

**PLANNING COMMISSION**  
**Meeting Agenda**  
**Monday – September 14, 2015**  
**7:00 PM**  
**City Council Chambers – 155 NW 2<sup>nd</sup> Avenue**

**Commissioner John Savory (Chair)**

**Commissioner Shawn Hensley (Vice Chair)**

**Commissioner John Serlet**

**Commissioner Larry Boatright**

**Commissioner Kristene Rocha**

**Commissioner Tyler Smith**

**Commissioner (Vacant)**

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- 1. CALL TO ORDER**
  - a. Pledge of Allegiance and Invocation*
- 2. CITIZEN INPUT ON NON-AGENDA ITEMS**
- 3. MINUTES**
  - a. Planning Commission Minutes, August 24, 2015 (Available 9-9-15)*
- 4. PUBLIC HEARING**
  - a. Consider a legislative and quasi-judicial amendment application to adopt The North Redwood Development Concept Plan (NRDCP), update the Comprehensive Plan text, and to modify several sections of the City's Land Development and Planning Ordinance Plan in order to implement the NRDCP (CPA 15-02/TA 15-01).*
- 5. NEW BUSINESS**
- 6. FINAL DECISIONS**

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

  - a. North Redwood Development Concept Plan Final Findings (CPA 15-02/TA 15-01)*
- 7. ITEMS OF INTEREST/REPORT FROM STAFF**
  - a. Next Regular Planning Commission meeting scheduled for Monday, September 28, 2015*
- 8. ITEMS OF INTEREST/GUIDANCE FROM PLANNING COMMISSION**
- 9. ADJOURNMENT**

*The meeting location is accessible to persons with disabilities. A request for an interpreter for the hearing impaired or for other accommodations for person with disabilities should be made at least 48 hours before the meeting at 503-266-7001.*

*A copy of this agenda can be found on the City's web page at [www.ci.canby.or.us](http://www.ci.canby.or.us) City Council and Planning Commission Meetings are broadcast live and can be viewed on OCTS Channel 5. For a schedule of the playback times, please call 503-263-6287.*

## PUBLIC HEARING FORMAT

The public hearing will be conducted as follows:

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

All interested persons in attendance shall be heard on the matter. If you wish to testify on this matter, please step forward when the Chair calls for Proponents if you favor the application; or Opponents if you are opposed to the application; to the microphone, state your name address, and interest in the matter. You will also need to sign the Testimony sheet and while at the microphone, please say your name and address prior to testifying. You may be limited by time for your statement, depending upon how many people wish to testify.

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

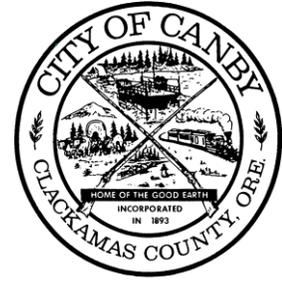
Testimony and evidence must be directed toward the applicable review criteria contained in the staff report, the Comprehensive Plan, or other land use regulations which the person believes to apply to the decision.

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

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

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

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



# STAFF REPORT

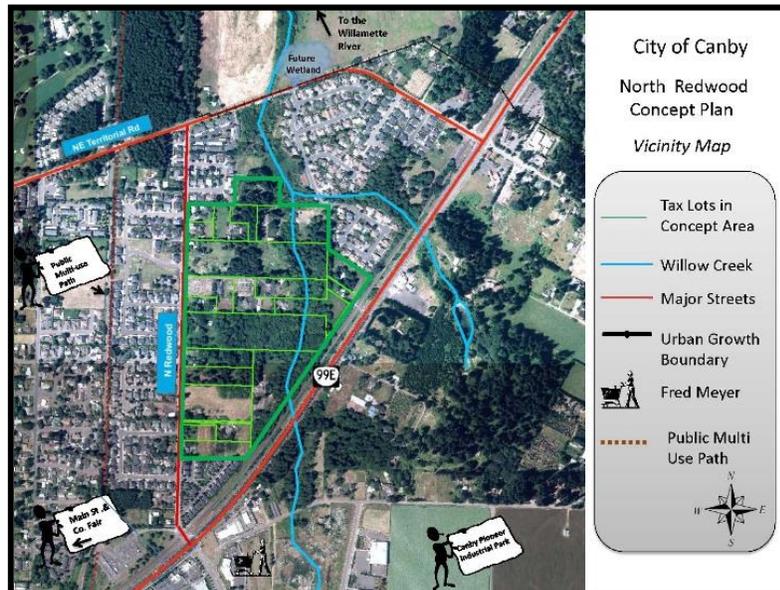
**TITLE:** Adoption of the North Redwood Development Concept Plan, Amendments and Additions to Selected Sections of Canby's Comprehensive Plan and Land Development and Planning Ordinance

**FILE #:** CPA 15-02/TA 15-01

**STAFF:** Matilda Deas, AICP, Senior Planner

**DATE OF REPORT:** September 4, 2015

**DATE OF HEARING:** September 14, 2015



## I. REQUEST

This is a legislative and quasi-judicial amendment application to adopt the North Redwood Development Concept Plan (NRDCP), update the Comprehensive Plan text,

and to modify several sections of the City's Land Development and Planning Ordinance Plan in order to implement The NRDCP.

**II. APPLICABLE REGULATIONS**

**City of Canby General Ordinances:**

- 16.88.160 Amendments to text of title
- 16.88.180 Comprehensive Plan Amendments (Legislative and Quasi-judicial)
- 16.16.030 Development Standards for the R-1 (low density) Zone
- 16.18.030 Development Standards for the T 1.5 (medium density) Zone
- 16.84.040 Standards and Criteria for Annexation
- 16.13 Plan Districts (proposed new section of LDPO)

**III. MAJOR APPROVAL CRITERIA**

**Section 16.88.160 Amendments to Text of Title**

In judging whether or not this title should be amended or changed, the Planning Commission and City Council shall consider:

- A. The Comprehensive Plan of the City, and the plans and policies of the county, state, and local districts, in order to preserve functions and local aspects of land conservation and development;
- B. A public need for the change;
- C. Whether the proposed change will serve the public need better than any other change which might be expected to be made;
- D. Whether the change will preserve and protect the health, safety and general welfare of the residents in the community;
- E. Statewide planning goals.

**Section 16.88.180 Comprehensive Plan Text Amendments (Legislative)**

The proposed text amendments to the Comprehensive Plan are legislative in nature. The changes update the Comprehensive Plan to reflect information in the newly adopted NRDCP. The NRDCP will be the guiding document for the development of properties located within the Plan if and when properties are successfully annexed into the City Limits. In judging whether a legislative plan amendment shall be approved, the Planning Commission and City Council shall consider:

- A. The remainder of the Comprehensive Plan of the City, as well as the plans and policies of the county, state or any local school or service districts which may be affected by the amendment;
- B. A public need for the change;

- C. Whether the proposed change will serve the public need better than any other change which might be expected to be made;
- D. Whether the change will preserve and protect the health, safety and general welfare of the residents in the community;
- E. Statewide planning goals.

**Section 16.88.180 Comprehensive Plan Map Amendments (Quasi-judicial)**

In judging whether a quasi-judicial plan amendment shall be approved, the Planning Commission and City Council shall consider:

- A. The remainder of the Comprehensive Plan of the City, as well as the plans and policies of the county, state, or any local school or service districts which may be affected by the amendments.
- B. Whether all required public facilities and services exist, or will be provided concurrent with the anticipated development of the area.

**IV. PROJECT OVERVIEW AND BACKGROUND**

The 66 acre area that comprises the North Redwood Development Concept Plan (NRDCP) area is identified on the City of Canby Annexation Development Map as an area required to have a Development Concept Pan (DCP) adopted by the City Council prior to granting a change in zoning classification for newly annexed properties. A DCP is intended to address City of Canby infrastructure requirements and ensure properties within a DCP develop public infrastructure in an efficient and effective manner.

The NRDCP area is currently outside of Canby’s City Limits, but within our Urban Growth Boundary. The NRDCP area includes 23 tax lots, varying in size between one and ten acres, with 18 property owners. The current zoning is Rural Residential Farm Forest 5-Acre (RRFF-5) governed by Clackamas County. If at some future date property owners choose to apply for annexation into Canby City Limits and are successful, Canby’s Comprehensive Plan Zoning would apply. Applying City Zoning could result in a minimum of 213 and a maximum of 289 new residential lots being created. 60% (46 acres) would be R-1 (low density); 32% (19 acres) would be R 1.5 (medium density); and 8% (2 acres) would be R-2 (high density). The NRDCP assumes newly annexed properties will conform to the City’s Comprehensive Plan Zoning. No rezoning is being proposed.

The area also includes Willow Creek and its associated wetlands and the steep slopes adjacent to the creek. Willow Creek flows through the City’s Willow Creek Wetlands and continues on to empty into the Willamette River. N Redwood Street on the western edge of the project area, and NE Territorial to the north of the project, area are both designated as Collector streets. Properties east of Willow Creek have limited access from OR 99E across UPRR. The Canby Fire District would like to maintain this

crossing as an emergency access. UPRR would prefer to close the access. Discussions are ongoing, and the Fire District has stated they can still serve the area if UP closes the access when the area is redeveloped.

Developing a concept plan for an area with numerous property owners, multiple zoning designations and complex natural resource features is challenging. Several past attempts to develop a concept plan for the area have not been successfully completed. Fortunately the City was able to obtain financial assistance from the Transportation Growth Management (TGM) program to engage a consultant team with relevant experience, to assist with the successful completion of a plan. The development of the recommended NRDCP has been a ten month process. Project oversight and guidance throughout the process has been provided by a Project Management Team; a Technical Advisory Committee; a Stakeholder Advisory Committee, property owners; City Council and Planning Commission Workshops; and input from public meetings the public outreach component for the project is documented in the NRDCP appendices.

#### **V. PROPOSED AMENDMENTS**

The recommended NRDCP proposes amendments to sections of the Comprehensive Plan and the Land Development and Planning Ordinance (LDPO) that are necessary in order to implement the NRDCP. No text is being eliminated, rather additional text is being proposed, including a new section of the LDPO that addresses Plan Districts. Plan districts are often used to implement concept plans and similar planning documents. A plan district is a geographic area for which special zoning regulations have been created by the city, either through adoption of a community plan or, as in this case, a DCP. The plan district regulations apply in addition to the regulations in the underlying base zone. For the NRDCP, the plan district would allow some additional flexibility for lot sizes and contain approval criteria to ensure new subdivisions and developments are consistent with the essential elements identified in the DCP (road networks and open space, for example).

The Planning Department anticipates there will be additional concept plans adopted in the future, and we currently have no section of our code that specifically addresses concept plans. Hence the proposed new Plan District section.

The proposed text amendments to both the Comprehensive Plan and the Land Development and Planning Ordinance are set forth in Attachment "2" attached.

#### **VI. COMPREHENSIVE PLAN CONSISTENCY ANALYSIS**

*Many of the Comprehensive Plan's goals and policies are not germane to this application. The applicable policies are addressed below:*

**Public Facilities and Services.** *The public infrastructure assessment and recommendations section of the NRDCP addresses the public facilities and services policies of the Comprehensive Plan.*

**Environmental Concerns Element.** *Willow Creek, the associated wetlands, and the adjacent steep slopes will be protected as part of the City's Park System.*

**Land Use Element.** *The NRDCP specifically addresses the Goal of the Land Use Element of the Comprehensive Plan which is:*

*"To guide the development and uses of land so that they are orderly, efficient, aesthetically pleasing, and suitably related to one another"*

*The purpose of the NRDCP is to provide guidance for the efficient and orderly development of the area and through the proposed implementation measures assures that all elements are aesthetically pleasing and relate to one another.*

**Transportation Element.** *Staff will propose a Transportation System Plan (TSP) amendment in the near future that will complete the required amendments to ensure that the implementation of the NRDCP will have no conflicts with the City's adopted TSP.*

**Citizen Involvement Element.** *The Citizen Involvement Element has been met via the public hearing for this application; the public meetings throughout the development of the Plan; and the review and endorsement of the NRDCP by the TAC, SAC, the Project Management Team, the Project Consultants, and City staff. Opportunities for citizen involvement have been extensive and are documented in the appendices of the NRDCP.*

**Conclusion Regarding Consistency with the Policies of the Canby Comprehensive Plan:**

*Staff concludes that the proposed Comprehensive Plan Amendment and Text Amendments are consistent with the remaining policies of the Comprehensive Plan.*

**VII. CONSISTENCY WITH THE CRITERIA FOR LEGISLATIVE COMPREHENSIVE PLAN AMENDMENT/TEXT AMENDMENT**

- A. The remainder of the Comprehensive Plan of the City, as well as the plans and policies of the county, state or any local school or service districts which may be affected by the amendment;**

*The commentary under section VI of the staff report addresses the remainder of the Comprehensive Plan.*

- B. A public need for the change;**  
Chapter 16.84.040 1(b) states that:

*"For newly annexed properties that are within the Boundaries of a DCP area as designated on the City of Canby Annexation Development Map:  
A Development Concept Plan shall be adopted by the Canby City Council prior to granting change in zoning classification."*

*As stated previously the N Redwood area has challenges that have precluded property owners from successfully completing the required DCP for this area. The need is real and this recommended NRDCP satisfies the code requirements.*

**C. Whether the proposed change will serve the public need better than any other change which might be expected to be made;**

*As this is a code requirement, no other changes are expected to be made. Past difficulties with completing the required DCP for this area indicate the recommended NRDCP will serve the public better than continued attempts by private parties to develop a DCP.*

**D. Whether the change will preserve and protect the health, safety and general welfare of the residents in the community;**

*Staff believes this criterion has been met, as detailed above.*

**E. Statewide Planning Goals.**

The following Statewide Planning Goals apply to this application:

**Goal 1: Citizen Involvement.**

*The Planning Commission will make a recommendation to the City Council on this application in a public hearing which was noticed in the Canby Herald and by notices sent to affected property owners within 500 feet of the NRDCP area. Furthermore, there has been extensive public participation as documented in the appendices of the recommended NRDCP.*

**Goal 5: Open Spaces, Scenic and Historical Areas and Natural Resources.**

*Willow Creek, the associated wetlands, and the adjacent steep slopes will be protected as part of the City's Park System.*

**Goal 8: Recreation Needs.**

*The recommended NRDCP proposes a linear park and trail system to serve both the residents in the NRDCP but the broader community.*

**Goal 11: Public Facilities and Services.**

*The proposed NRDCP sets forth recommendations for the efficient and effective provision of public infrastructure to serve the plan area.*

**Goal 12: Transportation**

*The recommended NRDCP proposes a pedestrian and bicycle friendly internal road system which includes a neighborhood connector that can provide convenient public transit access through the area.*

**VII. CRITERIA FOR QUASI-JUDICIAL COMPREHENSIVE PLAN AMENDMENT/MAP AMENDMENT**

- A. The remainder of the Comprehensive Plan of the City, as well as the plans and policies of the county, state, or any local school or service districts which may be affected by the amendments.**

*Staff believes that this criterion has been met as detailed above.*

- B. Whether all required public facilities and services exist, or will be provided concurrent with the anticipated development of the area.**

*The NRDCP addresses future infrastructure requirement and recommendation. Facilities and services will be provided concurrent with future development. Service providers reviewed the initial concept plan and noted no problems with future capacities.*

## **VIII. RECOMMENDATION**

Based on the findings and conclusions presented in this report, and without benefit of a public hearing, staff recommends that the Planning Commission advance a recommendation of approval on to the City Council on CPA 15-02/TA 15-01

### Attachments

1. Recommended NRDCP
2. Proposed Code and Comprehensive Plan Amendments
3. Additional public comments

# **NORTH REDWOOD DEVELOPMENT CONCEPT PLAN**

## **Recommended Development Concept Plan**

### **Deliverable 6E**

September 4, 2015



**Oregon Dept of Transportation**  
**Transportation and Growth Management**  
**File Code 1A-13**

**ODOT Project Manager**

Lidwien Rahman  
ODOT Region 1

**Consultant Project Manager**

Chris Maciejewski  
DKS Associates

**City of Canby Project Manager**

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Saumya Kini, Urban Designer  
Thomas Fischer, Landscape Designer

**DKS Associates:** Transportation Planning

Brad Coy  
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**Angelo Planning Group:** Land Use Planning

Matt Hastie, Associate  
Serah Breakstone

**Leland Consulting Group:** Real Estate Strategy  
and Municipal Finance

Brian Vanneman, Principal

**OTAK:** Civil Engineering

Kevin Timmins, Principal  
Kristen Ballou, Civil Engineer  
Rose Horton, Civil Engineer

**Cogan Owens Cogan:** Public Engagement

Steve Faust, Associate Principal

**Project Purpose and Transportation  
Relationship and Benefit**

The North Redwood Development Concept Plan (Project) will provide a preferred alternative for development of a 66-acre site with multiple property owners. The Project will develop conceptual infrastructure and financing options for achieving urban housing densities while protecting the site's natural resources. The Project will also determine a supportive transportation system, increase travel options, and identify optimal access locations for emergency service providers. The recommended plan and any code amendments must be consistent with local and state policies, plans, and rules including the Transportation Planning Rule. The Project must meet the City of Canby's (City) Municipal Code requirement for an adopted Development Concept Plan (DCP) prior to post-annexation zone change requirements.



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NORTH REDWOOD DEVELOPMENT CONCEPT  
CONTEXT MAP

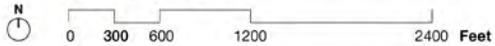


Figure 1: Study Area Context



Innovative land planning with diverse housing types

## Overview

This report summarizes the Development Concept Plan (DCP) for the 66-acre Canby North Redwood Study Area. This concept includes a cohesive and coordinated circulation system, an efficient approach to meeting the new community's infrastructure needs, housing types matching the city's Comprehensive Plan, and natural resource protection integrated with public parks.

The concept is structured using innovative development parameters: specifically, clustering of density, the use of flexible blocks, and incorporating a significant open space into the community using city park acreage dedication requirements. Eventual development on individual properties will require earnest efforts to match key street and open space locations but will otherwise have an element of flexibility for the owners to develop new neighborhoods according to their individual intentions.

The following report provides a summary of the proposed DCP, as well as a summary of city code changes, Transportation System Plan updates and required infrastructure upgrades to serve the new community. A proposed funding approach is also included.

## Concept Plan Criteria

The Development Concept Plan is guided by several criteria, outlined in Memo #4. To the extent possible, the plan seeks to foster development of a neighborhood that meets the following:

- Integrated with existing city fabric of Canby
- Walkable and cohesive
- A plan with all parcels integrated
- A plan with impacts distributed equitably to individual parcels
- Allowing for different owners' timing of development
- Reasonable costs of infrastructure and roads
- Connected with safe streets
- Transit-friendly
- Allows emergency access
- Connects trails to natural areas
- Protects Willow Creek
- Provides public, accessible parks
- Demonstrates innovative land planning

The DCP satisfies these criteria, as noted on page 11 of this report.



Integrated natural areas



A walkable, connected neighborhood

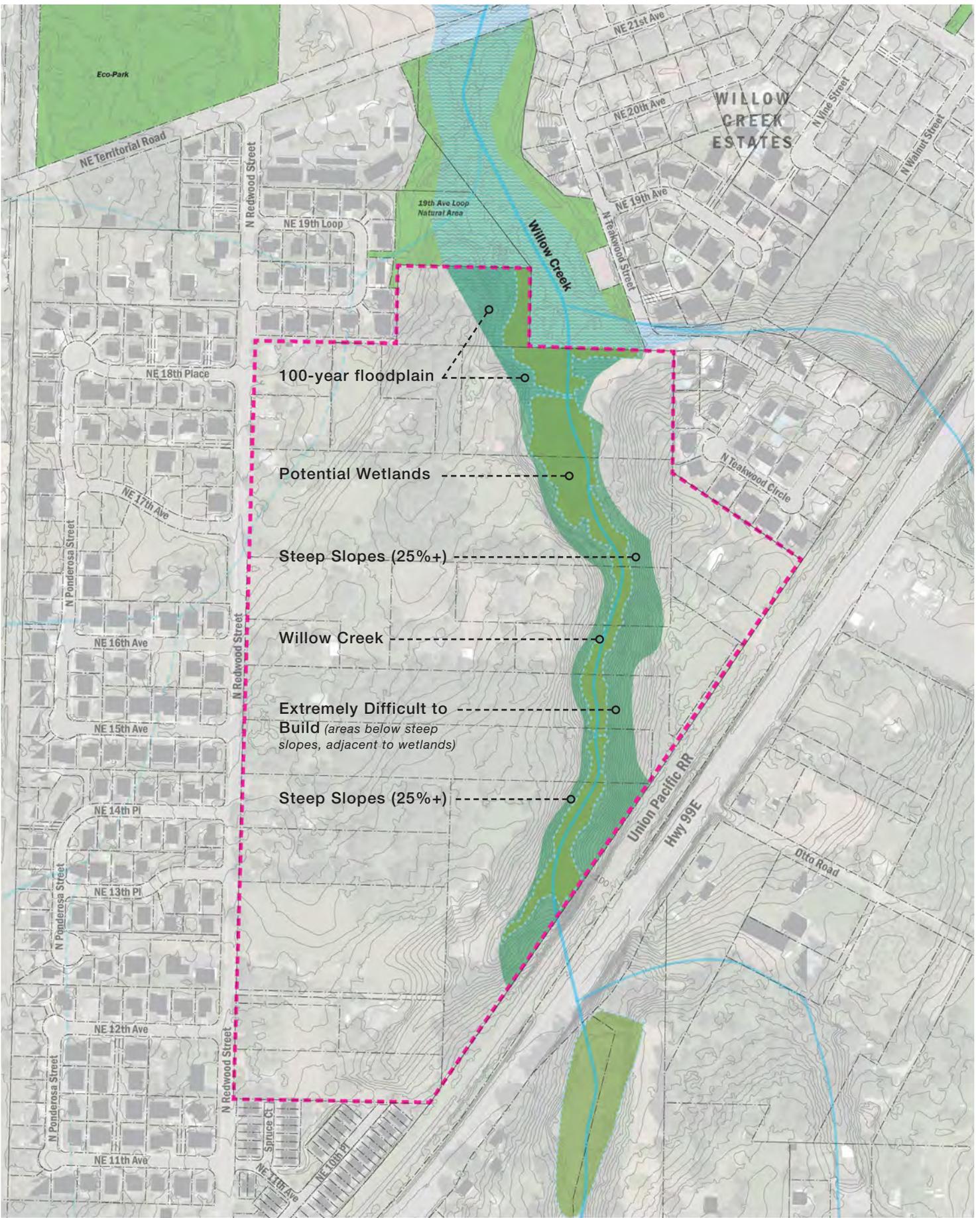
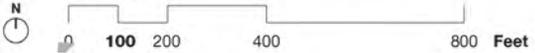
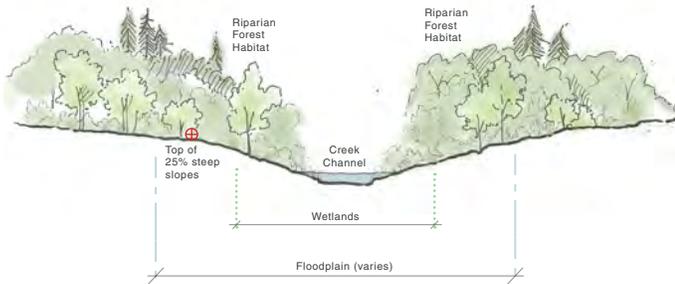


Figure 2: Willow Creek and associated environmental areas

NORTH REDWOOD DEVELOPMENT CONCEPT  
**BASE MAP**





**Figure 3: Cross-section at a typical location along Willow Creek showing associated environmental areas**



Willow Creek existing condition, showing invasive species in the riparian area. Restoration of the creek’s banks is recommended.

**ODFW Recommendations**

- 1) Work towards maximizing protection of the stream corridor, provide a suitable riparian vegetation buffer on both sides, and retain natural function of the stream;
- 2) Retain as much of a stream-side buffer as possible so wildlife can move in and out of the area post-development
- 3) Identify large legacy trees and snags in the tract, and try to design the development in a way that leaves these trees standing, as old mature trees provide unique habitat to certain species of wildlife survival
- 4) Provide suitable fish passage, consistent with ODFW standards and criteria, at all new stream crossings.

*(Tom Murtagh, District Fish Biologist, 8/4/2015)*

**Natural Conditions**

The Willow Creek corridor has the potential to become a natural, visual and recreational amenity for the future community. It also provides potential space for stormwater treatment and an important habitat corridor. The creek channel through the study area has relatively high water quality and well-vegetated slopes, but requires some restoration to remove invasive species and enhance fish habitat. The creek is considered by ODFW to be a trout stream, but is not used by ESA-listed species (see recommendations at bottom left.) The creek corridor is essentially unbuildable, given current regulations protecting wetlands and floodplains and the challenges of building in steep slopes. The City does not recognize Willow Creek as a protected Goal 5 resource, so new City setbacks would not be applied, although development regulations will still protect these sensitive areas to an extent.

A preliminary reconnaissance of properties adjacent to Willow Creek found the likely presence of about 3 acres of intermittent wetlands, whose approximate boundaries are mapped in Figure 2. More defined boundaries would be determined through a more detailed wetland delineation required at the time that individual parcels are developed.

A FEMA 100-year floodplain extends into two parcels in the northern portion of the study area. This mapped floodplain is a result of the 1996 flood that backed up along the Willow Creek corridor, inundating NE Territorial Road. There are roughly 1.3 acres of study area within the floodplain (nearby property owners in Willow Creek Estates have petitioned FEMA for a flood map revision to remove the floodplain from their properties – this may also be an option for study area owners.)

Finally, there are steep slopes on both the west and east banks of Willow Creek. Slopes over 25% are challenging to develop and should remain undisturbed when adjacent to wetlands and streams in order to avoid erosion. There are approximately 2.6 acres of these steep slopes included in the green area shown in Figure 2. Additional steep slopes can be included within large lots, behind homes and potentially protected within conservation easements.

The combination of these sensitive areas, along with adjacent land between wetlands and slopes, is shown on Figure 2. As described on page 12, this approximately 9.5-acre area can form the core of a future open space that satisfies City regulations for park dedication while transferring some severely-constrained land from private to public ownership.

