

PRESENT: Commissioners John Savory, Jennifer Trundy, Jeff Mills, and Michael Hutchinson

- ABSENT: Larry Boatright and Jason Taylor
- **STAFF:** Don Hardy, Planning Director; Ryan Potter, Senior Planner; Brianna Addotta, Associate Planner: Laney Fouse, Recording Secretary;
- **OTHERS:** Jeff Wright, K Hamrell

CALL TO ORDER

Chair Savory called the meeting to order at 7:00 p.m.

INTRODUCTION OF NEW PLANNING DIRECTOR

Laney Fouse, Recording Secretary, introduced Don Hardy, new Planning Director.

Mr. Hardy was excited to start work at the City.

CITIZEN INPUT ON NON-AGENDA ITEMS - None

MINUTES

Approval of Planning Commission Minutes for December 14, 2020

Motion: A motion was made by Commissioner Trundy and seconded by Commissioner Hutchinson to approve the December 14, 2020 Planning Commission minutes. Motion approved 4/0.

NEW BUSINESS - None

PUBLIC HEARINGS

a. To consider a request for the redevelopment of the existing Taco Bell quick service drive-thru restaurant on SW 1st Ave, while retaining the building footprint (DR 20-05).

Chair Savory opened the public hearing and read the hearing statement. He asked if any Commissioner had conflicts of interest or ex parte contacts to declare for either application. There were none.

Brianna Addotta, Associate Planner, presented the staff report. This was a request for improvements to an existing drive through restaurant, Taco Bell, including moving the drive through lane closer to the existing building, removing 12 parking stalls, increasing landscaping, building a new trash enclosure, and installing a drive-through canopy. She described the existing conditions on the site. It was located at 845 SW 1st Street. It was a 0.64 acre site zoned C-2, Highway Commercial, and was within the OHC, Outer Highway Commercial Overlay. It was a drive through restaurant with a 7.7% floor to area ratio and 30 parking stalls. The proposed changes were: use the existing building footprint with the installation of a walk in freezer, move the southern portion of the drive through lane closer to the building, increase site landscaping from 15% to 20%, reduce the number of parking stalls from 30 to 18, replace the existing chain link trash enclosure with a CMU and wood slat enclosure, install a drive-through canopy, and replace the asphalt/concrete with pervious pavement. She reviewed the site plan and applicable criteria. The use and dimensional standards were consistent with the C-2 zone. The project design met the design requirements of the base zone. There were 17 parking stalls required and the applicant was providing 18. There were no anticipated impacts to traffic and utilities as the use and

building footprint would remain the same. The two existing driveways would remain the same. The Outer Highway Commercial Overlay included additional site design requirements. One was a required minimum floor to area ratio of 15% and the applicant was proposing 7.7%. The applicant stated that the nature of the use as a drive in restaurant along with the required parking stalls made meeting this standard infeasible. Staff noted that the floor to area ratio was existing at the time of application and was not being reduced. Another requirement was for the length of the building along a street was to be 50 feet. The applicant was proposing 32 feet, 9 inches along Highway 99E and 4th Street. The lot was deeper than it was wide and the street facing sides must also accommodate required driveways, parking, and landscaping as well as building mass. Staff acknowledged the dimensional standards of parking and circulation could constrain narrow lots and that minimum parking and landscaping requirements had been met. Another requirement was for 45% minimum glazing on the secondary street side (4th Street). There was no glazing proposed. A walk in freezer was required for the use and had been proposed to front 4th Street. This elevation was 32 feet, 9 inches and the walk in freezer would occupy the majority of that length, making glazing infeasible. Staff noted this elevation would be largely screened by landscaping. She explained the correspondence received from agencies. No public comments were received. The City Engineer said inspections would be required for the facilities along Highway 99E and SW 4th Street. No improvements were required along SW 4th Street. The current private storm system was sufficient. The Public Works Director stated that street lighting was required along Highway 99E and the applicant would need to coordinate with Canby Utility. The Wastewater Pretreatment Coordinator stated a grease interceptor was to be installed in place of the existing grease trap. She then reviewed the conditions of approval which included:

- Inspection of public facilities
- Installation of street lighting along Highway 99E
- Provide bicycle parking detail
- Provide lighting plan consistent with CMC 16.49.065
- Building permits through Clackamas County
- Landscaping longevity provision

Staff recommended approval of the application with conditions.

Questions: Commissioner Mills did not like the use of acronyms that were not defined in the staff report. He also encouraged staff to show their work and provide a summary or completed table in the report.

Applicant: Jeff Wright, MCA Architects for the applicant, said this was a renovation of the existing Taco Bell facility. This would be an update to the interior and exterior of the facility, keeping the footprint identical except for the expansion of the walk in freezer to be a little larger. The windows and exterior façade on the front half of the building would be modified facing 99E. The cooking layout, seating area, and restrooms would generally stay the same with minor modifications. The parking would be reduced for the required landscaping and they would be using the modern Taco Bell appearance with faux brick rather than stucco.

Proponents: None

Opponents/Neutral: None

Chair Savory closed the public hearing.

Deliberation: None

Motion: A motion was made by Commissioner Mills and seconded by Commissioner Hutchinson to approve DR 20-05 with the conditions as proposed. Motion approved 4/0.

FINAL DECISIONS (Note: These are final, written versions of previous oral decisions. No public testimony.)

a. Taco Bell Redevelopment Final Findings DR 20-05

Motion: A motion was made by Commissioner Mills and seconded by Commissioner Trundy to approve the final findings for DR 20-05. Motion approved 4/0.

ITEMS OF INTEREST/REPORT FROM PLANNING STAFF

a. Next regularly scheduled Planning Commission meeting - Monday, January 25, 2021

Ryan Potter, Senior Planner, said staff planned to schedule a Work Session on traffic studies soon. The January 25 meeting was canceled.

ITEMS OF INTEREST/GUIDANCE FROM PLANNING COMMISSION

There was one applicant for the open Commission seat and an interview would be scheduled soon.

ADJOURNMENT

Motion: A motion was made by Commissioner Trundy and seconded by Commissioner Hutchinson to adjourn the meeting. Motion approved 4/0.

The meeting adjourned at ?? pm.



File #: SUB 20-04 – Redwood Landing III

HEARING DATE:	February 8, 2021
STAFF REPORT DATE:	January 26, 2021
TO:	Planning Commission
STAFF:	Erik Forsell, Associate Planner

Applicant Request

The applicant requests approval to subdivide three parcels described as Tax Lots 300, 301 and 302 in Clackamas County Assessor's map 31E34B comprising approximately ±4.59-acres into 44 separate legal lots. The lots are proposed to contain a mixture of single family attached and detached structures.

Staff Recommendation

Based on the application submitted and the facts, findings, and conclusions of this report, staff recommends that the Planning Commission move to <u>Approve</u> SUB 20-04 pursuant to the Conditions of Approval presented in **Section V** at the end of this report.

Project Overview

This project proposal is to develop a 44-lot residential subdivision with associated public and private improvements. The 44-lot subdivision is proposed to consist of 12 new lots for single family homes and 31 new lots for single family attached homes. The subject properties are within the North Redwood Development Concept Plan (DCP) area. The North Redwood DCP area was approved on January 16, 2019 by the Canby City Council as a guide and framework for developing property within the plan area boundaries.

This development proposal amounts to the third iteration or phase of the North Redwood Area buildout. The three parcels 300, 301 and 302 represent one of the last portions of land without significant development challenges such as the Willow Creek wetland area or the Union Pacific railroad right-of-way both of which are east of the subject property.

The subject site contains properties that are zoned R-1.5 Medium Density and R-2 High Density residential consistent with the comprehensive plan designations. It is worth noting that the subdivision will create a split zone scenario, and this is detailed later in this staff report. See **Figure 1** on the following page for a zoning map of the project area.

Figure 1 – Zoning Map of Project Area



Minimum and maximum lot sizes for single family residential development in the R-1.5 zone are 5,000 and 6,500 square feet respectively. The R-2 zone requires a density of 14 units per acre of land excepting public improvement areas.

North Sycamore Street, a neighborhood connector street specified in the North Redwood DCP is planned for extension through the site and will connect with an existing stub that was part of the approved Redwood Landing II subdivision to the north.

Access to the site will be via a new proposed intersection with N. Redwood Street via N. Sycamore Street. Smaller private access drives are planned to provide access to the attached single-family dwellings off of N. Sycamore Street.

Location	1176, 1212 and 1234 N. Redwood Street
Tax Lot(s)	Clackamas County Assessor's Map and Tax Lots: 31E34B00300, 301 and 302
Property Size	+/- 4.59 Acres
Comprehensive Plan	Medium Density Residential / High Density Residential
Zoning	R-1.5 and R-2
Owner	Redwood Five, LLC – Allen Manuel, Representative
Applicant	Rick Givens – Representative for Icon Construction & Dev., LLC.

Property/Owner Information

Application Type	Subdivision Type III – Quasi-Judicial
City File Number(s)	SUB 20-04

Exhibits of Record

- A. Land Use Application materials Subdivision Type III
- **B.** Application Narrative, including provided application Exhibits
- C. Proposed Preliminary Subdivision Plat
- D. Traffic Impact Study (TIS)
- E. Pre-Application Conference Minutes
- F. Neighborhood Meeting Notes
- G. North Redwood Area Development Concept Plan
- H. Agency Comments:
 - 1. City Engineer Hassan Ibrahim, PE, 503-684-3478
 - 2. Clackamas County Engineering Jonny Gish
 - 3. Canby Fire District Matt English, Division Chief/Paramedic, 503-878-0187
 - 4. Direct Link Eric Kehler, Engineering Manager, 503-266-8223

I. Existing Conditions:

The subject property has physical addresses of 1176, 1212 and 1234 N. Redwood Street. The +/- 4.59 acre site is generally flat, sloping downward to the eastward portion of the parcels near the Willow Creek wetland / drainage area. **See Figure 2 below.** The subject property is rectangular in shape and contains two existing single-family residences with accessory structures. The structures on Tax Lot 301 and 302 would be demolished for the subdivision development while the single family dwelling on Tax Lot 300 will remain.

Figure 2 – Aerial Imagery of Subject Property



The subject property is located in the North Redwood Development Concept Plan (DCP) Area, **See Figure 3** Below. The North Redwood DCP is the development framework guiding land use planning and development in the study area.



Figure 3 – North Redwood Area DCP

Direction	Zoning	Land Uses	
North	R-1.5	Redwood Landing Phase 2	
West	N/A	N. Redwood Street and R-1 Subdivided Land	
South	R-2	Garden Crossing Subdivision; R-2 Land	
East	RRFF-5	Clackamas County Jurisdiction land inside Canby UGB	

Figure 4 – Surrounding Land Uses

Utilities/Sewer/Disposal/Fire/Police:

- Water and electric service will be provided by Canby Utility.
- Wastewater, storm drainage, and streets are managed by the City of Canby Public Works.
- Disposal services are provided by Canby Disposal.
- Fire services are provided by Canby Fire District.
- Police services are provided by Canby Police Department.

Staff has provided conditions of approval at the end of this staff report (Section VI), written to ensure the necessary public infrastructure is constructed and installed in accordance with all applicable city, county, state, and federal requirements.

II. 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
- 16.13 Plan Districts
- 16.18 R-1.5 Medium Density Residential Zone
- 16.19 R-2 High Density Residential Zone
- 16.52 Non-Conforming Uses
- 16.56 Land Divisions
- 16.62 Subdivisions-Applications
- 16.64 Subdivisions Design Standards
- 16.86 Street Alignments
- 16.88 General Standards and Procedures
- 16.89 Application and Review Procedures

III. Summary of Findings

Consistent with Section 16.04.600 of the **Canby Land Development and Planning Ordinance** (the Ordinance), Chapter 16 of the Municipal Code, the proposed application qualifies as a Subdivision, as it would divide the subject property into "four or more lots in a given calendar year for the purpose of transfer of ownership."

Section 16.56 of the Ordinance identifies the purpose and scope of land divisions and sets forth regulations for dividing land within the City. **Section 16.62.020 – Subdivisions**, sets forth the standards and approval criteria for subdivisions which the applicant must respond to in their narrative within their

submitted application materials. Staff incorporates the applicant's written response as findings in support of the criteria. Additional facts and findings are provided herein.

Section 16.13 – Plan Districts

16.13.010 North Redwood Plan District

A. Purpose

The North Redwood Plan District implements the North Redwood Development Concept Plan (NRDCP) and is intended to ensure that development within the North Redwood area is consistent with the land use pattern and transportation network established by the NRDCP. The North Redwood Plan District is also intended to provide some flexibility for new development in order to protect natural resources and emphasize the Willow Creek corridor as a community amenity.

B. Applicability The standards and regulations in this chapter apply to all land within the North Redwood Plan District as shown on the City of Canby's North Redwood Plan District Map. The provisions in this chapter apply in addition to standards and regulations established in the base zone and other applicable sections of the Canby Zoning Code. Where standards in this chapter conflict with standards in other sections of the Canby Zoning Code, this section will supersede.



Figure 3 – North Redwood Area DCP

<u>Finding 1</u>: This development proposal is subject to the North Redwood Development Concept Plan(DCP) and to the standards found therein.

C. Approval criteria

The following criteria must be satisfied prior to approval of any new subdivision or Planned Unit Development within the North Redwood Plan District as they apply to the area proposed for development.

1. Generally, new road alignments should be consistent with those identified on Figure 9 of the DCP. Changes to the identified road alignments may be approved to allow for topographic or other conditions.

Finding 2: This project generally conforms to the road alignments described in Figure 9 on the North Redwood Development Concept Plan (DCP) (See Exhibit G Attachments of Record for diagrams and findings from the plan). It provides for the extension of N. Sycamore through the subject property, a main component of the DCP. Language in the N. Redwood DCP acknowledges the fact that the development would not be identical to the conceptual diagrams of the plan. The obligation was broader, requiring that the individual development proposal substantially conform to the plan itself rather than to exact dimensions and locations of street infrastructure.

N. Sycamore, the Neighborhood Collector route, which is a feature component of the N. Redwood DCP has been extended through the property and connects with the previously approved stub in Redwood Landing II to the north.

The other component is the planned stub route and cul-de-sac that is planned to terminate at the corner of the subject property. The applicant states that this portion of the property makes it impractical to construct a street because of topography yet proposes three single family lots in this location. Staff finds that this criterion is substantially met. **See Finding 61 for more discussion on this criterion.**

2. There shall be a minimum of five connections to existing roads on the east side of North Redwood Street, built to the City's Local Street standard. To the extent possible, additional connections should not create offset intersections and should meet spacing standards in the Transportation System Plan.

Finding 3: This project provides a fourth street connection to North Redwood Street and will be built to the appropriate standards; this will be verified as part of the construction phase and final plat procedures. Two existing connections are present in Redwood Landing Phase I and a planned connection is to be built with Redwood Landing Phase II. This criterion has been met.

3. A cul-de-sac shall only be allowed when environmental or topographical constraints, or compliance with other standards in this code preclude street extension and through circulation. The map in Figure 9 of the DCP identifies three locations where cul-de-sacs could be allowed.

Finding 4: Not applicable to this development proposal. No cul-de-sacs are proposed.

4. One loop road shall be built through the North Redwood community, connecting NE 18th Place to NE 12th Avenue. The loop road shall be built to the City's Neighborhood Route standards. Where possible, the loop road should travel adjacent to Willow Creek and provide access to Willow Creek trailheads and open space.

Finding 5: This proposal contains the continuation of planned N. Sycamore Street (neighborhood loop

road) and will eventually connect to the remainder in the first phase of the subdivision project. The alignment is largely consistent with the DCP visioning component of locating the road near Willow Creek. Staff finds that this criterion is met in that the alignment of the road allows for final built out of the loop road as indicated on the North Redwood DCP.

5. Where possible, other local streets in North Redwood should intersect with the loop road identified in (3) above.

Finding 6: According to the submitted plans and narrative, the local streets proposed with this subdivision connect with the loop road, satisfying this criterion.

6. At least one additional local street shall traverse the study area from north to south, connecting the area zoned for low density residential with the area zoned for high density residential.

Finding 7: North River Alder Street provides for this future north-south connectivity; this was part of the Redwood Landing II approval process. This criterion is met.

7. Future local streets should be located to split parcel lines where feasible.

Finding 8: Existing parcel lines will be replatted and consolidated so that parcel lines and ownership are of no consequence in the ultimate location of the streets in this project. This criterion is not applicable to the proposal.

8. The land east of Willow Creek shall be accessed from an extension of North Teakwood Street and terminate in a cul-de-sac, hammerhead, or other appropriate turnaround.

Finding 9: Not applicable to this development proposal.

9. Block size shall be consistent with the following:

i. Block widths should be approximately 280 feet whenever possible. Alternate block widths may be approved to allow for topographical variations

ii. Overall block length shall not exceed 600 feet

iii. A bicycle/pedestrian connection shall be provided at least every 330 feet, consistent with provisions in the Canby Transportation System Plan (TSP)

Finding 10: The longest block width is less than 600 feet in this development proposal. Pedestrian and bicycle connection recommended locations are not on this subject property. These criteria are substantially met.

10. The park and open space corridor along Willow Creek, as identified in Figure 7 of the DCP, shall be provided through required land dedication for parks.

Finding 11: The subject property does not contain identified areas for required land dedication.

11. Applicants must demonstrate that future adjacent projects will be able to connect to proposed roads and other infrastructure in a way that will be consistent with the North Redwood DCP.

Finding 12: The applicant has demonstrated in submitted plans and narrative how the development will connect to existing and proposed infrastructure that is consistent with the DCP language and plan.

D. Lot area exceptions and lot size averaging.

Finding 13: Not applicable; no lot averaging is proposed with this development.

General Compliance with Applicable Standards in Chapter 16.08 – General Provisions

Section 16.08.030 Zone Boundaries.

Unless otherwise specified, zone boundaries are lot lines or the centerline of streets, railroad rightsof-way, or such lines extended. Where a zone boundary divides a lot into two or more zones, the entire lot shall be considered to be in the zone containing the greater lot area, provided the adjustment is a distance of less than twenty feet.

Finding 14: The applicant indicates with a narrative and map that the zone boundaries will conform to the standards with a slight modification in the square footage of the zone boundary. **See Figures 4 through 6** below referencing the current zoning map, an aerial with zone boundaries superimposed over the properties and the applicant's proposed zone boundaries as modified by the subdivision and in conformance with 16.08.030. This criterion is met.







Figure 5 – Existing Zone Boundaries for Subject Properties Superimposed over Aerial



Figure 6 – Zone Boundaries as Modified by Redwood Landing III Proposal



16.08.070 Illegally created lots.

In no case shall a lot which has been created in violation of state statute or city ordinance be considered as a lot of record for development purposes, until such violation has been legally remedied. (Ord. 740 section 10.3.05(G), 1984)

Finding 15: The subject properties are identified as Tax Lots 300, 301 and 302 in Clackamas County

Assessor's map 31E34B Assessor's Map. Tax lots do not necessarily identify the legal status of a property. Rather the legal status of a lot is defined by the legal description of the property, whether it has been modified or divided and if so, were adjustments done in accordance with subdivision laws applicable at that time. The entirety of Tax Lots 300, 301 and 302—save land deeded out as part of partition Plat 2020-084—appear to comprise Lot 93 of Canby Gardens Subdivision, a lawfully created lot prior to land division laws that would regulate their creation. Therefore, these lots appear to be legal lots for the purposes of land division and development. Staff note that this is not a legal lot of record determination and that this analysis is solely for the purposes of identifying clearly illegal lots. This analysis finds that the criteria are met.

16.08.110 Fences.

- A. Fences not more than three and one-half feet in height may be constructed within the street setbacks of any R-1, R-1.5, R-2 or C-1 zone. Fences not more than six feet in height may be constructed in any interior yard, rear yard, or street yard along an alley; provided, however, that in no case shall a fence be constructed in violation of the requirements of a vision clearance area.
- B. On corner lots, the 3.5-foot height limit will apply within the required setback along both street-facing yards.
- C. No more than one row of fencing is allowed within a required street yard setback.
- D. The Planning Commission may require sight-blocking or noise mitigating fences for any development it reviews.
- E. Fences of up to eight feet in height are permitted for any development in C-2, C-M, M-1 or M-2, or Planned Unit Development zones.
- F. No fence/wall shall be constructed throughout a subdivision, planned unit development or be part of a project that is/was subject to site and design review approval where the effect or purpose is to wall said project off from the rest of the community unless reviewed and approved by the Planning Commission. (Ord. 890 section 8, 1993; Ord. 740 section 10.3.05(K), 1984; Ord. 955 section 2, 1996; Ord. 981 section 43, 1997)
- G. In all zones, private fences along a public pedestrian/bicycle pathway shall comply with the following in order to provide security and visibility for pathway users while maintaining privacy for the residence.
 - 1. Fencing installed as part of a new subdivision shall comply with either (a) or (b) below.
 - 2. Fencing installed by a property owner on an individual lot shall comply with either (a), (b), or (c) below.
 - a. Solid fencing shall be no greater than four (4) feet in height; or
 - b. Fencing shall be constructed with black open wire material, wooden slats, or some other material that allows visual access between the pathway and adjacent uses; or
 - c. Solid fencing shall be set back at least three (3) feet from the property line that abuts the pathway.

Finding 16: The applicant's submittal does not indicate proposed fencing as part of the approval request. However, given the rising proclivity for some property owners to disregard fencing standards

staff have included this as an informational conditional of approval. Additionally, a plat note shall be included on the final plat that states "All lots in this subdivision with comply with the current fencing standards found in the Canby Municipal Code".

Section 16.19 – R-1.5 Medium Density Residential Zone

16.18.030 Development standards.

The following subsections indicate the required development standards of the R-1.5 zone:

A. Minimum and maximum lot area:

1. For single family dwellings: five thousand (5,000) square feet minimum and six thousand five hundred (6,500) square feet maximum

Finding 17: The development proposal consists of 12 lots for single family homes. Lots will be between 5,000 and 6,500 square feet. This criterion has been met for the R-1.5 portion of the subdivision proposal.

B. Lot area exceptions:

1. The Planning Commission may approve an exception to the minimum and maximum lot area standards in subsection 16.18.030.A as part of a subdivision or partition application when all of the following standards are met:

a. The average area of all lots and open space tracts created through the subject land division, excluding required public park land dedications, surface water management facilities and similar public use areas, shall be no less than five thousand square feet and no greater than six thousand five hundred square feet. Non-required significant natural resource areas shall be included in the average lot size calculation to enable a transfer of density onto buildable portions of the site. Required areas include identified parks, wetland areas, riparian corridors, and other areas in which building is not permitted under local, state, or federal laws or regulations. For land in the North Redwood DCP area, the Planning Commission may allow public park land dedications to be included in the lot size averaging calculation in order to achieve community development goals and allow protection of natural resources; in this case, the resulting average lot size shall not be less than 4,000 square feet;

b. No lot shall be created that contains less than four thousand square feet, unless the alternative lot layout option provided in Section 16.64.040 is used; and

c. As a condition of granting the exception, the city will require the owner to record a deed restriction with the final plat that prevents the re-division of oversized lots (six thousand and five hundred square feet and larger), when such redivision would violate the average lot size provision in subsection 16.18.030.B.1.a. All lots approved for use by more than one dwelling shall be so designated on the final plat.

2. A public benefit must be demonstrated in order to allow more than ten percent of the lots to be outside of the minimum and maximum lot areas in subsection 16.18.030.B.1.a.

3. The Planning Commission may modify the maximum lot area requirements in subsection 16.18.030.B if these cannot be met due to existing lot dimensions, road patterns, or other site characteristics.

4. The maximum lot area standard does not apply to dwellings existing prior to subdivision or

partition plan approval or to lots designated for open space.

Finding 18: No lot area exceptions are requested as part of this development proposal. This criterion does not apply.

C. Minimum width and frontage: forty feet, except that the Planning Commission may approve lots having less frontage subject to special conditions to assure adequate access. Twenty feet is permitted for single family attached (common wall) housing on interior lots.

Finding 19: According to the applicant's submittal and plans sets and narrative all of the proposed lots in the R-1.5 zoning district will meet this standard.

D. Minimum Yard Requirements.

E. Maximum Building Height.

F. The maximum amount of impervious surface allowed in the R-1.5 Zone shall be 70 percent of the lot area.

G. Other regulation.

Finding 20: The standards found in 16.18.030 (D-G) are typically addressed at the building permit submittal for individual lots through a Type I procedure. However, the applicant demonstrates that compliance will be met with these criteria during the individual building permit stage. These standards are not applicable at the time of subdivision approval.

Section 16.20 – R-2 High Density Residential Zone

16.20.010 Uses permitted outright.

Uses permitted outright in the R-2 zone shall be as follows:

- A. Uses permitted outright in the R-1.5 zone, subject to the density standards in Section 16.20.030(A);
- B. Single family townhouse dwellings having common wall construction;
- C. Boarding, lodging or rooming house;
- D. Multi-family dwelling;
- E. Manufactured and mobile home or trailer parks, subject to the criteria of Chapter 16.44;
- F. Bed and Breakfast.

G. Residential Facility - for six or more individuals. (Per ORS 197.667(4) and 443.400 (8))

(Ord. 890 section 21, 1993; Ord. 740 section 10.3.21(A), 1984; Ord. 1019 section 9, 1999; Ord. 1080, 2001; Ord. 1514, 2019)

Finding 21: The applicant states that with the exception of Lot 44 which will contain an existing single-family dwelling which will remain as a non-conforming use subject to CMC 16.52 – Non-Conforming Uses, the remainder of the lots will be used as single-family homes with common wall construction. These criteria are met; discussion of non-conforming uses is later in this report.

16.20.030 Development standards.

The following subsections indicate the required development standards of the R-2 zone:

A. Minimum residential density: New development shall achieve a minimum density of 14 units per acre. Minimum density for a property is calculated by multiplying its area in acres (minus

area required for street right-of-way and public park/open space areas) by the density standard. For example, 0.18 acres x 14 units/acre = minimum of 2.52 units. Decimals are rounded to the nearest whole number (e.g., a minimum of 2.52 units becomes a minimum of 3 units). The Planning Commission may modify the density standard if it cannot be met due to existing lot dimensions, road patterns, or other site characteristics.

Finding 22: The applicant states that the project will provide 32 dwelling units within the R-2 portion of the property. The area calculation in **Figure 7** below describes the breakdown of this calculation. Staff finds this criterion is met.

Figure 7 – R-2 Density	Requirement Table
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R-2 Zoned Area	Streets / ROW	Buildable	
2.13 Acres	0.35 Acres	1.77 Acres	
Density Requirement is 14 Units per Acre			
1.77 Acres * 14 units = 24.78 units or 25 Units Required			

B. Townhouses with common wall construction must be placed on a maximum 3000 square foot lot in order to meet the density required in this section.

Finding 23: No townhouse lots in excess of 3,000 square feet in area are proposed for this subdivision. This criterion is met.

C. Minimum width and frontage: Twenty feet except that the Planning Commission may require additional width to ensure that all applicable access

Finding 24: Each townhouse lot is proposed to have twenty feet or more in frontage area. This criterion is met.

- D. 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. Street yards for multifamily development (3 or more units located on the same property) located adjacent and on the same side of the street to an R-1 (Low Density Residential) or R-1.5 (Medium Density Residential) zone shall establish a front yard setback that is within 5 feet of the front yard setback of the adjacent home in the R-1 or R-1.5 zone but shall not be less than 10 feet from the property line. This standard does not apply if the closest adjacent home has a front yard setback greater than 30 feet.
 - 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.

Finding 25: The applicant states that the positioning of the townhouses is conceptual; precise building

footprints are not proposed at this time. However, compliance with this standard is required and has been made an informational condition of approval for all units in the R-2 zoned area.

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 D.2 below apply to such structures. Utility easements may only be reduced with the approval of all utility providers.

Finding 26: The applicant is not proposing any detached accessory structures as part of the subdivision approval. However, all accessory structures shall meet required setbacks and design standards as appropriate. This has been made an informational condition of approval.

5. Multifamily development (3 or more units on the same property) that is adjacent to an R-1 (Low Density Residential) or R-1.5 (Medium Density Residential) zone must provide a minimum 15-foot buffer area between the multifamily development and the R-1 or R-1.5 zoned property. Within this buffer the following applies (see figure 16.20-1):

a. Site obscuring landscaping shall be required. The Planning Commission may require retention of existing vegetation; installation of a 6-foot minimum height site-obscuring fence with shade trees planted a maximum of 30 feet on center; and/or other landscaping to provide visual buffering.

b. No active recreation areas (tot lots, swimming pools, etc.) shall be allowed within the 15-foot buffer (garden spaces shall not be considered active recreation areas);

Finding 27: No development meeting these criteria are proposed with this project.

6. Infill standards may also apply. See CMC 16.20.030(D)(3) and CMC 16.21.050

Finding 28: No identified infill scenarios are part of this development proposal.

E. Maximum building height and length.

1. Principal building: thirty-five feet.

Finding 29: Building heights will be evaluated during the individual development of each lot. This criterion is not directly applicable to the subdivision approval.

2. Detached accessory structure.

Finding 30: The applicant is not proposing any detached accessory structures as part of the subdivision approval. However, all accessory structures shall meet required setbacks and design standards as appropriate. This has been made an informational condition of approval.

3. Maximum building height for multifamily developments abutting an R-1 (Low Density Residential) or R-1.5 (Medium Density Residential) zone shall not exceed a building height greater than one foot for each foot of distance from the R-1 and/or R-1.5 property line.

Finding 31: No development meeting these criteria are proposed with this project.

4. Maximum building length shall be 120 feet.

Finding 32: The applicant states that the longest building length is proposed for lots 17-22 in the

conceptual plans. The 6 units, each 20-feet wide, will aggregate for a combined length of 120 feet. Staff finds this criterion is met and will also be further evaluated at the building permit phase of the project.

- F. The maximum amount of impervious surface allowed in the R-2 zone shall be 70 percent of the lot area.
 - 1. Impervious surface includes all surface areas that create a barrier to or hinder the entry of water into the soil in comparison with natural conditions prior to development. Impervious surfaces includes, but are not limited to, buildings, parking areas, driveways, roads, sidewalks, patios, packed earth, and oiled surfaces. Open, uncovered retention/detention facilities, green roofs, and permeable surfacing materials shall not be considered impervious surfaces. Roof surfaces are also considered 'pervious' when 100% of the annual average roof runoff is captured and reused on-site for irrigation or approved interior uses.
 - 2. To limit impervious surface, alternative surfacing materials may be used. Alternative surfacing includes, but is not limited to paving blocks, turf block, pervious concrete, and porous asphalt. Other similar approved materials are encouraged. Utilization of alternative surfacing methods shall be subject to review and approval by the City Public Works Department for compliance with other applicable regulations and development standards. Maintenance of alternative surfacing materials located on private property are the responsibility of the property owner.

Finding 33: The applicant has supplied calculations on the conceptual impervious area of the proposed R-2 zone portion of the project area, **See Figure 8 below**. Staff generally agrees with the calculations and consider the criteria to be met. Each individual lot shall also be evaluated to meet these standards at the time of their respective development.

Impervious Surface	Area
Townhouse dwellings:	31,450 sq. ft.
Single-family dwelling:	1,217 sq. ft.
Private Street & Sidewalks:	19,377 sq. ft.
New driveways:	7,840 sq. ft.
Total new impervious area:	59,884 sq. ft.
Total existing area	92,956 sq. ft.
Total percentage impervious area:	64.5%

Figure 8 – Impervious	Area	Percentage
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- G. Other regulations:
 - 1. Vision clearance distance shall be ten feet from a street to an alley or a street to a driveway, and thirty feet from a street to any other street.

Finding 34: Vision clearances will be reviewed at the time of building permit.

2. All setbacks to be measured from the foundation line of the building. Overhangs shall not exceed two feet; mechanical units, used for the heating/cooling of residential units are exempt from interior and/or rear yard setback requirements. A chimney for a fireplace or stove shall not exceed a two foot projection.

Finding 35: As mentioned previously, setbacks will be verified at the time of building permit.

3. To provide shade, required yards on southern and western exposures may be reduced by not more than five feet for eaves, canopies, and patio covers, if patio posts still comply with required setbacks.

Finding 36: Not applicable to this proposal.

4. Multi-family developments exceeding ten units shall provide 150 square feet of recreation space per dwelling unit. Recreation spaces shall be no less than 1,500 square feet in size.

Finding 37: Not applicable to this proposal.

5. Accessory buildings shall not have a larger footprint than the primary building.

Finding 38: Any proposed accessory buildings must meet this standard; this will be reviewed at building permit submittal.

6. Townhouse (common wall) development shall not exceed six dwelling units as defined in Chapter 16.04.195. Where possible, the six unit development should include the placement of an alley or sidewalk along the rear boundary of the properties for fire and emergency access to the rear of the properties. If more than one group of six dwelling units is constructed, then the groups shall be separated by ten feet of open space. (Ord. 890 sect. 23, 1993; Ord. 740 sect. 10.3.21 (C),1984; Ord. 955 sect. 7, 1996; Ord. 981 sect. 47, 1997; Ord. 1080, 2001; Ord. 1107, 2002; Ord. 1237, 2007; Ord. 1338, 2010; Ord. 1514, 2019)

Finding 39: The proposal includes 6 unit townhouse structures as a maximum. As the criteria states 'should' rather than 'shall' this is not a binary decision. Staff finds this criterion is met.

Section 16.52 – Non-Conforming Uses

16.52.010 Continuation of a non-conforming use or structure.

Subject to the provisions of this section, a nonconforming structure or use may be continued but shall not be altered, changed, or extended except as provided herein. Other than those expansions specifically permitted by section 16.52.035, the expansion of nonconforming uses shall not be permitted. (Ord. 805 section 3 [part], 1987; Ord. 740 section 10.3.80 (A), 1984 Ord. 1019 section 10, 1999)

Finding 40: The existing home on Tax Lot 300 is a non-conforming use as it does not meet the required density standards of the R-2 High Density zone. The applicant is proposing to have the existing home remain as part of this subdivision approval. Any further development on this property is subject to the standards found in 16.52 Non-Conforming Use and 16.20 R-2 High Density Residential zone.

Section 16.56 – Land Divisions

16.56.030 Conformance.

A. Comprehensive Plan. A subdivision or partition shall conform to the Comprehensive Plan. A determination of such conformity shall be based upon consideration of all applicable portions of the Comprehensive Plan and shall not be based solely upon a review of the land use map.

Finding 41: Staff relies on the applicant's submittal and discussion related to conformance to the comprehensive plan. As a general rule, a comprehensive plan cannot be a determining factor in making a quasi-judicial decision based on a land use decision which is described in the criteria of a land development and zoning ordinance. The development appears to conform to the guidelines stated in the comprehensive plan and the more precise document, the N. Redwood DCP. Staff finds this criterion is met.

B. Land Development and Planning Ordinance. A land division shall be subject to all applicable requirements of other sections of this title. Where an applicant seeks the approval of any division which requires a change in zoning, the applicant may be required to complete the rezoning process prior to submittal of an application for property division.

Finding 42: No zone changes are required as part of this project. Other criteria are addressed throughout this report and are largely satisfied. Staff find this criterion is met.

