

Section 1

System Background, Service Area, and Policies

Section 1 presents an overview and background to this City of Yelm (City) General Sewer Plan (GSP), including applicable regulations; wastewater system history, ownership, and management; Yelm service area characteristics; a description of the future service area; an inventory of existing sewer facilities; service area policies; an explanation of collection system complaint procedures; and consistency with local planning.

1.1 Introduction

This section outlines the purpose of this GSP; provides a list of related plans and documents; and presents a discussion of regulatory, tribal, and stakeholder GSP review.

1.1.1 Purpose

This GSP has been prepared in accordance with Washington State Administrative Code (WAC) Chapter 173-240-050, the Washington State Department of Ecology's (Ecology) *Criteria for Sewage Works Design* Section G1-3, and applicable local/regional plans. Three major elements of the GSP include analyses of Yelm's sewer collection system, water reclamation facility (WRF), and reclaimed water distribution system. For each of these elements, analyses include:

- Description and condition assessment of the existing system
- Service and capacity analyses for planned future growth
- Identification of future system needs and development of a Capital Improvement Program

This GSP addresses anticipated growth, within both the existing sewer service area and the Urban Growth Area (UGA), as well as the policy decisions and system improvements that are necessary for the City to provide sewer service in the future.

Analyses of the necessary improvements are performed for two separate development scenarios that are defined based on the City either providing or not providing sewer service to the Thurston Highlands Master Planned Community (MPC), located within the far western portion of the Yelm city limits. In this document those two scenarios are referred to as the "with MPC" and "without MPC" scenarios, respectively. The reason that both scenarios are considered is twofold. First, the timing for the development of the MPC is uncertain and there are improvements that the City needs to make to the sewer system regardless of whether the MPC is developed. Second, by analyzing the "without MPC" scenario separately, the City is better able to estimate the potential impacts of providing service to the MPC on existing ratepayers and then mitigate those impacts fairly.

1.1.2 Related Plans and Documents

Existing planning policies and previous planning documents developed by the City of Yelm guide development of the sewer system within the city. Furthermore, the City has reviewed related plans developed by, or in cooperation with, stakeholder agencies, including Thurston County, in an attempt to achieve planning consistency.

Related policy and planning documents are described below. Relevant portions of the related planning documents are discussed in the applicable sections of this GSP:

- **City of Yelm Water Reuse Project Facilities Plan, September 1995, Skillings Connolly, Inc.:** Documented the City's plan, including design criteria, for wastewater treatment and generation of reclaimed water. Implementation of the proposed facilities was phased to provide for capacity needs through 2005 (Phase 1) and 2015 (Phase 2). A technical memorandum prepared in January 1996 by Esvelt Environmental Engineering revised the 1995 design criteria based upon influent flow and loading data collected between October 1994 and October 1995. A copy of this memorandum is provided in Appendix 4A. The design basis for existing City facilities and current capacity compared to necessary future capacity is discussed in Section 2 and in further detail in Section 4.
- **Nisqually Watershed Management Plan, October 2003:** Documents goals, policies, programs, and planning statements prepared by the Water Resource Inventory Area (WRIA) 11 planning unit. Although not directly related to wastewater planning, the watershed policies have been assessed with respect to the use of reclaimed water in Section 4.
- **Thurston Highlands Master Planned Community Final EIS Technical Reports, December 2008, City of Yelm Community Development Department:** Identifies planned development, projected population growth, and water usage/wastewater generation within the Thurston Highlands MPC. A copy of the applicable section of the EIS Technical Report that discusses the sewer system (*Grading, Drainage, and Utilities Technical Engineering Report*) is provided in Appendix 6A.
- **City of Yelm Reclaimed Water Plan, January 2009 (Draft), Skillings Connolly, Inc.:** Prepared to establish goals and strategies for the future development and management of the City's reclaimed water program, including the development of capital improvement projects to identify opportunities for additional reuse as reclaimed water production increases in the future. The Draft Reclaimed Water Plan was never finalized or adopted. This GSP incorporates many elements of the Draft Plan, but will reevaluate and prioritize the capital improvement projects to bring reclaimed water planning into alignment with the City's existing utility planning processes.
- **City of Yelm Comprehensive Plan and Joint Plan with Thurston County, 2009:** Provides information regarding zoning requirements and service areas. This document sets the short-term and urban growth boundary limits and provides population projections.
- **City of Yelm Water System Plan Update, June 2010, Brown and Caldwell:** The plan evaluates water system needs for the 6- and 20-year planning horizons, and develops a Capital Improvement Program that will maintain high-quality potable water service and protect the health of City customers. A financial program for the 6-year period consists of increased monthly water rates and system development (connection) charges.

Two different development scenarios were evaluated as part of the water system planning process: one with and one without the inclusion of the MPC being planned for development inside city limits in southwest Yelm. Development of the MPC could ultimately represent the addition of 6,200 homes along with associated commercial development. Planning assumptions utilized the most recent population projections for Yelm completed by the Thurston Regional Planning Council (TRPC) (Buildable Lands Report, 2007) and predicted that by the 20-year planning horizon the population served by the City water system would more than double for the "without MPC" scenario and more than triple for the "with MPC" scenario. Given the uncertain timing for development of the MPC, the City elected to base the Water System Plan (WSP) on projected population and water demand growth that did not include the immediate development of the MPC.

At the time the WSP was written, the "with MPC" scenario included both the Thurston Highlands and the undeveloped portions of Tahoma Terra. However, since the WSP was finalized, development within Tahoma Terra has begun and this MPC has been incorporated into the existing service area.

- **City of Yelm Water Right Mitigation Plan, February 2011, Golder Associates:** Written to support a water right application to Ecology. The Plan presents a summary of mitigation actions, including infiltration of reclaimed water, proposed by Yelm to address predicted groundwater and surface water impacts in the Nisqually and Deschutes river basins due to the addition of a new potable water production well.

1.1.3 Regulatory, Tribal, and Stakeholder Review

A draft version of this final GSP was submitted to the Washington State Departments of Ecology and Health, Thurston County, and the Nisqually Tribe for review and comment. Other interested parties and the public were notified that the draft GSP was available on the City web site for review and comment. Written comments provided by Ecology (dated May 10, 2013) and the respective City responses are included in Appendix 12A. No other agency or stakeholder comments were received. Section 12 provides more detailed discussion of the public participation and review process.

1.2 Applicable Regulations

The sewer system (including reclaimed water production and distribution) is regulated jointly by Ecology and the Washington State Department of Health (Health) under the National Pollutant Discharge Elimination System (NPDES) and State Reclaimed Water Discharge Permit WA0040762. The permit for the WRF was initially issued in October 1999 and was most recently reissued in July 2011. The most recent version of the NPDES permit and accompanying Fact Sheet are provided in Appendix 1A.

The NPDES permit and Fact Sheet discuss the regulatory basis for requirements related to wastewater collection, treatment, and disposal as well as reclaimed water production and usage. Regulations for reclaimed water could potentially change in the near future. Draft rule revisions in WAC 173-219 that could significantly change reclaimed water regulations are on hold until June 2013 at the earliest. Where possible, this GSP assesses current and potential future reclaimed water rules when performing analyses for future system needs.

Additional local regulations related to the sewer system include the City of Yelm Municipal Code (YMC) and the City's Development Guidelines. Policies and design and performance standards set forth in these City regulations are discussed in more detail in Section 1.7. Applicable portions of the YMC and City Development Guidelines are provided in Appendix 1B.

1.3 Wastewater System History, Ownership, and Management

This section presents a brief history of the Yelm wastewater collection and treatment system and describes the system's ownership and management.

1.3.1 History

In 1988, the City was required by the Thurston County Health Department to install a sanitary sewer collection system and treatment plant to protect potable water supply due to high nitrate concentrations in the groundwater from septic tank drainfields. With the aid of state and federal grants and loans, a septic tank effluent pump (STEP) sewer collection system and a 0.3 million gallon per day (mgd), two-stage aerated lagoon treatment plant were constructed and put into service in January 1994.