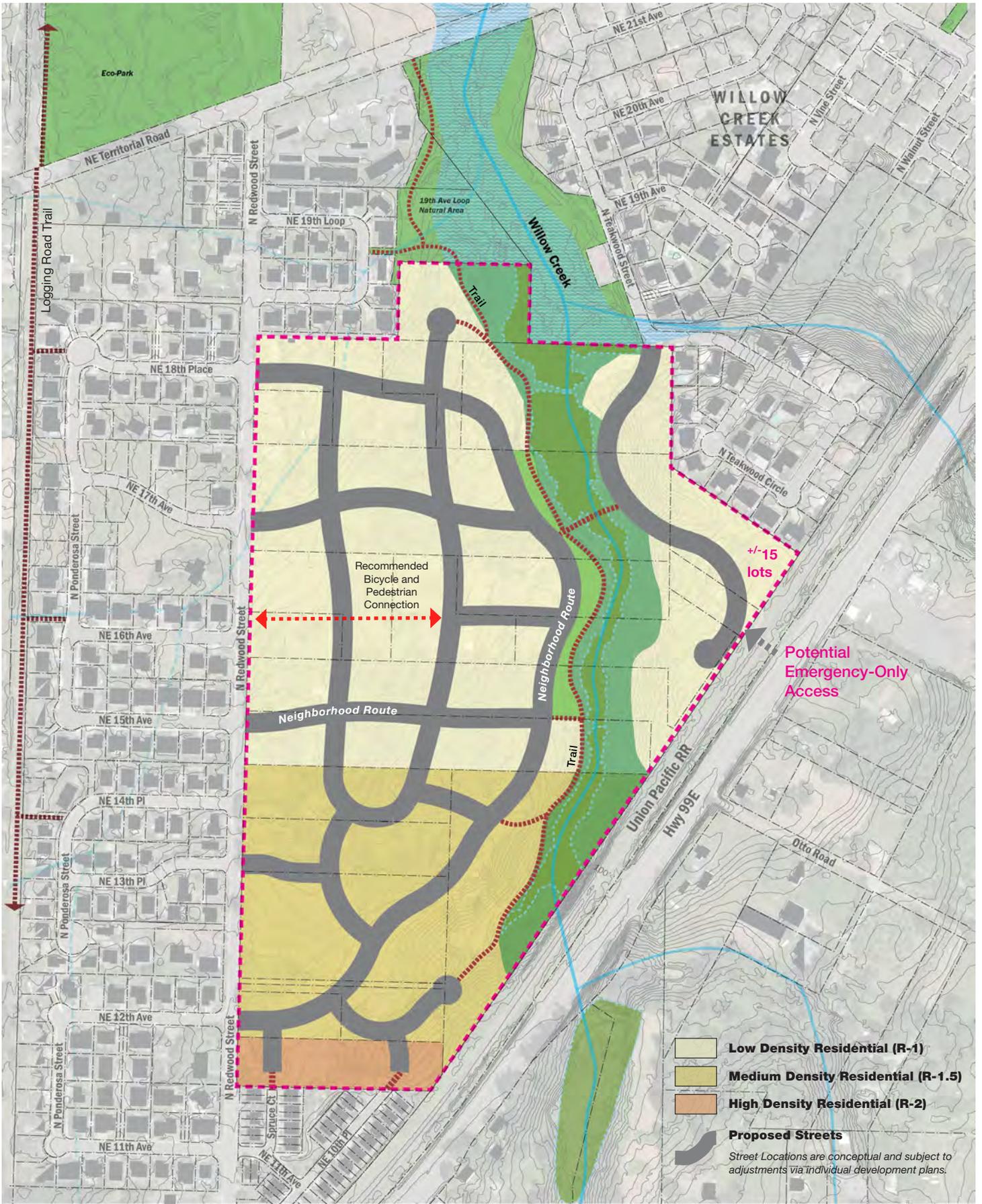
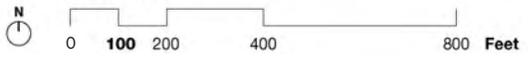


Figure 4: Recommended Development Concept Plan

NORTH REDWOOD DEVELOPMENT CONCEPT  
BASE MAP



<b>Element</b>	<b>Square Feet</b>	<b>Acres</b>
<b>Roadways *</b> <i>(Alleys not included)</i>	664,414	15.25
<b>Natural Area</b>	412,809	9.47
<b>Developed Park</b>	42,906	0.98
<b>Low-Density Residential Land</b>	1,122,963	25.78
<b>Medium-Density Residential Land</b>	522,270	11.99
<b>High-Density Residential Land</b>	80,355	1.84
		65.31ac total *

\* Study Area is 66 acres. Total acreage shown reflects deduction of 20' for additional North Redwood ROW

**Table 1: Areas in Recommended DCP**

## **Recommended Development Concept Plan**

The proposed Development Concept Plan (DCP) provides a logical development concept for a new 'green' community with distinct character. It allows for phased, efficient development and can be adjusted according to individual landowner preferences.

The DCP creates clear connections to the existing city fabric and provides a coherent grid of streets within the study area that will serve to create a more cohesive community than if roads were built on a piecemeal basis. The road alignments strive to respect existing topography, and by doing so, may minimize future development costs from grading.

The DCP is based on the flexible block structure described on page 10, which maximizes options for landowners to develop their properties in future according to their individual development strategy and market research. Each block can be developed with or without rear alleyway access, depending on developer preferences. Future development proposals will be evaluated by the City according to how they adhere to the principles and general urban form of the DCP.

The acreages shown in Table 1 represent the areas in the DCP. These areas, using maximum densities suggested in the City's Comprehensive Plan zoning designations, would result in 289 new lots. Using the minimum densities, it would result in 213 lots. The expected city zoning categories will be R-1, R1.5 and R-2 for the Comp Plan zones of LDR, MDR and HDR, respectively.

Higher density options would result in lower shared costs per unit, as the community's infrastructure needs would be identical for either density.\*

*\*Original projections for this study area in the 2010 TSP and Canby Comprehensive Plan envisioned up to 350 lots in the area, but this number did not account for the deduction of land for open space around Willow Creek environmental areas.*

## Plan Flexibility for Development

The Recommended Development Concept Plan is structured using flexible block sizes to ensure that future development can provide a wide variety of lot sizes and housing types within the proposed zoning.

Studying best practices from other high-quality master-planned developments, a prototypical block size with a width range of 280', measured from the center of one local street to the center of the next street, was used to guide the layout of the concept plan (Figure 5). A variety of lot sizes are possible within this prototypical block. **Due to allowance for topography and plan urban design, the blocks shown on the DCP are not exactly each 280'. An overall block length of more than 600 feet should be avoided. Bike and pedestrian connections should be provided at least every 330' according to the TSP.**

Also possible are blocks with or without rear 20-ft alleyways (Figures 6a and 6b). Although there are few new developments with rear alleys in Canby, this is an increasingly popular tool for regional developers who seek a more walkable, attractive streetscape and more curb appeal for new homes. Rear alleys also provide an efficient and less visually-intrusive place to locate utilities.

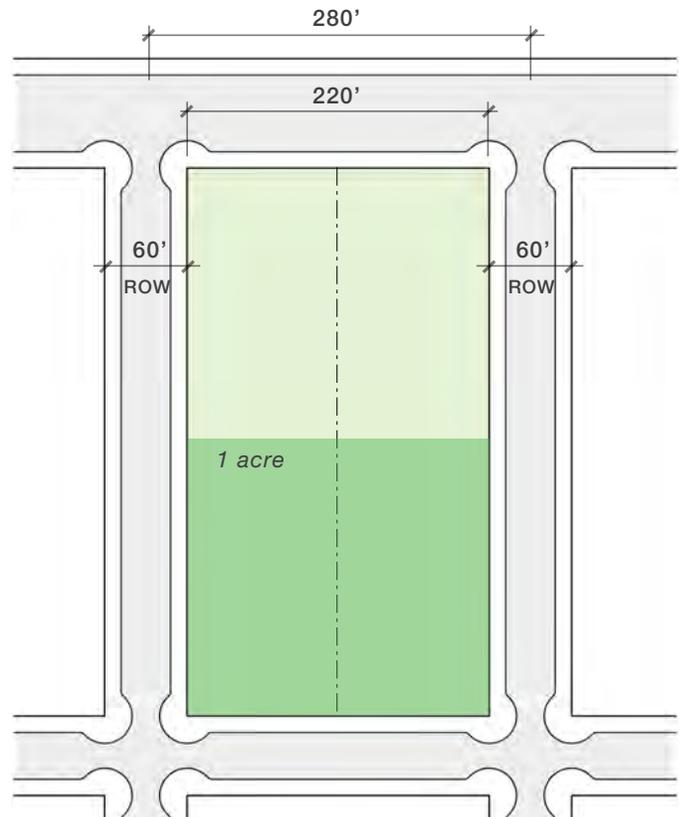


Figure 5: Prototypical Block

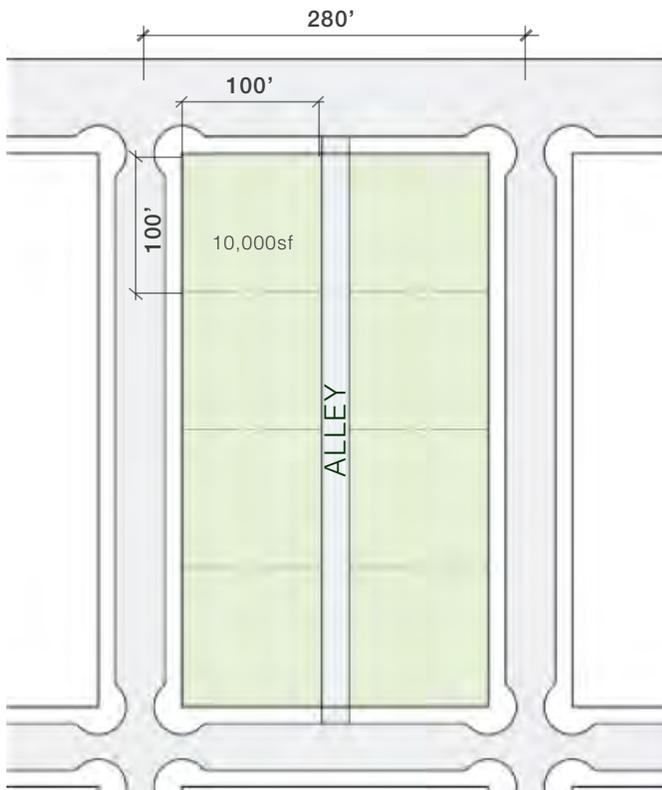


Figure 6a: Large Lots (LDR) with alley

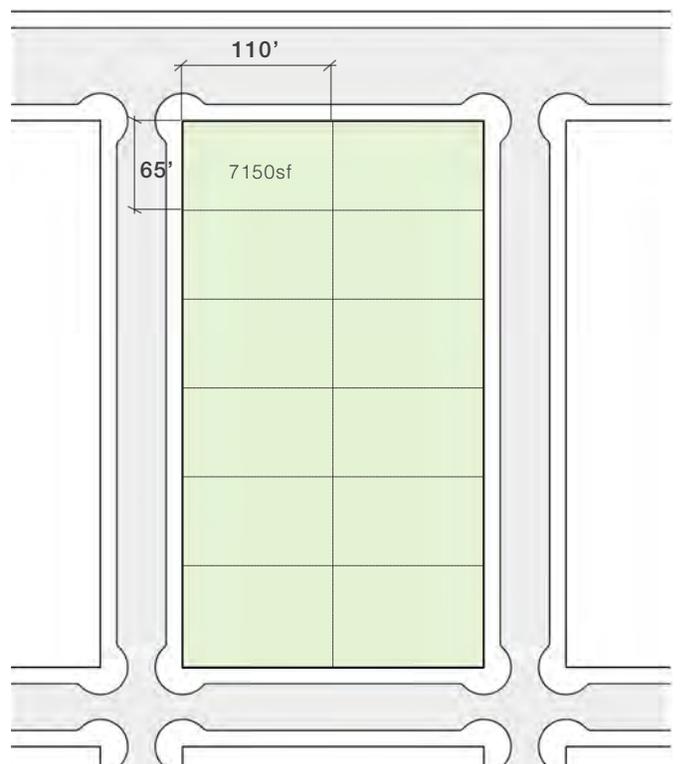


Figure 6b: Large Lots (LDR) no alley; garages in front of homes



Low Density Residential  
 7,000-10,000 square foot lots (4-6 du/acre)  
**Approximately 155 units on Recommended DCP (at 6du/ac)**  
**(Approximately 103 units at 4du/ac)**



Medium Density Residential  
 5,000-6,500 square foot lots (7-9 du/acre)  
**Approximately 108 units on Recommended DCP (at 9du/ac)**  
**(Approximately 84 units at 7du/ac)**



High-Density Residential  
 3,000 square foot lots (14 du/acre)  
**Approximately 26 units on Recommended DCP**

## Concept Plan Evaluation Criteria

The Development Concept Plan substantially meets all of the evaluation criteria, as described below. Meeting some of the criteria will be dependent on subsequent planning work and individual actions by developers and the City of Canby.

<b>Criteria</b>	<b>How DCP Meets Criteria</b>
<i>Integrated with existing city fabric of Canby</i>	Plan connects to North Redwood Street in 5 locations, matching existing intersections and extending the city grid
<i>Walkable and cohesive</i>	Streets, connected across parcels, will meet City standards, with generous sidewalks. Proposed walking trail traverses study area.
<i>A plan with all parcels integrated</i>	Plan strives to maximize development potential of all parcels, including those with natural features and access restrictions
<i>Impacts distributed equitably</i>	Funding plan will propose how to share costs and impacts of plan elements that benefit all owners.
<i>Different owners' timing of development</i>	Plan can proceed according to the priorities of a range of owners
<i>Reasonable costs of infrastructure and roads</i>	Most roads are narrower local streets. Total road area is 23% of study area, which is within comparable levels of other communities.
<i>Connected with safe streets</i>	Local streets have sidewalks. Certain North Redwood intersections should consider enhanced pedestrian crossings at key locations.
<i>Transit-friendly</i>	Neighborhood Routes in plan could accommodate a future transit route.
<i>Allows emergency access</i>	Plan proposes a new emergency access across UPRR to serve area east of Willow Creek.
<i>Connects trails to natural areas</i>	A new trail system is proposed on the west edge of the Willow Creek Natural Area.
<i>Protects Willow Creek</i>	Yes, within natural area
<i>Provides public, accessible parks</i>	One neighborhood park proposed. Willow Creek open space will be public.
<i>Innovative land planning</i>	Yes

## Parks and Open Spaces

Future development in the North Redwood area will be required by city code to dedicate a certain amount of parks and open space (*Division XI: Parks, Open Space and Recreation Land, Chapter 16.120*). This is consistent with the criteria outlined on page 5 for the creation of a livable community.

The acreage required for dedication is calculated using the formula below, applied to new construction:

$$\text{(Maximum units in a plat)} \times \text{(persons/unit)} \times 0.01 = \text{acreage to be dedicated}$$

Potential park acreages can be calculated for each density in the DCP as follows:

**LDR/R-1: 25.78 ac**  
**25.78 ac / 7000 sf minimum lot size = 155 units**  
**155 x 2.7 people per unit = 419**  
**419 x 0.01 = 4.2 park acres.**

**MDR/ R1.5: 11.99 ac**  
**11.99 ac / 5000 sf minimum lot size = 108 units**  
**108 x 2.7 people per unit = 292**  
**292 x 0.01 = 2.9 park acres.**

**HDR R-2: 1.84 ac**  
**1.84 ac / 3000 sf minimum lot size = 26 lots**  
**26 x 2.7 people per unit = 70**  
**70 x 0.01 = 0.70 park acres.**

**TOTAL POTENTIAL PARK ACREAGE: 7.8 ACRES**

This figure will obviously be subject to refinement as individual developers submit applications. The City of Canby does not typically accept unbuildable natural areas as dedicated park lands under the above formula; however, the city has indicated a willingness to accept land dedicated along Willow Creek, which is a significant benefit to potential future developers.

The DCP shows the green corridor in Figure 2 incorporated into the plan (see Figure 7 on facing page). There are an additional 1.7 acres of natural area than required by code shown within this environmental area. Protection of this extra acreage can also be accomplished by potentially including it in lot sales, with conservation easements.



Neighborhood Park with play area and shelter



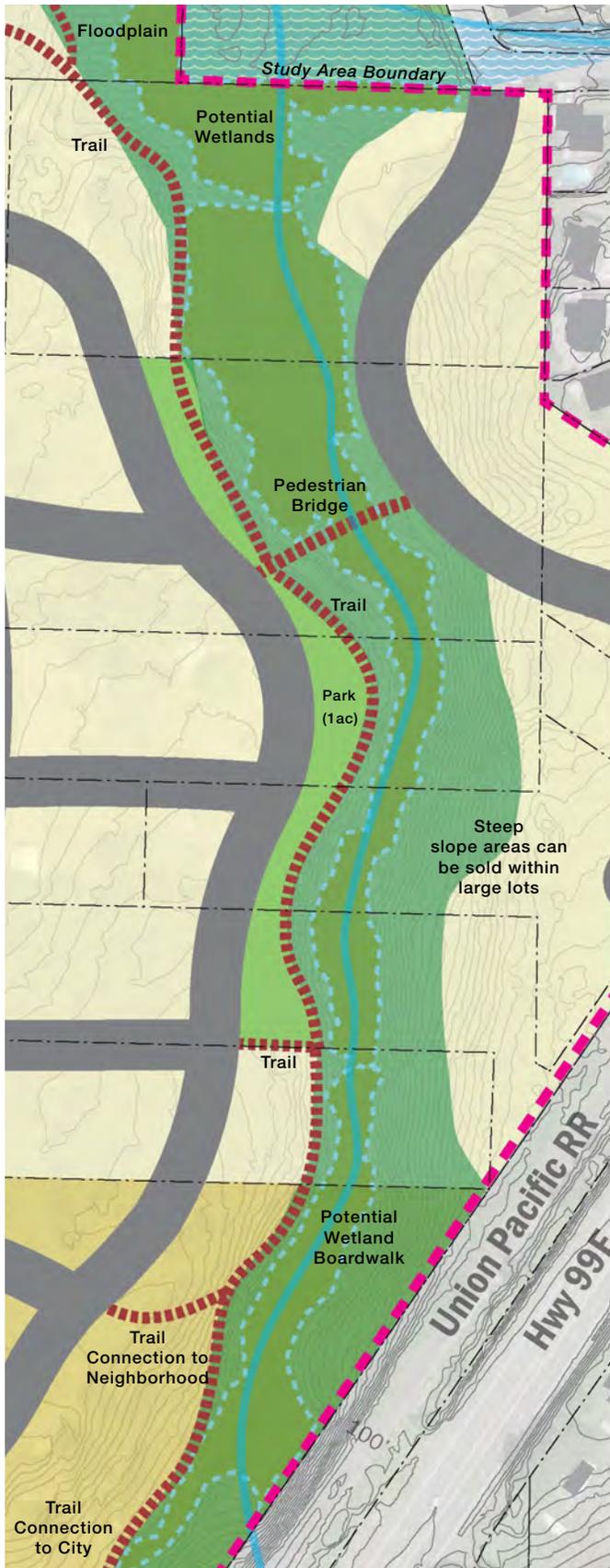
Multi-use trail through natural area



A boardwalk trail could be built near wetlands or along Willow Creek



A bicycle and pedestrian bridge can link the area's neighborhoods across Willow Creek



**Figure 7: Recommended DCP -- Open Space detail**

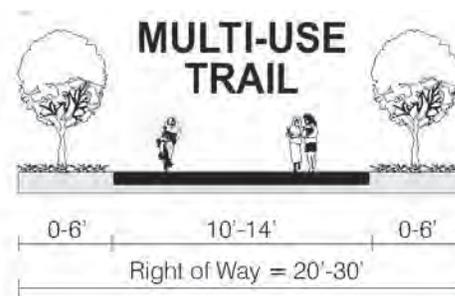
## Parks and Open Spaces

The Recommended DCP illustrates a framework for a new 9.5-acre public natural area along Willow Creek, including the constrained and ecologically-sensitive lands described on Figure 2. This area is more acreage than the approximately 7.8 acres required for dedication by developers (see facing page); some of the sensitive land could be protected within conservation easements on private lots. A strategy to equitably divide this natural area dedication among property owners, including those not adjacent to Willow Creek, is included on page 36 of this report.

(Given the shortfall in parks maintenance funding in Canby, an agreement could be arranged for a developer to fund a set number of years of maintenance, while the City works to secure more sustainable parks maintenance funding.)

Additional park land of approximately 1 acre, envisioned as a potential neighborhood pocket park, is included to provide some developed park space as a neighborhood amenity. In the DCP, this park is shown as a linear park at the top, west edge of the Willow Creek 'ravine', providing a more developed foreground to the wilder natural area. This park land could include neighborhood amenities such as a play area and picnic shelter. Alternatively, future plan refinements could consider locating such a park in a more central location, surrounded by housing.

A trail is proposed along the Willow Creek open space, through the neighborhood park and linking to existing and future natural areas like Willamette Wayside to the north, as well as to Fred Meyer and downtown Canby to the south. This trail can take a variety of forms according to context, with a boardwalk through wetland or flood prone areas, and a simple paved multi-use path (see Fig 8 below) in other areas such as the neighborhood park edge.



**Figure 8: Canby TSP Multi-Use Trail Cross-Section**

## Plan Connectivity

The DCP provides several connections to Canby's existing city fabric, with extensions to existing streets on the west side of North Redwood in five locations (NE 18th Pl, NE 17th, NE 15th, NE 13th and NE 12th). This grid of streets will maximize circulation choices for future residents and provide safer, more walkable non-collector streets for residents, potentially reducing overall vehicle miles traveled.

North Redwood Street is currently only improved to City standards on its west half. When individual development proposals are submitted, the City will require half-street dedication from adjacent property owners along North Redwood of approximately 10' to 30' to allow the street to be improved to Collector standard as shown in the TSP (see cross-section on page 16). As a project with citywide importance, it will need to be funded through a combination of developer contributions and public capital improvement budgets, and the precise cross-section will be determined with City and neighborhood input. Adding sidewalks to the east edge of North Redwood will improve safety and allow pedestrian access to city parks north of Territorial, as well as the Fred Meyer (and Orange Line commuter bus service) to the south of Highway 99E.

An internal loop Neighborhood Route (Fig 9 at right) is a key 'wayfinding' and placemaking component, looping from NE 18th Place, along the edge of the Willow Creek open space, then continuing south to North Redwood between NE 13th and NE 12th. This route would be the most likely option for future transit access, although the existing Dial-A-Ride service in Canby could serve all of the streets in the DCP. Other internal streets shown are advisory and will be located according to future individual development plans.

Approximately 11-15 large lots on the east side of Willow Creek will be connected to Teakwood Street and Willow Creek Estates to the north. The 15 lots would generate approximately 110-150 daily trips (11 peak AM hour trips, and 15 peak PM hour trips.) The City's threshold for evaluating impacts to local neighborhood streets is 30 peak hour trips and 300 daily trips, so this would not reach that threshold. The local street serving these lots would require a stop sign where it meets Teakwood Street.

An emergency route, with a locked gate preventing pedestrian or bicycle access, would be desirable across the UP rail line to access Hwy 99E, closing the existing driveway (photo at right). Discussions about this crossing have been initiated with UPRR.

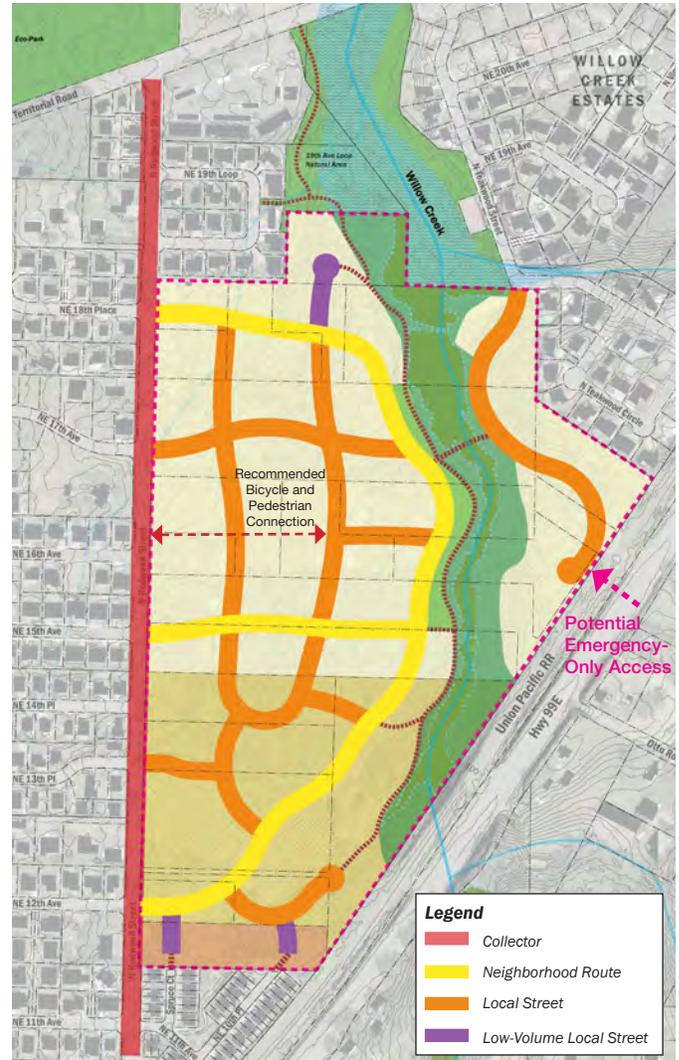


Figure 9: Recommended DCP Street Plan



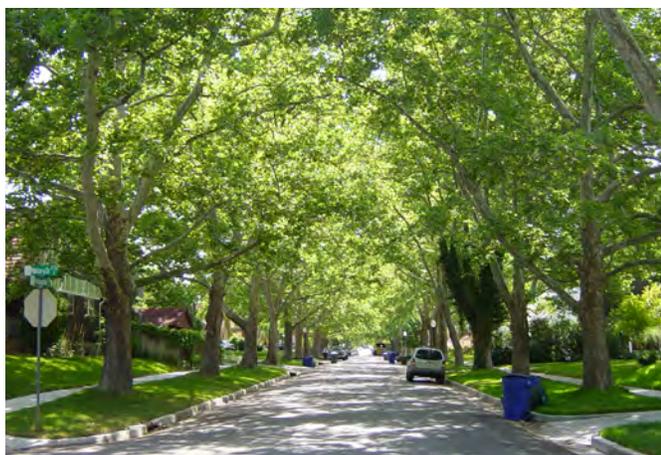
Existing driveway across UP railroad, accessing three parcels



**Figure 10: Typical Local Street Cross-Section**



Typical local street in a new planned community, matching the Canby TSP local street standard on page 16



Typical local street with mature street trees

## Street Design

Roadways in this plan will be neighborhood routes and local streets, with design standards described in the TSP and on the following page. These streets are intended to be relatively narrow in order to reduce speeds and promote neighborhood livability while also reducing development costs and city maintenance.

The three-dimensional street section at left (Fig. 10) is another way of illustrating the proposed street design, showing how on-street parking, while serving adjacent residents, also serves to slow traffic speed by narrowing the perceptual width of the street. Travel lanes of 10' in each direction allow a clear 20' zone for fire and emergency access. Neighborhood routes have slightly wider travel lanes to allow delivery truck and transit vehicle access.

Key to neighborhood livability is to separate sidewalks from roadways with a generous, 8'-wide planting strip, within which street trees should be planted. Stormwater treatment facilities can also be located in these strips, if needed (see photo at left). These planting strips enhance pedestrian comfort and safety, while the street trees will eventually provide a proven increase in property values by forming a shaded canopy over the street and adding to the curb appeal of homes.

The plan presents some single-sided streets along Willow Creek, which provide significant value to homes with a frontal view of the open space and help to create a distinct identity for the neighborhood. This arrangement also has public safety benefits, as the open space and associated trail can be monitored by street users and from nearby homes. In most cases, streets within the neighborhood will be double-sided to maximize development efficiency where no natural amenities are present.

## Recommended Changes to the 2010 TSP

This DCP has been prepared with careful consideration of the 2010 Canby TSP and meets the goals and standards outlined in that document. The primary change recommended to the 2010 TSP has already been initiated by the City of Canby, with ODOT's assistance, and involves removing the proposed Otto Road collector connection. The TSP document itself will be updated with 5 new figures:

- Fig 7-1: Functional Classification**
- Fig 7-2a: Truck Routes (Existing System)**
- Fig 7-2b: Truck Routes (Financially-Constrained System)**
- Fig 7-8: Local Street Connectivity (see below)**  
This figure has also been updated to reflect the North Redwood Street and North Teakwood Street connectivity proposed in this Draft DCP
- Fig 7-9: Traffic Control Plan**

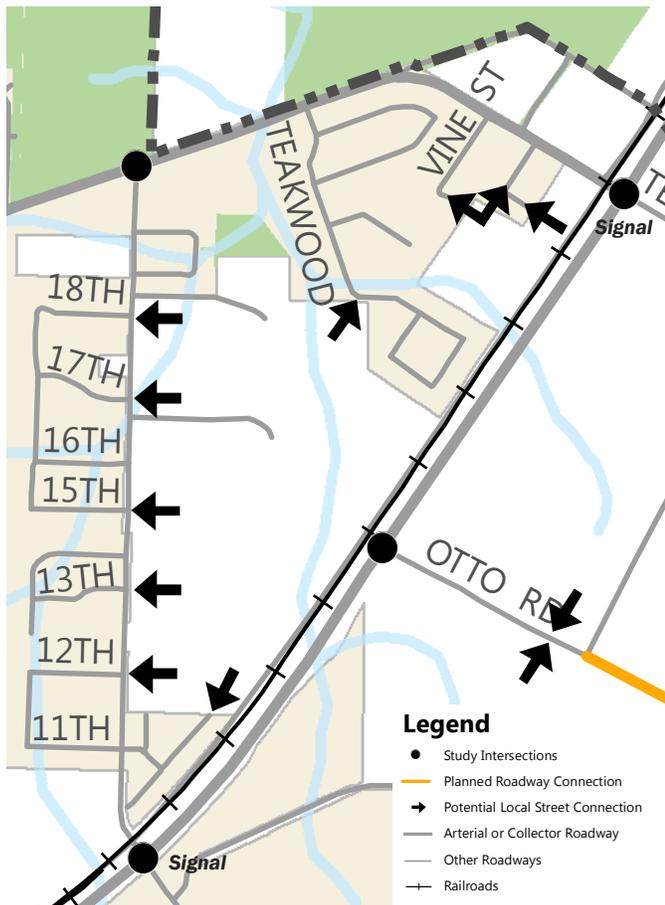


Figure 11: Transportation System Plan revised Fig 7-8 (detail)

Existing street cross-sections in the TSP (see Figure 10 below) will be appropriate for the DCP. In all sections, street trees are indicated as optional. However, it is strongly recommended that an 8' planting strip be provided for street trees on all future streets in the study area.