C. Health, Safety, and Sanitation. A subdivision or partition shall conform to all applicable state, county and city regulations regarding health, safety and sanitation. The county will not issue any permits for on-site sewage disposal systems for any lot or parcel created in violation of these regulations, nor for the remainder of the parent parcel from which lots or parcels have been illegally created, unless and until such violation has been rectified and all legal requirements met.

Finding 43: The applicant intends to connect to existing city sewer and other services typically associated with this type of development. All indications describe the availability of these services and the ability to provide those services to Redwood Landing III. As a general rule, all development shall be under the guise of applicable city, state and federal regulations regarding health, safety and sanitation.

The subject property is a legal lot and therefore lawfully allowed to proceed with a subdivision, described as Lot 93 of Canby Gardens Subdivision (Plat 0230 – Clackamas County). As a condition of approval, subsurface sanitary disposal systems will be decommissioned as approved by Oregon DEQ; all other lots will connect to existing city sewer systems. These criteria are met as conditioned.

D. Building. Structures and buildings in any property division shall conform with applicable codes and regulations regarding building. The City Building Official shall not allow the issuance of a building permit on any lot or parcel created, subdivided or partitioned in violation of these requirements. No building permit shall be issued for the remainder of the parent parcel, from which any lots or parcels have been created in violation of this title, unless and until such violation has been rectified and all legal requirements met.

Finding 44: All structures and buildings are subject to the applicable building codes provisions of Clackamas County and State of Oregon. This also includes non-structural building permitting such as grading, trade permits and decommissioning as required. Some of the existing structures will be demolished as part of this development proposal. This standard has been made a condition of approval and can be met as conditioned.

E. Streets and Roads. A property division shall conform to all applicable city ordinances or policies pertaining to streets, roads, or access. (Ord. 740 section 10.4.10(C), 1984)

Finding 45: All streets and roads are subject to City standards, ordinances and policies; this is also in

addition to any County standards for roads that are within or adjacent to the subject property that are within Clackamas County jurisdiction. This standard is described at length in the body of this report; this criterion is met.

Section 16.62 – Subdivisions - Applications

16.62.010 Filing procedures.

A. Application procedures shall be as described in Chapter 16.89. (Ord. 899 section 3, 1993; Ord. 740 section 10.4.40(A), 1984; Ord. 981 section 10, 1997; Ord. 1019 section 16, 1999; Ord. 1080, 2001; Ord. 1237, 2007)

Finding 46: The applicant has filed an application according to the applicable procedures described in Chapter 16.89; this criterion is met.

16.62.020 Standards and criteria.

Applications for a subdivision shall be evaluated based upon the following standards and criteria:

A. Conformance with other applicable requirements of the Land Development and Planning Ordinance.

Finding 47: The conformance with other applicable requirements of the Land Development and Planning ordinance is described throughout this report and those findings are incorporated herein by reference. Staff finds this criteria is met.

B. The overall design and arrangement of lots shall be functional and shall adequately provide building sites, utility easements, and access facilities deemed necessary for the development of the subject property without unduly hindering the use or development of adjacent properties;

Finding 48: According to the applicant, the proposed lots are consistent with the requirements of the **Canby Land Development and Planning Ordinance** as well as the **North Redwood Development Concept Plan (DCP)**; staff generally agree with this assertion. The DCP was created in part, to ensure logical and equitable development patterns, thus providing opportunities to individual landowners to develop their tracts of land independently with each property having a proportionate share of improvements adjacent to or within future subdivisions. Staff finds the applicant will meet the requirements of adequately providing building sites, utility easements, and access facilities necessary without unduly hindering the use of adjacent properties. Staff finds this request is consistent with the applicable standards of the *Ordinance*. Therefore, staff finds this criterion has been met.

- C. Subdivision design and layout shall incorporate Low Impact Development techniques where possible to achieve the following:
 - 1. Manage stormwater through a land development strategy that emphasizes conservation and use of onsite natural features integrated with engineered stormwater controls to more closely mimic predevelopment hydrologic conditions.
 - 2. Encourage the conservation of natural conditions and features, appropriate use of technologies and techniques, efficient layout of open space, streets, utility networks and other public improvements.
 - 3. Minimize impervious surfaces.

- 4. Encourage the creation or preservation of native vegetation and permanent open space.
- 5. Clustering of dwellings where appropriate to achieve 1-4 above. Arrangement of clustered dwellings shall be designed to avoid linear development patterns.

Finding 49: According to the applicant, the above criteria have been considered as part of the review and layout in the creation of the North Redwood DCP in order to provide efficient design of all stormwater management. Proposed stormwater management will occur through drywells and on-site infiltration. The applicant states stormwater generated on-site will be infiltrated on site via public drywells; and private drywells will infiltrate the stormwater from roof drains and foundation drains of individual homes. The applicant contends that storm water pretreatment will reduce sediment and pollution loads on nearby receiving waterbodies. The City of Engineer is requesting that the applicant provide and demonstrate how runoff generated from impervious surfaces will be properly disposed of this has been made a condition of approval. In addition, staff has provided conditions of approval requiring all stormwater management and other public improvements be constructed in compliance with all applicable Department of Environmental Quality (DEQ) requirements, Canby Public Works Design Standards, Clackamas County Water Environmental Services (WES) requirements, and State of Oregon requirements. Therefore, staff finds, as conditioned, this criterion has been met.

D. It must be demonstrated that all required public facilities and services are available, or will become available through the development, to adequately meet the needs of the proposed land division.

Finding 50: The applicant has stated that all necessary public facilities are available to serve the proposed residential development, as demonstrated by the preliminary utility plan submitted with the application, and as demonstrated in the adopted North Redwood DCP. Storm drainage analysis was not submitted with this plan set. Staff has reviewed the plan set, and has provided conditions of approval requiring that the necessary public facilities be constructed to adequately meet the needs of the proposed land division. Therefore, staff finds, as conditioned, this criterion has been met.

E. The layout of subdivision streets, and pedestrian ways supports the objects of the Safe Routes to School Program by providing safe and efficient walking and bicycling routes within the subdivision...and all schools within a one-mile radius.

Finding 51: The applicant states in the narrative that the proposed street network for the subdivision will have sidewalks on both street sides in order to provide safe and efficient routes for walking and bicycling within, and to adjacent neighborhoods and schools. Additional improvements will be provided along the project frontage of N. Redwood Street which will include pedestrian and bicycle facilities where required. The proposed subdivision modestly supports safe, multimodal transportation. Staff concur that the proposed street layout and sidewalks will provide for connectivity in support of the Safe Routes to School Program. Staff has provided conditions of approval requiring all necessary street and sidewalk construction, including planter strips, and street trees, to be in compliance with the applicable Public Works Design Standards, and the *Planning Ordinance*. Therefore, staff finds, as conditioned, this criterion has been met.

F. A Traffic Impact Study (TIS) may be required in accordance with Section 16.08.150.

Finding 52: The applicant has submitted a Traffic Impact Study (TIS), completed by DKS in January,

2020. The projected trip generation estimates were based on information published in the Trip Generation Manual, Institute of Transportation Engineers, 10th Edition. Refer to Exhibit D, herein incorporated by reference for more information on the TIS. Specifically, see the Executive Summary for an overview of the key findings from the traffic study

Per the Traffic Study, the new residential development will generate a total of 396 average daily trips with 31 AM Peak Hour trips and 42 PM Peak Hour trips. The current AM and PM Peak Hour trips, prior to development are approximately 1 and 1 trips respectively, which represents the one single-family residence on the subject site. Staff has provided conditions of approval regarding all necessary street and sidewalk construction to accommodate the new residential project. The applicant has provided the requisite traffic impact study in accordance with the *Planning Ordinance*. Therefore, staff finds, as conditioned, this criterion has been met.

Section 16.64 Subdivisions – Design Standards

16.64.010 Streets

A. Generally. The location, width and grade of streets shall be considered in relation to existing and planned streets, to topographical conditions, to public convenience and safety, and to the proposed use of land to be served by the streets. The street system shall assure an adequate traffic circulation pattern with intersection angles, grades, tangents, and curves appropriate for the traffic to be carried. Where location is not shown in a development plan, the arrangement of streets shall either:

1. Provide for the continuation or appropriate projection of existing principal streets in surrounding areas; or

2. Conform to a plan for the neighborhood approved or adopted by the commission to meet a particular situation where topographical or other conditions make continuance of conformance to existing street patterns impractical;

3. Minimum right-of-way and roadway width shall follow the requirements of the Canby Public Works Design Standards;

4. Consider opportunities to incrementally extend and connect local streets to provide for safe and convenient bike and pedestrian circulation.

Finding 53: The layout of the North Redwood DCP area was a coordinated planning effort through long range concept planning, with the intent of guiding the overall development while providing flexibility for individual development proposals. Through the preapplication conference with planning, engineering and public works staff, the proposal was presented without major conflict captured in the preapplication meeting minutes. The applicant has suggested that the development proposal honors the North Redwood DCP while accommodating individual property interests. Staff generally agrees with this assertion. The project provides for the continuation and appropriate projection of existing principal streets, allows for requirements by Canby Public Works design standards and affords the opportunity to connect to existing streets in the Redwood DCP area. Staff finds these criteria are substantially met. On the following pages **Figures 8 and 9** show the Concept Plan as compared to the proposed subdivision preliminary street plan.

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Figure 8 – Preliminary Redwood 3 Streets Plan



Figure 9 – Streets Concept from Redwood DCP

B. Permeable Surfaces. Permeable surfacing alternatives and on-site stormwater management facilities, are encouraged for street improvements. Permeable surfacing and LID stormwater management facilities shall be constructed in accordance with the Canby Public Works Design Standards and the manufacturer's recommendations. Permeable surfacing includes, but is no limited to: paving blocks, turf block, pervious concrete, porous asphalt, and other similar approved materials. Alternative surfacing methods may be approved for public and private roads, road shoulders, pedestrian ways, driveways, and easement service roads unless site constraints make use of such materials detrimental to water quality. Use of permeable surfacing methods shall meet the imposed load requirements for fire apparatus, and shall be subject to review and approval by the Canby Public Works Department.

Finding 54: The applicant indicates that his client will rely upon City standards while preparing subdivision construction plans. Staff finds that should alternative permeable surfaces be proposed that they shall meet the approval of the Public Works Department. This has been made a condition of approval.

C. Reserve Strips. Reserve strips or street plugs controlling the access to streets will not be approved unless such strips are necessary for the protection of the public welfare or of substantial property rights, or both, and in no case unless the control and disposal of the land composing such strips is placed within the jurisdiction of the city, under conditions approved by the commission.

Finding 55: The Canby Fire department has requested the ability to install temporary turnarounds at the end of N Sycamore Street. These turnarounds shall be accommodated for at the direction of Canby Fire Department. This has been made a condition of approval. No other reserve strips or street plugs controlling access to streets are proposed.

D. Alignment. All streets other than minor streets or cul-de-sacs, shall, as far as possible, be in alignment with the existing streets by continuations of the center lines thereof. Jogs creating "T" intersections shall have centerline offsets of not less than one hundred fifty feet, unless it is found that community benefits of such an alignment outweigh its disadvantages.

Finding 56: These standards shall be met as a condition of approval.

E. Future Extension of Streets. Where a subdivision adjoins unplatted acreage, streets which in the opinion of the commission should be continued in the event of the subdivision of the acreage, will be required to be provided through to the boundary lines of the tract. Reserve strips, street plugs and temporary turnaround areas may be required to preserve the objectives of street extensions. Reserve strips and street plugs shall be deeded to the city prior to final plat approval. The Planning Commission may require that the costs of title insurance and recordation fees, if any, for such areas be borne by the subdivider. If, in the opinion of the city engineer, a traffic pedestrian, or safety hazard temporarily exists by the construction of a dead-end street, he may direct that a barricade of adequate design be installed at the developer's expense as one of the required improvement items for the subdivision.

Finding 57: The applicant has indicated that connections have been provided to allow for the continuation of streets consistent with the Redwood DCP. As mentioned in **Finding 54** above, Canby Fire requested temporary turnaround as a condition of approval. These turnarounds shall be accommodated for according to the discretion of Canby Fire and the Fire Code.

In addition, there is unplatted acreage (Tax Lot 31E34B00100) that is directly adjacent east to proposed Lots 9, 10, 11 in the R-1.5 zone and 12-16 in the R-2 zone that abut the proposed subdivision. This land is identified to contain a cul-de-sac turnaround in the DCP. The applicant has not included the cul-de-

sac in the proposal. The applicant suggests that the land is unfavorable for placing this street infrastructure because a pumping station is needed for sewer on that portion of the property. The existing contours of the property do not appear to support that claim; the lots are proposed to be developed with single family homes, an extension for a street appears to be a feasible component of this project. Staff does not make civil engineering claims about the feasibility or lack thereof for placing road and sewer infrastructure in the location but the placement of buildable lots nearby seems to limit the voracity of that claim. Lastly, the DCP does acknowledge some need for flexibility in the plans that allow for individual development proposals to modify their proposals based on unique conditions present to each particular development proposal.

Per the standards of this criteria, the Planning Commission can impose that this street infrastructure be extended and placed to accommodate development in the adjacent unplatted acreage to the boundary lines of the subject property. This would require a modification of the conceptual subdivision and a continuance until a later date.

Staff finds this criteria is met as far as not requiring the cul-de-sac at the staff level but defer to the Planning Commission should they deem it appropriate to require this street extension.

F. Intersection Angles. Streets shall intersect one another at an angle as near to a right angle as possible, and no intersections of streets at angles of less than thirty degrees will be approved unless necessitated by topographic conditions. When intersections of other than ninety degrees are unavoidable, the right-of-way lines along the acute angle shall have a minimum corner radius of twelve feet. All right-of-way lines at intersections with arterial streets shall have a corner radius of not less than twelve feet.

Finding 58: The preliminary street plans indicate intersections at right angles for local feeder streets providing access to the townhomes onto NE Sycamore Street. NE Sycamore intersects with N Redwood at a right angle. In addition, the City engineer and Public Works will verify that streets are properly designed as part of the pre-construction phase of the subdivision development. Staff finds this criterion is met.

G. Existing Streets. Whenever existing streets, adjacent to or within a tract, are of inadequate width, dedication of additional right-of-way shall be provided at the time of subdivision.

Finding 59: As part of the subdivision approval, the applicant shall dedicate or otherwise make available vie easement additional right-of-way to N. Redwood Street along the property's frontage of N. Redwood Street. The required amount of dedication / easement area along the frontage of N. Redwood shall be determined by the City Engineer and Clackamas County Transportation Planning. This has been made a condition of approval.

H. Half Streets. Half streets, while generally not acceptable, may be approved where essential to the reasonable development of the subdivision, when in conformity with the other requirements of these regulations, and when the commission finds it will be practical to require the dedication of the other half when the adjoining property is subdivided. Whenever a half street is adjacent to a tract to be subdivided, the other half of the street shall be platted within such tract. Reserve strips, street plugs, special signs and barricades may be required to preserve the objectives of half streets.

Finding 60: Not applicable. No half streets are proposed within the interior of the subdivision. Halfstreet improvements will be conducted under the jurisdictional authority of Clackamas County for N. Redwood Street; those improvements are conditioned as appropriate.

I. Cul-de-sacs. A cul-de-sac shall only be allowed when environmental or topographical constraints,

existing development patterns, or compliance with other standards in this code preclude street extension and through circulation. When cul-de-sacs are provided, all of the following shall be met:

Finding 61: Not applicable. No cul-de-sacs are proposed.

J. Marginal Access Streets. Where a subdivision abuts or contains an existing or proposed arterial street, the commission may require marginal access streets, through lots with suitable depth, screen planting contained in a nonaccess reservation along the rear property line, or such other treatment as may be necessary for adequate protection of residential properties and to afford separation of through and local traffic.

Finding 62: Not applicable. The subject property does not contain or abut an arterial street.

K. Alleys.

1. Alleys shall be provided to commercial and industrial districts, unless other permanent provisions for access to off-street parking and loading facilities are made as approved by the commission.

2. Alleys shall be provided within residential subdivisions when streets are designed to meet the narrow "green" street standards in the Canby Public Works Design Standards. Visitor parking areas may be required by the city to mitigate the lack of on-street parking.

3. When alleys are provided as part of a new residential subdivision, streets shall be designed in accordance with the narrow "green" street standards in the Canby Public Works Design Standards. Visitor parking areas may be required by the city to mitigate the lack of on-street parking.

4. Alley intersection corners shall have a minimum radius of ten feet.

Finding 63: Not applicable. No alleys are proposed.

L. Street Names. No street name shall be used which will duplicate or be confused with the name of existing streets except for extensions of existing streets. Street names and numbers shall conform to the established pattern in the city and the surrounding area and shall be subject to the approval of the commission.

Finding 64: The proposed streets names are consistent with the Redwood DCP and the City's street naming conventions. Staff find this criterion is met.

M. Planting Easements. The Planning Commission may require additional easements for planting street trees or shrubs.

Finding 65: A 4.5-foot planter strip shall be incorporated within the curb and sidewalk infrastructure as described in Public Works Design Standards and the city engineer. This criterion is met as conditioned.

N. Grades and Curbs. Grades shall not exceed seven percent on arterials, ten percent on collector streets, or fifteen percent on any other street. In flat areas allowance shall be made for finished street grades having a minimum slope of .5 percent. Centerline radii of curves shall not be less than three hundred feet on major arterials, two hundred feet on secondary arterials, or one hundred feet on other streets, unless specifically approved by the City, and shall be to an even ten feet.

Finding 66: These minimum standards have been made a condition of approval and will be verified by Public Works and the City Engineer.

O. Streets Adjacent to Highway 99-E or Railroad Right-of-Way. Wherever the proposed subdivision

contains or is adjacent to a railroad right-of-way or Highway 99-E, provisions may be required for a street approximately parallel to and on each side of such right-of-way at a distance suitable for the appropriate use of the land between the streets and the railroad or Highway 99-E. The distances shall be determined with due consideration of cross streets at a minimum distance required for approach grades to a future grade separation and to provide sufficient depth to allow screen planting along the railroad right-of-way. (Ord. 740 section 10.4.40(C)(1), 1984; Ord. 1043 section 3, 2000; Ord 1237, 2007; Ord. 1338, 2010)

Finding 67: Not applicable to this development proposal.

16.64.015 Access

A. Any application that involves access to the State Highway System shall be reviewed by the Oregon Department of Transportation for conformance with state access management standards (See appendix G of the Transportation System Plan).

Finding 68: Not applicable to this development proposal.

B. All proposed roads shall follow the natural topography and preserve natural features of the site as much as possible. Alignments shall be planned to minimize grading.

Finding 69: Proposed roads balance the guiding principles of the North Redwood DCP with the circulation needs of the individual development proposal. Grading considerations will be made during the subdivision mass grading and site preparation procedures. Staff find this criterion is met.

C. Access shall be properly placed in relation to sight distance, driveway spacing, and other related considerations, including opportunities for joint and cross access.

Finding 70: These standards have been conditioned. The driveway spacing requirements shall be addressed as time of building permit for an individual lot. The subdivision access requirements are governed by Clackamas County and the City of Canby; refer to Exhibits H.1 and H.2 for comments related to specific standards for access onto N. Redwood.

D. The road system shall provide adequate access to buildings for residents, visitors, deliveries, emergency vehicles, and garbage collection.

Finding 71: The proposed road system appears to effectively accommodate these uses. Special considerations for the fire department have been previously mentioned in this report and are conditioned as appropriate.

E. Streets shall have sidewalks on both sides. Pedestrian linkages should also be provided to the peripheral street system.

Finding 72: The preliminary plans accommodate for sidewalks on both sides of the street with the exception of the private drives, identified at Tract A, B and C which appear to only provide sidewalks on one side of the street. The sidewalks do provide pedestrian linkages to the peripheral street system. Staff finds that the sidewalk requirements must meet Public Work design standards and if additional sidewalks are required those improvements will be installed. This is a condition of approval.

F. Access shall be consistent with the access management standards adopted in the Transportation System Plan. (Ord. 1043 section 3, 2000)

Finding 73: The subject property will take direct access via N. Redwood Street, a Clackamas County owned and maintained facility functionally classified as a collector. The standards will be met according to the applicant; also refer to Exhibit H.1 from Clackamas County Transportation Planning.

16.64.020 Blocks.

A. Generally. The lengths, widths and shapes of blocks shall be designed with due regard to providing adequate building sites suitable to the special needs of the type of use contemplated, needs for access, circulation, control and safety of street traffic and limitations and opportunities of topography.

B. Sizes. Block length shall be limited to 300 feet in the C-1 zone, 400 feet in residential zones, 600 feet in all other zones, except for 1,000 feet on arterials. Exceptions to this prescribed block standard shall be permitted where topography, barriers such as railroads or arterial roads, or environmental constraints prevent street extension. The block depth shall be sufficient to provide two lot depths appropriate to the sizes required by Division III. (Ord. 740 section 10.4.40(C)(2), 1984; Ord. 1043 section 3, 2000; Ord. 1076, 2001; Ord. 1338, 2010)

Finding 74: The block configuration appears to meet the needs of the contemplated uses. The longest block length according to the preliminary plans is less than 600 feet in length. These standards are met.

16.64.030 Easements.

A. Utility Lines. Easements for electric lines or other public utilities are required, subject to the recommendations of the utility providing agency. Utility easements twelve feet in width shall be required along all street lot lines unless specifically waived. The commission may also require utility easements alongside or rear lot lines when required for utility provision. The construction of buildings or other improvements on such easements shall not be permitted unless specifically allowed by the affected utility providing agency.

Finding 75: A 12-foot wide public utility is required in conformance with Chapter 2 of Canby Public Work Design Standards, adopted in 2019. This has been made a condition of approval.

B. Watercourses. Where a subdivision is traversed by a watercourse, drainage way, channel or stream, there shall be provided a storm water easement or drainage right-of-way conforming substantially to the lines of such watercourse, and such further width as will be adequate for the purpose of assuring adequate flood control. Streets parallel to watercourses may be required.

Finding 76: No identified watercourses, drainage ways, channels or streams are identified on the subject property.

C. Pedestrian Ways. In any block over six hundred feet in length, a pedestrian way or combination pedestrian way and utility easement shall be provided through the middle of the block. If unusual conditions require blocks longer than one thousand two hundred feet, two pedestrian ways may be required. When essential for public convenience, such ways may be required to connect to cul-desacs, or between streets and other public or semipublic lands or through green way systems. Sidewalks to city standards may be required in easements where insufficient right-of-way exists for the full street surface and the sidewalk. All pedestrian ways shall address the following standards to provide for the safety of users:

1. Length should be kept to a minimum and normally not in excess of two hundred feet;

2. Width should be maximized and shall not be below ten feet. For pathways over one hundred feet long, pathway width shall increase above the minimum by one foot for every twenty feet of length;

3. A minimum of three foot-candles illumination shall be provided. Lighting shall minimize glare on adjacent uses consistent with the outdoor lighting provisions in section 16.43 of this

code;

4. Landscaping, grade differences, and other obstructions should not hinder visibility into the pedestrian way from adjacent streets and properties. Fencing along public pedestrian ways shall conform to the standards in Section 16.08.110;

5. Surrounding land uses should be designed to provide surveillance opportunities from those uses into the pedestrian way, such as with the placement of windows;

6. Exits shall be designed to maximize safety of users and traffic on adjacent streets; and

7. Use of permeable surfacing materials for pedestrian ways and sidewalks is encouraged whenever site and soil conditions make permeable surfacing feasible. Permeable surfacing includes, but is not limited to: paving blocks, turf block, pervious concrete, and porous asphalt. All permeable surfacing shall be designed, constructed, and maintained in accordance with Canby Public Works Design Standards and the manufacture's recommendations. Maintenance of permeable surfacing materials located on private property are the responsibility of the property owner.

Finding 77: No proposed blocks are over 600 feet in length. The proposed development contains sidewalks for pedestrian mobility.

D. Developments that abut the Molalla Forest Road multi-use path shall provide a pedestrian/bicycle access to the path. The city may determine the development to be exempt from this standard if there is an existing or planned access to the path within 300 feet of the development.

Finding 78: Not applicable to this development proposal.

E. Solar Easements. Subdividers shall be encouraged to establish solar easements and utilize appropriate solar design in their development proposals. Solar easements shall be shown on the final plat and in the deed restrictions of the subdivision. The Planning Commission may require the recordation of special easements or other documents intended to protect solar access. (Ord. 740 section 10.4.40(C)(3), 1984; Ord. 1043 section 3, 2000; Ord 1237, 2007; Ord. 1338, 2010; Ord. 1340, 2011)

Finding 79: The applicant does not propose the establishment of solar easements. The Planning Commission may opt to require this as a condition of approval.

16.64.040 Lots.

A. Size and Shape. The lot size, width, shape and orientation shall be appropriate for the location of the subdivision and for the type of development and use contemplated. To provide for proper site design and prevent the creation of irregularly shaped parcels, the depth of any lot or parcel shall not exceed three times its width (or four times its width in rural areas) unless there is a topographical or environmental constraint or an existing man-made feature such as a railroad line.

Finding 80: The applicant is proposing lots to allow for single family detached and attached structures while accommodating the density standards as prescribed by the R-1.5 and R-2 zones. The lot size and shape are appropriate for this type of subdivision. This criterion is met.

B. Minimum Lot Sizes:

1. Lot sizes shall conform to requirements of Division III unless the applicant chooses to use an alternative lot layout per subsection (3) below to accommodate interconnected and continuous open space and or other natural resources. In this case, the average minimum lot size may be reduced by 5,000 square feet after subtracting access tracts. Overall development densities shall comply with the underlying maximum density allowed by the zone.

Finding 81: The applicant is proposing lots to allow for single family detached and attached structures while accommodating the density standards as prescribed by the R-1.5 and R-2 zones. The lot size and shape are appropriate for this type of subdivision. This criterion is met.

2. In areas that cannot be connected to sewer trunk lines, minimum lot sizes shall be greater than the minimum herein specified if necessary because of adverse soil structure for sewage disposal by septic systems. Such lot sizes shall conform to the requirements of Clackamas County for sewage disposal unless provisions are made for sanitary sewers.

Finding 82: The applicant is proposing lots to connect to city sewer. There are no sanitary sewage disposal systems proposed; this criterion is not applicable.

3. Alternative lot layout. Applicants may deviate from standard lot setbacks and dimensions to accommodate dedicated interconnected open space or other natural areas. Clustered housing, lot-size averaging, and a mixture of approaches where building lots can be grouped into a smaller portion of the total development, reserving the remainder for open space or other natural areas. Alternative development layouts shall not exceed the underlying maximum density allowed by the zone.

4. When using the alternative lot layout option, the following must be met:

a. The arrangement of the alternative lot layout shall be designed to avoid development forms commonly known as linear, straight-line or highway strip patterns.

b. To the maximum extent possible, open space and natural areas, where used, shall be continuous, interconnected, and concentrated in large usable areas.

c. Where possible, open space shall be connected to adjacent off-site open space areas.

d. Open space and natural areas shall be maintained permanently by the property owner or the property owner's association.

Finding 83: The proposed lots conform to the size standards of the R-1.5 an R-2 districts respectively. No alternative lot layouts are proposed as part of this development. These criteria are not applicable to this development proposal.

C. Lot Frontage. All lots shall meet the requirements specified in Division III for frontage on a public street, except that the Planning Commission may allow the creation of flag lots, cul- de-sac lots and other such unique designs upon findings that access and building areas are adequate. Lots that front on more than one major street shall be required to locate motor vehicle accesses on the street with the lower functional classification.

Finding 84: According to the preliminary plans, all lots proposed meet the frontage requirements. This criterion is met.

D. Double Frontage. Double frontage or through lots should be avoided except where essential to provide separation of residential development from traffic arteries or to overcome specific disadvantages of topography and orientation.

Finding 85: The applicant does not provide objective evidence for the necessitation of double frontage

lots; however, lots 41-44 will take access via a local street within the subdivision and will provide separation of residential development from accessing N. Redwood Street. This largely meets the criterion for avoidance of double frontage lots. Staff finds this criterion is met.

E. Lot Side Lines. The side lines of lots shall run at right angles to the street upon which the lots face, or on curved streets they shall be radial to the curve, unless there is some recognizable advantage to a different design.

Finding 86: Staff finds that the configuration largely conforms to this standard; this criterion is met.

F. Resubdivision. In subdividing tracts into large lots which at some future time are likely to be resubdivided, the location of lot lines and other details of the layout shall be such that resubdivision may readily take place without violating the requirements of these regulations and without interfering with the orderly development of streets. Restriction of building locations in relationship to future street rights-of-way shall be made a matter of record if the commission considers it necessary.

Finding 87: Lot 44, the remainder lot with an existing single family dwelling could conceivably further develop and potentially subdivide. The necessity to develop concept plans for that at this juncture is not needed. Staff finds that streets and other public improvement infrastructure are well suited to handle that eventuality. Staff finds this criterion is not applicable at this time.

G. Building Lines. If special building setback lines are to be established in the subdivision plat, they shall be shown on the subdivision plat or included in the deed restrictions. This includes lots where common wall construction is to be permitted between two single-family dwellings.

Finding 88: Special setback are required for placing individual single family town house units as part of the proposal. As a condition of approval, the special setback requirements shall be indicated on a copy of the final plat.

H. Potentially Hazardous Lots or Parcels. The commission shall utilize its prerogative to modify or deny a tentative plat or partition map where it is found that a proposed lot or parcel is potentially hazardous due to flooding or soil instability.

Finding 89: The subject property is not within a mapped Special Flood Hazard Area according to FIRM for this area. No known hazards exist; this standard is not applicable.

I. Flag Lots or Panhandle-shaped Lots. The commission may allow the creation of flag lots provided that the following standards are met:

Finding 90: Not applicable; no flag lots are proposed.

J. Designation of Lots as 'Infill Home' Sites. The Planning Commission may require that homes built on one or more lots adjacent to existing development be subject to any or all of the requirements of 16.21.050 - Infill Homes. Furthermore, for subdivisions where the parent parcel(s) is less than two acres in size, the Planning Commission may require that all homes built on lots in the subdivision be subject to any or all of the requirements of 16.21.050. These requirements are to be shown on the subdivision plat or included in the deed restrictions. (Ord. 740 section 10.3.05(F) and 10.4.40(C)(4), 1984; Ord. 890 section 54, 1993; Ord. 1043 section 3, 2000; Ord. 1107, 2002; Ord. 1111 section 6, 2003; Ord. 1338, 2010)

Finding 91: These standards are not applicable to this proposal.

16.64.050 Parks and recreation. Subdivisions shall meet the requirements for park, open space and
recreation as specified in Division VI.

Finding 92: The proposed development was not inventoried for parks and open space as part of the Redwood DCP area. Construction of homes will require an SDC contribution to parks as part of the building permit process.

Compliance with the Comprehensive Plan

Finding 93: Staff finds that the applicant has adequately addressed applicable elements of the comprehensive plan and incorporates those finding herein by reference. As a matter of practice, addressing items as part of a Type III land use proposal should not hinge on compliance with the plain text of the comprehensive plan. Rather, those elements should be addressed through the land development ordinances, the implementing documents of the comprehensive plan.

Public / 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 property and to all applicable public agencies. Staff has received conditions of approval from the following agencies and organizations:

- Canby Fire
- Direct Link
- Clackamas County Engineering
- City Engineer

IV. <u>Conclusion</u>

Staff has reviewed the applicant's narrative and submitted application materials and finds that this Subdivision application conforms to the applicable review criteria and standards, subject to the applicable **conditions of approval noted in Section V of this report.**

V. Conditions of Approval

A. General Process / Informational

- 1. The Planning Commission can impose conditions that are not stated in this staff report as outright conditions of approval. (Canby Planning EF)
 - a. Solar Easements. Subdividers shall be encouraged to establish solar easements and utilize appropriate solar design in their development proposals. Solar easements shall be shown on the final plat and in the deed restrictions of the subdivision. The Planning Commission may require the recordation of special easements or other documents intended to protect solar access. (Ord. 740 section 10.4.40(C)(3), 1984; Ord. 1043 section 3, 2000; Ord 1237, 2007; Ord. 1338, 2010; Ord. 1340, 2011)
 - b. Future Extension of Streets. Where a subdivision adjoins unplatted acreage, streets which in the opinion of the commission should be continued in the event of the subdivision of the acreage, will be required to be provided through to the boundary lines of the tract. Reserve strips, street plugs and temporary turnaround areas may be required to preserve the objectives of street extensions. Reserve strips and street plugs

shall be deeded to the city prior to final plat approval. The Planning Commission may require that the costs of title insurance and recordation fees, if any, for such areas be borne by the subdivider. If, in the opinion of the city engineer, a traffic pedestrian, or safety hazard temporarily exists by the construction of a dead-end street, he may direct that a barricade of adequate design be installed at the developer's expense as one of the required improvement items for the subdivision.

2. If any alternative permeable surfaces be proposed to address lot coverage or otherwise provide LID Stormwater benefits, that they shall meet the approval of the Public Works Department.

B. Public Improvements

- 3. Prior to the start of any public improvements work, the applicant shall schedule a preconstruction conference with the City Of Canby and obtain construction plans sign-off from all applicable reviewing agencies. (Canby Planning – EF)
- 4. All site development shall comply with all applicable City of Canby Public Works Design Standards. (City Engineer HI/Public Works JN)

Fees/Assurances:

- 5. All public improvements are typically 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 125% of the cost of the remaining public improvements to be installed. (City Engineer HI/Public Works JN/Canby Planning EF)
- 6. 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 is to accompany a final bid estimate of the subdivider's contractor if a contractor has been engaged to perform the work. The certificate of the total cost estimate shall be approved by the city engineer. (City Engineer HI)
- The applicant shall guarantee or warranty all public improvement work with a one (1) year Subdivision Maintenance Bond following written notice of acceptance by the city to the developer in accordance with Section 16.64.070(P) of the Ordinance. (Public Works – JN/Canby Planning – EF)
- 8. The applicant shall pay the city of Canby Master Fee authorized engineering plan review fee equal to 2% of public improvement costs prior to the construction of public improvements (approval of construction plans). (Canby Planning EF)

C. Streets, Easements, Signage & Striping:

- 9. Prior to site improvements a development permit is required from the Clackamas County Engineering Department for review and approval of N. Redwood frontage improvements, erosion control Best Management Practices, sight distances and City street access. The permit shall be obtained prior to the commencement of site work. To obtain the permit, the applicant shall submit construction plans prepared and stamped by an Engineer registered in the State of Oregon, provide a performance guarantee equal to 125% of the estimated cost of the construction within existing County right-of-way and pay a plan review and inspection fee. The fee will be calculated as a percentage of the construction costs if it exceed the minimum permit fee. The minimum fee and the percentage will be determined by the current fee structure as the time of the Development Permit Application. (Clackamas County Engineering JG)
- 10. The applicant shall establish centerline and dedicate sufficient right-of-way to ensure a minimum of 30-foot half street along the entire frontage of N. Redwood Street. The right-of-way width shall be verified by a professional surveyor to the satisfaction of DTD engineering and County Surveyor. (Clackamas County Engineering JG)
- 11. The applicant shall construct / dedicate the entire half right-of-way of N Redwood Street with half street improvements along the entire street frontage. These improvements shall meet County and City standards for:
 - a. Half street paved width surface of 18 feet measured from centerline (structural section to meet C100)
 - b. The improvements shall include .5 feet curb and gutter
 - c. 5-foot planter strip with street trees
 - d. 6-foot wide concreted sidewalks
 - e. Dual ADA ramps
 - f. Streetlights, and utilities as required
 - g. An asphaltic taper of 10:1 shall be constructed to match existing surface. *Roadway Standards* section 250.6.6
 - h. A minimum of 8-foot wide public utility easement or width as required by Canby Utility abutting the right-of-way is also required.
 - i. Curb return at City Street with minimum 20 foot radius (Clackamas County Engineering JG / City Engineer HI)
- 12. NE Sycamore shall be designed to City local street standards with 34-foot paved width, formed concrete curbs and gutters, 4.5-foot wide planter strip with street trees, 6-foot wide concrete sidewalks, street lights and utilities in conformance with Chapter 2 of the City of Canby Public Works Design Standards, dated February 2020. The City Engineer shall determine compliance with this condition. (City Engineer HI)
- 13. Commercial driveway approaches shall be constructed at the private entrances abutting NE Sycamore Street in conformance with City standard detail 104 and shall meet PROWAG guidelines.
- 14. The three private streets (Tracts A, B, and C) shall be constructed and approved by Canby Fire Department meeting their standard requirements.