The treatment plant was constructed with an outfall to the Centralia Power Canal as the primary discharge point, and also to the Nisqually River as a standby discharge point. The Shoreline Permit (see Appendix 1C) for the project required that the discharge point to the Nisqually River be removed by March 1997, and the discharge to the Power Canal be converted to a standby outfall only, by March 1999 (extended to 2001). This stipulation prompted the City to pursue a water reuse program to treat its

wastewater to tertiary levels and reuse as much as 100 percent of the reclaimed water for landscape irrigation, groundwater recharge by surface percolation, and other uses around the city.

The lagoon treatment plant was not capable of providing the means for the necessary treatment to attain “Class A” reuse quality, nor was the treatment capacity adequate to meet the projected growth demands of the City. Consequently, the lagoon treatment system was upgraded to a WRF in 1999 by implementing a sequencing batch reactor (SBR) treatment process along with tertiary facilities consisting of coagulation, continuous backwash granular media filtration, and chlorine disinfection. The new facility increased capacity to 1.06 mgd maximum monthly flow with the ability to add an additional 1.2 mgd of capacity to the treatment facility in the future.

The City does not have the ability to achieve 100 percent reuse year round so the Shoreline Permit was renegotiated in 2002 to allow the City to maintain the Nisqually River outfall as an emergency outfall only and the Centralia Power Canal outfall as a standby outfall. Documentation of the renegotiated Shoreline Permit is provided in Appendix 1C. Section 4 discusses typical periods of use for each discharge location and the percentage of total effluent flow routed to the reclaimed water distribution system and surface waters.

1.3.2 Ownership and Management

The City of Yelm wastewater system, including the collection system, WRF, outfalls, and reclaimed water distribution system, is owned entirely by the City. Management and operation activities for the wastewater system are performed by the Public Works Department. The mailing address and contact information for the City’s Public Works Department is:

Public Works Department
901 Rhoton Road
Yelm, Washington 98597
Phone: 360-458-8410
Fax: 360-458-8417

City of Yelm Water Reclamation Facility
931 NP Road
Yelm, Washington 98597
Phone: 360-458-8411
Fax: 360-458-8166

City Hall
105 Yelm Avenue West
Yelm, Washington 98597
Phone: 360-458-3244

The emergency contact for the City is Tim Peterson, Public Works Director, 360-458-8499.

The Public Works Director and the WRF Manager manage the wastewater system’s day-to-day operations. The Public Works Director, WRF Manager, City Clerk, City Treasurer, City Administrator, Program/Project Manager, and City Council work together to set wastewater system policies and manage the wastewater system’s finances. Current wastewater system staff and titles are listed below.

System managers:

- Tim Peterson, Public Works Director
- Jim Doty, WRF Manager (Group IV Certification #6449)

System-certified operators:

- Jim Doty, WRF Manager (Group IV Certification #6449)
- Randy Hatch, Collection System Inspector (Group III Certification #7003)
- Robert Rhoades, WRF Operator and Lab Technician (Group III Certification #7118)
- Aris McClelland, Collection System Operator (Group II Certification #7684)
- Tony Edwards, OIT

1.4 Service Area Characteristics

This section presents Yelm service area characteristics, including a description of the area, land use and zoning, topography, soils, critical areas, and potable water system facilities.

1.4.1 Service Area

The city of Yelm is located about 17 miles southeast of Olympia, Washington, near the eastern boundary of Thurston County, as shown in Figure 1-1. The existing wastewater system currently serves a portion of the area within Yelm city limits. Other areas within city limits are still served by onsite septic systems. Planned expansion of the sewer system within city limits and the UGA is discussed in Section 2. The wastewater service area is shown in Figure 1-2.

The total area within city limits is approximately 3,635 acres, which includes the Thurston Highlands MPC (1,240 acres). An additional 2,390 acres lie outside city limits but within the UGA. Of the area within city limits, approximately 40 percent (1,490 acres) is served by the sewer system.

No other sewer agencies are directly adjacent to the Yelm city limits or UGA. The nearest sewered area is in Lacey, Washington (approximately 10 miles to the northwest). The Nisqually Indian Tribe, which is in the process of planning and designing a membrane bioreactor (MBR) treatment facility for its sewer service area, is located approximately 5 miles northeast of Yelm on State Route (SR) 510.

1.4.2 Land Use and Zoning

The City's Comprehensive Plan and Joint Plan with Thurston County addresses future land use, development, and population trends within the Yelm UGA. Appendix 1D presents the chapter of the Comprehensive Plan that describes public facilities and utilities, including the wastewater system. The City's current and future zoning and land use designations are shown in Figures 1-3 and 1-4, respectively.

Based on an analysis of the City zoning designations within the current city limits, there are approximately 584 acres of commercially zoned land, 1,176 acres of residential land, and 190 acres of industrial land. This does not include two MPCs proposed in the southwest part of the Yelm city limits that will contain an additional 1,550 acres of primarily residential land. The Buildable Lands Report developed by the TRPC in 2007 estimates that at buildout, the Tahoma Terra MPC will contain 1,200 dwelling units and the Thurston Highlands will contain 5,000 dwellings. Currently, the Tahoma Terra development is estimated to be approximately 25 percent developed. Development has not begun in the Thurston Highlands.

The 2007 Buildable Lands Report estimates that 217 acres of land are available for commercial development within city limits and 6 acres are available for commercial development within the UGA. The TRPC also states that the land supply for industrial purposes within city limits and the UGA is 108 acres

and 80 acres, respectively. These numbers include vacant or partially used lots as well as re-developable land. As of the end of 2008, commercial building square footage was approximately 556,000 square feet (ft²) (per City of Yelm Community Development).

1.4.3 Topography

Yelm lies in an area known as the Yelm Prairie. This area was occupied by glacial meltwaters during the receding stages of the Vashon Glacier and generally has little change in elevation. Topography is depicted on the area's topographic map (created from contour data provided by the Thurston County Geodata Department), shown in Figure 1-5.

The central portion of the existing city limits lies approximately 340 feet above mean sea level (msl). The land slopes upward to the south and west with the highest portion of the study area located at an elevation of 512 feet above msl at the western extreme of the Thurston Highlands MPC. The area within the MPC generally exhibits greater variation in topography than the rest of the service area.

1.4.4 Soils

The soils of Thurston County have been mapped and classified into 133 soil units by the United States Department of Agriculture, Soil Conservation Service (SCS). The majority of soils in the City of Yelm area are classified as either (1) Spanaway gravelly sandy or stony loam or (2) Everett very gravelly sandy loam. The characteristics of the soils have been grouped by the SCS as undulating and rolling, coarse and moderately coarse textured soils underlain by loose glacial outwash materials.

1.4.5 Critical Areas

The Growth Management Act (GMA) (Revised Code of Washington [RCW] Chapter 36.70a) contains specific requirements for the designation and protection of "critical areas," defined by the GMA as wetlands, areas with recharging effect on aquifers used for potable water, fish and wildlife habitat conservation areas, frequently flooded areas, and geologically hazardous areas. Maps from the City of Yelm Comprehensive Plan identifying critical areas within city limits and the UGA are provided in Appendix 1E. Relevant critical area information is summarized as follows:

- Shorelines and abutting floodplains in or adjacent to the urban area include Black Lake, Black lake Ditch, Trosper Lake, and along the Deschutes River. Wetland areas are present at the headwaters of the Black Lake. Small wetlands are also present within the city limits to the west of Trosper Lake and along Black Lake Ditch.
- Aquifer sensitive area underlies most of the west UGA, surrounding Black Lake. The City's wells and many private wells do not use the aquifer for water supply.
- The few areas identified as steep slopes and volcanic hazards occur along portions of the Centralia Power Canal and Yelm Creek.
- There are no identified priority habitats or species within the UGA.

The City's future zoning designations include an environmentally sensitive area in the southwest corner of the UGA. This area includes wetlands and areas of high groundwater. Development will not occur in this zone of the UGA.

