INTRODUCTION AND SERVICE AREA CHARACTERISTICS

1.1 INTRODUCTION

This chapter presents the objectives of this Wastewater Collection System Master Plan (CSMP), and a brief overview of the City of Grants Pass (City's) wastewater collection system. A list of abbreviations is provided at the end of this chapter to assist the reader in understanding the information presented in the Plan.

1.2 OBJECTIVE

The City's last CSMP was completed in 2004. A number of the recommended collection system improvements from the 2004 Plan have been implemented. Additionally, the City expanded and adopted new Urban Growth Boundary (UGB) and Urban Reserve Area (URA) in 2014. This update shall document changes since the last plan and provide a review of current planning, management, operations, and maintenance of the City's collection system. Additionally, this plan shall:

1. Evaluate the capacity of the existing sanitary collection system during peak wet weather flows under existing and future projected growth conditions,
2. Develop feasible alternatives to correct these deficiencies, and plan the infrastructure that will serve future development, and
3. Provide the City with a capital improvement program (CIP) that they can implement for a reliable wastewater collection system to serve the anticipated population in the service area.

The scope of this Master Plan update included the following main tasks:

- Policy & Criteria Review;
- Flow Projections;
- Condition of Existing Assets;
- Collection System Analysis;
- Capital Project Development; and
- Master Plan Preparation.

The selected planning years for this evaluation include the current year (2015), the short-term planning year (2025), and the long-term planning year (2035). The Plan also evaluates build-out conditions of the City.

1.3 BACKGROUND

The City of Grants Pass is located in the Rogue River Valley in the Klamath Mountain Range of Oregon. The City owns, maintains, and operates gravity wastewater pipelines and pump stations within their service area of approximately 8,522 acres and a population of 44,500[1]. The City collects wastewater from residential, commercial, institutional, and industrial customers within the service area.

The City's wastewater system consists of 23 drainage basins and 5 pump stations. Wastewater is collected and conveyed to the City's Water Restoration Plant (WRP), where it is measured and recorded daily by a dedicated meter.

The current land use assumptions in this CSMP are based on data from the City's Geographical Information System (GIS). Future land use assumptions were based on the City's Comprehensive Plan and projected future developments per the City's planning department.

1.3.1 Wastewater Service Area

Figure 1.1 illustrates the City's existing sewer service area, Urban Growth Boundary (UGB), Study Area, and Urban Reserves.

The existing sewer service area shows the extent of the area that is currently served by the sewer collection system. The UGB was updated and expanded in 2014 by the City and is shown in Figure 1.1. The Study Area includes existing sewer service area and future areas that are anticipated to be added to the City's existing service area in the 20-year planning horizon of this CSMP. The Study Area basically follows the UGB boundary and incorporates the Redwood Sanitary Sewer Service District (RSSSD).

The Study Area comprises of the following historic collection systems:

- The City of Grants Pass sewer collection system,
- Fruitdale - Harbeck collection system,
- Redwood Sanitary Sewer Service District (RSSSD), and
- Several expansion areas such as the area located North of Interstate 5 (I-5) or the Spalding area.

Management of the RSSSD was transferred to the City in approximately 2000, and a petition was approved in 2010 to dissolve the Fruitdale-Harbeck system and make it a part of the City's collection system. Further, RSSD was dissolved in 2013 and the area is now simply served by the City without a separate District. The area north of I-5 and the industrial Spalding area were included as part of the UGB expansion in 2014 and flows from the area will be addressed in this CSMP.

[1] Source: Population estimate for the existing service area (2015) from City of Grants Pass Water Restoration Plant Facilities Plan Update, 2014.

Legend

- Study Area
- Existing Sewer Service Area
- UGB
- Urban Reserve
- Tax Lots

City of Grants Pass

Redwood Service Area

Fruitdale-Harbeck Area

0 5,000 10,000 Feet

Figure 1.1
Wastewater Service Area
Collection System Master Plan Update
City of Grants Pass

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The combined collection system discharges to the City's Water Restoration Plant (WRP), located centrally within the City and adjacent to the Rogue River.

The City adopted five urban reserve areas outside of the Study Area in 2014 as illustrated in 2014. Development and analysis of the urban reserve areas will be presented in a separate appendix of this CSMP (Appendix A).