- 15. All interior street corners shall have ADA ramps and at least one ADA ramp across the street to facilitate pedestrian crossings and shall be constructed as part of this development in conformance with PROWAG guidelines. (City Engineer HI)
- 16. All interior street names and traffic signs shall be installed by the developer as part of this development. The developer's design engineer will be required to submit as part of the construction plans, a signing and striping plan. The City may supply the required traffic and street name signs based on a mutually agreed cost. (City Engineer HI)
- 17. Sight distance by a registered professional engineer shall be verified at all access points and documented as per the Transportation Impact Analysis, dated May 2020 and prepared by DKS Associates. (City Engineer HI)
- 18. Temporary fire truck turnarounds shall be constructed at the terminus of NE Sycamore The geometric turnaround and location shall meet the City of Canby Fire department requirements. The City Engineer, in conjunction with Canby Fire District, shall determine compliance with this condition. (City Engineer HI / Canby Fire District ME)
- 19. The applicant shall provide, and have approved, a truck haul route, with flaggers if deemed necessary, for all construction activity at said development site. The haul route shall be approved at the time of the pre-construction meeting by the Public Works Department. (County Transportation JG/Public Works JN)

D. Grading and Erosion Control/Demolition:

- 20. The applicant shall obtain an Erosion Control permit from the City of Canby prior to any on-site disturbance. (City Engineer/Canby Public Works HI)
- 21. The applicant shall obtain a demolition permit from Clackamas County, (with a release for permit from Canby Planning) prior to demolition of on-site existing structures. (City Engineer HI/Canby Public Works/Canby Planning EF)
- 22. The applicant shall obtain a grading permit from Clackamas County prior to any on-site disturbance and provide the City proof of permit. (Clackamas County/Coordination with City Public Works JN)

E. Street Trees:

23. The applicant shall be responsible for selecting street trees from the City approved tree list. The developer shall pay the City \$250 per street tree installation typically prior to home occupancy with (2) years of city maintenance, prior to final plat recordation. Property owners shall take over all responsibility of said street trees after the two (2) year period lapses. Canby Public Works in conjunction with Canby Planning, shall determine compliance with this condition. (Public Works - JN / Canby Planning - EF)

F. Sewer and Storm Drainage:

- 24. All private storm drainage discharge shall be disposed on-site, design methodology shall be in conformance with the City of Canby Public Works Design Standards, February 2019 All private UIC facilities shall be Rule Authorized by the Department of Environmental Quality. The City Engineer and Public Works shall determine compliance with this condition. (City Engineer HI/Public Works JN)
- 25. The applicant shall be required to submit a Storm Drainage Report that provides detailed analysis as part of the storm report. The developer's engineer shall demonstrate how the storm runoff generated from the new impervious surfaces will be disposed of. If drywells (UIC) are used as a means to discharge storm runoff from the private streets, they must meet the following criteria:
 - a. The UIC structures location shall meet at least one of two conditions:
 - i. The vertical separation distance between the UIC and seasonal high groundwater is more than 2.5 feet or;
 - ii. The horizontal separation distance between the UIC and any water well is a minimum of 267 feet in accordance with the City of Canby Stormwater master Plan, Appendix "C", Groundwater Protectiveness Demonstration and Risk Prioritization of Underground Injection Control (UIC) Devices.

The storm drainage report shall be in conformance with the requirements as stated in Chapter 4 of the City of Canby Public Works Design Standards, dated February, 2019. The City Engineer and Public Works shall determine compliance with this condition. (City Engineer – HI/Public Works JN)

- 26. The applicant shall be responsible for the abandonment of any existing on-site domestic or irrigation wells in conformance with OAR 690—220-0030. A copy of the Oregon Water Rights Department (OWRD) Certificate shall be submitted to the City with the final plat application. The City Engineer and Public Works shall determine compliance with this condition (City Engineer HI/Public Works JN)
- 27. The applicant shall be responsible for the abandonment of any existing on-site sewage disposal system, 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. The City Engineer and Public Works shall determine compliance with this condition. A copy of the SDS decommissioning shall be supplied with the final plat application. (City Engineer HI/Public Works JN)
- 28. The sanitary sewer mains in tracts A, B and C may be pubic lines but the service laterals will be entirely private between the main line and each residence. A blanket access and maintenance easement dedicated to the City of Canby is required.

G. Water & Electric Utility Services

29. Water services shall be constructed in conformance with Canby Utility's standards and specifications. Canby Utility, in conjunction with the City Engineer shall determine compliance with this condition. (City Engineer – HI/Canby Utility-JS)

- 30. The applicant shall submit drawings for all project water lines to Canby Utility for review and approval. Submittal shall meet the requirements of Canby Utility as well as the State of Oregon's requirements. Canby Utility shall determine compliance with this condition. (Canby Utility JS)
- 31. Canby Utility, in coordination with the applicant will determine the electrical system layout to serve the subdivision. This shall include required streetlight placement which shall be represented on a utility service page of the construction plans for the subdivision by the applicant. Canby Utility shall determine compliance with this condition. (Canby Utility JS)
- 32. The applicant shall schedule all water and electric utility construction and inspections at least 15-days in advance. Contact Canby Utility Operations Field Supervisor at 503-263-4331.
- 33. The applicant shall be required to provide 4-inch Schedule 40 PVC sleeves for all road crossings for DirectLink services where applicable. The applicant shall work with DirectLink for coordination of all sleeves and required open trenching scheduling for said communication facilities. DirectLink shall determine compliance with this condition. (Contact DirectLink at 503-266-8242)

H. Fire Protection

- 34. All fire protection apparatus's such as fire hydrants placement and location shall be placed in accordance with the requirements of the Canby Fire District codes and regulations (Oregon Fire Code 2019, Chapter 33). The fire hydrants are not to be spaced further than 300 feet of travel distance. Canby Fire District shall determine compliance with all fire regulations. (Canby Fire District ME)
- 35. The applicant shall contact the Canby Fire District for review and inspection of placement of all fire hydrants, and placement of any and all flammable construction materials on-site, prior to placement of said materials. Canby Fire District shall determine compliance with all fire regulations. (Canby Fire District ME)
- 36. Building Address shall be marked at the beginning of construction with a lot marker if needed for each lot under construction. Canby Fire District shall determine compliance with all fire regulations. (Canby Fire District ME)
- 37. All fire hydrants shall all have Storz quick adapter couplings on the steamer port as required by Canby Utility. A Blue reflector will be in the center of the road to indicate the hydrant is in the vicinity. Canby Fire District shall determine compliance with all fire regulations. (Canby Fire District – ME)
- Landscaping shall be low growing vegetation so as not to block visibility of hydrants, or addressing. Canby Fire District shall determine compliance with all fire regulations. (Canby Fire District – ME)
- 39. The applicant shall provide a PDF of approved prints for the Canby Fire District Pre-Fire Plan program of the development. Canby Fire District shall determine compliance with all fire regulations. (Canby Fire District ME)
- 40. Fire access shall always be part of the construction plan for the development. Canby Fire District shall determine compliance with all fire regulations. (Canby Fire District ME)
- 41. The private drives within Tracts A, B and C shall be designated as fire lanes.

- a. Each shall have one fire hydrant at tract entrance with a blue reflector in the pavement denoting the location of the hydrant.
- b. Red curb painting to extend 10 feet minimum beyond hydrant on frontage street To ensure that we don't have any vehicles parked too close for Fire Operations and visibility.
- c. The paved surface shall be a minimum of 26 feet for fire Operations per Appendix D, Oregon Fire Code.
- d. Red curb on each side of the street with no parking fire lane painted in white and signage.

I. Post Office (mailbox locations)

42. The applicant shall designate on the civil construction plans placement of a community cluster mail box in one location similar to Redwood Landing Phase I. The Postmaster shall determine compliance with this condition. (Canby Postmaster Sheila L. Laney, 503-266-3353)

J. Final Plat:

- 43. The applicant is responsible for providing all required information to verify conditions of approval. <u>The applicant shall supply a narrative along with accompanying documentation addressing each numbered condition of approval as stated.</u> This will largely take place during the Final Plat process. The narrative shall indicate if the condition is satisfied or if it is not, when and how the condition will be addressed. Failure to provide a sufficient narrative and accompanying documentation will delay the final plat approval process. (Canby Planning EF)
- 44. The applicant shall apply for final plat approval at the City and pay any applicable city fees associated with final plat review. Prior to the recordation of the final plat at Clackamas County, the plat must be approved by the City. If deemed necessary, the City will distribute the final plat to other applicable local service providers for comment prior to signing off on the final plat. Canby Planning shall determine compliance with this condition. (Canby Planning EF)
- 45. The submission and recordation of the final plat must be within the timelines stated in ORS 92 and CMC 16.18.020 (Canby Planning EF). Timeline extensions must be provided in a timely manner to be approved.
- 46. All public improvements or submittal of necessary performance security assurances shall be made prior to the signing and release of the final plat for filing of record. Canby Planning shall determine compliance with this condition. (Canby Planning EF)
- 47. The final plat shall conform to the necessary information and 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. (Canby Planning – EF/City Engineer - HI)
- 48. Prior to substantial completion and approval of the final plat all required improvements for N. Redwood Street shall be designed, constructed, inspected and approved pursuant to Clackamas County Roadway Standards. (Clackamas County)

- 49. All "as-built plans" of City public improvements installed shall be filed with Canby Public Works within sixty (60) days of completion and acceptance of the improvements. (City Engineer HI/Public Works JN)
- 50. Clackamas County Surveying reviews pending subdivision plat documents for Oregon Revised 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 two years of approval of the tentative plat, or formally request an extension of up to 6-months with a finding of good cause. Canby Planning shall determine compliance with this condition. (Canby Planning EF)
- 51. The applicant shall record the final plat at Clackamas County within 6-months of the date of the signature of the Planning Director. Canby Planning shall determine compliance with this condition. (Canby Planning EF)
- 52. 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. Canby Planning shall determine compliance with this condition. (Canby Planning EF)
- 53. The City shall assign addresses for each newly created subdivision lot and distribute those addresses to the developer, and other applicable agencies accordingly prior to home permitting. Canby Planning shall determine compliance with this condition. (Canby Planning EF)
- 54. A note on a copy of the final plat shall state that all fencing is required to meet the City of Canby's current municipal code. (Canby Planning EF)
- 55. A note on a copy of the final plat shall state that lots 1, 41, 42, 43, and 44 shall not have legal vehicle access onto North Redwood unless approved by the Clackamas County and the City of Canby. (Canby Planning EF / Clackamas County)
- 56. A note on a copy of the final plat shall indicate the special setback standards for attached single family homes. (Canby Planning EF)

K. Easements

57. All public utility easements traversing the newly created residential lots related to water, sewer, electric, and gas service shall be noted on the final plat. Canby Planning in conjunction with the City Engineer shall determine compliance with this condition. (Canby Planning – EF / City Engineer – HI)

L. <u>Residential Building Permit(s):</u>

- 58. Construction of all required public improvements and the recordation of the Final Plat shall be completed prior to the issuance of building permits and comply with all applicable City Public Works Design Standards. The City Engineer and Public Works shall determine compliance with this condition. (City Engineer – HI / Public Works – JN/Canby Planning –EF)
- 59. The homebuilder shall apply for and submit a City of Canby Site Plan Permit application and Clackamas County Building permit for each home, and satisfy the residential design standards

of CMC 16.21. Canby Planning shall determine compliance with this condition. (Canby Planning – EF)

- 60. All residential construction shall be in accordance with applicable Public Works Design Standards. Public Works shall determine compliance with this condition. (Public Works JN)
- 61. Clackamas County Building Codes division will provide structural, electrical, plumbing, and mechanical plan review and inspection services for all new home construction. The applicable county building permits are required prior to the construction of a new single-family residence. (Canby Planning EF)
- 62. 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 width shall be 24 feet, with an allowed exception of 28 feet for a home with 3 or more garages. Canby Planning shall determine compliance with this condition. (Canby Planning EF)
- 63. All usual System Development Charges (SDC) shall be collected with each new home permit within this development. Canby Planning shall determine compliance with this condition. (Canby Planning EF)

M. Fencing

64. Placement of residential fences along any front or street-adjacent side yard property line are permitted to be a maximum of 3-feet, 6-inches in height, and must not exceed 30-inches in height when within the 30-foot Vision Clearance Triangle for all corner lots, and Vision Clearance Area of ten (10) feet from driveways to the street. Perimeter and rear yard fencing is not to exceed six (6) feet in maximum height. Please reference Section 16.08.110 of the Canby Land Development and Planning Ordinance, Chapter 16, of the Municipal Code. (Canby Planning



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

LAND USE APPLICATION

SUBDIVISION

<u>APPLICANT INFORMATION</u>: (Check ONE box below for designated contact person regarding this application)

Address: 1969 Willamette Falls Dr., Suite 260		Phone:	: (503) 657-0406 mark@iconconstruction.net	
		Email:		
City/State: West Linn, OR	Zip: 97068		darren@iconconstruction.net	
Representative Name: Rick Givens, Plan	ning Consultant	Phone:	503-479-0097	
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City/State: Oregon City, OR	Zip: 97045			
Property Owner Name: Redwood Five, L	LC, Allen Manual	Phone:	503784-4950	
Signature: Men Manuel Tour	tee, alle Mg	anuel	Lurine Trust Mercher.	
Address 400 CIA/ First Augusts	/ -	г ч		

Audress. 409 SW Flist Avenue		Email: amanuel@canby.com	
City/State: Canby, OR	Zip: 97013		
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:

1176, 1212, and 1234 N. Redwood Street	4.59 Acres	31E34B TL 300, 301 & 302	
Street Address or Location of Subject Property	Total Size of Property	Assessor Tax Lot Numbers	
Two single-family homes	R-1.5 & R-2	Medium Density Res.& High Density Res.	
Existing Use, Structures, Other Improvements on Site	Zoning	Comp Plan Designation	

42-lot subdivision for single-family detached and single-family attached homes.

Describe the Proposed Development or Use of Subject Property

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

Visit our website at: <u>www.canbyoregon.gov</u> Email Application to: <u>PlanningApps@canbyoregon.gov</u>

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EXISTING CONDITIONS MAP TAX LOTS 300-302 & 400, MAP 3S, 1E, 34B LOCATED IN THE N.W. 1/4 SECTION 34, T.3S., R.1E., W.M. CITY OF CANBY, CLACKAMAS COUNTY, OREGON OCTOBER 14, 2020 SCALE 1"=30' SHEET 2 OF 2

SURVEY NOTES:

THE DATUM FOR THIS SURVEY IS BASED UPON A STATIC GPS OBSERVATION OF LOCAL CONTROL POINTS, PROCESSED THROUGH OPUS. DATUM OF NAVD 88, WAS CONVERTED TO NGVD 29 USING THE VERTCON TOOL.





Redwood Landing 3 Subdivision Application

N. Redwood Street, Canby, OR

Icon Construction & Development, LLC.

Rick Givens, Planning Consultant December 2020



Introduction:

Icon Construction & Development, LLC is proposing to develop a 44-lot subdivision on property located at 1176, 1212, and 1234 N. Redwood Street in Canby. The proposed subdivision is the third phase of the Redwood Landing subdivision. The project site contains a total of 4.59 acres and is located within the area of the North Redwood Development Concept Plan. This plan, adopted in October of 2017, established a conceptual design and policies to govern the development of the area on the east side of Redwood Street between approximately 12th Avenue on the south and 19th Loop on the north.

The property included in this application is comprised of Tax Lots 300, 301 & 302 of Clackamas County Assessor's Map 31E34B. The subject property contains two comprehensive plan/zoning designations: Medium Density Residential/R-1.5 on Tax Lots 301 & 302, and High Density Residential/R-2 on Tax Lot 300.



Figure 1: Vicinity Map



Figure 2: Assessor's Map of Site

Existing Conditions:



Figure 2: Aerial Photograph

As shown on the aerial photograph (Figure 2), the subject property is generally rectangular in configuration. Tax Lots 300 and 302 are presently developed with single-family homes. The home on Tax Lot 300 will be retained, but the home on Tax Lot 302 will be demolished to allow for site development. Site terrain is relatively flat on the western and central portions of the site,

Redwood Landing 3 Subdivision Application Icon Construction & Development, LLC. Page 2 of 34 but is somewhat sloping to the east on the eastern border of the site as terrain drops down towards the Willow Creek drainage basin on the adjacent Tax Lot 100. Because of the slope on the eastern border, this area will need to be filled in order to provide for sewer service towards the existing sanitary sewer line in Redwood Street.

Surrounding land uses are residential in character. The Redwood Landing 2 subdivision that was approved last spring abuts along the northern border of the site. To the west, across N. Redwood Street, the Erika Acres and Heritage Acres subdivisions are developed with single-family detached homes on approximately 7,000 sq. ft. lots. To the south, the Garden Crossing subdivision is developed with single-family attached townhomes at R-2 densities. Tax Lot 100, to the east of the site, is presently outside of the city limits and is developed with a single-family home.

Project Description:



Figure 4: Redwood Landing 3 Preliminary Site Plan

The site plan provides for the extension of N. Sycamore Street from its intersection with N. Redwood Street at NE 12th Avenue, through the property to connect with the planned street stub in the Redwood Landing 2 subdivision to the north. Redwood Landing 2 has received preliminary plat approval from the City of Canby and is in final engineering prior to development.

The proposed subdivision includes 12 new lots for single-family detached homes in the R-1.5 zone and for lots 31 single-family attached homes in the R-2 zoned area. Additionally, the

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existing single-family home on Tax Lot 300 will be retained as Lot 44 in the proposed subdivision within the R-2 area.

Compliance with Approval Criteria:

Chapter 16.13 – Plan Districts

16.13.010 North Redwood Plan District.

A. Purpose

The North Redwood Plan District implements the North Redwood Development Concept Plan (NRDCP) and is intended to ensure that development within the North Redwood area is consistent with the land use pattern and transportation network established by the NRDCP. The North Redwood Plan District is also intended to provide some flexibility for new development in order to protect natural resources and emphasize the Willow Creek corridor as a community amenity.

<u>Applicant Response</u>: The proposed layout for the subject properties has been designed to fit as closely as practicable with the North Redwood Development Concept Plan (NRDCP). The plan provides for the extension of N. Sycamore Street through the property in the general alignment shown on the NRDCP. There are no natural resource areas or Willow Creek corridor areas on the site.

B. Applicability

The standards and regulations in this chapter apply to all land within the North Redwood Plan District as shown on the City of Canby's North Redwood Plan District Map. The provisions in this chapter apply in addition to standards and regulations established in the base zone and other applicable sections of the Canby Zoning Code. Where standards in this chapter conflict with standards in other sections of the Canby Zoning Code, this section will supersede.

<u>Applicant Response</u>: The subject property is located within the area of the NRDCP and the provisions of Chapter 16.13 are applicable.

C. Approval criteria

The following criteria must be satisfied prior to approval of any new subdivision or Planned Unit Development within the North Redwood Plan District as they apply to the area proposed for development.

1. Generally, new road alignments should be consistent with those identified on Figure 9 of the DCP. Changes to the identified road alignments may be approved to allow for topographic or other conditions.



Figure 5: North Redwood Development Concept Plan

Applicant Response: The site of the Redwood Landing 3 development is shown on the NRDCP, above, immediately below the Redwood Landing 2 subdivision. The proposed site plan complies with the main requirement of this plan by providing for the extension of N. Sycamore Street through the site to connect with the street stub in the Redwood Landing 2 project. N. Sycamore Street is designated as a Neighborhood Route and it is the most important element of the conceptual street plan. The NRDCP does not take into account individual ownerships or site terrain. For this reason, it is necessary to modify the layout somewhat from the conceptual design in the NRDCP. The NRDCP shows a culde-sac being stubbed into Tax Lot 100 at the northeast corner of the Redwood Landing 3 site. Site terrain makes this connection impracticable. There is a swale at that location that must be filled in order for the remainder of the site to be served with sewer from N. Redwood Street. Further, the alignment of Sycamore Street was shifted to the east with the Redwood Landing 2 project.



2. There shall be a minimum of five connections to existing roads on the east side of North Redwood Street, built to the City's Local Street standard. To the extent possible, additional connections should not create offset intersections and should meet spacing standards in the Transportation System Plan.

<u>Applicant Response</u>: The proposed plan complies with the location of the intersection of Sycamore Street with N. Redwood Street at the existing intersection with NE 12th Avenue. No other intersections are called for in this section of the conceptual masterplan.

3. A cul-de-sac shall only be allowed when environmental or topographical constraints, or compliance with other standards in this code preclude street extension and through circulation. The map in Figure 9 of the DCP identifies three locations where cul-de-sacs could be allowed.

Applicant Response: No cul-de sacs are proposed.

4. One loop road shall be built through the North Redwood community, connecting NE 18th Place to NE 12th Avenue. The loop road shall be built to the City's Neighborhood Route standards. Where possible, the loop road should travel adjacent to Willow Creek and provide access to Willow Creek trailheads and open space.

<u>Applicant Response</u>: The proposed site plan provides for the completion of a portion of the planned loop road through the site. This street, which is named N. Sycamore Street on the site plan, will connect with the street stub in Redwood Landing 2 and will provide for the connection to N. Redwood Street at NE 12th Avenue.

5. Where possible, other local streets in North Redwood should intersect with the loop road identified in (3) above.

<u>Applicant Response</u>: The proposed Sycamore Street intersection aligns with NE 12th Avenue, consistent with this criterion.

6. At least one additional local street shall traverse the study area from north to south, connecting the area zoned for low density residential with the area zoned for high density residential.

<u>Applicant Response</u>: This local street connection takes place in the Redwood Landing 2 subdivision with the extension of N. River Alder Street to the north.

7. Future local streets should be located to split parcel lines where feasible.

<u>Applicant Response</u>: The existing parcel lines are being re-platted in this project and are not relevant to the proposed development. The alignment of N. Sycamore is set by the location of the existing intersection of NE 12th Avenue on the west side of N. Redwood Street, which does not align with the existing property lines.

8. The land east of Willow Creek shall be accessed from an extension of North Teakwood Street and terminate in a cul-de-sac, hammerhead, or other appropriate turnaround.

<u>Applicant Response</u>: Not applicable. The site does not contain any area east of Willow Creek.

- 9. Block size shall be consistent with the following:
 - *i.* Block widths should be approximately 280 feet whenever possible. Alternate block widths may be approved to allow for topographical variations
 - ii. Overall block length shall not exceed 600 feet
 - *iii.* A bicycle/pedestrian connection shall be provided at least every 330 feet, consistent with provisions in the Canby Transportation System Plan (TSP)

<u>Applicant Response</u>: Block widths proposed are suitable for the development pattern of the area, and connect to the pattern established in Redwood Landing 2. No blocks in excess of 600 feet in length are proposed. No pedestrian/bicycle connections are identified for this property in the NRDCP and none were required at the pre-application conference.

10. The park and open space corridor along Willow Creek, as identified in Figure 7 of the DCP, shall be provided through required land dedication for parks.

<u>Applicant Response</u>: The subject property does not contain any areas identified as open space on the NRDCP.

11. Applicants must demonstrate that future adjacent projects will be able to connect to proposed roads and other infrastructure in a way that will be consistent with the North Redwood DCP.

<u>Applicant Response</u>: The Redwood Landing 2 project to the north is approved. That subdivision provided a future street plan that showed how connections to other area properties within the NRDCP can be provided.

D. Lot area exceptions and lot size averaging.

The following exceptions to the City's lot size standards and lot size averaging provisions will be allowed for developments in the North Redwood Plan District.

1. The Planning Commission may allow public park land dedications to be included in the lot size averaging calculation in order to achieve community development goals and allow protection of natural resources.

Applicant Response: No lot area averaging is proposed.

2. The resulting average lot size shall not be less than 5,000 square feet in the R1 zone.

<u>Applicant Response</u>: Not applicable. No R-1 zoning exists on the subject property.

3. The resulting average lot size shall not be less than 4,000 square feet in the R1.5 zone.

<u>Applicant Response</u>: Not applicable. No lot area averaging is proposed. All lots within the R-1.5 zone area to be developed for single-family homes satisfy the 5,000 sq. ft. minimum lot size standard.

4. Individual lot sizes may be less than prescribed in Sections 16.16.030 and 16.18.030 alternative lot layout option provided in Section 16.64.040 is used. (Ord. 1422, 2015)

Applicant Response: Not applicable. No lot area averaging is proposed.

COMPLIANCE WITH ZONING STANDARDS

As mentioned above, the subject property is located in two zoning districts, R-1.5 on Tax Lots 1301 & 1302, and R-2 on Tax Lot 1300. Because Sycamore Street must align with NE 12th Avenue on the west side of N. Redwood Street, it is not possible for the right-of-way to align with the existing zoning boundary. This will unavoidably result in lots within the development straddling the zoning line. This issue of split zoning is addressed out in Chapter 16.08.030:

16.08.030 Zone boundaries. Unless otherwise specified, zone boundaries are lot lines or the centerline of streets, railroad rights-of-way, or such lines extended. Where a zone boundary divides a lot into two or more zones, the entire lot shall be considered to be in the zone containing the greater lot area, provided the boundary adjustment is a distance of less than twenty feet.

The map below shows how zoning would be applied for the individual lots within the project. The area of the R-2 zoning is nearly identical with the zoning map area: 92,293 sq. ft. before vs. 92,956 sq. ft. as adjusted.



Figure 6: Zoning Application to Site Yellow: R-1.5, Orange: R-2

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Chapter 16.18 – R-1.5 Low Density Residential Zone

16.18.010 Uses permitted outright. Uses permitted outright in the R-1.5 zone shall be as follows:

A. Uses permitted outright in the R-1 zone;

B. Two-family or three-family dwellings. One duplex or triplex on each lot. (Ord. 740 sect. 10.3.20 (A), 1984)

C. Single-family townhouse dwellings having common wall construction. The townhouse construction is limited to a maximum grouping of three dwelling units. If more than one group of dwellings is developed then a ten foot distance shall be maintained between an adjacent group of dwelling units. (Ord. 740 sect. 10.3.20(B), 1984; Ord. 1080, 2001; Ord. 1514, 2019)

<u>Applicant Response</u>: Lots 1-11 and 23 are within the R-1.5 zone and proposed to be used for single-family dwellings. This use is permitted outright.

16.18.030 Development standards.

The following subsections indicate the required development standards of the R-1.5 zone:

- A. Minimum and maximum lot area:
 - 1. For single family dwellings: five thousand (5,000) square feet minimum and six thousand five hundred (6,500) square feet maximum.
 - 2. For townhome dwelling units having common wall construction: three thousand (3000) square foot minimum lot size.

<u>Applicant Response</u>: All that are within the R-1.5 zone are proposed to be used for single-family homes (Lots 1-11 and 23). These lots meet or exceed the minimum lot area of 5,000 sq. ft. No lots are proposed that exceed 6,500 sq. ft. Lots 11 is the largest lot and measures 6,085 sq. ft. in area.

B. Lot area exceptions:

1. The Planning Commission may approve an exception to the minimum and maximum lot area standards in subsection 16.18.030.A as part of a subdivision or partition application when all of the following standards are met:

<u>Applicant Response</u>: No lot area exceptions are proposed. All lots meet the minimum and maximum standards.

C. Minimum width and frontage: forty feet, except that the Planning Commission may approve lots having less frontage subject to special conditions to assure adequate access. Twenty feet is permitted for single family attached (common wall) housing on interior lots.

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<u>Applicant Response</u>: All single-family lots have widths exceeding 40 feet and have frontages exceeding 40 feet. No single-family attached homes are proposed in the R-1.5 zoned portion of the subdivision.

- D. 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.

<u>Applicant Response</u>: All lots are configured so that building envelopes will allow homes to be built within this project to meet the setback standards of this subsection. This will be reviewed at the time of building permit submittal.

E. Maximum building height:

<u>Applicant Response</u>: Homes to be built on the lots within this project will comply with maximum building height standards. This will be reviewed at the time of building permit submittal.

F. The maximum amount of impervious surface allowed the R-1.5 zone shall be 70 percent of the lot area.

<u>Applicant Response</u>: Homes to be built on the lots within this project will comply with maximum impervious surface standards. This will be reviewed at the time of building permit submittal.

- G. Other regulations:
 - 1. Vision clearance distance shall be ten feet from a street to an alley or a street to a driveway, and thirty feet from a street to any other street.

<u>Applicant Response</u>: Vision clearance standards will be met in the placement of future driveways. This will be demonstrated at the time of building permit application.

Chapter 16.20 – R-2 High Density Residential Zone

16.20.010 Uses permitted outright.

Uses permitted outright in the R-2 zone shall be as follows:

- A. Uses permitted outright in the R-1.5 zone, subject to the density standards in Section 16.20.030(A);
- B. Single family townhouse dwellings having common wall construction;
- C. Boarding, lodging or rooming house;
- D. Multi-family dwelling;
- E. Manufactured and mobile home or trailer parks, subject to the criteria of Chapter 16.44;
- F. Bed and Breakfast.
- G. Residential Facility for six or more individuals. (Per ORS 197.667(4) and 443.400 (8))

<u>Applicant Response</u>: With the exception of Lot 44, all lots within the R-2 area of the site will be used for single-family townhouse dwellings with common wall construction. Lot 44 will contain the single-family detached home that is pre-existing on Tax Lot 3000. This home is permitted to continue to be used for this purpose pursuant to the provisions of Chapter 16.52, Nonconforming Uses and Structures:

16.52.010 Continuation of nonconforming use or structure. Subject to the provisions of this section, a nonconforming structure or use may be continued but shall not be altered, changed, or extended except as provided herein. Other than those expansions specifically permitted by section 16.52.035, the expansion of nonconforming uses shall not be permitted.

16.20.020 Conditional uses.

Applicant Response: No conditional uses are proposed.

16.20.030 Development standards.

The following subsections indicate the required development standards of the R-2 zone:

A. Minimum residential density: New development shall achieve a minimum density of 14 units per acre. Minimum density for a property is calculated by multiplying its area in acres (minus area required for street right-of-way and public park/open space areas) by the density standard. For example, 0.18 acres x 14 units/acre = minimum of 2.52 units.

Decimals are rounded to the nearest whole number (e.g., a minimum of 2.52 units becomes a minimum of 3 units). The Planning Commission may modify the density standard if it cannot be met due to existing lot dimensions, road patterns, or other site characteristics.

<u>Applicant Response</u>: The R-2 area of the site measures 92,956 sq. ft. in area. Of this, 15,557 sq. ft. is comprised of private street rights-of-way. The net R-2 area is 77,399 sq. ft., or 1.78 acres. Multiplying by 14, the minimum density required would be 25 units. The proposed site plan would provide 32 dwelling units in the R-2 portion of the site. This standard is met.

B. Townhouses with common wall construction must be placed on a maximum 3000 square foot lot in order to meet the density required in this section.

Applicant Response: No townhouse lots are proposed that exceed 3,000 sq. ft. in area.

C. Minimum width and frontage: Twenty feet except that the Planning Commission may require additional width to ensure that all applicable access standards are met.

<u>Applicant Response</u>: All townhouse lots measure at least twenty feet in width and frontage.

- D. *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. Street yards for multifamily development (3 or more units located on the same property) located adjacent and on the same side of the street to an R-1 (Low Density Residential) or R-1.5 (Medium Density Residential) zone shall establish a front yard setback that is within 5 feet of the front yard setback of the adjacent home in the R-1 or R-1.5 zone but shall not be less than 10 feet from the property line. This standard does not apply if the closest adjacent home has a front yard setback greater than 30 feet.

<u>Applicant Response</u>: The units shown on the Preliminary Plan are conceptual, but all townhomes will comply with standard setbacks. Compliance of the final townhome designs with setback standards will be reviewed at the building permit application stage.

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;

<u>Applicant Response</u>: The units shown on the Preliminary Plan are conceptual, but all townhomes will comply with standard setbacks. Compliance of the final townhome designs with setback standards will be reviewed at the building permit application stage.

3. Interior yard: seven feet, except as otherwise provided for zero-lot line housing.

<u>Applicant Response</u>: The units shown on the Preliminary Plan are conceptual, but all townhomes will comply with standard setbacks. Compliance of the final townhome designs with setback standards will be reviewed at the building permit application stage.

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 D.2 below apply to such structures. Utility easements may only be reduced with the approval of all utility providers.

Applicant Response: No detached structures are proposed at this time.

- 5. Multifamily development (3 or more units on the same property) that is adjacent to an *R*-1 (Low Density Residential) or *R*-1.5 (Medium Density Residential) zone must provide a minimum 15-foot buffer area between the multifamily development and the *R*-1 or *R*-1.5 zoned property. Within this buffer the following applies (see figure 16.20-1):
 - a. Site obscuring landscaping shall be required. The Planning Commission may require retention of existing vegetation; installation of a 6-foot minimum height site-obscuring fence with shade trees planted a maximum of 30 feet on center; and/or other landscaping to provide visual buffering.
 - b. No active recreation areas (tot lots, swimming pools, etc.) shall be allowed within the 15-foot buffer (garden spaces shall not be considered active recreation areas);

Applicant Response: Not applicable. No multifamily units are proposed.

- 6. Infill standards may also apply. See CMC 16.20.030(D)(3) and CMC 16.21.050.
- E. Maximum building height and length:
 - 1. Principal building: thirty-five feet.

Applicant Response: No buildings in the R-2 zone will exceed 35 feet in height.

- 2. Detached accessory structure:
 - a. If located inside the allowed building footprint for the principal building, a detached accessory structure may be up to twenty-two feet tall, as measured to the highest point of the roof.
 - b. If located outside the allowed building footprint for the principal building, a detached accessory structure is subject to a step-up height standard, and is allowed outright only if it meets this standard. The structure shall not exceed

eight feet tall, as measured to the highest point of the roof, at a distance of three feet from the property line. The structure may increase in height by one foot vertically for every one foot horizontally away from the three foot line, up to the maximum height of twenty-two feet.

