

2025 URBAN WATER MANAGEMENT PLAN

CITY OF ROSEVILLE CALIFORNIA

City of Roseville
2025
Urban Water Management Plan

June 2026

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Table of Contents

Chapter 1 Urban Water Management Plan Purpose and Description 1-1
1.1 California Legislation 1-1
1.2 Updates to 2025 UWMP 1-2
1.3 Benefits of UWMP Reporting 1-2
1.4 Plan Organization 1-2
Chapter 2 Plan Preparation 2-1
2.1 Basis for Preparing a Plan 2-1
2.2 Individual or Regional Planning and Compliance 2-1
2.3 Fiscal or Calendar Year and Units of Measure 2-2
2.4 Coordination and Outreach 2-2
2.4.1 Wholesale and Retail Coordination 2-2
2.4.2 Coordination with Other Agencies and the Community 2-3
Chapter 3 System Description 3-1
3.1 General Description 3-1
3.1.1 Transmission 3-1
3.1.2 Water Treatment 3-1
3.1.3 Storage 3-2
3.1.4 Distribution Network 3-3
3.1.5 Groundwater Wells 3-3
3.1.6 Interties 3-4
3.2 Service Area 3-6
3.3 Service Area Climate 3-8
3.4 Service Area Population and Demographics 3-8
3.4.1 Service Area Population 3-8
3.4.2 Social, Economic, and Demographic Factors 3-9
3.5 Land Uses within the Service Area 3-9
3.6 Water Utility Planning 3-10
Chapter 4 Water Use Characterization 4-1
4.1 Non-Potable Versus Potable Water Use 4-1
4.2 Past, Current, and Projected Water Use by Sector 4-1
4.2.1 Water Use Sectors Listed in Water Code 4-1
4.2.2 Water Use Sectors in Addition to Those Listed in Water Code 4-2
4.2.3 Past Water Use 4-3
4.2.4 Current Water Use 4-3
4.2.5 Projected Water Use 4-4
4.2.6 Distribution System Water Losses 4-9
4.2.7 Estimating Future Water Savings 4-12
4.2.8 Characteristic Five-Year Water Use 4-13
4.3 Water Use for Lower Income Housing 4-13
4.4 Climate Change Considerations 4-14
Chapter 5 SBX7-7 Baselines, Targets, and 2020 Compliance 5-1

5.1 Baselines and Targets 5-1
5.2 Compliance Daily Per-Capita Water Use 5-2
5.3 Regional Alliance 5-2
Chapter 6 Water Supply Characterization 6-1
6.1 Surface Water 6-1
6.2 Purchased and Imported Water 6-1
6.2.1 Contract Supplies – Vulnerabilities and Restrictions 6-2
6.2.2 Water Forum Agreement 6-3
6.2.3 ARTESIAN Project Agreement 6-3
6.2.4 Other Available Water Purchases 6-3
6.3 Groundwater 6-4
6.3.1 Groundwater Basin Description 6-4
6.3.2 Groundwater Management 6-5
6.3.3 Historical Groundwater Production 6-6
6.3.4 Aquifer Storage and Recovery 6-7
6.4 Stormwater 6-8
6.5 Wastewater and Recycled Water 6-8
6.5.1 Wastewater Collection, Treatment, and Disposal 6-9
6.6 Recycled Water System 6-13
6.6.1 Recycled Water Coordination 6-13
6.7 Recycled Water Beneficial Uses 6-13
6.8 Actions to Encourage and Optimize Future Recycled Water Use 6-15
6.9 Desalinated Water Opportunities 6-16
6.10 Exchanges or Transfers 6-16
6.11 Supply Management 6-17
6.12 Future Water Projects 6-17
6.12.1 Purchased or Imported Water 6-17
6.12.2 Groundwater and ASR Program 6-17
6.13 Summary of Existing and Planned Sources of Water 6-19
6.14 Climate Change Impacts to Supply 6-22
6.14.1 Local Climate Change Outlook 6-22
6.14.2 Regional Climate Studies 6-22
6.14.3 Projected Future Conditions 6-23
6.14.4 Water Supply Reliability 6-26
6.15 Energy Intensity 6-28
Chapter 7 Water Service Reliability and Drought Risk Assessment 7-1
7.1 Constraints on Water Sources 7-1
7.1.1 Legal Constraints 7-1
7.1.2 Water Quality Constraints 7-1
7.1.3 Physical Constraints 7-1
7.1.4 Other Constraints 7-2

7.2 Water Supply Reliability Assessment 7-5
7.2.1 Potable Water Supply and Demand Assessment 7-6
7.2.2 Comparison of Supply and Demand 7-9
7.2.3 Recycled Water Supply and Demand Comparison 7-9
7.2.4 Total Water Supply and Demand Comparison 7-9
7.2.5 Deficit Mitigation 7-13
7.3 Regional Supply and Reliability 7-13
Chapter 8 Water Shortage Contingency Plan 8-1
Chapter 9 Demand Management Measures 9-1
9.1 Making Conservation a California Way of Life 9-1
9.2 Demand Management Measures 9-2
9.2.1 Water Waste Prevention Ordinances 9-2
9.2.2 Metering 9-3
9.2.3 Conservation Pricing 9-4
9.2.4 Public Education and Outreach 9-4
9.2.5 Regional Water Authority – Outreach and Education 9-5
9.2.6 Programs to Assess and Manage Distribution System Real Loss 9-16
9.2.7 Water Conservation Program Coordination Staffing Support 9-16
9.3 Other Demand Management Measures 9-17
9.3.1 Residential Conservation Programs 9-17
9.3.2 Commercial, Industrial, Institutional Conservation Programs 9-18
9.4 Planned Implementation to Achieve Water Use Targets 9-20
9.5 Non-Functional Turf (AB 1572) 9-20
9.6 Members of the California Urban Water Conservation Council 9-21
Chapter 10 Plan Adoption and Submittal 10-1
10.1 Inclusion of all 2025 Data 10-1
10.2 Notice of Public Hearing 10-1
10.3 Public Hearing and Adoption 10-2
10.4 Plan Submittal 10-2
10.5 Public Availability 10-2
10.6 Public Implementation 10-2
10.7 Amending an Adopted UWMP 10-3
10.8 California Water Code Requirements 10-3

City of Roseville Tables

COR Table 2-A Outreach with Local and Regional Agencies 2-3
COR Table 3-A Potable Water Storage Tanks 3-2
COR Table 3-B Potable Water Pump Stations 3-3
COR Table 3-C Existing City of Roseville Wells 3-4
COR Table 3-D Interties with Neighboring Water Suppliers 3-5
COR Table 3-E Monthly Average Climate Data from 2021 through 2025 3-8
COR Table 3-F City of Roseville 2024 Population by Race 3-9

COR Table 3-G Residential Land Uses and Development Guidelines 3-10
COR Table 3-H Non-Residential Land Uses and Development Guidelines 3-10
COR Table 4-A Past Potable Water Use Volumes by Sector 4-3
COR Table 4-B Updated (Recommended) Unit Demand Factors for Land Use Type 4-6
COR Table 4-C Specific Plan Water Demands at Buildout by Water Use Sector 4-7
COR Table 4-D Current and Projected Water Use Volumes 4-8
COR Table 4-E 12 Month Water Loss Audit Reporting for 2020-2024 4-10
COR Table 4-F Loss Reported in AWWA Water Audit for 2020-2024. 4-12
COR Table 4-G Five consecutive year unconstrained demand 4-13
COR Table 4-H 2025 Affordable Housing Water Use 4-14
COR Table 4-I Affordable Housing Water Use Projections 4-14
COR Table 6-A Surface Water Supply Summary 6-1
COR Table 6-B PCWA Future Water Entitlements 6-2
COR Table 6-C Projected Change in Precipitation and Temperature Over the American River Basin Study Area Between 1980-2009 and 2070-2099 6-25
COR Table 6-D Change in Hydrologic Indicators Between Historical Observations and Projected Future Hydrology 6-26
COR Table 6-E Energy Intensity Reporting 6-28
COR Table 7-A Water Forum Agreement Hydrologic Year Types 7-3
COR Table 7-B Reliability Assessment Year Type Characterization 7-6
COR Table 7-C Groundwater Supply Availability by Year Type 7-7
COR Table 7-D Potable Supply Availability by Year Type 7-8
COR Table 9-A Regional Rebates and Installations from 2021 through 2025. 9-9
COR Table 9-B AB 1572 Compliance Dates 9-21

Department of Water Resources Tables

DWR Table 2-1 2-1
DWR Table 2-2 2-2
DWR Table 2-3 2-2
DWR Table 2-4 2-3
DWR Table 3-1 3-9
DWR Table 4-1 4-4
DWR Table 4-2 4-9
DWR Table 4-5 4-10
DWR Table 4-6 4-11
DWR Table 4-3 4-12
2020 DWR Table 5-1 5-2
2025 DWR Table 5-1 5-2
DWR Table 6-1 6-7
DWR Table 6-2 6-11
DWR Table 6-3 6-12
DWR Table 6-4 6-14

DWR Table 6-5 6-15
DWR Table 6-6 6-16
DWR Table 6-7 6-19
DWR Table 6-8 6-20
DWR Table 6-9 6-21
DWR Table 7-2 NORMAL YEAR 7-10
DWR Table 7-3 SINGLE DRY YEAR 7-10
DWR Table 7-4 LONG TERM FIVE CONSECUTIVE YEAR DROUGHT 7-11
DWR Table 7-5 SHORT TERM FIVE CONSECUTIVE YEAR DROUGHT 7-12
DWR Table 8-1 8-1
DWR Table 8-2 8-2
DWR Table 8-3 8-3
DWR Table 10-1 10-1

Figures

Figure 3-1 City of Roseville Water Treatment Plant Treatment Train 3-2
Figure 3-2 Service Area Map 3-7
Figure 6-1 Urban Groundwater Infrastructure Schematic 6-8
Figure 6-2 American River Basin Study Area 6-23
Figure 6-3 Projected Changes in July Temperature between Historical (1980-2009) and End of Century Under Central Tendency Climate Change 6-24
Figure 6-4 Distribution of Average Monthly Runoff for Historical Record (1922-2015) and Future Projections Under Central Tendency Climate Scenario 6-26
Figure 6-5 Exceedance Plot of Folsom Reservoir Storage (end of September) Under Future Climate Change 6-27
Figure 7-1 Water Forum Agreement Supply Limitations 7-4

Appendices

Appendix A – Notifications to Wholesale Suppliers
Appendix B – Public and Agency Outreach
Appendix C – Land Use Element
Appendix D – AWWA Water Loss Audits
Appendix E – SWRCB Calculated Water Loss Standards
Appendix F – 2015 SBX7-7 Verification Form
Appendix G – 2020 SBX7-7 Compliance Form
Appendix H – Intent to Retain Control of Conserved Water
Appendix I – Groundwater Sustainability Plan
Appendix J – 2025 Recycled Water Systems Evaluation Report
Appendix K – Regional Wastewater 2020 Systems Evaluation Report
Appendix L – 2015 USBR Record of Decision
Appendix M – Water Shortage Contingency Plan
Appendix N – Roseville Municipal Code 14.09

Appendix O – Roseville Municipal Code 14.08.090, 14.08.095, 14.08.100
Appendix P – CalWEP BMP Compliance Reports
Appendix Q – Adoption Resolutions and Submission
Appendix R – DWR UWMP Checklist
Appendix S – Production and ASR Well Development
Appendix T – DWR Table 7-5 Calculations

Abbreviations

Acre(s)	ac
Acre-Feet	AF
Acre-Feet Per Year	AF/yr
Advanced Metering Infrastructure	AMI
American Community Survey	ACS
American River Basin	Basin
American River Basin Study	ARBS or Study
Aquifer Storage and Recovery	ASR
Average Dry Weather Flow	ADWF
Barton Road Water Treatment Plant	BRWTP
California Department of Finance	CDoF
California Green Building Standards Code	CALGreen
California State Groundwater Elevation Monitoring Program	CASGEM
California Water Code	CWC
California-American Water Company	Cal-Am
Central Valley Project Municipal and Industrial Water Shortage Policy	CVP M&I WSP
Citrus Heights Water District	CHWD
City of Roseville	COR or Roseville
City of Roseville Water Utility	City
Compressed Natural Gas	CNG
Cubic Feet Per Second	cfs
Degrees Fahrenheit	°F
Department of Water Resources	DWR
Drought Risk Assessment	DRA
Dwelling Unit	DU
Environmental Impact Statement	EIS
Environmental Utilities	EU
Equivalent Dwelling Unit	EDU
Gallons Per Day per Dwelling Unit	Gpd/DU
Gallons Per Minute	gpm
Groundwater Management Plan	GWMP
Groundwater Sustainability Agency	GSA
Groundwater Sustainability Plan	GSP
Hot Scenarios	HD, HW
Maximum Contaminant Level	MCL
Memorandum Of Understanding	MOU
Middle Fork Project	MFP
Million Gallon(s)	MG
Million Gallons Per Day	MGD
Model Water Efficient Landscape Ordinance	MWELO
Municipal and Industrial	M&I

National Pollutant Discharge Elimination System	NPDES
Operations Criteria and Plan	OCAP
Parts Per Million	ppm
Potential Evapotranspiration	PET
Placer County Water Agency	PCWA
Pounds Per Square Inch	psi
Regional Drought Contingency Plan/ Regional Water Reliability Plan	RWRP
Sacramento Suburban Water District	SSWD
San Juan Water District	SJWD
Senate Bill X7-7	SB X7-7
South Placer Municipal Utilities District	SPMUD
South Placer Wastewater Authority	SPWA
State of California Legislature	Legislature
State Water Project	SWP
Sustainable Groundwater Management Act	SGMA
Thousand Acre-Feet	TAF
United States Bureau of Reclamation	USBR
United States Bureau of Reclamation	USBR
Urban Water Management Plan	UWMP
Urban Water Management Plan Guidebook 2025	Guidebook
Urban Water Retail Supplier	Supplier
Warm Scenarios	WD, WW
Wastewater Treatment Plant	WWTP
Water Demand Tracking Tool	Tool
Water Forum Agreement	WFA
Water Shortage Contingency Plan	WSCP
Water Storage Investment Program	WSIP
Water Treatment Plant	WTP
Western Placer Groundwater Sustainability Agency	WPGSA
Water Use Efficiency	WUE

Executive Summary

ES. 1 Introduction

An Urban Water Management Plan (UWMP) is the legal and technical water management foundation for suppliers throughout California. A UWMP combines information from various sources that inform water supply and demand such as projects pertaining to local land use planning, regional water supply, infrastructure, and demand management. The City of Roseville Water Utility (City) updates its UWMP every five years, as required by law. Each UWMP update addresses all requirements pertaining to urban retail water suppliers in accordance with the Urban Water Management Planning Act and the Water Conservation Act of 2009, also referred to as Senate Bill X7-7 (SB X7-7). Information contained in this 2025 UWMP includes the components listed in the following section.

ES. 2 Plan Components

The plan consists of the following components:

- **Chapter 1:** The basis for preparing a plan and the new requirements.
- **Chapter 2:** Summary of how the plan is prepared and coordination with the public and other local and regional authorities.
- **Chapter 3:** A description of the City's treatment facilities and distribution infrastructure, as well as a description of the population and area served by the City.
- **Chapter 4:** Quantification of water use for the 5-years preceding the plan update and water use projections for a 20-year planning horizon.
- **Chapter 5:** Confirmation of compliance with SB X7-7.
- **Chapter 6:** Description of existing and planned water supplies and water supply management.
- **Chapter 7:** A drought risk assessment (DRA), which analyzes water supplies and demands in a single year or multiple years of a water shortage.
- **Chapter 8**: The Water Shortage Contingency Plan (WSCP), which outlines the process that the City will execute in the event of a water shortage.
- **Chapter 9:** Demand measures that the City integrates and plans to integrate into its regular operations to address increasing demands.
- **Chapter 10:** Record of the process by which the UWMP was adopted, submitted, and implemented with the intention of making the plan widely available to the City's customers and the public.

ES. 3 Basis for Plan Preparation and Coordination

Urban water retail suppliers (suppliers) who either deliver 3,000 acre-feet (AF) or more of water or have over 3,000 service connections are required to submit a UWMP. In 2025 the City had 53,148 service connections and supplied a total of 31,893 AF to its customers and therefore is required to prepare and submit an UWMP.

In preparation of the UWMP the City coordinated with the U.S. Bureau of Reclamation (USBR) and Placer County Water Agency (PCWA) both of which supply water to the city on a wholesale basis. The City also sought involvement from the public and other local water agencies. Neighboring water retail suppliers and the community were informed of a public hearing to be held on June 17, 2026. In this public hearing the plan was

presented, and attendees encouraged to share questions and concerns. Following the public hearing, an adoption hearing for the UWMP was held on June 17, 2026, during which City Council adopted the UWMP.