For the half-street improvements required to bring North Redwood Street into compliance as a Collector as shown in the TSP, an additional 10'-30' of property will need to be dedicated from properties on the east edge of North Redwood Street. A center turn lane or median will not be required for the Collector, and no new stop signs are expected to be needed on North Redwood Street.

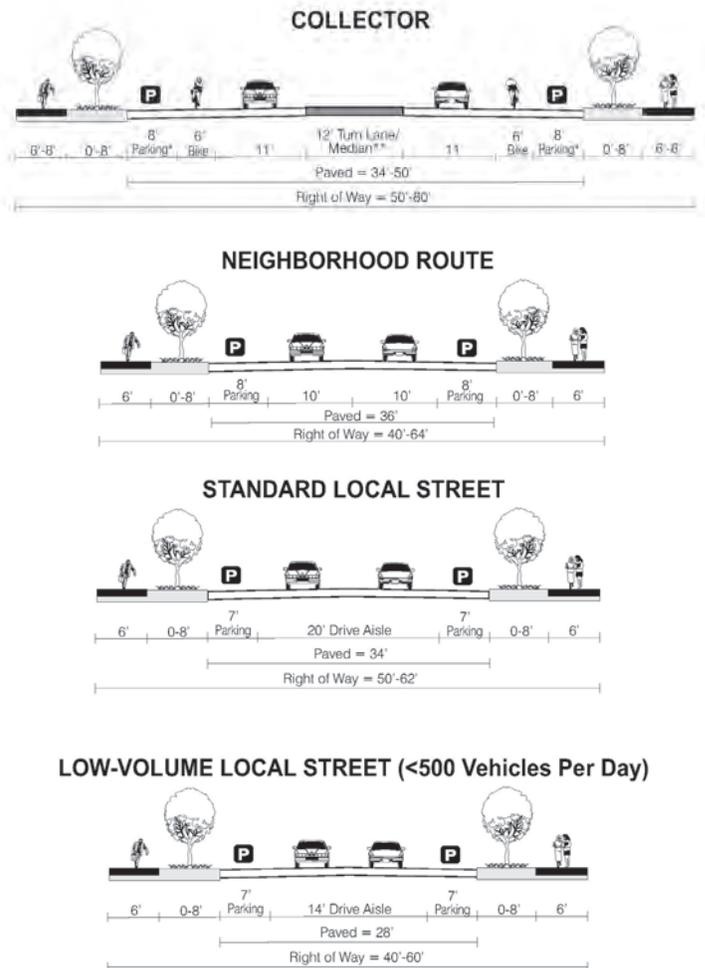


Figure 12: Canby Transportation System Plan street sections

## **Recommended Code Changes**

The following is an assessment of existing code provisions and recommended code amendments that will support the North Redwood Development Concept Plan. Generally, as the North Redwood community develops, a certain amount of flexibility will be needed in order to protect the area's natural resources while also distributing development capacity across the area in a reasonable, equitable manner. The ability for developers to be creative in terms of lot size, shape and layout will be important to ensure that open spaces can be preserved as a community amenity while still maximizing allowable densities.

Overall, the Canby zoning code currently includes provisions that support this kind of flexibility to a significant degree; therefore, the recommended revisions are relatively minimal. Where new language is suggested, it is presented in underline format.

### **Lot Size Averaging**

Lot size averaging allows the city to permit lot sizes that do not meet the minimum and maximum lot size standards in the low and medium density residential zones. This provision allows some flexibility in lot sizes in order to protect natural resources; lots can be smaller or larger as appropriate to work around areas of wetlands, parks and other desired open spaces. Existing language for lot size averaging in the R-1 zone is below. The language for the R-1.5 zone is similar.

#### **Section 16.60.030 Development Standards for the R-1 (low density) Zone**

##### *B. Lot area exceptions:*

*1. The Planning Commission may approve an exception to the minimum and maximum lot area standards in subsection 16.16.030.A as part of a subdivision or partition application when all of the following standards are met:*

*a. The average area of all lots 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 seven thousand square feet and no greater than ten thousand 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;*

b. No lot shall be created that contains less than six thousand square feet;

c. The lot area standards for two-family dwellings, as provided in Sections 16.16.010 and 16.16.020, shall be met; and

d. 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 (e.g., ten thousand square feet and larger), when such re-division would violate the average lot area provision in subsection 16.16.030.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 16.16.030.A.

3. The Planning Commission may modify the maximum lot area requirements in 16.16.030.A if these cannot be met due to existing lot dimensions, road patterns, or other site characteristics.

In the high density (R-2) zone, there are no minimum or maximum lot size standards. Instead, lot size is regulated through minimum density standards in combination with lot width and depth standards.

The lot size averaging provisions require that the overall average lot size still be consistent with the minimum and maximum lot size standard for that zone. It also includes a limit on how small a lot can be (no smaller than 6,000 s.f. in the R-1 zone and 4,000 in the R-1.5 zone). However, the alternative lot layout provisions discussed in the next section allow a further reduction of average lot size. Used in combination, the lot averaging and alternative lot layout provisions provide a high degree of flexibility and are sufficient to support innovative development in the North Redwood area.

One potential revision to the lot size averaging provision is to clarify the language in subsection 1(b) above that states a lot smaller than 6,000 square feet may not be created. This appears to conflict with the alternative lot layout standard that allows a 5,000 square foot reduction in the average lot size. The language could be revised as follows:

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

A similar revision could be made in the R-1.5 zone.

Another suggested revision relates to the language that defines what a “required” area is when determining what should be included in the average lot size calculations. The city has indicated a willingness to accept dedication of the natural resources area (creek, associated buffer and slopes) in lieu of its standard parkland dedication in the North Redwood area. If that is the case, then the dedicated land should be included in the lot size averaging calculation in order to achieve the intended benefit. To allow this possibility, the language could be revised as follows:

a. *The average area of all lots 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 seven thousand square feet and no greater than ten thousand 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;***

## **Alternative Lot Layouts**

Chapter 16.64 Subdivisions contains provisions for alternative lot layouts that provides additional flexibility to preserve natural resources and contiguous open spaces. If the alternative lot layout option is used, the average minimum lot size may be reduced by 5,000 square feet after subtracting access tracts. Overall development densities must not exceed the maximum density standard for the zone. Language from the alternative lot layout provisions is as follows:

### **Section 16.64.040 Lots**

*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.*

Use of this provision would allow lots as small as 2,000 square feet in the R-1 zone and would result in no minimum lot size in the R-1.5 zone, thus providing a developer the flexibility to cluster lots in order to protect natural resources. The alternative lot layout also allows deviation from the required setbacks and lot width and frontage standards. No revisions to the alternative lot layout provisions are recommended.

## **Planned Unit Developments**

Planned Unit Development (PUD) provisions could be used for a variety of purposes in the North Redwood area. They would allow for lot size averaging, alternative lot layouts, and protection of natural areas, with the development potential in those areas captured in the developable portion of a site. While use of the city's PUD process would provide opportunities for more development flexibility, such processes are most effective when applied to larger properties or developments. As a result, they would be most applicable on larger properties in the study area and/or in areas where property ownership can be consolidated. No revisions to the PUD provisions are recommended.

## **Annexation**

The existing code contains provisions for annexation of new properties into the city boundary. For properties that are within a designated Development Concept Plan (DCP) area, a DCP must be adopted by the city before a zone change will be approved for a newly annexed property. The language is as follows:

### **Section 16.84.040 Standards and Criteria for Annexation**

*A. The following criteria shall apply to all annexation requests.*

*1. The City of Canby Annexation Development Map shall determine which properties are required to submit either (See Figure 16.84.040):*

*b. A Development Concept Plan (DCP) binding for all properties located within the boundaries of a designated DCP area as shown on the City of Canby Annexation Development Map. A Development Concept Plan shall address City of Canby infrastructure requirements including:*

- 1. Water*
- 2. Sewer*
- 3. Stormwater*
- 4. Access*
- 5. Internal Circulation*
- 6. Street Standards*
- 7. Fire Department requirements*
- 8. Parks and open space*

*For newly annexed properties that are within the boundaries of a DCP area as designated on the City of Canby Annexation Development Map: A Development Concept Plan shall be adopted by the Canby City Council prior to granting a change in zoning classification.*

While this language ensures that a DCP be adopted prior to a zone change, it does not specify that zone changes occurring after annexation must be consistent with the DCP. To address this, the standards and criteria section could be revised as follows:

**Section 16.84.040 Standards and Criteria for Annexation**

A. *The following criteria shall apply to all annexation requests.*

...

8. *Statement indicating the type and nature of any comprehensive Plan text or map amendments or Zoning text or map amendments that may be required to complete the proposed development.*

**Proposed zoning must be consistent with zoning identified in any applicable adopted Development Concept Plan.**

# **Infrastructure**

## **(Recommended Changes to City Facility Plans and Standards)**

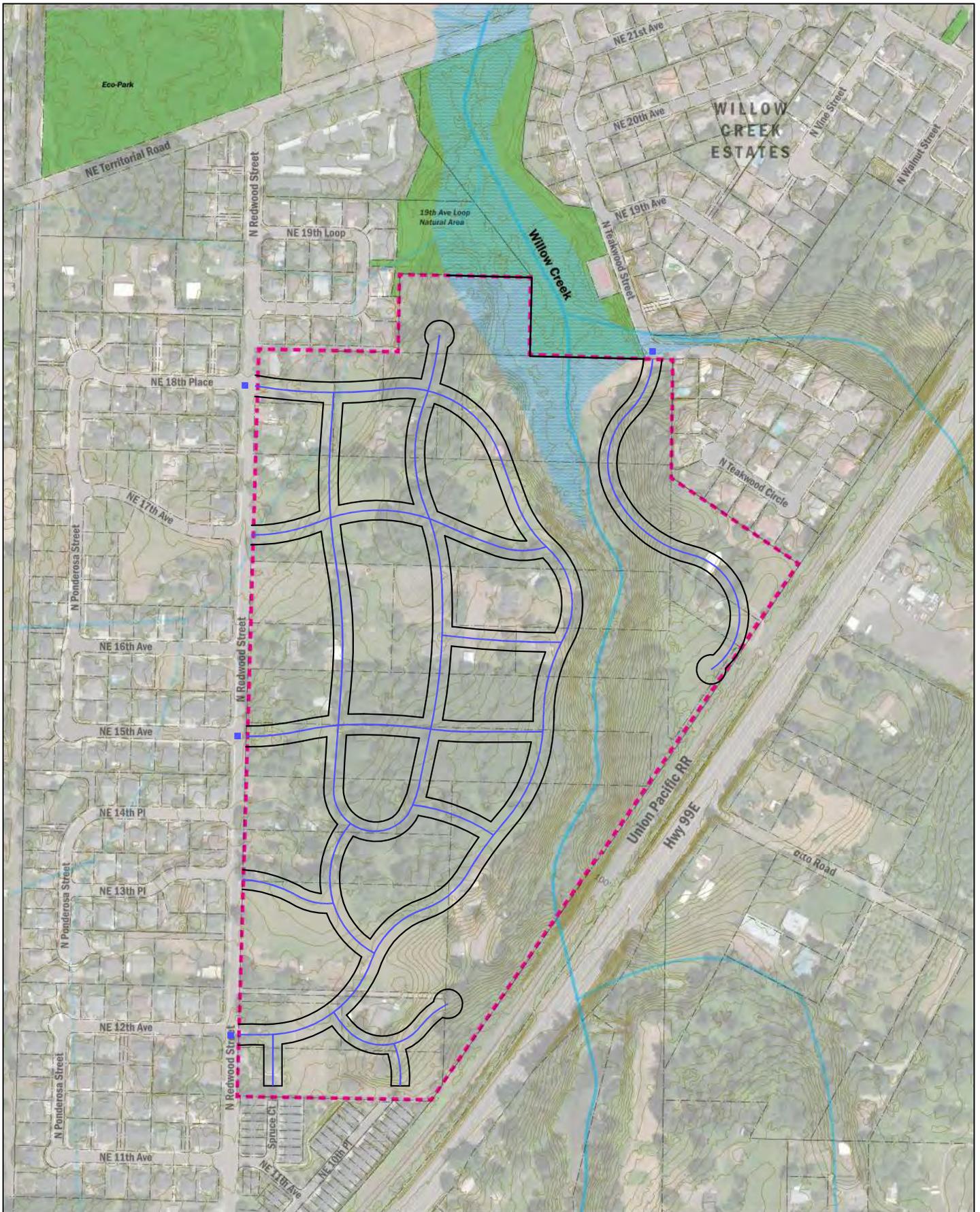


Figure 13: Water Map

LEGEND

Connect to Existing Water Main  
Water Pipe



NORTH REDWOOD DEVELOPMENT CONCEPT  
BASE MAP

0 100 200 400 800 Feet

## ***Infrastructure: Water***

Water within the City of Canby is provided by Canby Utility. Canby Utility completed a Water System Master Plan in 2010. The system analysis in the master plan included all areas within the Urban Growth Boundary, which includes the North Redwood site.

Waterlines adjacent to the project include an existing 12-inch waterline in N. Redwood Street and an 8-inch line in N. Teakwood Street. A 14-inch transmission line is located in NE Territorial Road to the North.

The North Redwood site can be served by Canby Utility via connections to the existing waterlines in N. Redwood Street and N. Teakwood Street. The project site is bisected by Willow Creek. Areas west and east of Willow Creek would be served via separate connections to the existing water system.

Proposed development west of Willow Creek can be served by connections to the existing 12-inch line in N. Redwood Street. A minimum of two connections to the N. Redwood Street waterline is recommended in order to provide a looped water system. The actual locations of the connections to the existing waterline may vary depending on the order in which properties develop. In addition, looping of waterlines within the proposed development is recommended.

Proposed development east of Willow Creek can be served by a connection to the existing water line in N. Teakwood Street. Based on the existing development adjacent to the North Redwood site, there will likely not be an opportunity to loop the water lines east of Willow Creek.

Figure 13 shows existing waterlines in the vicinity of the North Redwood site, proposed connections to serve the site, and a schematic layout of the water system within the preferred alternative.

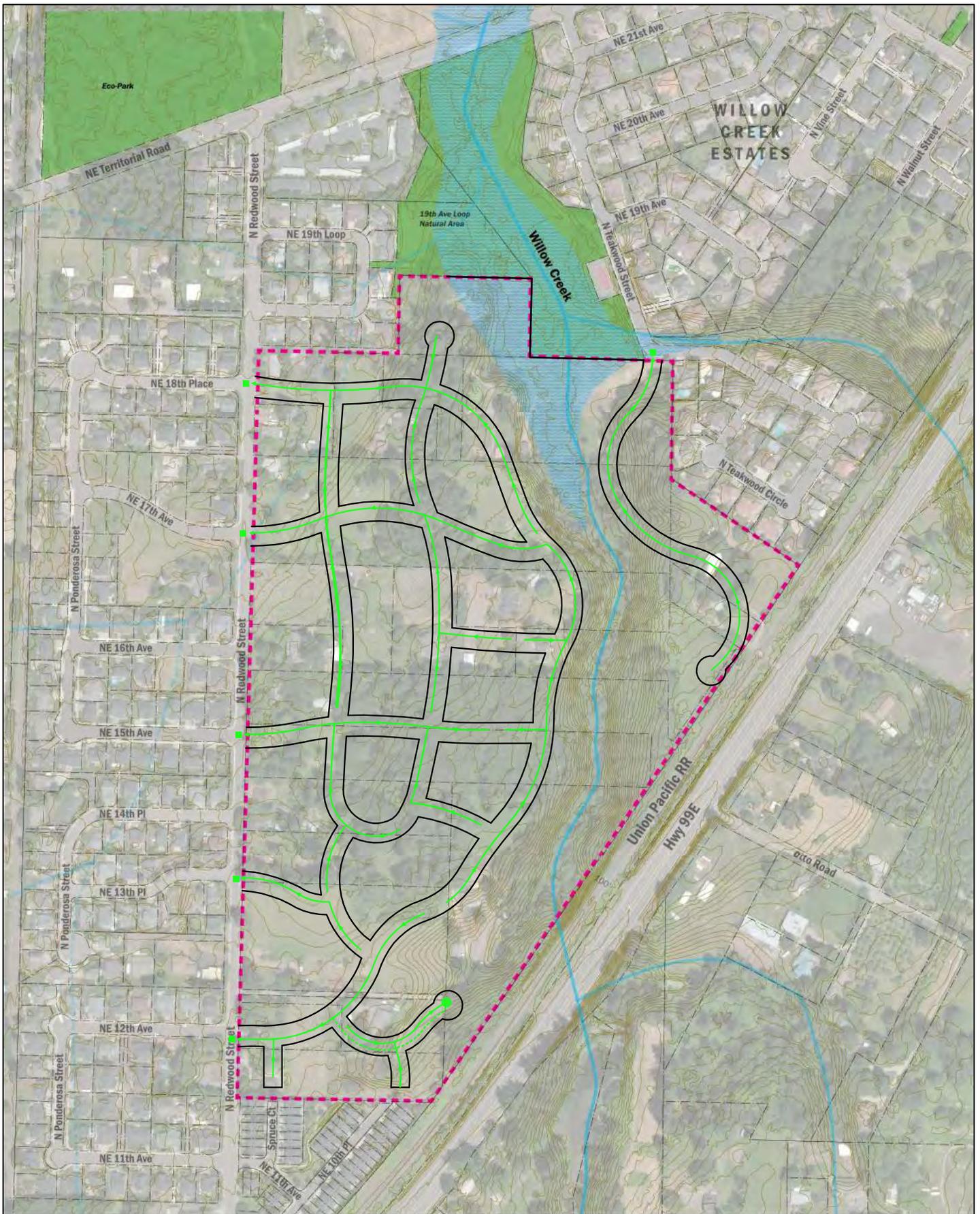


Figure 14: Sanitary Sewer Map

LEGEND

- Connect to Existing Sanitary Sanitary Pipe (Gravity)
- Pump Station
- Sanitary Pipe (Pressure)



NORTH REDWOOD DEVELOPMENT CONCEPT  
BASE MAP



## **Infrastructure: Sanitary Sewer**

Sanitary sewer service is provided by the City of Canby. Systems are required to be approved by and to comply with the requirements of Oregon Department of Environmental Quality.

The North Redwood Site can be delineated into two sanitary sewer basins:

- Basin 1: West of Willow Creek
- Basin 2: East of Willow Creek

Figure 14 shows each of the sanitary basins, potential sanitary sewer routes based on the preferred alternatives, and a potential pump station location.

### **Basin 1**

Basin 1 contains the area east of North Redwood Street and west of Willow Creek. An existing 15-inch sanitary sewer line located N. Redwood Street will serve this basin. According to as-built records, the existing sewer line is approximately 8-feet deep. Any areas uphill of N Redwood Street can feed into this line via gravity. Based on GIS contour information, the ground within the project site generally slopes from the ridge above Willow Creek to North Redwood Street at approximately 1.5 percent. There is a sizeable area within Basin 1 that has a 2 to 4 foot depression, which would need to be filled in order to provide gravity sewer service to the area. Developable areas immediately adjacent to Willow Creek would likely require a pressure sewer and a small lift station in order to provide service to the area.

Multiple connections to the existing sewer line are proposed for the preferred alternative. Planning for multiple connections will allow for increased flexibility in the order in which individual properties can develop. Depending on the order in which properties develop, there may be more or less connections to the existing system that shown in Figure 14.

Project Memo #5 describes the possibility of providing a sewer connection for the northernmost parcel in the project site via a gravity connection to an existing sewer line in NE 19th Loop. However, further analysis of the preferred alternative shows that a gravity connection cannot be made to NE 19th Loop. It does appear that with some fill in this area, a gravity connection could be made within Basin 1 for this area. An alternative to filling this development area would be a pressure sewer system that connects to Basin 1.

Capacity of the existing line in N. Redwood Street should be verified prior to development.

### **Basin 2**

Basin 2 contains the area within the North Redwood project site that lies east of Willow Creek. This area will be served via a connection to an existing sanitary sewer line in N Teakwood Street. Flow from the Teakwood Street sewer line flows to the existing Willow Creek Pump Station located at NE Territorial Road at Willow Creek.

The elevation and capacity of the existing sewer lines should be verified prior to development. In addition, the existing Willow Creek Pump Station should be evaluated to determine if it has capacity for the additional flow.

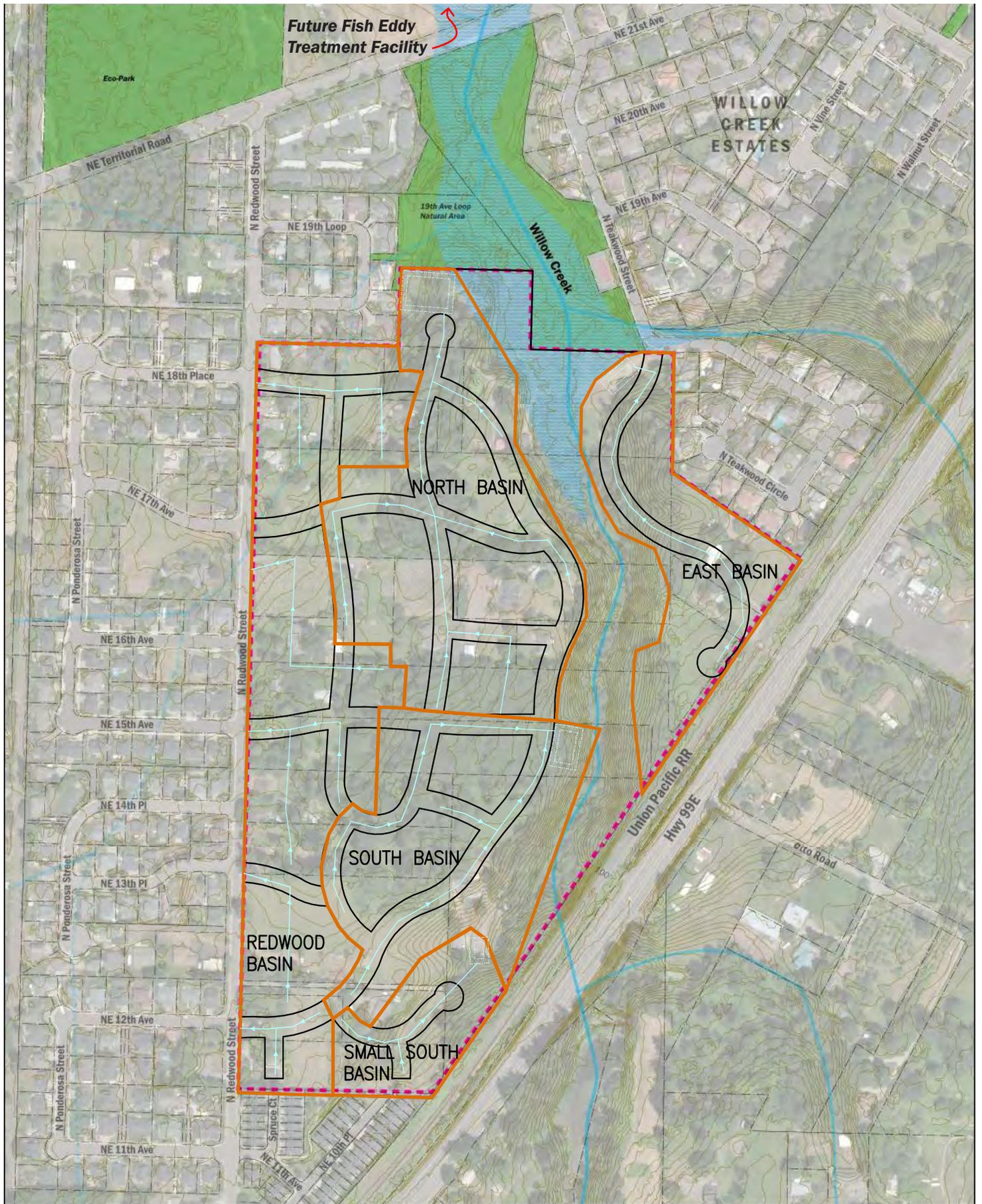


Figure 15: Stormwater Map

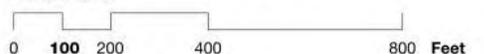
Note: Alleys recommended where required for stormwater conveyance.

LEGEND

- Basin Boundary
- Stormwater Pipe
- Stormwater Facility



NORTH REDWOOD DEVELOPMENT CONCEPT  
BASE MAP





Typical LIDA facilities: Swale



Typical LIDA facilities: Water Quality Pond



Typical LIDA facilities: Residential rain garden

## **Infrastructure: Stormwater**

The City of Canby Public Works Design Standards (Sections 4.109, 4.309, and 4.310) provide criteria for the design of water quality treatment facilities for storm water runoff. Acceptable methods of treatment include vegetated swales, extended dry ponds, constructed wetlands, Low Impact Development Approaches (LIDA), or proprietary treatment devices. Although all of these methods are acceptable forms of treatment, the City encourages the use of LIDA facilities for water quality treatment of stormwater.

In addition, stormwater quantity management will be required for all runoff from all development within the North Redwood Development Concept Plan area unless it can be demonstrated that there are no adverse downstream impacts. Prior to development, a downstream analysis should be performed to determine if water quantity management is required, per the City of Canby Public Works Design Standards, Section 4.205. If deemed necessary, the volume to be detained will be the volume necessary to limit the post-developed site peak discharge rate to pre-developed runoff rates for all storm events with a recurrence interval less than or equal to 25 years (2, 5, 10, and 25-year storm events). Detention and retention facilities are both acceptable methods of water quantity management. In accordance with City of Canby Standards, facilities shall be designed per CWS Design and Construction Standards, Chapter 4.

Storm sewer conveyance facilities shall be designed for the 10-year design storm event. According to the City of Canby Design Standards (section 4.206), peak design flows for conveyance can be calculated using the rational method, the SCS Curve Number method, or the Santa Barbara Urban Hydrograph method.

### **Other Potential Design Standards**

Many development projects result in impacts to jurisdictional wetlands or waterways. These impacts trigger a State and Federal permitting process with the Oregon Department of State Lands and U.S Army Corps of Engineers, respectively, through a Joint Permit Application.

The federal wetland permitting process for impacts to jurisdictional wetlands or waterways (i.e. Willow Creek) in the North Redwood Concept Plan area will likely require Endangered Species Act (ESA) consultation as part of the permitting process.

Through the ESA Consultation process, the National Marine Fisheries Service (NMFS) will require a higher level of stormwater management than would be required by the City of Canby and by the Clean Water Services Design & Construction Standards. Design for stormwater management would follow the more stringent standards set by the US Army Corps' "Standard Local Operating Procedures for Endangered Species (SLOPES) for Stormwater, Transportation, and Utilities". Based upon current information from NMFS, they would expect:

**1) Stormwater quality facilities are sized to treat a volume equal to 50% of the cumulative rainfall from the 2-year, 24-hour precipitation falling on all contributing impervious areas from the development.**

**2) Stormwater quantity facilities are designed to maintain the frequency and duration of flows generated by storms falling between the lower discharge endpoint (42% of 2-year event) and the upper discharge endpoint (10-year event).**

### **Existing Topography and Soils**

West of Willow Creek, the site topography generally slopes from the ridge above Willow Creek west to N Redwood Street. In addition, the site generally slopes from south to north. East of Willow Creek, the site generally slopes from east to west, toward Willow Creek, and also from south to north.

According to the NRCS Soil Survey, the majority of the site is Latourell Loam soils, which is in Hydrologic Soils Group B. Group B soils are generally well draining and are suitable for infiltration. Smaller portions of the site are Amity Silt Loam (Hydrologic Group C/D) and McBee Silty Clay Loam (Hydrologic Group C). Hydrologic Group C and D soils are moderately to poorly drained soils and are generally unsuitable for infiltration. Information from the NRCS Soil Survey can be found in Memo #2, page 8.

Although the NRCS data shows that the majority of the site is well draining, staff at the City have received reports from neighboring property owners noting that the soils in this area do not drain well. Before infiltration is chosen as an option for this site, a geotechnical investigation and infiltration testing should be conducted.

### **Existing Facilities**

There is an existing storm drain pipe in N Redwood Street which has excess capacity equivalent to approximately 11.8 acres of impervious surface. This storm drain was constructed as part of an advanced financing district for the neighborhood east of N Redwood Street. Utilization of this storm drain by the North Redwood project site may require that developers contribute to the cost that was incurred by the neighboring property owners for the construction of this line.