- c. A conditional use permit is required to locate the structure outside of the allowed building footprint for the principal building in violation of the stepup height standard.
- d. Detached accessory structures over twenty-two feet tall are not permitted.

Applicant Response: No detached accessory structures are proposed at this time.

3. Maximum building height for multifamily developments abutting an R-1 (Low Density Residential) or R-1.5 (Medium Density Residential) zone shall not exceed a building height greater than one foot for each foot of distance from the R-1 and/or R-1.5 property line.

Applicant Response: No multifamily dwellings are proposed.

4. Maximum building length shall be 120 feet.

<u>Applicant Response</u>: The longest townhouse building proposed (Lots 17-22) is is comprised of six 20 feet-wide units, for a combined length of 120 feet.

- F. The maximum amount of impervious surface allowed in the R-2 zone shall be 70 percent of the lot area.
 - 1. Impervious surface includes all surface areas that create a barrier to or hinder the entry of water into the soil in comparison with natural conditions prior to development. Impervious surfaces includes, but are not limited to, buildings, parking areas, driveways, roads, sidewalks, patios, packed earth, and oiled surfaces. Open, uncovered retention/detention facilities, green roofs, and permeable surfacing materials shall not be considered impervious surfaces. Roof surfaces are also considered 'pervious' when 100% of the annual average roof runoff is captured and reused on-site for irrigation or approved interior uses.
 - 2. To limit impervious surface, alternative surfacing materials may be used. Alternative surfacing includes, but is not limited to paving blocks, turf block, pervious concrete, and porous asphalt. Other similar approved materials are encouraged. Utilization of alternative surfacing methods shall be subject to review and approval by the City Public Works Department for compliance with other applicable regulations and development standards. Maintenance of alternative surfacing materials located on private property are the responsibility of the property owner.

<u>Applicant Response</u>: As shown on the preliminary plan, the R-2 area of the site is 92, 956 square feet in area. It contains the following impervious areas:

Townhouse dwellings: 31,450 sq. ft. Single-family dwelling: 1,217 sq. ft. Private Street & Sidewalks: 19,377 sq. ft. New driveways: 7,840 sq. ft. Total new impervious area: 59,884 sq. ft. or 64.4 percent of the site area.

The final design of the townhomes will change slightly from the conceptual units shown on the site plan. Compliance with the 70 percent maximum impervious area standard will be confirmed at the time of building permit application.

- G. Other regulations:
 - 1. Vision clearance distance shall be ten feet from a street to an alley or a street to a driveway, and thirty feet from a street to any other street.
 - 2. All setbacks to be measured from the foundation line of the building. Overhangs shall not exceed two feet; mechanical units, used for the heating/cooling of residential units are exempt from interior and/or rear yard setback requirements. A chimney for a fireplace or stove shall not exceed a two foot projection.
 - 3. To provide shade, required yards on southern and western exposures may be reduced by not more than five feet for eaves, canopies, and patio covers, if patio posts still comply with required setbacks.
 - 4. Multi-family developments exceeding ten units shall provide 150 square feet of recreation space per dwelling unit. Recreation spaces shall be no less than 1,500 square feet in size.
 - 5. Accessory buildings shall not have a larger footprint than the primary building.
 - Townhouse (common wall) development shall not exceed six dwelling units as defined in Chapter 16.04.195. Where possible, the six unit development should include the placement of an alley or sidewalk along the rear boundary of the properties for fire and emergency access to the rear of the properties. If more than one group of six dwelling units is constructed, then the groups shall be separated by ten feet of open space. (Ord. 890 sect. 23, 1993; Ord. 740 sect. 10.3.21 (C),1984; Ord. 955 sect. 7, 1996; Ord. 981 sect. 47, 1997; Ord. 1080, 2001; Ord. 1107, 2002; Ord. 1237, 2007; Ord. 1338, 2010; Ord. 1514, 2019)

<u>Applicant Response</u>: Vision clearance will be maintained. Setbacks will be verified at building permit. No adjustments for shade are anticipated. No multi-

family units are proposed. No accessory buildings are proposed. The maximum number of joined townhouse units proposed is six.

Division IV: Land Division Regulation

Chapter 16.56: General Provisions:

16.56.030 Conformance.

A. Comprehensive Plan. A subdivision or partition shall conform to the Comprehensive Plan. A determination of such conformity shall be based upon consideration of all applicable portions of the Comprehensive Plan and shall not be based solely upon a review of the land use map.

<u>Applicant Response</u>: Please refer to the Compliance With Comprehensive Plan section of this narrative below.

B. Land Development and Planning Ordinance. A land division shall be subject to all applicable requirements of other sections of this title. Where an applicant seeks the approval of any division which requires a change in zoning, the applicant may be required to complete the rezoning process prior to submittal of an application for property division.

<u>Applicant Response</u>: The compliance of this application with relevant portions of the City's development regulations is discussed in this narrative. No zone change is required for proposed subdivision.

C. Health, Safety, and Sanitation. A subdivision or partition shall conform to all applicable state, county and city regulations regarding health, safety and sanitation. The county will not issue any permits for on-site sewage disposal systems for any lot or parcel created in violation of these regulations, nor for the remainder of the parent parcel from which lots or parcels have been illegally created, unless and until such violation has been rectified and all legal requirements met.

<u>Applicant Response</u>: All lots will be connected to City of Canby sanitary sewer service. No onsite sewage disposal is proposed. The development will conform to all applicable state, county and city regulations regarding health, safety and sanitation.

D. Building. Structures and buildings in any property division shall conform with applicable codes and regulations regarding building. The City Building Official shall not allow the issuance of a building permit on any lot or parcel created, subdivided or partitioned in violation of these requirements. No building permit shall be issued for the remainder of the parent parcel, from which any lots or parcels have been created in violation of this title, unless and until such violation has been rectified and all legal requirements met.

<u>Applicant Response</u>: All homes to be built will conform to city and state building codes. Plans will be reviewed by the City at the time of building permit application for compliance with these regulations.

E. Streets and Roads. A property division shall conform to all applicable city ordinances or policies pertaining to streets, roads, or access. (Ord. 740 section 10.4.10(C), 1984)

<u>Applicant Response</u>: All roads will be designed to conform to city standards. Construction plans will be reviewed by the City prior to plat approval and will need to demonstrate such conformance before construction permits are issued.

Chapter 16.62: Subdivisions - Applications

16.62.010 Filing procedures.

 A. Application procedures shall be as described in Chapter 16.89. (Ord. 899 section 3, 1993; Ord. 740 section 10.4.40(A), 1984; Ord. 981 section 10, 1997; Ord. 1019 section 16, 1999; Ord. 1080, 2001; Ord. 1237, 2007)

<u>Applicant Response</u>: As required by Chapter 16.89, this subdivision application will be heard by the Canby Planning Commission through a Type III process. A pre-application conference and a neighborhood meeting were held prior to submittal of the application. Notice will be provided to owners of all properties within 500 feet of the site.

16.62.020 Standards and criteria.

Applications for a subdivision shall be evaluated based upon the following standards and criteria:

A. Conformance with other applicable requirements of the Land Development and Planning Ordinance;

<u>Applicant Response</u>: Conformance with all relevant provisions of the City's land development ordinances is demonstrated in this narrative.

B. The overall design and arrangement of lots shall be functional and shall adequately provide building sites, utility easements, and access facilities deemed necessary for the development of the subject property without unduly hindering the use or development of adjacent properties;

<u>Applicant Response</u>: The proposed site plan provides for a reasonable arrangement of streets and lots that is consistent with the N. Redwood Development Concept Plan. The street system in that plan is looped and interconnected, allowing for access to all lots in a convenient manner. Property to the south is fully developed. The property to the north is approved as Redwood Landing 2 and the site plan provides for N. Sycamore to continue through both phases, consistent with the North Redwood Development Concept Plan.

C. Subdivision design and layout shall incorporate Low Impact Development techniques where possible to achieve the following:

- 1. Manage stormwater through a land development strategy that emphasizes conservation and use of onsite natural features integrated with engineered stormwater controls to more closely mimic predevelopment hydrologic conditions.
- 2. Encourage creative and coordinated site planning, the conservation of natural conditions and features, the use of appropriate new technologies and techniques, and the efficient layout of open space, streets, utility networks and other public improvements.
- 3. Minimize impervious surfaces.
- 4. Encourage the creation or preservation of native vegetation and permanent open space.
- 5. Clustering of residential dwellings where appropriate to achieve (1-4) above. The arrangement of clustered dwellings shall be designed to avoid linear development patterns.

<u>Applicant Response</u>: The proposed storm drainage system provides for the collection of runoff from street areas. The paved area of streets has been minimized by making use of narrower street sections allowed in the NRDCP for low-volume neighborhood streets. Storm water pretreatment is provided to reduce sediment and pollution loads. Storm water will be infiltrated into the ground via drywells, as shown on the Preliminary Utility Plan.

D. It must be demonstrated that all required public facilities and services are available, or will become available through the development, to adequately meet the needs of the proposed land division.

<u>Applicant Response</u>: The Preliminary Utility Plan submitted with this application demonstrates that sanitary sewer, storm drainage, and public water can be effectively provided to all lots within the subdivision. Sewer will come from the existing line in N. Redwood Street. Storm drainage will be infiltrated into the ground with drywells. Water service is available from the existing main in N. Redwood Street. Police protection is available from the City of Canby. Fire protection is provided by Canby Fire District 62.

E. The layout of subdivision streets, sidewalks, and pedestrian ways supports the objectives of the Safe Routes to Schools Program by providing safe and efficient walking and bicycling routes within the subdivision and between the subdivision and all schools within a one-mile radius. During review of a subdivision application, city staff will coordinate with the appropriate school district representative to ensure safe routes to schools are incorporated into the subdivision design to the greatest extent possible. (Ord. 890 section 53, 1993; Ord. 740 section 10.4.40(B), 1984; Ord. 1338, 2010)

<u>Applicant Response</u>: The streets proposed are low volume local streets with sidewalks. These facilities satisfy the requirements of this section.

F. A Traffic Impact Study (TIS) may be required in accordance with Section 16.08.150. (Ord. 1340, 2011)

<u>Applicant Response</u>: Consistent with the provisions of this subsection, a Traffic Impact Study was prepared by DKS, the City's traffic consultant. Please refer to that study for further information.

Chapter 16.64: Subdivisions – Design Standards

16.64.010 Streets.

- A. Generally. The location, width and grade of streets shall be considered in relation to existing and planned streets, to topographical conditions, to public convenience and safety, and to the proposed use of land to be served by the streets. The street system shall assure an adequate traffic circulation pattern with intersection angles, grades, tangents, and curves appropriate for the traffic to be carried. Where location is not shown in a development plan, the arrangement of streets shall either:
 - 1. Provide for the continuation or appropriate projection of existing principal streets in surrounding areas; or
 - 2. Conform to a plan for the neighborhood approved or adopted by the commission to meet a particular situation where topographical or other conditions make continuance of conformance to existing street patterns impractical;
 - 3. Minimum right-of-way and roadway width shall follow the requirements of the Canby Public Works Design Standards;
 - 4. Consider opportunities to incrementally extend and connect local streets to provide for safe and convenient bike and pedestrian circulation.

<u>Applicant Response</u>: The general layout for the street system in this area of the City was developed through the City's planning efforts in developing the North Redwood Development Concept Plan. The proposed street system for the project has implemented that plan as closely as feasible given on- and off-site development constraints and property configurations. The street standards used are consistent with the design standards contained in the NRDCP.

B. Permeable Surfaces. Permeable surfacing alternatives and on-site stormwater management facilities, are encouraged for street improvements. Permeable surfacing and LID stormwater management facilities shall be constructed in accordance with the Canby Public Works Design Standards and the manufacturer's recommendations. Permeable surfacing includes, but is no limited to: paving blocks, turf block, pervious concrete, porous asphalt, and other similar approved materials. Alternative surfacing methods may be approved for public and private roads, road shoulders, pedestrian ways, driveways, and easement service roads unless site constraints make use of such materials detrimental to water quality. Use of permeable surfacing methods shall meet the imposed load requirements for fire apparatus, and shall be subject to review and approval by the Canby Public Works Department.

<u>Applicant Response</u>: The applicant's engineer will rely upon adopted City standards in preparing the construction plans for this subdivision.

Redwood Landing 3 Subdivision Application Icon Construction & Development, LLC. Page **19** of **34** C. Reserve Strips. Reserve strips or street plugs controlling the access to streets will not be approved unless such strips are necessary for the protection of the public welfare or of substantial property rights, or both, and in no case unless the control and disposal of the land composing such strips is placed within the jurisdiction of the city, under conditions approved by the commission.

Applicant Response: No dead-end streets are proposed so reserve strips will not be required.

D. Alignment. All streets other than minor streets or cul-de-sacs, shall, as far as possible, be in alignment with the existing streets by continuations of the center lines thereof. Jogs creating "T" intersections shall have centerline offsets of not less than one hundred fifty feet, unless it is found that community benefits of such an alignment outweigh its disadvantages.

<u>Applicant Response</u>: The proposed layout creates intersections that are consistent with these requirements.

E. Future Extension of Streets. Where a subdivision adjoins unplatted acreage, streets which in the opinion of the commission should be continued in the event of the subdivision of the acreage, will be required to be provided through to the boundary lines of the tract. Reserve strips, street plugs and temporary turnaround areas may be required to preserve the objectives of street extensions. Reserve strips and street plugs shall be deeded to the city prior to final plat approval. The Planning Commission may require that the costs of title insurance and recordation fees, if any, for such areas be borne by the subdivider. If, in the opinion of the city engineer, a traffic pedestrian, or safety hazard temporarily exists by the construction of a dead-end street, he may direct that a barricade of adequate design be installed at the developer's expense as one of the required improvement items for the subdivision.

<u>Applicant Response</u>: The only undeveloped property adjoining this site is to the east. Access to that property is provided from N. Sycamore Street in the Redwood Landing 1 subdivision. No access from this site to that property is feasible due to site terrain, which will require placement of fill on the eastern portion of the property in order to allow for sewer to flow to the existing line in N. Redwood Street.

F. Intersection Angles. Streets shall intersect one another at an angle as near to a right angle as possible, and no intersections of streets at angles of less than thirty degrees will be approved unless necessitated by topographic conditions. When intersections of other than ninety degrees are unavoidable, the right-of-way lines along the acute angle shall have a minimum corner radius of twelve feet. All right-of-way lines at intersections with arterial streets shall have a corner radius of not less than twelve feet.

Applicant Response: Intersection angles are at right angles as required.

G. Existing Streets. Whenever existing streets, adjacent to or within a tract, are of inadequate width, dedication of additional right-of-way shall be provided at the time of subdivision.

<u>Applicant Response</u>: Additional right-of-way is proposed to be dedicated to N. Redwood Street along the property's frontage on that street.

H. Half Streets. Half streets, while generally not acceptable, may be approved where essential to the reasonable development of the subdivision, when in conformity with the other requirements of these regulations, and when the commission finds it will be practical to require the dedication of the other half when the adjoining property is subdivided. Whenever a half street is adjacent to a tract to be subdivided, the other half of the street shall be platted within such tract. Reserve strips, street plugs, special signs and barricades may be required to preserve the objectives of half streets.

Applicant Response: No half streets are proposed.

I. Cul-de-sacs. A cul-de-sac shall only be allowed when environmental or topographical constraints, existing development patterns, or compliance with other standards in this code preclude street extension and through circulation. When cul-de-sacs are provided, all of the following shall be met:

Applicant Response: No cul-de-sac streets are proposed

J. Marginal Access Streets. Where a subdivision abuts or contains an existing or proposed arterial street, the commission may require marginal access streets, through lots with suitable depth, screen planting contained in a nonaccess reservation along the rear property line, or such other treatment as may be necessary for adequate protection of residential properties and to afford separation of through and local traffic.

<u>Applicant Response</u>: Not applicable. The subdivision does not abut or contain an existing or proposed arterial street.

K. Alleys.

- 1. Alleys shall be provided to commercial and industrial districts, unless other permanent provisions for access to off-street parking and loading facilities are made as approved by the commission.
- 2. Alleys shall be provided within residential subdivisions when streets are designed to meet the narrow "green" street standards in the Canby Public Works Design Standards. Visitor parking areas may be required by the city to mitigate the lack of on-street parking.
- 3. When alleys are provided as part of a new residential subdivision, streets shall be designed in accordance with the narrow "green" street standards in the Canby Public Works Design Standards. Visitor parking areas may be required by the city to mitigate the lack of on-street parking.
- 4. Alley intersection corners shall have a minimum radius of ten feet.

Applicant Response: No alleys are proposed.

L. Street Names. No street name shall be used which will duplicate or be confused with the name of existing streets except for extensions of existing streets. Street names and numbers

shall conform to the established pattern in the city and the surrounding area and shall be subject to the approval of the commission.

<u>Applicant Response</u>: N. Sycamore continues the name for the loop street established in Redwood Landing 1. No other public streets are proposed.

M. Planting Easements. The Planning Commission may require additional easements for planting street trees or shrubs.

<u>Applicant Response</u>: The applicant will accept reasonable conditions to this effect if requested by the City.

N. Grades and Curbs. Grades shall not exceed seven percent on arterials, ten percent on collector streets, or fifteen percent on any other street. In flat areas allowance shall be made for finished street grades having a minimum slope of .5 percent. Centerline radii of curves shall not be less than three hundred feet on major arterials, two hundred feet on secondary arterials, or one hundred feet on other streets, unless specifically approved by the City, and shall be to an even ten feet.

<u>Applicant Response</u>: As shown on preliminary street profiles submitted with this application, all streets comply with these requirements.

O. Streets Adjacent to Highway 99-E or Railroad Right-of-Way. Wherever the proposed subdivision contains or is adjacent to a railroad right-of-way or Highway 99-E, provisions may be required for a street approximately parallel to and on each side of such right-of-way at a distance suitable for the appropriate use of the land between the streets and the railroad or Highway 99-E. The distances shall be determined with due consideration of cross streets at a minimum distance required for approach grades to a future grade separation and to provide sufficient depth to allow screen planting along the railroad right-of-way. (Ord. 740 section 10.4.40(C)(1), 1984; Ord. 1043 section 3, 2000; Ord 1237, 2007; Ord. 1338, 2010)

<u>Applicant Response</u>: Not applicable. No development is proposed adjacent to 99E or the railroad right-of-way.

16.64.015 Access

A. Any application that involves access to the State Highway System shall be reviewed by the Oregon Department of Transportation for conformance with state access management standards (See appendix G of the Transportation System Plan).

Applicant Response: Not applicable. No access to a State Highway is proposed.

B. All proposed roads shall follow the natural topography and preserve natural features of the site as much as possible. Alignments shall be planned to minimize grading.

Applicant Response: The proposed street system is located on land that is generally flat.
C. Access shall be properly placed in relation to sight distance, driveway spacing, and other related considerations, including opportunities for joint and cross access.

<u>Applicant Response</u>: There is adequate sight distance at all proposed intersections. Driveway locations will be reviewed at the time of building permit application.

D. The road system shall provide adequate access to buildings for residents, visitors, deliveries, emergency vehicles, and garbage collection.

<u>Applicant Response</u>: The proposed road system meets City standards and will adequately provide for these uses.

E. Streets shall have sidewalks on both sides. Pedestrian linkages should also be provided to the peripheral street system.

<u>Applicant Response</u>: As shown on the preliminary utility plan, sidewalks are proposed on both sides of all streets in the subdivision.

F. Access shall be consistent with the access management standards adopted in the Transportation System Plan. (Ord. 1043 section 3, 2000)

Applicant Response: Proposed accesses will comply with these standards.

16.64.020 Blocks.

A. Generally. The lengths, widths and shapes of blocks shall be designed with due regard to providing adequate building sites suitable to the special needs of the type of use contemplated, needs for access, circulation, control and safety of street traffic and limitations and opportunities of topography.

<u>Applicant Response</u>: The proposed block lengths have been determined by the need to provide reasonable building sites and the need to provide for access to adjacent undeveloped properties. The proposed plan conforms to the NRDCP in its design.

B. Sizes. Block length shall be limited to 300 feet in the C-1 zone, 400 feet in residential zones, 600 feet in all other zones, except for 1,000 feet on arterials. Exceptions to this prescribed block standard shall be permitted where topography, barriers such as railroads or arterial roads, or environmental constraints prevent street extension. The block depth shall be sufficient to provide two lot depths appropriate to the sizes required by Division III. (Ord. 740 section 10.4.40(C)(2), 1984; Ord. 1043 section 3, 2000; Ord. 1076, 2001; Ord. 1338, 2010)

Applicant Response: The new block is less than 600 feet in length.

16.64.030 Easements.

A. Utility Lines. Easements for electric lines or other public utilities are required, subject to the recommendations of the utility providing agency. Utility easements twelve feet in width shall



be required along all street lot lines unless specifically waived. The commission may also require utility easements along side or rear lot lines when required for utility provision. The construction of buildings or other improvements on such easements shall not be permitted unless specifically allowed by the affected utility providing agency.

<u>Applicant Response</u>: Easements will be provided along all N. Sycamore Streets and where needed for utility lines.

B. Watercourses. Where a subdivision is traversed by a watercourse, drainage way, channel or stream, there shall be provided a storm water easement or drainage right-of-way conforming substantially with the lines of such watercourse, and such further width as will be adequate for the purpose of assuring adequate flood control. Streets parallel to watercourses may be required.

Applicant Response: There are no watercourses on the subject property.

- C. Pedestrian Ways. In any block over six hundred feet in length, a pedestrian way or combination pedestrian way and utility easement shall be provided through the middle of the block. If unusual conditions require blocks longer than one thousand two hundred feet, two pedestrian ways may be required. When essential for public convenience, such ways may be required to connect to cul-de-sacs, or between streets and other public or semipublic lands or through green way systems. Sidewalks to city standards may be required in easements where insufficient right-of-way exists for the full street surface and the sidewalk. All pedestrian ways shall address the following standards to provide for the safety of users:
 - 1. Length should be kept to a minimum and normally not in excess of two hundred feet;
 - 2. Width should be maximized and shall not be below ten feet. For pathways over one hundred feet long, pathway width shall increase above the minimum by one foot for every twenty feet of length;
 - 3. A minimum of three foot-candles illumination shall be provided. Lighting shall minimize glare on adjacent uses consistent with the outdoor lighting provisions in section 16.43 of this code;
 - 4. Landscaping, grade differences, and other obstructions should not hinder visibility into the pedestrian way from adjacent streets and properties. Fencing along public pedestrian ways shall conform with the standards in Section 16.08.110;
 - 5. Surrounding land uses should be designed to provide surveillance opportunities from those uses into the pedestrian way, such as with the placement of windows;
 - 6. Exits shall be designed to maximize safety of users and traffic on adjacent streets; and
 - 7. Use of permeable surfacing materials for pedestrian ways and sidewalks is encouraged whenever site and soil conditions make permeable surfacing feasible. Permeable surfacing includes, but is not limited to: paving blocks, turf block, pervious concrete, and porous asphalt All permeable surfacing shall be designed, constructed, and maintained

in accordance with the Canby Public Works Design Standards and the manufacturer's recommendations. Maintenance of permeable surfacing materials located on private property are the responsibility of the property owner.

Applicant Response: No pedestrian ways are proposed.

D. Developments that abut the Molalla Forest Road multi-use path shall provide a pedestrian/bicycle access to the path. The city may determine the development to be exempt from this standard if there is an existing or planned access to the path within 300 feet of the development.

Applicant Response: Not applicable. The site does not abut the Molalla Forest Road.

E. Solar Easements. Subdividers shall be encouraged to establish solar easements and utilize appropriate solar design in their development proposals. Solar easements shall be shown on the final plat and in the deed restrictions of the subdivision. The Planning Commission may require the recordation of special easements or other documents intended to protect solar access. (Ord. 740 section 10.4.40(C)(3), 1984; Ord. 1043 section 3, 2000; Ord 1237, 2007; Ord. 1338, 2010; Ord. 1340, 2011)

Applicant Response: The applicant does not envision including solar easements.

16.64.040 Lots.

A. Size and Shape. The lot size, width, shape and orientation shall be appropriate for the location of the subdivision and for the type of development and use contemplated. To provide for proper site design and prevent the creation of irregularly shaped parcels, the depth of any lot or parcel shall not exceed three times its width (or four times its width in rural areas) unless there is a topographical or environmental constraint or an existing man-made feature such as a railroad line.

<u>Applicant Response</u>: The proposed lots are regularly configured to provide for reasonable building envelopes for the proposed homes.

- *B. Minimum Lot Sizes:*
 - 1. Lot sizes shall conform with requirements of Division III unless the applicant chooses to use an alternative lot layout per subsection (3) below to accommodate interconnected and continuous open space and or other natural resources. In this case, the average minimum lot size may be reduced by 5,000 square feet after subtracting access tracts. Overall development densities shall comply with the underlying maximum density allowed by the zone.

<u>Applicant Response</u>: The proposed lots all conform to lot size standards of the R-1.5 and R-2 districts, as discussed above in this narrative.

2. In areas that cannot be connected to sewer trunk lines, minimum lot sizes shall be greater than the minimum herein specified if necessary because of adverse soil structure for

sewage disposal by septic systems. Such lot sizes shall conform to the requirements of Clackamas County for sewage disposal unless provisions are made for sanitary sewers.

Applicant Response: Not applicable. The lots will be connected to City sewer.

3. Alternative lot layout. Applicants may deviate from standard lot setbacks and dimensions to accommodate dedicated interconnected open space or other natural areas. Clustered housing, lot-size averaging, and a mixture of approaches where building lots can be grouped into a smaller portion of the total development, reserving the remainder for open space or other natural areas. Alternative development layouts shall not exceed the underlying maximum density allowed by the zone.

<u>Applicant Response</u>: The applicant proposes to meet standard setback and lot dimension requirements.

- 4. When using the alternative lot layout option, the following must be met:
 - a. The arrangement of the alternative lot layout shall be designed to avoid development forms commonly known as linear, straight-line or highway strip patterns.
 - b. To the maximum extent possible, open space and natural areas, where used, shall be continuous, interconnected, and concentrated in large usable areas.
 - c. Where possible, open space shall be connected to adjacent off-site open space areas.
 - *d.* Open space and natural areas shall be maintained permanently by the property owner or the property owner's association.

<u>Applicant Response</u>: Not applicable. The project does not make use of the alternative lot layout option.

C. Lot Frontage. All lots shall meet the requirements specified in Division III for frontage on a public street, except that the Planning Commission may allow the creation of flag lots, culde-sac lots and other such unique designs upon findings that access and building areas are adequate. Lots that front on more than one major street shall be required to locate motor vehicle accesses on the street with the lower functional classification.

Applicant Response: All lots meet frontage requirements. No flag lots are proposed.

D. Double Frontage. Double frontage or through lots should be avoided except where essential to provide separation of residential development from traffic arteries or to overcome specific disadvantages of topography and orientation.

<u>Applicant Response</u>: The only double frontage lots proposed are Lots 41-44, which abut N. Redwood Street. N. Redwood Street is a County Road and a collector street and County policy restricts driveways onto such streets when it is possible to provide other access. The double frontage is proposed in order to provide driveways for these lots from the new private street.

E. Lot Side Lines. The side lines of lots shall run at right angles to the street upon which the lots face, or on curved streets they shall be radial to the curve, unless there is some recognizable advantage to a different design.

<u>Applicant Response</u>: To the maximum extent practicable, the lots in this subdivision are designed with side lines at right angles to the streets onto which they front.

F. Resubdivision. In subdividing tracts into large lots which at some future time are likely to be resubdivided, the location of lot lines and other details of the layout shall be such that resubdivision may readily take place without violating the requirements of these regulations and without interfering with the orderly development of streets. Restriction of building locations in relationship to future street rights-of-way shall be made a matter of record if the commission considers it necessary.

Applicant Response: No lots are proposed that are capable of being re-subdivided.

G. Building Lines. If special building setback lines are to be established in the subdivision plat, they shall be shown on the subdivision plat or included in the deed restrictions. This includes lots where common wall construction is to be permitted between two single-family dwellings.

Applicant Response: No special building setback lines are proposed.

H. Potentially Hazardous Lots or Parcels. The commission shall utilize its prerogative to modify or deny a tentative plat or partition map where it is found that a proposed lot or parcel is potentially hazardous due to flooding or soil instability.

Applicant Response: No potentially hazardous lots are proposed.

I. Flag Lots or Panhandle-shaped Lots. The commission may allow the creation of flag lots provided that the following standards are met:

Applicant Response: Not applicable. No flag lots are proposed.

J. Designation of Lots as 'Infill Home' Sites. The Planning Commission may require that homes built on one or more lots adjacent to existing development be subject to any or all of the requirements of 16.21.050 - Infill Homes. Furthermore, for subdivisions where the parent parcel(s) is less than two acres in size, the Planning Commission may require that all homes built on lots in the subdivision be subject to any or all of the requirements of 16.21.050. These requirements are to be shown on the subdivision plat or included in the deed restrictions. (Ord. 740 section 10.3.05(F) and 10.4.40(C)(4), 1984; Ord. 890 section 54, 1993; Ord. 1043 section 3, 2000; Ord. 1107, 2002; Ord. 1111 section 6, 2003; Ord. 1338, 2010)

Applicant Response: Not applicable. The lots are not infill home sites.

16.64.050 Parks and recreation.

Subdivisions shall meet the requirements for park, open space and recreation as specified in Division VI.

<u>Applicant Response</u>: The proposed development does not include park or open space. This area was not designated for such open space on the NRDCP. All homes will contribute to park needs through payment of the park SDCs at the time of building permit application.

COMPLIANCE WITH COMPREHENSIVE PLAN

The City of Canby Comprehensive Plan Map designates the northern portion of the subject property MDR-Medium Density Residential and the southern portion HDR-High Density Residential. The proposed site plan has been designed at a densities and uses consistent with these designations.

CITIZEN INVOLVEMENT ELEMENT

<u>Applicant Response</u>: The proposed project will be reviewed in a manner that is consistent with the Citizen Involvement Element of the Comprehensive Plan. Notice of a Zoom neighborhood meeting was provided to neighbors within 500 feet of the site prior to the submittal of the subdivision application. Only two individuals responded to the notice and, as a result, information was provided via telephone conversations. The City of Canby will provide public notice prior to the public hearing before the Planning Commission. Citizens will be allowed to present testimony regarding the proposal prior to the Planning Commission making a decision on the application.

URBAN GROWTH ELEMENT

<u>Applicant Response</u>: The subject property is within the Urban Growth Boundary and has been annexed to the City of Canby. Development of the property, therefore, is consistent with the Urban Growth Element.

LAND USE ELEMENT

POLICY NO. 1: CANBY SHALL GUIDE THE COURSE OF GROWTH AND DEVELOPMENT SO AS TO SEPARATE CONFLICTING OR INCOMPATIBLE USES WHILE GROUPING COMPATIBLE USES.

<u>Applicant Response</u>: The City has designated the subject property for Medium Density Residential and High Density Residential development. Further, the City has undertaken a detailed analysis of the area in which the subject property is located through the development of the North Redwood Development Concept Plan. The proposed development is consistent with the land use designation and with the policies that the City has adopted to guide development in this area of the city. POLICY NO. 2: CANBY SHALL ENCOURAGE A GENERAL INCREASE IN THE INTENSITY AND DENSITY OF PERMITTED DEVELOPMENT AS A MEANS OF MINIMIZING URBAN SPRAWL.

<u>Applicant Response</u>: The proposed density of development is consistent with the Medium Density Residential/R-1.5 and High Density Residential/R2 standards. It is also consistent with the North Redwood Development Concept Plan. The proposed plan for this subdivision is consistent with these provisions of the City code.

POLICY NO. 3: CANBY SHALL DISCOURAGE ANY DEVELOPMENT WHICH WILL RESULT IN OVERBURDENING ANY OF THE COMMUNITY'S PUBLIC FACILITIES OR SERVICES.

<u>Applicant Response</u>: The subject property is served with all required public facilities and services need for the proposed development. Sanitary sewer is available in N. Redwood Street, as is public water service. Storm water will be detained and treated in accordance with City standards prior to infiltration via drywells. Police and fire protection are provided by the City of Canby.

POLICY NO. 4: CANBY SHALL LIMIT DEVELOPMENT IN AREAS IDENTIFIED AS HAVING AN UNACCEPTABLE LEVEL OF RISK BECAUSE OF NATURAL HAZARDS.

<u>Applicant Response</u>: No wetlands or other natural hazard areas are present on the subject property.

POLICY NO. 5: CANBY SHALL UTILIZE THE LAND USE MAP AS THE BASIS OF ZONING AND OTHER PLANNING OR PUBLIC FACILITY DECISIONS.

<u>Applicant Response</u>: The City has implemented the Medium Density Residential and High Density Residential designations for the subject property on the Comprehensive Plan Map through the adoption of R-1.5 and R-2 zoning.

POLICY NO. 6: CANBY SHALL RECOGNIZE THE UNIQUE CHARACTER OF CERTAIN AREAS AND WILL UTILIZE THE FOLLOWING SPECIAL REQUIREMENTS, IN CONJUNCTION WITH THE REQUIREMENTS OF THE LAND DEVELOPMENT AND PLANNING ORDINANCE, IN GUIDING THE USE AND DEVELOPMENT OF THESE UNIQUE AREAS.

<u>Applicant Response</u>: The subject property is not identified on the Areas of Special Concern Map in this section of the Comprehensive Plan.

ENVIRONMENTAL CONCERNS ELEMENT

POLICY NO. 1-R-A: CANBY SHALL DIRECT URBAN GROWTH SUCH THAT VIABLE AGRICULTURAL USES WITHIN THE URBAN GROWTH BOUNDARY CAN CONTINUE AS LONG AS IT IS ECONOMICALLY FEASIBLE FOR THEM TO DO SO.

<u>Applicant Response</u>: The subject property is not in farm use and does not appear to have been used for such purpose in the recent past. Much of the site is wooded.

POLICY NO. 1-R-B: CANBY SHALL ENCOURAGE THE URBANIZATION OF THE LEAST PRODUCTIVE AGRICLUTURAL AREA WITHIN THE URBAN GROWTH BOUNDARY AS A FIRST PRIORITY.



<u>Applicant Response</u>: As noted above, the subject property is not productive farm land. Urbanization does not conflict with this policy.

POLICY NO. 2-R: CANBY SHALL MAINTAIN AND PROTECT SURFACE WATER AND GROUNDWATER RESOURCES.

<u>Applicant Response</u>: There are no wetlands or streams on the subject property. The use of infiltration systems for roof drains will aid in maintaining groundwater resources in this area.

POLICY NO. 3-R: CANBY SHALL REQUIRE THAT ALL EXISTING AND FUTURE DEVELOPMENT ACTIVITIES MEET THE PRESCRIBED STANDARDS FOR AIR, WATER, AND LAND POLLUTION.

<u>Applicant Response</u>: The proposed development will comply with all applicable standards relating to air, water and land pollution.