ES. 4 System and Supply Description

Raw water from Folsom Reservoir, the City's primary water source, is conveyed to the City's water treatment plant located in the Granite Bay area. Potable water is distributed through the City's approximately 700 miles of water mains to customers. Other water facilities that the City maintains include potable water storage tanks, pump stations, interties to exchange water with other water agencies, and groundwater wells.

The City receives its contract supplies purchased from USBR and PCWA through Folsom Reservoir. Since the last UWMP update in 2020, the City has executed an update to the contract with PCWA to increase overall water supply resilience. Over the next ten years, an additional 10,000 AF of PCWA supply will be secured in increments through the updated contract. This outlook for increased supply is described in further detail in Chapter 6.

The City is currently engaged in an update to the Water Forum Agreement which applies some limitations to available supplies depending on the hydrologic water year type. The assumption in this UWMP is that the final Water Forum Agreement supply limitations will be applied to the City's increased available contract supplies (see changes to PCWA contract supply noted above) in the same way with no additional supply limitation imposed. A new obligation associated with the American River Terms for Ecosystem Support and Infrastructure Assistance Needs (ARTESIAN) Project Agreement will create potential limitations of 4,460 AF to available surface water supplies in dry or critically dry years, carrying an obligation to offset surface water with groundwater in "call" years under the agreement. If contract supply conditions change after the 2025 UWMP is finalized, the City may choose to update relevant sections of the Plan. These limiting conditions have been modelled as part of the Drought Risk Analysis in Chapter 7.

A previous supply contract with San Juan Water District (SJWD) has been terminated in the time since the 2020 UWMP; however, existing interties with SJWD will remain physically intact in case of supply emergencies. The 4,000 AF of supply previously contracted with SJWD has been incorporated into the updated contract with PCWA raising the total raw water supply quantity from 30,000 AF to 34,000 AF in 2025.

The City has seven operational groundwater wells and is planning further expansion of their Aquifer Storage and Recovery (ASR) program by an additional four wells over the next five years. These wells are maintained for emergency supply conditions for resilience in Roseville's water supply portfolio.

ES. 5 Past and Projected Water Use

The City supplies water to customers for the following water use sectors:

- Commercial
- Industrial
- Institutional and Governmental
- Multi-Family Residential
- Single Family Residential
- Landscape

The UWMP characterizes water use by sector for the years preceding the UWMP update as well as projections of water use for the next 20 years. Projections in the 2025 UWMP have been revised to include a 2045 buildout horizon, a revision from the 2020 UWMP. This adjustment of the buildout horizon is based upon recent trends in development and water usage. The City is planning for a population of up to 198,000 in the year 2045.

Additionally, the City is looking to the future by incorporating definitions of and projections for "high water users" in the technology sector, to accommodate potential data centers. These user impacts are captured in recent modeling as part of the City's Water Master Plan update as well as projections for this UWMP update under the Commercial category of water use.

The actual volume of water used by each sector for 2025 as well as the updated water use projections through the year 2045 are summarized in ES Table 1.

ES Table 1 Actual 2025 Water Use and Projected Water Use through the Year 2045

Water Use Sector	2025	2030	2035	2040	2045
Commercial	2,822	8,078	8,385	8,666	8,893
Industrial	386	667	693	716	735
Institutional/Governmental	388	671	696	720	739
Multi-Family	1,600	2,767	2,872	2,968	3,045
Single Family	17,080	29,533	30,655	31,681	32,511
Landscape	5,632	9,738	10,108	10,447	10,720
Losses	2,135	1,364	1,446	1,504	1,527
Groundwater recharge*	193	3,360	3,360	3,360	3,360
Sales/transfers/exchanges to other suppliers	1,657	0	0	0	0
Total	**31,893**	**56,179**	**58,214**	**60,061**	**61,529**
NOTES: All values are in AF/yr. Values represent potable water use only. *Groundwater recharge is expected in Normal or Wet years but not in drought years. This value is estimated for a 3-month injection window at 80% of capacity to allow for maintenance. The value each year will vary.					

In the table above, 2025 data represent actual values, while 2030-2045 are projected values of unconstrained demand. The projected values are based upon Unit Demand Factors applied to parcel data according to land use. The specific Unit Demand factors that have been applied as part of this analysis have been recently updated as part of the City's Water Master Planning effort, concurrent with this UWMP update. More information is available in Chapter 4.

ES. 6 SB X7-7

SB X7-7 called for a 20% reduction of water use from all retail water suppliers by the year 2020. The City met this target in 2020 as shown in 2025 DWR Table 5-, and that compliance is further confirmed in this 2025 UWMP update. No further action or analysis is needed in this UWMP.

ES. 7 and 8 Supply Reliability and Drought Risk Assessment and Water Shortage Contingency Plan

Assessments of supply reliability and drought risk were performed. The assessments considered the supply available for a single-year and five-year consecutive drought period for both the near-term and long-term. The

supply availability was compared to projected demand to determine if a deficit is projected for any of the conditions. Supply availability is subject to seasonal and climatic shortages, and so in dry or critically dry years increasing limitations are placed on the City for volumes of water that they receive from their supply contracts through Folsom Reservoir. The City has chosen to examine more stringent restriction sequences than they have experienced to date in this analysis. The City specifically examined a "dead pool" condition, modeled as the fifth consecutive year of drought, to simulate the circumstance of an exposed intake at Folsom Reservoir making primary supply contracts unavailable. The supply and drought risk assessment demonstrated that there are expected deficits in critically dry (single and multi-year droughts) year types that require supply augmentation by use of the City's groundwater infrastructure. Further, in year five of an extended drought, if "dead pool" were to occur at Folsom Reservoir, the City identified the need to augment supplies with a combination of groundwater, emergency intertie purchases, as well as strict conservation to meet demands. The highest level of deficiency identified represents approximately 28% of the annual demand and can be remedied by the application of a Stage 3 Drought condition through existing provisions in the municipal code. The municipal code identifies the objective of a stage 3 drought to be 30% conservation. The results of the supply reliability and drought risk assessment are summarized in ES Table 2.

ES Table 2 Near-Term and Long-Term Drought Risk Assessment Summary

Drought Type Assessed	Deficit Range	Description of Anticipated Deficit
Near-Term 5 Consecutive Dry Years	12,619	Deficit expected in fifth year only
Long-Term 5 Consecutive Dry Years	12,619 - 17,969	Deficit expected in fifth year only
NOTES: All values are in AF/yr. All other year types show that the City can adequately meet demand by augmentation of supply with necessary groundwater pumping.		

To mitigate the projected deficits in water supply, a Water Shortage Contingency Plan (WSCP) was prepared. The WSCP outlines the procedures that the City will take annually to determine whether there will be a water deficit based on projected water demand and supply availability. If a deficit is anticipated the City will formally declare a water shortage emergency condition of varying levels dependent on the severity of the deficit. The declaration of the water shortage emergency condition will trigger a set of demand reduction actions that are to be carried out by the City and all water users. These demand reduction actions are set forth in the Roseville Municipal Code Chapter 14.09 Water Conservation and Drought Mitigation Ordinance. The legal authority of the City to enforce compliance with the demand reduction actions is granted by the Water Conservation and Drought Mitigation Ordinance.

ES. 9 Demand Management Measures

In addition to the demand reduction actions of the Water Conservation and Drought Mitigation Ordinance, the City has taken a proactive approach to managing demand under normal conditions. Demand management measures include accurate metering through a meter retrofit program which was implemented from 2001 to 2011, recent deployment of Advanced Metering Infrastructure (AMI), public education and outreach, and regional rebate programs for efficient water use fixtures. System losses can account for a significant portion of water demand. The City continues to be proactive in its approach to address leaks in the system and reduce percentage

of overall losses, including a comprehensive auditory leak detection program, utilizing AMI, Water Distribution staff, and audit-based analysis to identify and repair leaks throughout the distribution system.

ES. 10 Plan Adoption and Submittal

The 2025 UWMP was presented to City Council on June 17, 2026. The 2025 UWMP was submitted to the California Department of Water Resources for compliance with the Urban Water Management Planning Act. An electronic copy of the plan has been made publicly available for review and download on the City's website: www.roseville.ca.gov/UWMP.

Chapter 1 Urban Water Management Plan Purpose and Description

This chapter introduces the Urban Water Management (UWMP) including legislation requiring urban water retail suppliers to submit UWMPs, necessary information required to be reported in the 2025 UWMP, an overview of the changes to legislation since the 2020 City of Roseville UWMP, and a description of benefits to the supplier and its customers in completing a UWMP.

1.1 California Legislation

The Urban Water Management Planning Act was enacted in 1983 by the State of California Legislature (Legislature). The law established the requirement that an urban water supplier (supplier), providing municipal water to over 3,000 customers or 3,000 acre-feet (AF) annually, adopt an UWMP every five years. The aim of the Urban Water Management Planning Act was to address declarations and findings of the California Water Code (CWC):

California Water Code Section 10610.2

(a) The Legislature finds and declares all of the following:

(1) The waters of the state are a limited and renewable resource subject to ever-increasing demands.

(2) The conservation and efficient use of urban water supplies are of statewide concern; however, the planning for that use and the implementation of those plans can best be accomplished at the local level.

(3) A long-term, reliable supply of water is essential to protect the productivity of California's businesses and economic climate, and increasing long-term water conservation among Californians, improving water use efficiency within the state's communities and agricultural production, and strengthening local and regional drought planning are critical to California's resilience to drought and climate change.

(4) As part of its long-range planning activities, every urban water supplier should make every effort to ensure the appropriate level of reliability in its water service sufficient to meet the needs of its various categories of customers during normal, dry, and multiple dry water years now and into the foreseeable future, and every urban water supplier should collaborate closely with local land-use authorities to ensure water demand forecasts are consistent with current land-use planning.

(5) Public health issues have been raised over a number of contaminants that have been identified in certain local and imported water supplies.

(6) Implementing effective water management strategies, including groundwater storage projects and recycled water projects, may require specific water quality and salinity targets for meeting groundwater basins water quality objectives and promoting beneficial use of recycled water.

(7) Water quality regulations are becoming an increasingly important factor in water agencies' selection of raw water sources, treatment alternatives, and modifications to existing treatment facilities.

(8) Changes in drinking water quality standards may also impact the usefulness of water supplies and may ultimately impact supply reliability.

(9) The quality of source supplies can have a significant impact on water management strategies and supply reliability.

Additionally, efforts aimed at protecting California's water supply were expanded in 2009 with Senate Bill X7-7 (SB X7-7), where Governor Schwarzenegger called for a 20% reduction statewide in per capita water use by 2020.

1.2 Updates to 2025 UWMP

Since the reporting of the 2020 UWMP, there have not been any substantial requirements added by the Legislature to the CWC.

1.3 Benefits of UWMP Reporting

The City is required by the state to Produce a UWMP, which is a critical document for ensuring that the City remains compliant with various regulations. Additionally, completion of a UWMP is necessary for the City to be eligible for any Department of Water Resources (DWR) administered grant or loan. Completion of the most recent UWMP may also be required for other state funding.

Beyond establishing grant or loan eligibility, the UWMP is intended to be a useful tool for the supplier and the public. Thoughtful preparation of the plan provides the supplier with an opportunity for forward thinking and planning, ensuring that their water supply remains robust in the future and continues to meet the dynamic needs of its customers. Throughout plan preparation the City, other suppliers, and local and regional authorities are encouraged to coordinate with one another creating a greater understanding of the region's water demands, ultimately promoting mindful utilization of the state's water resources.

1.4 Plan Organization

This UWMP was prepared in part by use of guidance issued by DWR via the *Urban Water Management Plan Guidebook 2025* (Guidebook). Organization of the plan chapters closely follows the suggested organization in the Guidebook. Where appropriate, submittal tables provided by DWR are used to report data; these tables are denoted by the prefix, "DWR Table". Additional data reporting is done in City of Roseville Tables denoted by the prefix, "COR Table".

Chapter 2 Plan Preparation

This chapter provides an overview of the process by which the plan was prepared and the coordination that was carried out.

2.1 Basis for Preparing a Plan

The City of Roseville Water Utility (City) is a public water system (PWS), which is a system that provides drinking water for human consumption through pipes or other constructed conveyances. Because the City serves over 3,000 customers and delivers over 3,000 AF annually, it is required to submit a UWMP. Metrics for total number of customers and volume of water supplied in the City's service area for 2025 are provided in DWR Table 2-1. The UWMP is required to be reviewed and updated every five years; this UWMP is an update to the most recent 2020 UWMP, adopted by the City of Roseville in 2021. The UWMP also confirms the City's compliance with the Urban Water Management Planning Act and SB X7-7.

DWR Table 2-1

Submittal Table 2-1 Retail: Public Water Systems			
Public Water System Number	Public Water System Name	Number of Municipal Connections 2025	Volume of Water Supplied 2025 (AF)
3110008	City of Roseville	53,148	31,893
	Total	53,148	31,893
NOTES: All volumes are in AF. Units of measure remain consistent throughout the UWMP as reported in DWR Table 2-3. This value is for potable water only, sourced from DWR Table 4-1.			

2.2 Individual or Regional Planning and Compliance

The CWC provides mechanisms for participating in area-wide regional, watershed or basin-wide urban water management planning. Per *Department of Water Resources Methodologies for Calculating Baseline and Compliance Urban Per Capita Water Use* (DWR Methodologies), water suppliers who receive water from a shared wholesale supplier may form a regional alliance. Although the City and its neighboring water suppliers practice regional water supply planning, the City has not formed a regional alliance with other water suppliers. The City has prepared an individual UWMP, reporting solely on its own distribution service area, and will not adopt a Regional Urban Water Management Plan (RUWMP), stated in DWR Table 2-2.

DWR Table 2-2

Submittal Table 2-2: Plan Identification		
Select One	**Type of Plan**	**Name of Regional Alliance or RUWMP** (Drop Down List)
☑	**Individual UWMP**	
	If Water Supplier is also a member of a SB X7-7 Regional Alliance, select name from the drop-down.	
☐	**Regional Urban Water Management Plan (RUWMP)**	
	If Supplier selected RUWMP, select name from the drop-down.	

2.3 Fiscal or Calendar Year and Units of Measure

General metrics for plan preparation are provided in DWR Table 2-3.

DWR Table 2-3

Submittal Table 2-3: Supplier Identification	
Type of Supplier (select one or both)	
☐	Supplier is a wholesale supplier
☑	Supplier is a retail supplier
Fiscal or Calendar Year (select one)	
☑	UWMP Tables are in calendar years
☐	UWMP Tables are in fiscal years
If using fiscal years provide month and date that the fiscal year begins (mm/dd)	
Units of measure used in UWMP (Select from the drop down list).	
Unit	AF

2.4 Coordination and Outreach

This section discusses the City's coordination with other agencies and the public.

2.4.1 Wholesale and Retail Coordination

Pursuant to CWC Section 10631(h) the City is to coordinate with wholesale supply agencies that provide the City with water. The City has water supply contracts with Placer County Water Agency (PCWA) and the U.S. Bureau of Reclamation (USBR). As a retail supplier the City has informed the two agencies of projected water use in five-year increments for the next 20 years. Documentation of this coordination is provided in Appendix A. DWR Table 2-4 lists the two agencies outlined above with whom the City has coordinated.

DWR Table 2-4

Submittal Table 2-4 Retail: Water Supplier Information Exchange Water Code Section 10631(h)
The retail Supplier has informed the following wholesale supplier(s) of projected water use.
Wholesale Water Supplier Name
U.S. Bureau of Reclamation
Placer County Water Agency

2.4.2 Coordination with Other Agencies and the Community

The City has actively sought to coordinate preparation of the UWMP with local and regional agencies as well as with the general public. The City recognizes that how it currently utilizes and plans to utilize its water supply affects not only its own customers, but customers served by neighboring water agencies and individuals or groups that rely on private wells. As the City is dedicated to the responsible and sustainable management of local and regional water resources, it has invited participation from the agencies listed in COR Table 2-A. Documentation of this coordination is provided in Appendix B. On February 4, 2026, the City notified the neighboring cities and counties that preparation of the 2025 UWMP update had begun. Additionally, the City held a public hearing on June 17, 2026, to introduce the 2025 UWMP to the public and solicit feedback and answer questions regarding the plan, prior to adoption.