The N Redwood storm drain discharges to the Fish Eddy site. According to the City's stormwater master plan, a treatment wetland will be constructed as part of the restoration of the Fish Eddy property. The treatment wetland will provide water quality treatment and detention for runoff that utilizes the N Redwood storm drain line and future Willow Creek Drainage.

Existing pipes in N Redwood Street should be surveyed to determine the elevation of the existing storm sewer in order to evaluate the extent to which the North Redwood Concept Plan area can drain to the existing N Redwood Street storm sewer conveyance system.

Willow Creek bisects the site approximately 1,000 feet east of N Redwood Street. Willow Creek flows north through the 19th Avenue Natural Area and discharges through a weir structure to two 36-inch diameter culverts under NE Territorial Road. North of Territorial Road, Willow Creek enters the Fish Eddy site on its way to the Willamette River. In accordance with City standards, stormwater treatment is required prior to discharging runoff into Willow Creek.

### **Hydrology**

The hydrologic computations focus on the quality and quantity control system design storms, which use the 2-year, 10-year, and 25-year frequency, 24-hour duration design storm events and the Santa Barbara Urban Hydrograph (SBUH) method. Rainfall depths for the storm events of interest, obtained from the ODOT 24-hour isopluvial maps and listed in Table 2, were applied to the NRCS Type 1A rainfall distribution.

<b>Recurrence Interval</b>	<b>Precipitation Depth (in)</b>
2-Year	2.40
10-Year	3.40
25-Year	3.80

**Table 2: Precipitation Depths for 24-Hour Duration Storm Events**

Runoff Curve Numbers (CN), listed in Table 3 for impervious and pervious surfaces, were selected using the TR-55 runoff curve number table.

<b>Category</b>	<b>Cover Type</b>	<b>Hydrologic Soil Group</b>	<b>Curve Number</b>
Impervious Area	Pavement, roofs, sidewalks	C, B	98
Pre-development Pervious Area	Woods/ grass Comb, Fair	B	65
Pre-development Pervious Area	Woods/ grass Comb, Fair	C	76
Pre-development Pervious Area	Woods/ grass Comb, Fair	D	82
Post-development Pervious Area	50-75% Grass Cover, Fair	B	69
Post-development Pervious Area	50-75% Grass Cover, Fair	C	79
Post-development Pervious Area	50-75% Grass Cover, Fair	D	84

**Table 3: Runoff Curve Numbers**

In accordance with City of Canby Standards, water quality facilities shall be designed per CWS Design and Construction Standards, Chapter 4. Stormwater facilities shall be designed for a dry weather storm event totaling 0.36 inches of precipitation falling in four hours with an average storm return period of 96 hours.

## Stormwater Basins and Management

The basin east of Willow Creek is approximately 7.6 acres. Stormwater runoff will be conveyed north and receive treatment and quantity control in a stormwater facility before being discharged into Willow Creek.

The existing storm drain in N Redwood Street should be utilized for areas of the site that, for topographic reasons, cannot be conveyed to Willow Creek. A maximum of 11.8 acres of impervious area or street right-of-way can be conveyed to N Redwood Street. If the drainage area directed to N Redwood Street contained both right-of-way and lot runoff, then an equivalent area of approximately 18 acres (assuming 60% impervious) could be conveyed to N Redwood Street. The basin that is expected to drain to N Redwood Street is 17.8 acres. It is assumed that connections to the existing system in N Redwood Street can be made at a depth of five feet. Treatment of this runoff would occur at the Fish Eddy site, as part of the treatment wetland capital improvement project.

A small 3.7 acre basin at the south end of the site and west of Willow Creek is in a low area that cannot be drained northward. Stormwater runoff will be conveyed east and receive treatment and quantity control in a stormwater facility before being discharged into Willow Creek.

An 11.7-acre basin is south of the main East-West Neighborhood route. Stormwater runoff will be conveyed north and east to receive treatment and quantity control in a stormwater facility before being discharged into Willow Creek.

The basin north of the main East-West Neighborhood route is 15.7 acres. Stormwater runoff will be conveyed north and east to receive treatment and quantity control in a stormwater facility before being discharged into Willow Creek. Portions of this basin will need to be filled to maintain positive flow to the north.

Existing and proposed condition peak runoff rates were calculated using HydroCAD v10.0 software. Table 4 summarizes peak runoff rates, and calculations are included in Appendix D.

The detention facilities with a water quality swale in the bottom have four feet of detention depth and one foot of freeboard with side slopes of 3H:1V. Table 5 summarizes the pond areas and volumes.

Catchment/ Facility ID	Top Surface Area (sf)	Pond Volume (cf)
Basin East	4,960	11,700
Basin Small South	3,740	10,100
Basin South	9,670	30,100
Basin North	17,680	57,400

**Table 5: Detention Basin Volumes**

Catchment/ Facility ID	Peak Flow Rate (cfs)						
	2-year		10-year		25-year		
	Existing	Proposed	Existing	Proposed	Existing	Proposed	Proposed (Detained)
Basin Redwood	0.39	1.36	1.17	8.75	1.8	10.45	NA
Basin East	0.15	1.29	0.43	2.46	0.72	2.99	0.62
Basin Small South	0.07	1.15	0.24	1.85	0.41	2.15	0.38
Basin South	0.23	3.11	0.70	5.12	1.18	6.00	1.15
Basin North	0.32	3.96	0.83	6.66	1.22	7.84	1.08

**Table 4: Facility Flow Control Summary**

### ***Infiltration***

If a geotechnical analysis concludes that infiltration is appropriate for this site, it can be used as a method of storm water retention and disposal. Individual lot drainage can be disposed of on site. Right-of-way runoff could be infiltrated through a combination of LIDA facilities and drywells or retention ponds. If the geotechnical analysis concludes that infiltration is not appropriate for this site, stormwater would need to be conveyed to Willow Creek for disposal. The use of infiltration drywells to dispose of stormwater will trigger a different permitting process. Stormwater infiltration drywells are considered an underground injection control (UIC) and are regulated by the Safe Drinking Water Act. DEQ administers a permitting process for UICs.

## Planning Level Infrastructure Costs

Table 6 below shows conceptual level unit costs for many of the elements that will be required for the development of this site.

Item	Unit Cost	Assumptions
Streets	\$490/LF	This cost includes base rock, AC pavement, curb and gutter, and sidewalks as well as grading of both streets and lots. The cost does not include street trees, landscaping, or retaining walls. Cost is based on dollars per linear foot of street.
Storm Drain Conveyance	\$150/LF	This cost includes pipe, inlets, and manholes. The cost does not include water quality or quantity management facilities. Unit cost is based on total street length.
Stormwater Management Facilities	\$15,000/acre	This cost is based on dollars per acre of overall development. It includes water quality and water quantity facilities.
Sanitary Sewer Conveyance	\$130/LF	This cost includes pipe, manholes, and laterals for gravity and pressure sewer conveyance. The cost does not include pump stations. Unit cost is based on total street length.
Sanitary Sewer Pump Station	\$150,000/each	This cost includes a small sanitary sewer pump station. Unit cost is based on total street length.
Waterline	\$100/LF	This cost includes pipe, fittings, and fire hydrants. The cost does not include water services and meters. Unit cost is based on total street length.
Franchise Utilities and Street Lights	\$130/LF	This costs includes conduit for franchise utilities, vaults and street lights. Unit cost is based on total street length.
Vehicular Bridge over Willow Creek	\$1,000,000 - \$1,200,000/each	Cost is for a 44 ft wide single span bridge. Costs vary with length of structure. The low end is for a 110' long bridge; high end is for a 150' long structure.
Pedestrian Bridge over Willow Creek	\$65,000 - \$265,000/each	Cost is for a 10 ft wide weathering steel truss type bridge with a concrete deck. Costs vary with length of structure, which depends on where the pedestrian bridge will be located. The low end is for a 40' long structure; high end is for a 120' long structure.

**Table 6: Conceptual Unit costs for North Redwood development**

Table 7, below, shows the above unit prices applied to the preferred alternative to arrive at a total cost of development for the North Redwood Concept Plan.

Item	Quantity	Unit	Unit Cost*	Total Cost
Streets	11,450	LF	\$490	\$5,610,500
Storm Drain	11,450	LF	\$150	\$1,717,500
Sanitary Sewer	11,450	LF	\$130	\$1,488,500
Waterline	11,450	LF	\$100	\$1,145,000
Franchise Utilities	11,450	LF	\$130	\$1,488,500
Stormwater Management Facilities	56.8	Acre	\$15,000	\$852,000
Sanitary Sewer Pump Station	1	Each	\$150,000	\$150,000
Pedestrian Bridge	1	Each	\$265,000	\$265,000
<b>Total Cost</b>				<b>\$12,717,000</b>

*\*Typical subdivision costs were developed from construction costs of a recent 16.3 acre single family subdivision in Washington County. Bridge costs were developed from costs of structures of similar size and type. All costs assume dry weather construction and rock excavation is not included. Costs include 30% contingency. Costs are construction costs and do not include soft costs such as engineering and permit fees.*

**Table 7. Preferred Alternative Planning Level Infrastructure Costs**

# Implementation and Funding



## ***District Infrastructure Cost Sharing Options (text to be refined; also please see Appendix A Funding Toolkit)***

The following is a summary of infrastructure cost sharing options that could be considered for this study area. Please see the Funding Toolkit in Appendix A for more detail. It will be challenging to equitably distribute the costs and benefits of development in the study area, given the number of property owners and the wide range of property sizes and access to existing infrastructure. We recommend that a more thorough funding plan be conducted as a follow up to this Concept Plan; this funding plan may require additional engineering, costing, and financial analysis.

### ***Plan Considerations***

From an infrastructure funding point of view, the North Redwood DCP should locate roadways and other infrastructure (particularly sewer and water lines in road rights of way) along property lines whenever possible. Another alternative is to locate infrastructure in the middle of larger properties. Infrastructure that is located in these ways maximizes the amount of developable property.

In addition, linear, parcel-based infrastructure makes it clearer which property owners will be responsible for paying for individual segments. This can avoid challenges; for example, if an intermediary owner does not wish to develop, they can effectively preclude other owners from developing.

When possible, roadways should also be laid out so that they do not disproportionately burden certain property owners. For example, if possible, roads should not run through small properties because (in the absence of a district funding solution) this will disproportionately increase such owners' infrastructure costs while reducing their potential revenues (residential lot or home sales). This is less of an issue on larger properties, where roads will be needed and there is more developable land.

### ***Cost Sharing Between Two Property Owners***

When roadways straddle property lines, each property owner is responsible for building and paying for one-half of the roadway infrastructure. Sometimes, the first-in developer will build the entire roadway and place a reimbursement district or latecomer agreement on the other property owner(s), which requires the latecomer property owners to pay

their share of infrastructure costs at the time of development. Such a reimbursement district must be approved by the City. Since such an agreement would likely be between just a few property owners, it is not considered in the “district” funding tools summarized below.

### Summary of District Funding Options

One or more “district funding tools” will likely be needed to fund some improvements. These options are listed below and described in Appendix B. The first three options may be initiated by either property owners/developers, or the City, while Urban Renewal and the City’s CIP can only be implemented at the discretion of the City.

- Local Improvement District (LID)
- Advance Finance District (AFD)
- Urban Renewal
- City of Canby Capital Improvement Projects (CIP)

### District Funding: Uses of Funds

Our recommendation is that one or more of the district funding tools listed above be implemented in order to pay for a set of “district infrastructure.” As used here, the term “district infrastructure” means transportation, sewer, water, stormwater, or parks/open space that benefit most or all of the properties within the study area, and whose costs should not reasonably be paid by one property owner.

The proposed neighborhood park is an example of something all future residents will benefit from, not just those who live on the property where it will be built. In addition, it would not be fair to require one property owner to build such a park since they would then bear a disproportionate share of infrastructure costs.

District infrastructure can be contrasted with “local” infrastructure, which largely benefits an individual’s property, is required as a condition of development in order for homes to be built on that property, and is approximately the same size and cost as the infrastructure on other properties. A road on an individual’s property is an example, since that road

would be required in order for development to occur.

We recommend that one or more of the district funding tools listed above be implemented in order to pay for the following “district” infrastructure:

### Parks *This section replaced by Leland Memo pg 340*

- Neighborhood Park, including the cost of land (approximately 1 acre, with the value to be based on an appraisal), and improvements to the park (e.g., landscaping, play structures, etc.).
- Willow Creek Natural Area. The district should also pay for land and improvement costs within the 7.8-acre Willow Creek Natural Area. However, the value of this property will be considerably lower than the land to be purchased for the Neighborhood Park, since much of this land is sloped or wetland and therefore cannot be developed. Nonetheless, the land likely has some value for recreation, enjoyment, agriculture, or other purposes. For the purposes of this analysis, a planning-level value estimate of \$2.50 per square foot is used; an appraisal or other valuation will be required in order to establish the land’s value. In addition, the cost of improvements in this park are expected to be lower since the improvements will be simpler.

A summary of preliminary planning-level cost estimates is included below.

The parks-associated assessment payments that property owners make into an LID or AFD will be creditable against the parks Systems Development Charges (SDCs) that they owe at the time of development (typically building permits). Thus, the cost of the parks infrastructure shown above will be offset against future SDCs owed.

A pedestrian bridge is planned and will benefit most of the properties in the subject area. The estimated cost is \$265,000.

A sewer pump station is planned and will benefit most of the properties in the subject area. The estimated cost is \$150,000.

**Total District Costs: Based on the above costs, the total amount to be funded by the district funding mechanism would be \$4,215,000, not inclusive of administrative and financing costs. Note that the costs listed on page 32 include some elements that individual properties will have to bear costs for.**

# Appendices



## **Appendix A: Meeting Notes & Memos**

There are a number of supporting memos and meeting minutes that should be consulted as background information for this DCP. These files are attached as a combined Appendix A in the pages that follow.

### **Project Memos:**

- Memo #1: Project Planning and Implementation***
- Memo #2: Existing Conditions***
- Memo #3: Development Rights and Best Development Practices***
- Memo #4: Evaluation Criteria***
- Memo #5: Alternative DCPs***
- Project Website Input (Deliverable 1D)***
- Comprehensive Plan and Zoning Code Amendments***
- Funding Toolkit***

### **Meeting Notes:**

- Stakeholder Interview Summary (Deliverable 2D)***
- Project Management Team (PMT) #1***
- Project Management Team (PMT) #2***
- Project Management Team (PMT) #3***
- Project Management Team (PMT) #4***

### **Committee Meeting Notes:**

- Technical Advisory Committee (TAC) #1***
- Technical Advisory Committee (TAC) #2***
- Stakeholder Advisory Committee (SAC) #1***  
*TAC/SAC Presentation and Notes*
- Stakeholder Advisory Committee (SAC) #2***  
*TAC/SAC Presentation and Notes*
- Stakeholder Advisory Committee (SAC) #3***
- Technical Advisory Committee (TAC) #3***  
*Combined TAC/SAC Presentation and Notes*

### **Public Event Summaries/Materials:**

- Public Event #1***
- Public Event #2***

## **Appendix B: Phasing**

There are many different ways in which this DCP could proceed. **Development of the community will depend primarily on how property owners in the area proceed based on their willingness to develop, market readiness and availability of financing.**

Some owners towards the center and east of the study area may not be able to develop until other parcels closer to North Redwood Street proceed. Such timing issues can potentially be resolved through a Development Agreement between different parties, which would presumably incorporate agreements on shared funding of major streets and infrastructure.

The following pages demonstrate how the study area could theoretically develop in three broad phases, beginning along North Redwood and proceeding eastward. The figures show new streets for each phase in purple. Larger investments in parks, open spaces and trails would wait until development reached those areas and more units have paid into a fund to finance public improvements.

Another approach would suggest that properties along Willow Creek are the most valuable and could develop first. This would require extension of roadways deep into the study area, potentially without adjacent development. The value of the larger lots along the Creek may outweigh this disadvantage. Development of the area east of Willow Creek could proceed independently of the timing of changes on the west bank. The key triggers to development east of the creek will be agreement with UPRR on an emergency crossing and finalizing the connection to Teakwood Road.

Regardless of what phasing approach is pursued by property owners, there are a number of actions that should be pursued prior to development. These include:

- 1. Property owner agreement on pursuing annexation**
- 2. Annexation vote**
- 3. Finalize funding plan and developer agreement between majority of property owners**
- 4. Refinement of DCP, updated as property owners refine individual plans**
- 5. Initial utility design and mass grading plan**
- 6. Access planning and design for UPRR crossing, Teakwood access and new intersections on North Redwood**
- 7. Restoration plan for Willow Creek**
- 8. Design and land acquisition for North Redwood widening, to collector standard**

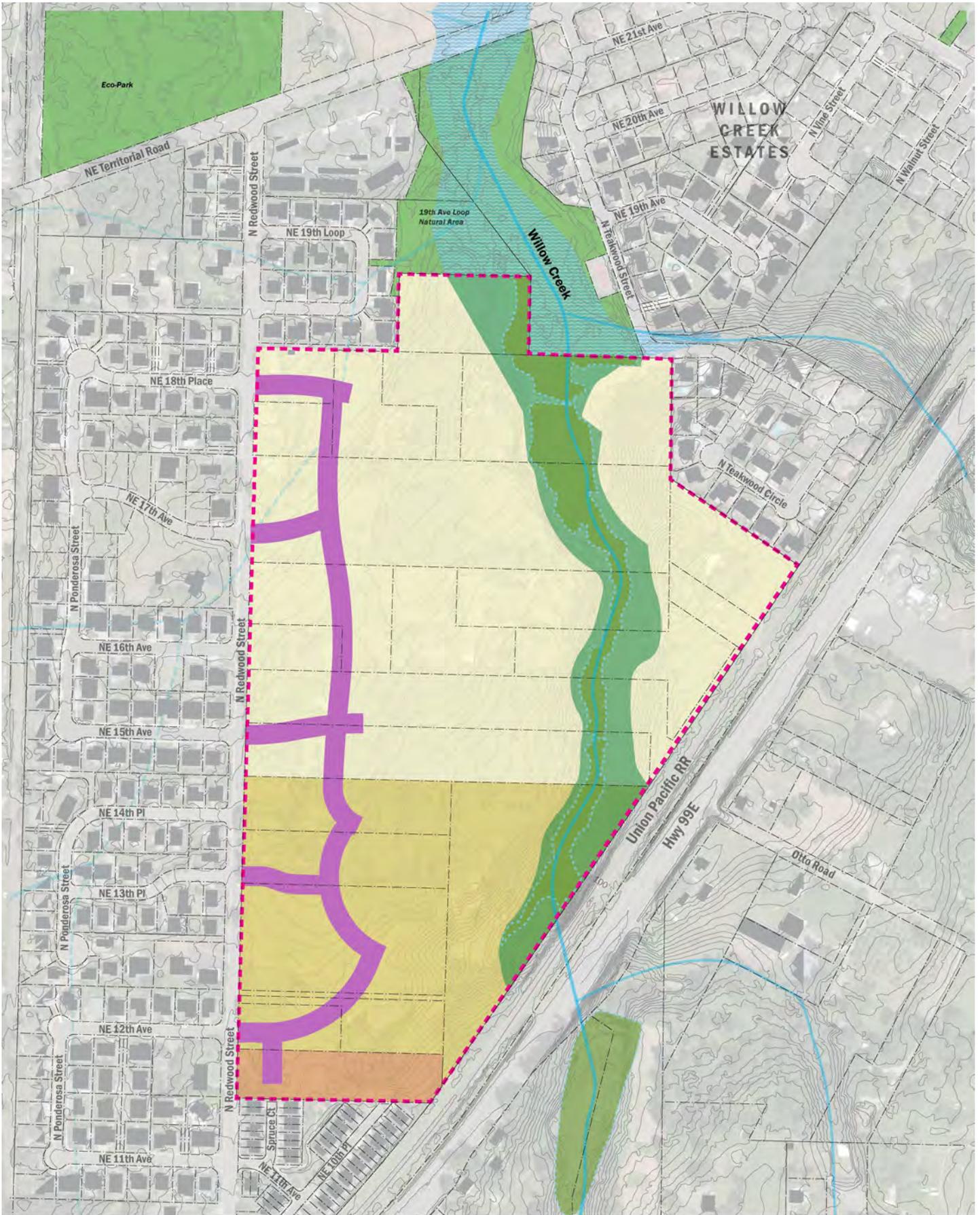
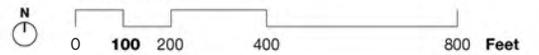
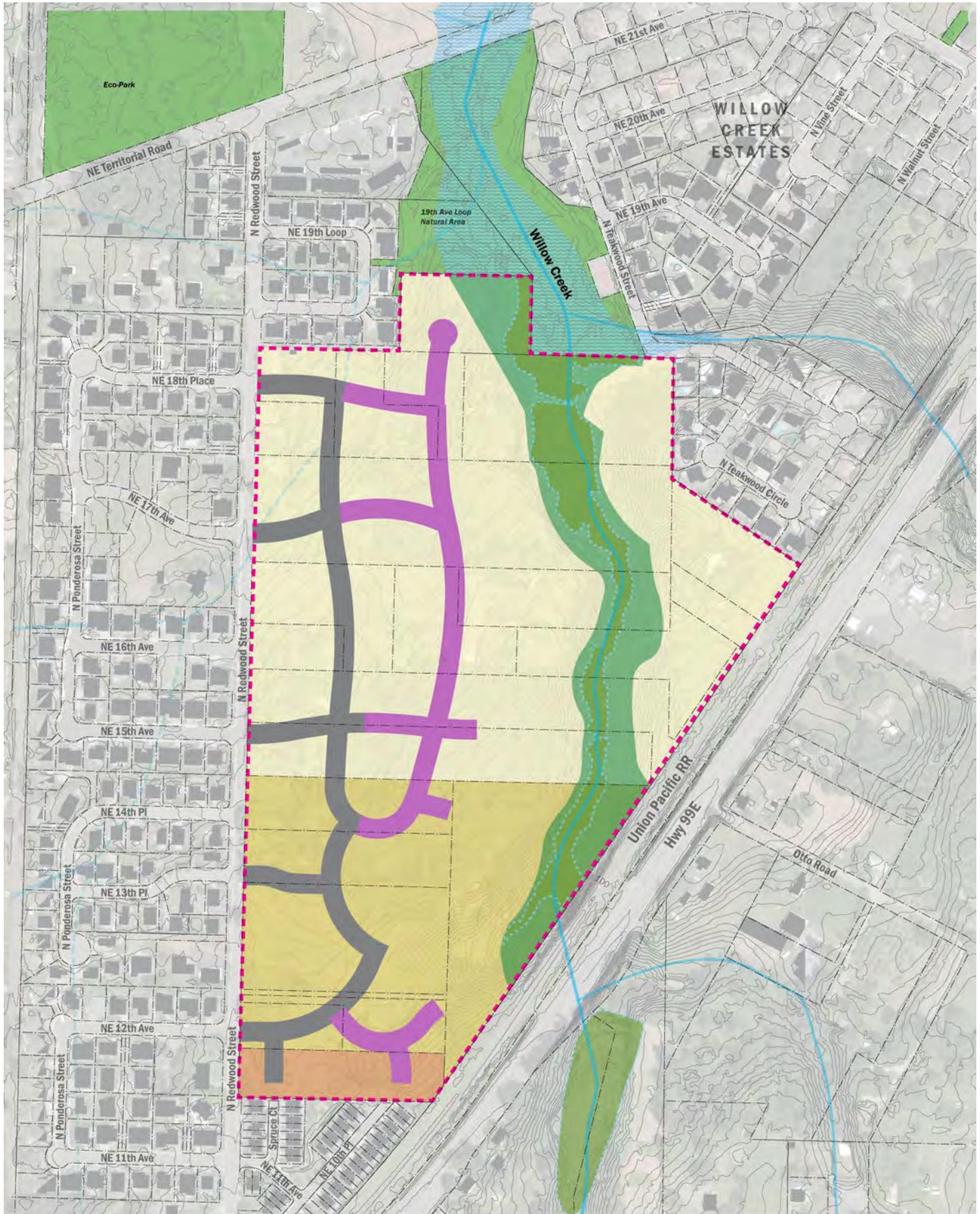


Figure A-1: Recommended DCP, Potential Phase 1

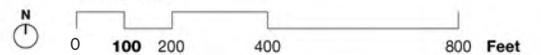
NORTH REDWOOD DEVELOPMENT CONCEPT  
BASE MAP





**Figure A-2: Recommended DCP, Potential Phase 2**

**NORTH REDWOOD DEVELOPMENT CONCEPT  
BASE MAP**



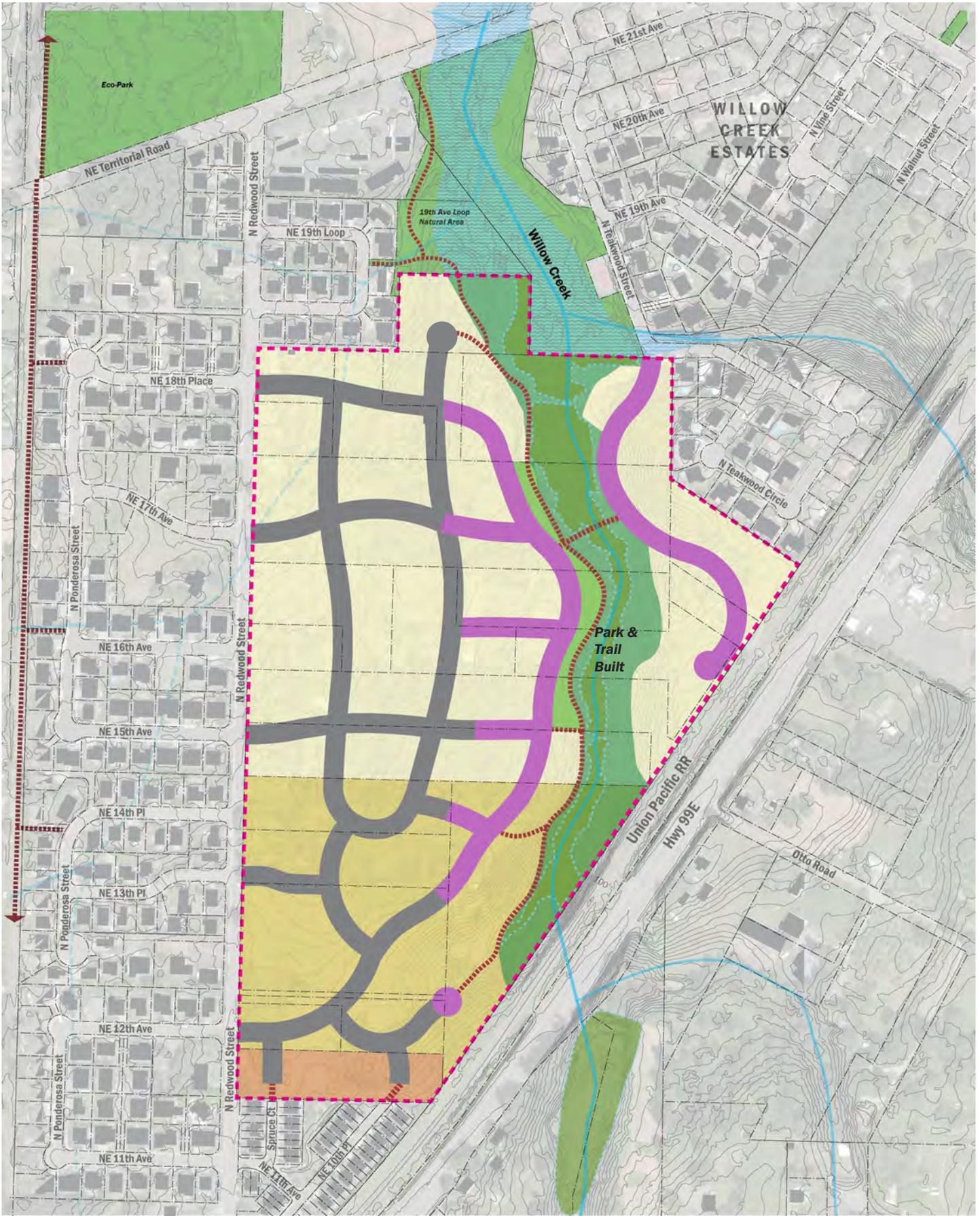
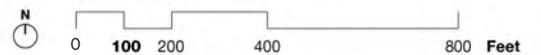
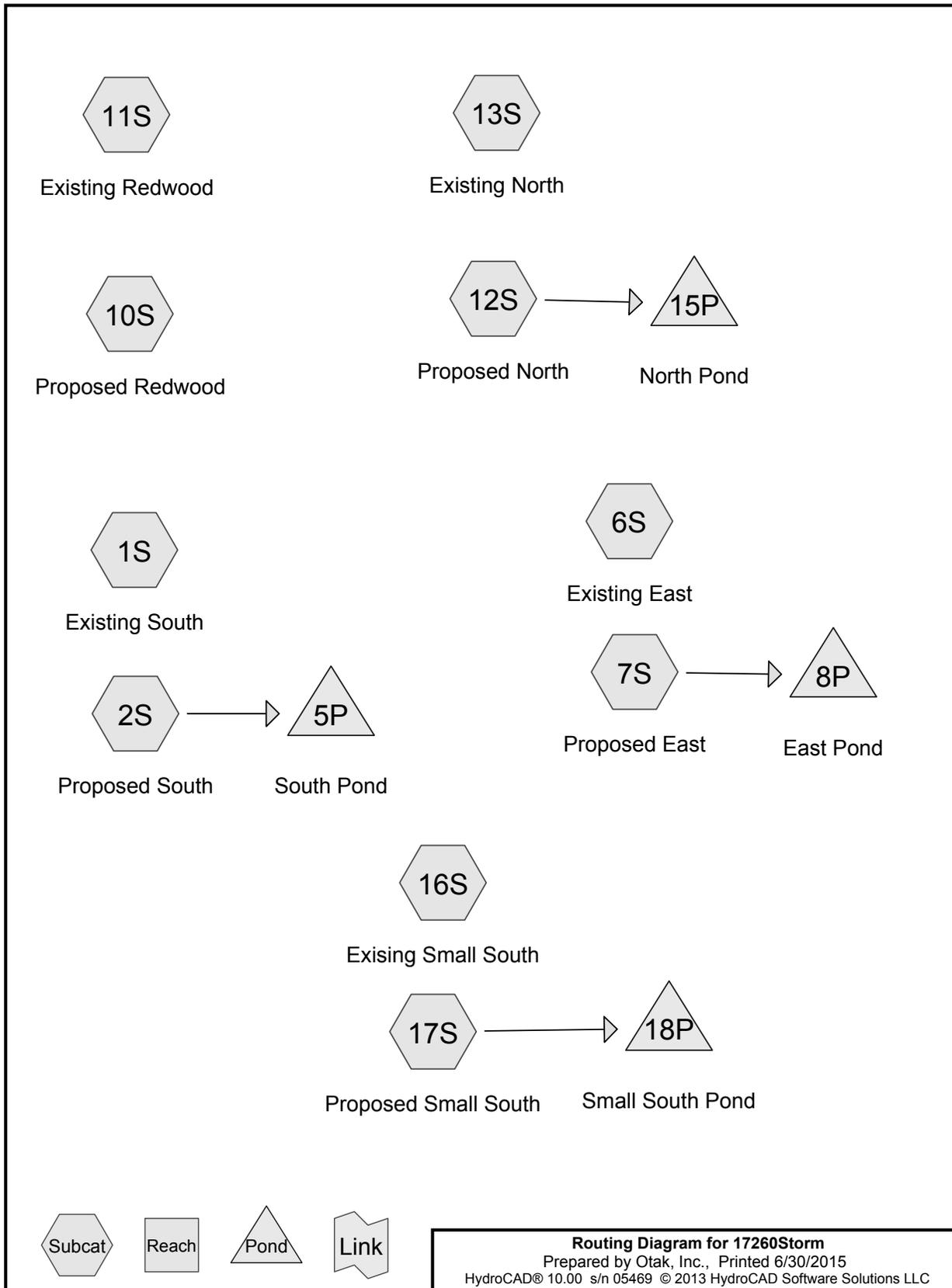


Figure A-3: Recommended DCP, Potential Phase 3 (Final)

NORTH REDWOOD DEVELOPMENT CONCEPT  
BASE MAP



**Appendix C: HydroCAD report**



**17260Storm**

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North Redwood Concept Plan  
Type IA 24-hr 2yr Rainfall=2.40"

Printed 6/30/2015

Page 2

Time span=0.00-48.00 hrs, dt=0.05 hrs, 961 points

Runoff by SBUH method, Split Pervious/Imperv.

Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

<b>Subcatchment1S: Existing South</b>	Runoff Area=11.660 ac 0.00% Impervious Runoff Depth=0.26" Flow Length=928' Tc=14.4 min CN=65/0 Runoff=0.23 cfs 0.254 af
<b>Subcatchment2S: Proposed South</b>	Runoff Area=11.670 ac 49.27% Impervious Runoff Depth=1.26" Flow Length=1,140' Tc=9.2 min CN=69/98 Runoff=3.11 cfs 1.226 af
<b>Subcatchment6S: Existing East</b>	Runoff Area=7.620 ac 0.00% Impervious Runoff Depth=0.26" Flow Length=1,394' Tc=17.6 min CN=65/0 Runoff=0.15 cfs 0.166 af
<b>Subcatchment7S: Proposed East</b>	Runoff Area=7.620 ac 29.79% Impervious Runoff Depth=0.91" Flow Length=1,200' Slope=0.0350 '/' Tc=7.4 min CN=69/98 Runoff=1.29 cfs 0.578 af
<b>Subcatchment10S: Proposed Redwood</b>	Runoff Area=22.830 ac 37.36% Impervious Runoff Depth=1.07" Flow Length=620' Tc=7.2 min CN=70/98 Runoff=4.91 cfs 2.030 af
<b>Subcatchment11S: Existing Redwood</b>	Runoff Area=17.810 ac 0.00% Impervious Runoff Depth=0.32" Flow Length=650' Tc=29.3 min CN=67/0 Runoff=0.39 cfs 0.469 af
<b>Subcatchment12S: Proposed North</b>	Runoff Area=15.890 ac 45.94% Impervious Runoff Depth=1.22" Flow Length=1,475' Tc=10.4 min CN=70/98 Runoff=3.96 cfs 1.613 af
<b>Subcatchment13S: Existing North</b>	Runoff Area=15.730 ac 0.00% Impervious Runoff Depth=0.29" Flow Length=1,405' Tc=46.6 min CN=66/0 Runoff=0.32 cfs 0.377 af
<b>Subcatchment16S: Existing Small South</b>	Runoff Area=3.730 ac 0.00% Impervious Runoff Depth=0.26" Flow Length=609' Tc=10.9 min CN=65/0 Runoff=0.07 cfs 0.081 af
<b>Subcatchment17S: Proposed Small South</b>	Runoff Area=3.730 ac 55.76% Impervious Runoff Depth=1.38" Flow Length=475' Tc=5.9 min CN=69/98 Runoff=1.15 cfs 0.428 af
<b>Pond 5P: South Pond</b>	Peak Elev=112.03' Storage=0.297 af Inflow=3.11 cfs 1.226 af Outflow=0.82 cfs 1.224 af
<b>Pond 8P: East Pond</b>	Peak Elev=89.55' Storage=0.089 af Inflow=1.29 cfs 0.578 af Outflow=0.45 cfs 0.578 af
<b>Pond 15P: North Pond</b>	Peak Elev=101.82' Storage=0.545 af Inflow=3.96 cfs 1.613 af Outflow=0.80 cfs 1.595 af
<b>Pond 18P: Small South Pond</b>	Peak Elev=107.18' Storage=0.098 af Inflow=1.15 cfs 0.428 af Outflow=0.30 cfs 0.428 af

**Total Runoff Area = 118.290 ac Runoff Volume = 7.222 af Average Runoff Depth = 0.73"**  
**78.08% Pervious = 92.360 ac 21.92% Impervious = 25.930 ac**

## Appendix C: HydroCAD report

### 17260Storm

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North Redwood Concept Plan  
Type IA 24-hr 10yr Rainfall=3.40"

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Page 3

Time span=0.00-48.00 hrs, dt=0.05 hrs, 961 points

Runoff by SBUH method, Split Pervious/Imperv.

Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

<b>Subcatchment1S: Existing South</b>	Runoff Area=11.660 ac 0.00% Impervious Runoff Depth=0.70" Flow Length=928' Tc=14.4 min CN=65/0 Runoff=0.70 cfs 0.680 af
<b>Subcatchment2S: Proposed South</b>	Runoff Area=11.670 ac 49.27% Impervious Runoff Depth=2.01" Flow Length=1,140' Tc=9.2 min CN=69/98 Runoff=5.12 cfs 1.959 af
<b>Subcatchment6S: Existing East</b>	Runoff Area=7.620 ac 0.00% Impervious Runoff Depth=0.70" Flow Length=1,394' Tc=17.6 min CN=65/0 Runoff=0.43 cfs 0.445 af
<b>Subcatchment7S: Proposed East</b>	Runoff Area=7.620 ac 29.79% Impervious Runoff Depth=1.57" Flow Length=1,200' Slope=0.0350 '/' Tc=7.4 min CN=69/98 Runoff=2.46 cfs 0.998 af
<b>Subcatchment10S: Proposed Redwood</b>	Runoff Area=22.830 ac 37.36% Impervious Runoff Depth=1.78" Flow Length=620' Tc=7.2 min CN=70/98 Runoff=8.75 cfs 3.379 af
<b>Subcatchment11S: Existing Redwood</b>	Runoff Area=17.810 ac 0.00% Impervious Runoff Depth=0.79" Flow Length=650' Tc=29.3 min CN=67/0 Runoff=1.17 cfs 1.179 af
<b>Subcatchment12S: Proposed North</b>	Runoff Area=15.890 ac 45.94% Impervious Runoff Depth=1.97" Flow Length=1,475' Tc=10.4 min CN=70/98 Runoff=6.66 cfs 2.604 af
<b>Subcatchment13S: Existing North</b>	Runoff Area=15.730 ac 0.00% Impervious Runoff Depth=0.75" Flow Length=1,405' Tc=46.6 min CN=66/0 Runoff=0.83 cfs 0.979 af
<b>Subcatchment16S: Existing Small South</b>	Runoff Area=3.730 ac 0.00% Impervious Runoff Depth=0.70" Flow Length=609' Tc=10.9 min CN=65/0 Runoff=0.24 cfs 0.218 af
<b>Subcatchment17S: Proposed Small South</b>	Runoff Area=3.730 ac 55.76% Impervious Runoff Depth=2.16" Flow Length=475' Tc=5.9 min CN=69/98 Runoff=1.85 cfs 0.672 af
<b>Pond 5P: South Pond</b>	Peak Elev=113.42' Storage=0.559 af Inflow=5.12 cfs 1.959 af Outflow=1.09 cfs 1.956 af
<b>Pond 8P: East Pond</b>	Peak Elev=90.94' Storage=0.204 af Inflow=2.46 cfs 0.998 af Outflow=0.63 cfs 0.998 af
<b>Pond 15P: North Pond</b>	Peak Elev=103.28' Storage=1.064 af Inflow=6.66 cfs 2.604 af Outflow=1.11 cfs 2.572 af
<b>Pond 18P: Small South Pond</b>	Peak Elev=108.46' Storage=0.187 af Inflow=1.85 cfs 0.672 af Outflow=0.38 cfs 0.672 af

**Total Runoff Area = 118.290 ac Runoff Volume = 13.113 af Average Runoff Depth = 1.33"**  
**78.08% Pervious = 92.360 ac 21.92% Impervious = 25.930 ac**

**17260Storm**

Prepared by Otak, Inc.

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North Redwood Concept Plan  
Type IA 24-hr 25yr Rainfall=3.80"

Printed 6/30/2015

Page 4

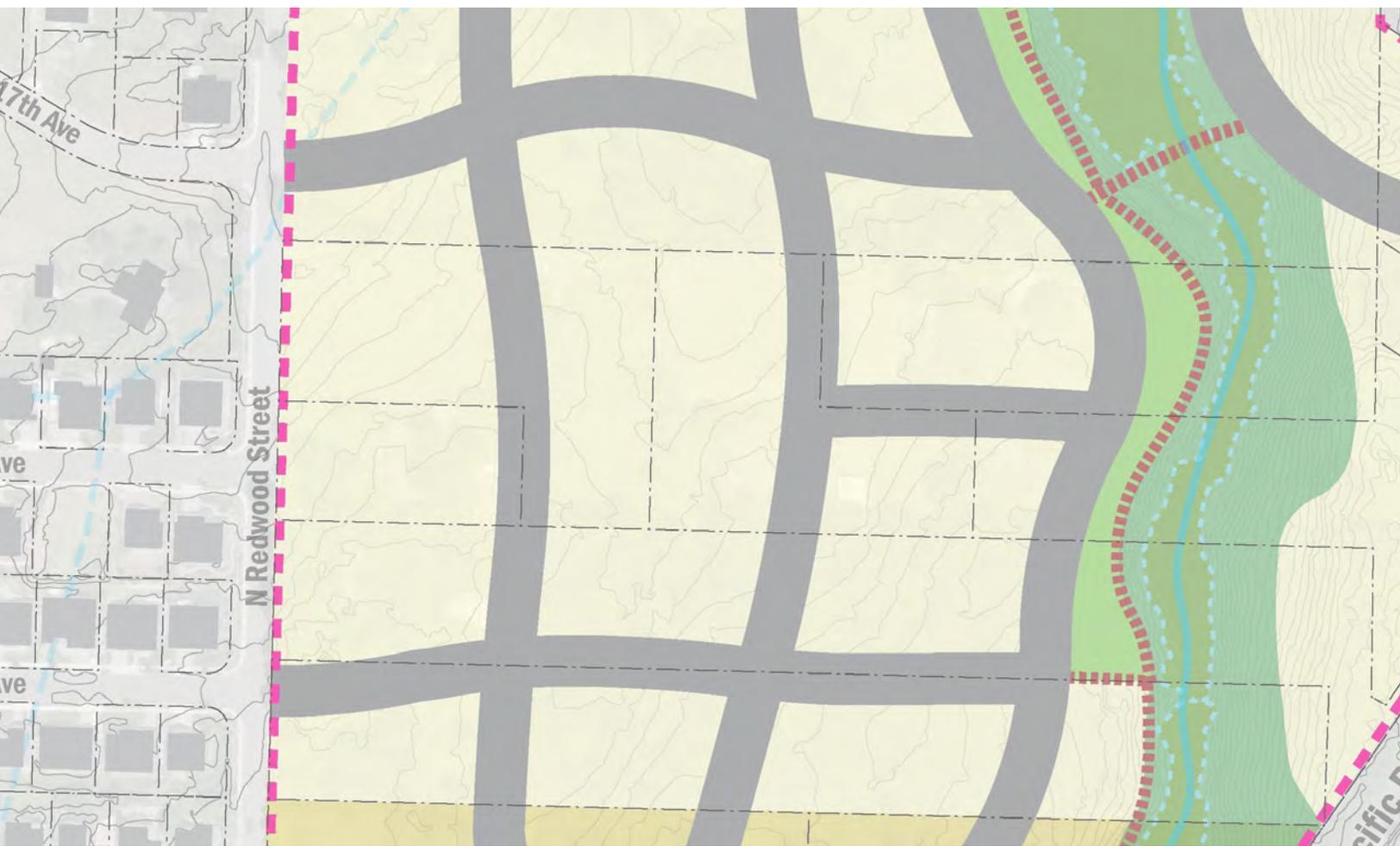
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Runoff by SBUH method, Split Pervious/Imperv.

Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

<b>Subcatchment1S: Existing South</b>	Runoff Area=11.660 ac 0.00% Impervious Runoff Depth=0.91" Flow Length=928' Tc=14.4 min CN=65/0 Runoff=1.18 cfs 0.889 af
<b>Subcatchment2S: Proposed South</b>	Runoff Area=11.670 ac 49.27% Impervious Runoff Depth=2.33" Flow Length=1,140' Tc=9.2 min CN=69/98 Runoff=6.00 cfs 2.270 af
<b>Subcatchment6S: Existing East</b>	Runoff Area=7.620 ac 0.00% Impervious Runoff Depth=0.91" Flow Length=1,394' Tc=17.6 min CN=65/0 Runoff=0.72 cfs 0.581 af
<b>Subcatchment7S: Proposed East</b>	Runoff Area=7.620 ac 29.79% Impervious Runoff Depth=1.86" Flow Length=1,200' Slope=0.0350 '/' Tc=7.4 min CN=69/98 Runoff=2.99 cfs 1.182 af
<b>Subcatchment10S: Proposed Redwood</b>	Runoff Area=22.830 ac 37.36% Impervious Runoff Depth=2.08" Flow Length=620' Tc=7.2 min CN=70/98 Runoff=10.45 cfs 3.962 af
<b>Subcatchment11S: Existing Redwood</b>	Runoff Area=17.810 ac 0.00% Impervious Runoff Depth=1.02" Flow Length=650' Tc=29.3 min CN=67/0 Runoff=1.80 cfs 1.519 af
<b>Subcatchment12S: Proposed North</b>	Runoff Area=15.890 ac 45.94% Impervious Runoff Depth=2.29" Flow Length=1,475' Tc=10.4 min CN=70/98 Runoff=7.84 cfs 3.027 af
<b>Subcatchment13S: Existing North</b>	Runoff Area=15.730 ac 0.00% Impervious Runoff Depth=0.97" Flow Length=1,405' Tc=46.6 min CN=66/0 Runoff=1.22 cfs 1.269 af
<b>Subcatchment16S: Existing Small South</b>	Runoff Area=3.730 ac 0.00% Impervious Runoff Depth=0.91" Flow Length=609' Tc=10.9 min CN=65/0 Runoff=0.41 cfs 0.284 af
<b>Subcatchment17S: Proposed Small South</b>	Runoff Area=3.730 ac 55.76% Impervious Runoff Depth=2.49" Flow Length=475' Tc=5.9 min CN=69/98 Runoff=2.15 cfs 0.775 af
<b>Pond 5P: South Pond</b>	Peak Elev=114.03' Storage=0.690 af Inflow=6.00 cfs 2.270 af Outflow=1.18 cfs 2.266 af
<b>Pond 8P: East Pond</b>	Peak Elev=91.57' Storage=0.268 af Inflow=2.99 cfs 1.182 af Outflow=0.70 cfs 1.182 af
<b>Pond 15P: North Pond</b>	Peak Elev=103.93' Storage=1.317 af Inflow=7.84 cfs 3.027 af Outflow=1.22 cfs 2.983 af
<b>Pond 18P: Small South Pond</b>	Peak Elev=108.98' Storage=0.231 af Inflow=2.15 cfs 0.775 af Outflow=0.40 cfs 0.775 af

**Total Runoff Area = 118.290 ac Runoff Volume = 15.758 af Average Runoff Depth = 1.60"**  
**78.08% Pervious = 92.360 ac 21.92% Impervious = 25.930 ac**



# MEMORANDUM

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To: Matilda Deas

Topic: Project Website

Date: 01/30/2015

From: Ken Pirie

Project: Canby North Redwood

Project #: 3077

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Distribution:  
Basecamp

## **North Redwood Development Concept Plan**

### **Project Website Input**

The project website for this effort serves an important function, as a primary source of information to property owners and the public. The following are suggested design elements and content to ensure that the website serves this project and the City's goals effectively.

### **General Website Placement and Design**

The website should be easy to find, via the main home page of the City's Planning Department site. Larger font in a prominent location and a 'clickable' hyperlink should make it simple for visitors to find project information. Visitors should not need to scroll down to find this link.

### **Website Design**

Once in the project site itself, a large, attractive graphic should be placed to add visual interest to the page and encourage readers to stay. We suggest an aerial photo, which will be provided in a separate email. Additional site photos can be included, either on the project site (at the bottom), or via another hyperlink.

### **Content**

We suggest that introductory text should be placed here for general public information. See the end of this memo for suggested text. Font size for text should be large enough to read but not overwhelmingly large and should match official city fonts elsewhere on the website.

There should also be a location or separate tab on the site that allows interested parties to access maps of the study area and eventually, Final Project Memos, in PDF format. (We will strive to ensure that the file sizes for these are not over 10MB, to ensure ease of download.)

### **Schedule**

Key dates (and times/locations) for upcoming project meetings and milestones should be placed in a prominent location, preferably in a sidebar. Project agendas and materials can eventually be posted next to these dates. These milestones should remain after they have passed, to allow for meeting summaries to be posted below. We also suggest that the overall project Schedule should be accessible via a hyperlink on this project site.

### **Public Comment**

We do not recommend including a comment option for this website, but we do recommend that Matilda Deas' email and phone number be placed on the site so citizens can email their comments or call Matilda directly to discuss the project.

This link leads to a website for a recent Walker Macy project in Oregon City, which displays many of the elements described above:

<http://www.orcity.org/community/willamette-falls-legacy-project>

### **Suggested Introductory Text for website**

#### **Project Study Area**

The Project Study Area is 66 acres and is bounded by OR99E and the Union Pacific Railroad on the east and south, NE Territorial Road on the north, and N Redwood Street on the west (see map). The Project Study Area consists of 23 tax lots, varying in size between one and ten acres with 18 property owners, including a single family that owns 7 lots.

#### **Project Purpose**

The North Redwood Development Concept Plan will provide a preferred alternative for development of this site with multiple property owners. The project will develop conceptual infrastructure and financing options for achieving urban housing densities while protecting the site's natural resources. The Project will also determine a supportive transportation system, increase travel options, and identify optimal access locations for emergency service providers.

The City has recently conducted a survey of community values documented in "Canby Community Visioning 2013". These documented Community Values will be applied to the Project and include:

- Develop multi-purpose trails – complete the Emerald Necklace and look for opportunities for external connections.
- Upgrade parks in order to provide expanded recreation opportunities for all ages, abilities, ethnicities and interests.
- Citizens and visitors in Canby should feel completely safe in their home or on foot, bicycle or auto within and across all areas of the City. Canby will have a safe attractive system of roads that are well maintained and support the efficient movement of people, goods and services.
- Keep small town feel by promoting connectivity with community and businesses.

#### **Zoning and DCP**

The Project Study Area is located in unincorporated Clackamas County inside the Canby Urban Growth Boundary and is within the boundaries of a designated DCP Area. Upon voter approved annexation, developments located within a designated DCP area are required to have a DCP adopted by the City Council prior to granting a change to urban zoning classifications. The Project Study Area's current zoning is Rural Residential Farm Forest 5-Acre District (RRFF-5) governed by the Clackamas County Zoning and Development Ordinance.

#### **Natural Resources**

The Project Study Area has significant natural resources including Willow Creek, a year-round flowing creek that empties a mile north into the Willamette River. Willow Creek is a designated Goal 5 resource. It is anticipated that Willow Creek will receive some of the Project Study Area's storm water runoff and carry it to the future, City owned tertiary wetland storm water facility to the north. It is anticipated that protection would occur as part of the mandatory

park land dedication provision under City Ordinance No. 1157. A linear public park may be a key feature of the DCP in order to meet Project Objectives.

**Project Objectives:** To develop a DCP that:

- Identifies a mix of residential uses and densities that complement the existing character of the surrounding area;
- Identifies a comprehensive multi-modal transportation network and circulation plan that provides connections to the existing transportation system and promotes alternative modes of transportation;
- Identifies infrastructure to serve future development and provides mechanisms for an equitable distribution of cost among property owners in the Project Study Area;
- Protects the significant natural resources in the Project Study Area while providing for storm water management and recreational amenities;
- Includes a financing plan focusing on the provision of public infrastructure, including phased development strategies;

**Public Involvement**

The Public Involvement process for North Redwood will allow the community an opportunity to provide input into the planning process. Meaningful involvement means that:

- potentially affected community residents have an appropriate opportunity to participate in decisions about a proposed activity that will affect their environment and/or health;
- the public's contribution can influence the regulatory agency's decision;
- the concerns of all participants involved will be considered in the decision making process; and
- the decision makers seek out and facilitate the involvement of those potentially affected.

*end*

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**To: Matilda Deas**

**Topic: PMT #2 Meeting Notes**

**Date: 01/29/2015**

**From: Ken Pirie**

**Project: Canby North Redwood**

**Project #: 3077**

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## **North Redwood Development Concept Plan Project Management Team Meeting #2**

Distribution:  
Basecamp

### **Attendees:**

Ken Pirie, Walker Macy  
Mike Zilis, Walker Macy  
Brian Vanneman, Leland Consulting Group  
Matilda Deas, City of Canby  
Seth Brumley, ODOT

- The team reviewed the general discussion from morning stakeholder interviews. Feedback was positive. Main concerns from property owners were the potential for park land along Willow Creek and how that impacts their property, as well as possible road connectivity for the study area.
- Matilda will initiate a conversation with owners of the ponds south of Hwy 99E to see what they intend to do with their ponds. Draining them could help with stream and fisheries health
- Matilda is working with Seth Brumley, Chris from DKS & Avi at ODOT on officially removing Otto Road from TSP and completing an associated Comp. Plan amendment
- TAC and SAC meetings on February 9<sup>th</sup>. Matilda will send rosters for each group before meeting. Location is still being determined. Hope Village may be an option.
- Walker Macy (WM) will send a Draft Presentation to Matilda by Thursday February 5<sup>th</sup>.
- WM will print handouts of TAC/SAC presentation for the meetings and provide a final PDF for the project website.
- WM will also prepare a package of maps for the website
- Matilda asked that we NOT use the term Smart Growth, instead use Walkable Neighborhoods or Traditional Neighborhoods
- Canby Public Works Engineer thinks there's a place in the study area that is feasible for bridge
- Discussion of how to share costs and impacts of development

- Development pays its own way in Canby--developers would dedicate parkland and the city would look for grants to build parks
- (Traditionally a city takes SDCs to buy park land but here it's different)
- The City is suffering from a maintenance funding shortfall
- City has a lot of \$ to build parks, but NO maintenance \$ (only 3 parks staff)
- Park dedication assumes useable park and assumes city "would be nice" to property owners by accepting wetlands for park space in lieu of active play grounds or sports fields
- Plan's park dedication could be in lieu money, to improve nearby parks
- Could an HOA pay for parks maintenance?
- Meeting ended with discussion of afternoon stakeholder interviews.

*end*

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To: Matilda Deas

Topic: Stakeholder Interview Summary

Date: 02/09/2015

From: Ken Pirie

Project: Canby North Redwood

Project #: 3077

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## North Redwood Development Concept Plan

Distribution:  
Basecamp

### Stakeholder Interview Summary

The following points were raised by Study Area stakeholders during a full day of stakeholder interviews on Thursday, January 29, 2015. Comments have not been attributed to specific interviewees to preserve confidentiality.