POLICY NO. 4-R: CANBY SHALL SEEK TO MITIGATE, WHEREVER POSSIBLE, NOISE POLLUTION GENERATED FROM NEW PROPOSALS OR EXISTING ACTIVITIES.

<u>Applicant Response</u>: Not applicable. There are no significant noise pollution impacts associated with residential development.

POLICY NO. 5-R: CANBY SHALL SUPPORT LOCAL SAND AND GRAVEL OPERATIONS AND WILL COOPERATE WITH COUNTY AND STATE AGENCIES IN THE REVIEW OF AGGREGATE REMOVAL APPLICATIONS.

<u>Applicant Response</u>: Not applicable. The site plan does not include proposals for sand or gravel operations.

POLICY NO. 6-R: CANBY SHALL PRESERVE AND, WHERE POSSIBLE, ENCOURAGE RESTORATION OF HISTORIC SITES AND BUILDINGS.

Applicant Response: Not applicable. No identified historic resources are present on this site.

POLICY NO. 7-R: CANBY SHALL SEEK TO IMPROVE THE OVERALL SCENIC AND AESTHETIC QUALITIES OF THE CITY.

<u>Applicant Response</u>: The NRDCP preserves the Willow Creek drainageway to the east of this site as open space/park land. This will aid in providing a scenic and aesthetic resource area to the city.

POLICY NO. 8-R: CANBY SHALL SEEK TO PRESERVE AND MAINTAIN OPEN SPACE WHERE APPROPRIATE AND WHERE COMPATIBLE WITH OTHER LAND USES.

<u>Applicant Response</u>: There are no open space areas designated on this site in the NRDCP, but the Willow Creek drainageway is being maintained through park dedication in Redwood Landing 1.

POLICY NO. 9-R: CANBY SHALL ATTEMPT TO MINIMIZE THE ADVERSE IMPACTS OF NEW DEVELOPMENTS ON FISH AND WILDLIFE HABITATS.

<u>Applicant Response</u>: The proposed storm sewer system will provide for treatment of storm water and infiltrates it via drywells. This will minimize the potential for pollutants to enter water resource areas.

POLICY NO. 10-R: CANBY SHALL ATTEMPT TO MINIMIZE THE ADVERSE IMPACTS OF NEW DEVELOPMENTS ON WETLANDS.

Applicant Response: There are no wetland areas on the subject site.

POLICY NO. 1-H: CANBY SHALL RESTRICT URBANIZATION IN AREAS OF IDENTIFIED STEEP SLOPES.

Applicant Response: There are no areas of steep slope on the subject property.

POLICY NO. 2-H: CANBY SHALL CONTINUE TO PARTICIPATE IN AND SHALL ACTIVELY SUPPORT THE FEDERAL FLOOD INSURANCE PROGRAM.

Applicant Response: No wetlands are identified on the subject property.

TRANSPORTATION ELEMENT

POLICY NO. 1: CANBY SHALL PROVIDE THE NECESSARY IMPROVEMENT TO CITY STREETS, AND WILL ENCOURAGE THE COUNTY TO MAKE THE SAME COMMITMENT TO LOCAL COUNTY ROADS, IN AN EFFORT TO KEEP PACE WITH GROWTH.

<u>Applicant Response</u>: The development of this property will provide for street frontage improvements along N. Redwood Street by the project developer. The project will also contribute funds to the City's transportation improvement projects through SDCs paid with each building permit.

POLICY NO. 2: CANBY SHALL WORK COOPERATIVELY WITH DEVELOPERS TO ASSURE THAT NEW STREETS ARE CONSTRUCTED IN A TIMELY FASHION TO MEET THE CITY'S GROWTH NEEDS.

<u>Applicant Response</u>: All streets proposed in this subdivision will be improved or bonded prior to recording of the final plat for the subdivision.

POLICY NO. 3: CANBY SHALL ATTEMPT TO IMPROVE ITS PROBLEM INTERSECTIONS, IN KEEPING WITH ITS POLICIES FOR UPGRADING OR NEW CONSTRUCTION OF ROADS.

<u>Applicant Response</u>: A traffic study for the proposed development was conducted by the City's traffic engineering consultants, DKS Associates. Please refer to that study.

POLICY NO. 4: CANBY SHALL WORK TO PROVIDE AN ADEQUITE SIDEWALK AND PEDESTRIAN PATHWAY SYSTEM TO SERVE ALL RESIDENTS.

<u>Applicant Response</u>: Sidewalks will be provided along all streets within the proposed development.

POLICY NO. 6: CANBY SHALL CONTINUE IN ITS EFFORTS TO ASSURE THAT ALL NEW DEVELOPMENTS PROVIDE ADEQUATE ACCESS FOR EMERGENCY RESPONSE VEHICLES AND FOR THE SAFETY AND CONVENIENCE OF THE GENERAL PUBLIC.

<u>Applicant Response</u>: The proposed street system will be developed to City standards. It provides for a direct connection to N. Redwood Street. In the future, N. Sycamore Street will be connected to the north and south to provide a looped circulation system which will facilitate emergency response vehicles.

POLICY NO. 7: CANBY SHALL PROVIDE APPROPRIATE FACILITIES FOR BICYLCES AND, IF FOUND TO BE NEEDED, FOR OTHER SLOW MOVING ENERGY EFFICIENT VEHICLES.

Applicant Response: The local street system will provide for bicycle traffic.

PUBLIC FACILITIES AND SERVICES ELEMENT

GOAL 1: TO ASSURE THE ADEQUATE PROVISION OF WATER SERVICES TO MEET THE NEEDS OF THE RESIDENTS AND PROPERTY OWNERS OF CANBY.

<u>Applicant Response</u>: According to information provided at the pre-application conference, adequate public water service is available in N. Redwood Street to service the proposed development. The project will tap into this water main and new water lines will be extended to all lots within the subdivision. Please refer to the preliminary utility plan.

GOAL 2: TO ASSURE THE ADEQUATE PROVISION OF WASTE WATER SERVICES TO MEET THE NEEDS OF THE RESIDENTS AND PROPERTY OWNERS OF CANBY.

<u>Applicant Response</u>: Sanitary sewer service is available in N. Redwood Street. Sewer lines will be extended into the proposed subdivision to provide sewer service to all lots. Please refer to the preliminary utility plan.

GOAL 3: TO ASSURE THE ADEQUATE PROVISION OF STORM DRAINAGE SERVICES TO MEET THE NEEDS OF THE RESIDENTS AND PROPERTY OWNERS OF CANBY.

<u>Applicant Response</u>: Storm water will be accommodated by collecting drainage from street areas, treating the water, and infiltrating it via drywells.

GOAL 4: TO ASSURE THE ADEQUATE PROVISION OF TRANSPORTATION SERVICES TO MEET THE NEEDS OF RESIDENTS AND PROPERTY OWNERS OF CANBY.

<u>Applicant Response</u>: As discussed above, the traffic study completed for this project demonstrates that the existing transportation system is adequate to handle traffic generated by the proposed subdivision.

GOAL 5: TO ASSURE THE ADEQUATE PROVISION OF PARKS AND RECREATION SERVICES TO MEET THE NEEDS OF THE RESIDENTS AND PROPERTY OWNERS OF CANBY.

<u>Applicant Response</u>: The homes in this project will provide funds for park projects through SDCs payable with each building permit. The NRDCP identifies a network of park/open space along Willow Creek, but none of that area is located on the subject property.

GOAL 6: TO ASSURE THE PROVISION OF A FULL RANGE PUBLIC FACILITIES AND SERVICES TO MEET THE NEEDS OF THE RESIDENTS AND PROPERTY OWNERS OF CANBY.

<u>Applicant Response</u>: All necessary public facilities and services will be provided to the proposed subdivision.

ECONOMIC ELEMENT

<u>Applicant Response</u>: The proposed residential development will provide short term jobs during development of the site and construction of homes. As a residential project, however, it is not directly relevant to the City's economic goals.

HOUSING ELEMENT

POLICY NO. 1: CANBY SHALL ADOPT AND IMPLEMENT AN URBAN GROWTH BOUNDARY WHICH WILL ADEQUATELY PROVIDE SPACE FOR NEW HOUSING STARTS TO SUPPORT AN INCREASE IN POPULATION TO A TOTAL OF 20,000 PERSONS.

<u>Applicant Response</u>: The subject property is within the UGB and the city limits. Development for residential purposes is consistent with helping to meet the housing need for projected population growth.

POLICY NO. 2: CANBY SHALL ENCOURAGE A GRADUAL INCREASE IN HOUSING DENSITY AS A RESPONSE TO THE INCREASE IN HOUSING COSTS AND THE NEED FOR MORE RENTAL HOUSING.

<u>Applicant Response</u>: The proposed density of development is consistent with the Medium Density Residential/R-1.5 and High Density Residential/R-2 designations of the property, as discussed above in this narrative.

ENERGY CONSERVATION ELEMENT

POLICY NO. 1: CANBY SHALL ENCOURAGE ENERGY CONSERVATION AND EFFICIENCY MEASURES IN CONSTRUCTION PRACTICES.

<u>Applicant Response</u>: The homes to be built on this site will comply with adopted building code energy conservation measures.

POLICY NO. 4: CANBY SHALL ATTEMPT TO REDUCE WASTEFUL PATTERNS OF ENERGY CONSUMPTION IN TRANSPORTATION SYSTEMS.

<u>Applicant Response</u>: This is achieved in residential development primarily by providing for connectivity so that there are few out-of-direction trips needed. The Redwood Landing 3 project is designed with this in mind. N. Sycamore Street will connect to N. Redwood St. at NE 12th Avenue, as shown on the NRDCP and will extend through the site to connect through the Redwood Landing 2 development immediately to the north. It will ultimately connect all the way

Redwood Landing 3 Subdivision Application Icon Construction & Development, LLC. Page **33** of **34** through to the current terminus in the Redwood Landing 1 subdivision to provide the looped street called for in the NRDCP.

Conclusion: The proposed application for the Redwood Landing 3 subdivision meets the requirements of applicable development code and comprehensive plan policies. This report demonstrates that the proposal conforms to these applicable approval criteria and requests approval of this application.

Redwood Landing 3 Subdivision Application Icon Construction & Development, LLC. Page **34** of **34**





DESIGNED:	REG				Richard E. Givens, Planning Consultant
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DATE:	December 2020				
FILE:	20-ICN-103	DATE	NO.	REVISION	PH: (503) 479-0097

Preliminary Plan	
	Preliminary Plan

CANBY REDWOOD LANDING 3 SUBDIVISION TRANSPORTATION IMPACT ANALYSIS

JANUARY 2021

PREPARED FOR:

CITY OF CANBY

PREPARED BY DKS ASSOCIATES







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SHAPING A SMARTER TRANSPORTATION EXPERIENCE"

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EXECUTIVE SUMMARY

A summary of key findings from the Canby Redwood Landing 3 Subdivision Transportation Impact Analysis is provided below:

- Two Intersections Analyzed:
 - 。 OR 99E / N Redwood Street/ Sequoia Parkway and NE Territorial Road / N Redwood Street
- Trips generated from the proposed site:
 - Approximately 31 a.m. peak hour trips, 42 p.m. peak hour trips, and 396 daily trips.
- Trips from approved but not fully occupied developments were added to area roadways
 - Trips from approved but not fully occupied developments in Canby were added to study intersections to account for trips that were not counted in the original traffic count data but will be added to area roadways as the individual developments build out.
- A growth rate was applied to account for other background regional trip growth not related to citywide development
 - A 1 percent compound annual growth rate was applied to all movements at study intersections to capture other background regional trip growth not related to citywide development.
- No safety issues were identified.
 - Crash rates at study intersections indicate the frequency of collisions is typical for the volume of traffic served.
- No intersection capacity issues were identified.
 - None of the study intersections were identified as having an impact based on projected growth from the proposed project.

SECTION 1. INTRODUCTION

The purpose of this transportation impact analysis is to identify potential transportation system needs triggered by the proposed Canby Redwood Landing 3 Subdivision located on N Redwood Street between OR 99E and NE Territorial Road in Canby,

Oregon. The proposed site will consist of 10 single-family and 32 duplex housing units¹ and is located within the North Redwood Development Concept Plan area. Access to the site is proposed via the intersection of NE 12th Avenue and N Redwood Street.

Included in the following sections is a documentation of existing transportation conditions, a summary of the assumptions and methodologies used to analyze future transportation conditions, a detail of traffic operating conditions and a summary of recommendations related to the proposed project.

PROJECT AREA

The project site is generally bounded by NE 15th Avenue to the north, OR 99E to the south and to the east, and N Redwood Street to the west. The following intersections were evaluated as study intersections (see Figure 1), with their intersection control listed:

- OR 99E / N Redwood Street/ Sequoia Parkway (signalcontrolled intersection)
- NE Territorial Road / N Redwood Street (two-way stopcontrolled intersection)



FIGURE 1: STUDY AREA

¹ Canby Redwood Landing 3 site plan, September 2020.

SECTION 2. EXISTING CONDITIONS

This section provides documentation of existing transportation conditions in the project area, including an inventory of the existing transportation network, and an operational analysis and safety evaluation of the study intersections. Supporting details are provided in the appendix.

PEDESTRIAN AND BICYCLE FACILITIES

An inventory of the existing pedestrian and bicycle facilities was conducted to determine the current location of sidewalks and bicycle lanes within the project area. Sidewalks are generally located along the frontages of new development on portions of N Redwood Street.

There is currently a striped bike lane along N Redwood Street south of NE 11th Avenue connecting to OR 99E, however there are no other bike facilities on N Redwood Street north of this intersection.

Pedestrian and bicycle count data during the morning and evening peak periods was also collected at the study intersections². The count data indicated 7 pedestrian crossings at the OR 99E/ N Redwood Street intersection and 31 at the NE Territorial Road / N Redwood Street intersection during the a.m. peak period (7:00 to 9:00 am) and 19 pedestrian crossings at the OR 99E/ N Redwood Street intersection and 2 at the NE Territorial Road / N Redwood Street intersection during the p.m. peak period (4:00 to 6:00 pm). Bicycle count data indicated 2 or fewer movements OR 99E/ N Redwood Street intersection and 6 or fewer movements at the NE Territorial Road / N Redwood Street intersection during the peak period.

TRANSIT

Transit service is provided in the vicinity of the project area by Canby Area Transit (CAT) via Route 99X to Oregon City and Woodburn. This route connects Canby to the Oregon City Transit Center where riders can transfer to several additional TriMet bus lines. The nearest bus stop to the project site is located approximately 0.2 miles to the south, near the OR 99E / Sequoia Parkway intersection.

CAT also provides general public Dial-A-Ride service for anyone traveling to or from destinations within the Canby Urban Growth Boundary (UGB). Service is provided between 8 a.m. and 6 p.m., Monday through Friday.

MOTOR VEHICLE FACILITIES

Characteristics of N Redwood Street are summarized in Table 1. N Redwood Street provides for north-south motor vehicle movements through the study area. It is classified as a collector and

² Based on traffic counts conducted during August 2017 and August 2018.

maintains a continuous two-lane cross-section (i.e., one through lane in each direction) and connects OR 99E with NE Territorial Road.

ROADWAY	JURISDICTION	CLASSI FI CATI ON*	NO. OF LANES	POSTED SPEED	SIDEWALKS	BI KE LANES
N REDWOOD STREET	County	Collector	2	25	Adjacent to new development	South of NE 11 th Avenue

TABLE 1: PROJECT AREA ROADWAY CHARACTERISTICS

* Source: Canby Transportation System Plan. Adopted December 2010.

EXISTING TRAVEL CONDITIONS

To determine intersection operations, historical turn movement counts were obtained for the study intersections during the weekday morning peak period (7 to 9 a.m.) and evening peak period (4 to 6 p.m.) and adjusted to current conditions. The existing peak period traffic volumes developed for the study intersections are displayed in Figure 5 later in this document.

The methodology from the ODOT Analysis Procedures Manual was applied to determine the 30th highest annual hour volume (30 HV) for the OR 99E study intersection. The 30 HV is commonly used for design purposes and represents the level of congestion that is typically encountered during the peak travel month.

To determine when the 30th highest annual hour volume occurs, data is examined from Automatic Traffic Recorder (ATR) stations that record highway traffic volumes year-round. If no on-site ATR is **present, one with similar characteristics can be identified using ODOT's ATR Char**acteristics Table. If these do not produce a similar ATR with average annual daily traffic volumes (AADT) within 10% of study area volumes, the seasonal trend method should be used. The seasonal trend method averages seasonal trend groupings from the ATR Characteristics Table. For the study area, no **ATR's are located on**-site, and the ATR Characteristics Table did not produce matches within 10% of the study area AADT volumes. Therefore, the seasonal trend method was utilized to develop a calculated seasonal factor of 1.01. This factor was applied to the existing count data.

DAILY MOTOR VEHICLE VOLUMES

Motor vehicle count data was collected along N Redwood Street near the proposed site³. The count data indicates that approximately 1,320 vehicles pass the proposed site along N Redwood Street during an average weekday. The highest number of trips along N Redwood Street occurred during the p.m. peak hour, with 122 vehicles counted near the proposed site.

³ Count data collected in August 2017 on N Redwood Street near the proposed site.

INTERSECTION OPERATIONS

This section discusses the existing conditions for motor vehicles at the study intersections, including an analysis of traffic operations.

Intersection Performance Measures

Level of service (LOS) ratings and volume-to-capacity (v/c) ratios are two commonly used performance measures that provide a good picture of intersection operations. Agencies often incorporate these performance measures into their 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 hours travel demand. LOS D and E are progressively worse operation conditions. LOS F represents conditions where average vehicle delay has become excessive and demand has exceeded capacity.
- Volume-to-capacity (v/c) ratio: A decimal representation (typically between 0.00 and 1.00) of the proportion of capacity that is being used 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 Mobility Standards

The mobility standards for the study intersections vary according to the agency of jurisdiction for each roadway. One study intersection is under City jurisdiction (N Redwood Street / NE Territorial Road), and one is under ODOT jurisdiction (OR 99E / N Redwood Street / Sequoia Parkway).

ODOT requires a volume to capacity ratio of 0.85 or less and the City of Canby operating standards require a level of service "E" or better and a volume to capacity ratio of 0.90 or less be maintained for intersections with stop control on the minor approach⁴.

Existing Operating Conditions

Motor vehicle conditions were evaluated during the peak hours at the study intersections (see Table 2) using the *Highway Capacity Manual*, 6th Edition (HCM)⁵ methodologies. As can be seen in the table below, both study intersections meet the mobility standards.

⁴ Canby Transportation System Plan, Goal 7, Policy d, December 2010. Retrieved December 2020.

⁵ 2016 Highway Capacity Manual, Transportation Research Board, Washington, D.C., 2016.

	TRAFFIC	MOBILITY . STANDARD	ŀ	AM PEAK		PM PEAK		
INTERSECTION	CONTROL		DELAY	LOS	V/C	DELAY	LOS	V/C
N REDWOOD STREET / NE TERRITORIAL ROAD	I REDWOOD STREET / TWSC LOS E, IE TERRI TORI AL ROAD TWSC 0.90 V/C		12	A/B	0.13	20	A/C	0.33
OR 99E / N REDWOOD STREET / SEQUOLA PARKWAY	Signal	0.85 V/C	14	В	0.45	24	С	0.65

TABLE 2: EXISTING 2020 STUDY INTERSECTION OPERATIONS

SAFETY ANALYSIS

The most recent five years of available collision data (2014 – 2018) for the study area was obtained from Oregon Department of Transportation (ODOT) and used to evaluate the collision history⁶. There were 14 crashes recorded at the study intersections over the five-year period, with the most crashes occurring at the OR 99E / N Redwood St / Sequoia Parkway intersection.

Crash rates at study intersections were calculated to identify problem areas in need of 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) is used to determine if the number of crashes should be considered high. Using this technique, a collision rate of 1.0 MEV or greater is commonly used to identify when collision occurrences are higher than average and should be further evaluated. As shown in Table 3, crash rates calculated at all study intersections are well below this threshold, indicating the frequency of collisions is typical for the volume of traffic served.

TABLE 3: CRASH DATA SUMMARY (2014 - 2018)

	τοται	CR	ASH TYF	ΡĒ	CF	ASH SEVE		
INTERSECTION	CRASHES	ANGLE OR TURN	REAR END	FI XED OBJECT	PDO*	MI NOR I NJURY	MAJOR I NJURY	RATE
N REDWOOD STREET / NE TERRITORIAL ROAD	1	1	0	0	0	1	0	0.18
OR 99E / N REDWOOD STREET / SEQUOI A PARKWAY	13	6	6	1	4	8	1	0.29

*PDO = Property Damage Only

⁶ ODOT reported collisions for January 1, 2014 through December 31, 2018.

SECTION 3. ASSUMPTIONS AND METHODOLOGIES

This section outlines key assumptions and methodologies that were used to analyze future conditions and identify any potential impacts at the study intersections. Areas of interest covered in this section are trip generation, trip distribution and background traffic growth.

PROJECT DESCRIPTION

The proposed project will consist of 10 single-family and 32 duplex housing units. The proposed site is located on N Redwood Street between OR 99E and NE Territorial Road. The site plan can be seen in Figure 2.





SITE ACCESS

Access to the site is proposed via one connection to N Redwood Street at NE 12th Avenue. N Redwood Street is classified as collector roadway in the TSP and is under Clackamas County jurisdiction. According to the Clackamas County roadway standards, the minimum spacing between accesses on a collector is 150 feet⁷. The proposed connection to N Redwood Street would be

⁷ Clackamas County Roadway Standards 220.5. Retrieved December 2020.

approximately 400 feet north and 240 feet south of the nearest roadways, complying with the spacing standard for a collector roadway.

SIGHT DISTANCE REVIEW

The sight triangle at intersections should be clear of objects (large signs, landscaping, parked cars, etc.) that could potentially limit vehicle sight distance. In addition, all proposed accesses should meet AASHTO sight distance requirements as measured from 15 feet back from the edge of pavement⁸.

The proposed access via the intersection of NE 12th Avenue and N Redwood Street would require a minimum of 335 feet of sight distance based on an assumed 30-mph design speed. Preliminary sight distance evaluation from the accesses indicate that the proposed connections would be expected to provide sight distance of at least 650-feet looking to the south and at least 600-feet of sight distance looking to the north.

Prior to occupancy, sight distance at all access points will need to be verified, documented, and stamped by a registered professional Civil or Traffic Engineer licensed in the State of Oregon.

INTERNAL SIGHT CIRCULATION

The proposed site plan (shown earlier in Figure 2) shows one connection to N Redwood Street at NE 12th Avenue. This access road is proposed to run east-to-west and connect to the north-south oriented N Sycamore Street. This roadway will provide access to single-family unit lots and connect to three accessways for access to the duplex units. The proposed roadway will provide adequate circulation to the surrounding existing roadway network, and internally within the site.

The proposed site will also provide frontage improvements along N Redwood Street. This will include a sidewalk and a bike lane on N Redwood Street. Internal streets will include sidewalks on both sides and will provide a sidewalk connection to N Redwood Street. Bicyclists will share the roadways with motor vehicles along the internal local streets. The proposed internal pedestrian and bicycle facilities are consistent with the City of Canby standards and are adequate for the site.

⁸ AASHTO – Geometric Design of Highways and Streets, 6th edition, 2011.

NORTH REDWOOD DEVELOPMENT CONCEPT PLAN CONSISTENCY

The proposed Redwood Landing 3 Subdivision is within the North Redwood Development Concept Plan area and was evaluated for consistency with the plan. A map of the proposed road network for the North Redwood Concept Plan area is shown in Figure 3. Overall, the proposed access and circulation through the site is generally consistent with the N Redwood Development Concept Plan, although pedestrian and bicycle access should be provided to the existing NE Spruce Court and NE 10th Place to the south, as shown in the Concept Plan.



FIGURE 3: NORTH REDWOOD CONCEPT PLAN

TRIP GENERATION

Trip generation is the method used to estimate the number of vehicles that are added to the surrounding roadway network as a result of proposed project. The trip generation was estimated using similar land uses as reported by the Institute of Transportation Engineers (ITE)⁹. The trip generation was conducted for the a.m. and p.m. peak hours using the Single-Family Detached Housing (ITE Code 210) land use¹⁰.

Table 4 summarizes the expected trip generation for the proposed project. As shown, the proposed site is expected to generate approximately 31 (8 in, 23 out) a.m. peak hour trips, 42 (26 in, 16 out) p.m. peak hour trips, and 396 daily trips.

		AM PEAI	K		DAILY		
LAND USE (SIZE)	IN	OUT	TOTAL	IN	OUT	TOTAL	TRIPS
SINGLE-FAMILY DETACHED HOUSING - ITE CODE 210	8	23	31	26	16	42	396

TABLE 4: TRIP GENERATION FOR THE PROPOSED PROJECT

TRIP DISTRIBUTION

Trip distribution involves estimating how project generated traffic will leave and arrive at the proposed site. The trip distribution for the proposed project was estimated based on the City of Canby travel demand model¹¹. It is estimated that 50 percent of the trips will originate or end from the southwest on OR 99E, 15 percent from the south on Sequoia Parkway, 20 percent from the northeast via OR 99E and 15 percent from the north on N Redwood Street. The assumed trip distribution for the proposed project can be seen in Figure 4.

⁹ *Trip Generation Manual*, Institute of Transportation Engineers, 10th Edition.

¹⁰ The Trip Generation Manual does not have a land use to represent duplex units. However, the duplex units were assumed to function similar to single-family units since they would each have their own driveway.

¹¹ City of Canby Travel Forecast Tool, select zone model run for Traffic Analysis Zone 116.



FIGURE 4: DISTRIBUTION OF SITE GENERATED TRIPS

IN-PROCESS DEVELOPMENTS

In addition to the trips generated from the proposed project, trips from approved but not fully occupied developments in Canby were added to study intersections (see Table 5). These represent trips that were not counted in the original traffic count data but will be added to area roadways as the individual developments build out. These trips were distributed throughout the city based on each traffic study and added to the applicable study intersections.

TABLE 5: IN-PROCESS DEVELOPMENT TRIPS

	0/	APPROVED TRI PS REMAI NI NG								
DEVELOPMENT NAME	% OCCUPIED		AM PEAK	<		DAILY				
		IN	OUT	TOTAL	IN	OUT	TOTAL	TRIPS		
ALPHA SCENTS	0%	20	6	26	8	21	29	57		
ACTIVE WATER SPORTS	0%	10	2	12	6	13	19	125		
BBC STEEL	0%	15	4	19	5	16	21	122		
REIMERS INDUSTRIAL	80%	8	2	10	2	5	7	46		
N PINE STREET SUBDIVISION	0%	8	25	33	26	16	42	75		
TOFTE FARMS PHASE 6	0%	3	9	12	10	6	16	151		
COLUMBIA DI STRI BUTI NG	0%	45	36	81	31	58	89	1569		
STANTON FURNITURE	0%	49	15	64	20	49	69	460		
S HOPE VI LLAGE EXPANSI ON	0%	12	21	33	24	19	43	606		
CARUSO PRODUCE DI STRI BUTI ON FACI LI TY	0%	15	4	19	5	15	20	185		
WEST LIGHT INDUSTRIAL	0%	101	31	132	44	100	144	949		
REDWOOD LANDING 2	0%	5	16	21	18	11	29	274		
	Total	291	171	462	199	329	528	4619		

Notes: * As of August 2018, when the count data was collected

BACKGROUND TRAFFIC

In addition to the trips from approved citywide developments, a 1 percent compound annual growth rate was applied to all movements at study intersections to capture other background regional trip growth not related to citywide development. This growth rate will be applied between 2020 and 2022 to represent regional background traffic growth for the horizon years at study intersections.

PLANNING HORIZONS

The planning horizon year selected for analysis is 2022, which represents the expected year of build-out and occupancy for the proposed project. Two scenarios were evaluated to allow for the identification of capacity constraints associated with proposed project, including:

- 2022 Background Conditions Existing traffic volumes plus background traffic growth.
- 2022 Project Conditions Existing traffic volumes plus background traffic growth, with the added traffic associated with the proposed Redwood Landing 3 Subdivision.

An additional sensitivity option was tested for the 2022 Project Conditions Scenario that assumed the proposed but not yet approved Beckwood Place Subdivision would be completed and occupied by 2022.

Figure 5 summarizes the traffic volumes for the a.m. and p.m. peak hours at study intersections.



FIGURE 5: PEAK HOUR TRAFFIC VOLUMES

SECTION 4. FUTURE CONDITIONS

The following section summarizes the peak hour transportation operating conditions for the planning horizon year of 2022. Future traffic operating conditions were analyzed at the study intersections to determine if the transportation network can support traffic generated by the proposed project. If intersection mobility standards are not met, then mitigations may be necessary to improve network performance.

2022 BACKGROUND CONDITIONS INTERSECTION OPERATIONS

Table 6 shows the future 2022 intersection operations at study intersections, without the proposed project. As shown, the study intersections are expected to continue to meet the mobility standards. Detailed intersection operations calculation worksheets are included in the Appendix.

2022 PROJECT CONDITIONS INTERSECTION OPERATIONS

The 2022 project conditions peak hour operations at study intersection are shown in Table 6. As shown, the added traffic associated with the proposed project is expected to have little impact on traffic operations when compared to the background conditions without the project. During the a.m. and p.m. peak the v/c ratio is expected to change by 0.02 or less at the study intersections, and they are expected to continue to meet the mobility standards.

2022 SENSITIVITY SCENARIO

A sensitivity scenario was tested that assumed the traffic generated from the proposed but not yet approved Beckwood Place Subdivision (42 single-family housing units). This project is located along N Pine Street near NE 17th Avenue and is expected to generate 31 a.m. peak hour trips, 42 p.m. peak hour trips, and 396 daily trips.

As shown in Table 6, the additional trips associated with the proposed but not yet approved Beckwood Place Subdivision is expected to have little impact on intersection operations when compared to the scenario without the project. The v/c ratio is expected to change by 0.01 or less at the study intersections during the a.m. and p.m. peak and they are expected to continue to meet the mobility standards.

TABLE 6: 2022 INTERSECTION OPERATIONS

INTERSECTION	MOBILITY	2022 BACKGROUND CONDITIONS			2022 CON	2 proje Idition	CT NS	2022 SENSITIVITY SCENARIO		
	STANDARD	DELAY	LOS	V/C	DELAY	LOS	V/C	DELAY	LOS	V/C
AM PEAK										
N REDWOOD STREET/ NE TERRI TORI AL ROAD *	LOS E, 0.90 V/C	13	A/B	0.14	13	A/B	0.15	13	A/B	0.15
OR 99E/ N REDWOOD STREET/ SEQUOLA PARKWAY **	0.85 V/C	17	В	0.53	18	В	0.54	18	В	0.54
PM PEAK										
N REDWOOD STREET/ NE TERRI TORI AL ROAD *	LOS E, 0.90 V/C	21	A/C	0.36	22	A/C	0.37	22	A/C	0.38
OR 99E/ N REDWOOD STREET/ SEQUOLA PARKWAY **	0.85 V/C	31	С	0.72	33	С	0.74	34	С	0.74

Notes: * Two-way stop-controlled intersection; ** Signal controlled intersection

TRANSPORTATION SYSTEM CONTEXT

The traffic volumes resulting from the proposed project were compared to existing traffic volumes, **as well as the projected volumes from the City's Transportation System Plan (TSP) to provide an** evaluation of growth compared to planned conditions. A 24-hour weekday traffic volume was collected on N Redwood Street near the proposed site¹². A comparison of the traffic volumes along this segment can be seen in Table 7. As shown, the volume of traffic has been steady on N Redwood Street between 2009 and 2020, which slightly lower than the annual growth that was **projected in the City's TSP through 2030.**

N Redwood Street does not currently meet the cross-section requirements for standard collector streets, but once improved it should safely accommodate additional vehicle traffic consistent with the TSP forecast.

¹² Count data collected on August 2017 along N Redwood Street near the proposed site.

PERIOD	ESTIMATED SITE TRIPS	CURRENT VOLUME (2020)	TOTAL 2020 VOLUME (SITE TRI PS + CURRENT VOLUME)	TSP VOLUME (2009) *	TSP ESTIMATED FUTURE VOLUME (2030) *	TSP FORECASTED ANNUAL GROWTH RATE (2030- 2009)	REALIZED ANNUAL GROWTH RATE (TOTAL 2020-2009)
DAILY	396	2,761	3,157				
AM PEAK HOUR	31	115	146				
PM PEAK HOUR	42	255	297	287	590	5%	0%

TABLE 7: VOLUME GROWTH COMPARISON ALONG N REDWOOD STREET

* Year 2009 and 2030 volumes are from 2010 City of Canby Transportation System Plan

SECTION 5. RECOMMENDATIONS

The following section summarizes the key findings and recommendations related to the proposed project.

MOTOR VEHICLE IMPROVEMENTS

No impacts were identified at the study intersection based on projected growth from the proposed project. However, a few improvements are recommended to support the proposed project.

SITE FRONTAGE RECOMMENDATIONS

The project site frontage along N Redwood Street is under County jurisdiction and designated as a Collector roadway in the TSP. Although it is under County jurisdiction, it should be constructed to **the City collector standard. It does not currently meet the City's cross**-section requirements for standard collector streets (34-50 feet paved with 50-80 feet of ROW). It is assumed that the City and the developer will work together determine required frontage improvements and right-of-way dedications.

SITE ACCESS RECOMMENDATIONS

Access to the site is proposed via one connection to N Redwood Street at NE 12th Avenue. This access road is proposed to run east-to-west and connect to the north-south oriented N Sycamore Street. This connection should be constructed according to the City of Canby neighborhood route standard, consistent with the N Redwood Development Concept Plan.

SIGHT DISTANCE RECOMMENDATIONS

Preliminary sight distance evaluation from the proposed access indicates that it would be expected to provide adequate sight distance. Prior to occupancy, sight distance at all access points will need to be verified, documented, and stamped by a registered professional Civil or Traffic Engineer licensed in the State of Oregon.

PEDESTRIAN/BICYCLE IMPROVEMENTS

Sidewalks and bike lanes are recommended to be included along the site frontage of N Redwood Street. The proposed internal streets will include sidewalks on both sides and bicyclists will share the roadways with motor vehicles. Pedestrian and bicycle access should be provided to the existing NE Spruce Court and NE 10th Place to the south, as shown in the Concept Plan.