COR Table 2-A Outreach with Local and Regional Agencies

Agency Name	Agency Type
U.S. Bureau of Reclamation	Wholesale Supplier
Placer County Water Agency	Water Supplier
California American Water	Water Supplier
Citrus Heights Water District	Water Supplier
Sacramento Municipal utility District	Water Supplier
Sacramento Suburban Water District	Water Supplier
City of Roseville, City Manager	Local City
Placer County Public Works Department	Local County
Placer County Community Development Resource Agency	Local County
Regional Water Authority Sacramento	Regional Organization
City of Sacramento	Water Supplier
Sacramento County	Water Supplier

Chapter 3 System Description

This chapter provides a description of the system including information on the distribution system; service area boundary; service area climate; service area population, demographics, and socioeconomics; and land uses within the service area.

3.1 General Description

The City of Roseville Water Utility (City) is a public utility owned and operated by the City of Roseville, which is on the interstate 80 corridor, approximately 15 miles northeast of downtown Sacramento, California. The City obtains its surface water from Folsom Reservoir through wholesale purchase from the United States Bureau of Reclamation (USBR) and an additional water contract with Placer County Water Agency (PCWA). The City also maintains and operates several regional interties. As an emergency supply in times of drought, the City also has a suite of ASR and production wells that provide additional water supply reliability, with plans to construct more.

3.1.1 Transmission

The City has a diversion capacity of 150 cubic feet per second (cfs) or 96 million gallons per day (MGD) at Folsom Dam. A pump station conveys raw water through parallel pipelines. The original 84-inch diameter pipeline was constructed at the same time as the pump station, and a 72-inch diameter pipeline was completed in 2010 as a joint effort between the City and other regional water purveyors. The common pipeline facilities used by regional partners split at the "Hinkel Y", and from there raw water is conveyed through parallel pipelines – a 60-inch diameter pipeline and a 48-inch diameter pipeline – to the City's Water Treatment Plant (WTP).

3.1.2 Water Treatment

The City's only water treatment plant, located near Roseville in the Granite Bay area, has a treatment capacity of 100 MGD. There are no plans to expand the facility as the WTP is sized just above the pumping capacity of the Folsom Dam pump station. The WTP is a conventional treatment plant, and the treatment processes include coagulation, flocculation and sedimentation, clarification, filtration, and disinfection. The treatment train, beginning with the intake at Folsom Reservoir, is shown in Figure 3-1.

Sedimentation takes place in three parallel clarifiers. The chemicals injected as part of the flocculation and sedimentation processes are caustic soda, alum, and a cationic polymer. There are 12 anthracite sand filters, which combined have a maximum filtration rate of about 83,000 gallons per minute (gpm). The clear wells have a total volume of 358,500 gallons. Disinfection is achieved using sodium hypochlorite. The City also adds fluoride to treated water at a concentration of 0.7 parts per million (ppm) prior to distribution.

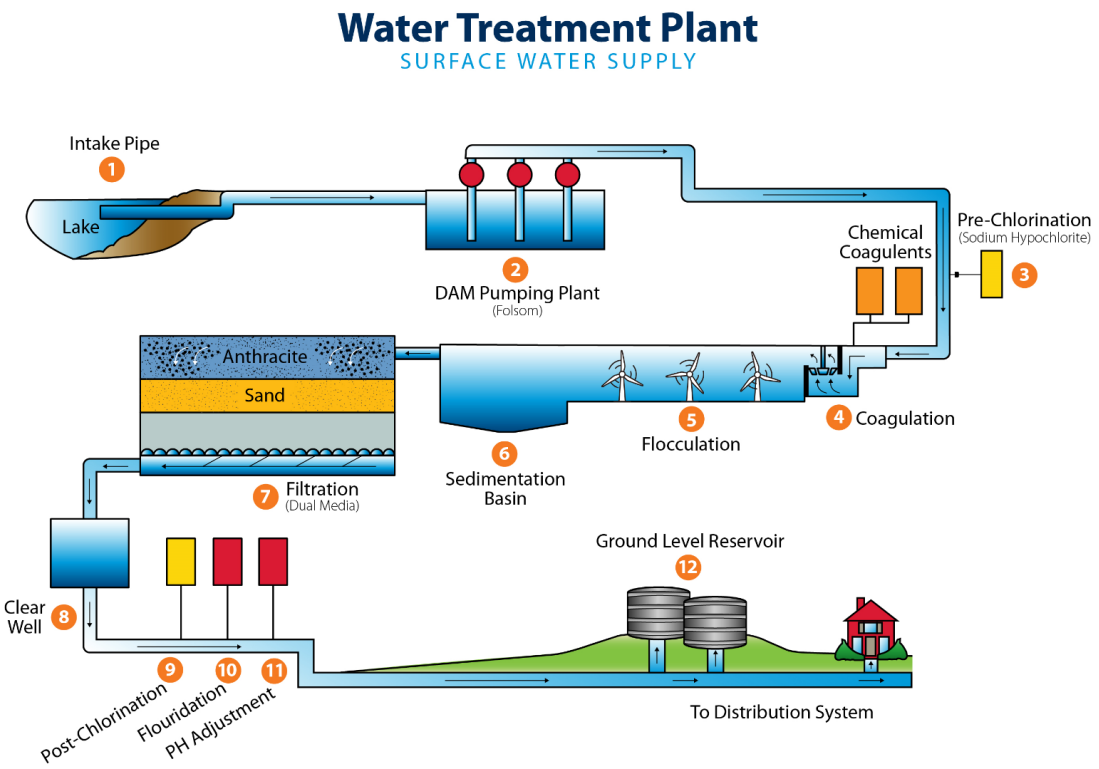


Figure 3-1 City of Roseville Water Treatment Plant Treatment Train

3.1.3 Storage

The City currently utilizes 8 potable water storage tanks located across the service area, which are critical for maintaining water supply and system pressure during typical demand fluctuations, peak demand fluctuations, and emergency demands. The eight water storage tanks have a total nominal capacity of 44 million gallons (MG). The capacity of each tank is listed in COR Table 3-A.

COR Table 3-A Potable Water Storage Tanks

Facility	Existing or Future	Year Constructed	Type	Pressure Zone Served	Capacity (MG)
WTP	Existing	1971	Steel	1, 2, 4, 5	2
WTP	Existing	1990	Pre-Stressed Concrete	1, 2, 4, 5	4
WTP	Existing	2004	Pre-Stressed Concrete	1, 2, 4, 5	6
Northeast	Existing	1998	Pre-Stressed Concrete	1, 2, 4, 5	10
Northeast	Existing	2009	Pre-Stressed Concrete	1, 2, 4, 5	7.25
Halverson	Existing	2008	Pre-Stressed Concrete	2	2.9
West Side Tank 1	Existing	2023	Pre-Stressed Concrete	4	6
West Side Tank 2	Existing	2023	Pre-Stressed Concrete	4	6

3.1.4 Distribution Network

The City maintains a distribution network consisting of approximately 723 miles of pressure pipe ranging from 1 inch to 72 inches in diameter. The network of pipes delivers potable water from the WTP to the City's customers to meet water demands during average day, maximum day, and peak hour conditions. The City aims to operate its system at a minimum pressure of 50 pounds per square inch (psi). Under existing conditions, the City meets the minimum pressure criterion in almost all cases, with few exceptions. These exceptions are not considered to be significant enough to impact the quality of customers' water service in any significant way. On average the distribution system pressure stays around 80 psi across all measured conditions.

There are several approved development plans in the western portion of the City which are currently in development and buildout. The City will serve these customers through new facilities which were designed and are being constructed by the developers under the oversight of the City's Development Services Department. These new facilities will be incorporated into the City's distribution network.

Existing pump stations throughout the City's distribution system are summarized in COR Table 3-B.

COR Table 3-B Potable Water Pump Stations

Facility	Existing or Future	Pressure Zone Served
Dual Purpose Pump Station	Existing	1, 2
Highland Reserve North Pump Station	Existing	5
Pleasant Grove Pump Station	Existing	1
Pacific Fruit Express (PFE) Pump Station	Existing	Emergency Intertie
West Side Pump Station	Existing	4

3.1.5 Groundwater Wells

The City currently maintains 7 Aquifer Storage and Recovery (ASR) and production groundwater wells, which are intended for emergency supply augmentation and have a combined capacity of approximately 23,300 acre-feet per year (AF/yr) or 20.8 MGD. Extraction capacities of each well are listed in COR Table 3-C. Realistic production capacity in an emergency supply condition is estimated as 80% of total capacity to conservatively account for maintenance.

During the 2015 drought, the water level in Folsom Reservoir was the lowest on record, resulting in significant fluctuations in water supply. This drought highlighted the risk that the Folsom Dam intake structure could become exposed, or what has been referred to as the "dead pool" condition. Although this has not occurred to date, the City relies upon this intake structure to receive supply from USBR and PCWA – the majority of its regular supply portfolio. Being cognizant of this potential vulnerability, in the early 2000's the City begun developing its Aquifer Storage and Recovery Program. Since then, the City has embarked upon a continuous expansion of the ASR program to provide increased flexibility in case of emergency. The City remains engaged in an ongoing effort along with regional partners to invest in identifying a long-term solution to the vulnerability of the intake structure at Folsom Reservoir.

As part of this UWMP, the City is examining this "dead pool" condition, and planning for the circumstance when the City is unable to receive any surface water supplies from USBR or PCWA, examined further in Chapter 6,

Section 6.2.1 and Chapter 7, Section 7.1.3.2. The City is also continuing expansion of the ASR program to maintain adequate capacity to serve the basic needs of the City in the event of extreme drought or other impacts to surface water supplies.

The City's wells are constructed to utilize Aquifer Storage and Recovery technology. ASR is the recharge of water in an aquifer through specially designed groundwater wells and recovery of water from that same well or others after time has passed. During times when there are excess surface water supplies, water can be injected using the ASR and production wells. During dry periods or when additional water is needed for the environment or other beneficial needs, this water can be withdrawn from the aquifer. Six of the existing operational wells have ASR capabilities. Two more wells with ASR capabilities are currently under construction and are expected to be completed in the Fall of 2026. The City plans to construct 2 additional wells with ASR capabilities by 2030. Following that, the City will reassess its ASR program, and as part of a future Ground Water Strategic Plan update, evaluate a potential expansion of the program beyond 2030.

COR Table 3-C Existing City of Roseville Wells

Facility	Install/Rehab Date	Well Depth (Feet)	Zone Served	Theoretical Pumping Capacity (MGD)	Production Capacity (80% of Theoretical) (MGD)	ASR Capable (Y/N)
Oakmont, No. 5	1978/ 1999	360	1	2.1	1.7	N
Diamond Creek, No. 6	2002	460	4	4.0	3.2	Y
Woodcreek North, No. 7	2008	440	1	2.2	1.8	Y
Hayden Parkway, No. 8	2015	520	4	3.1	2.5	Y
Westbrook Boulevard, No. 9	2023	526	4	3.6	2.9	Y
Blue Oaks Boulevard, No. 12	2015	490	4	3.2	2.6	Y
Solaire Drive, No. 18	2023	555	4	2.6	2.1	Y

3.1.6 Interties

There are 18 interties that the City maintains with the surrounding jurisdictions of PCWA, San Juan Water District (SJWD), California-American Water Company (Cal-Am), Citrus Heights Water District (CHWD), and Sacramento Suburban Water District (SSWD). Some of these interties are in regular operation with water wheeling and purchases, while others are emergency use only. Although the City of Roseville no longer has a water supply contract with SJWD, those interties remain in case of emergency. Each intertie is listed in COR Table 3-D.

COR Table 3-D Interties with Neighboring Water Suppliers

Intertie Agency	Facility	Year Constructed	Operational Control Agency	Control Valve Size (Inches)	Agency Receiving Water	Avg. Days/ Yr. Utilized 2021-2025	Days Utilized 2025
SJWD	WTP	1996	Roseville	16	Roseville	0	0
	Eureka	1999	Roseville	12	Roseville	0	0
	Cavitt Stallman	1999	Roseville	12	Roseville	0	0
PCWA	Five Star	1995	PCWA	12	Roseville	0	0
	Stoneridge	1998	Roseville	12	PCWA	275	275
	Highland Park	2000	Roseville	12	PCWA	0	0
	Tinker	1989	Roseville	16	Roseville	365	365
	Blackwood – Bianchi Estates	2000	PCWA	12	PCWA	365	365
	Woodcreek	2025	PCWA & Roseville	12	Roseville	0	0
	Crowder	2001	Cal-Am	12	Cal-Am	365	365
	PFE	2005	Roseville	16	Cal-Am	365	365
	Park Drive/ Pleasant Grove	2000	PCWA	12	Roseville	0	0
	Vineyard Rd	1990	Cal-Am	12	Cal-Am	365	365
Cal-Am	Vernon Oaks	1988	Roseville	12	Cal-Am	0	0
CHWD	Orlando	1989	Roseville	6	CHWD	0	0
	Blossom Hill	1986	Roseville	10	CHWD	0	0
	Fairway	2017	Roseville	8	CHWD	0	0
SSWD	PFE/ North Antelope	2005	Roseville	20	Both	0	0

3.1.6.1 San Juan Water District Interties

The three interties that exist between the City and SJWD under normal operations remain closed and are only intended for emergency use. The intertie at the WTP can deliver water from SJWD to the City only (single direction valve). The Eureka and Cavitt Stallman interties can deliver water to and from the City (bi-directional valving).

3.1.6.2 Placer County Water Agency Interties

The Bianchi Estates, Crowder, and Vineyard interties are valved for single direction flow from Roseville out to PCWA customers (Cal-American Water). The Highland Park and Pleasant Grove interties are single direction, delivering from PCWA to Roseville. They cannot deliver water from the City to PCWA, but the other nine remaining interties can. Three of the eleven PCWA interties under normal operations remain open. The Stoneridge intertie regularly pumps water from the City to PCWA. The Blackwood intertie is regularly kept open as it feeds PCWA's Bianchi Estates system and is the only source of supply for that area. The Tinker intertie is normally open in order to deliver water from PCWA to Cal-Am through the Crowder and PFE interties. The Woodcreek intertie remains closed under normal operating conditions and is only used for emergencies or maintenance outages.

3.1.6.3 Citrus Heights Water District

The three interties between the City and CHWD are valved bidirectionally to enable water delivery to and from the City; however, system pressures in the vicinity of these interties indicates that flow into the City would likely be the only possibility. All three are intended for emergency use only and remain closed under normal operating conditions.

3.1.6.4 Sacramento Suburban Water District Intertie

The intertie between the City and SSWD is part of the regional development of conjunctive use programs. During an emergency or drought years, the PFE pump station will pump water from SSWD's service area into Zone 1 of the City. This intertie is bidirectional and can be used to deliver water from the City to SSWD. A mutual aid agreement between the City and SSWD was recently completed.

3.2 Service Area

The City's service area boundary lies within the limits of the City of Roseville. There are a few small areas within the city limits that are served by PCWA, SJWD, and CHWD, totaling approximately 1,729 services. The service area is approximately 27,421 acres (ac). The service area and the facilities mentioned in Section 3.1 are shown in Figure 3-2.