#### Property Owner General Input

- Many intend to sell their land as developable property
- Several owners have farm deferral property taxes
- If developed would want to see a walkable neighborhood
- No more apartments
- General agreement with Comprehensive Plan Zoning
- Area on east side of creek will be tough to develop; steep slopes and proximity to UP Railroad
- City could do better job of sharing information

#### Connectivity and Traffic

- No traffic issues: this area is not congested
- Only hassle is lack of storage between intersection signal and RR tracks
- Plan roadway connections carefully
- Don't want wide roads in this plan
- Don't believe bridging creek is economically feasible. Some believe that properties on east side of creek should bear more expense for a bridge
- If a new connection is proposed across Willow Creek, need to find a high-banked area for crossing
- Always supposed to be a road connection to Teakwood neighborhood. This connection will be contentious but Fire Department wants it
- Closing RR crossing to three lots on east side would avoid horns

#### Market

- Recent increase in home prices due to rising land values
- Very little starter homes
- Low Density Residential will sell well
- Not huge demand for large estate lots; eliminates 80% of market
- Short supply of buildable lots; not much supply to accommodate market
- Lot more valuable to have higher density. Some owners would like more HDR
- Duplexes accepted in City but stigma against townhouses
- RR is loud. Even with berm and walls, it still rattles homes
- Amenity of Willow Creek for larger lots, place those next to the creek
- Industrial center successful in bridging jobs to City to potentially employ locals

### Process

- Property owners can't annex until the DCP completed and adopted
- Owners then make annexation request
- City then takes it to vote of people once city council okays that it makes sense
- Voter approved annexation-has taken "Act of God"-might be tough
- In Canby all annexations have to date all passed or all failed—it's cyclical
- Once annexed, some big name developers will show up
- Annexation of entire area might be more efficient and more equitable
- Wouldn't want city to annex whole area. "Property taxes would quadruple"
- New homes wouldn't be built for 18 months, if annexation happened today

### Willow Creek

- Hydrology of creek has changed dramatically
- High-water table along Willow Creek
- Dam at Territorial needs to be removed (dam put in by former farmer)
- Used to be a pond south of Territorial, but filled in with silt and reed grass
- Creekbed was once gravel
- Beaver and Nutria activity
- Willow Creek HOA will 'react heavily' to any changes in greenbelt
- Stormwater runoff impacts to creek
- 1996 Flood was the depth of a car on Territorial Road
- When it rains badly, N. Redwood floods
- Boggy land in NW part of study area (as well as Willow Creek)
- Crayfish and fish (trout) used to be in creek-Willow Creek natural area
- Habitat restoration needed

### Trails and Parks

- Park in Willow Creek—concerns about safety and liability
- Go beyond stream setbacks plus extra land for park dedication
- Topography and Drainage challenges for trail
- Expensive to build and maintain a boardwalk
- Property owner opposition "what benefit is to me?"
- Connect to old Logging Road Trail this is a better idea
- City doesn't maintain 19th Ave. Natural Area—no money. Need a volunteer friends group to maintain city parks
- Set aside \$ instead of land because the city can't take care of what they have

### Utilities

- Stormwater main down Redwood
- Owners to W. of N. Redwood didn't get fully reimbursed by stormwater reimbursement district (10 years, expired)
- Dry well retention doesn't work at end of 10th Place; overflowing into study area
- Good, well-drained soils in most of study area
- Fred Meyer and Industrial Park have increased stormwater flow into Willow Creek
- Check which lots are served by PGE vs the local PUD

*end*

# Memorandum

**Date:** February 12, 2015  
**To:** Matilda Deas, City of Canby  
**cc:** Ken Pirie, Walker Macy  
Seth Brumley, Oregon Department of Transportation  
**From:** Matt Hastie  
**Re:** **Canby North Redwood Concept Plan – Project Memo #1: Project Planning and Implementation Processes**

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## Overview

The overall goal of this project is to develop a conceptual plan for future development of the project area. The Plan will identify approximate locations of future roads, sidewalks, trails and other transportation facilities, including how emergency service providers would access the area. The Plan will identify key natural resource areas that should be managed to protect natural resource values, provide access to nature and serve as amenities for future residents. The Plan also will identify needed infrastructure improvements and financing options for them. The recommended Plan and any implementing strategies or requirements must be consistent with local and state policies and plans. One of the most important objectives of the process will be to determine how to collectively achieve community goals for the area, while benefiting future residents, not being overly burdensome on current property owners, and distributing benefits and costs to all area property owners in an equitable manner.

## Planning Process and Opportunities for Public Involvement

The Planning process is illustrated in the diagram on the following page. The process will include the following steps:

- Review and assessment of conditions, opportunities and constraints in the study area
- Creation of criteria that will be used to evaluate different future development alternatives, including consistency with community values and priorities
- Development, review and refinement of different development planning alternatives
- Evaluation of development alternatives and selection of a preferred alternative
- Identification of strategies for implementing the preferred alternative, including how to equitably distribute costs and benefits among property owners and other existing and future city residents
- Preparation of a proposed North Redwood Concept Plan and proposed amendments to other city plans and policies needed to implement the Concept Plan

Ultimately, annexation of properties within the area must be approved by Canby voters before any future urban development can occur. In addition, development will need to be consistent with a variety of local city and state standards, including city and state building codes, land division requirements and standards for construction of transportation, sewer, water and stormwater management facilities.

Opportunities for property owners and other community members to engage in the planning process are extremely important. The diagram below indicates a number of opportunities for Canby residents and property owners to be engaged. Those opportunities include:

- **Stakeholder and Technical Advisory Committee Meetings.** The Stakeholder Advisory Committee will include local property owners and other Canby citizens, providing an opportunity for them to help guide the planning process. Meetings of this group and the project's Technical Advisory Committee will be open to the public, providing additional opportunities for other Canby residents to be involved.
- **Public Events.** The project team will conduct two public events in March and April or May of 2015 to share preliminary recommendations with community members and seek their feedback.
- **Planning Commission and City Council Meetings.** The project team will conduct work sessions and hearings with the City Council to discuss and recommend adoption of the Concept Plan and implementing amendments to the City's Comprehensive Plan, Transportation System Plan and Development Code. All of these meetings will be open to the public and provide opportunities for citizens to comment on the proposals.
- **Informational materials.** Throughout the process, City staff will provide Canby citizens with information about the project and opportunities to participate via the City's Web site, direct communication with people expressing an interest in the project, and information provided to local newspapers and radio stations.

## Community Values

It is essential that future development in this area supports the values of Canby's residents and business owners. The City recently completed a community "visioning" process which identified a variety of community values and priorities and strategies for implementing them. Values particularly relevant to this process include the following:

- Develop multi-purpose trails – complete the Emerald Necklace and look for opportunities for external connections
- Keep small town feel by promoting connectivity with community and businesses
- Create pleasant, livable neighborhoods with tree lined, wide, safe streets; well-designed homes on various sized lots
- Maintain a safe attractive system of roads that are well maintained and support the efficient movement of people, goods and services
- Have a Public Transportation System that is reliable, frequent, flexible, cost-effective and meets the needs of the community

## Existing Zoning and Development Code Requirements

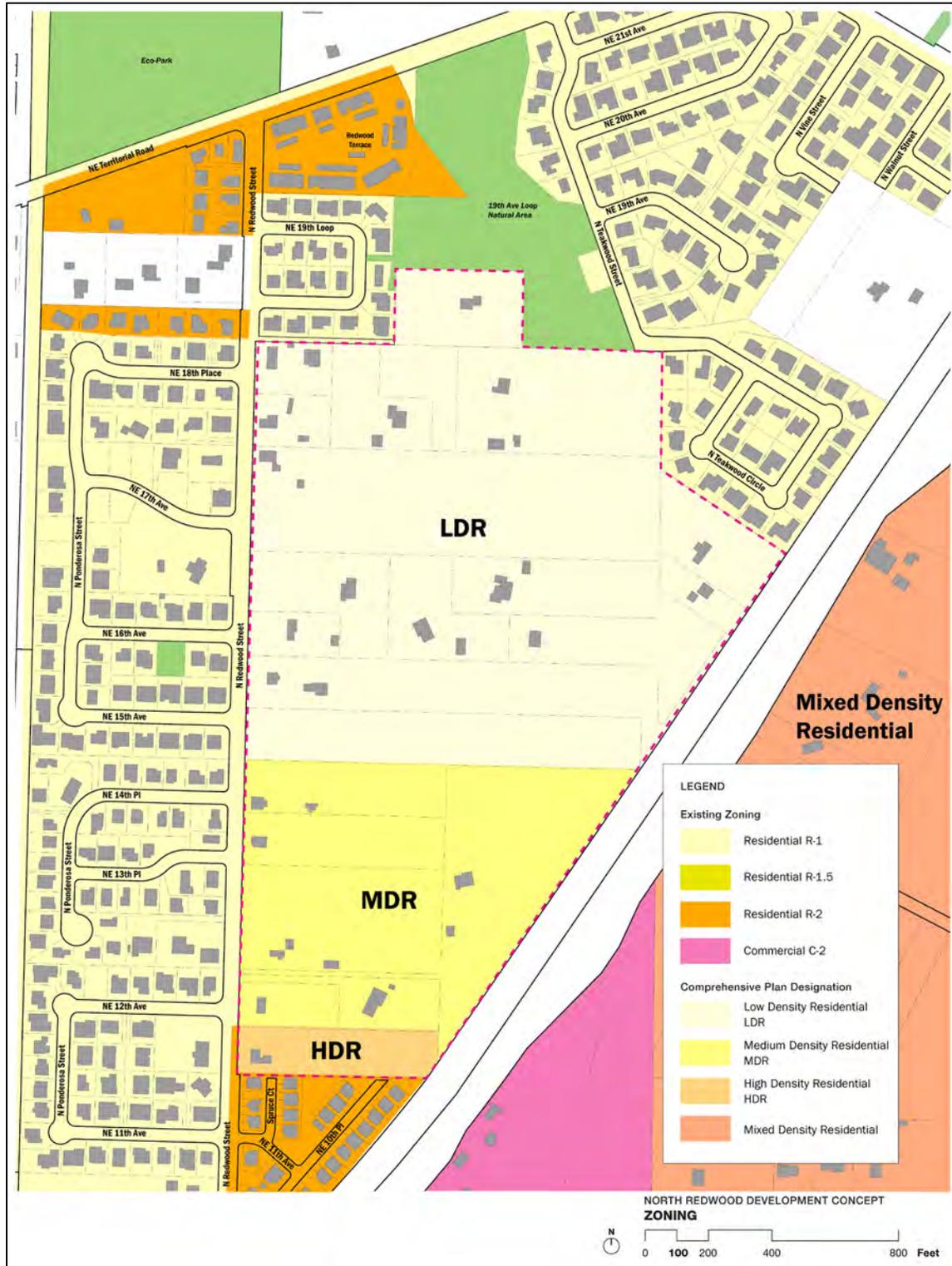
Currently land in the study area has not yet been annexed to the City and has a Clackamas County zoning designation of Rural Residential Farm Forest 5-Acre District (RRFF-5). Primary uses allowed by this zoning designation include rural home sites with a minimum of 5 acres for newly created lots, farm uses, and forest uses.

The project area is within the City of Canby’s urban growth boundary (UGB) and the City has applied Comprehensive Plan designations for future development. If successfully annexed into the City, based on those Comprehensive Plan designations, approximately 46 acres (60%) would be zoned R-1 (low density residential); 19 acres (32%) would be zoned R 1.5 (medium density residential); and 2 acres (8 %) zoned R-2 (high density residential). A map illustrating these Comprehensive Plan designations is included on the following page.

A variety of development code provisions will be important to review and consider in developing the North Redwood Concept Plan, including but not limited to those summarized in the following table:

<i>Standards</i>	<i>LDR/R-1</i>	<i>MDR/R-1.5</i>	<i>HDR/R-2</i>
<i>Uses allowed outright</i>	Single family homes Accessory dwellings	Single family homes Accessory dwellings Duplexes Tri-plexes	Single family homes Accessory dwellings Duplexes Tri-plexes Townhouses Apartments/ condominiums
<i>Uses allowed under some conditions</i>	Duplexes Non-residential uses such as churches, day-care facilities, schools and others	Four-family dwellings Townhouses Non-residential uses allowed in the R-1 zone	Non-residential uses allowed in the R-1 zone
<i>Lot size</i>	7,000-10,000 square feet (sf) for single-family homes	5,000-6,500 sf for single-family homes Minimum density of 6 housing units per acre for 2, 3 and 4-family homes	Minimum density of 14 housing units per acre
<i>Maximum building height</i>	35 feet	35 feet	35 feet or taller depending on distance from R-1 zones

In addition to the basic standards summarized in the table above, various design standards apply to different types of housing. For single family housing, design standards apply to the design and location of garages, entrances to the home, and other design features found on the front side of the house (e.g., windows and doors, use of dormers, eaves, etc.). For multi-family dwellings (e.g., apartments), additional standards also apply to features such as landscaping, location and design of parking areas, screening of storage and utility facilities, variation in design and use of design features that will reduce impacts on the natural environment.



# NORTH REDWOOD DEVELOPMENT CONCEPT PLAN

## Deliverable 1C: Project Memo #2

### Existing Conditions

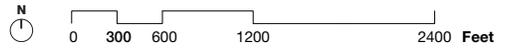
February 2015





Figure 1

NORTH REDWOOD DEVELOPMENT CONCEPT  
**CONTEXT MAP**





## Overview

The City of Canby is a relatively small but rapidly growing community in the northern Willamette Valley of Oregon. Located less than 30 miles from the business centers of both Portland and Salem, Canby has experienced considerable demand for housing. Canby is expected to continue to be a place where people will be attracted to live. The extent of open space and protected farmland separating Canby from the Portland Metropolitan Area will help to maintain the unique small town character which continues to attract new residents seeking an alternative to an urban life style.

Canby has experienced cyclical but fairly steady growth for a number of years. The City of Canby's population is projected to show an 80% increase by 2035 with the addition of 4,951 new households and 3,490 new jobs (Metro Gamma Travel Forecast 2012). To accommodate this growth, the City will require incremental expansion. The 66-acre North Redwood site, on the northeast edge of the city, located in unincorporated Clackamas County inside the Canby Urban Growth Boundary, will likely absorb part of Canby's future growth. Annexation of the site requires citywide voter approval and also requires the City Council to adopt a Development Concept Plan (DCP) of which this Memo is one component.

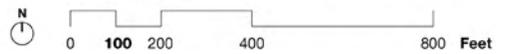
In addition to conceptual land use and density alternatives, the DCP will also study the site's natural resources and consider how to protect these resources. The Plan will also build on the 2010 Transportation System Plan (TSP) and consider a supportive transportation system, opportunities for increased travel options, and optimal access locations for emergency service providers.

This memorandum outlines the existing conditions, opportunities, and constraints in the study area relevant to achieving project objectives. It also synthesizes existing plans, with an emphasis on embodying Canby's Community Values, protecting its natural resources, and creating a safer and more efficient transportation network in order to inform recommendations for conceptual development alternatives.



Figure 2

NORTH REDWOOD DEVELOPMENT CONCEPT  
**BASE MAP**



## Site Context

The study area, on the northeast edge of the City, is bounded by OR99E and the Union Pacific Railroad to the east and south, NE Territorial Road on the north and N Redwood Street on the west (Figures 1 and 2). The study area is within a half-mile walking distance of several significant open spaces along the Willamette River that will potentially be developed with further amenities in the future. It is also located in a prime position to create a link in the “Emerald Necklace”, a conceptual open space and trail loop (envisioned by the City) that links parks, schools, and other public facilities. To the west of the site, the Old Logging Road Trail, a multi-use path, connects Baker Prairie Middle School at the south to City-owned open space on the banks of the Willamette River. Its proximity to the Pioneer Industrial Park employment center represents a potential draw for future homebuyers who wish to live close to their workplaces.

## Planning and Regulatory Context

*[Readers should refer to the 2007 Comprehensive Plan for an overall policy framework for future growth in Canby.]*

The study area has been identified since the first Comprehensive Plan’s release in 1984, as a logical location for future urban growth. Currently land in the study area has not yet been annexed to the City and has a Clackamas County zoning designation of Rural Residential Farm Forest 5-Acre District (RRFF-5). Primary uses allowed by this zoning designation include rural home sites with a minimum of 5 acres for newly created lots, farm uses, and forest uses.

The project area is within the City of Canby’s urban growth boundary (UGB) and the City has applied Comprehensive Plan designations for future development. If successfully annexed into the City, based on those Comprehensive Plan designations, approximately 46 acres (60%) would be zoned R-1 (low density residential); 19 acres (32%) would be zoned R 1.5 (medium density residential); and 2 acres (8 %) zoned R-2 (high density residential).

## Canby Community Visioning

In 2013, the City of Canby adopted a Community Vision that communicates the needs and priorities of its citizens, around four priority areas: Community, Parks and Recreation, Transportation and Public Safety, and Growth and Economic Development. The study area presents a number of opportunities for future urbanization to fulfill these community aspirations. For example, adequate development of bicycle and pedestrian infrastructure could make central Canby, employment and large format retailers easily-accessible from the study area, connecting residents to local businesses. Future development could provide key connections between residences and the Old Logging



View north of NE Territorial Road toward Eco Park and City-owned open space on the banks of the Willamette River



19th Avenue City Park viewed from study area’s eastern perimeter

Road trail, fulfilling the community’s desire for greater trail and off-street connections. It could also connect residents to a future bicycle trail leading northeast along US 99E to Oregon City and Willamette Falls.

In terms of Transportation, the study area should have high-quality pedestrian and bicycle infrastructure to promote active transportation. Safe, attractive streets also help achieve Growth and Economic Development goals. Development should exemplify “pleasant, livable neighborhoods with tree-lined, wide, safe streets”, including homes of high-quality construction. High-caliber development can help attract residents that are drawn to Canby’s employment opportunities and quality of life.

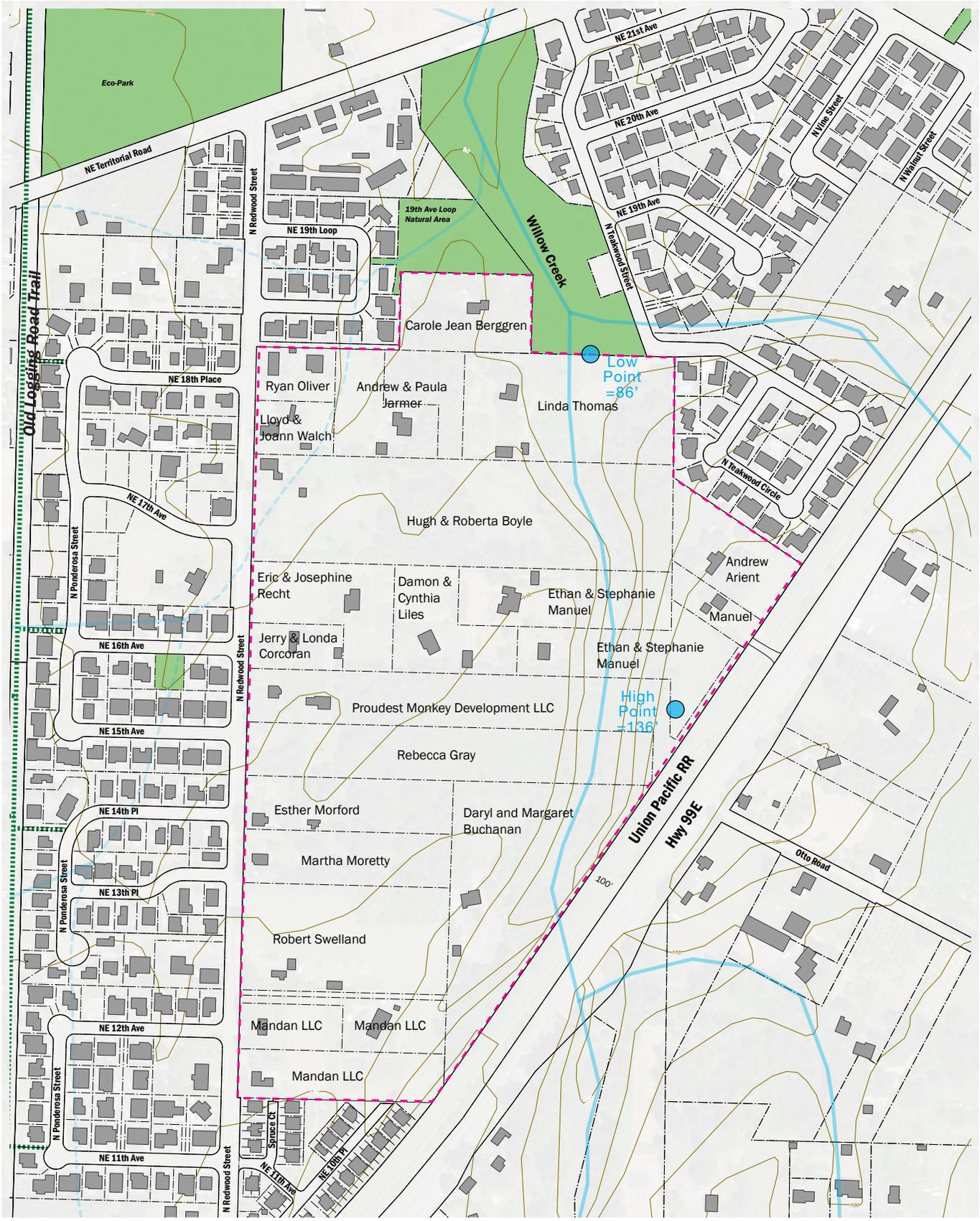
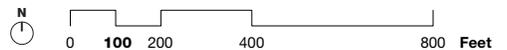


Figure 3

NORTH REDWOOD DEVELOPMENT CONCEPT  
**BASE MAP**



### **Site Character**

This study area is situated in a bend of the Willamette River, with a rich nearby network of public open spaces and natural areas that will provide an identity and sense of place to future residents. North across NE Territorial Road, there are potential connections to the densely-forested Eco Park and the Willamette Wayside Natural Area. The site's topography is relatively flat, but slopes gently from the west and east toward the canyon of Willow Creek, which itself flows north to the Willamette. The high point on site is 136' above sea level (across from Otto Road) and the low point is 86', next to Willow Creek. Within the site, there is an opportunity for views into the Willow Creek drainage and a possible future linear park or trail along its course.

### **Edges and connections**

The site's proximity to the multi-use path along Old Logging Road creates an opportunity to link the site to regional amenities including parks, schools, and employment centers. OR 99E connects the site to Oregon City seven miles to the north and provides direct access to downtown Canby to the south. However, its high speeds and traffic volume – along with the active United Pacific Railroad line that runs alongside it – represent a physical and noise barrier between the site and the Pioneer Industrial Park to the south. Currently, only one property has driveway access across the railroad to the highway. This edge of the site will need attention to safety, access, and noise concerns. A significant residential edge to the west will require privacy and adjacency considerations when planning future development.



Recent clearing of existing trees by current property owner in study area



The Union Pacific Rail Road and OR99E border the study area to the south, creating a barrier

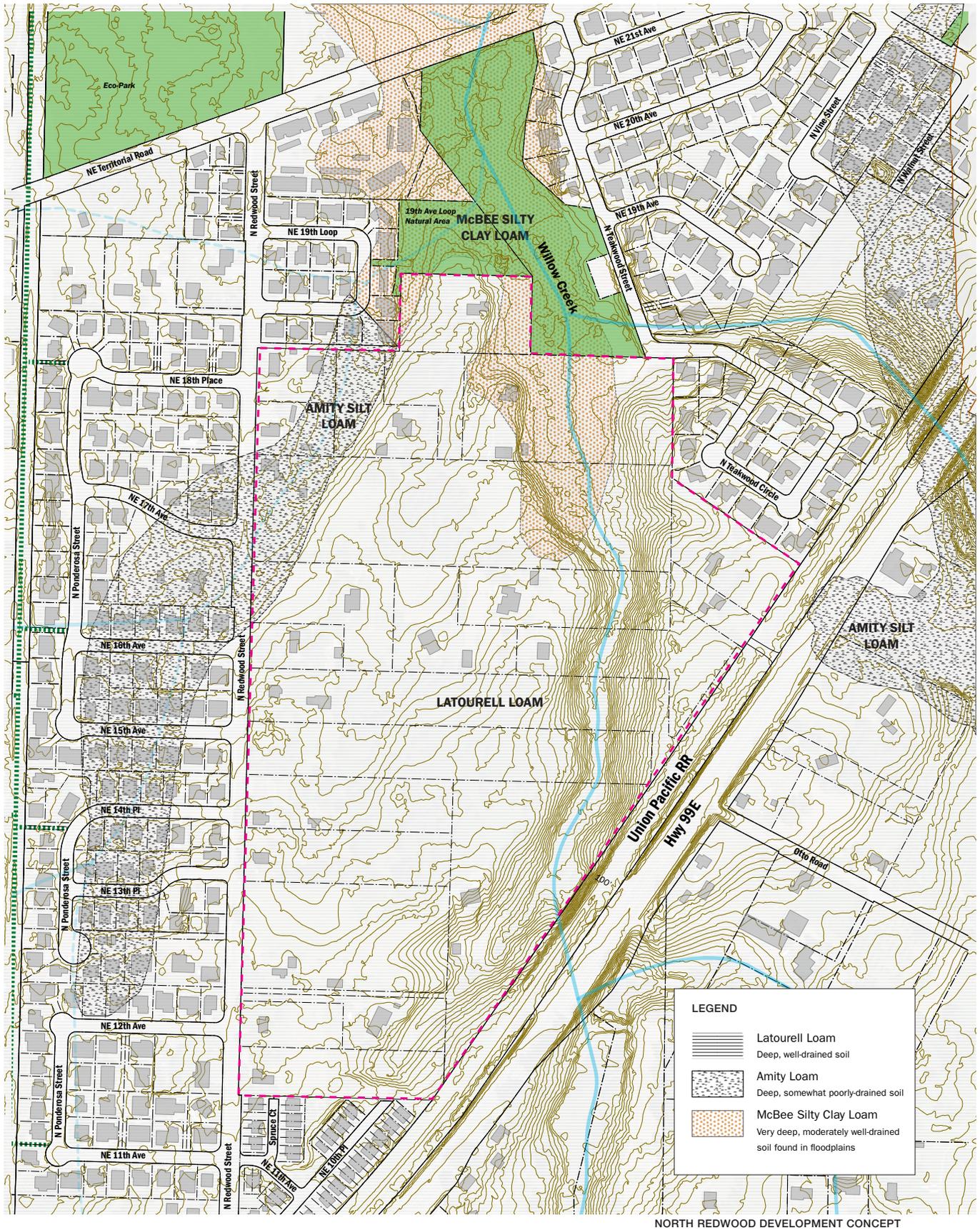


Figure 4: Soils

## Environmental Context and Natural Resources

To the north, the site is bordered by 19<sup>th</sup> Avenue City Park, creating a quiet edge. This natural area contains a portion of Willow Creek and acts as a buffer between the site and NE Territorial Road. Dense vegetation surrounds Willow Creek's passage through the site. Existing properties are currently accessed using private drives from the perimeter of the site, and most of the core of the land area is covered with tree stands; however, property owners have recently cleared some of these trees. Much of the site's vegetated area contains invasive species such as English Ivy and Himalayan Blackberry.

Willow Creek is a significant natural resource that runs through the site from south to north. As a spring-fed stream with an associated 100-year floodplain, Willow Creek is protected under Clackamas County Zoning and Development Ordinance Sections 703 and 704. The creek, in addition to being a visual amenity that can attract homebuyers, could potentially be central to stormwater catchment from the site's developed area. The City's parkland dedication development standards provide a tool to ensure some protection of the natural area along its banks. Federally-designated wetland areas exist upstream from site to the south, but there is no recognized wetland within the study area.

Soils in the study area (Figure 4) are primarily Latourell Loam, a well-drained, deep soil that is suitable for development. Amity Silt Loam and McBee Silty Clay Loam, the remaining two soil types, exist on several lots at the north end of the site. These soils are associated with Willow Creek and its drainages, and are largely encompassed by vegetated buffer areas. Currently, the site is densely vegetated, particularly along the banks of Willow Creek. According to County data, no heritage trees exist on site – however, existing trees can be a significant resource that improve property values and enhance the character of new development. A 2010 Portland-area study found that each street tree adds an average of \$8,870 to the sale price of a house.<sup>1</sup>

<sup>1</sup> Donovan, Geoffrey H., and David T. Butry. "Trees in the city: Valuing street trees in Portland, Oregon." *Landscape and Urban Planning* 94.2 (2010): 77-83.



The small canyon created by Willow Creek runs through the site from south to north



Federally-designated wetland upstream (south) from study area



The center of the site is densely vegetated, creating a distinct visual character, but invasive ivy dominates



## Site Habitat and Wetland Assessment

Pacific Habitat Services conducted a reconnaissance-level site assessment on February 3, 2015 to determine the approximate location and quality of wetlands and other natural resources along the Willow Creek riparian corridor. While the US Army Corps of Engineers' 1987 Wetland Delineation Manual and the more recent Western Mountains, Valleys and Coast Region regional supplement provide the guidelines and methodology for defining the regulatory boundaries of wetlands and other waters, this study only utilized those guidelines to roughly approximate the wetland boundaries.

Determining the precise limits of state and federally regulated wetlands would require more extensive soils and vegetation sampling by a wetland specialist on a lot by lot basis, a service needing to be arranged, as desired, by individual landowners. (Note that once any wetland delineation has been conducted and the boundaries approved by the Oregon Department of State Lands, those findings are valid for a period of 5 years.)

### Wetlands

Wetlands within the study area are primarily confined to the lower slopes and relatively broad floodplain of the Willow Creek ravine (Figure 5). These riparian wetlands occur within a mostly closed canopy forest in the southern portion of the study area, transitioning to a more open, scrub-shrub to emergent wetland as one nears the northern study area boundary. Reed canarygrass becomes the dominant groundcover species in these more open areas.

Soils within the Willow Creek ravine vary from deep silt loams high in organic matter on the lower slopes and slightly elevated floodplain terraces, to cobbly loams subject to seasonal stream overflows within the floodway. The lower terraces were saturated at or near the surface at the time of the site visit.

### Willow Creek

Willow Creek is a perennial stream that flows roughly south to north through the mostly forested ravine. During the site visit the flows were inundating much of the broad ravine bottom, nearly to the base of slope in some areas, with the active channel often poorly defined in those areas. Approximately 0.60 inch of rain fell in the 2 days prior to the site visit.