1.4.6 Potable Water System Facilities

This section summarizes the City of Yelm potable water system facilities, as described in detail in the City's June 2010 Water System Plan Update. The potable water system consists of one well field comprising two active wells, a chlorine treatment system located at the well site, two 500,000-gallon storage reservoirs, and approximately 53 miles of distribution pipe. The entire water system is a single pressure zone. The City is currently in the initial phase of planning for a new potable water well,

designated as SW Yelm Well 1A. The capacities of the existing wells are 1,700 gallons per minute (gpm) each; the new well is expected to have a capacity of 2,100 gpm.

The City's wells, treatment system, and storage reservoirs are shown in Figure 1-6 in relation to the City's existing wastewater system facilities. Figure 1-6 also identifies small Class A and B water systems as well as other known private wells within the UGA.

1.5 Future Service Area

The City of Yelm intends to provide sewer service within the entire UGA. Therefore, the future service area includes all areas within the UGA that are outside of existing city limits. This GSP evaluates two future scenarios for development within the UGA: with and without sewer service to the Thurston Highlands MPC. Thurston Highlands is located within city limits; the analyses and evaluation presented in this GSP have led to the determination that wastewater generated within the MPC will be treated at a separate facility located within the MPC rather than conveyed to the City's existing treatment facility. Analyses presented in Sections 2 through 6 of this GSP evaluate both development scenarios and the impacts on the future wastewater collection, treatment, and disposal needs of the system.

1.6 Inventory of Existing Sewer Facilities

The wastewater system currently consists of a STEP collection system, an advanced WRF for production of Class A reclaimed water, and a reclaimed water distribution system, as described below. The wastewater system is designed and operated to meet criteria set by Ecology and Health as documented in the City's NPDES and State Reclaimed Water Discharge Permit (see Appendix 1A).

1.6.1 STEP Collection System

The existing STEP collection system consists of either individual STEP tanks located at buildings or common STEP tanks serving multiple residences or commercial structures. Solids in the wastewater settle in the STEP tank, and the effluent is pumped through smaller-diameter pressure mains to the WRF. These pipelines are generally located in the public right-of-way and serve most, but not all, of the buildings within the city limits.

The collection system consists of approximately 2,125 STEP tanks, 759 valves, and 40 miles of STEP collection line. City mapping data show that three STEP tanks are in service outside city limits and within the UGA. These include a residential home, a duplex, and a church.

Based on mapping data provided by the City of Yelm, some parcels within City limits are served by privately owned septic tanks rather than the City's STEP collection system. In order to estimate the number of private septic tanks within city limits, a map of parcels with STEP tanks was created, based on Global Positioning System (GPS) data collected by the City wastewater operators. This was compared to aerial photos and parcel information provided by the Thurston County Geographic Information System (GIS) department. Any parcel that appeared to be developed but did not appear to be served by a City STEP tank was assumed to contain a septic tank. A total of 157 parcels within city limits were determined to contain septic tanks.

Figure 1-7 shows a map of the existing collection system. Table 1-1 provides an inventory of the City's collection system.

Table 1-1. Collection System Inventory

Component	Unit	Quantity
STEP tanks:	Each	2,125 ^a
Commercial	Each	180
School	Each	18
Single-family residential	Each	1,759
Multi-family residential	Each	168
STEP pipes:		
2"	Feet	78,442
3"	Feet	30,572
4"	Feet	52,159
6"	Feet	26,132
8"	Feet	9,217
10"	Feet	1,967
12"	Feet	8,097
Total	Feet	206,586
STEP valves	Each	759
Pressure-sustaining valve stations	Each	1

a. O&M database includes 2,094 STEP tanks as of May 2011. GPS survey shows 2,125 STEP tanks as of August 2011.

1.6.2 Treatment Facilities

The City's existing WRF was designed to treat maximum monthly flows of up to 1.06 mgd to Class A (highest quality) reclaimed water standards using several treatment steps, including SBRs, equalization, continuous backwash granular media (Dynasand) filters, and chlorine disinfection. Details of the individual treatment steps are described in Section 4.

If the quality of the treated water meets permit limits for reclaimed water and there is a demand for reuse water, the reclaimed water is pumped to the beneficial use sites (see Section 1.6.3).

Additional surface water disposal alternatives, including outfalls to the Centralia Power Canal and the Nisqually River, are available when reclaimed water permit limits are not met or reclaimed water production exceeds demand. Discharge to the Centralia Power Canal is considered a "Standby" disposal alternative. Discharge to the Nisqually River is an "Emergency" disposal alternative, to be used only when the canal must be shut down for maintenance or when flow in the canal drops below 200 cubic feet per second (cfs). Effluent to be discharged through the surface water outfalls flows by gravity from the WRF to a pair of manual control valves located near the Centralia Power Canal discharge. The valve directing flow to the canal is normally open, while the river discharge valve is normally closed. Emergency river discharge is achieved by manually switching the open/closed status of the two valves.

The City does not currently have options for 100 percent reuse year round and intends to continue use of the surface water discharge outfalls as defined in the Shoreline Permit (i.e., as standby and emergency outfalls). The City will continue to assess the technical and financial feasibility of removing the surface water discharge outfalls throughout the planning period evaluated within this GSP. The original and renegotiated Shoreline Permit governing the use of the Centralia Power Canal and Nisqually River outfalls are provided in Appendix 1C.

1.6.3 Reclaimed Water Facilities

Reclaimed water produced at the WRF is pumped from the plant site via a reclaimed water pump station to various points of application throughout the city, including a constructed wetlands and infiltration basins at Cochrane Park, and during the summer months, to several irrigation/landscaping applications. Individual reclaimed water users are described in Section 5. Figure 1-8 presents a map showing the location of the WRF, outfalls, and reclaimed water distribution system.

The primary means to store reclaimed water is a 500,000-gallon storage tank located at the WRF. During periods when reclaimed water production is greater than demand in the system, water is pumped from the reclaimed water pump station to the storage tank. When demand for reclaimed water exceeds production, water from the storage tank flows by gravity back to the reclaimed water pump station, where it is then pumped into the distribution system.

The City also has six smaller tanks located at Longmire Park. These tanks range in size from 3,657 to 8,130 gallons and provide a total of 34,158 gallons of additional storage at the park. The park also has a small 10-horsepower (hp) pump that boosts flow to the onsite reclaimed water irrigation system.

1.7 Service Area Policies

YMC Chapter 13.08 (see Appendix 1B) codifies the City's policies and defines regulations related to sewer service for the City of Yelm. Service area policies are an important planning element in a utility's endeavor to develop and provide wastewater service within a defined service area. These policies ultimately guide the development and financing of the infrastructure required to provide wastewater service throughout the service area.

1.7.1 General Policies

In its commitment to provide dependable, comprehensive sanitary sewer service in accordance with all applicable regulatory rules and regulations, the City observes the following general policies:

- The City has a duty to provide sewer service within the service area identified in this GSP in a timely and reasonable manner, consistent with state and local regulations and City policies. The definition of a timely and reasonable manner shall be determined on a case-by-case basis as deemed appropriate by the City. Considerations in determining whether or not service can be provided in a timely and reasonable manner include:
 - Public health: can service be provided without risk to public health and safety?
 - Financial: can the cost of providing service be borne by existing customers in a fair and equitable manner?
 - Administrative: does the City government and its departments have the capacity to provide service to the proposed new connections?
- All property served by the City's sewer system must be within the UGA. The only circumstance in which property outside the UGA will be served is when it is necessary to relieve an imminent health hazard or is currently connected to the City's sewer system.
- Per YMC 13.08.020 D, if the City's collection system is within 200 feet of a parcel with an existing onsite septic system, the owner of the parcel shall make connection to the City's system within 30 days after notification by the City that service is available.
- Consistent with the State Health Code and Thurston County onsite sewage regulations, the City policy is to require connection of a property to the City sewer system if an existing onsite septic system within the City's service area fails and if the existing collection system is within 200 feet.