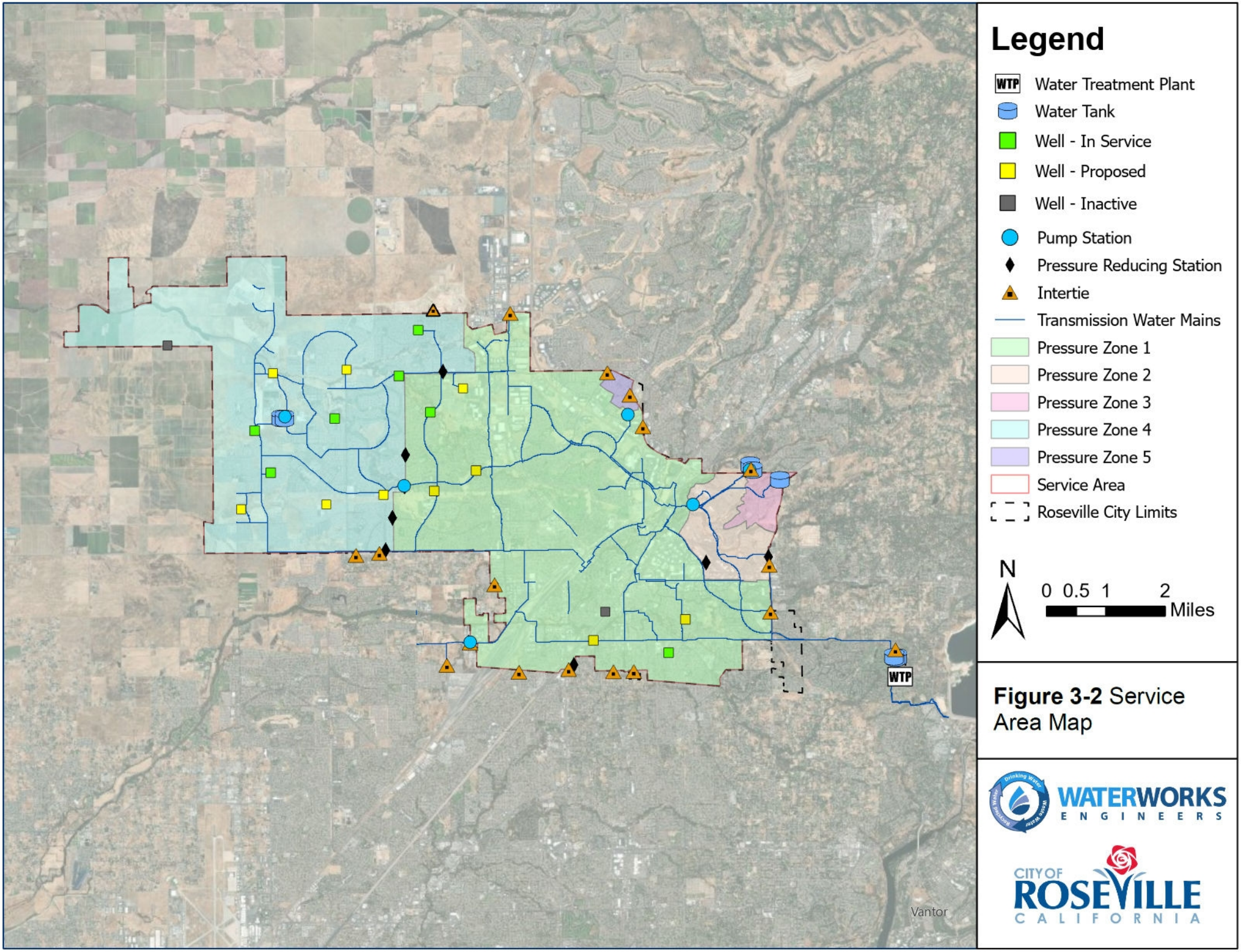


Figure 3-2 Service Area Map

WATERWORKS ENGINEERS

CITY OF ROSEVILLE CALIFORNIA

3.3 Service Area Climate

The service area experiences cool and humid winters and hot and dry summers. The City of Roseville's climate is similar to the City of Fair Oaks, which is in close proximity. Historical climate data was obtained from California Irrigation Management Information System (CIMIS) for station 131, which is located in Fair Oaks, for the reporting period of this UWMP and is summarized in COR Table 3-E. The average monthly temperature from 2021 to 2025 ranged from 39.1 degrees Fahrenheit (°F) to 96.1 °F. Typically the wet season begins in October and ends in May, with an average annual total precipitation of 21.4 inches.

COR Table 3-E Monthly Average Climate Data from 2021 through 2025

Month	Average Minimum Temperature (°F)	Average Maximum Temperature (°F)	Average Temperature (°F)	Average Monthly Precipitation (inches)
January	39.1	59.7	48.4	3.1
February	39.4	62.5	50.2	2.9
March	42.3	65.0	53.1	2.5
April	45.7	74.1	59.3	0.7
May	50.3	82.2	66.1	0.3
June	55.7	90.1	72.9	0.1
July	59.0	96.1	77.5	0.1
August	59.7	95.0	76.9	0.1
September	57.8	90.5	72.9	0.4
October	51.0	79.7	63.9	2.2
November	42.9	65.3	52.6	2.7
December	40.6	56.1	47.4	6.3
Average	48.6	76.4	61.8	1.8

3.4 Service Area Population and Demographics

This section describes the population, demographic, and employment conditions of the City's water service area during the reporting period of the UWMP as well as future projections through 2045.

3.4.1 Service Area Population

Water use is directly tied to a service area's population, and analyzing population growth and development trends is critical for the City's planning of water distribution facilities and infrastructure. Current and projected service area population estimates are provided in DWR Table 3-1.

These projections differ from total population projections since a small number of City residents are served by adjacent water purveyors. The projections were estimated in coordination with the City of Roseville's General Plan (last updated in 2020), more recent development trends, direct input from the City of Roseville's Environmental Utilities and Planning Divisions, and concurrent Water Master Planning efforts. At this time, the City of Roseville is engaged in an update to their analysis of development trends and growth, but this process will not be concluded by the time this document is published.

DWR Table 3-1

Submittal Table 3-1 Retail: Population - Current and Projected Water Code Section 10631(a)					
Population Served	2025	2030	2035	2040	2045
	171,153	172,710	183,077	190,519	193,366
NOTES: Population projections shown above are based on the buildout population projection from the 2020 General Plan of 198,000, with an empirically derived trend-based data showing on recent growth in actual population values, adjusted to reflect service area population.					

3.4.2 Social, Economic, and Demographic Factors

The City of Roseville's population in 2024 (most recent data available), according to the American Community Survey (ACS), was reported to be 56.3% White alone (not Hispanic or Latino), 20% Hispanic or Latino, 11.7% Black alone, 6.2% Asian alone, 4.6% two or more races alone, and all other race categories were less than 1%. A summary of all race categories surveyed is provided in COR Table 3-F. The United States Census Bureau reports that the median household income from 2020-2024 was $119,288. ACS reports that in 2024, 5.9% of the population was in poverty and 17.4% of the population was 65 years of age and over. The social, economic, and demographic factors are not believed to affect water management and planning.

COR Table 3-F City of Roseville 2024 Population by Race

Race Category	Percentage
American Indian and Alaska Native alone, not Hispanic or Latino	0.5%
Asian alone, not Hispanic or Latino	6.2%
Black alone, not Hispanic or Latino	11.7%
Hispanic or Latino	20.0%
Native Hawaiian and other Pacific Islander alone, not Hispanic or Latino	0.2%
White alone, not Hispanic or Latino	56.3%
Some other race alone, not Hispanic or Latino	0.5%
Two or more races alone, not Hispanic or Latino	4.6%

3.5 Land Uses within the Service Area

A requirement of the California Water Code holds that land use projections be coordinated with other local and regional land use authorities.

> *California Water Code 10631.*
>
> *(a) . . .The description shall include the current and projected land uses within the existing or anticipated service area affecting the supplier's water management planning. Urban water suppliers shall coordinate with local or regional land use authorities to determine the most appropriate land use information, including, where appropriate, land use information obtained from local or regional land use authorities, as developed pursuant to Article 5 (commencing with section 65300) of Chapter 3 of Division 1 of Title 7 of the Government Code.*

In August 2020, the City of Roseville completed its latest update to the General Plan, with a planning horizon that extends into 2035. The General Plan includes the Land Use Element, which is provided in Appendix C. The Land Use Element discusses existing and future land use conditions, with an intended purpose of setting guidelines for managing land use change. The City of Roseville has both residential and non-residential land uses; density and intensity guidelines for each land use type respectively are set forth in the Land Use Element. The land use categories as well as corresponding characteristics from the Land Use Element are summarized in COR Table 3-G and COR Table 3-H.

COR Table 3-G Residential Land Uses and Development Guidelines

Land Use Category	Dwelling Units Per Acre	Estimated Population Per Gross Acre
Low-Density Residential (LDR)	0.5 – 6.9	1.45 – 20.1
Medium-Density Residential (MDR)	7.0 – 12.9	20.3 – 37.41
High-Density Residential (HDR)	≥ 13	≥ 27.3

COR Table 3-H Non-Residential Land Uses and Development Guidelines

Land Use Category	Floor to Area Ratio
Neighborhood Commercial (NC)	20% - 40%
Community Commercial	20% - 40%
Regional Commercial	20% - 40%
Business Commercial	20% - 40%
Light Industrial	20% - 50%
Tech/ Business Park	20% - 50%
General Industrial	20% - 50%
Transfer Station	Varies
Central Business District	≤ 300%
Public/ Quasi-Public	Varies

3.6 Water Utility Planning

Currently the City of Roseville is engaged in a Water Master Planning effort in parallel with the development of this 2025 UWMP. The Water Master Planning effort will be ongoing as of the publishing of this UWMP. As part of these utility planning efforts, the City has identified recommendations for updates to water use Unit Demand Factors by parcel type. These updated Unit Demand Factors are included in Chapter 4 and have been used to develop demand projections through the planning horizon. The 2020 General Plan estimated buildout at approximately 2035. However, the City has observed recent trends indicating that residential buildout may occur in the next 5-10 years with commercial following behind in the 15–20-year range. These trends have informed an updated understanding of the pace of development and therefore identified an adjusted buildout horizon of approximately 2045, which has been used in this planning document as well as the City's Water Master Plan.

Chapter 4 Water Use Characterization

This chapter provides a description and quantification of the City's past and current water use and future water use projections through the year 2045. Projections provided herein were coordinated with other local and regional planning documents in an effort to develop reliable water demand projections.

4.1 Non-Potable Versus Potable Water Use

The City utilizes both potable and non-potable water to meet the diverse water needs of the customers within the service area. Potable water is water that is safe to drink and meets all California drinking water regulations per Title 22. The City's potable water supplies consist of raw water treated at the WTP, finished water wheeled from other agencies through interties, raw water received from other agencies through interties which is subsequently treated at the WTP, and additional emergency groundwater from various wells throughout the City that is chemically treated on site.

Additionally, the City supplies recycled water, which is non-potable water for approved uses. Recycled water is wastewater that is treated to Title 22 disinfected tertiary standards. The City operates two wastewater treatment plants (WWTPs), Dry Creek and Pleasant Grove, both of which treat wastewater to the high standard required of recycled water. The recycled water produced at the WWTPs is distributed in a separate "purple pipe" system from the potable water system and is utilized for landscape irrigation, environmental releases, cooling water, and construction uses.

Lastly, the City delivers raw water, which is also non-potable, to Linda Creek outside of the City's service area. Raw water is untreated water that is used in its natural state or with minimal treatment. The City is required to discharge 0.8 cubic feet per second (cfs) of supplemental raw water to Linda Creek when creek flows are low as part of its instream flow commitment. A 10-year average annual total for this discharge is 350 AF, but each year's total can vary significantly depending on hydrologic conditions and resulting flow within the creek. This discharge is also subject to drought restrictions and can be curtailed during Stage 3 or higher-level drought restrictions should that be necessary. The City does not deliver raw water to any of its customers within the service area.

4.2 Past, Current, and Projected Water Use by Sector

The following sections describe and quantify past, current, and projected water use. Water uses are delineated by various sectors. Additionally, a requirement as of the 2020 UWMP requires quantification of system water losses for the five years preceding each UWMP.

4.2.1 Water Use Sectors Listed in Water Code

Water Code Section 10631(d) requires that water uses be identified for at least the ten following sectors; definitions for each of the sectors are adapted from those provided in the Guidebook.

- **Single-family residential** – A single family dwelling unit. A lot with a free-standing building containing one dwelling unit that may include a detached secondary dwelling. This is a retail demand.
- **Multifamily** – Multiple dwelling units contained within one building or several buildings within one complex. This is a retail demand.
- **Commercial** – A water user that provides or distributes a product or service. Water Code 10608.12(e). This is a retail demand.

- **Industrial** – Water user that is primarily a manufacturer or processor of materials as defined by the North American Industry Classification System (NAICS) code sectors 31 to 33, inclusive, of an entity that is a water user primarily engaged in research and development. Water Code Section 10608.12(i). This is a retail demand.
- **Institutional and governmental** – A water user dedicated to public service. This type of user includes, among other users, higher-education institutions, schools, courts, churches, hospitals, government facilities, and nonprofit research institutions per Water Code Section 10608.12(j). This is a retail demand.
- **Landscape** – Water connections supplying water solely for landscape irrigation. Such landscapes may be associated with single-family residential, multi-family, commercial, industrial, or institutional/ governmental sites, but are considered a separate water use sector if the connection is solely for landscape irrigation. This is a retail demand.
- **Sales to other agencies** – These are water sales made to another agency. Projected sales may be based on projected demand provided by the receiving water supplier. This is a wholesale demand.
- **Saline Water Intrusion barriers, groundwater recharge, or conjunctive use, or any combination thereof** – *Conjunctive use* is a water management strategy where surface water and groundwater are managed together to increase the total water supply. For purposes of the UWMP, conjunctive use is seen as a management strategy rather than as a water use. This type of water use is best reported as groundwater recharge. *Groundwater recharge* can occur through both natural and artificial means. In the context of this UWMP, artificial groundwater recharge is the managed and intentional replenishment of natural groundwater supplies using techniques such as infiltration basins or injection wells. Water used for groundwater banking or storage may also be reported using this sector. If all, or a portion of, the groundwater recharge is subsequently pumped out of the basin in the same year, that water is considered "pass-through" storage and reporting this as a groundwater recharge use may lead to a double counting of water uses because of the subsequent retrieval and delivery of that same water in the same year to customers. Water used for groundwater recharge, but not retrieved in the same year, could be considered actual groundwater recharge and reported as such. *A saline water intrusion barrier* is the practice of injecting water into a freshwater aquifer to prevent the intrusion of saltwater. These may be either a wholesale or retail demand. The City currently does not have any demands under this water use sector.
- **Agricultural** – Water used for commercial agricultural practices including irrigation and other agronomic uses. Water used for processing agricultural products (e.g., food, beverage, or textile manufacturing) may also be considered industrial process water rather than agricultural water use. This may be either a wholesale or retail demand. The City currently does not have any demands under this water use sector.
- **Distribution system water losses** – Losses that were reported in accordance with the 12-month water loss for each of the prior five years.

4.2.2 Water Use Sectors in Addition to Those Listed in Water Code

Presently, the City has no additional water use sectors outside of the ten listed in CWC. Furthermore, the City expects that future water use will be restricted to the same sectors by which water is currently used based on land use projections from the Land Use Element. As a note, the City is currently engaged in an effort to define and add regulatory language for "high water users" in its municipal code to address increasing needs of the technology industry. These projected users have been incorporated into the analyses for this UWMP.

4.2.3 Past Water Use

Past potable water use by sector was analyzed to estimate water use projections into the next 20 years, as required by the CWC. By examining past water use, trends can be understood. These trends includes effects of temporary use restrictions during drought years, effects of long-term demand management measures, and the changing profile of service connections by water use sector. Water uses for 2025 and the five years preceding this plan, as well as the last two UWMP years, are summarized in COR Table 4-A.

COR Table 4-A Past Potable Water Use Volumes by Sector

Water Use Sector	2015	2020	2021	2022	2023	2024	2025
Commercial[1]	1,930	2,630	2,986	3,000	3,096	2,690	2,822
Industrial[1]	934	254	219	246	181	334	386
Institutional and Governmental	561	412	421	390	387	384	388
Multi-Family	1,464	1,416	2,115	1,327	1,437	1,589	1,600
Single-Family	11,680	17,115	16,377	15,945	15,809	17,274	17,080
Landscape	4,152	6,422	6,548	6,504	6,300	5,883	5,632
Other [2]	–		–	–	–	–	--
Total	20,721	28,249	28,667	27,412	27,210	28,155	27,909

NOTES: [1]Accounting system and categorization changes caused a recategorization of some parcels in the Industrial category to the Commercial category between 2015 and 2020. All volumes are in AF.
[2]In 2015 and subsequent years thereafter, all water demands are characterized by water use sectors defined in the CWC.

4.2.4 Current Water Use

The City's potable and non-potable water uses for 2025 by sector are reported in DWR Table 4-1. There are no existing potable or non-potable demands for the use types of saline barriers, conjunctive use, or agricultural.

DWR Table 4-1

Submittal Table 4-1 Retail: Total Uses for Potable and Non-Potable Water — Actual Water Code Section 10631(d)(1)			
Use Type	Additional Description	2025 Actual Water Use	
		Potable or Non-Potable	Volume (AF)
Commercial	Including non-metered	Potable	2,822
Industrial	Including non-metered	Potable	386
Institutional/Governmental	Including non-metered	Potable	388
Multi-Family	Including non-metered	Potable	1,600
Single Family	Including non-metered	Potable	17,080
Landscape	Including non-metered	Potable	5,632
Distribution System Water Loss	Including non-metered	Potable	2,135
Sales/Transfers/Exchanges to other Suppliers	Including non-metered	Potable	1,657
Groundwater recharge	Excludes groundwater pumped and supplied to the distribution system	Potable	193
Landscape	Recycled Water used inside the City	Non-Potable	3,029
Industrial	Recycled Water used at Roseville Energy Park	Non-Potable	428
Sales/Transfers/Exchanges to other Suppliers	Recycled Water sold outside the City	Non-Potable	301
Sales/Transfers/Exchanges to other Suppliers	Discharge to Linda Creek[1] and water wheeled on behalf of San Juan Water District.	Non-Potable	387
		Subtotal Potable	31,893
		Subtotal Non-Potable	4,145
		Total	36,038

NOTES: All volumes are in AF. The volume of losses are for potable water only; non-potable water losses are not calculated. The 2025 Water Audit has not been validated at the time of plan preparation and final losses reported in the validated Water Audit may differ.
[1]Water discharged to Linda Creek is based upon a supplemental flow requirement and creek conditions; therefore, it will vary year over year.