1.3.2 Land Use

Land use information is an integral component in estimating the amount of wastewater generated within any City. The type of land use in an area will affect the volume of the wastewater generated. Additionally, the service area is typically comprised of both sewered and unsewered areas: Sewered areas contribute flow to the collection system, while unsewered areas are vacant or undeveloped land and do not currently contribute flow to the collection system. The following section describes the land use assumptions for the existing sewer service area and Study Area.

1.3.2.1 Existing Service Area Land Use

The existing land use is presented in Figure 1.2. Of the City's total existing service area of 8,522 acres, approximately 4,857 acres is sewered (i.e, contribute flows to the sewer system) and 3,669 acres are unsewered (vacant, undeveloped, right of ways, canals, etc.). Table 1.1 provides a summary of the land use zoning categories and acreages for the existing service area. The City's service area serves the population within the existing City limits (inside UGB) and a portion of the County that lies outside the UGB (Redwood service area).

Of the total service area (sewered and unsewered), the largest land use category is residential, which accounts for approximately 5,438 acres, or approximately 64 percent of total acreage. Commercial, business, and office space make up approximately 1,273 acres, or 15 percent of the total. Industrial makes up approximately 265 acres, or 3 percent of the total. Streets and canals make up approximately 1,538 acres, or 18 percent, and open space makes up 14 acres, or 0.2 percent of the total acreage; streets and canals and open space are considered unsewered areas.

1.3.2.2 Future Service Area Land Use

The future service area land use is presented in Figure 1.3 and corresponds to the adopted Comprehensive Land use Plan. The future service area includes build-out of the entire Study Area which includes the existing service area and UGB. Therefore, the future sewered service area includes existing sewered service area, infill of existing unsewered areas, and additional areas within the Study Area. Table 1.2 provides land use summary the Study Area. Approximately 1,370 acres will be added to the existing service area to make the future build-out service area of 9,892 acres. Land use data for the Urban Reserve areas is shown in Appendix A.