- All new development within city limits is required to connect to the City's sewer system. If sewer service has not already been extended to the parcels being developed, the necessary extensions shall be constructed as a cost of development.
- City policies and development regulations shall provide for adequate financing tools, including local improvement districts (LIDs), latecomer agreements, sewer service charges, and other devices to ensure that the cost of growth is fairly apportioned between existing and new development. To the maximum extent possible, growth and expansion of the system will be paid for by the parties who benefit from that growth.
- Unless otherwise agreed to in a developer's agreement or other formal agreement, the City will be responsible for the planning, design, and construction of all major sewer, wastewater, and reclaimed water infrastructure within the existing service area, including collection system lines greater than 4-inch-diameter, wastewater and reclaimed water treatment systems, reclaimed water transmission lines greater than 4-inch-diameter, reclaimed water reuse facilities such as rapid infiltration basins (RIBs), and wastewater disposal facilities such as outfalls.
- Planning, design, and construction of new infrastructure necessary to support development will be completed at the expense of the owner/developer and will require an agreement with the City.
- The City may choose to alter its conditions of service if necessary to regulate the growth.

1.7.2 Annexation

The City is the sewer and water provider within the UGA. The policy of the City is to extend sewer and water facilities only within city limits and to require annexation of unincorporated areas to receive public facilities. Exemptions will be made on a case-by-case basis, but only when it is (1) necessary to solve an existing environmental problem, (2) approved by Thurston County, and (3) adequately funded to avoid any costs to the City, taxpayers, and ratepayers.

1.7.3 Design and Performance Standards

All new development to be connected to the wastewater system shall be required to meet the City's design and construction standards as set forth in the City's Development Guidelines, Health/Ecology standards, and as adopted by the YMC.

The City's Development Guidelines allow for connection of multiple structures to a single STEP tank (community STEP tank) with prior written approval by the City. The City will evaluate community STEP tanks for future development on a case-by-case basis provided that the community STEP tank configuration results in reduced operation and maintenance (O&M) activities for the City and that there is a single entity or owner¹ responsible for the STEP equipment and electrical meters. Potential community STEP tank configurations could include the following:

- A single community pump chamber fed by individual septic tank effluent gravity (STEG) tanks for each connection
- A community STEP tank (with STEP pumps) fed by gravity laterals from each connection
- A community electrical service and meter that provides power to STEP tanks on each individual property

¹ As discussed in Section 3.4, some STEP tanks shared by multiple single-family connections have become an O&M concern for the City.

1.7.4 Reduced Rate for Senior Citizens and Permanently Disabled

The City Council has adopted ordinances that provide for reduced utility rates (including wastewater) for senior citizens and permanently disabled heads of household who meet specified low income criteria (see YMC 13.08.095).

1.7.5 Formation of Local Improvement Districts outside Legal Boundaries

The City does not have a policy regarding the formation of LIDs that are outside city limits. The City will review such situations on a case-by-case basis.

An existing LID was established when the sewer system was originally constructed. A map and table identifying the parcels included in the LID are presented in Appendix 1F. A total of approximately 410 equivalent residential units (ERUs) are committed to be connected through the LID.

1.7.6 Sewer Service Extensions

New development is required to pay for collection system extensions to serve the proposed development. The cost of major component improvements to the existing system is reflected in the sewer service charges and connection fees.

If a collection system extension is required to provide service to a parcel or parcels, the extension shall be paid for by the prospective customer and ownership of the extension shall be transferred to the City when construction is completed. Transfer of ownership shall include a Warranty Bond and Bill of Sale.

1.7.7 Latecomer Agreements

The City permits latecomer agreements, consistent with Section 13.12 YMC: Assessment Reimbursement Contracts (Latecomer Agreements). A map of existing latecomer agreements is presented in Appendix 1F.

1.7.8 Oversizing

The City does not provide funds to install larger facilities than what may be needed to provide services to a development so that future developments in that portion of the service area may be served. Costs for oversized facilities shall be borne by the developer and/or parties that benefit from the oversized. Costs for oversized facilities shall not be borne by existing ratepayers. Oversizing requirements shall be determined by the Public Works Director, consistent with this GSP and the City's Development Guidelines.

1.7.9 Reclaimed Water

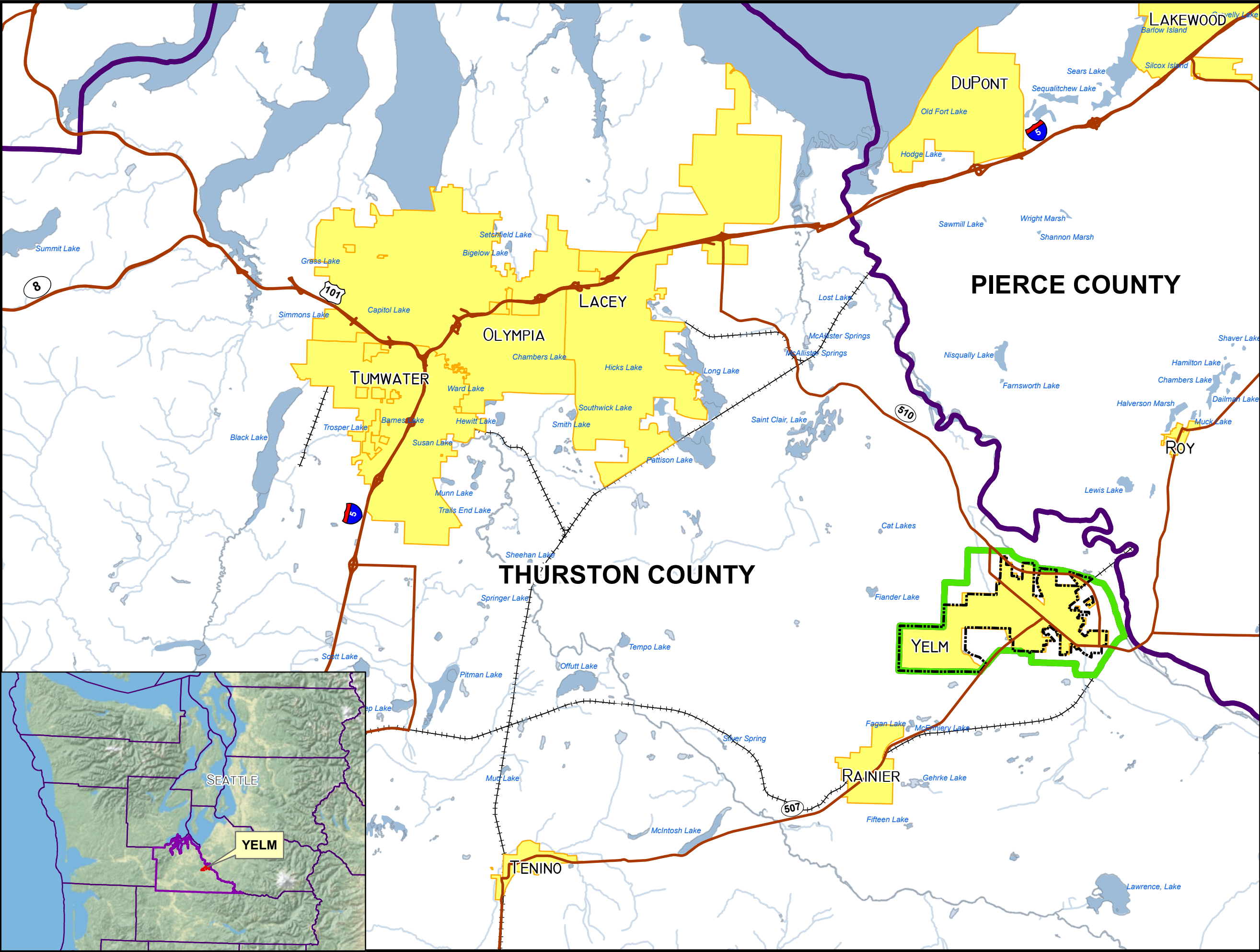
The City's policies related to reclaimed water service are defined in Section 5.

1.8 Complaints

The City maintains a list of complaints and identifies what was done to respond to any complaints where public health was at risk. Most complaints are filed at City Hall and then City Hall sends any applicable work orders to Public Works. Customers may also complete a Citizen Action Request form at City Hall. A copy of the Citizen Action Request form is included in Appendix 1G.