APPENDIX

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PEAK HOUR TRAFFIC COUNT DATA
K	_	D	-	N
KEY	DAT	A NE	TW	ORK

Data Prov	vided by K-D-N.com 503-594-4224
N/S street:	99 <i>E</i>
E/W street:	N Redwood St
City, State	Canby OR
Study ID #	
Location	45.269037122.67597
Start Date	Thursday, August 23, 2018
Start Time	07:00:00 AM
Peak Hour Start	07:00:00 AM
Peak 15 Min Start	07:35:00 AM
PHF (15-Min Int)	0.90

										Pea	k-Hour V	olumes	(PHV)										
	North	bound			South	bound			East	bound			West	bound			Ent	ering			Lea	ving	
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	NB	SB	EB	WB	NB	SB	EB	WB
24	732	79	0	59	546	4	0	11	15	50	0	134	11	44	0	835	609	76	189	730	787	39	153
										Pe	rcent He	aw Vehi	cles										
4.2%	7.7%	2.5%	0.0%	10.2%	9.0%	0.0%	0.0%	0.0%	0.0%	2.0%	0.0%	5.2%	0.0%	18.2%	0.0%	7.1%	9.0%	1.3%	7.9%	7.8%	8.1%	2.6%	5.2%
							PH	IV- Bicvo	cles								1	PHV	- Pedes	trians			
	North	bound			South	bound			East	bound			West	bound				in	Crosswa	k			
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	1	0	1	2		
								А	I Vehicl	e Volum	es									1		l	
			North	bound		1	South	bound			East	bound			West	bound		1					
			Q	٩F			Q	٩F			N Red	wood St			Sequo	ia Pkwv		15 Min	1 HR				
Time o		1.00	The	Diaht	1.14	1.00	These	Diaht	L Mariana	1.08	The	Diaht	l lite una	1.00	These	Diaht	l lés sum		Cum				
nine oz.o	0.00 414	Leit	Intu	Right	Otum	Leit	Inru	Right	Otum	Leit	Inru	Right	Otum	Leit	Inru	Right	Otum	Sum	Sum				
07:0	0:00 AM	2	69	4	0	4	42	0	0	1	4	3	0	4	0	1	0						
07:0	5:00 AM	1	58	2	0	2	38	1	0	1	0	6	0	10	0	4	0						
07:1	0:00 AM	2	72	10	0	4	42	0	0	1	0	2	0	9	1	3	0	403					
07:1	5:00 AM	0	49	4	0	4	39	1	0	1	1	6	0	11	1	3	0	389					
07:2	0:00 AM	2	69	5	0	6	53	0	0	2	2	6	0	12	1	4	0	428		1			
07:2	5:00 AM	1	73	6	0	9	45	0	0	0	0	4	0	7	0	2	0	429					
07:3	0:00 AM	2	56	10	0	5	36	0	0	4	0	2	0	18	0	4	0	446					
07:3	5:00 AM	0	54	7	0	5	44	0	0	0	1	3	0	14	1	6	0	419					
07:4	0:00 AM	2	70	9	0	8	59	1	0	0	1	3	0	15	1	7	0	448					
07:4	5:00 AM	6	66	6	0	4	48	1	0	1	3	4	0	20	1	4	0	475					
07:5	0:00 AM	5	46	9	0	3	51	0	0	0	0	4	0	5	3	4	0	470					
07:5	5:00 AM	1	50	7	0	5	49	0	0	0	3	7	0	9	2	2	0	429	1709				
08:0	0:00 AM	2	55	10	0	4	32	0	0	0	0	5	0	11	3	4	0	391	1701				
08:0	5:00 AM	1	49	2	0	5	47	0	0	0	3	6	0	8	2	5	0	389	1706				
08:1	0:00 AM	4	44	4	0	4	38	1	0	2	5	3	0	11	1	6	0	377	1683				
08:1	5:00 AM	0	58	10	0	5	34	0	0	3	2	3	0	12	1	4	0	383	1695				
08:2	0:00 AM	4	42	9	0	7	53	2	0	1	0	5	0	13	3	2	0	396	1674				
08:2	5:00 AM	0	42	8	0	5	45	0	0	0	2	2	0	20	2	6	0	405	1659				
08:3	0:00 AM	2	32	7	0	1	32	0	0	0	0	3	0	19	5	5	0	379	1628				
08:3	5:00 AM	4	57	7	0	6	48	1	0	1	3	5	0	8	1	8	0	387	1642				
08:4	0:00 AM	3	44	3	0	3	33	2	0	0	4	4	0	9	0	0	0	360	1571				
08:4	5:00 AM	1	42	3	0	3	30	0	0	1	5	6	0	16	3	1	0	365	1518				
08:5	0:00 AM	3	38	7	0	5	34	0	0	3	2	4	0	11	3	4	0	330	1502				
08:5	5:00 AM	9	42	6	0	2	41	1	0	1	0	8	0	10	2	4	0	351	1493				
						l				Bicycles	on Road	d		I									
			North	bound		I	South	bound		1	Faetl	bound		I	Wast	bound		I		1			
			north	Sound			oouu	Sound			Lasu	Sound			11031	Sound							



		9	9E		I	99	9E			N Red	wood St			Sequo	ia Pkwy		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	0	0	0	0	0	0	0	0	0	0		
07:05:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
07:10:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
07:15:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
07:20:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
07:25:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
07:30:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
07:35:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
07:40:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
07:45:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
07:50:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
07:55:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:00:00 AM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
08:05:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
08:10:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
08:15:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
08:20:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
08:25:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
08:30:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
08:35:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
08:40:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
08:45:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
08:50:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
08:55:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
	•							Passeng	er vehicl	es and li	ght truck	S					•	
		North	bound			South	bound			East	bound			West	bound		45 Min	4.115
		9	96			- 9	96				wood St			Sequo	а Ркму		15 Min	1 HK
Time	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Sum	Sum
07:00:00 AM	1	63	4	0	3	39	0	0	1	4	3	0	4	0	1	0		
07:05:00 AM	1	55	2	0	2	30	1	0	1	0	6	0	10	0	3	0	075	
07:10:00 AM	2	68	10	0	4	41	0	0	1	0	2	0	9	1	3	0	375	
07:15:00 AM	0	40	4	0	3	30	1	0	1	1	6	0	11	1	3	0	305	
07:20:00 AM	2	67	5	0	0	40	0	0	2	2	5	0	9	0	3 2	0	402	
07.20.00 AM	2	5/	0	0	5	42	0	0	1	0	4 2	0	1	0	2	0	391 /12	
07-35-00 AM	- 0	50	7	0	1	33	0	0	- 1 0	1	2	0	10	1	4	0	300	
07:40:00 AM	2	63	, Q	0	т Я	55	1	0	0	1	3	0	14	1	7	0	418	
07:45:00 AM	6	56	6	0	3	47		0	1	3	4	0	19	1	3	0	439	
07:50:00 AM	5	43	9	0	2	44	0	0	0	0	4	0	4	3	2	0	430	
07:55:00 AM	1	46	7	0	5	43	0	0	0	3		0	8	2	-	0	389	1579
08:00:00 AM	2	47	8	0	4	29	0	0	0	0	5	0	10	-	4	0	349	1566
08:05:00 AM	1 -	.,		0	4	43	0	0	0	3	6	0	8	2	5	0	345	1567
	0	40		0			-	-	-	-	-	-	-	_	-	-		
08:10:00 AM	0	40 38	4	0	3	34	1	0	2	5	3	0	8	1	6	0	331	1535
08:10:00 AM	0 4 0	40 38 49	4	0	3	34 31	1	0	2	5	3	0	8 11	1	6 4	0	331 338	1535 1539
08:10:00 AM 08:15:00 AM 08:20:00 AM	0 4 0 3	40 38 49 37	1 4 9 9	0	3 4 6	34 31 49	1 0 2	0 0 0	2 3 1	5 2 0	3 3 5	0 0	8 11 11	1 1 3	6 4 2	0 0 0	331 338 354	1535 1539 1519
08:10:00 AM 08:15:00 AM 08:20:00 AM 08:25:00 AM	0 4 0 3 0	40 38 49 37 38	4 9 9 8	0 0 0 0 0 0 0	3 4 6 5	34 31 49 41	1 0 2 0	0 0 0 0 0	2 3 1	5 2 0 2	3 3 5 2	0 0 0 0 0	8 11 11 20	1 1 3 2	6 4 2 4	0 0 0 0 0	331 338 354 367	1535 1539 1519 1505

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KEY DATA NETWORK

08:30:00 AM	2	29	5	0	1	30	0	0	0	0	3	0	18	4	5	0	347	1473
08:35:00 AM	4	52	7	0	5	43	1	0	1	3	4	0	8	1	4	0	352	1481
08:40:00 AM	3	42	2	0	3	29	2	0	0	4	4	0	9	0	0	0	328	1415
08:45:00 AM	1	36	3	0	3	26	0	0	1	5	6	0	16	2	1	0	331	1365
08:50:00 AM	3	34	6	0	3	32	0	0	3	2	4	0	11	3	4	0	303	1354
08:55:00 AM	7	37	6	0	2	34	1	0	1	0	7	0	10	1	4	0	315	1341
							FHV	NA 4-13 ·	-Truck/N	lulti-Unit/	Heavy T	rucks					<u> </u>	
		North	bound			South	bound			East	bound			West	bound		<u> </u>	
		9	9E			99	9E			N Red	wood St			Sequo	ia Pkwy		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	1	6	0	0	1	3	0	0	0	0	0	0	0	0	0	0		
07:05:00 AM	0	3	0	0	0	8	0	0	0	0	0	0	0	0	1	0		
07:10:00 AM	0	4	0	0	0	1	0	0	0	0	0	0	0	0	0	0	28	
07:15:00 AM	0	3	0	0	1	3	0	0	0	0	0	0	0	0	0	0	24	
07:20:00 AM	0	4	0	0	0	5	0	0	0	0	1	0	3	0	1	0	26	
07:25:00 AM	0	6	1	0	1	3	0	0	0	0	0	0	0	0	0	0	32	
07:30:00 AM	0	2	1	0	0	3	0	0	0	0	0	0	0	0	2	0	33	
07:35:00 AM	0	4	0	0	1	5	0	0	0	0	0	0	0	0	0	0	29	
07:40:00 AM	0	7	0	0	0	4	0	0	0	0	0	0	1	0	0	0	30	
07:45:00 AM	0	10	0	0	1	1	0	0	0	0	0	0	1	0	1	0	36	
07:50:00 AM	0	3	0	0	1	7	0	0	0	0	0	0	1	0	2	0	40	
07.50.00 AM	0	3	0	0	1		0	0	0	0	0	0	1	0	2	0	40	120
07:55:00 AM	0	4	0	0	0	6	0	0	0	0	0	0	1	0	1	0	40	130
08:00:00 AM	0	8	2	0	0	3	0	0	0	0	0	0	1	2	0	0	42	135
08:05:00 AM	1	9	1	0	1	4	0	0	0	0	0	0	0	0	0	0	44	139
08:10:00 AM	0	6	0	0	1	4	0	0	0	0	0	0	3	0	0	0	46	148
08:15:00 AM	0	9	1	0	1	3	0	0	0	0	0	0	1	0	0	0	45	156
08:20:00 AM	1	5	0	0	1	4	0	0	0	0	0	0	2	0	0	0	42	155
08:25:00 AM	0	4	0	0	0	4	0	0	0	0	0	0	0	0	2	0	38	154
08:30:00 AM	0	3	2	0	0	2	0	0	0	0	0	0	1	1	0	0	32	155
08:35:00 AM	0	5	0	0	1	5	0	0	0	0	1	0	0	0	4	0	35	161
08:40:00 AM	0	2	1	0	0	4	0	0	0	0	0	0	0	0	0	0	32	156
08:45:00 AM	0	6	0	0	0	4	0	0	0	0	0	0	0	1	0	0	34	153
08:50:00 AM	0	4	1	0	2	2	0	0	0	0	0	0	0	0	0	0	27	148
08:55:00 AM	2	5	0	0	0	7	0	0	0	0	1	0	0	1	0	0	36	152
Pe	edestriar	ns Crossi	ing		15 Min	1 HR												
Time	NB	SB	EB	WB	Sum	Sum												
07:00:00 AM	0	0	0	0														
07:05:00 AM	0	0	0	0														
07:10:00 AM	0	0	0	0	0													
07:15:00 AM	0	0	0	0	0													
07:20:00 AM	0	0	0	0	0													
07:25:00 AM	0	1	0	1	2													
07:30:00 AM	0	0	0	0	2													
07:35:00 AM	0	0	0	0	2													
07:40:00 AM	0	0	0	0	0													
07:45:00 AM	0	0	0	0	0													
07:50:00 AM	0	0	0	0	0													
07:55:00 AM	0	0	0	0	0	2												



KEY DATA NETWORK

08:00:00 AM	0	0	0	0	0	2
08:05:00 AM	0	0	0	0	0	2
08:10:00 AM	0	1	0	0	1	3
08:15:00 AM	0	0	0	0	1	3
08:20:00 AM	0	0	0	0	1	3
08:25:00 AM	0	0	0	0	0	1
08:30:00 AM	0	1	0	0	1	2
08:35:00 AM	0	1	0	0	2	3
08:40:00 AM	0	0	0	0	2	3
08:45:00 AM	0	0	0	0	1	3
08:50:00 AM	0	0	0	0	0	3
08:55:00 AM	0	1	0	1	2	5

K	_	D	-	N
KEY	DAT	A NE	TW	ORK

Data Prov	vided by K-D-N.com 503-594-4224
N/S street:	99E
E/W street:	N Redwood St
City, State	Canby OR
Study ID #	
Location	45.269037122.67597
Start Date	Thursday, August 23, 2018
Start Time	04:00:00 PM
Peak Hour Start	04:05:00 PM
Peak 15 Min Start	04:05:00 PM
PHF (15-Min Int)	0.91

										Peak	k-Hour V	olumes ((PHV)										
	North	bound			South	bound			East	oound			West	bound			Ent	ering			Lea	ving	
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	NB	SB	EB	WB	NB	SB	EB	WB
62	764	114	0	131	1015	19	0	6	71	39	0	321	59	93	0	940	1165	116	473	1375	863	140	316
										Pe	rcent He	avy Vehi	cles										
0.0%	5.1%	3.5%	0.0%	0.8%	4.1%	0.0%	0.0%	0.0%	1.4%	5.1%	0.0%	1.2%	0.0%	4.3%	0.0%	4.6%	3.7%	2.6%	1.7%	3.5%	5.0%	0.0%	1.9%
				-			PF	IV- Bicyo	cles			-				-		PH∖	/ - Pedes	trians			
	North	bound			South	bound			East	bound			West	bound				in	Crosswa	lk			
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	1	0	0	0	0	0	0	1	0	6	0	4	10		
								A	Il Vehicl	e Volum	es											•	
			North	bound			South	bound			East	bound			West	bound							
			9	9E			9	9E			N Red	wood St			Sequo	ia Pkwy		15 Min	1 HR				
Time		Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Sum	Sum				
04:0	0:00 PM	5	61	7	0	8	68	1	0	0	6	0	0	32	7	7	0						
04:0	5:00 PM	3	86	8	0	8	96	2	0	0	2	2	0	46	3	10	0						
04:1	0:00 PM	10	64	12	0	14	103	3	0	1	6	2	0	17	2	6	0	708					
04:1	5:00 PM	7	67	10	0	10	75	4	0	1	8	9	0	31	6	7	0	741					
04:2	0:00 PM	3	54	9	0	6	89	0	0	1	14	2	0	32	6	9	0	700					
04:2	5:00 PM	7	67	9	0	15	110	1	0	0	2	3	0	19	3	8	0	704					
04:3	0:00 PM	4	70	11	0	8	87	2	0	1	7	2	0	26	7	4	0	698					
04:3	5:00 PM	5	78	11	0	14	80	0	0	0	4	6	0	25	6	9	0	711					
04:4	0:00 PM	2	53	11	0	9	81	2	0	0	4	4	0	21	4	4	0	662					
04:4	5:00 PM	6	40	5	0	14	73	2	0	0	6	5	0	28	2	13	0	627					
04:5	0:00 PM	1	57	11	0	6	67	1	0	0	6	3	0	29	10	8	0	588					
04:5	5:00 PM	5	81	7	0	15	80	1	0	1	2	1	0	20	3	4	0	613	2687				
05:0	0:00 PM	9	47	10	0	12	74	1	0	1	10	0	0	27	7	11	0	628	2694				
05:0	5:00 PM	11	84	10	0	6	79	1	0	0	6	2	0	15	6	5	0	654	2653				
05:1	0:00 PM	8	48	9	0	13	87	3	0	0	4	6	0	23	7	6	0	648	2627				
05:1	5:00 PM	5	78	18	0	9	89	1	0	0	6	5	0	28	6	5	0	689	2642				
05:2	0:00 PM	6	67	13	0	14	93	2	0	0	3	5	0	17	5	6	0	695	2648				
05:2	5:00 PM	7	60	8	0	15	83	3	0	1	5	2	0	31	6	9	0	711	2634				
05:3	0:00 PM	5	57	10	0	12	78	0	0	0	4	5	0	20	3	7	0	662	2606				
05:3	5:00 PM	3	66	13	0	11	96	1	0	0	5	3	0	22	5	4	0	660	2597				
05:4	0:00 PM	7	58	13	0	18	48	4	0	1	5	2	0	25	3	4	0	618	2590	1			
05:4	5:00 PM	5	70	4	0	11	99	1	0	1	2	7	0	21	3	5	0	646	2625	1			
05:5	0:00 PM	3	58	11	0	10	61	1	0	0	6	4	0	27	5	2	0	605	2614				
05:5	5:00 PM	6	61	9	0	11	83	2	0	2	6	2	0	33	5	5	0	642	2619	1			
										Bicycles	on Road	ł]			
			North	bound			South	bound			East	ound			West	bound				1			
1		1				1				1				•				•					



1		9	9E		I	9	9E			N Redv	wood St			Sequo	ia Pkwy		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	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
04:05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
04:10:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
04:15:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
04:20:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
04:25:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
04:30:00 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	
04:35:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	
04:40:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	
04:45:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
04:50:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
04:55:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
05:00:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
05:05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
05:10:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
05:15:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
05:20:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
05:25:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
05:30:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:35:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:40:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:45:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:50:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
00.00.00 FM	0	I	0	0	0	0	0	Dassend	o er vehicl	u es and liv	o abt truck	0 e	0	0	0	0		
	1	North	bound		1	South	bound	asseng		Fast		3		West	bound		1	
		9	9E			9	9E			N Redv	wood St			Sequoi	ia Pkwy		15 Min	1 HR
Time	Left	Thru	Riaht	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Sum	Sum
04:00:00 PM	4	58	6	0	7	68	1	0	0	5	0	0	30	7	7	0	oum	oum
04:05:00 PM	3	78	7	0	8	90	2	0	0	2	2	0	46	3	9	0		
04:10:00 PM	10	60	11	0	14	98	3	0	1	6	2	0	17	2	6	0	673	
04:15:00 PM	7	64	10	0	10	73	4	0	1	8	9	0	29	6	6	0	707	
04:20:00 PM	3	52	9	0	6	87	0	0	1	14	2	0	32	6	9	0	678	
04:25:00 PM	7	61	9	0	15	107	1	0	0	2	2	0	19	3	7	0	681	
04:30:00 PM	4	67	10	0	8	82	2	0	1	7	2	0	26	7	4	0	674	
04:35:00 PM	5	75	11	0	14	76	0	0	0	4	5	0	25	6	9	0	683	
04:40:00 PM	-				-												1	
	2	52	11	0	8	80	2	0	0	4	4	0	21	4	4	0	642	
04:45:00 PM	2 6	52 38	11 5	0	8 14	80 67	2 2	0	0	4 6	4 5	0	21 27	4 2	4 12	0 0	642 606	
04:45:00 PM 04:50:00 PM	2 6 1	52 38 55	11 5 11	0 0 0	8 14 6	80 67 64	2 2 1	0 0 0	0 0 0	4 6 5	4 5 3	0 0 0	21 27 29	4 2 10	4 12 8	0 0 0	642 606 569	
04:45:00 PM 04:50:00 PM 04:55:00 PM	2 6 1 5	52 38 55 80	11 5 11 7	0 0 0 0	8 14 6 15	80 67 64 78	2 2 1 1	0 0 0 0 0	0 0 0 1	4 6 5 2	4 5 3 1	0 0 0 0	21 27 29 19	4 2 10 3	4 12 8 4	0 0 0 0	642 606 569 593	2589
04:45:00 PM 04:50:00 PM 04:55:00 PM 05:00:00 PM	2 6 1 5 9	52 38 55 80 43	11 5 11 7 9	0 0 0 0 0	8 14 6 15 12	80 67 64 78 71	2 2 1 1 1	0 0 0 0 0	0 0 1 1	4 6 5 2 10	4 5 3 1 0	0 0 0 0 0	21 27 29 19 27	4 2 10 3 7	4 12 8 4 11	0 0 0 0 0	642 606 569 593 610	2589 2597
04:45:00 PM 04:50:00 PM 04:55:00 PM 05:00:00 PM 05:05:00 PM	2 6 1 5 9 11	52 38 55 80 43 81	11 5 11 7 9 10	0 0 0 0 0 0	8 14 6 15 12 6	80 67 64 78 71 76	2 2 1 1 1 1 1	0 0 0 0 0 0	0 0 1 1 0	4 6 5 2 10 6	4 5 3 1 0 2	0 0 0 0 0	21 27 29 19 27 15	4 2 10 3 7 6	4 12 8 4 11 5	0 0 0 0 0 0	642 606 569 593 610 636	2589 2597 2566
04:45:00 PM 04:50:00 PM 04:55:00 PM 05:00:00 PM 05:05:00 PM 05:10:00 PM	2 6 1 5 9 11 8	52 38 55 80 43 81 48	11 5 11 7 9 10 8	0 0 0 0 0 0 0	8 14 6 15 12 6 12	80 67 64 78 71 76 79	2 2 1 1 1 1 3	0 0 0 0 0 0 0 0	0 0 1 1 0 0	4 6 5 2 10 6 4	4 5 3 1 0 2 6	0 0 0 0 0 0 0 0	21 27 29 19 27 15 23	4 2 10 3 7 6 7	4 12 8 4 11 5 6	0 0 0 0 0 0 0 0	642 606 569 593 610 636 624	2589 2597 2566 2540
04:45:00 PM 04:50:00 PM 04:55:00 PM 05:00:00 PM 05:05:00 PM 05:10:00 PM 05:15:00 PM	2 6 1 5 9 11 8 5	52 38 55 80 43 81 48 76	11 5 11 7 9 10 8 17	0 0 0 0 0 0 0 0	8 14 6 15 12 6 12 9	80 67 64 78 71 76 79 87	2 2 1 1 1 1 3 3 1	0 0 0 0 0 0 0 0 0	0 0 1 1 0 0 0	4 6 5 2 10 6 4 6	4 5 3 1 0 2 6 5	0 0 0 0 0 0 0 0 0	21 27 29 19 27 15 23 27	4 2 10 3 7 6 7 6	4 12 8 4 11 5 6 5	0 0 0 0 0 0 0 0 0	642 606 569 593 610 636 624 667	2589 2597 2566 2540 2557
04:45:00 PM 04:50:00 PM 04:55:00 PM 05:00:00 PM 05:05:00 PM 05:10:00 PM 05:15:00 PM	2 6 1 5 9 11 8 5 6	52 38 55 80 43 81 48 76 66	11 5 11 7 9 10 8 17 12	0 0 0 0 0 0 0 0 0 0	8 14 6 15 12 6 12 9 14	80 67 64 78 71 76 79 87 90	2 2 1 1 1 1 1 3 1 2	0 0 0 0 0 0 0 0 0 0	0 0 1 1 0 0 0 0	4 6 5 2 10 6 4 6 3	4 5 3 1 0 2 6 5 5 5	0 0 0 0 0 0 0 0 0 0	21 27 29 19 27 15 23 27 17	4 2 10 3 7 6 7 6 7 6 5	4 12 8 4 11 5 6 5 6	0 0 0 0 0 0 0 0 0 0	642 606 569 593 610 636 624 667 674	2589 2597 2566 2540 2557 2562

112 of 143



KEY DATA NETWORK

05:30:00 PM	5	56	10	0	12	75	0	0	0	4	5	0	20	3	6	0	649	2532
05:35:00 PM	3	65	12	0	11	93	1	0	0	5	3	0	22	5	4	0	647	2526
05:40:00 PM	7	56	13	0	18	45	4	0	1	4	2	0	25	3	3	0	601	2515
05:45:00 PM	5	66	4	0	11	96	1	0	1	2	7	0	19	3	5	0	625	2551
05:50:00 PM	3	55	11	0	9	57	1	0	0	6	4	0	27	5	2	0	581	2538
05:55:00 PM	6	60	9	0	11	83	2	0	2	6	2	0	33	5	5	0	624	2546
I]		FHV	VA 4-13 ·	-Truck/N	lulti-Unit/	Heavy T	rucks					l	
		North	bound			South	bound			East	oound			West	bound			
		99	θE			99	θE			N Red	wood St			Sequo	ia Pkwy		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	1	3	1	0	1	0	0	0	0	1	0	0	2	0	0	0		
04:05:00 PM	0	8	1	0	0	6	0	0	0	0	0	0	0	0	1	0		
04:10:00 PM	0	4	1	0	0	5	0	0	0	0	0	0	0	0	0	0	35	
04:15:00 PM	0	3	0	0	0	2	0	0	0	0	0	0	2	0	1	0	34	
04:20:00 PM	0	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	22	
04:25:00 PM	0	6	0	0	0	3	0	0	0	0	1	0	0	0	1	0	23	
04:30:00 PM	0	3	1	0	0	5	0	0	0	0	0	0	0	0	0	0	24	
04:35:00 PM	0	3	0	0	0	4	0	0	0	0	1	0	0	0	0	0	28	
04:40:00 PM	0	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	20	
04:45:00 PM	0	2	0	0	0	6	0	0	0	0	0	0	1	0	1	0	21	
04:50:00 PM	0	2	0	0	0	3	0	0	0	1	0	0	0	0	0	0	19	
04:55:00 PM	0	1	0	0	0	2	0	0	0	0	0	0	1	0	0	0	20	98
05:00:00 PM	0	4	1	0	0	3	0	0	0	0	0	0	0	0	0	0	18	97
05:05:00 PM	0	3	0	0	0	3	0	0	0	0	0	0	0	0	0	0	18	87
05:10:00 PM	0	0	1	0	1	8	0	0	0	0	0	0	0	0	0	0	24	87
05:15:00 PM	0	2	1	0	0	2	0	0	0	0	0	0	1	0	0	0	22	85
05:20:00 PM	0	1	1	0	0	3	0	0	0	0	0	0	0	0	0	0	21	86
05:25:00 PM	0	1	0	0	0	2	0	0	0	0	0	0	0	0	0	0	14	78
05:30:00 PM	0	1	0	0	0	3	0	0	0	0	0	0	0	0	1	0	13	74
05:35:00 PM	0	1	1	0	0	3	0	0	0	0	0	0	0	0	0	0	13	71
05:40:00 PM	0	2	0	0	0	3	0	0	0	1	0	0	0	0	1	0	17	75
05:45:00 PM	0	4	0	0	0	3	0	0	0	0	0	0	2	0	0	0	21	74
05:50:00 PM	0	3	0	0	1	4	0	0	0	0	0	0	0	0	0	0	24	76
05:55:00 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	18	73
Peo	destriar	ns Crossi	ng		15 Min	1 HR												
Time	NB	SB	EB	WB	Sum	Sum												
04:00:00 PM	0	1	0	1														
04:05:00 PM	0	1	0	1														
04:10:00 PM	0	0	0	1	5													
04:15:00 PM	0	2	0	0	5													
04:20:00 PM	0	0	0	0	3													
04:25:00 PM	0	0	0	0	2													
04:30:00 PM	0	1	0	0	1													
04:35:00 PM	0	0	0	0	1													
04:40:00 PM	0	0	0	1	2													
04:45:00 PM	0	1	0	0	2													
04:50:00 PM	0	1	0	0	3													
04:55:00 PM	0	0	0	0	2	11												
	_	_		_		_	-											



KEY DATA NETWORK

05:00:00 PM	0	0	0	1	2	10
05:05:00 PM	0	0	0	0	1	8
05:10:00 PM	0	0	0	0	1	7
05:15:00 PM	0	1	0	1	2	7
05:20:00 PM	0	0	0	1	3	8
05:25:00 PM	0	1	0	0	4	9
05:30:00 PM	0	0	0	0	2	8
05:35:00 PM	0	1	0	1	3	10
05:40:00 PM	0	0	0	0	2	9
05:45:00 PM	0	0	0	0	2	8
05:50:00 PM	0	0	0	0	0	7
05:55:00 PM	0	0	0	1	1	8





TUBE COUNT DATA

Key Data Network K-D-N.com

Redwood St south of Territorial Latitude: 45' 16.7613 North Longitude: 122' 40.5835 West

1200 AM - - - - - - - - 7 0 0 - 7 0 0 - 7 0 0 0 - 7 0 </th <th>Start Time</th> <th>Mon 31-Jul-17</th> <th>Tue 01-Aug-17</th> <th>Wed 02-Aug-17</th> <th>Thu 03-Aug-17</th> <th>Fri 04-Aug-17</th> <th>Average Dav</th> <th>Sat 05-Aug-17</th> <th>Sun 06-Aug-17</th> <th>Week</th> <th></th>	Start Time	Mon 31-Jul-17	Tue 01-Aug-17	Wed 02-Aug-17	Thu 03-Aug-17	Fri 04-Aug-17	Average Dav	Sat 05-Aug-17	Sun 06-Aug-17	Week	
01:00 · · · 3 · · 3 · · 3 · 1 <td>12:00 AM</td> <td>*</td> <td>*</td> <td>*</td> <td>7</td> <td>*</td> <td>7</td> <td>*</td> <td>*</td> <td>7</td> <td></td>	12:00 AM	*	*	*	7	*	7	*	*	7	
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	01:00	*	*	*	3	*	3	*	*	3	
03:00 • • 2 • 2 • 2 1 04:00 • 8 • 8 • 8 • 29 06:00 • • 57 • 57 • 57 07:00 • • 64 • 64 • 64 08:00 • • 76 • 76 • 76 09:00 • • 72 • 72 • 72 00:00 • • 100 • 100 • 100 11:00 • • 63 • 63 • 63 • 63 02:00 • • 87 • 87 • 87 • 87 • 87 • 87 • 87 • 87 • 87 • 87 • 87 • 87 • 87 • 87 • 87 • 87 • 87 • 87	02:00	*	*	*	1	*	1	*	*	1	
04:00 · <td>03:00</td> <td>*</td> <td>*</td> <td>*</td> <td>2</td> <td>*</td> <td>2</td> <td>*</td> <td>*</td> <td>2</td> <td></td>	03:00	*	*	*	2	*	2	*	*	2	
05:00 • • 29 • 29 • 29 06:00 • • 57 • 57 • 57 07:00 • • 64 • 64 • 64 08:00 • • 76 • 76 • 76 09:00 • • 72 • 72 • 72 10:00 • • 100 • 100 • 100 11:00 • • 63 <td>04:00</td> <td>*</td> <td>*</td> <td>*</td> <td>8</td> <td>*</td> <td>8</td> <td>*</td> <td>*</td> <td>8 📃</td> <td></td>	04:00	*	*	*	8	*	8	*	*	8 📃	
06:00 • • • 57 • • 57 07:00 • • 64 64 • 64 08:00 • • 76 • 76 • 09:00 • • 72 • 72 • 72 10:00 • • 100 • 100 • 72 11:00 • • 101 • 101 • 101 11:00 • • 63 • 63 • 63 12:00 PM • • 101 • 101 • 101 01:00 • • 86 • 86 • 87 02:00 • • 87 • 87 • 87 03:00 • • 87 • 87 • 87 07:00 • • 122 122 • 122 • 63 • 63 • 63 • 63	05:00	*	*	*	29	*	29	*	*	29	
07:00 • • 64 • 64 • 64 08:00 • • 76 76 76 • 76 09:00 • • 72 • 72 • 72 10:00 • • 100 • 100 • 72 11:00 • • 63 • 63 • 63 12:00 PM • • 101 • 101 • 101 01:00 • • 86 • 86 • 86 02:00 • • 87 • 87 • 87 03:00 • • 87 • 87 • 87 04:00 • • 82 • • 82 • 82 • 82 • 82 • • 82 • • 63 • 66 68 • • 68 • 68 • • 68 • • <td>06:00</td> <td>*</td> <td>*</td> <td>*</td> <td>57</td> <td>*</td> <td>57</td> <td>*</td> <td>*</td> <td>57</td> <td></td>	06:00	*	*	*	57	*	57	*	*	57	
08:00 • • 76 • 76 • 76 09:00 • • 72 • 72 • 72 10:00 • • 100 • 100 • 100 11:00 • • 63 • 63 • 63 12:00 PM • • 101 • 101 • 101 01:00 • • 86 • 63 • 63 02:00 • • 87 • 87 • 87 03:00 • • 87 • 87 • 87 04:00 • • 82 • 82 • 82 • 82 • 82 • 82 • 82 • 82 • 63 • 63 • 63 • 63 • 63 • 63 • 63 • 63 • 63 • 63 • 63 •	07:00	*	*	*	64	*	64	*	*	64	
09:00 · <td>08:00</td> <td>*</td> <td>*</td> <td>*</td> <td>76</td> <td>*</td> <td>76</td> <td>*</td> <td>*</td> <td>76</td> <td></td>	08:00	*	*	*	76	*	76	*	*	76	
10:00 · · 1000 · · 1000 11:00 ·	09:00	*	*	*	72	*	72	*	*	72	
11:00 • • 63 • 63 • 63 12:00 PM • • 101 • 101 • 101 01:00 • • 86 • 86 • 86 02:00 • • 87 • 87 • 87 03:00 • • 87 • 87 • 87 04:00 • • 87 • 87 • 87 05:00 • • 122 • 122 • 122 06:00 • • 122 • 122 • 122 06:00 • • 63 • 63 • 63 08:00 • • 63 • 63 • 63 • 63 09:00 • • 39 • 39 • 39 • 19 19 19 19 10 10 10 10 10 10 10	10:00	*	*	*	100	*	100	*	*	100	
12:00 PM • • 101 • • 101 • • 101 • • 101 • • 101 • • 101 • • 101 • • 101 • • 101 • • 101 • • 101 • • 101 • • 101 • • 101 • • 101 • • 101 • • 101 • • 101 • • 101 • • 86 • 86 • 87 • 87 • 87 • 87 • 87 • 87 • 87 • 87 • 87 • 87 • 87 • 87 • 87 • 87 • 87 • 87 • 63 • • 63 • • 63 • • 63 • • 63 • • 63 • • 10	11:00	*	*	*	63	*	63	*	*	63	
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02:00 * * 87 * 87 * 87 * 87 03:00 * * 87 * 87 * 87 * 87 04:00 * * 82 * * 87 * 87 04:00 * * 82 * * 82 * 82 05:00 * * 122 * 122 * 122 06:00 * * 75 * 75 * 72 07:00 * * 63 * 63 * 63 08:00 * * 68 * 68 * 68 09:00 * * 19 * 19 * 19 10:00 * * 10 * 10 * 10 * Day Total 0 0 0.0% 0.0% 0.0% 0.0% 0.0% * 100 * * 100 * <t< td=""><td>01:00</td><td>*</td><td>*</td><td>*</td><td>86</td><td>*</td><td>86</td><td>*</td><td>*</td><td>86</td><td></td></t<>	01:00	*	*	*	86	*	86	*	*	86	
03:00 * * 87 * 87 * 87 04:00 * * 82 * 82 * 82 05:00 * * 122 * 122 * 82 06:00 * * 75 * 75 * 75 07:00 * * 63 * 63 * 63 08:00 * * 68 68 * 68 68 09:00 * * 19 * 19 * 89 10:00 * * 10 * 10 * 10 Day Total 0 0 0.0% 0.0% 0.0% 0.0% 100 * 10 % Avg. 0.0% 0.	02:00	*	*	*	87	*	87	*	*	87	
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05:00 * * 122 * * 122 06:00 * * 75 75 * 75 * 75 07:00 * * 63 * 63 * * 63 08:00 * * * 68 * * 68 * 68 09:00 * * * 39 * * 68 * 68 09:00 * * * 19 * * 68 * 68 * 68 * 19 * 19 * 19 * 19 * 10 * 10 * 10 * 10 * 10 * 10 * 10 * 10 * 10 * * 10 * * 10 * * 10 * * 10 * * 10 * * 10 * * * * * * * * * </td <td>04:00</td> <td>*</td> <td>*</td> <td>*</td> <td>82</td> <td>*</td> <td>82</td> <td>*</td> <td>*</td> <td>82</td> <td></td>	04:00	*	*	*	82	*	82	*	*	82	
06:00 * * 75 * * 75 * * 75 * * 75 * * 75 * * 75 * * 75 * * 75 * * 75 * * 75 * * * 75 * * * 75 * * * 63 • • 63 • • 63 • • 63 • • 63 • • 63 • • 63 • • 63 • • 63 • • 63 • • 63 • • 63 • • 63 • • 63 • • 68 • • 68 • • 68 • • 19 • 19 • 10 • 10 • 10 • 10 • 10 • 10 • 10 • • 10 • • 10 <td< td=""><td>05:00</td><td>*</td><td>*</td><td>*</td><td>122</td><td>*</td><td>122</td><td>*</td><td>*</td><td>122</td><td></td></td<>	05:00	*	*	*	122	*	122	*	*	122	
07:00 * * * 63 * * 63 08:00 * * 68 * * 68 * * 68 09:00 * * * 39 * 39 * * 68 09:00 * * * 39 * 39 * * 68 09:00 * * * 19 * * 88 * 68 * * 68 * * 19 * * 19 * 19 * * 19 * 10 * 10 * 10 * 10 * 10 * 10 * 10 * 10 * * 10 * * 10 * * 10 * * 10 * * 10 * * 10 * * 10 * * 10 * * 10 * * 10 * * *	06:00	*	*	*	75	*	75	*	*	75	
08:00 * * 68 * 68 * * * * 68 09:00 * * * 39 * 39 * 39 * 39 10:00 * * * 19 * 19 * 19 * 19 11:00 * * * 10 * 10 * * 19 * Day Total 0 0 0 1321 0 1321 0 0 0 1321 % Avg. WkDay 0.0% 0.0% 100.0% 0.0% 100.0% 0.0% 0.0% 0.0% 100.0% 0.0%	07:00	*	*	*	63	*	63	*	*	63	
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11:00 * * 10 * 10 * * 10 * * 10 * * 10 * * 10 * * * 10 * * * 10 * * * 10 * * * 10 * * * 10 * * * 10 * * 10 * * * 10 * * 10 * * 10 * * 10 * * 10 * * 10 * * 10 * * 10 * * 10 * * 10 * * 10 * * 10 * * 10 * * 10 * * 10 * * 10 * * 10 * * 10 * * 10 * *	10:00	*	*	*	19	*	19	*	*	19	
Day Total 0 0 1321 0 1321 0 1321 % Avg. WkDay 0.0% 0.0% 100.0% 0.0% 0.0% 100.0% 0.0% 100.0% 0.0% 100.0% 0.0% 100.0% 0.0% 100.0% 0.0% 100.0% 0.0% 0.0% 0.0% 0.0% 100.0% 0.0% <td>11:00</td> <td>*</td> <td>*</td> <td>*</td> <td>10</td> <td>*</td> <td>10</td> <td>*</td> <td>*</td> <td>10 📃</td> <td></td>	11:00	*	*	*	10	*	10	*	*	10 📃	
% Avg. WkDay 0.0% 0.0% 100.0% 0.0% % Avg. Week 0.0% 0.0% 100.0% 0.0% 0.0% 0.0% Meek 0.0% 0.0% 100.0% 0.0% 100.0% 0.0% 0.0% Meek - - 100.0% - - - - 10:00 - Vol. - - 100 - - 100 - - 100 -	Day Total	0	0	0	1321	0	1321	0	0	1321	
WkDay 0.0% 0.0% 0.0% 0.0% 0.0% 0.0% % Avg. Week 0.0% 0.0% 100.0% 0.0% 100.0% 0.0% 0.0% Meek - - 100.0% 0.0% 100.0% 0.0% 0.0% Week - - 100.0% - - 10:00 - - Vol. - - 100 - - 100 - - 100 -	% Avg.	0.0%	0.00/	0.0%	100.00/	0.0%					
% Avg. Week 0.0% 0.0% 100.0% 100.0% 0.0% 0.0% AM Peak - - - 10:00 - - - - 10:00 - Vol. - - - 100 - - 100 - - 100 -	WkDay	0.0%	0.0%	0.0%	100.0%	0.0%					
Week 0.0% <th< td=""><td>% Avg.</td><td>0.0%</td><td>0.0%</td><td>0.0%</td><td>100.0%</td><td>0.0%</td><td>100.0%</td><td>0.0%</td><td>0.0%</td><td></td><td></td></th<>	% Avg.	0.0%	0.0%	0.0%	100.0%	0.0%	100.0%	0.0%	0.0%		
AM Peak - - 10:00 - - 10:00 - - - 10:00 - Vol. - - 100 - <td>Week</td> <td>0.076</td> <td>0.070</td> <td>0.070</td> <td>100.076</td> <td>0.078</td> <td>100.076</td> <td>0.070</td> <td>0.076</td> <td></td> <td></td>	Week	0.076	0.070	0.070	100.076	0.078	100.076	0.070	0.076		
<u>Vol 100 100 100 100 100 100</u>	AM Peak	-	-	-	10:00	-	- 10:00		-	- 10:00	
	Vol.	-	-	-	100	-	- 100		-	- 100	
PM Peak 17:00 17:00 17:00 17:00 -	PM Peak	-	-	-	17:00	-	- 17:00		-	- 17:00	
<u>Vol 122 - 122 122 122 122</u>	Vol.	-	-	-	122	-	- 122		-	- 122	
Grand 0 0 1321 0 1321 0 0 1321	Grand	Ο	٥	٥	1321	٥	1321	٥	Ο	1321	
Total Total	Total	0	0	0	1521	0	1521	0	0	1521	