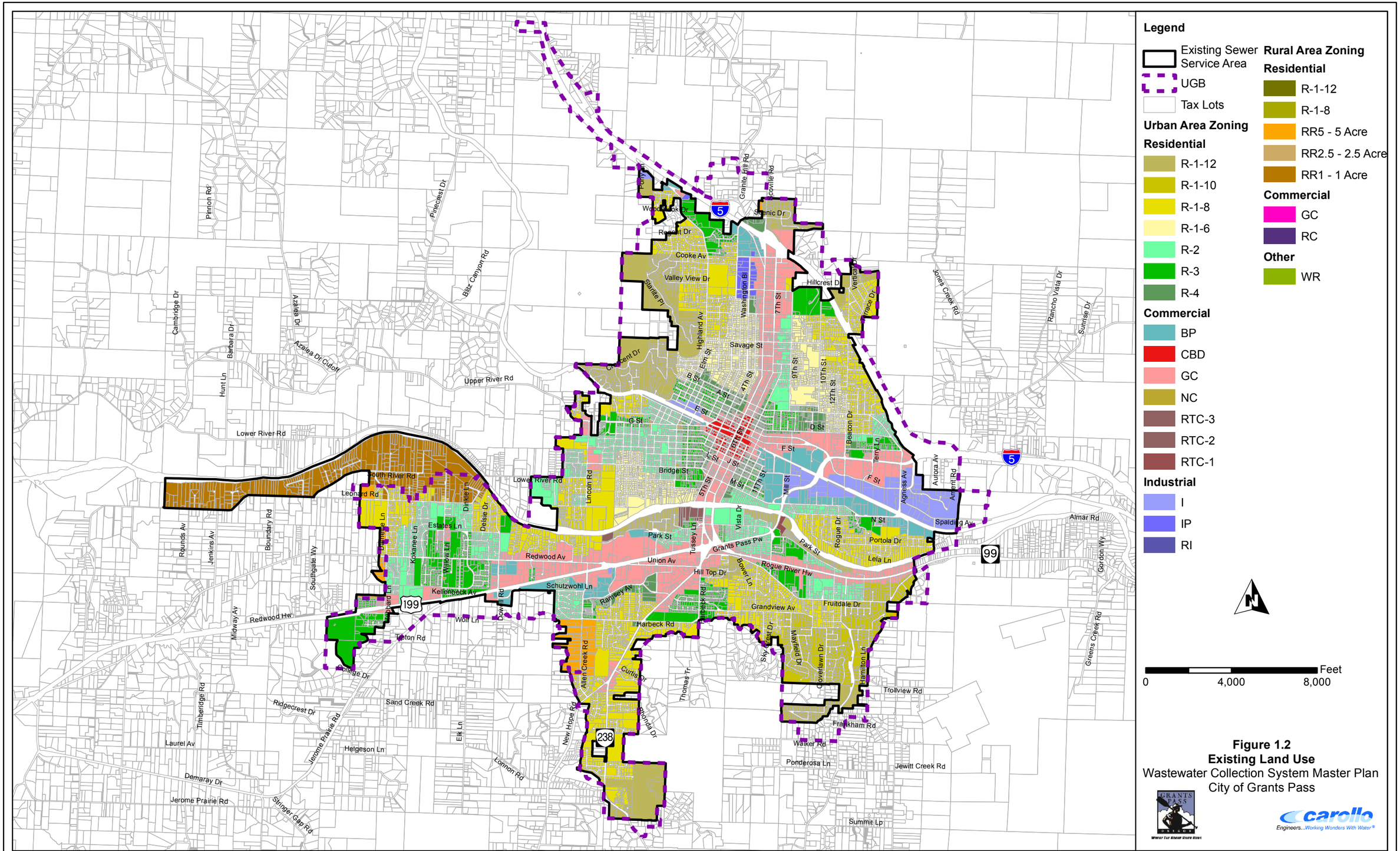

Figure 1.2
Existing Land Use
Wastewater Collection System Master Plan
City of Grants Pass

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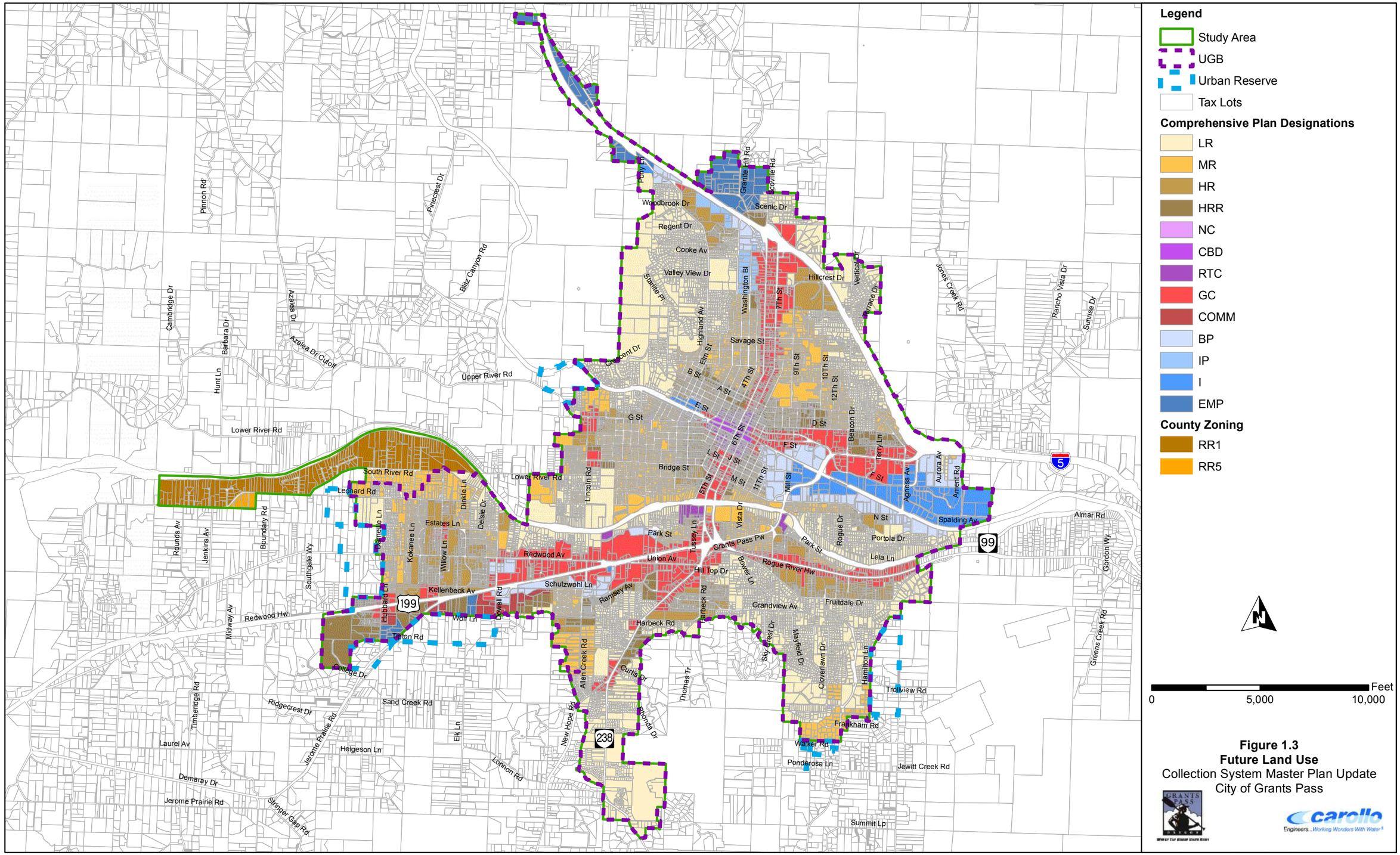