1.9 Consistency with Local Planning Agency

Population forecasts for this GSP were gathered from the Yelm Comprehensive Plan, the Washington State Office of Financial Management (OFM), and TRPC projections. Thurston County has reviewed the population projections and service area maps presented in this GSP for consistency with its own projections and maps. Appendix 12A presents the documentation related to the local government consistency review.



Legend

- Yelm City Limits
- Urban Growth Area
- Roads
- Cities
- County Line

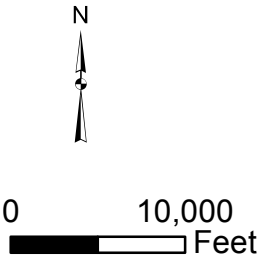
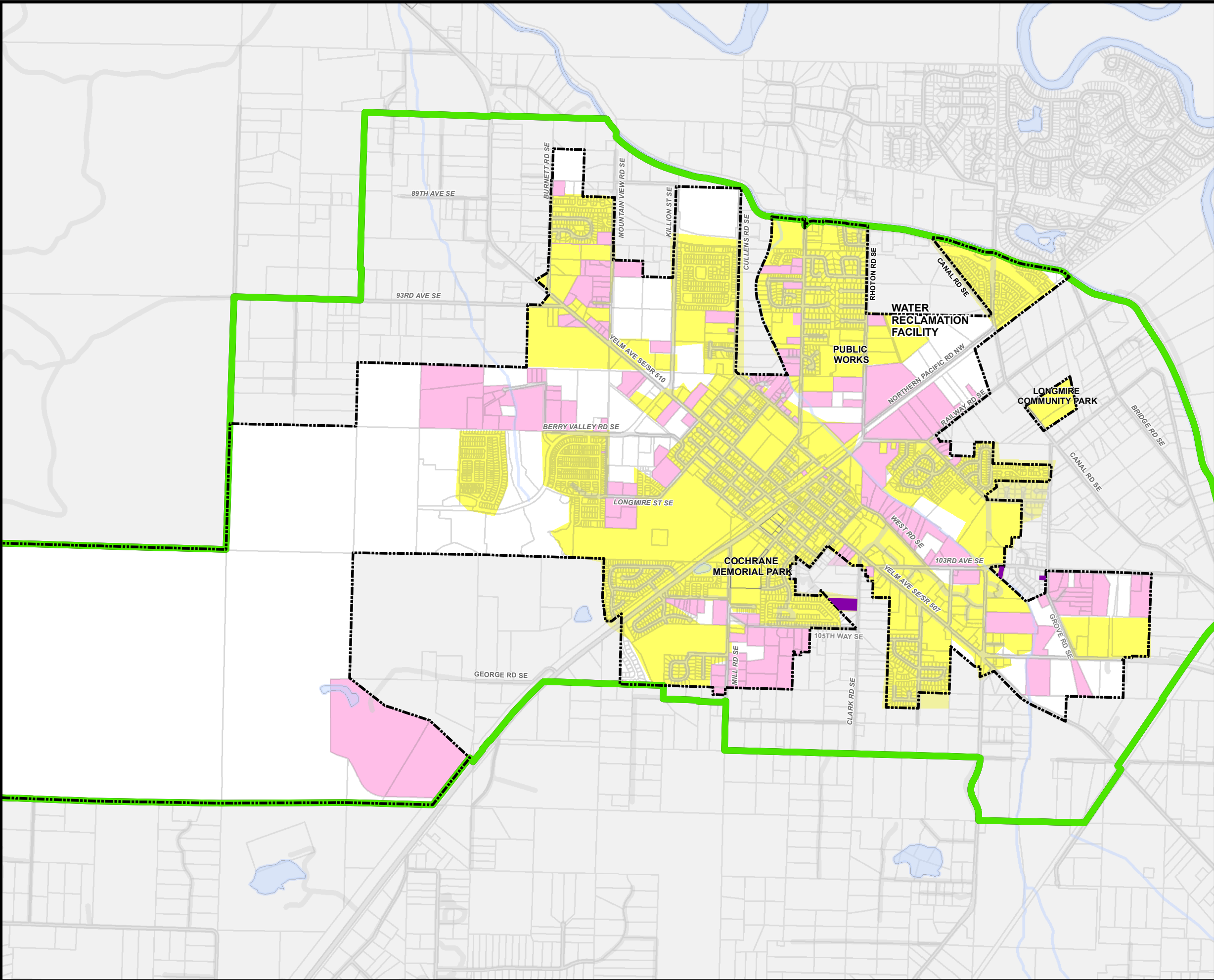


Figure 1-1
City of Yelm
Vicinity Map

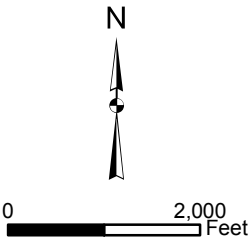


Brown AND
Caldwell



Legend

- Yelm City Limits
- Urban Growth Area
- Existing Service Area
- Parcels Served by Private Septic
- Sewered Parcels Outside City Limits