ADT

ADT 1,321

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HCM ANALYSIS REPORTS

01/07/2021

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	۲	¢Î		ሻሻ	1	1	۲	† †	1	۲	≜ †₽	
Traffic Volume (veh/h)	10	15	50	135	10	45	25	745	80	60	555	5
Future Volume (veh/h)	10	15	50	135	10	45	25	745	80	60	555	5
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1750	1750	1723	1682	1750	1504	1695	1641	1709	1614	1627	1750
Adj Flow Rate, veh/h	11	17	56	150	11	50	28	828	89	67	617	6
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	0	0	2	5	0	18	4	8	3	10	9	0
Cap, veh/h	131	28	93	297	167	121	40	1594	740	80	1690	16
Arrive On Green	0.08	0.08	0.08	0.10	0.10	0.10	0.02	0.51	0.51	0.05	0.54	0.52
Sat Flow, veh/h	1667	357	1177	3107	1750	1271	1615	3118	1447	1537	3137	30
Grp Volume(v), veh/h	11	0	73	150	11	50	28	828	89	67	304	319
Grp Sat Flow(s),veh/h/ln	1667	0	1534	1554	1750	1271	1615	1559	1447	1537	1546	1622
Q Serve(g_s), s	0.4	0.0	2.8	2.8	0.3	2.3	1.1	10.8	2.0	2.6	6.9	6.9
Cycle Q Clear(g_c), s	0.4	0.0	2.8	2.8	0.3	2.3	1.1	10.8	2.0	2.6	6.9	6.9
Prop In Lane	1.00		0.77	1.00		1.00	1.00		1.00	1.00		0.02
Lane Grp Cap(c), veh/h	131	0	121	297	167	121	40	1594	740	80	833	874
V/C Ratio(X)	0.08	0.00	0.61	0.51	0.07	0.41	0.70	0.52	0.12	0.83	0.36	0.37
Avail Cap(c_a), veh/h	929	0	855	713	401	292	238	3392	1574	453	1910	2004
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	26.1	0.0	27.2	26.2	25.1	26.0	29.5	9.9	7.8	28.7	8.1	8.1
Incr Delay (d2), s/veh	0.2	0.0	3.0	0.8	0.1	1.4	12.7	0.7	0.2	12.7	0.7	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.0	1.1	1.0	0.1	0.7	0.5	2.8	0.5	1.2	1.8	1.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	26.2	0.0	30.2	27.0	25.2	27.3	42.2	10.6	8.0	41.4	8.8	8.8
LnGrp LOS	С	A	С	С	С	С	D	В	A	D	A	<u> </u>
Approach Vol, veh/h		84			211			945			690	
Approach Delay, s/veh		29.6			27.0			11.3			12.0	
Approach LOS		С			С			В			В	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	5.5	36.9		8.8	7.2	35.2		9.8				
Change Period (Y+Rc), s	4.0	* 5.4		4.0	4.0	* 5.4		4.0				
Max Green Setting (Gmax), s	9.0	* 74		34.0	18.0	* 65		14.0				
Max Q Clear Time (g_c+l1), s	3.1	8.9		4.8	4.6	12.8		4.8				
Green Ext Time (p_c), s	0.0	10.0		0.3	0.1	16.8		0.3				
Intersection Summary												
HCM 6th Ctrl Delay			14.1									
HCM 6th LOS			В									

Notes

Intersection Int Delay, s/veh 2.3 EBL EBT EBR WBL WBT WBR NBL NBT NBR SBL SBT SBR Movement **4** 130 **♣** 5 **♣** 5 Lane Configurations 4 160 Traffic Vol, veh/h 10 50 15 0 5 5 10 45 Future Vol, veh/h 10 160 50 5 130 10 45 5 15 0 5 5 8 2 2 Conflicting Peds, #/hr 6 6 0 0 2 0 2 0 8 Stop Stop Stop Stop Sign Control Free Free Free Free Free Stop Stop Free RT Channelized None -None None None ---_ ---Storage Length --_ _ ---_ --_ _ Veh in Median Storage, # -0 -0 0 0 -----_ Grade, % 0 0 0 0 --------89 Peak Hour Factor 89 89 89 89 89 89 89 89 89 89 89 Heavy Vehicles, % 0 2 13 0 4 33 12 14 13 100 0 0 Mvmt Flow 11 180 56 6 146 11 51 6 17 0 6 6

Major/Minor	Major1		N	lajor2			Minor1		Ν	/linor2			
Conflicting Flow All	165	0	0	242	0	0	408	413	216	416	436	162	
Stage 1	-	-	-	-	-	-	236	236	-	172	172	-	
Stage 2	-	-	-	-	-	-	172	177	-	244	264	-	
Critical Hdwy	4.1	-	-	4.1	-	-	7.22	6.64	6.33	8.1	6.5	6.2	
Critical Hdwy Stg 1	-	-	-	-	-	-	6.22	5.64	-	7.1	5.5	-	
Critical Hdwy Stg 2	-	-	-	-	-	-	6.22	5.64	-	7.1	5.5	-	
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.608	4.126	3.417	4.4	4	3.3	
Pot Cap-1 Maneuver	1426	-	-	1336	-	-	536	511	797	409	517	888	
Stage 1	-	-	-	-	-	-	745	688	-	646	760	-	
Stage 2	-	-	-	-	-	-	807	731	-	585	694	-	
Platoon blocked, %		-	-		-	-							
Mov Cap-1 Maneuver	1415	-	-	1328	-	-	518	497	791	389	503	880	
Mov Cap-2 Maneuver	-	-	-	-	-	-	518	497	-	389	503	-	
Stage 1	-	-	-	-	-	-	734	678	-	635	750	-	
Stage 2	-	-	-	-	-	-	790	721	-	562	684	-	
Approach	EB			WB			NB			SB			

Approach	EB	VVB	NB	SB	
HCM Control Delay, s	0.3	0.3	12.4	10.7	
HCM LOS			В	В	

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	561	1415	-	-	1328	-	-	640
HCM Lane V/C Ratio	0.13	0.008	-	-	0.004	-	-	0.018
HCM Control Delay (s)	12.4	7.6	0	-	7.7	0	-	10.7
HCM Lane LOS	В	А	А	-	А	А	-	В
HCM 95th %tile Q(veh)	0.4	0	-	-	0	-	-	0.1

01/07/2021

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	۲	4		ሻሻ	•	1	۲.	^	1	ኘ	At≱	
Traffic Volume (veh/h)	5	70	40	325	60	95	65	780	115	135	1035	20
Future Volume (veh/h)	5	70	40	325	60	95	65	780	115	135	1035	20
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1750	1736	1682	1736	1750	1695	1695	1682	1695	1736	1695	1750
Adj Flow Rate, veh/h	5	77	44	357	66	104	71	857	126	148	1137	22
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	0	1	5	1	0	4	4	5	4	1	4	0
Cap, veh/h	160	100	57	456	249	204	89	1513	680	180	1706	33
Arrive On Green	0.10	0.10	0.10	0.14	0.14	0.14	0.05	0.47	0.47	0.11	0.53	0.51
Sat Flow, veh/h	1667	1037	593	3208	1750	1437	1615	3195	1437	1654	3232	63
Grp Volume(v), veh/h	5	0	121	357	66	104	71	857	126	148	566	593
Grp Sat Flow(s),veh/h/ln	1667	0	1630	1604	1750	1437	1615	1598	1437	1654	1611	1684
Q Serve(g_s), s	0.2	0.0	6.5	9.6	3.0	6.0	3.9	17.2	4.5	7.8	22.9	22.9
Cycle Q Clear(g_c), s	0.2	0.0	6.5	9.6	3.0	6.0	3.9	17.2	4.5	7.8	22.9	22.9
Prop In Lane	1.00		0.36	1.00		1.00	1.00		1.00	1.00		0.04
Lane Grp Cap(c), veh/h	160	0	157	456	249	204	89	1513	680	180	850	889
V/C Ratio(X)	0.03	0.00	0.77	0.78	0.27	0.51	0.80	0.57	0.19	0.82	0.67	0.67
Avail Cap(c_a), veh/h	616	0	602	790	431	354	199	1981	891	407	1197	1252
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	36.6	0.0	39.4	37.0	34.2	35.4	41.7	16.9	13.6	39.0	15.4	15.4
Incr Delay (d2), s/veh	0.0	0.0	4.9	1.8	0.3	1.2	9.8	0.9	0.4	5.6	2.5	2.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.0	2.8	3.9	1.3	2.2	1.7	5.8	1.4	3.3	7.7	8.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	36.7	0.0	44.3	38.8	34.5	36.6	51.5	17.8	13.9	44.6	17.9	17.8
LnGrp LOS	D	A	D	D	С	D	D	В	В	D	В	B
Approach Vol, veh/h		126			527			1054			1307	
Approach Delay, s/veh		44.0			37.8			19.6			20.8	
Approach LOS		D			D			В			С	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	8.9	51.2		12.6	13.7	46.3		16.7				
Change Period (Y+Rc), s	4.0	* 5.4		4.0	4.0	* 5.4		4.0				
Max Green Setting (Gmax), s	11.0	* 65		33.0	22.0	* 54		22.0				
Max Q Clear Time (g_c+l1), s	5.9	24.9		8.5	9.8	19.2		11.6				
Green Ext Time (p_c), s	0.0	20.8		0.5	0.2	15.5		1.1				
Intersection Summary												
HCM 6th Ctrl Delay			24.4									
HCM 6th LOS			С									

Notes

Intersection Int Delay, s/veh 3.6 EBL EBT EBR WBL WBT WBR NBL NBT NBR SBL SBT SBR Movement **4** 255 **♣** 0 **4** 10 Lane Configurations 4 235 Traffic Vol, veh/h 0 25 0 95 10 0 10 70 Future Vol, veh/h 0 255 70 25 235 0 95 0 10 0 10 10 0 0 Conflicting Peds, #/hr 0 0 0 0 0 0 0 0 0 0 Stop Stop Stop Sign Control Free Free Free Free Free Stop Stop Stop Free RT Channelized None -None None None ---_ _ --Storage Length --_ _ ---_ --_ -Veh in Median Storage, # -0 -0 0 _ 0 -----Grade, % 0 0 0 0 --------87 Peak Hour Factor 87 87 87 87 87 87 87 87 87 87 87 Heavy Vehicles, % 0 0 0 0 0 0 2 0 0 0 0 0 Mvmt Flow 0 293 80 29 270 0 109 0 11 0 11 11

Major/Minor	Major1		Ν	lajor2		l	Minor1		Ν	1inor2			
Conflicting Flow All	270	0	0	373	0	0	672	661	333	667	701	270	
Stage 1	-	-	-	-	-	-	333	333	-	328	328	-	
Stage 2	-	-	-	-	-	-	339	328	-	339	373	-	
Critical Hdwy	4.1	-	-	4.1	-	-	7.12	6.5	6.2	7.1	6.5	6.2	
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.5	-	6.1	5.5	-	
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.5	-	6.1	5.5	-	
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.518	4	3.3	3.5	4	3.3	
Pot Cap-1 Maneuver	1305	-	-	1197	-	-	370	385	713	375	365	774	
Stage 1	-	-	-	-	-	-	681	647	-	689	651	-	
Stage 2	-	-	-	-	-	-	676	651	-	680	622	-	
Platoon blocked, %		-	-		-	-							
Mov Cap-1 Maneuver	1305	-	-	1197	-	-	348	374	713	361	354	774	
Mov Cap-2 Maneuver	-	-	-	-	-	-	348	374	-	361	354	-	
Stage 1	-	-	-	-	-	-	681	647	-	689	632	-	
Stage 2	-	-	-	-	-	-	635	632	-	669	622	-	

Approach	EB	WB	NB	SB	
HCM Control Delay, s	0	0.8	19.6	12.8	
HCM LOS			С	В	

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	366	1305	-	-	1197	-	-	486
HCM Lane V/C Ratio	0.33	-	-	-	0.024	-	-	0.047
HCM Control Delay (s)	19.6	0	-	-	8.1	0	-	12.8
HCM Lane LOS	С	А	-	-	А	А	-	В
HCM 95th %tile Q(veh)	1.4	0	-	-	0.1	-	-	0.1

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	ľ	¢Î		ሻሻ	•	1	۲	† †	1	۲	A1⊅	
Traffic Volume (veh/h)	13	26	59	175	13	65	28	767	184	103	569	6
Future Volume (veh/h)	13	26	59	175	13	65	28	767	184	103	569	6
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1750	1750	1723	1682	1750	1504	1695	1641	1709	1614	1627	1750
Adj Flow Rate, veh/h	14	29	66	194	14	72	31	852	204	114	632	7
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	0	0	2	5	0	18	4	8	3	10	9	0
Cap, veh/h	144	41	93	292	164	119	42	1571	729	141	1784	20
Arrive On Green	0.09	0.09	0.09	0.09	0.09	0.09	0.03	0.50	0.50	0.09	0.57	0.55
Sat Flow, veh/h	1667	474	1078	3107	1750	1271	1615	3118	1447	1537	3132	35
Grp Volume(v), veh/h	14	0	95	194	14	72	31	852	204	114	312	327
Grp Sat Flow(s),veh/h/ln	1667	0	1552	1554	1750	1271	1615	1559	1447	1537	1546	1621
Q Serve(g_s), s	0.6	0.0	4.3	4.3	0.5	3.9	1.4	13.3	5.8	5.2	7.8	7.8
Cycle Q Clear(g_c), s	0.6	0.0	4.3	4.3	0.5	3.9	1.4	13.3	5.8	5.2	7.8	7.8
Prop In Lane	1.00		0.69	1.00		1.00	1.00		1.00	1.00		0.02
Lane Grp Cap(c), veh/h	144	0	134	292	164	119	42	1571	729	141	881	924
V/C Ratio(X)	0.10	0.00	0.71	0.66	0.09	0.60	0.75	0.54	0.28	0.81	0.35	0.35
Avail Cap(c_a), veh/h	793	0	738	609	343	249	203	2897	1344	387	1631	1710
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	30.1	0.0	31.7	31.3	29.6	31.1	34.6	12.1	10.2	31.8	8.3	8.3
Incr Delay (d2), s/veh	0.2	0.0	4.1	1.6	0.1	3.0	14.9	0.8	0.6	6.6	0.7	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.0	1.7	1.6	0.2	1.3	0.7	3.9	1.6	2.0	2.1	2.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	30.2	0.0	35.9	32.9	29.7	34.1	49.5	12.9	10.8	38.5	9.0	8.9
LnGrp LOS	С	Α	D	С	С	С	D	В	В	D	Α	<u> </u>
Approach Vol, veh/h		109			280			1087			753	
Approach Delay, s/veh		35.1			33.0			13.6			13.4	
Approach LOS		D			С			В			В	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	5.8	44.7		10.2	10.6	40.0		10.7				
Change Period (Y+Rc), s	4.0	* 5.4		4.0	4.0	* 5.4		4.0				
Max Green Setting (Gmax), s	9.0	* 74		34.0	18.0	* 65		14.0				
Max Q Clear Time (g_c+I1), s	3.4	9.8		6.3	7.2	15.3		6.3				
Green Ext Time (p_c), s	0.0	10.3		0.4	0.1	19.1		0.4				
Intersection Summary												
HCM 6th Ctrl Delay			17.0									
HCM 6th LOS			В									

Notes

Intersection													
Int Delay, s/veh	2.4												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		÷			\$			\$			\$		
Traffic Vol, veh/h	10	171	52	5	136	10	48	5	16	0	5	5	
Future Vol, veh/h	10	171	52	5	136	10	48	5	16	0	5	5	
Conflicting Peds, #/hr	8	0	6	6	0	8	2	0	2	2	0	2	
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop	
RT Channelized	-	-	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, %	0	2	13	0	4	33	12	14	13	100	0	0	
Mvmt Flow	11	192	58	6	153	11	54	6	18	0	6	6	

Major/Minor	Major1		N	lajor2			Vinor1		Ν	/linor2			
Conflicting Flow All	172	0	0	256	0	0	428	433	229	436	457	169	
Stage 1	-	-	-	-	-	-	249	249	-	179	179	-	
Stage 2	-	-	-	-	-	-	179	184	-	257	278	-	
Critical Hdwy	4.1	-	-	4.1	-	-	7.22	6.64	6.33	8.1	6.5	6.2	
Critical Hdwy Stg 1	-	-	-	-	-	-	6.22	5.64	-	7.1	5.5	-	
Critical Hdwy Stg 2	-	-	-	-	-	-	6.22	5.64	-	7.1	5.5	-	
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.608	4.126	3.417	4.4	4	3.3	
Pot Cap-1 Maneuver	1417	-	-	1321	-	-	520	498	784	396	503	880	
Stage 1	-	-	-	-	-	-	733	679	-	640	755	-	
Stage 2	-	-	-	-	-	-	800	725	-	574	684	-	
Platoon blocked, %		-	-		-	-							
Mov Cap-1 Maneuver	1406	-	-	1313	-	-	503	484	778	376	489	872	
Mov Cap-2 Maneuver	-	-	-	-	-	-	503	484	-	376	489	-	
Stage 1	-	-	-	-	-	-	722	669	-	629	745	-	
Stage 2	-	-	-	-	-	-	783	716	-	550	674	-	

Approach	EB	WB	NB	SB	
HCM Control Delay, s	0.3	0.3	12.7	10.8	
HCM LOS			В	В	

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	546	1406	-	-	1313	-	-	627
HCM Lane V/C Ratio	0.142	0.008	-	-	0.004	-	-	0.018
HCM Control Delay (s)	12.7	7.6	0	-	7.8	0	-	10.8
HCM Lane LOS	В	А	А	-	А	А	-	В
HCM 95th %tile Q(veh)	0.5	0	-	-	0	-	-	0.1

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	ľ	¢Î		ሻሻ	•	1	۲	† †	1	۲	A	
Traffic Volume (veh/h)	7	76	47	426	71	141	75	800	166	152	1063	24
Future Volume (veh/h)	7	76	47	426	71	141	75	800	166	152	1063	24
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1750	1736	1682	1736	1750	1695	1695	1682	1695	1736	1695	1750
Adj Flow Rate, veh/h	8	84	52	468	78	155	82	879	182	167	1168	26
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	0	1	5	1	0	4	4	5	4	1	4	0
Cap, veh/h	175	105	65	550	300	246	102	1436	646	197	1628	36
Arrive On Green	0.11	0.11	0.11	0.17	0.17	0.17	0.06	0.45	0.45	0.12	0.51	0.49
Sat Flow, veh/h	1667	1003	621	3208	1750	1437	1615	3195	1437	1654	3221	72
Grp Volume(v), veh/h	8	0	136	468	78	155	82	879	182	167	584	610
Grp Sat Flow(s),veh/h/ln	1667	0	1625	1604	1750	1437	1615	1598	1437	1654	1611	1682
Q Serve(g_s), s	0.4	0.0	8.4	14.6	4.0	10.3	5.2	21.6	8.2	10.2	29.0	29.0
Cycle Q Clear(g_c), s	0.4	0.0	8.4	14.6	4.0	10.3	5.2	21.6	8.2	10.2	29.0	29.0
Prop In Lane	1.00		0.38	1.00		1.00	1.00		1.00	1.00		0.04
Lane Grp Cap(c), veh/h	175	0	171	550	300	246	102	1436	646	197	814	850
V/C Ratio(X)	0.05	0.00	0.80	0.85	0.26	0.63	0.80	0.61	0.28	0.85	0.72	0.72
Avail Cap(c_a), veh/h	533	0	520	684	373	306	172	1716	772	353	1037	1083
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	41.5	0.0	45.1	41.5	37.1	39.7	47.7	21.6	17.9	44.5	19.8	19.8
Incr Delay (d2), s/veh	0.1	0.0	5.2	7.6	0.3	1.7	8.7	1.2	0.7	6.2	3.5	3.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.0	3.7	6.4	1.7	3.8	2.3	7.6	2.7	4.4	10.5	11.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	41.6	0.0	50.3	49.0	37.3	41.4	56.4	22.8	18.6	50.7	23.3	23.2
LnGrp LOS	D	Α	D	D	D	D	E	С	В	D	С	<u> </u>
Approach Vol, veh/h		144			701			1143			1361	
Approach Delay, s/veh		49.8			46.0			24.5			26.6	
Approach LOS		D			D			С			С	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	10.5	56.1		14.8	16.3	50.3		21.7				
Change Period (Y+Rc), s	4.0	* 5.4		4.0	4.0	* 5.4		4.0				
Max Green Setting (Gmax), s	11.0	* 65		33.0	22.0	* 54		22.0				
Max Q Clear Time (g_c+I1), s	7.2	31.0		10.4	12.2	23.6		16.6				
Green Ext Time (p_c), s	0.0	19.7		0.6	0.2	15.5		1.1				
Intersection Summary												
HCM 6th Ctrl Delay			31.0									
HCM 6th LOS			С									

Notes

3.7

Intersection

Int Delay, s/veh

											<u> </u>	
Movement	EBL	EBT	EBR	WBL	WBI	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		- 44			- 44			- 44			- 44	
Traffic Vol, veh/h	0	266	73	27	249	0	98	0	10	0	10	10
Future Vol, veh/h	0	266	73	27	249	0	98	0	10	0	10	10
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, #	4 -	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	87	87	87	87	87	87	87	87	87	87	87	87
Heavy Vehicles, %	0	0	0	0	0	0	2	0	0	0	0	0
Mvmt Flow	0	306	84	31	286	0	113	0	11	0	11	11

Major/Minor	Major1		Ν	1ajor2		l	Minor1		Ν	/linor2			
Conflicting Flow All	286	0	0	390	0	0	707	696	348	702	738	286	
Stage 1	-	-	-	-	-	-	348	348	-	348	348	-	
Stage 2	-	-	-	-	-	-	359	348	-	354	390	-	
Critical Hdwy	4.1	-	-	4.1	-	-	7.12	6.5	6.2	7.1	6.5	6.2	
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.5	-	6.1	5.5	-	
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.5	-	6.1	5.5	-	
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.518	4	3.3	3.5	4	3.3	
Pot Cap-1 Maneuver	1288	-	-	1180	-	-	350	368	700	355	348	758	
Stage 1	-	-	-	-	-	-	668	638	-	672	638	-	
Stage 2	-	-	-	-	-	-	659	638	-	667	611	-	
Platoon blocked, %		-	-		-	-							
Mov Cap-1 Maneuver	1288	-	-	1180	-	-	328	357	700	341	337	758	
Mov Cap-2 Maneuver	-	-	-	-	-	-	328	357	-	341	337	-	
Stage 1	-	-	-	-	-	-	668	638	-	672	618	-	
Stage 2	-	-	-	-	-	-	617	618	-	656	611	-	

Approach	EB	WB	NB	SB	
HCM Control Delay, s	0	0.8	21.2	13.1	
HCM LOS			С	В	

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	345	1288	-	-	1180	-	-	467
HCM Lane V/C Ratio	0.36	-	-	-	0.026	-	-	0.049
HCM Control Delay (s)	21.2	0	-	-	8.1	0	-	13.1
HCM Lane LOS	С	А	-	-	Α	А	-	В
HCM 95th %tile Q(veh)	1.6	0	-	-	0.1	-	-	0.2

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	۲	ţ,		ሻሻ	•	1	ሻ	^	1	۲	4 12	
Traffic Volume (veh/h)	18	29	71	175	14	65	32	767	184	103	569	8
Future Volume (veh/h)	18	29	71	175	14	65	32	767	184	103	569	8
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1750	1750	1723	1682	1750	1504	1695	1641	1709	1614	1627	1750
Adj Flow Rate, veh/h	20	32	79	194	16	72	36	852	204	114	632	9
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	0	0	2	5	0	18	4	8	3	10	9	0
Cap, veh/h	167	45	111	290	163	118	46	1549	719	141	1748	25
Arrive On Green	0.10	0.10	0.10	0.09	0.09	0.09	0.03	0.50	0.50	0.09	0.56	0.54
Sat Flow, veh/h	1667	446	1102	3107	1750	1271	1615	3118	1447	1537	3120	44
Grp Volume(v), veh/h	20	0	111	194	16	72	36	852	204	114	313	328
Grp Sat Flow(s),veh/h/ln	1667	0	1548	1554	1750	1271	1615	1559	1447	1537	1546	1619
Q Serve(g_s), s	0.8	0.0	5.1	4.4	0.6	4.0	1.6	13.9	6.1	5.3	8.2	8.2
Cycle Q Clear(g_c), s	0.8	0.0	5.1	4.4	0.6	4.0	1.6	13.9	6.1	5.3	8.2	8.2
Prop In Lane	1.00		0.71	1.00		1.00	1.00		1.00	1.00		0.03
Lane Grp Cap(c), veh/h	167	0	155	290	163	118	46	1549	719	141	866	907
V/C Ratio(X)	0.12	0.00	0.71	0.67	0.10	0.61	0.79	0.55	0.28	0.81	0.36	0.36
Avail Cap(c_a), veh/h	772	0	717	593	334	242	198	2820	1309	377	1588	1663
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	30.1	0.0	32.0	32.2	30.5	32.0	35.4	12.8	10.8	32.7	8.9	8.9
Incr Delay (d2), s/veh	0.2	0.0	3.7	1.6	0.2	3.1	16.4	0.8	0.6	6.7	0.7	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.0	2.0	1.7	0.3	1.3	0.8	4.1	1.7	2.1	2.3	2.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	30.3	0.0	35.7	33.8	30.6	35.1	51.8	13.6	11.4	39.4	9.6	9.6
LnGrp LOS	С	А	D	С	С	D	D	В	В	D	А	Α
Approach Vol, veh/h		131			282			1092			755	
Approach Delay, s/veh		34.9			34.0			14.5			14.1	
Approach LOS		С			С			В			В	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.1	45.1		11.4	10.7	40.5		10.8				
Change Period (Y+Rc), s	4.0	* 5.4		4.0	4.0	* 5.4		4.0				
Max Green Setting (Gmax), s	9.0	* 74		34.0	18.0	* 65		14.0				
Max Q Clear Time (g_c+I1), s	3.6	10.2		7.1	7.3	15.9		6.4				
Green Ext Time (p_c), s	0.0	10.4		0.5	0.1	19.1		0.4				
Intersection Summary												
HCM 6th Ctrl Delay			18.0									
HCM 6th LOS			В									

Notes

Intersection Int Delay, s/veh 2.4 EBL EBT EBR WBL WBT WBR NBL NBT NBR SBL SBT SBR Movement **4** 171 **4** 136 **♣** 5 **♣** 5 Lane Configurations Traffic Vol, veh/h 10 52 10 48 19 0 5 6 Future Vol, veh/h 10 171 52 6 136 10 48 5 19 0 5 5 Conflicting Peds, #/hr 2 8 0 6 6 0 0 2 2 0 2 8 Sign Control Stop Stop Stop Stop Free Free Free Free Free Free 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, % 0 2 13 0 4 33 12 14 13 100 0 0 Mvmt Flow 11 192 58 7 153 11 54 6 21 0 6 6

Major/Minor	Major1		N	Major2		I	Vinor1		N	/linor2			
Conflicting Flow All	172	0	0	256	0	0	430	435	229	440	459	169	
Stage 1	-	-	-	-	-	-	249	249	-	181	181	-	
Stage 2	-	-	-	-	-	-	181	186	-	259	278	-	
Critical Hdwy	4.1	-	-	4.1	-	-	7.22	6.64	6.33	8.1	6.5	6.2	
Critical Hdwy Stg 1	-	-	-	-	-	-	6.22	5.64	-	7.1	5.5	-	
Critical Hdwy Stg 2	-	-	-	-	-	-	6.22	5.64	-	7.1	5.5	-	
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.608	4.126	3.417	4.4	4	3.3	
Pot Cap-1 Maneuver	1417	-	-	1321	-	-	518	497	784	393	502	880	
Stage 1	-	-	-	-	-	-	733	679	-	638	754	-	
Stage 2	-	-	-	-	-	-	798	724	-	573	684	-	
Platoon blocked, %		-	-		-	-							
Mov Cap-1 Maneuver	1406	-	-	1313	-	-	500	483	778	371	487	872	
Mov Cap-2 Maneuver	-	-	-	-	-	-	500	483	-	371	487	-	
Stage 1	-	-	-	-	-	-	722	669	-	627	743	-	
Stage 2	-	-	-	-	-	-	781	714	-	547	674	-	
Approach	EB			WB			NB			SB			
HCM Control Delay, s	0.3			0.3			12.7			10.9			
HCM LOS							В			В			
Minor Lane/Major Mvm	nt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)		551	1406	-	_	1313	-	-	625				
HCM Lane V/C Ratio		0.147	0.008	-	-	0.005	-	-	0.018				
HCM Control Delay (s)		12.7	7.6	0	-	7.8	0	-	10.9				