4.2.5 Projected Water Use

The City regularly analyses future water use demands to determine the reliability of system supplies and identify any vulnerabilities. As stated in 3.4.1, the service area population directly impacts water use demands. The City is

currently undergoing a water master planning effort. Part of that process is reexamining unit demand factors for water use which had previously been established in 2002. This 2025 UWMP update has incorporated the recommended revised unit demand factors from that effort and applied them to the demand projection analysis. To estimate projected water use through 2045, the following approach and resources were utilized.

Assumptions:

- The Planning Division's population projection from the 2020 General Plan Land Use Element was utilized, which estimates a population of 198,000 at buildout of all planned development.
- It is assumed that all planned development would be complete by 2045 as explained in Section 3.6.
- An estimated 1729 dwelling units in the City of Roseville are not served by the City. The number of dwelling units are estimated based on other utility accounts.

Population Projection and Water Use Projection Steps

1. Calculated the population not served by the City by multiplying the number of dwelling units by the 2014-2018 American Community Survey (ACS) household multiplier (2.68[1]) used in the 2020 General Plan Housing Element.
2. Subtracted the population not served by the City from the total California Department of Finance (CDoF) City of Roseville population to obtain the service area population for 2021 through 2025.
3. Estimated the current percentage of development for each specific plan from the latest Planning Department records.
4. Input current percentage of development into the City of Roseville's Environmental Utilities (EU) Department's Water Demand Tracking Tool, which calculates buildout water usage for each specific plan. Water use in the Tool is calculated by applying unit demand factors, specific to land use categories, to each of the dwelling units. Demand factors and total water use for all specific plans are provided in COR Table 4-B and COR Table 4-C, respectively.
5. Plotted the service area population from 2021 through 2025 and the projected population for 2045 to approximate the population for 2030, 2035, and 2040. The resultant population projections were previously summarized in DWR Table 3-1.
6. Updated the Water Demand Tracking Tool for 2045 to reflect 100% at buildout.

[1] https://data.census.gov/table/ACSST5Y2018.S1101?q=Roseville+city,+California

COR Table 4-B Updated (Recommended) Unit Demand Factors for Land Use Type

Residential Land Use Categories	Unit Demand Factor (gpd/DU)
Low Density Residential 1 – LDR1 (<3.5 DUs/Acre)	600
Low Density Residential 2 – LDR2 (3.5 to 5 DUs/Acre)	420
Low/Medium Density Residential 1 – LMDR1 (>5 to 6 DUs/Acre)	350
Low/Medium Density Residential 2 – LMDR2 (>6 to 8 DUs/Acre)	300
Medium Density Residential – MDR (>8 to 12 DUs/Acre)	220
High Density Residential – HDR1 (>12 to 16 DUs/Acre)	280
High Density Residential – HDR2 (>16 DUs/Acre)	190
Non-Residential Land Use Categories	**Unit Demand Factor (gpd/acre) (gpd/Acre)**
Commercial/Retail	2,100
Business Professional	2,680
Light Industrial	2,570
Industrial	2,570
Elementary School	2,800
Middle School	2,140
High School	3,420
Public (Fire Station)	2,350
Park/Recreation	2,112
Park/Recreation – Special Landscape Area	3,840
New Technology Industries[1]	**Unit Demand Factor (gpd/site)**
Medium	195,000
Large	780,000
NOTES: [1]These additional demand categories are projected in the UWMP. There have not yet been changes to zoning or land use categories in the General Plan or the Municipal Code to reflect these categories.	

COR Table 4-C Specific Plan Water Demands at Buildout by Water Use Sector

Specific Plan	Commercial (AF/yr)	Industrial (AF/yr)	Institutional/ Governmental (AF/yr)	Multi-Family (AF/yr)	Single Family (AF/yr)	Total (AF/yr)
Infill	1,102	1,489	6,859	321	6,301	16,071
ATCSP	50	8	30	46	6	140
DHCSP	237	0	0	233	1	471
DSCSP	444	0	5	255	11	716
WBSP	17	0	69	140	579	804
COSP	70	1,340	63	84	170	1,726
DTRSP	260	7	88	16	64	434
RSGW	67	0	0	36	55	158
SE	493	0	216	391	933	2,032
NE	1,629	0	63	0	368	2,060
STRSP	97	0	253	159	1,108	1,616
NCRSP	1,225	224	450	620	1,104	3,623
HRNSP	379	0	221	180	497	1,277
NWRSP	312	0	1,189	345	3,439	5,286
DWSP	29	0	905	21	1,434	2,390
NI	98	4,141	91	0	401	4,731
NRSP	199	0	483	192	2,033	2,907
WRSP	131	182	1,102	553	3,418	5,384
SVSP	457	0	410	385	1,725	2,976
CVSP	22	0	68	116	519	725
ARSP	120	0	130	197	666	1,113

NOTES: Atlantic Street Corridor Specific Plan (ATCSP); Douglas-Harding Corridor Specific Plan (DHCSP); Douglas-Sunrise Corridor Specific Plan (DSCSP); Westbrook Specific Plan (WBSP); Campus Oaks Specific Plan (COSP); Downtown Roseville Specific Plan (DTRSP); Riverside Gateway (RSGW); Southeast Roseville (SE); Northeast Roseville (NE); Stoneridge Specific Plan (STRSP); North Central Roseville Specific Plan (NCRSP); Highland Reserve North Specific Plan (HRNSP); Northwest Roseville Specific Plan (NWRSP); Del Webb Specific Plan (DWSP); North Industrial (NI); North Roseville Specific Plan (NRSP); West Roseville Specific Plan (WRSP); Sierra Vista Specific Plan (SVSP); Creekview Specific Plan (CVSP); Amoruso Ranch Specific Plan (ARSP).

COR Table 4-D Current and Projected Water Use Volumes

Use Type	2025 (AF)	2030 (AF)	2035 (AF)	2040 (AF)	2045 (AF)
Commercial	2,822	8,078	8,385	8,666	8,893
Industrial	386	667	693	716	735
Institutional/Governmental	388	671	696	720	739
Multi-Family	1,600	2,767	2,872	2,968	3,045
Single Family	17,080	29,533	30,655	31,681	32,511
Landscape	5,632	9,738	10,108	10,447	10,720
Distribution System Water Loss	2,135	1,364	1,446	1,504	1,527
Sales/Transfers/Exchanges to other Suppliers	1,657	0	0	0	0
Groundwater recharge	193	3,360	3,360	3,360	3,360
Recycled water used inside the City	3,029	3,530	3,992	4,454	4,917
Recycled water used at Roseville Energy Park	428	499	564	630	695
Recycled water sold outside the City	301	350	396	442	488
Raw water discharged to Linda Creek	387	350	350	350	350
Total	**36,038**	**60,908**	**63,517**	**65,937**	**67,980**

NOTES: All Volumes are in AF. 2025 values represent metered usage data, inclusive of passive conservation efforts realized by City customers in their usage patterns. 2030 and subsequent years represent unconstrained demand projections utilizing Unit Demand Factors applied to land use data.

DWR Table 4-2

Submittal Table 4-2 Retail: Total Uses for Potable, and Non-Potable Water — Projected Water Code Section 10631(d)(1)						
Use Type	Additional Description	**Projected Water Use[1]**				
		Potable or Non-Potable	**2030 (AF)**	**2035 (AF)**	**2040 (AF)**	**2045 (AF)**
Commercial	Including non-metered	Potable	8,078	8,385	8,666	8,893
Industrial	Including non-metered	Potable	667	693	716	735
Institutional/Governmental	Including non-metered	Potable	671	696	720	739
Multi-Family	Including non-metered	Potable	2,767	2,872	2,968	3,045
Single Family	Including non-metered	Potable	29,533	30,655	31,681	32,511
Landscape	Including non-metered	Potable	9,738	10,108	10,447	10,720
Distribution System Water Loss	estimated	Potable	1,364	1,446	1,504	1,527
Sales/Transfers/Exchanges to other Suppliers	Including non-metered	Potable	0	0	0	0
Groundwater recharge	Long Term Storage	Potable	3,360	3,360	3,360	3,360
Landscape	Recycled Water used inside the City	Non-Potable	3,530	3,992	4,454	4,917
Industrial	Recycled Water used at Roseville Energy Park	Non-Potable	499	564	630	695
Sales/Transfers/Exchanges to other Suppliers	Recycled Water sold outside the City	Non-Potable	350	396	442	488
Sales/Transfers/Exchanges to other Suppliers	Raw Water, Discharge to Linda Creek[2]	Non-Potable	350	350	350	350
		Subtotal Potable	56,179	58,214	60,061	61,529
		Subtotal Non-Potable	4,729	5,303	5,876	6,451
		Total	60,908	63,517	65,937	67,980

NOTES: All volumes are in AF. Sales/Transfers are ideally balanced between intake and outgoing wheeled water, so the anticipated value is shown as 0 for subsequent years.
[1]Breakdown of projected use has been determined by proportional division of annual totals according to recent trends in meter data. Annual totals have been determined by the application of Unit Demand Factors to parcel data. Commercial totals have been adjusted above existing data to account for projected New Technology Industries. Water loss has been projected to match compliance with Roseville's 2028 target to reduce loss to 22.8 gallons per connection per day.
[2]Water discharged to Linda Creek is based upon a supplemental flow requirement and creek conditions; therefore, it will vary year over year. The above value of 350 AF represents an average between 2015 and 2025.

Total Gross water use projections, inclusive of recycled water, are provided in COR Table 4-D and DWR Table 4-2 (cells highlighted in green) above. Recycled water demand is further characterized in DWR Table 6-4 of Chapter 6.

4.2.6 Distribution System Water Losses

Distribution system water losses are the difference between the volume of water that is delivered into the potable drinking water distribution system and actual consumption. Losses are always present in a water system due to

pipe leaks, unauthorized connections or use, faulty meters, and unmetered institutional and governmental water use. Each year the City characterizes its water loss in accordance with the American Water Works Association (AWWA) Water Audit Method. CWC requires urban retail water suppliers to conduct and submit validated water loss audit reports annually to DWR on December 31st following the reporting year. Final Water Audit and Validation Reports are available for 2021 through 2024 and are provided in Appendix D. Distribution system water losses for five years preceding the plan update from 2020-2024 are summarized in COR Table 4-E. The submittal status of Water Loss Audit Reports to the DWR Water Loss Audit Program for the same five years can be found in DWR Table 4-5.

COR Table 4-E 12 Month Water Loss Audit Reporting for 2020-2024

Reporting Period Start Date (mm/yyyy)	Volume Water Loss (AF)
01/2020	1,089
01/2021	712
01/2022	1,663
01/2023	1,797
01/2024	2,524

DWR Table 4-5

Submittal Table 4-5 Retail: Water Loss Audit Reporting Water Code Section 10631(d)(3)(A)		
Public Water System ID # Reported in Table 2-1 R	Reporting Period	Submitted to DWR Water Loss Audit Program (yes/no)
3110008	2020	Yes
	2021	Yes
	2022	Yes
	2023	Yes
	2024	Yes
NOTES: 2025 AWWA Audit is not due to DWR until December 31, 2026, and therefore has not been included here.		

An update to the CWC requires that 2020 UWMPs and all UWMPs submitted thereafter include data showing whether the urban retail water supplier met the distribution loss standards enacted by the California State Water Resources Control Board (SWRCB) pursuant to Section 10608.34. The apparent (administrative or data-based) and real water loss standards established by the SWRCB that are to be met by the City by 2028 are 8 gallons/connection/day and 22.7 gallons/connection/day respectively. See Appendix E for the SWRCB's Calculated Water Loss Standards for the City of Roseville. Progress towards the 2028 water loss standards is reported in DWR Table 4-6. Water loss in gallons/connection/day for 2020 through 2024 is shown in COR Table 4-F.

DWR Table 4-6

Submittal Table 4-6 Retail: Progress Towards 2028 Water Loss Standard Water Code Section 10631(d)(3)(C)											
Public Water System ID # Reported in Submittal Table 2-1 R	Did the Water Board Calculate a Water Loss Standard for this Public Water System? (y/n)	Real Water Loss					Apparent Water Loss				
		State Water Board Standard		Most Recent AWWA Water Loss Audit		Real Water Loss Per Unit per Day	State Water Board Standard		Most Recent AWWA Water Loss Audit		Apparent Water Loss Per Unit per Day
		2028 Real Water Loss Standard per Unit per day	Units for Real Water Loss	Number of Units (Connections or Miles corresponding with units selected)	Volume of Total Real Loss (from AWWA Water Loss Audit) (AF)		2028 Apparent Water Loss Standard per Unit per Day	Units for Apparent Water Loss	Number of Connections	Volume of Total Apparent Loss (from AWWA Water Loss Audit) (AF)	
3110008	Yes	22.7	Gallons per Service Connection per Day (GPSCD)	52102	2098.7	36.0	8	Gallons per Service Connection per Day (GPSCD)	52102	425.7	7.3
NOTES: Data above is from 2024, the most recently completed and submitted AWWA Audit.											

COR Table 4-F Loss Reported in AWWA Water Audit for 2020-2024.

AWWA Loss Category	2020	2021	2022	2023	2024
Apparent Loss	8.23	8.09	7.47	7.23	7.29
Real Loss	12.08	5.17	22.53	16.54	35.96
Water Loss	20.31	13.26	30.00	23.77	43.25
NOTES: All values are gallons per connection per day.					

The data from 2020 through 2024 demonstrate that the City's water loss (measured as gallons per connection per day) has fluctuated year by year. The City continues to prioritize and allocate resources to detecting and repairing leaks in the distribution system to reduce water loss. Over the last ten years, the City has also increased the accuracy of reported losses by discovering better ways to quantify and examine loss, as well as the measurement points within the system that support this quantification. In dedicating resources to tracking and understanding internal unmetered uses, identifying less accurate meters, and understanding consumption of water for authorized uses, the City continues to improve their understanding of water loss. While there are necessary improvements that need to be made, the City anticipates that it is on track to meet the performance standard by 2028.

Note that in DWR Table 4-2 the projected water loss from 2030 through 2045 was calculated by multiplying the performance standard by the estimated number of service connections. The number of service connections was estimated using the same ratio of 2025 total number of service connections to 2025 population.

4.2.7 Estimating Future Water Savings

As noted in DWR Table 4-2 and the following DWR Table 4-3, water use projections do consider future water savings and lower income residential demands.

DWR Table 4-3

Submittal Table 4-3 Retail: Inclusion in Water Use Projections Water Code Section 10631 (a), 10631 (d)(4)(A), and 10631 (d)(4)(B)	
Are Future Water Savings Included in Projections? **Drop down list (y/n)**	Yes
If "Yes" to above, **state the section or page number**, in the cell to the right, where citations of the codes, ordinances, or otherwise are utilized in demand projections are found.	4.2.7.1 4.2.7.2 4.2.7.3
Are Lower Income Residential Demands Included In Projections? **Drop down list (y/n)**	Yes
If the method for accounting Lower Income Residential Demands has been included, provide page number where this accounting can be found.	4-13

The unit demand factors and resultant demands calculated by the EU department in COR Table 4-B and COR Table 4-C do not account for reduced demand from passive conservation by the public. However, based on previous years' demand data, the City has observed that passive conservation measures can result in a significant amount of efficiency. This passive demand reduction is not reflected in DWR Table 4-2 in order to support a conservative analysis with unconstrained demand represented for the potable water use categories of Commercial, Industrial,

Institutional/ Governmental, Multi-Family, Single Family, and Landscape. Conservation measures are described in the subsequent sections.

4.2.7.1 Compliance with Water Efficient Landscape Requirements

New development areas are required to reduce landscape area and calculated water demands as part of the process for land use approval, as required by the California Code of Regulations Title 23, Division 2 Chapter 2.7 Model Water Efficient Landscape Ordinance (MWELO). The City of Roseville previously developed its own standards but has more recently adopted the state of California's MWELO standards in 2026.

4.2.7.2 Increased Utilization of Recycled Water

The City of Roseville requires recycled water to be used in most land use development areas currently being planned and for construction water during drought years. Future required use includes landscaping associated with commercial, industrial, multi-family, parks, and transportation corridors. Guidelines for Recycled Water Service are outlined in Roseville Municipal Code Chapter 14.17 (available via City's website at https://qcode.us/codes/roseville/).