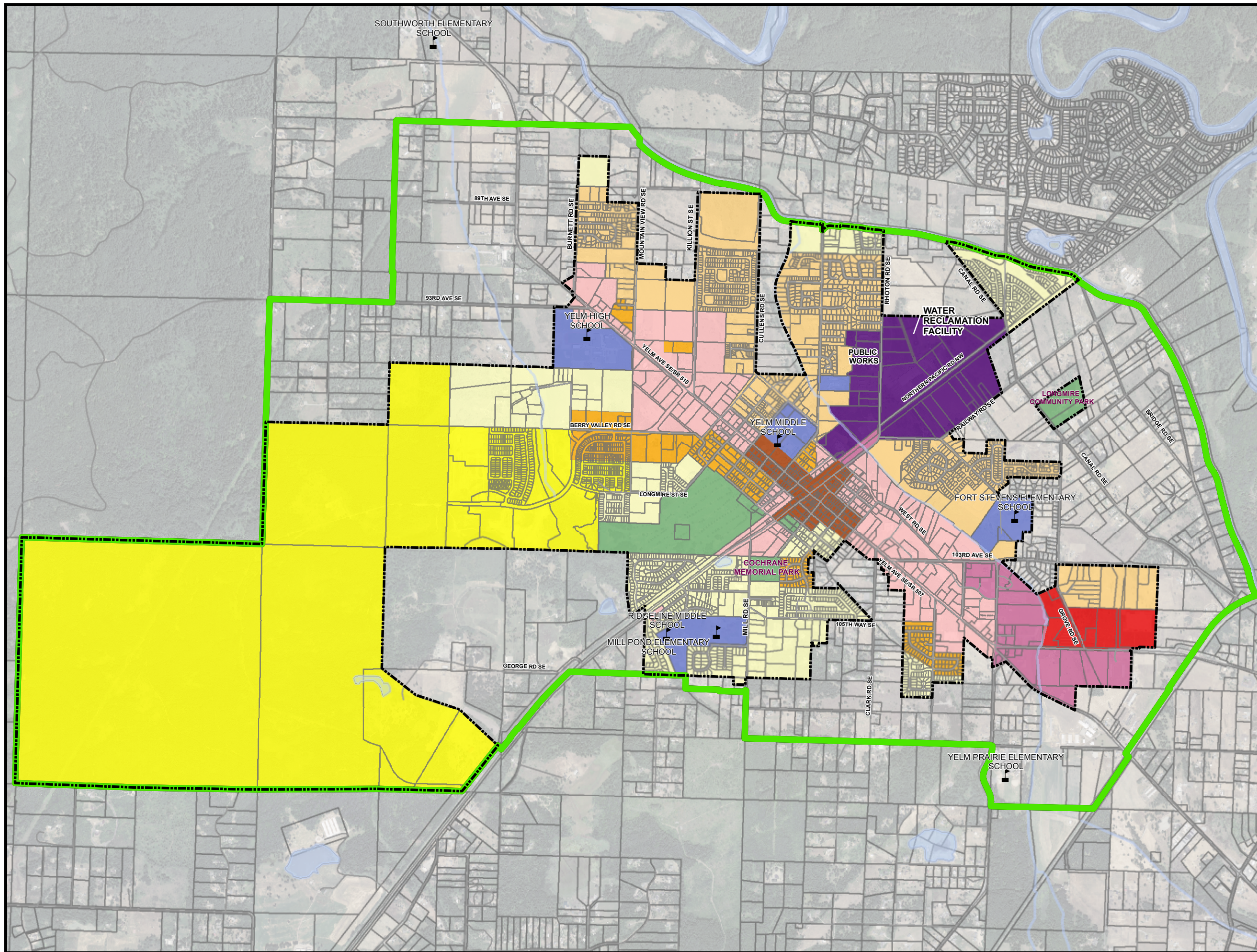


1 inch = 2,000 feet

Figure 1-2
City of Yelm
Existing Sanitary
Sewer Service Area



Brown AND
Caldwell



Legend

- Yelm City Limits
- Urban Growth Area
- School
- Current Zoning**
- Low Density Residential (R4)
- Moderate Density Residential (R6)
- High Density Residential (R14)
- Commercial (C-1)
- Heavy Commercial (C-2)
- Large Lot Commercial (C-3)
- Central Business District (CBD)
- Industrial
- Institutional
- Master Planned Community
- Parks/Open Space

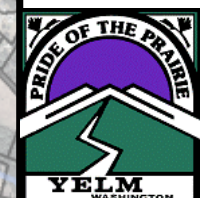
*Zoning data provided by the
City of Yelm January 7, 2010.*



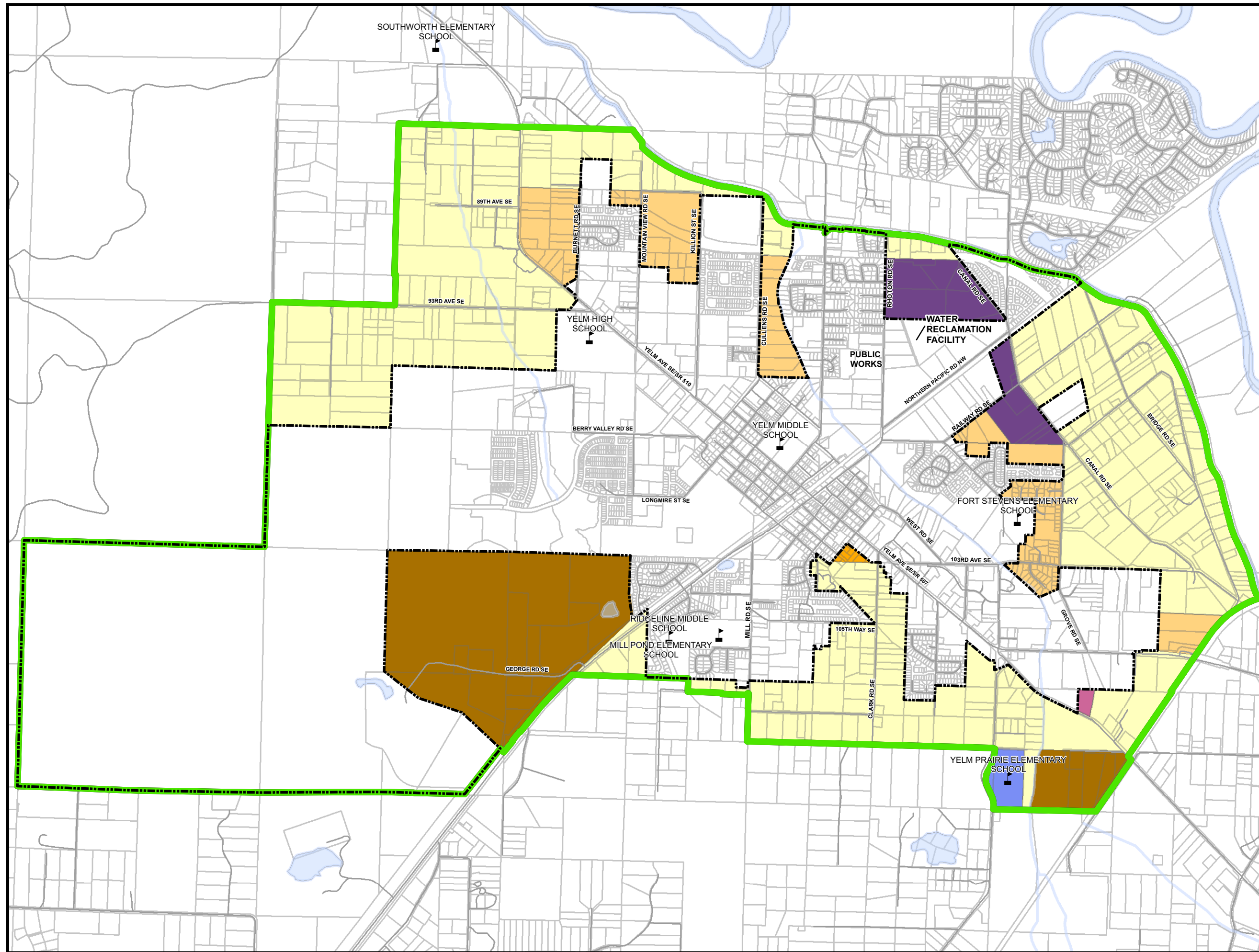
0 2,000
Feet

1 inch = 2,000 feet

Figure 1-3
City of Yelm
Current Zoning



**Brown AND
Caldwell**



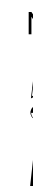
Legend

- Yelm City Limits
- Urban Growth Area
- Roads
- School

Yelm Future Zoning

- Enviromentally Sensitive Area
- Heavy Commercial
- High Density Residential
- Moderate Density Residential
- Low Density Residential
- Industrial
- Institutional

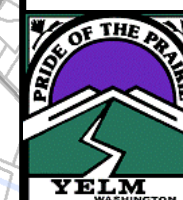
Future zoning data provided by the City of Yelm Community Development Department.