ICM Lane LOS B A - A - B ICM 95th %tile Q(veh) 0.5 0 - 0 - 0.1	HCM Control Delay (s)	12.7	7.6	0	-	7.8	0	-	10.9
ICM 95th %tile Q(veh) 0.5 0 0 0.1	HCM Lane LOS	В	А	А	-	А	А	-	В
	HCM 95th %tile Q(veh)	0.5	0	-	-	0	-	-	0.1

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	7	¢Î,		ሻሻ	•	1	٦	^	1	٦	A	
Traffic Volume (veh/h)	10	79	55	426	75	141	88	800	166	152	1063	29
Future Volume (veh/h)	10	79	55	426	75	141	88	800	166	152	1063	29
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1750	1736	1682	1736	1750	1695	1695	1682	1695	1736	1695	1750
Adj Flow Rate, veh/h	11	87	60	468	82	155	97	879	182	167	1168	32
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	0	1	5	1	0	4	4	5	4	1	4	0
Cap, veh/h	187	107	74	544	297	244	119	1444	649	196	1590	44
Arrive On Green	0.11	0.11	0.11	0.17	0.17	0.17	0.07	0.45	0.45	0.12	0.50	0.48
Sat Flow, veh/h	1667	957	660	3208	1750	1437	1615	3195	1437	1654	3203	88
Grp Volume(v), veh/h	11	0	147	468	82	155	97	879	182	167	587	613
Grp Sat Flow(s),veh/h/ln	1667	0	1618	1604	1750	1437	1615	1598	1437	1654	1611	1680
Q Serve(g s), s	0.6	0.0	9.6	15.3	4.4	10.8	6.4	22.5	8.6	10.7	31.2	31.3
Cycle Q Clear(g c), s	0.6	0.0	9.6	15.3	4.4	10.8	6.4	22.5	8.6	10.7	31.2	31.3
Prop In Lane	1.00		0.41	1.00		1.00	1.00		1.00	1.00		0.05
Lane Grp Cap(c), veh/h	187	0	181	544	297	244	119	1444	649	196	800	834
V/C Ratio(X)	0.06	0.00	0.81	0.86	0.28	0.64	0.81	0.61	0.28	0.85	0.73	0.73
Avail Cap(c_a), veh/h	509	0	494	653	356	293	164	1639	737	337	990	1032
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	42.9	0.0	46.8	43.6	39.1	41.8	49.3	22.4	18.6	46.7	21.5	21.6
Incr Delay (d2), s/veh	0.1	0.0	5.3	9.0	0.3	2.3	16.1	1.2	0.6	6.4	4.0	3.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.0	4.1	6.8	1.9	4.0	3.0	8.1	2.8	4.6	11.6	12.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	42.9	0.0	52.1	52.6	39.4	44.1	65.4	23.6	19.2	53.1	25.6	25.5
LnGrp LOS	D	А	D	D	D	D	Е	С	В	D	С	С
Approach Vol, veh/h		158			705			1158			1367	
Approach Delay, s/veh		51.5			49.2			26.4			28.9	
Approach LOS		D			D			С			С	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	12.0	57.6		16.1	16.8	52.8		22.3				
Change Period (Y+Rc), s	4.0	* 5.4		4.0	4.0	* 5.4		4.0				
Max Green Setting (Gmax), s	11.0	* 65		33.0	22.0	* 54		22.0				
Max Q Clear Time (g_c+I1), s	8.4	33.3		11.6	12.7	24.5		17.3				
Green Ext Time (p_c), s	0.0	19.0		0.6	0.2	15.2		1.0				
Intersection Summary												
HCM 6th Ctrl Delay			33.3									
HCM 6th LOS			C.									
			0									

Notes

3.9

Intersection

Int Delay, s/veh

		FRT			WDT		NIDI	NDT		0.51	0.D.T	000
Movement	EBL	EBT	EBR	WBL	WBI	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		- 44			- 44			- 44			- 44	
Traffic Vol, veh/h	0	266	73	31	249	0	98	0	12	0	10	10
Future Vol, veh/h	0	266	73	31	249	0	98	0	12	0	10	10
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	87	87	87	87	87	87	87	87	87	87	87	87
Heavy Vehicles, %	0	0	0	0	0	0	2	0	0	0	0	0
Mvmt Flow	0	306	84	36	286	0	113	0	14	0	11	11

Major/Minor	Major1	Major2				l	Minor1		Ν	/linor2			
Conflicting Flow All	286	0	0	390	0	0	717	706	348	713	748	286	
Stage 1	-	-	-	-	-	-	348	348	-	358	358	-	
Stage 2	-	-	-	-	-	-	369	358	-	355	390	-	
Critical Hdwy	4.1	-	-	4.1	-	-	7.12	6.5	6.2	7.1	6.5	6.2	
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.5	-	6.1	5.5	-	
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.5	-	6.1	5.5	-	
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.518	4	3.3	3.5	4	3.3	
Pot Cap-1 Maneuver	1288	-	- 1	180	-	-	345	363	700	349	343	758	
Stage 1	-	-	-	-	-	-	668	638	-	664	631	-	
Stage 2	-	-	-	-	-	-	651	631	-	666	611	-	
Platoon blocked, %		-	-		-	-							
Mov Cap-1 Maneuver	1288	-	- 1	180	-	-	322	350	700	333	331	758	
Mov Cap-2 Maneuver	-	-	-	-	-	-	322	350	-	333	331	-	
Stage 1	-	-	-	-	-	-	668	638	-	664	608	-	
Stage 2	-	-	-	-	-	-	606	608	-	653	611	-	
Approach	EB			WB			NB			SB			
HCM Control Delay, s	0			0.9			21.6			13.2			
HCM LOS							С			В			

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR S	SBLn1
Capacity (veh/h)	342	1288	-	-	1180	-	-	461
HCM Lane V/C Ratio	0.37	-	-	-	0.03	-	-	0.05
HCM Control Delay (s)	21.6	0	-	-	8.1	0	-	13.2
HCM Lane LOS	С	А	-	-	А	А	-	В
HCM 95th %tile Q(veh)	1.7	0	-	-	0.1	-	-	0.2

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	۳.	4Î		ሻሻ	↑	1	ሻ	^	1	٦	≜ ⊅	
Traffic Volume (veh/h)	18	29	71	175	14	65	32	773	184	103	571	8
Future Volume (veh/h)	18	29	71	175	14	65	32	773	184	103	571	8
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1750	1750	1723	1682	1750	1504	1695	1641	1709	1614	1627	1750
Adj Flow Rate, veh/h	20	32	79	194	16	72	36	859	204	114	634	9
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	0	0	2	5	0	18	4	8	3	10	9	0
Cap, veh/h	167	45	110	289	163	118	46	1554	/21	141	1/53	25
Arrive On Green	0.10	0.10	0.10	0.09	0.09	0.09	0.03	0.50	0.50	0.09	0.56	0.54
Sat Flow, veh/h	1667	446	1102	3107	1/50	1271	1615	3118	1447	1537	3121	44
Grp Volume(v), veh/h	20	0	111	194	16	72	36	859	204	114	314	329
Grp Sat Flow(s),veh/h/ln	1667	0	1548	1554	1750	1271	1615	1559	1447	1537	1546	1619
Q Serve(g_s), s	0.8	0.0	5.1	4.5	0.6	4.0	1.6	14.1	6.1	5.4	8.2	8.3
Cycle Q Clear(g_c), s	0.8	0.0	5.1	4.5	0.6	4.0	1.6	14.1	6.1	5.4	8.2	8.3
Prop In Lane	1.00	•	0.71	1.00	400	1.00	1.00		1.00	1.00		0.03
Lane Grp Cap(c), veh/h	167	0	155	289	163	118	46	1554	/21	141	868	910
	0.12	0.00	0.72	0.67	0.10	0.61	0.79	0.55	0.28	0.81	0.36	0.36
Avail Cap(c_a), veh/h	/6/	0	/12	589	332	241	197	2802	1301	3/4	15/8	1653
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/ven	30.3	0.0	32.2	32.4	30.7	32.2	35.7	12.8	10.8	32.9	8.9	8.9
Incr Delay (d2), s/ven	0.2	0.0	3.7	1.7	0.2	3.1	16.5	0.9	0.0	0.7	0.7	0.7
Initial Q Delay(03),s/ven	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOrQ(50%),ven/in	0.3	0.0	2.0	1.7	0.3	1.3	0.8	4.Z	1.7	Z. I	2.3	Z.4
Unsig. Movement Delay, s/ven	20 E	0.0	25.0	2/1	20.0	25.2	ED 0	10 7	11 /	20.6	0.6	0.6
	30.5	0.0	ა <u>ე</u> .9	34.1	30.0 C	ა <u>ე</u> .ა	52.2 D	וט. <i>ו</i> ס	П.4 В	39.0 D	9.0	9.0
	<u> </u>	404	U	0		U	U	1000	D	D	757	A
Approach Vol, ven/n		101 25-1			202			1099			101	
Approach LOS		30.1 D			34.Z			14.3 D			14.1 D	
Approach LOS		U			U			D			D	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.1	45.5		11.4	10.8	40.8		10.9				
Change Period (Y+Rc), s	4.0	* 5.4		4.0	4.0	* 5.4		4.0				
Max Green Setting (Gmax), s	9.0	* 74		34.0	18.0	* 65		14.0				
Max Q Clear Time (g_c+I1), s	3.6	10.3		7.1	7.4	16.1		6.5				
Green Ext Time (p_c), s	0.0	10.4		0.5	0.1	19.2		0.4				
Intersection Summary												
HCM 6th Ctrl Delay			18.0									
HCM 6th LOS			В									

Notes

Intersection Int Delay, s/veh 2.4 EBL EBT EBR WBL WBT WBR NBL NBT NBR SBL SBT SBR Movement **4** 179 **4** 139 **♣** 5 **♣** 5 Lane Configurations Traffic Vol, veh/h 52 48 19 0 5 10 6 10 Future Vol, veh/h 10 179 52 6 139 10 48 5 19 0 5 5 2 Conflicting Peds, #/hr 8 6 0 2 2 0 2 0 6 0 8 Sign Control Stop Stop Free Free Free Free Free Stop Stop Stop Stop Free RT Channelized -None -None None None --_ _ --Storage Length --_ _ ---_ _ -_ _ Veh in Median Storage, # -0 -0 _ 0 -0 ----Grade, % 0 0 0 0 --------89 Peak Hour Factor 89 89 89 89 89 89 89 89 89 89 89 Heavy Vehicles, % 0 2 13 0 4 33 12 14 13 100 0 0 Mvmt Flow 11 201 58 7 156 11 54 6 21 0 6 6

Major/Minor	Major1		1	Major2	r2 Minor1			Ν	/linor2				
Conflicting Flow All	175	0	0	265	0	0	442	447	238	452	471	172	
Stage 1	-	-	-	-	-	-	258	258	-	184	184	-	
Stage 2	-	-	-	-	-	-	184	189	-	268	287	-	
Critical Hdwy	4.1	-	-	4.1	-	-	7.22	6.64	6.33	8.1	6.5	6.2	
Critical Hdwy Stg 1	-	-	-	-	-	-	6.22	5.64	-	7.1	5.5	-	
Critical Hdwy Stg 2	-	-	-	-	-	-	6.22	5.64	-	7.1	5.5	-	
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.608	4.126	3.417	4.4	4	3.3	
Pot Cap-1 Maneuver	1414	-	-	1311	-	-	509	489	775	385	494	877	
Stage 1	-	-	-	-	-	-	725	673	-	636	751	-	
Stage 2	-	-	-	-	-	-	795	722	-	566	678	-	
Platoon blocked, %		-	-		-	-							
Mov Cap-1 Maneuver	1403	-	-	1304	-	-	492	475	769	363	480	869	
Mov Cap-2 Maneuver	-	-	-	-	-	-	492	475	-	363	480	-	
Stage 1	-	-	-	-	-	-	714	663	-	625	740	-	
Stage 2	-	-	-	-	-	-	778	712	-	540	668	-	
Annroach	FR			WR			NB			SB			
HCM Control Delay s	03			03			12.8			10.9			
HCM LOS	0.0			0.0			12.0 R			10.5 R			
							D			D			
Minor Lane/Major Mvm	nt l	VBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)		542	1403	-	-	1304	-	-	618				
HCM Lane V/C Ratio		0.149	0.008	-	-	0.005	-	-	0.018				
HCM Control Delay (s)		12.8	7.6	0	-	7.8	0	-	10.9				
HCM Lane LOS		В	Α	Α	-	Α	Α	-	В				

0

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HCM 95th %tile Q(veh)

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	7	¢Î		ሻሻ	•	1	۲	<u>†</u> †	1	۲	A12	
Traffic Volume (veh/h)	10	79	55	426	75	141	88	804	166	152	1070	29
Future Volume (veh/h)	10	79	55	426	75	141	88	804	166	152	1070	29
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adi Sat Flow, veh/h/ln	1750	1736	1682	1736	1750	1695	1695	1682	1695	1736	1695	1750
Adi Flow Rate, veh/h	11	87	60	468	82	155	97	884	182	167	1176	32
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh. %	0	1	5	1	0	4	4	5	4	1	4	0
Cap. veh/h	187	107	74	543	296	243	119	1448	651	196	1594	43
Arrive On Green	0.11	0.11	0.11	0.17	0.17	0.17	0.07	0.45	0.45	0.12	0.50	0.48
Sat Flow, veh/h	1667	957	660	3208	1750	1437	1615	3195	1437	1654	3203	87
Grp Volume(v), veh/h	11	0	147	468	82	155	97	884	182	167	591	617
Grp Sat Flow(s).veh/h/ln	1667	0	1618	1604	1750	1437	1615	1598	1437	1654	1611	1680
Q Serve(q s), s	0.6	0.0	9.6	15.4	4.4	10.9	6.4	22.7	8.6	10.8	31.6	31.7
Cycle Q Clear(g_c), s	0.6	0.0	9.6	15.4	4.4	10.9	6.4	22.7	8.6	10.8	31.6	31.7
Prop In Lane	1.00		0.41	1.00		1.00	1.00		1.00	1.00	• · · •	0.05
Lane Grp Cap(c), veh/h	187	0	181	543	296	243	119	1448	651	196	801	836
V/C Ratio(X)	0.06	0.00	0.81	0.86	0.28	0.64	0.82	0.61	0.28	0.85	0.74	0.74
Avail Cap(c a), veh/h	507	0	492	650	355	291	164	1630	733	335	985	1027
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	43.1	0.0	47.1	43.9	39.3	42.0	49.6	22.5	18.6	47.0	21.6	21.7
Incr Delay (d2), s/veh	0.1	0.0	5.3	9.2	0.3	2.4	16.4	1.2	0.6	6.5	4.1	4.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.0	4.2	6.8	1.9	4.1	3.1	8.2	2.8	4.6	11.8	12.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	43.2	0.0	52.4	53.1	39.6	44.4	65.9	23.7	19.2	53.4	25.8	25.7
LnGrp LOS	D	А	D	D	D	D	Е	С	В	D	С	С
Approach Vol, veh/h		158			705			1163			1375	
Approach Delay, s/veh		51.8			49.6			26.5			29.1	
Approach LOS		D			D			С			С	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	12.0	58.0		16.2	16.8	53.2		22.4				
Change Period (Y+Rc), s	4.0	* 5.4		4.0	4.0	* 5.4		4.0				
Max Green Setting (Gmax), s	11.0	* 65		33.0	22.0	* 54		22.0				
Max Q Clear Time (g_c+I1), s	8.4	33.7		11.6	12.8	24.7		17.4				
Green Ext Time (p_c), s	0.0	19.0		0.6	0.2	15.3		1.0				
Intersection Summary												
HCM 6th Ctrl Delay			33.5									
HCM 6th LOS			С									

Notes

Intersection Int Delay, s/veh 3.9 EBL EBT EBR WBL WBT WBR NBL NBT NBR SBL SBT SBR Movement **4** 10 **4** 272 **4** 258 **♣** 0 Lane Configurations Traffic Vol, veh/h 31 0 98 12 0 10 0 73 Future Vol, veh/h 0 272 73 31 258 0 98 0 12 0 10 10 Conflicting Peds, #/hr 0 0 0 0 0 0 0 0 0 0 0 0 Sign Control Stop Stop Stop Stop Free Free Free Free Free Free 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 87 87 87 87 87 87 87 87 87 87 87 87 Heavy Vehicles, % 0 0 0 0 0 0 2 0 0 0 0 0 Mvmt Flow 0 313 84 36 297 0 113 0 14 0 11 11

Major/Minor	Major1		Ν	Major2		I	Minor1		1	/linor2			
Conflicting Flow All	297	0	0	397	0	0	735	724	355	731	766	297	
Stage 1	-	-	-	-	-	-	355	355	-	369	369	-	
Stage 2	-	-	-	-	-	-	380	369	-	362	397	-	
Critical Hdwy	4.1	-	-	4.1	-	-	7.12	6.5	6.2	7.1	6.5	6.2	
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.5	-	6.1	5.5	-	
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.5	-	6.1	5.5	-	
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.518	4	3.3	3.5	4	3.3	
Pot Cap-1 Maneuver	1276	-	-	1173	-	-	335	354	693	340	335	747	
Stage 1	-	-	-	-	-	-	662	633	-	655	624	-	
Stage 2	-	-	-	-	-	-	642	624	-	661	607	-	
Platoon blocked, %		-	-		-	-							
Mov Cap-1 Maneuver	1276	-	-	1173	-	-	312	341	693	324	323	747	
Mov Cap-2 Maneuver	-	-	-	-	-	-	312	341	-	324	323	-	
Stage 1	-	-	-	-	-	-	662	633	-	655	601	-	
Stage 2	-	-	-	-	-	-	597	601	-	648	607	-	
Approach	EB			WB			NB			SB			
HCM Control Delay, s	0			0.9			22.4			13.4			
HCM LOS							С			В			
Minor Lane/Major Mvm	nt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)		332	1276	-	-	1173	-	-	451				
HCM Lane V/C Ratio		0.381	-	-	-	0.03	-	-	0.051				
HCM Control Delay (s)		22.4	0	-	-	8.2	0	-	13.4				

HCM Control Delay (s)	22.4	0	-	-	8.2	0	-	13.4
HCM Lane LOS	С	А	-	-	А	А	-	В
HCM 95th %tile Q(veh)	1.7	0	-	-	0.1	-	-	0.2

CRASH DATA (2014-2018)

001 Crash ID	003 Crash Year 005 Crash Hour	009 Jurisdiction	021 Collision Type	022 Crash Cause	024 Crash Severity Detail	026 Lighting	030 Traffic Control	007 County	035 Bike or Ped Flag	002 Crash Date 004 Crash Day	020 Crash Type	023 Crash Event	025 Crash Severity Categ	027 Road Surface	028 Weather
1714229	2016 11P	Clackamas County	FIX	DIS SIG	PDO	DLIT	NONE	Clackamas	Neither	12/3/2016	3 FIX OBJ	OTH SIGN	PDO	WET	RAIN
1732859	2017 3P	Clackamas County	REAR	TOO-CLOS	Possible Injury	DAY	TRF SIGNAL	Clackamas	Neither	4/18/2017	18 S-1STOP		INJ	DRY	CLR
1779531	2018 7A	Clackamas County	TURN	PHANTOM	Serious Injury	DARK	TRF SIGNAL	Clackamas	Neither	3/14/2018	14 O-1 L-TURN		INJ	WET	UNK
1602430	2015 3P	Clackamas County	TURN	DIS SIG	Minor Injury	DAY	TRF SIGNAL	Clackamas	Neither	1/29/2015	29 O-1 L-TURN		INJ	DRY	CLR
1629295	2015 2P	Clackamas County	REAR	F AVOID	Possible Injury	DAY	TRF SIGNAL	Clackamas	Neither	12/24/2015	24 S-1STOP	FORCED	INJ	WET	RAIN
1635132	2015 6A	Clackamas County	TURN	DIS SIG	PDO	DAY	TRF SIGNAL	Clackamas	Neither	3/13/2015	13 O-1 L-TURN		PDO	WET	UNK
1674662	2016 1P	Canby	TURN	NO-YIELD	Possible Injury	DAY	STOP SIGN	Clackamas	Neither	7/1/2016	1 ANGL-OTH		INJ	DRY	CLR
1647504	2015 9P	Clackamas County	TURN	IMP-TURN	PDO	DLIT	TRF SIGNAL	Clackamas	Neither	9/17/2015	17 S-1TURN		PDO	DRY	CLR
1668383	2016 10A	Clackamas County	REAR	TOO-CLOS	Possible Injury	DAY	TRF SIGNAL	Clackamas	Neither	5/3/2016	3 S-1STOP		INJ	DRY	CLR
1737881	2017 1P	Clackamas County	ANGL	DIS SIG	Minor Injury	DAY	TRF SIGNAL	Clackamas	Neither	6/30/2017	30 ANGL-OTH		INJ	DRY	CLR
1596760	2014 1P	Clackamas County	REAR	F AVOID	PDO	DAY	TRF SIGNAL	Clackamas	Neither	12/13/2014	13 S-1STOP		PDO	DRY	CLR
1661752	2016 3P	Clackamas County	REAR	F AVOID	Possible Injury	DAY	TRF SIGNAL	Clackamas	Neither	2/26/2016	26 S-1STOP		INJ	WET	RAIN
1686918	2016 10A	Clackamas County	REAR	OTHR-IMP	Possible Injury	DAY	TRF SIGNAL	Clackamas	Neither	12/8/2016	8 S-STRGHT		INJ	WET	RAIN
1624048	2015 5A	Clackamas County	TURN	DIS SIG	Possible Injury	DLIT	TRF SIGNAL	Clackamas	Neither	10/15/2015	15 O-1 L-TURN		INJ	DRY	CLR



Pre-Application Meeting

1758 N Redwood Street April 5, 2017 10:30 am

Attended by:

Todd Gary, Canby Fire, 503-266-5851 Shane Hester, Public Works, 503-266-0698 Darran Gusdorf, Icon Construction, 503-657-0406 Gary Stockwell, Canby Utility, Electric, 503-263-4307 Rick Givens, Planning Consultant, 503-351-8204 Hassan Ibrahim, Curran-McLeod Eng. 503-684-3478 Mark Handris, Icon Construction, 503-657-0406 Doug Quan, Canby Utility, Water, 971-563-6314 Bryan Brown, Planning Department, 503-266-0702

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PLANNING CONSULTANT, Rick Givens

- Icon has been in discussions with the property owners about developing the property as a single family residential development and there will be a total of 37 lots. We are trying to fit the master plan shown for the annexation concept plan as closely as possible by providing street stubs and park dedication.
- The lot sizes are from 5,000 to 8,200 sq ft.
- We have questions about the area towards the east and if it is developable or is dedicated for future development.
- We would like to discuss the planning process and the compensation for the park dedication.

CURRAN-MCLEOD ENGINEERING, Hassan Ibrahim

• North Redwood Street is under the jurisdiction of Clackamas County and they sent comments for this meeting. There are some conflicts between our standards and theirs and Bryan asked is the right-of-way (ROW) different and Hassan said the ROW is right and the dedication of 10 ft along the frontage makes it a 60 ROW. This matches our collector roads standards, but the county wants 18 ft from center line to curb and what we have is 20 ft. The question is what do we want to do here and Bryan said during the planning process of the North Redwood Concept Plan we planned on a planter strip on this side of N Redwood Street. That being said we need to take it into account and I do not know if this changes what we need for the total ROW. Is there on-street parking where the developed areas on the other side of the street and Hassan said yes. Bryan said he will ask Matilda if the concept plan provided on-street parking on this street. It will make a difference if we have enough ROW. Hassan said our ROW for N Redwood Street is 50 to 80 ft and they are dedicating 60 ft and this is the same as we have right now on N Redwood Street. Since this is a collector road there is a potential of having bike lanes and Bryan stated we had to make the decision on Pine Street to give up parking to have bike lanes and usually bike lanes are required. Hassan

said the parking is optional and Bryan said the bike lanes are not. Rick said the other side of N Redwood Street is 20 ft of ROW and the answer was yes, center line to curb. Hassan said we will need to discuss this with the county on the ROW issue.

- The interior streets will have to be built to local street standards of a 50 ft minimum ROW, 34 ft paved curb to curb, minimum 4-1/2 ft dirt planter strip and a 6 ft sidewalk. Rick said they have 54 ft ROW and on this street I did a 60 ft ROW because it will continue through to the other developable properties. Hassan said the one street you mentioned has to be 36 ft paved curb to curb and our standards state a 40 to 60 ft ROW. You will have to accommodate for the planter and sidewalk. Bryan said we have had a few recent developments in town putting the sidewalks completely in the ROW, which is great, but you have an option of placing a portion of the sidewalk on easement on the private property if you choose to. Hassan said it can go into the public utility easement (PUE) as long as it does not conflict with the other utilities. Gary said you will need to give us additional PUE behind the sidewalk to install transformers and vaults and keep this in mind as you layout the subdivision.
- There is an existing sanitary sewer trunk line and it is a 21 or 24 inch, which runs north and south on N Redwood Street. The manhole in the roadway is at approximately 6 ft deep. Looking at your plans I do not know if you will be able to get everything gravity feed by the contours you are showing. Rick said it will be close and Hassan stated you will need to come above the bench on the 21 inch pipe and it would give you approximately 5 ft in depth.
- There is approximately a 30 inch storm line in N Redwood Street and I do not know if there is a LID or AFD and Bryan said Matilda gave you a copy of the N Redwood Drainage Plan and it states about the drainage basins in the entire North Redwood concept area. It shows you an area on the east end of this basin you could take advantage of. It has a certain volume, but there would be some sort of payment attributed to the usage of this drainage system. Hassan said the rest will have to go to Willow Creek and it will have to be treated before it enters it. Bryan said one of the questions they had was can they put their water quality treatment facility in the park dedication area and I am not sure about it. If they are dedicating the land as a park it will be titled to the City of Canby and do we want their private maintained storm. Hassan said if they do this it will not be private it would be a public facility and if it is only draining storm from the streets it will be okay, but everything on each individual lot will have to have its own disposal on site. Bryan said it is okay for the streets to go into the water quality treatment facility and Hassan said it would have to be a tract and Rick said we would put it in a tract and dedicate it to the city, tract A would be the water quality treatment facility and tract B would be the park area. Hassan said we would need to have access to it, fenced and landscaped. The water quality will have to comply with Clean Water Services and our standards call for it.
- Hassan said we can go over the county's comments and Rick stated the county said no access to N Redwood Street for the frontage lots and Bryan said we would have the same requirements. Rick said he would have a flag strip driveway for these lots and Hassan said there is a width requirement and Mark asked if the houses have to front N Redwood Street if we have the access in the back of the lot or can the back yards front N Redwood Street? Bryan said you have the choice and there are not any specifics.

CANBY UTILITY, ELECTRIC DEPARTMENT, Gary Stockwell

- We discussed the easements for our equipment.
- We do not use any submersible transformers, we have tried it before and it was unsuccessful.
- Once the city accepts the subdivision itself and all the lot lines are fixed and I will do an electrical plan for the subdivision and it will include the street lighting. At this point I will have a cost fee and it usually costs \$2,000 to \$2,500 per lot for your budgeting purposes.
- Point of contact will be on the west side of N Redwood Street, there is a vault across the street from lot 35.
- You will supply the trenching, grading, staking and backfill and we supply and install all the materials.

CANBY UTILITY, WATER DEPARTMENT, Doug Quan

- The water main is on the west side of N Redwood Street at the intersection NE 17th Avenue and you will be going across the roadway, which is a county roadway and under their jurisdiction for their standards and requirements. Rick asked what the size of the water main and Doug said 12 inch ductile iron water main.
- The water main in the subdivision will be a minimum of 8 inches and at each dead end you create, you will be required to install a blow off station. They will be automatic with a dechlorination system and flowing to the storm line. We have been using the Mueller Hydro-Guarded C-4 and is in our specifications.
- All intersections will have gates in all directions and everything will be restrained, all pipe lengths and joints.
- We place (2) services together at property lines.
- Rick asked if there were flow issues in this area and Doug said no and the pressure could be approximately 80 psi or close to it.
- We have language in our construction specifications when there are conflicts with sewer. There will be a 4 inch minimum separation and if the sewer lateral is going over the top of our water main/line the pipe has to be in HDPE SDR 11, you can use season couplings if you have to, but it has to be a solid piece of pipe from cleanout to main.

CANBY FIRE DEPARTMENT, Todd Gary

- Fire hydrants will be every 400 ft or where it makes sense.
- Any dead ends longer than 150 ft will have to have a turn-around. You can do a temporary turn-around if there is a lot available and it can be a last lot sold before the project is completed. The graveled are on the lot should be 20 ft wide and we know in the future the streets will continue.

CITY OF CANBY, EROSION CONTROL, Shane Hester

- Willow Creek is behind this project and if there is any kind of dirt in this water we will have major problems, be very cognizant of your barriers. Mark said they will make sure the silt fence is quarantined and we will isolate the creek from any problems.
- Apply for an erosion control application and I will be doing the inspections.

CITY OF CANBY, PLANNING DEPARTMENT, Bryan Brown

- Why are you considering using a PUD? Rick said he read the limitation of the lot size in the concept plan and it looked like I could not go below 6,000 sq ft lots. The problem is density wise for us because they need it for a reasonable return. Bryan said somewhere in the concept plan there is a minimum lot size for transfer of development rights when you are dedicating the park. Rick said it was 6,000 sq ft and Bryan said I do not think you can go below the minimum lot size. You can take advantage of increasing the number of lots to get the compensation for dedicating the land as long as you are in compliance with whatever the minimum lot size they will allow for the transfer. The rest is going to be compensation in the form of reduced system development charges (SDC) we would otherwise collect and/or if we have to get to the point where you are not going to have any of these home's SDC you are going to increase the number of lots and smaller ones down to the minimum allowed and the amount we will allow you to transfer. I have not calculated this yet and we can talk about it later. Rick said from what you are saying we need to get a handle on the density and are we still allowed to use the PUD provision or whether they are in lieu of doing the concept plan and with the price of the property we need to know. Bryan said you are getting compensated by us not collecting SDC's. Mark said the seller stated there was some kind of per foot valuation on dedicated property and Bryan said before we can figure out how many lots you could otherwise build in the developable area and what the Redwood concept plan states in order for us to be absolutely certain we would require a wetlands delineation, but if we can come to an agreement we will not make you do a wetlands delineation or an appraisal. This plan discusses doing both the wetland delineation and an appraisal to be certain and it may be our last resort in order to come to an agreement. It is about what the value of the park land you are dedicating and we have to come to an agreement on it and if we cannot we usually give \$2 a sq ft for the wetland area and give \$100,000 per acre for the developable portion of the land you are going to dedicate to the city. You do not have that much developable portion and I would suggest you do it either way you want, you either show us a development concept plan and it can be a phased or dedicate it as a tract. Now in the future this area can be available to someone wanting purchase it from you and develop a section of land adjacent to you. This shows all the information I am telling you in the concept plan and there is enough flexibility for you to put it as a tract, future development or to plat it and you cannot develop it until someone brings a road to it. Rick asked how much is the park SDC and Bryan said approximately \$5,300 per lot. We need to know for the transfer of development rights on how much of this land area is the wetland area, which is \$2 per sq ft and what the area is for the developable land. This would answer the question we have as how did you determine you could have as many lots as you have under the normal 7,000 sq ft minimum for this zone. Anything less than 7,000 sq ft was determined by the amount of developable land you have not including the wetlands area, which is not developable. Mark asked if the wetlands area would be calculated in the density transfer and Bryan said no, but I will check with Matilda and discuss the lot sizes.
- The plan layout is excellent in following the North Redwood concept plan. This will allow any future development on either side to continue to implement their sites.

- It seemed the actual park dedication requirement was 2.4 acres and Rick said it includes the potential development area and that number may shrink if we end up going with that route. Bryan said you have the option of not dedicating the full park and/or getting compensation with reduced park SDC's, but we do want you to dedicate what the concept plan stated for the general park boundaries in this area.
- Darran said he knew Clackamas County will do the review of plumbing, electrical, building, mechanical and inspections and Bryan said everything. All we do is have you apply for individual building permits with the city and in doing this we know every permit going through the county. They cannot issue a single permit without our authorization letter which ensures you are meeting the plot plans, setbacks and anything else that might be the city's conditions of approval. Mark asked if he knew what the costs for the building permits and Bryan said it depends on the size of square footage of the house because we have a construction excise tax we collect and includes the sewer, parks, transportation and stormwater and it is approximately \$12,000, but it does not include the water SDC's. Doug said the water SDC's are online and approximately \$3,900. Bryan said per house it is about \$16,000.
- Rick asked about the timeline for the planning for the site and Bryan said all the structural plans go through the county and we need elevations for the individual home sites, mainly the front of the house and you need to be aware we have residential design standards. There are four to six design standards each house has to have and they are easy to meet. The main issue to avoid is snout houses where the garage is dominate for the house, the only way this will work is putting a window above the garage on a two-story house. Darran asked if they were online and Bryan said yes and it is Chapter 16.21 Residential Design Guidelines in the Canby Municipal Code. We can send them to you if you want.
- Rick asked if we did the approvals for the plat and Bryan said yes. Rick said engineering design approvals through the city and Hassan said yes, but you still need a permit from the county.
- Bryan said we need to know if there will be curb side parking with bike lanes on N Redwood Street and if so, there may be a need for additional ROW and Hassan said the county wants curb-tight 5 ft sidewalks versus our planter strip and 6 ft sidewalk. This will need to be resolved with the county and the city.
- Bryan said we need to know exactly what is the area of the wetlands versus the area of the developable portion of the land you are dedicating as a park. Mark asked if they needed to do the park improvements and Bryan stated right now the assumption is you are not responsible for any improvements because the city has a problem with maintaining parks and we have no funds to continue to maintain new parks. We have a moratorium on any new park improvements and Rick said you are suggesting leaving it as a nature area. Bryan said in the concept plan we will have a walking trail and other activities.
Redwood Landing 3

Neighborhood Meeting Notes

A mailed notice for a neighborhood meeting to be conducted on October 19, 2020 via Zoom was sent out more than two weeks in advance to neighbors within 500 feet of the property boundary. The notice asked those who wished to attend the meeting via Zoom to contact the project planner, Rick Givens, via email so that they could be sent an email invitation with the Zoom link. The notice also offered to answer questions via telephone or email for those who were unable to, or did not wish to, attend the Zoom meeting.

Only one person sent an email requesting a Zoom invitation, Mr. Marty Moretti. Because of this limited response, the project planner, Rick Givens, offered via email to do a telephone discussion with Mr. Moretti. Mr. Moretti indicated that would be acceptable, but no further communication occurred.

At a later date, Mr. Givens received a phone call from a woman who lives in the existing single-family subdivision to the west of N. Redwood Street. She asked for information about the project and wanted to know if the plan was to rent the townhomes or if they would be owner-occupied. Mr. Givens indicated that the plan is for the homes to be sold to individual buyers who would likely be the occupants of the townhomes, but that there would be nothing to prevent the purchaser from renting the home. The caller was concerned about parking. She indicated that she felt that the parking in the existing Garden Crossing townhome project to the south of the Redwood Landing 3 site is inadequate and that there are often cars parked on N. Redwood Street. Mr. Givens indicated that the townhomes would have an attached single-car garage and space for parking of one car in the driveway and that this meets the required parking standards.