Figure 1.3
Future Land Use
Collection System Master Plan Update
City of Grants Pass

Table 1.1 Existing Land Use Summary (Existing Sewer Service Area) Wastewater Collection System Master Plan City of Grants Pass			
Zoning Category	**Description**	**Total Area (acres)**	**Percent of Total Service Area (%)**
Inside UGB Boundary (within Existing Sewer Service Area)			
BP	Business Park	147.7	1.7%
CBD	Central Business District	24.2	0.3%
GC	General Commercial	661.8	7.8%
I	Industrial	83.7	1.0%
IP	Industrial Park	18.8	0.2%
NC	Neighborhood Commercial	4.1	0.0%
R-1-10	Residential - Low Density	223.2	2.6%
R-1-12	Residential - Low Density	363.4	4.3%
R-1-6	Residential - Moderate Density	366.9	4.3%
R-1-8	Residential - Low Density	1,293.2	15.2%
R-2	Residential - Moderate Density	574.1	6.7%
R-3	Residential - High Density	557.5	6.5%
R-4	Residential - High-Rise Density	87.1	1.0%
RC	Rural Commercial	0.0	0.0%
RI	Rural Industrial	0.0	0.0%
RR1	Rural Residential 1 Acre	61.3	0.7%
RR2.5	Rural Residential 2.5 Acre	0.0	0.0%
RR5	Rural Residential 5 Acre	60.5	0.7%
RTC-1	Riverfront Tourist Commercial	5.0	0.1%
RTC-2	Riverfront Tourist Commercial	10.4	0.1%
RTC-3	Riverfront Tourist Commercial	0.0	0.0%
Vacant	Vacant, underdeveloped	2,001.9	23.5%
Outside UGB Boundary (within Existing Sewer Service Area)			
RR1	Rural Residential 1 Acre	291.5	3.4%
RR2.5	Rural Residential 2.5 Acre	4.4	0.1%
RR5	Rural Residential 5 Acre	18.2	0.2%
Vacant	Vacant, underdeveloped	128.8	1.5%
ROW	Right of ways, streets, canals	1,534.4	18.0%
Totals		**8,522.3**	**100.0%**

Table 1.2 Future Land Use Summary (Study Area) Wastewater Collection System Master Plan City of Grants Pass			
Zoning Category	**Description**	**Total Area (acres)**	**Percent of Total Service Area (%)**
Inside UGB Boundary (within Study Area)			
BP	Business Park	340.1	3.4%
CBD	Central Business Park	49.0	0.5%
COMM	Commercial	59.5	0.6%
EMP	Employment Area	220.6	2.2%
GC	General Commercial	943.9	9.5%
HR	High-Density Residential	794.3	8.0%
HRR	High-Rise Residential	392.3	4.0%
I	Industrial	275.4	2.8%
IP	Industrial Park	54.2	0.5%
LR	Low-Density Residential	3,078.1	31.1%
MR	Moderate-Density Residential	1,365.6	13.8%
NC	Neighborhood Commercial	5.8	0.1%
RTC	Riverfront Tourist Commercial	26.6	0.3%
Outside UGB Boundary (within Study Area)			
RR1	Rural Residential 1 Acre	371.3	3.8%
RR5	Rural Residential 5 Acre	64.4	18.7%
ROW	Right of ways, streets, canals	1,851.3	3.8%
Totals		**9,892.4**	**100.0%**