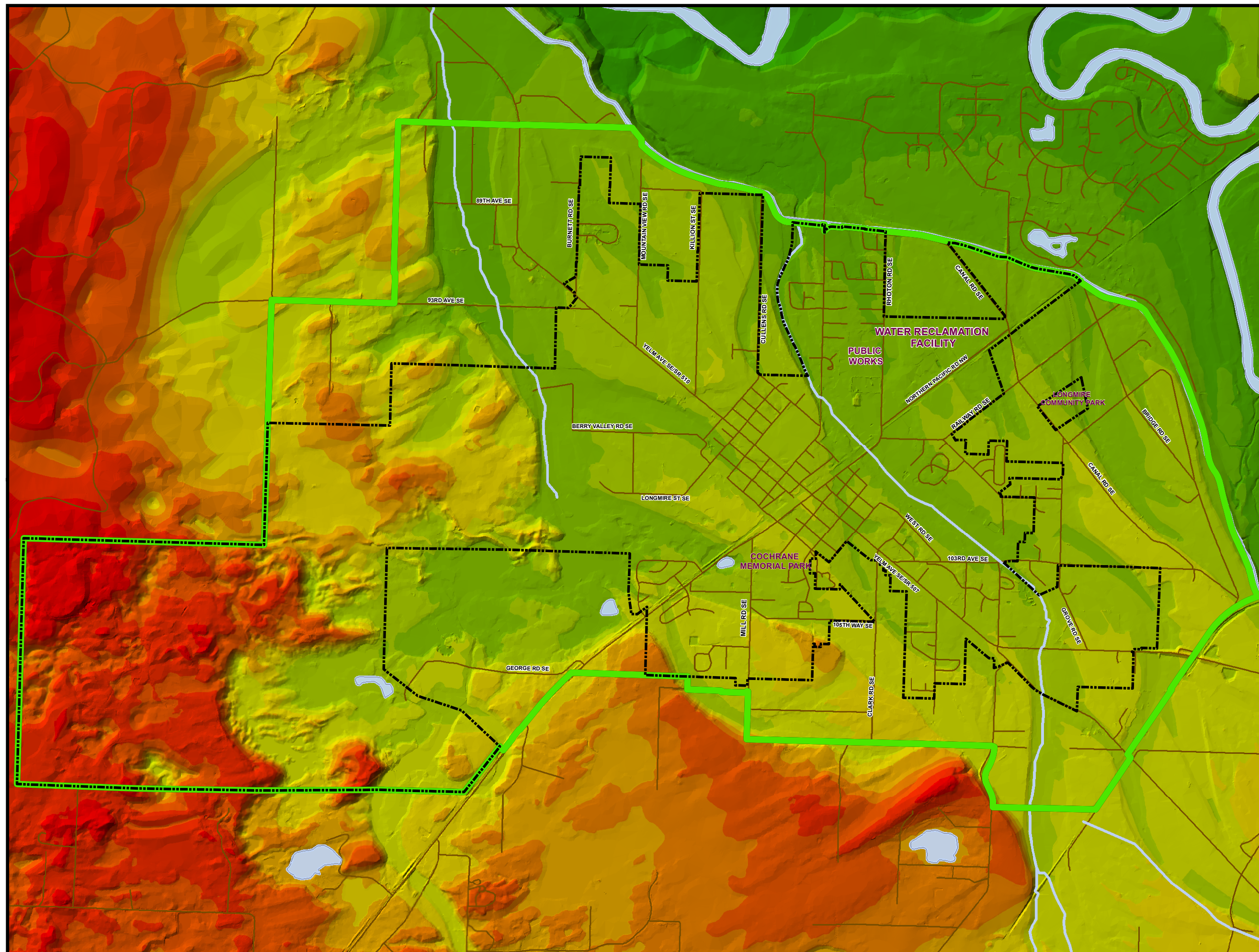
0 2,000 Feet

1 inch = 2,000 feet

Figure 1-4
City of Yelm
Future Zoning



Brown AND Caldwell



Legend

- Yelm City Limits
- Urban Growth Area
- Roads
- Elevation, ft.**
 - 490 - 630
 - 453 - 490
 - 423 - 453
 - 403 - 423
 - 385 - 403
 - 367 - 385
 - 352 - 367
 - 340 - 352
 - 324 - 340
 - 298 - 324
 - 234 - 298
 - 104 - 234



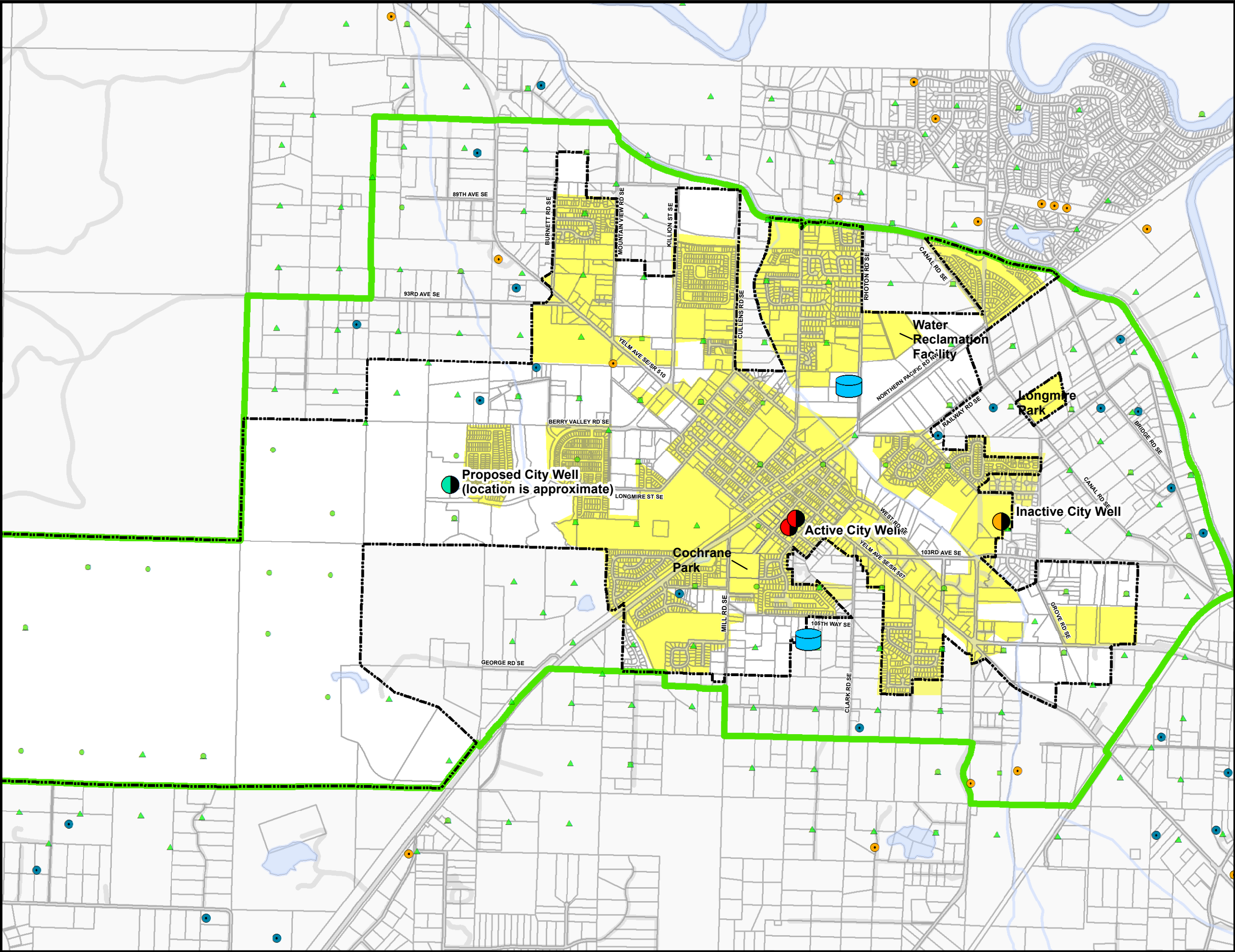
0 2,000 Feet

1 inch = 2,000 feet

Figure 1-5
City of Yelm
Topography



Brown AND Caldwell



Legend

- Yelm City Limits
- Urban Growth Area
- Existing Sanitary Sewer Service Area
- Active Storage Tanks
- Active City Wells
- Inactive City Well
- Proposed City Well
- Group A Water System Well
- Group B Water System Well

Private Wells

- Abandoned
- Resource Protection
- Water

Private well information was provided by The Department of Ecology Website, <http://www.ecy.wa.gov/services/gis/data/data.htm>, on 10/20/2011.

Group and and Group B water system information was provided by the Washington State Department of Health on 6/12/2009.