While the primary streamflows originate from a culvert beneath Hwy. 99E, flows are augmented by a smaller unnamed spring-fed stream that joins Willow Creek within TL 100. Additional seasonal springs were observed to discharge to the creek from near the base of the ravine on other parcels as well.

Water quality appears to be relatively high, presumably due to relatively well vegetated slopes within the watershed. The spring inputs may help to maintain these clear flows as well. Clackamas County currently regulates Willow Creek under their Rivers and Stream Conservation Areas (RSCA) ordinance. Willow Creek in the study area is subject to a 50' riparian protection setback on either side of the creek, as measured from the mean high water line. Once this area is brought into the City of Canby, it will be the City's discretion whether these setbacks are adopted, or new ones created.



Figure 6: Excerpt from Clackamas County RSCA map. Yellow line denotes Willow Creek, subject to 50' setbacks from mean high water.

**Table 1: Current Vegetation List**

Table 1 provides a partial species list for the Willow Creek riparian area, along with whether the species is native or has been introduced to the site. Several species may be considered especially noxious or invasive, and may justify control efforts over time.

Species Name	Common Name	Native/ Introduced?*
<b>TREES</b>		
<i>Abies grandis</i>	Grand fir	N
<i>Acer macrophyllum</i>	Bigleaf maple	N
<i>Alnus rubra</i>	Red alder	N
<i>Fraxinus latifolia</i>	Oregon ash	N
<i>Populus balsamifera</i> ssp. <i>trichocarpa</i>	Black cottonwood	N
<i>Pseudotsuga menziesii</i>	Douglas fir	N
<i>Thuja plicata</i>	Western red cedar	N
<b>SHRUBS/ WOODY VINES</b>		
<i>Acer circinatum</i>	Vine maple	N
<i>Berberis aquifolium</i>	Tall Oregon grape	N
<i>Corylus cornuta</i> / <i>C. avellana</i> ?	hazelnut	N/I
<i>Crataegus monogyna</i>	One-seed hawthorn	I
<i>Hedera helix</i>	English ivy	I*
<i>Ilex aquifolium</i>	English holly	I
<i>Oemleria cerasiformis</i>	Indian plum	N
<i>Prunus avium</i>	Sweet cherry	I
<i>Rubus armeniacus</i>	Himalayan blackberry	I*
<i>Rubus leucodermis</i>	White stem raspberry	N
<i>Rubus spectabilis</i>	Salmonberry	N
<i>Rubus ursinus</i>	California dewberry	N
<i>Salix</i> spp.	Willows	N
<i>Sambucus racemosa</i>	Red elderberry	N
<i>Symphoricarpos albus</i>	Common snowberry	N
<i>Vinca</i> sp.	periwinkle	I
<b>HERBS</b>		
<i>Agrostis</i> spp.	Bentgrass	I
<i>Arum italicum</i>	Italian arum	I
<i>Callitriche</i> sp.	Water starwort	N/I?
<i>Cardamine oligosperma</i>	Little western bittercress	N
<i>Carex hendersonii</i>	Henderson's sedge	N
<i>Carex leptopoda</i>	Dewey's sedge	N
<i>Carex obnupta</i>	Slough sedge	N
<i>Cirsium</i> spp. ( <i>C. arvense</i> , <i>C. vulgare</i> )	Canada and bull thistles	I*
<i>Daucus carota</i>	Queen Anne's lace	I
<i>Equisetum arvense</i>	Field horsetail	N
<i>Galium aperiene</i>	Bedstraw	I
<i>Geranium robertianum</i>	Herb Robert	I
<i>Geum macrophyllum</i>	Large leafed avens	I
<i>Holcus lanatus</i>	Common velvetgrass	I
<i>Lapsana communus</i>	Nipplewort	I
<i>Leucanthemum vulgare</i>	Oxeye daisy	I
<i>Lysichiton americanum</i>	Skunk cabbage	N
<i>Nasturtium officinale</i>	Watercress	I
<i>Oenanthe sarmentosa</i>	Water parsley	N
<i>Phalaris arundinacea</i>	Reed canarygrass	I*
<i>Polystichum munitum</i>	Swordfern	N
<i>Polypodium glycyrrhiza</i>	Licorice fern	N
<i>Ranunculus repens</i>	Creeping buttercup	I
<i>Scirpus microcarpus</i>	Small fruited bulrush	N
<i>Solanum dulcamera</i>	Climbing nightshade	I

\*These species tend to be especially invasive in disturbed habitats, warranting control efforts whenever possible.

Table 1. Partial Species List (compiled during site visit February 3, 2015)

## **Vegetation Communities**

### **Wetlands (Forested to Emergent)**

Vegetation within the Willow Creek ravine bottom has been greatly influenced by the availability of seasonal moisture in these areas. The primary woody species actually growing in the ravine bottom include red alder, salmonberry, and vine maple. Willows were also observed near the northern limits of the study area as the ravine broadens into a larger, more open bottomland dominated by reed canarygrass. Notable wetland herbaceous species (besides reed canarygrass) include slough sedge, water parsley, skunk cabbage, and watercress; these species are primarily located in areas subject to shallow seasonal inundation from stream flooding. (Figure 5)

Scattered stands of willow, cottonwood, and Oregon ash become more evident in the mostly open areas to the north of the study area.

### **Riparian Mixed Evergreen-Deciduous Forest**

Riparian forest habitat quality is moderately high due to good structural diversity. The mixed evergreen-deciduous canopy is relatively mature and well developed, and includes western red cedar, red alder, Douglas fir, bigleaf maple, and black cottonwood. Several windthrown trees and standing snags provide added habitat structure to the stand as well.

The riparian understory, however, is of somewhat lower quality due to extensive infestation by non-native shrubs (esp. English ivy). The ivy in particular crowds out many other native shrubs and groundcover species, eliminating sources of food and cover for a variety of wildlife species. In addition, its presence in many of the tree crowns threatens the longterm health of these trees.

### **Upland Mixed Evergreen-Deciduous Forest**

Several parcels also include relatively dense stands of upland forest that are comprised of either a mixed evergreen-deciduous canopy (typically Douglas fir and bigleaf maple), or are mostly Douglas fir. Portions of at least two lots have been subject to recent logging activity, with many of the deciduous trees left standing. In addition, smaller mixed tree stands (comprised of a variety of native as well as non-native species) are scattered about the residential lots as well, often with houses nestled among the trees.

### **Developed/ Landscaped**

The developed or landscaped areas within the study area include previously cleared land that is now either occupied by structures, access roads, or driveways, or is maintained in an open condition (periodically mowed lawn or pasture, scattered landscape plantings, etc.). These conditions are typical of much of the study area outside the Willow Creek ravine.

## **Riparian Habitat Enhancement Opportunities**

The best opportunities for enhancing the Willow Creek riparian corridor within the study area will likely require some control of invasive non-native species. Such control efforts would open up areas of the understory that could then be enhanced by planting native species adapted to the site conditions.

As previously mentioned, English ivy dominates large areas of the forest understory and has infested many tree crowns as well. Unfortunately, attempting to control this vine alone constitutes a huge undertaking that could readily use up available resources, so may be best approached on a phased or limited control basis. The most immediate control effort with long term benefits would be to girdle the aerial vines in order to limit damage to the trees. Controlling the ivy groundcover could then be approached more gradually or in limited areas as resources allow.

Shade-tolerant native shrub plantings typically have a better chance of competing with the ivy than do herbaceous species, with the possible exception of sword fern. In addition, plantings of shade tolerant conifers (especially western red cedar, western hemlock, and grand fir) can provide additional year round cover near the creek.

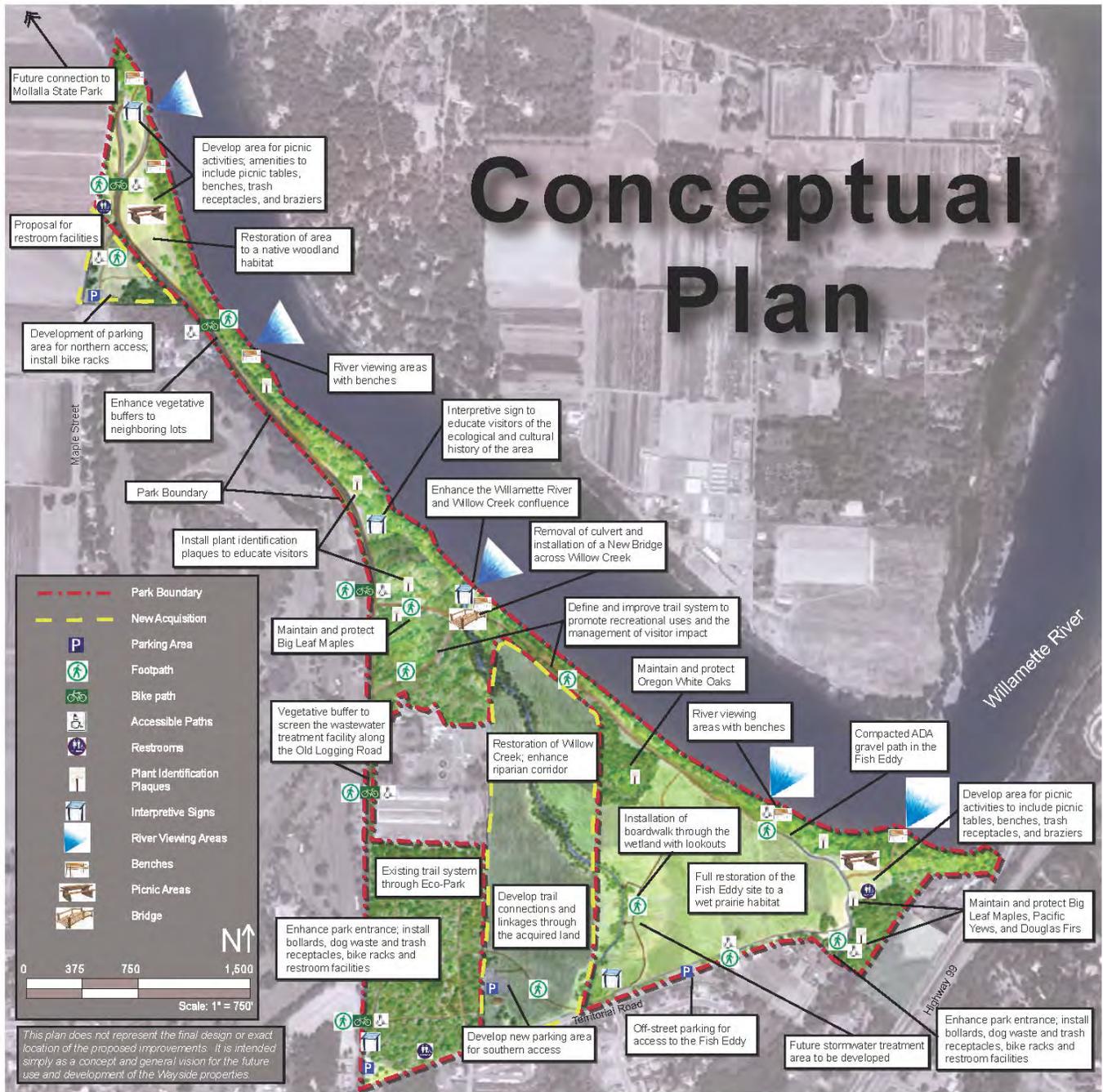


Figure 7: Willamette Wayside Master Plan concept (2004)

## Parks and Open Space Plans

Goals 6 and 7 of Canby's Park and Recreation Master Plan (PRMP), updated in 2000, recommend acquisition to meet a community standard of 10 acres of developed park land per 1,000 residents (at an average of 2.7 persons per single family home), while requiring "[allocation of] land for neighborhood parks in rapidly developing areas on the edges of the City". Chapter 16.120 of the city's Title 16 implements the Comp Plan and Park and Recreation Master Plan's policies, by outlining parkland dedication standards for new development (or SDC cash dedicated in lieu). The basic formula for this parkland dedication is:

***(Maximum units in a plat) x (persons/unit) x 0.01  
(acreage to be dedicated)***

*(Using a conservative benchmark to test this formula, if we were to imagine that the entire study area was eventually zoned at R-1, with a minimum lot area of 7000sf, then that would theoretically result in approx 300 units on 66 acres (accounting for roughly 20% of a site as roads). If we multiply this number by an average of 2.7 persons/unit, we get a total theoretical future population of 810. Multiplying this by the acreage ratio, results in a theoretical park acreage in the study area of about 8 acres. Clearly, since the future zoning will likely be for higher densities, the potential future park space may be higher.)*

The PRMP led to the creation of a Parks Acquisition Plan in 2001. This document recommends that vacant land in the site area be considered first for parks acquisition (currently, only two tax lots in the study area, a total of 5.9 acres, are vacant). The Acquisition Plan found that the study area and surrounding neighborhoods have a projected parks deficit of 44.1 acres at full build-out. Development of the North Redwood site provides an opportunity to set aside land for parks. Local residents interviewed for this study expressed concern at the City's lack of dedicated funding for maintenance of existing parks properties in the city.

The study area is one of these developing areas on the City's edge – and any development proposals will need to include dedicated park space. Certain factors are listed for consideration, including the fact that no more than 25% of the dedicated land can be in floodplain or steep slopes. There are also standards for obtaining credit for private park land provided. (see the box at right for park dedication standards)

In 2004, the Willamette Wayside Plan (Figure 7) outlined comprehensive recommendations for the development of the City-owned Fish Eddy property and adjacent open space areas. These included a future trail connection to Molalla State Park and future bicycle and pedestrian access through Eco Park to the river – these types of improvements and amenities would provide direct benefit to development in the study area.

Title 16 includes the following factors for the City to consider when deciding whether to accept land offered as part of proposals, or to accept cash in lieu. These factors are shown below.

- 1. The topography, geology, public streets access to, parcel size, shape, and location of land in the development available for dedication;**
- 2. Relationship of site to surrounding land uses and the surrounding transportation system;**
- 3. Potential adverse/beneficial effects on environmentally sensitive areas;**
- 4. Compatibility with the Park and Recreation Master Plan and Park and Open Space Acquisition Plan, Public Facilities element of the Comprehensive Plan, Transportation System Plan and the City of Canby Parks Capital Improvement Plan in effect at the time of dedication;**
- 5. Opportunity for preservation of natural and historical features, scenic viewpoints, watershed environments, and sections of land for wildlife habitat.**
- 6. Connections with, and continuity of, open space links, trails, and other major components of the open space system for parks.**
- 7. Availability of previously acquired property;**
- 8. Opportunity for shared use with other community facilities;**
- 9. Opportunity for future expansion of the site; and**
- 10. The feasibility of dedication.**



Willamette Wayside Plan site

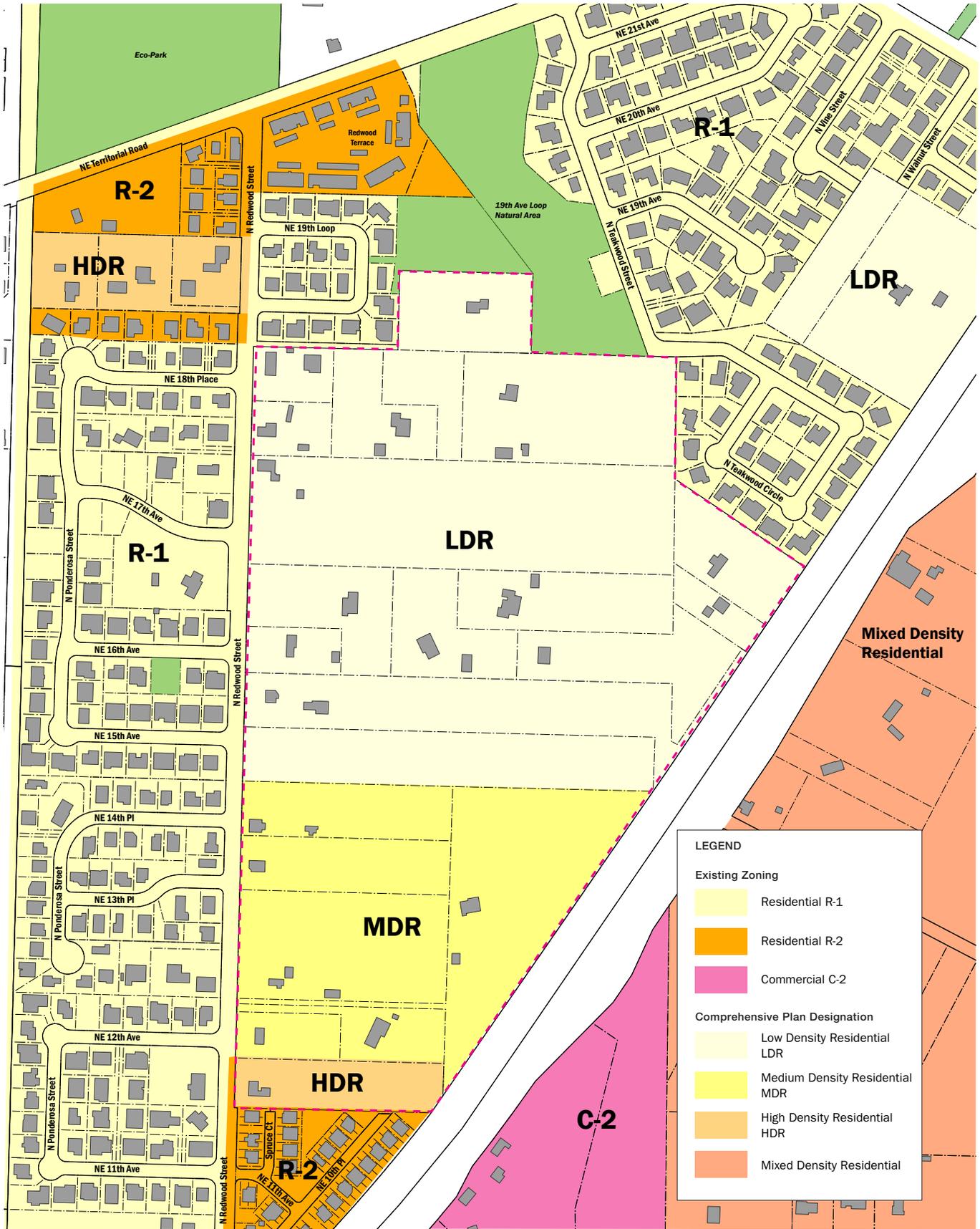


Figure 8



## Land Use Context

As noted above, the site is currently zoned with a County designation of Rural Residential Farm Forest 5-Acre District (RRFF-5), but its comprehensive plan zoning designates 60% of the area as low-density residential (7,000 to 10,000 s.f. lot area), 32% as medium-density residential (5,000 to 6,5000 s.f. lot area), and 8% as high-density residential (minimum 14 du/acre). The small, high-density area is directly adjacent to an existing pocket of high-density residential bordering OR 99E to its south, called Garden Crossing. The study area is generally zoned on a transect, with higher density at the south closer to downtown and retail services and lower density toward the natural areas to the north (Figure 8).

There are 23 tax lots on the site and 18 property owners (Figure 9, right). Total real market value for both land and structures for all properties is estimated at \$6,720,607. Only two lots do not have existing structures. (Table 2)

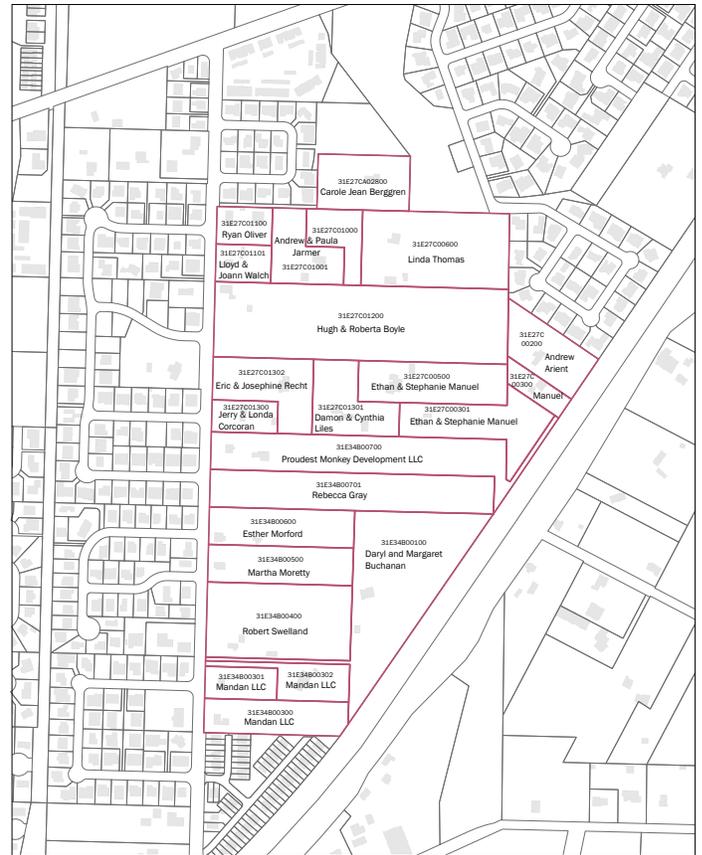


Figure 9: Taxlots and Owners

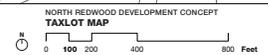


Table 2: Buildable land within the study area.

Taxlot ID	Owner	Site Address	Year Built	Acreage
31E27C 00200	Andrew D Arient	22781 S Hwy 99E 97013-2565	1979	2.0
31E27C 00300	Ethan & Stephanie Manuel	22881 S Hwy 99E 97013-2525	1944	0.7
31E27C 00301	Ethan & Stephanie Manuel	1650 N Redwood St 97013-2413	1992	2.7
31E27C 00500	Ethan & Stephanie Manuel	1612 N Redwood St 97013-2413	1964	2.7
31E27C 00600	Linda J Thomas	1864 N Redwood St 97013-2417	1987	4.9
31E27C 01000	Andrew J & Paula J Jarmer	(No Situs) 97013	No Structure	1.2
31E27C 01001	Andrew J & Paula J Jarmer	1860 N Redwood St 97013-2417	1989	1.8
31E27C 01100	Ryan T Oliver	1850 N Redwood St 97013-2417	2006	0.9
31E27C 01101	Lloyd A & Joann Walch	1794 N Redwood St 97013-2415	1925	0.9
31E27C 01200	Hugh R & Roberta M Boyle	1758 N Redwood St 97013-2415	1925	9.8
31E27C 01300	Jerry & Londa Corcoran	1586 N Redwood St 97013-2411	1936	0.9
31E27C 01301	Damon K & Cynthia L Liles	1608 N Redwood St 97013-2413	1992	2.1
31E27C 01302	Eric W & Josephine B Recht	1594 N Redwood St 97013-2411	1992	2.4
31E27CA02800	Carole Jean Berggren	1868 N Redwood St 97013-2417	1939	2.3
31E34B 00100	Daryl S & Margaret J Buchanan	1260 N Redwood St 97013-2407	2002	6.8
31E34B 00300	Mandan LLC	1176 N Redwood St 97013-2404	1976	2.2
31E34B 00301	Mandan LLC	1212 N Redwood St 97013-2407	1955	1.0
31E34B 00302	Mandan LLC	1234 N Redwood St 97013-2407	1977	1.4
31E34B 00400	Robert W Swelland Jr	1268 N Redwood St 97013-2407	1935	4.8
31E34B 00500	Martha Anne Moretty	1350 N Redwood St 97013-2408	1940	2.4
31E34B 00600	Esther L Morford	1382 N Redwood St 97013-2408	1940	2.4
31E34B 00700	Proudest Monkey Development LLC	1548 N Redwood St 97013-2411	1920	5.2
31E34B 00701	Rebecca S Gray	1440 N Redwood St 97013-2410	No Structure	4.7
<b>TOTAL</b>			<b>-</b>	<b>66.4</b>

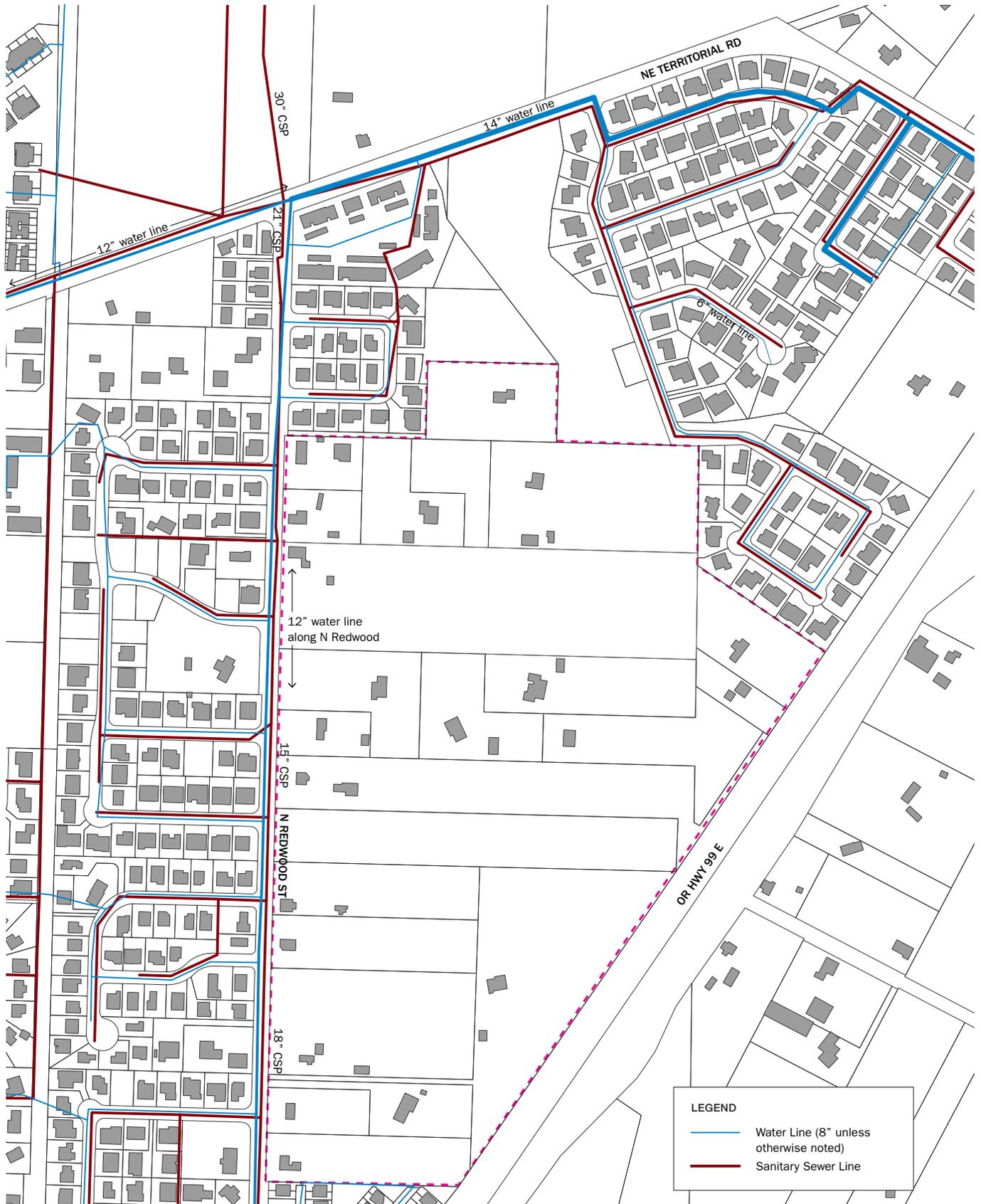
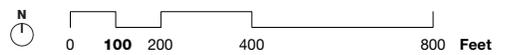


Figure 10

**NORTH REDWOOD DEVELOPMENT CONCEPT  
UTILITIES MAP: WATER & SEWER**



## **Infrastructure**

### **Sanitary Sewer**

Sanitary sewer service is provided by the City of Canby. Systems are required to be approved by and to comply with the requirements of Oregon Department of Environmental Quality.

An existing sanitary sewer line is located in N Redwood Street, along the western project boundary (Figure 10). According to as-built information, the existing sewer line adjacent to the project is a 15-inch line and is approximately 8-foot deep. Beyond the project, the line increases in size to 21-inch and 30-inch as it reaches the wastewater treatment plant. The ability to connect to this line via gravity sewer would need to be evaluated based on proposed site grading to determine if the depth would allow for a gravity connection to the sewer. In addition, the capacity of this line should also be evaluated.

There are also existing sanitary sewer lines in N Teakwood Street at the northwest corner of the project site. The flow from the Teakwood Street sewer line flows to the Willow Creek Pump Station located at NE Territorial Road at Willow Creek. These lines should be evaluated to determine if the invert elevations are such that our project could connect, as well as if there is enough capacity in the existing lines to serve the project site. In addition, the pump station should be evaluated to determine if it has the capacity for additional flow.