1.4 REPORT ORGANIZATION

The CSMP report contains six chapters, followed by appendices that provide supporting documentation for the information presented. The chapters are briefly described below:

Chapter 1 – Introduction and Service Area Characteristics. This chapter presents the background information for this Master Plan and the objectives of the study.

Chapter 2 – Policies & Criteria. This chapter presents the policies for ownership, operations, and maintenance of the collection system. It also reviews the criteria for evaluating the wastewater collection system.

Chapter 3 – Flow Projections. This chapter reviews historical wastewater flows and presents the methodology for average and peak flow projections. These flow projections are used throughout the rest of the CSMP for evaluating future conditions.

Chapter 4 – Existing Collection System and Condition Assessment. This chapter describes the existing wastewater collection system. In addition, it includes the collection system condition assessment for the City's major collectors, and pump stations. Recommendations for repairing infrastructure will be included.

Chapter 5 – Collection System Analysis. This chapter discusses the hydraulic evaluation of the collection system and the proposed projects that correct capacity deficiencies and serve future users.

Chapter 6 – Capital Improvement Plan. This chapter presents the capital improvement projects and cost estimates. This chapter is organized to assist the City in making financial decisions.

Chapter 7 – Capital Improvement Plan Detailed Summary Sheets.

1.5 ABBREVIATIONS

To conserve space and to improve readability, the following abbreviations are used in this report. This section will be completed at the end of the planning process as all the chapters are developed.

CSMP	Wastewater Collection System Master Plan
%	Percentage
AACE	Association for the Advancement of Cost Engineering
AC	Asbestos Cement
ADWF	Average Dry Weather Flow
AMP	Asset Management Program
BWF	Base Wastewater Flow
Carollo	Carollo Engineers, Inc
CCTV	Closed Circuit Television
CIP	Capital Improvement Plan
City	City of Grants Pass
CMOM	Capacity, Management, Operations, and Maintenance
CP	Concrete Pipe
CT/VCP	Clay Tile / Vitrified Clay Pipe
d/D	Pipe diameter ratio
DEQ	Oregon Department of Environmental Quality
DIP	Ductile Iron Pipe
DWF	Dry Weather Flow

ENR CCI	Engineering News Record Construction Cost Index
EPA	Environmental Protection Agency
FOG	Fats, Oils, and Grease
fps	Feet per second
ft	feet
FTE	Full-time Employee
GIS	Geographic Information System
gpad	gallong per acre day
gpd	gallon per day
gpm	gallon per minute
GWI	Groundwater Infiltration
HGL	Hydraulic Grade Line
I/I	Inflow and Infiltration
IGA	Interlocal Agreement
LF	Linear Feet
mgd	million gallon per day
n	Manning Coefficient
NASDCO	National Association of Sewer Service Companies
NOAA	National Oceanic and Atmospheric Administration
NRCS	Natural Resources Conservation Service
O&M	Operation an Maintenance
PACP	Pipeline Assessment and Certification Program
PS	Pump Station
PVC	Polyvinyl Chloride
PWWF	Peak Wet Weather Flow
R&R	Repair and Replacement
RDII	Rainfall Derived Inflow and Infiltration
ROW	Right-of-Way
RSSSD	Redwood Sanitary Sewer Service District
RUL	Remaining Useful Life
SAM-GAP	Strategic Asset Management Gap
SCADA	Supervisory Control And Data Acquisition
SCS	Soil Conservation Service
SSO	Sanitary Sewer Overflow

SWMM	Storm Water Management Model
TM	Technical Memorandum
UGB	Urban Growth Boundary
URA	Urban Reserve Area
V&A	V&A Consulting Engineers
VRV	Vacuum Release Valve
WaPUG	Wastewater Planning Users Group
Wastewater basin	City-defined tributary basins for various sections of the City's collection system
WRP	Water Restoration Plant
WWF	Wet Weather Flow
WWTP	Wastewater Treatment Plant