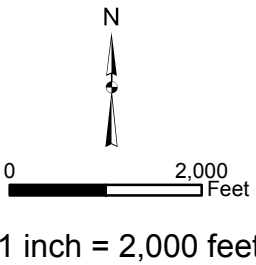
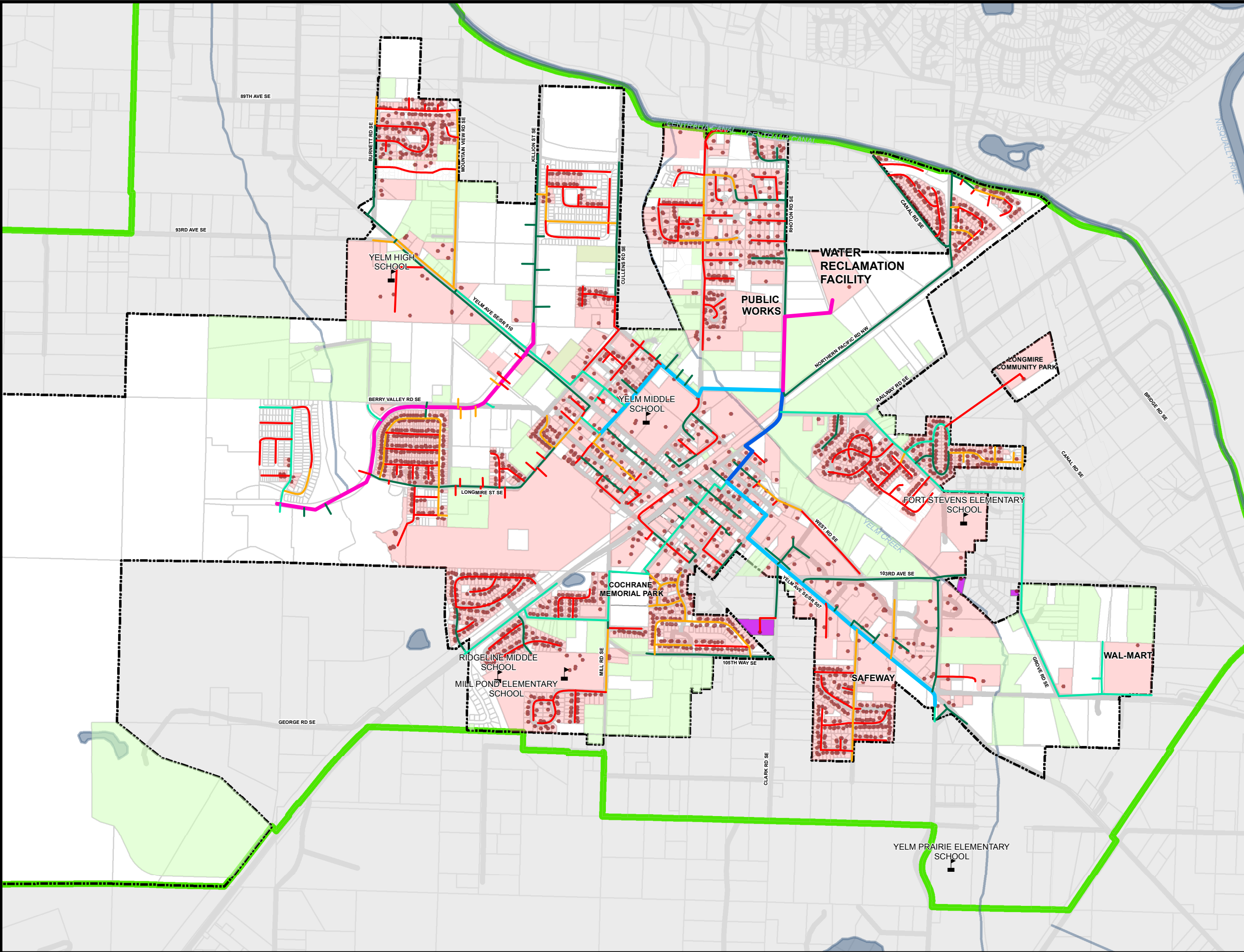


Figure 1-6
City of Yelm
Wells in Vicinity



Brown AND Caldwell



Legend

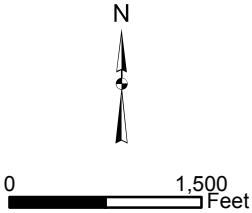
- Yelm City Limits
- Urban Growth Area
- School
- STEP Tank
- Developed Parcel Served by Septic
- Parcel Served by City STEP System
- STEP Tanks Outside City Limits

City Owned STEP Pipes

Pipe Diameter

- 2 Inch
- 3 Inch
- 4 Inch
- 6 Inch
- 8 Inch
- 10 Inch
- 12 Inch

STEP Tank Data provided by
City Sewer Department
August, 2011.

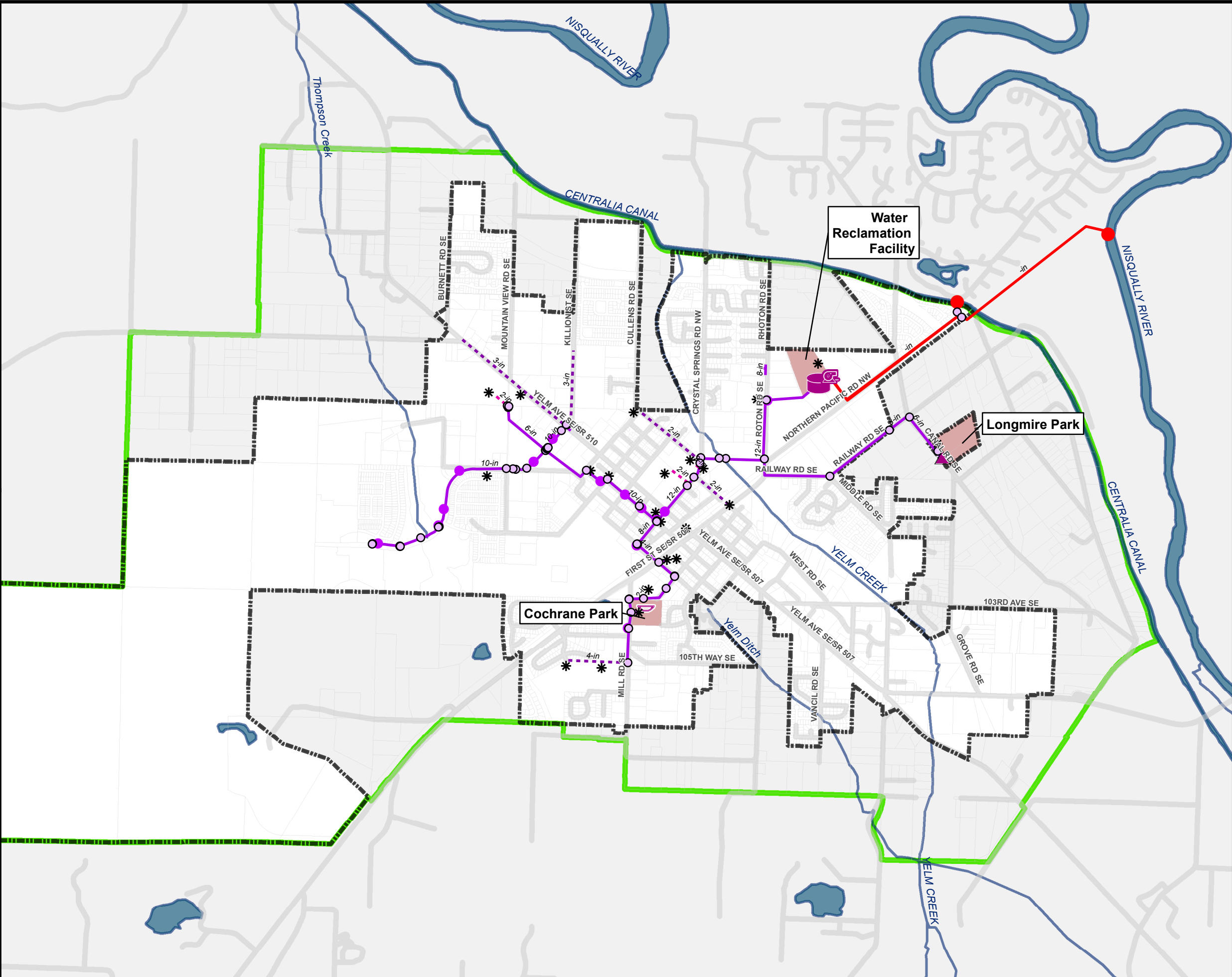


1 inch = 1,500 feet

Figure 1-7
City of Yelm
Existing Sewer System



Brown AND Caldwell



Legend

- Yelm City Limits
- Urban Growth Area
- Reclaimed Water User
- Reclaimed Water Valve
- Reclaimed Water Hydrant

Existing Reclaimed Water Infrastructure

- 6 Storage Tanks
- Cochrane Park Rapid Infiltration Basin (RIB)
- Outfall
- Pump Station
- WRF Storage Tank
- City Owned Reclaimed Water Line
- City Owned Reclaimed Water Irrigation Line
- Private Reclaimed Water Irrigation Line
- Outfall

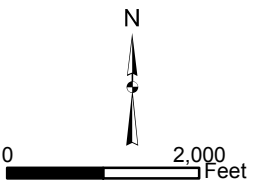


Figure 1-8
City of Yelm
Existing Reclaimed
Water System