4.2.7.3 Implementation of Low Water Use Fixtures

Section 16.04.100 (A.) of the Roseville Municipal Code states that: "The 2019 California Building Standards Code is hereby adopted by the City of Roseville Municipal Code." The Roseville Municipal Code is available via the City's website at https://qcode.us/codes/roseville/.

Additionally, the mandatory California Green Building Standards Code (CALGreen) promotes conservation through the use of appliances and fixtures such as high-efficiency toilets, faucet aerators, and on-demand water heaters.

4.2.8 Characteristic Five-Year Water Use

The California Water Code Section 10635(a) requires that in addition to calculating water use projections over the next 20 years in five-year increments, suppliers perform a drought risk assessment lasting five consecutive years. The projected unconstrained demand for 2026-2030 is estimated in COR Table 4-G. Unconstrained demand is demand absent any water supply or usage restrictions but does include the conservation practices for new construction, outlined in the previous section. This projection informs the drought risk assessment, which is detailed in Chapter 7.

COR Table 4-G Five consecutive year unconstrained demand.

Gross Water Use	2026	2027	2028	2029	2030
Potable Water, Raw, Other Non-Potable	37,130	41,980	46,829	51,679	56,529
Recycled Water Demand	3,882	4,006	4,131	4,255	4,379
NOTES: All volumes are in AF.					

4.3 Water Use for Lower Income Housing

Policy LU5.5, of the Land Use Element, strives to uphold the City of Roseville's Affordable Housing Goal by requiring that a minimum of 10% of all new housing units cost no more than 30% of the total monthly income of very low-, low-income, and moderate-income households. The City of Roseville EU Department annually coordinates with the Planning Division to gather data related to low-income housing metrics. The total number of affordable housing units in 2025 was 3,133, of which 1,872 were single family residences and 1,261 were multi-family

residences. The water demands for low-income housing for 2025 were estimated by multiplying the number of single family and multi-family affordable housing units by the average unit demand factor for low to medium density residential and high density residential, respectively. These estimations are summarized in COR Table 4-H.

COR Table 4-H 2025 Affordable Housing Water Use

Unit Demand Factors	
Average Low to Medium Density Residential Factor for Single Family Units	378 (gpd/DU)
Average High Density Residential Factor for Multi-Family Units	235 (gpd/DU)
2025 Affordable Housing Water Use	
Single Family Residential	793 (AF/yr)
Multi-Family Residential	332 (AF/yr)
Total	1,125 (AF/yr)

As stated in DWR Table 4-3, the water use projections of DWR Table 4-2 are inclusive of water use for lower income households. The estimated water demand by sector for each specific plan, in COR Table 4-C, included affordable housing water use in the single family and multi-family water use calculations, which was used to derive the water use projections in DWR Table 4-2. The portion of water from those projections to be used by affordable housing units is shown in COR Table 4-I. As 10% of all new housing construction is required to be allocated to affordable housing, 10% of the difference between each of the five-year projections was added to the preceding period to estimate how much water would be used by low-income housing.

COR Table 4-I Affordable Housing Water Use Projections

Housing Type	2030	2035	2040	2045
Single-Family Residential	2,038	2,150	2,253	2,336
Multi-Family Residential	449	459	469	476
Total Affordable Housing Units	2,487	2,609	2,721	2,812
NOTES: All values are in AF/yr.				

4.4 Climate Change Considerations

All projections included in Chapter 4 are representative of unconstrained demand except for passive conservation efforts described in Section 4.2.7. However, consideration of effects that climate change may have on demand projections and water supply and reliability is a critical aspect of ensuring that the City is well positioned to meet future demands. The City's primary water source is surface water from Folsom Reservoir, and the City recognizes that the reliability of this source is reduced during dry years or drought. A comprehensive study aimed at understanding how climate change will impact the American River Basin, from which the City receives its surface water supplies, was performed in 2020 and is included in Section 6.14.2. The effects of climate change on water supplies are considered in future plans for the ASR program, a drought risk assessment, and a Water Shortage Contingency Plan**,** which are provided herein.

Chapter 5 SBX7-7 Baselines, Targets, and 2020 Compliance

With the adoption of the Water Conservation Act of 2009, also known as Senate Bill X7-7 (SB X7-7), the State of California was required to achieve a 20% reduction in urban per capita water use by December 31, 2020. Additionally, incremental progress towards meeting the goal was required to be demonstrated in the 2015 UWMP. The 2015 UWMP calculated gallons per capita per day (GPCD) water use and confirmed that the 2015 interim target was met, and that progress was being made toward meeting the water use target for 2020. This chapter summarizes baselines and targets, which were quantified in previous UWMPs, and confirms that the City's water use in 2020 was compliant with SB X7-7 legislation and remains compliant now in 2025.

5.1 Baselines and Targets

The City first addressed SB X7-7 in the 2010 UWMP, where baseline per capita water use, the 2015 interim target, and 2020 target were established and adopted. For the 2015 UWMP update the Department of Water Resources issued guidance that there were significant discrepancies between the estimated 2010 population and the 2010 population as determined by the 2010 U.S Census, which could result in poor baseline population estimates. Consequently, the City and other water suppliers were required to recalculate baseline population that had been reported in the 2010 UWMP and to modify the 2015 and 2020 targets accordingly.

SB X7-7 requires each urban water retailer to determine their baseline daily per capita water use measured in GPCD, over a 10-year or 15-year baseline period. The 10-year baseline period is defined as a continuous 10-year period ending no earlier than December 31, 2004, and no later than December 31, 2010. SB X7-7 also defines that for suppliers which met a minimum of 10% of their 2008 water demand through recycled water that the baseline could be extended to a maximum of a 15-year baseline period. Only 8.76% of the City's demand was met with recycled water in 2008; consequently the City used a 10 consecutive year period for its baseline. Additionally, SB X7-7 required that a 5-year baseline per capita water demand be calculated over a 5 consecutive year period ending no earlier than December 31, 2007, and no later than December 31, 2010. Given the requirements the City used the following baseline periods:

- 10-year Baseline Period: 1995-2004
- 5-year Baseline Period: 2003-2007

Between the 2015 and 2020 UWMPs, the City experienced no changes to the service area that would require recalculation of baseline or targets for 2020; there were annexations for new construction, but these did not trigger recalculation requirements. Baselines and targets presented in the 2020 UWMP are summarized in 2020 DWR Table 5-1. The historical 2015 SB X7-7 Verification Form, which provides tables for detailed calculations of baselines and targets, is provided in Appendix F.

2020 DWR Table 5-1

Submittal Table 5-1 Baselines and Targets Summary from SB X7-7 Verification Form				
Baseline Period	Start Year	End Year	Average Baseline GPCD	Confirmed 2020 Target
10-15 year	1995	2004	309	247
5 Year	2003	2007	295	

5.2 Compliance Daily Per-Capita Water Use

The 2020 compliance daily per capita water use (in GPCD) was calculated in accordance with Methodology 4 of DWR's *Methodologies for Calculating Baseline and Compliance Urban Per Capita Water Use* document. The SB X7-7 Compliance Form is a set of tables containing calculations demonstrating that the City met the 2020 target and achieved a 20% reduction from its baseline and is provided in Appendix G. Confirmation of current compliance is summarized in 2025 DWR Table 5-1 which shows that the City did in fact achieve Targeted Reduction for 2020.

2025 DWR Table 5-1

Submittal Table 5-1 Retail: SB X7-7 2020 Target Progress Water Code Section 10608.40						
Was Supplier part of a merger or consolidation since 2020?	Regional Alliance Target or Individual Target?	2020 Target	Actual 2020 GPCD	Did Supplier Achieve Targeted Reduction for 2020?	**Only for suppliers that did not meet the Target in 2020**	
					Actual 2025 GPCD (From SB X7-7 Compliance Form)	Did Supplier meet the 2020 Target in 2025?
No	Individual Target	247	203	Yes		NA

5.3 Regional Alliance

The City has complied with SB X7-7 and UWMP requirements as an individual supplier and had elected to not participate in a Regional Alliance.

Chapter 6 Water Supply Characterization

This chapter catalogues and describes the various water resources and supplies available to the City of Roseville including contract supplies from other agencies, surface water, groundwater, storm water, wastewater, and recycled water, as well as water transfers. The supply source, origin, quality, quantity, and impacts of climate change on availability for each source are discussed within this section.

6.1 Surface Water

The City's primary water supply contracts are and have historically been comprised of high-quality surface water received through Folsom Reservoir according to the terms of the City's water supply contracts with the US Bureau of Reclamation (USBR) and Placer County Water Agency (PCWA). Since these supplies are not considered self-supplied and are instead purchased through other agencies, they are described in Section 6.2 Purchased and Imported Water.

6.2 Purchased and Imported Water

The City has historically relied heavily on its water supply contracts with the US Bureau of Reclamation and PCWA. Together, these untreated surface water contract entitlements for American River water total 66,000 acre-feet per year (AF/yr). Over the coming 10 years, an additional 10,000 AF of contract entitlements will become available through the PCWA agreement, in two 5,000 AF increments which take effect in 2030 and 2035 respectively. The City's current contract supplies are outlined in COR Table 6-A.

COR Table 6-A Surface Water Supply Summary

Contract Supply	Supply Type	Quantity	Availability
USBR	Raw Surface Water	32,000 AF	Subject to CVP M&I Usage Policy [1]
PCWA	Raw Surface Water	34,000 AF (current) – 44,000 AF (future)	Most Year Types [2]
NOTES: [1]The City's USBR Supply is subject in any year to determinations of allotments based on unimpaired inflow to Folsom Reservoir and downstream operations. [2]The City's PCWA Supply will go down to 30,000 AF during any given Dry Year.			

Water supplies from the two source agencies outlined above are received through the same point location at Folsom Dam. Folsom Reservoir has been the primary source of water supply for the City of Roseville since 1971. Surface water from the American River is collected and diverted at the Folsom Reservoir Pumping Plant located at Folsom Dam. The City receives supplies from its two surface water contract entitlements through the Folsom Reservoir Municipal and Industrial (M&I) Intake at this facility.

Untreated water supplies received at this point are conveyed by gravity or pumped by USBR depending on reservoir level through two parallel pipelines (84-inch and 72-inch) to the City's Barton Road Water Treatment Plant (BRWTP), with a capacity for treatment of volumes up to 100 MGD. The 72-inch pipeline was constructed in 2010 to increase redundancy and reliability of this critical supply route, in partnership with San Juan Water District. Additionally, the City has 18 intertie facilities with neighboring agencies through which water supplies may be transferred under normal water year conditions as well as emergency or drought conditions. The City is actively

engaged with PCWA to increase system connectivity and facilitate future transfer of increased volumes of raw and treated water directly through existing and/or new intertie facilities.

6.2.1 Contract Supplies – Vulnerabilities and Restrictions

The City's contract supply with the USBR as part of the Central Valley Project is subject to yearly assignments based on each year's hydrologic conditions. Each year the City is informed in April of the determined percentage allotment of the full 32,000 AF allowed by the contract terms. This determination is made based on the unimpaired inflow of runoff into Folsom Reservoir. This supply is therefore highly vulnerable to climate change and its impacts on rainfall and snowpack conditions upstream of Folsom Reservoir in the Sierra Nevada Mountains. In recent years, this allotment has varied significantly on an annual basis, and the City has undertaken dedicated efforts to examine alternatives for increasing water supply reliability in all year types.

A minimum of 30,000 AF of the City's contract supply with PCWA is available in all hydrologic year types; it is also conveyed from the Middle Fork Project (MFP) through Folsom Reservoir and received as raw water at the same diversion point at Folsom Dam. A previous contract with San Juan Water District (SJWD) for 4,000 AF was dissolved and incorporated into the PCWA contract, contributing to the updated total supply. The City has since amended this contract agreement with PCWA to reflect a current standard availability of 34,000 AF, with an additional 10,000 AF to become available according to the schedule shown below in COR Table 6-B. At this time, there are provisions for the purchase and delivery of an additional 10 MGD or 11,200 AF of treated water from PCWA in emergency conditions, only when supplies are not available through the Folsom Dam Diversion. Additionally, this emergency supply would only be available to the City if both City and PCWA customers achieved 20% conservation. The partners are exploring further improvements to existing intertie facilities to expand and diversify opportunities for the transfer of supplies not dependent on the diversion facility at Folsom Dam.

COR Table 6-B PCWA Future Water Entitlements

Supply Type	Effective Dates	Quantity in Most Years	Quantity in Drier Years
Emergency Treated Water	After May 17, 2023	0 MGD	10 MGD
Raw Surface Water	Until July 1, 2024	29,000 AF	29,000 AF
Raw Surface Water	Until July 1, 2029	34,000 AF	30,000 AF
Raw Surface Water	Until July 1, 2034	39,000 AF	30,000 AF
Raw Surface Water	After July 1, 2034	44,000 AF	30,000 AF

The City's surface water supplies are all dependent upon the operation of Folsom Reservoir by the US Bureau of Reclamation; the dam that created the reservoir was originally constructed with a primary purpose of flood control, not water supply, and is still operated according to that primary function. The importance of this facility has led the City to examine options for redundancy, resilience, and/or improvements with respect to the intake, and best practices in terms of management of its other water resources.

The City remains engaged with regional partners in examining ways to increase the resiliency of this critical reservoir and diversion location. The City acknowledges the vulnerability of the intake elevation at Folsom Dam to the effects of extreme drought. The existing facilities cannot deliver peak season demands when the reservoir

level drops below 391 feet in elevation and cannot deliver any water when reservoir levels drop below an elevation of 310-ft. To address the potential loss of supply during low reservoir level conditions, Reclamation and the City of Folsom have successfully implemented a temporary floating pump system that can provide 30 cfs of emergency backup delivery to only Folsom and Folsom Prison. A 36-inch tap in penstock No. 1 can provide 75 cfs emergency pump station (E-pump) for water deliveries to SJWD and Roseville. In the event that the intake is exposed by an extremely low reservoir level, beyond what is described above, the City would not be able to receive supplies through either of its primary supply contracts. The City has elected to examine this "dead pool" condition as part of this UWMP in Chapter 7.

6.2.2 Water Forum Agreement

The City is a member of the Sacramento River Forum and a signatory to the Water Forum Agreement (WFA). Accordingly, the City has historically agreed to limit its diversions from the upper American River to 58,900 AF/yr during Normal and Wet water years, and to between 58,900 AF/yr and 43,800 AF/yr in Drier and Driest water years. The City is responsibly committed to the Water Forum Agreement but maintains the position that "By instituting programs to conserve water, it abandons no right, title or interest in or to any City water rights, contractual entitlements or any appurtenant rights necessary to exercise such water rights or entitlements," as described by Resolution No. 09-64, Declaring an Intent to Retain Control of Conserved Water (Appendix H). The City executed an update to this agreement in May of 2026. At this time, no further limitations will be applied to the City's available contract supply as a result of this update.

6.2.3 ARTESIAN Project Agreement

Since the last UWMP update, the City has entered an agreement, executed on June 30, 2023, with the American River Terms for Ecosystem Support and Infrastructure Assistance Needs (ARTESIAN) Project. This Project and its associated agreement are a regional initiative managed by the Sacramento Regional Water Authority (RWA). It governs state funding for early implementation of voluntary agreements, aiming to enhance water supply reliability and ecosystem health in the Sacramento region. This project provides funding for the City's ASR Program, specifically ASR and production well development, and therefore the City has committed to making 4,460 acre-feet (AF) of water available regionally through groundwater substitution/replenishment in any given "call year." A "call year" is a year type defined in the agreement where outflow through groundwater replenishment is "called for" based on conditions, typically in three out of eight dry or critically dry year types. The agreement's call years begin in 2025, with potential for further implementation in dry years between 2033 and 2036 if necessary. This initiative helps the City, in coordination with the RWA, replenish the local aquifer to ensure long-term water reliability.

6.2.4 Other Available Water Purchases

The City may purchase supplemental water supplies from the Bureau of Reclamation (USBR), including Article 3F water and Section 215 water, when available. These supplies are intermittent in nature and generally are only available during the winter and spring months, when excess or unmanaged flows are present in the system. Article 3F water consists of excess flows released by the USBR beyond the entitlements of downstream users, while Section 215 water is defined in the Reclamation Reform Act of 1982 (RRA) as un-storable irrigation water released due to flood control requirements or unmanaged flood flows. The City entered into the Section 215 Contract

Agreement with the USBR on March 15, 2023 (Contract No. 23-WC-20-6073), which provides a mechanism to access Section 215 supplies when available.