### **Water**

Water within the City of Canby is provided by Canby Utility. Canby Utility completed a Water System Master Plan in 2010. The system analysis in the master plan included all areas within the Urban Growth Boundary, which includes the project site.

Waterlines adjacent to the project include an existing 12-inch waterline in N. Redwood Street and an 8-inch Line in N. Teakwood Street. A 14-inch transmission line is located in NE Territorial Road to the North. (Figure 10)

The Water System Master Plan notes several improvements that should be made to support future development. Improvements include an additional water supply source, a new 3.0 MG reservoir, and looping of existing water transmission lines. According to the Master Plan, these improvements are long term improvement goals scheduled for the years 2021 to 2030. Discussions with Canby Utility indicate that these improvements would not prohibit the development of this site. If the capital improvement projects are required to be able to serve the site, Canby Utility would time the improvements of those projects to occur along with development.

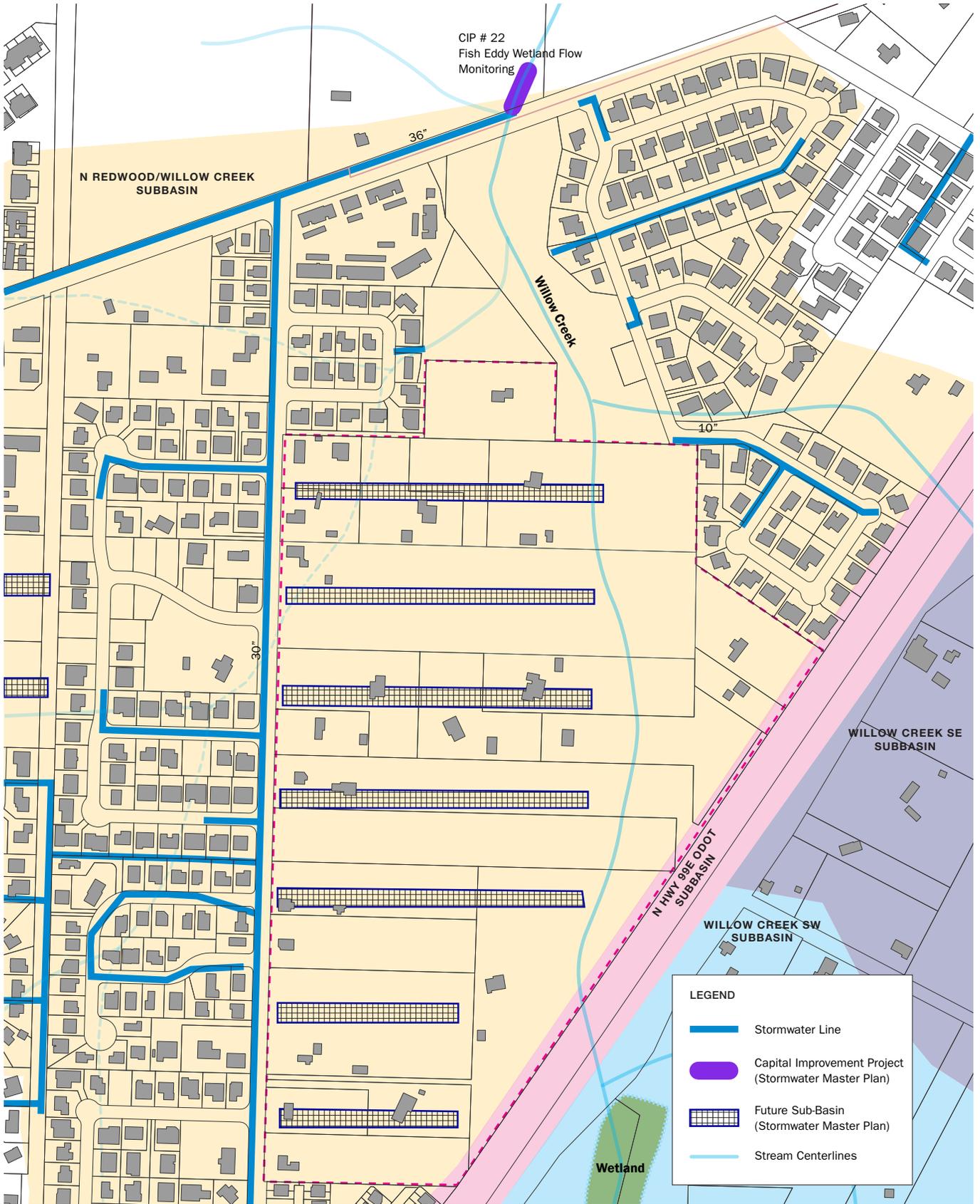
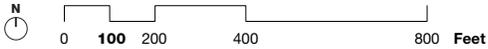


Figure 11

**NORTH REDWOOD DEVELOPMENT CONCEPT  
STORMWATER MAP**



### **Storm Water Master Plan**

The City of Canby Public Works Design Standards require water quality and quantity treatment be provided for storm water runoff. Water quality treatment is to be provided per the Clean Water Services (CWS) design standards. Acceptable methods of treatment include vegetated swales, extended dry ponds, wetlands, LIDA treatment facilities, or proprietary treatment devices. Water quantity treatment is required unless it can be demonstrated that there are no adverse downstream impacts. Developed site peak discharge rates shall not exceed pre-developed rates for all storm events with a recurrence interval less than or equal to 25 year. Detention and retention facilities are both acceptable methods of water quantity treatment. Facilities shall be designed in accordance with CWS design standards.

Canby's 2013 Storm Water Master Plan makes stormwater management recommendations based on the assumption that the site and other areas zoned in the comprehensive plan will develop as zoned. The site is part of the Redwood/Willow Creek drainage basin. The existing basin has an impervious area of 22.2 acres. This would increase to approximately 34 acres with development. Modeling showed that the Willow Creek system, including existing conveyance pipes in N Redwood Street, has adequate capacity for the additional runoff. Seven future sub-basins are proposed within the site area. (Figure 11)

The N Redwood/Willow Creek drainage basin is planned to be part of the Fish Eddy Wetland Capital Improvement Project. As part of this project, a "treatment wetland will be part of a restoration of the entire Fish Eddy property to native seasonal wetland and wet prairie habitat." Storm water treatment will occur in a proposed treatment wetland. The Storm Water Master Plan anticipates that the runoff from development west of N Redwood Street will be piped to the existing conveyance system in N Redwood Street. This conveyance line discharges into the Fish Eddy property north of NE Territorial Road. Existing pipes in N Redwood Street should be evaluated based elevation of the existing pipes and the ability to drain this area to the N Redwood Street conveyance system, as well as the capacity of the existing conveyance lines.

Willow Creek crosses the site approximately 1000 feet east of N Redwood Street. Runoff from development between Willow Creek and Hwy 99 would be discharged directly into Willow Creek, which flows to the Willow Creek Wetlands and discharges through a weir structure to two 36-inch culverts under NE Territorial Road.

### **Franchise Utilities**

The project is within the service provider area for the following utilities:

- Electric – Canby Utility
- Natural Gas – NW Natural
- Telephone – Canby Telcom
- Cable – Wave Broadband

Canby Utility has indicated there are several locations in the vicinity of the project that could be used to provide power. When the site annexes into the district, they will be charged a fee from PGE, who provides power to Canby Utility, in accordance with their Service Territory Agreement. Canby Utility assesses that cost back to the property as part of the development cost. The amount of the fee is variable depending on the proposed use and type of development.

NW Natural has an existing 2-inch gas line in N Redwood Street for the length of the project site. In addition, a 2-inch line extends into the site to serve approximately five existing tax lots. NW Natural has indicated that they would be able to serve this site in the future.

Canby Telcom has verified that the project is located within their service district and can provide service to the site. In addition to phone service, Canby Telcom can also provide customers with internet and cable television services.



Location of proposed Fish Eddy treatment wetland



North Redwood Street

## 2010 Transportation System Plan Summary

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

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

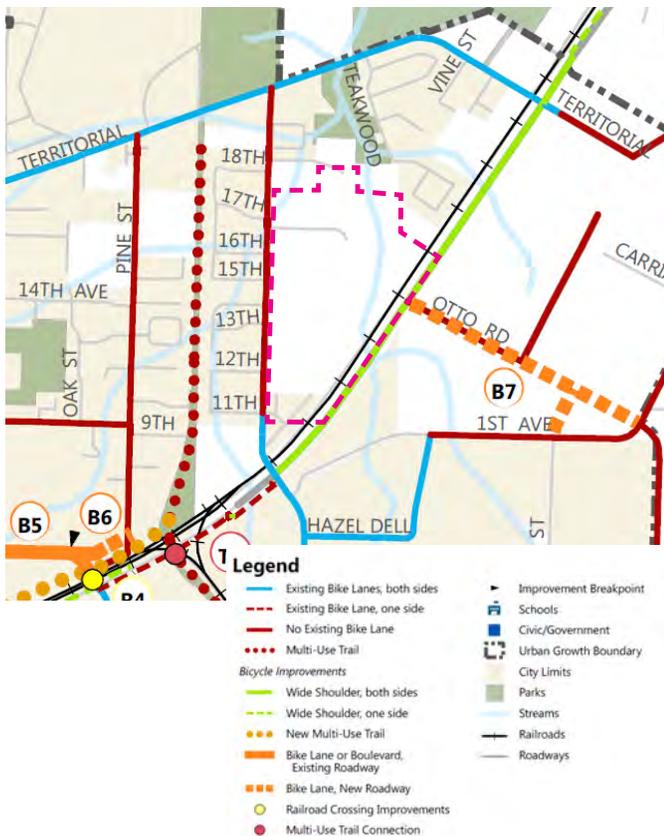
The majority of North Redwood Street only includes sidewalks along one side of the street (typically the west side). While no standalone project was identified as part of the TSP, sidewalks should be provided on both sides of North Redwood Street in conjunction with any roadway improvements so that the street meets Canby's Cross-Section Standards (see TSP Figure 7-5). It will also be beneficial to consider pedestrian crossings of North Redwood Street to facilitate connections to the Molalla Forest Road multi-use trail, which has multiple connection points to the neighborhoods on the west side of North Redwood Street. These improvements will help connect to the surrounding pedestrian network.

Other nearby pedestrian improvement needs include sidewalk infill on Territorial Road between Holly Street and Highway 99E (TSP Project S8) and sidewalks on the north side of Highway 99E (not a financially-constrained TSP project).

The only portion of North Redwood Street with bike lanes is the newer 500-foot section on the south end between Highway 99E and NE 11th Avenue. Because North Redwood Street is classified as a Collector street, it should include bike lanes on both sides of the road in conjunction with any roadway improvements to meet Canby's Cross-Section Standards. The bicycle network will also benefit from improved street crossings of North Redwood Street near connections to the Molalla Forest Road multi-use trail.



Financially Constrained Pedestrian Improvements (TSP Figure 5-1)

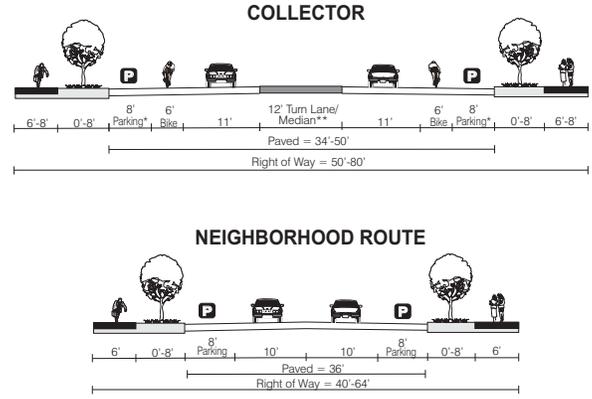


Financially Constrained Bicycle Improvements (TSP Figure 6-1)

### Functional Classification and Cross Sections

Canby's functional classification hierarchy includes Arterials, Collectors, Neighborhood Routes, and Local Streets. North Redwood Street and Territorial Road are classified as Collectors, while Highway 99E is an Arterial. The potential future Otto Road extension would also be a Collector, while all the remaining streets that may be constructed in the project site would likely become local streets.

The Canby TSP provides Standard Cross-Sections for each of the City's functional classifications. The Collector cross-section includes two travel lanes with an optional center turn lane that may be used for turning vehicles or a pedestrian island. It also includes bike lanes and sidewalks along with optional on-street parking. Neighborhood Traffic Management (NTM) may also be used under special conditions.



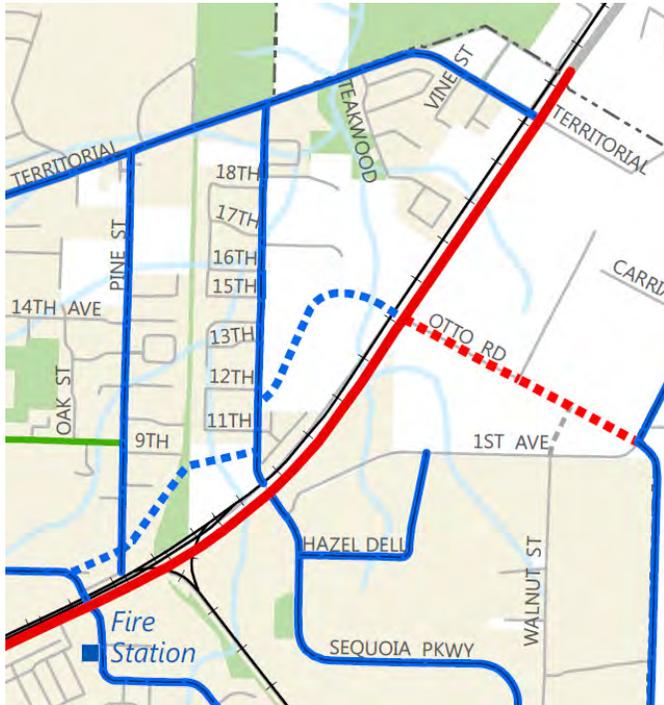
- Notes:**
- \* On-Street Parking may be provided on neither, one, or both sides. Where turn lanes are provided, on-street parking should not be allowed.
  - \*\* Turn Lane/Median section is optional and may consist of one of the following:
    - A. 12' Left-Turn Lane or Two-Way Left-Turn Lane with No Raised Median
    - B. 10' Raised, Landscaped Median with 1' Shy Distance on Either Side
    - C. 10' Pedestrian Refuge (Level with Roadway) with 1' Shy Distance on Either Side

TSP Figure 7-5

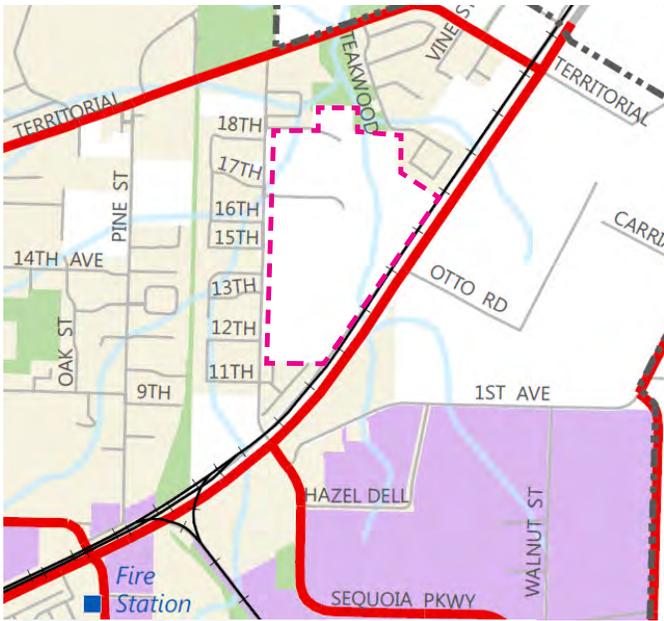
### Low Impact Street Design Characteristics

Characteristic	Collectors	Neighborhood Routes
Vehicle Lane Widths	10-11 ft.	10 ft.
On-Street Parking	8 ft.-Optional	8 ft. - At least one side
Bicycle Lanes (minimum)	5-6 ft.	None
Sidewalks (minimum)	6-8 ft.	6 ft.
Buffer/Planter Strip	0-8 ft	0-8 ft
Turn Lane/Median	12 ft.-Optional	None
Neighborhood Traffic Management (NTM)	Under Special Conditions	Under Special Conditions
Transit	As appropriate	As appropriate
Turn Lanes	When Warranted	When Warranted

"Low Impact" standards require demonstration of hardship or other exceptional circumstances resulting from conditions of the adjacent properties and must be approved by City Staff.



Functional Classification (TSP Fig 7-1)



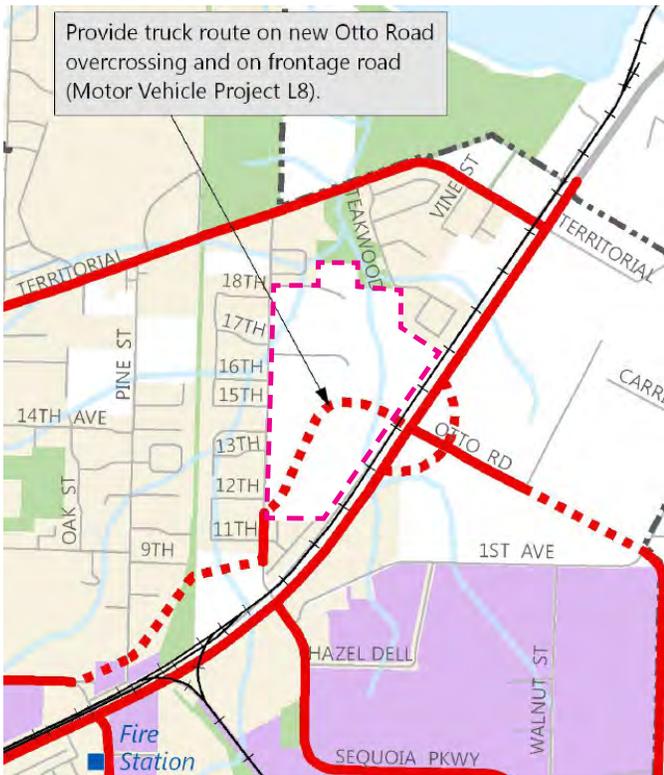
**Legend**

- Truck Route
- - - Future Truck Route
- Major Roadway
- Other Roadways
- Railroads
- Schools
- Civic/Government
- Streams
- Urban Growth Boundary
- City Limits
- Parks
- Industrial Areas

TSP Figure 7-2a Truck Routes (Existing System)

**Truck Routes**

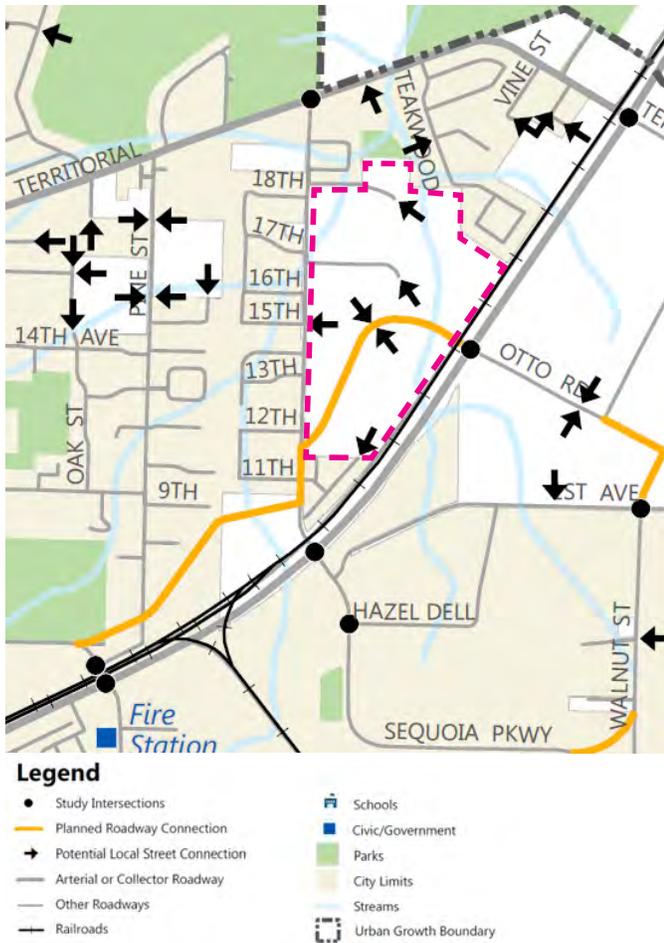
Highway 99E and Territorial Road are currently designated as truck routes. North Redwood Street is not a truck route, but a new Otto Road overcrossing (included as part of the Preferred Solution package) is intended to become a truck route and may require use of a short section of North Redwood Street. The purpose of having Otto Road become a truck route would be to provide access to the Clackamas County fairgrounds. Truck access to the fairgrounds now occurs on Pine Street; however, the TSP identifies the potential closure of the Pine Street crossing, at which time the Otto Road overcrossing and frontage road would fill this need.



**Legend**

- Truck Route
- - - Future Truck Route
- Major Roadway
- Other Roadways
- Railroads
- Schools
- Civic/Government
- Streams
- Urban Growth Boundary
- City Limits
- Parks
- Industrial Areas

Figure 7-2b Truck Routes (Financially Constrained System)



TSP Figure 7-8 Local Street Connectivity

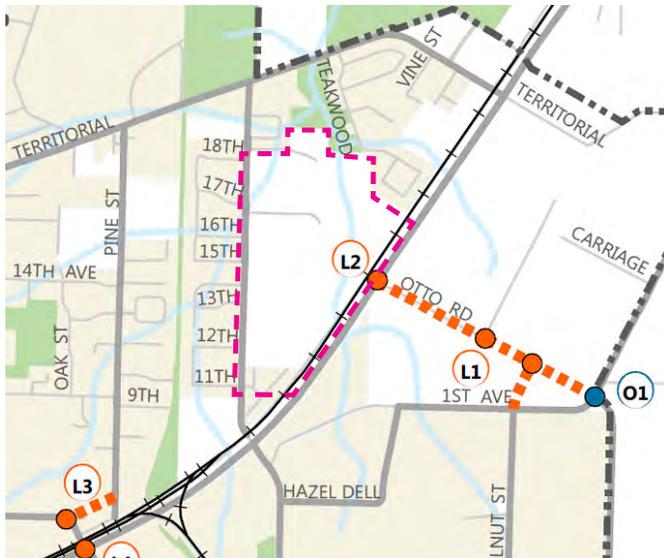
### Local Street Connectivity

The TSP also specifies the general locations where new local streets should be installed as the project site develops. The arrows in the figure represent potential connections and the general direction for the placement of the connection.<sup>2</sup> The purpose of these connections is to ensure that the new development site accommodates future local circulation between adjacent neighborhoods to improve connectivity for all modes of transportation. The guidelines that should be followed when selecting local street connections includes:

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

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

<sup>2</sup> Other local street connections may be required as the City conducts development review.



TSP Figure 7-10 Financially Constrained Motor Vehicle Improvements

**Financially Constrained Motor Vehicle Improvements**

Based on the City’s existing and future motor vehicle needs, multiple improvement projects were identified throughout Canby. The only motor vehicle project in the immediate project vicinity is the potential Otto Road Overcrossing, which includes a bridge over both Highway 99E and the adjacent Union Pacific Railroad along with a frontage road connecting to North Pine Street. This project would reduce congestion on Highway 99E through Canby but was not included in the financially-constrained solutions package. It is beyond the financial projections for the City and would require significant property and building acquisitions.

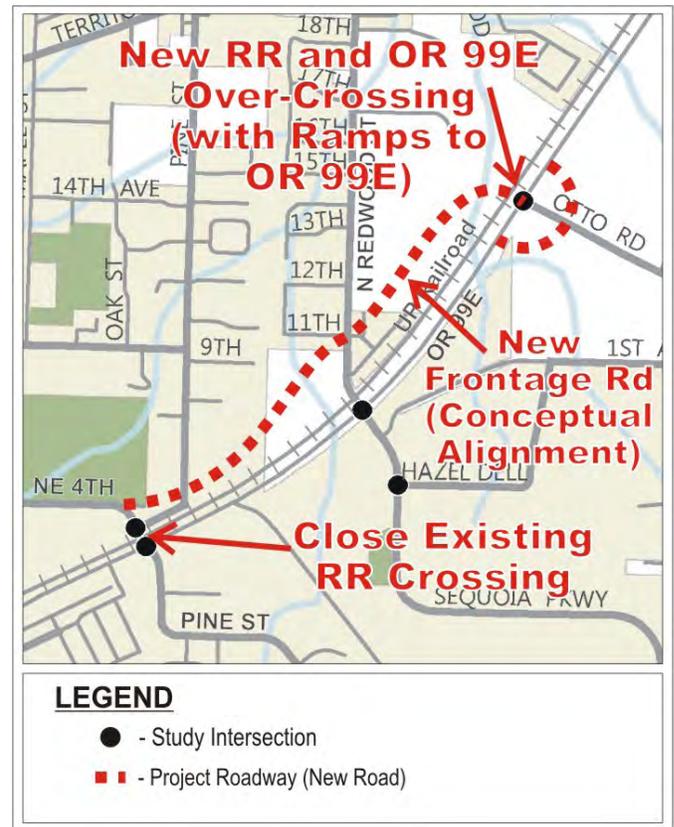


Figure 7-12 Preferred Package Additions (Otto Rd Overcrossing)

**Neighborhood Traffic Management (NTM)**

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

An important consideration of NTM is the need to manage vehicle speeds and volumes with the need to maintain mobility, circulation, and function for service providers (e.g. emergency response). Table 7-5: Allowed Traffic Calming Measures by Roadway Functional Classification lists common NTM applications and suggests which devices may be supported by the Canby Fire District. If NTM is considered for North Redwood Street or any local streets planned for the project site, then coordination will be needed with emergency agency staff to ensure public safety is not compromised.

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

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

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

### **Access Spacing Standards**

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

### **Mobility Standards**

The Canby TSP specifies the mobility standards for signalized, all way stop, or roundabout intersections as level of service D and a volume to capacity ratio equal to or less than 0.85. The standards for unsignalized two way stop control intersections are level of service E and a volume to capacity ratio equal to or less than 0.90.

Table7-2: Access Spacing Standards for City Street Facilities<sup>a</sup>

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

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

<sup>b</sup> Measured centerline to centerline

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



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**To: Matilda Deas**

**Topic: Evaluation Criteria**

**Date: 02/13/2015**

**From: Ken Pirie**

**Project: Canby North Redwood**

**Project #: 3077**

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## **North Redwood Development Concept Plan**

Distribution:  
Basecamp

### **Memo #4: Evaluation Criteria**

The following draft criteria have been established by the consultant team as an initial guide in the development of alternative plans for the North Redwood study area. The following criteria will be revised in the next 2 months with public, agency and stakeholder input. These criteria will be used, together with this input, as an objective way of determining the most appropriate plan for the area.

- The North Redwood Development Concept Plan (the Plan) should create a plan that feels like an extension of Canby
- The Plan should eventually result in a cohesive neighborhood, instead of several uncoordinated and disconnected subdivision plats
- All parcels in the study area should be well-integrated into the Plan, so that they can share in the amenities provided and not be adversely affected by neighboring properties' development.
- The Plan must minimize undue impacts to individual parcels and allow for innovative cost and benefit sharing arrangements such as a Reimbursement District.
- The Plan should not preclude incremental development in different parts of the study area, according to different owners' priorities
- The Plan's infrastructure should entail reasonable costs of improvements that do not burden future development
- The Plan should result in a clear, connected and safe street system which is balanced between spaces for cars, bicycles and walking
- The Plan should accommodate the potential for future bus transit to serve residents on certain key streets.
- Clear emergency access to and from the new neighborhood must be maintained in the Plan
- A trail and sidewalk system in the Plan area should connect to natural areas like Willow Creek, the 19<sup>th</sup> Ave Natural Area, the Old Logging Road Trail and Eco-Park
- The Plan should provide for the protection of Willow Creek, at a minimum using existing RSCA setbacks regulated currently by Clackamas County
- New public parks should be provided in the plan and integrated within neighborhoods, not relegated to left-over spaces on the margins of the Plan.
- The Plan should allow for Willow Creek and associated wetlands to be protected through the clustering of dwellings (within the Comprehensive Plan's desired density ranges)
- The Plan must meet city, state, county and other applicable regulations

***end***

North Redwood

# Development Concept Plan

TAC | SAC Meetings

February 9, 2015