When available, these supplies can be used to support the City's Aquifer Storage and Recovery (ASR) program for groundwater recharge, consistent with the City's objectives to enhance water supply reliability and support regional conjunctive use. The City exercised the Article 3F option in 2019, acquiring approximately 950 AF and the Section 215 option in 2023, purchasing approximately 1,865 AF. The City has not utilized Article 3F supplies since the last UWMP.

6.3 Groundwater

In recent years, the City has taken significant steps to expand and strengthen their ASR Program to broaden the City's water supply portfolio. The City currently owns and maintains 7 operational groundwater wells. Six of the 7 operational wells are capable of Aquifer Storage and Recovery whereby treated water can be injected into the underlying aquifer for later extraction and use. Two more wells with ASR capabilities are currently under construction and are slated for completion in the Fall of 2026. The City also plans to construct 2 additional wells with ASR capabilities by 2030.

Groundwater is considered to be available for use as part of Roseville's water supply portfolio in supply emergencies or extreme drought scenarios.

6.3.1 Groundwater Basin Description

The City is located over the North American Subbasin of the Sacramento Valley Groundwater Basin. The North American Subbasin (DWR Groundwater Basin Number 5-21.64) is located in the eastern central portion of the Sacramento Groundwater Basin, encompassing portions of Sutter, Placer, and Sacramento Counties. As of 2025, the Basin is listed by DWR as high priority in large part due to the population in the basin and existing and projected future groundwater use, but the basin has neither been adjudicated nor is it considered in overdraft or critical overdraft conditions.

Groundwater elevations in the subbasin along the Placer/Sacramento County line declined at a rate of 1 to 1.5 feet per year for multiple decades until approximately the mid-1990s. Some of the largest decreases have occurred in the area of the former McClellan Air Force Base. From 1995, groundwater elevations stabilized, and the declining elevation trend was dampened due to groundwater management activities stemming from the Water Forum Agreement restraining further increases in groundwater pumping and implementation of in-lieu banking in the region. Groundwater elevations in Sutter and northern Placer counties generally remain stable, although some wells in southern Sutter County have experienced declines.

In addition, the subbasin has historically been pumped by agricultural and urban users. Recently, in some areas of the subbasin, agricultural land has been and is being developed and converted to urban uses. At this time, the subbasin is operating within the current estimate of sustainable yield.

6.3.2 Groundwater Management

The City actively manages groundwater resources both internally in coordination with land use planning and growth projections as well as regionally in accordance with the provisions of the Sustainable Groundwater Management Act. These efforts are discussed in the following subsections.

6.3.2.1 Western Placer County Groundwater Management Plan

The Western Placer County Groundwater Management Plan (WPCGMP) is a foundational document, originally adopted in 2007, to sustainably manage the North American River Groundwater Sub-basin (NASb). It was developed by a partnership including the cities of Roseville and Lincoln, Placer County Water Agency (PCWA), and California American Water Company. As of January 2022, this effort evolved into a mandated Groundwater Sustainability Plan (GSP) under the Sustainable Groundwater Management Act (SGMA) to prevent overdraft and ensure long-term water reliability. The GSP can be accessed, along with a schedule of public hearings, at www.nasbgroundwater.org. All GSP Annual Reports can be viewed at the DWR SGMA Portal, located here: https://sgma.water.ca.gov/portal/#gsp .

6.3.2.2 Sustainable Groundwater Management Act (SGMA)

The Sustainable Groundwater Management Act of 2014, or SGMA, was a three-bill legislative package composed of AB 1739 (Dickinson), SB 1168 (Pavley), and SB 1319 (Pavley). The package was passed in September 2014 and contains a framework for sustainable management of groundwater supplies by local agencies, with a limited role for state intervention if local agencies fail to meet the requirements of SGMA. SGMA lays out a process and a timeline for local authorities to achieve sustainable management of high and medium priority groundwater basins throughout the state. It also provides tools, authorities, and deadlines to achieve statewide sustainable groundwater management. For local agencies involved in implementation, the requirements are significant and will take years to accomplish. DWR has the responsibility to evaluate local agency progress, while the SWRCB may intervene if DWR determines that local agencies fail to make progress and achieve the requirements of SGMA. Essentially, local agencies who volunteer to comply with SGMA must form as Groundwater Sustainability Agencies (GSAs) and prepare, adopt, and implement a Groundwater Strategic Plan (GSP) that meets the requirements of SGMA.

More specifically, critical required steps include the formation of GSAs within two years of when SGMA became effective; the adoption of GSPs within 5-7 years depending on the status of the basin in question (in critical overdraft condition or not); and preparation, adoption and implementation of a GSP(s) that achieves the sustainability goal within 20 years of plan adoption.

SGMA applies to basins or subbasins designated by DWR as high- or medium-priority, based on statewide prioritization that uses criteria including population, importance and amount of groundwater pumped, extent of irrigated agriculture dependent on groundwater, and other criteria. DWR's final Basin Prioritization findings indicate that there are 127 of California's 515 groundwater basins and subbasins which are high- and/or medium-priority. These high and medium-priority basins account for 96% of California's annual groundwater pumping and include 88% of the state's population. The priority ranking for the North American sub-basin of the Sacramento Valley groundwater basin is 24 out of the state's 515 basins, with an overall ranking score of 22.5 and a designation of High Priority.

The City is well along the path of SGMA compliance, having joined the West Placer Groundwater Sustainability Agency (WPGSA) consisting of the City of Lincoln, Placer County Water Agency, Nevada Irrigation District, and the County of Placer. The WPGSA is one of a group of five GSAs formed within the North American Subbasin that consist of West Placer Groundwater Sustainability Authority, Sacramento Groundwater Authority, South Sutter Water District, Sutter County, and Recreation District 1001 GSAs. The five GSAs prepared and submitted a joint GSP to DWR on January 24, 2022, prior to the statutory deadline of January 31, 2022 (Appendix I). The GSAs of the North American Subbasin have been working over the last year to update the GSP and to prepare for the Periodic Evaluation to meet the needs of SGMA. The City adopted and began implementation of this plan on December 15, 2021. Due to the City's proactive approach to groundwater sustainability, GSP implementation is highly practical and visible; it is reflected in the ongoing construction and smart operation of ASR and production wells to store and recover water, backed by monitoring and regional coordination.

6.3.3 Historical Groundwater Production

Groundwater wells have historically been used by the City in drought or emergency conditions, with minimal pumping for the purpose of maintenance or demonstration of the City's ASR program. While this remains true, over the last ten years, the City has worked to advance and expand the ASR program to provide additional water supply reliability.

Beginning in 2018, the City began to regularly operate existing groundwater infrastructure specifically by pumping small volumes of groundwater from the City's production wells and serving that water into the distribution system as part of the maintenance plan. In 2022, 2023, and 2025, the City was able to store small quantities of excess surface water through the use of ASR and production wells by injecting that water into the aquifer. As the City continues to develop this program and look to the future of sustainable supply, groundwater pumping patterns will continue to evolve. A summary of the amount of groundwater pumped by the City over the past five years is provided in DWR Table 6-1.

DWR Table 6-1

Submittal Table 6-1 Retail: Groundwater Volume Pumped Water Code Section 10631(4) and 10631(4)(c)							
Groundwater Type	Potable or Non-Potable	Location or Basin Name	2021 (AF)	2022 (AF)	2023 (AF)	2024 (AF)	2025 (AF)
Alluvial Basin	Potable	North American Sub-basin of the Sacramento Valley Groundwater Basin 5-21.64	1472.6	120.6	115.08	119.9	291.5
		Total	1,473	121	115	120	292
NOTES: Water pumped from Roseville water wells does not need to be desalinated.							

6.3.4 Aquifer Storage and Recovery

The City considers development of a diverse and drought resistant water supply portfolio to be of the greatest importance. To this end, the City has invested in both planning and capital improvements to develop their Aquifer Storage and Recovery (ASR) Program into a highly functional and critical component of the Water Utility's future. The ASR Program utilizes groundwater pumping infrastructure along with existing water supplies to increase reliability. ASR wells are capable of injecting treated surface water from the distribution system into the groundwater aquifer for later extraction and use. A schematic of wells equipped for ASR within an urban environment, accessing the underlying aquifer for groundwater, is provided in Figure 6-1.

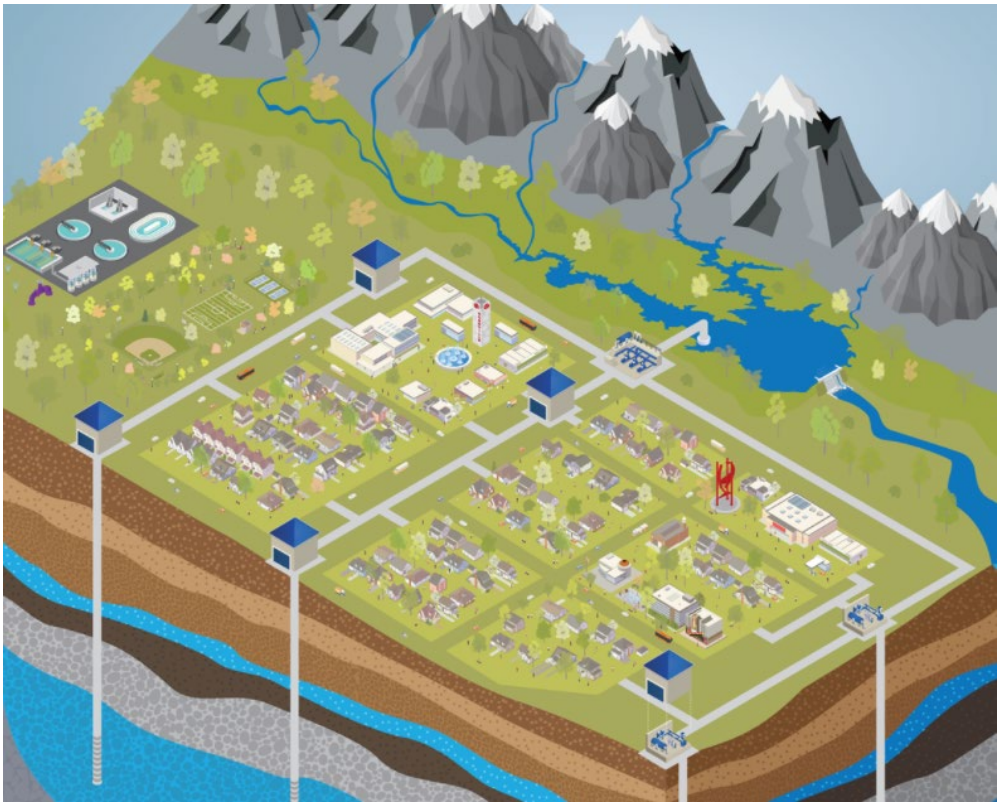


Figure 6-1 Urban Groundwater Infrastructure Schematic

ASR production wells can be used seasonally (i.e. within the water year) or periodically over many years to create a "groundwater bank", storing surface water supplies within the aquifer in times of abundance (wet season or years) for use in times of scarcity (dry season or years). An important component of an ASR Program is to maintain consistent and detailed records of groundwater levels within the aquifer and extraction/injection volumes. This information is used to ensure the groundwater basin is managed sustainably providing water supply reliability benefits while avoiding impacts to the groundwater basin. The City is a committed leader in the region with respect to the development of potential future cooperative water banking and responsible regional resource management.

6.4 Stormwater

At this time, the City does not employ any active stormwater recovery measures. In recent years, the City has invested in studies to determine whether stormwater recapture represents a possible resource for future diversity in groundwater recharge projects. Considerations include water rights, timing and quantity of available runoff, property rights, and water quality, among others. Given the complexity of the issues pertaining to stormwater capture or surface spreading, the City continues to conduct analyses to determine the feasibility of this option in the future.

6.5 Wastewater and Recycled Water

The City currently owns and operates two regional wastewater treatment facilities that treat wastewater flows collected from a combination of the City, South Placer Municipal Utilities District (SPMUD), and some areas of

unincorporated Placer County. This section provides information on wastewater management, as well as its current and potential reuse as a recycled water resource.

6.5.1 Wastewater Collection, Treatment, and Disposal

The South Placer Wastewater Authority (SPWA) was created under a Joint Powers Agreement in October 2000 and is comprised of the City of Roseville, South Placer Municipal Utilities District, and the County of Placer. The SPWA oversees policy for funding regional wastewater infrastructure. The City collaborates with the regional partners on forward planning and best practices for the management of these regional facilities.

The wastewater collection and treatment facilities within the City's service area are maintained and operated by City staff. The wastewater collection facilities outside of the City's service area are maintained by the other SPWA agencies (Placer County and SPMUD). Wastewater outside of the City's service area but within the SPWA Service Area Boundary is conveyed through trunk sewers to the City's wastewater treatment facilities located within the City limits. Metering stations are located at the City's service area boundaries to account for the wastewater entering the City's collection system originating from Placer County and SPMUD collection areas.

The City owns and operates on behalf of the SPWA the Dry Creek Wastewater Treatment Plant (Dry Creek WWTP) and the Pleasant Grove Wastewater Treatment Plant (Pleasant Grove WWTP). Both plants discharge tertiary treated wastewater to surface water. Dry Creek WWTP discharges to Dry Creek while the Pleasant Grove WWTP discharges to Pleasant Grove Creek. The two wastewater treatment plants serve an area that extends beyond the City boundaries.

The Dry Creek WWTP provides tertiary-level wastewater treatment. The treatment consists of screening, grit removal, primary clarification, aeration, nitrification and denitrification, secondary clarification, filtration, and ultraviolet disinfection. Disinfected tertiary-treated wastewater from the Dry Creek WWTP meets Title 22 regulations for full, unrestricted use. The current (2025) average dry weather flow (ADWF) is approximately 8.6 MGD, of which approximately 65%, or 5.6 MGD comes from the City of Roseville.

The plant is currently authorized to discharge up to 18 MGD ADWF into Dry Creek under the Municipal General Order. The Dry Creek WWTP discharge is assigned Municipal General Order enrollee number R5-2023-0025-008 and National Pollutant Discharge Elimination System (NPDES) permit No. CAG585001. Per the California Department of Fish and Wildlife (CDFW), the City is required to discharge four million gallons per day to Dry Creek. The Dry Creek WWTP currently (2025) produces 950 AF/yr of recycled water. A portion of recycled water from Dry Creek is discharged into a gravity line that supplies a school and Morgan Creek Golf Course, both of which are located in Placer County, outside the City's water service area. The remainder of recycled water from the Dry Creek WWTP is pumped into the recycled water distribution system and used within the City's water service area.

The Pleasant Grove WWTP currently (2025) treats approximately 8.49 MGD ADWF with approximately 65% or 5.5 MGD coming from the City of Roseville. The Pleasant Grove WWTP provides disinfected tertiary-level treatment through the process of screening, grit removal, secondary aeration, secondary clarification, filtration, and ultraviolet disinfection. The Pleasant Grove WWTP discharge is assigned Municipal General Order enrollee number R5-2023-0025-006 and National Pollutant Discharge Elimination System Permit No. CAG585001. There are no instream flow requirements for Pleasant Grove Creek.

Disinfected tertiary-treated wastewater from Pleasant Grove WWTP meets Title 22 regulations for full, unrestricted use. The Pleasant Grove WWTP currently (2025) produces approximately 2300 AF/yr of recycled water that is pumped into the recycled water distribution system and used within the City's service area boundary.

Pleasant Grove WWTP underwent construction of a major capital improvement project that began in 2019 and was completed in 2023. The project included an increase in treatment capacity from 9.5 MGD up to 12 MGD. Improvements to the treatment process included the addition of primary clarification, waste activated sludge thickening, and anaerobic digestion. This project represents a significant improvement to the capacity of the Pleasant Grove WWTP with important components of long-term resilience and improved efficiency of the City's utilities.

The project also included important improvements that have benefited the environment and have created renewable energy resources. Methane from the anaerobic digestion is converted to a renewable compressed natural gas (CNG) to fuel the City's growing solid waste fleet and fuel new microturbines that generate electricity for plant usage. The project included a receiving facility for energy-dense wastes to enhance methane production.

As previously described, both treatment plants are regional wastewater facilities and as such, wastewater is generated both inside and outside of the City from a combination of residential and non-residential sources. A summary of the volume of wastewater processed at and discharged from each of the City's wastewater treatment plant in 2025 is provided in DWR Table 6-2 and DWR Table 6-3.

DWR Table 6-2

Submittal Table 6-2 Retail: Wastewater Collected Within Service Area Water Code Section 10633(a)				
100%	Percentage of 2025 service area served by wastewater collection system			
100%	Percentage of 2025 service area population served by wastewater collection system			
Wastewater Collection			**Recipient of Collected Wastewater**	
Name of Wastewater Collection Agency	Wastewater Volume Metered or Estimated?	Volume of Wastewater Collected from UWMP Service Area 2025 (AF)	Name of Wastewater Treatment Plant (WWTP) and Place ID Number	Is WWTP Located Within UWMP Area?
City of Roseville (Dry Creek Wastewater Treatment Plant)	Metered	7,116	Roseville City Master Reclamation Permit, Place ID 239771	Yes
City of Roseville (Pleasant Grove Wastewater Treatment Plant)	Metered	6,838	Roseville City Master Reclamation Permit, Place ID 239771	Yes
Total Wastewater Received from UWMP Service Area in 2025:		13,954		
NOTES: All volumes are in AF. The top row entry reflects Dry Creek WWTP, and the bottom row entry reflects Pleasant Grove WWTP. Both are listed under a single Master Reclamation Permit which is the only option available in the drop-down menu for this table. Approximately 65% of the flow received at Dry Creek WWTP and 65% of the flow received at the Pleasant Grove WWTP originates in the City's water service area.				

DWR Table 6-3

Submittal Table 6-3 Retail: Wastewater Treatment and Outcomes Within UWMP Service Area
Water Code Section 10633(b)

Wastewater Treatment Plant Name and Place ID Number	Does This Plant Treat Wastewater Generated Outside the UWMP Service Area?	2025 Volume of Wastewater Received from UWMP Service Area (As Reported in Submittal Table 6-2 R) (AF)	Total 2025 Volume of Water Treated (AF)	2025 Outcomes of Treated Wastewater										
				Water Recycled Within UWMP Service Area		Water Recycled Outside of UWMP Service Area		Effluent Discharge that is not a Permitted Recycled Water Use		Required Discharge for Instream Flow		Delivered to Another Entity for Additional Treatment		
				Treatment Level	Volume (AF)	Treatment Level	Volume (AF)	Treatment Level	Volume (AF)	Treatment Level	Volume (AF)	Treatment Level	Volume (AF)	Name of other entity
Roseville City Master Reclamation Permit, Place ID 239771	Yes	7,116	10,948	Tertiary	1,012	Tertiary	301	Tertiary	9614	Tertiary	1464		0	
Roseville City Master Reclamation Permit, Place ID 239771	Yes	6,838	10,520	Tertiary	2,445		0	Tertiary	8207		0		0	
Total		13,954	21,468		3,457		301		17,821		1,464		0	

NOTES: All values are in AF. The top row entry reflects Dry Creek WWTP, and the bottom row entry reflects Pleasant Grove WWTP. Both are listed under a single Master Reclamation Permit which is the only option available in the drop-down menu for this table.

6.6 Recycled Water System

6.6.1 Recycled Water Coordination

The City regards recycled water as a valuable resource that is a key component of the City's overall water supply portfolio. The City operates its recycled water system and program in coordination with its regional wastewater partners, including South Placer Municipal Utilities District and Placer County. The City has been successfully irrigating landscaped areas throughout the City and planning recycled water implementation as part of new development surrounding the City. The City prepared the 2025 Recycled Water Systems Evaluation Report (Appendix J) to position the City for implementing the next phases of recycled water projects as new users within the City come online, and as the various UGA's plan for and install recycled water infrastructure.

The City operates the recycled water program though the requirements of Master Reclamation Permit Order 97-147 (Permit). The Permit implements the reclamation criteria of the City's Title 22 disinfected tertiary recycled water. Current uses of recycled water within the City include irrigation of landscapes and golf courses, industrial cooling for the Roseville Energy Park, and construction purposes such as dust control and soil compaction. Recycled water is also conveyed outside the City's water service area for golf course and landscape irrigation.

The City prepared the South Placer Regional Wastewater 2020 Systems Evaluation Report (Appendix K), which delineates the current and projected service area boundary, including Urban Growth Areas expected to be added in the near future as development continues. The report provides baseline and projected characterizations of its regional wastewater and recycled water systems. The Systems Evaluation Report was updated to address newer annexations by the SPWA partner agencies, planning revisions, as well as changes in wastewater characteristics and flows. Recycled water supplies and availability are directly linked to the planning and operation of the wastewater treatment plants and must be managed and planned in coordination. The City and its SPWA partners continue utilizing recycled water supplies to promote responsible water supply management. Beneficial use of available disinfected tertiary treated Title 22 recycled water allows surface water and groundwater supplies to be applied to potable uses.

All agency elements for a reuse program within the City boundary, including land planning, development, wastewater treatment, and water supply, are a part of the City of Roseville government organization.

6.7 Recycled Water Beneficial Uses

The City's recycled water program predominantly serves landscape irrigation customers. The City currently delivers recycled water to golf courses, parks, schools, and many miles of streetscape for landscape irrigation within the City's potable water service area. The City also provides recycled water to a school and a golf course outside of the City's potable water service area. The City delivers recycled water to the Roseville Energy Park, which is owned and operated by the City of Roseville Electric Utility, for industrial cooling purposes. Landscapes at both regional wastewater treatment plants also use recycled water for irrigation purposes. Recycled water can be used for construction purposes such as dust control and soil compaction.

The current and projected direct beneficial uses of recycled water in the City's water service area are shown in DWR Table 6-4.

DWR Table 6-4

Submittal Table 6-4 Retail: Recycled Water Direct Beneficial Uses Within Service Area Water Code Section 10633 (c), (d), (e)									
Name(s) of Facility/ies Producing (Treating) the Recycled Water:			Dry Creek WWTP, Pleasant Grove WWTP						
Name of Supplier Operating the Recycled Water Distribution System:			City of Roseville						
Use Type	**Potable or Non-Potable** (after treatment if treated)	Additional Information	2025 (AF)	2030 (AF)	2035 (AF)	2040 (AF)	2045 (AF)	**Potential Recycled Water Use**	
								Volume	Narrative page number
Agricultural irrigation	Non-Potable	Parks	5	6	6	7	8	8	
Landscape irrigation (not golf courses)	Non-Potable	Parks	392	456	516	576	636	636	
Landscape irrigation (not golf courses)	Non-Potable	Schools	144	168	190	212	233	233	
Landscape irrigation (not golf courses)	Non-Potable	Streetscape	945	1,101	1,246	1,390	1,534	1,534	
Golf course irrigation	Non-Potable		1,544	1,800	2,035	2,271	2,507	2,507	
Other (Description Required)	Non-Potable	Industrial cooling at Roseville Energy Park	428	499	564	629	695	695	
Other (Description Required)	Non-Potable	Morgan Creek Golf Course	270	314	356	397	438	438	
Other (Description Required)	Non-Potable	Dry Creek School District	31	36	40	45	50	50	
		Subtotal Potable	0	0	0	0	0	0	
		Subtotal Non-Potable	3,758	4,379	4,953	5,527	6,101	6,101	
		Total	3,758	4,379	4,953	5,527	6,101	6,101	0
NOTES: All values are in AF. Values correspond with projections in the 2025 Recycled Water Systems Evaluation for maximum demand, providing a conservative look at potential usage. Roseville's WWTP infrastructure is capable of exceeding the above outlined demands for recycled water production. It's difficult to project the relative timing of usage and supply and so the above values are simply an estimate. Golf course irrigation does not include golf course irrigation outside the City's service area (Morgan Creek Golf Course). Landscape irrigation for schools does not include schools outside of the service area (Dy Creek School District).									

The uses listed in DWR Table 6-4 include use of recycled water supply. Recycled water uses represent demands within the City's service area boundary including all approved specific plans. The 4 million gallon per day required discharge to Dry Creek as an instream flow requirement totaling 4,480 AF/yr is not shown in DWR Table 6-4.

A comparison of the 2025 actual use of recycled water to what was projected for use in 2025 in the 2020 UWMP is provided in DWR Table 6-5.

DWR Table 6-5

Submittal Table 6-5 Retail: 2020 UWMP Recycled Water Use Projection Compared to 2025 Actual Water Code Section 10633(e)		
Use Type	2020 Projection for 2025 (AF)	2025 Actual Use (AF)
Landscape irrigation (not golf courses)	1,446	1,485
Golf course irrigation	1,888	1,544
Industrial use	310	428
Other (Description Required)	378	301
Total	4,022	3,758
NOTES: All values are in AF. Golf course irrigation does not include golf course irrigation outside the City's service area (Morgan Creek Golf Course). Landscape irrigation for schools does not include schools outside of the service area (Dry Creek School District).		

6.8 Actions to Encourage and Optimize Future Recycled Water Use

As of 2025, the peak recycled water production is approximately equal to the peak recycled water demand. For the City to further expand recycled water usage during the irrigation season, additional recycled water must be made available through expansion of operational storage, with the necessary storage volume dependent on projected demand requirements. Therefore, the City will continue to evaluate in-City and regional recycled water demands and consider its ability to develop infrastructure to support recycled water for future projects.

It is the policy of the City that where the use of recycled water is feasible, appropriate, and acceptable to all applicable regulatory agencies, the City will require an owner or customer to use recycled water for approved uses. The City has other methods of encouraging recycled water use including a rate discount and public education. The recycled water rate for customers is currently 64 percent of the potable water rate. The City also implements an extensive public education campaign to educate its customers about the reliability and other benefits of recycled water. Another major benefit to customers of using recycled water is that it can be used reliably in times of drought. In the event the City imposes drought restrictions on uses, such as irrigation and construction, recycled water is exempt from these restrictions. Under certain drought stages, the City would mandate the use of recycled water for construction purposes.

One target of future recycled water use is new development, as stated in DWR Table 6-6. Projections in the 2025 Recycled Water Systems Evaluation report indicate there will be an increase in recycled water use of approximately 2,500 AF over the course of the next 20 years. A major hindrance to expanding use of recycled water in existing developments is lack of infrastructure. Installing new infrastructure in existing areas is exceedingly expensive. The City requires use of recycled water for all commercial irrigation services in newly developed master planned areas. This is feasible because the recycled water infrastructure can be installed as part of the original project. Additionally, the City is considering expanding recycled water distribution to entities both within and outside the potable water service area and is also evaluating potential changes to the Municipal Code that would require “high water users”, such as technology sector data centers, to use available recycled water.

DWR Table 6-6

Submittal Table 6-6 Retail: Methods to Encourage Future Recycled Water Use Water Code Section 10633(f)			
6-15	Provide page location of narrative in the UWMP		
Name of Action	Description	Planned Implementation Year	Expected Increase in Recycled Water Use (AF)
Developer Agreements	Per City of Roseville development standards, recycled water must be incorporated into future construction.	2025-2045	2,500
		Total (AF)	2,500
		Unit Conversion to AF	2,500
NOTES: Consistent with assumptions elsewhere in the UWMP, the City is assuming buildout would occur in 2045. This projected increased value has been assumed to correlate with 2045. The projected value corresponds with the 2025 Recycled Water System Evaluation Report for estimated maximum projected demand.			

6.9 Desalinated Water Opportunities

There are no opportunities for the development of desalinated water within the City's service area as a future supply source. The City is not located near any bodies of water that would allow for the option.

6.10 Exchanges or Transfers

The City maintains an on-demand treated water system that is used for municipal and industrial purposes. The City maintains direct treated water interties with five surrounding jurisdictions, as described in Section 3.1.6. The City can transfer water between jurisdictions through these interties or access water to supplement its distribution system. These facilities are designed to be used for wheeling water through the service area or for demand shortage assistance.

As a condition of the Water Forum Agreement, the City has entered into a re-operation agreement with PCWA for up to 20,000 AF to be used when Roseville's surface diversion is cut back. In general, the agreement calls for PCWA to release up to an additional 20,000 AF to the American River on an annual basis during time of reduced water availability in the system. This water is to maintain flows in the Lower American River (Nimbus Dam to Sacramento River) and therefore is not available for the City's use. This re-operation water is considered a transfer, although the ultimate user of the water, if any, has not been identified as part of the agreement - only that the water would be marketed when it was identified as available. It is possible there could be multiple users as the water will flow to the Delta and theoretically be available to all Delta water users.

Also, as a condition of the Water Forum Agreement, the City has committed not to take the entire amount of contracted water from the Upper American River. The City currently has 66,000 AF/yr of water available through USBR and PCWA supply contracts and a commitment to take no more than 58,900 AF/yr from the American River Watershed. This maximum will increase as 10,000 AF of additional supplies purchased from PCWA become available. However, there is an opportunity to find a long-term transfer for the foregone 7,100 AF/yr with a user

downstream of the confluence of the American and Sacramento Rivers. The Water Code definitions of short- and long-term conditions are that short-term is considered for a period of one year or less and long-term is for a period of more than one year.

6.11 Supply Management

The City has historically relied primarily on their suite of surface water contracts, supplying high quality water through the City-owned Barton Road Water Treatment Plant, and serving the City's population through gravity flow. In most year types, the City will continue to rely primarily on these supply sources for the bulk of potable water supply. Of these surface water contracts, the City employs supplies through the USBR contract as a first priority each year, pulling secondarily from the PCWA contract as needed. Each year allocations from the USBR are subject to variations in allocation, resulting in potential differences in the duration and quantity of supply pulled from this contract annually.

City Water Utility staff plan to utilize groundwater infrastructure differently in Normal and Dry hydrologic years. In general, Roseville plans to use groundwater infrastructure in accordance with sustainable groundwater management goals and objectives. In a Normal year, the City plans to extract no water other than that which is necessary for regular maintenance of the well infrastructure. In critical drought years, the City may find the need to operate its wells to meet demands when significant impacts are seen to surface water supplies. This is outlined further in Chapter 7. As the City continues to install more ASR and production wells within the next 5 years, and beyond, provisions of the municipal code will be updated to reflect the development of groundwater strategy.

6.12 Future Water Projects

The City has taken a proactive approach to ensuring resource diversity with a focus on surface water contracts, strong groundwater infrastructure, and highly collaborative regional presence in water planning and future conjunctive use. Future water supply project opportunities, including diversifying the purchasing or importing of water, expansion of the City's ASR program, and regional cooperative conjunctive use are discussed in the following sections.

6.12.1 Purchased or Imported Water

In addition to the current contract with PCWA for 34,000 AF/yr of surface water, the City has an agreement with PCWA that allows for up to 11,200 AF or 10 MGD of treated water transfer via interties in an emergency drought condition. This additional 11,200 AF would only be available in the condition that no supplies could be taken from Folsom Reservoir due to a "dead pool" condition, or exposed intake, and if both City and PCWA customers were to achieve 20% conservation.

The City is also exploring future opportunities for water transfers with regional partner agencies in an effort to diversify regional water management strategies in conjunction with responsible groundwater management practices.

6.12.2 Groundwater and ASR Program

The City has historically relied upon groundwater resources only as a backup supply in times of shortage. While this remains true, over the last ten years and in response to lessons learned during the 2015 drought, changing climate conditions, and the overall need for further diversity and reliability of water supply, the City has invested

in efforts to expand its ASR program. The City developed a Groundwater Strategic Plan in an effort to evaluate current infrastructure, potential new well sites, further understand the condition and accessibility of the aquifer within the City's service area boundary, and how groundwater planning would look moving forward. The result of these planning efforts had been the identification of 6 future well sites throughout the City's Pressure Zones 1 and 4, with a heavier emphasis on infrastructure in Pressure Zone 1. Conceptual design and siting have been completed for these future well sites, with exploratory drilling. Two of the 6 wells, Westbrook, No. 9 (rated extraction capacity of 2,500 GPM), and Solaire, No. 18 (rated extraction capacity of 1,800 GMP), were constructed over a two-year period and completed in 2023. Two more wells, Campus Oaks, No. 13, and Misty Wood, No. 19, are currently under construction and are expected to be completed in the Fall of 2026. The City is planning to install the last two wells in this current expansion phase of the ASR Program within the next 5 years. All 6 wells, with their top-side improvements and ASR capability, will enhance flexibility of operations and expand the City's conjunctive use capabilities. For planning purposes, each well in or planned for construction is assumed to extract a nominal 2,000 GPM, with a final production value to be determined upon ASR and production well drilling and development. These 4 future wells are expected to represent a total of 10,000 – 13,000 AF/yr of additional water supplies. The City will be initiating work on updating its Ground Water Strategic Plan to access and develop the next phase of its ASR Program expansion.

Six (6) of the City's seven (7) existing wells have ASR injection capability. The City plans for future wells to also be ASR capable. The expected future known water supply programs are listed in DWR Table 6-7.

DWR Table 6-7

Submittal Table 6-7 Retail: Expected Future Water Supply Projects or Programs Water Code Section 10631(f)							
6-17	Provide page location of narrative in the UWMP						
Name of Future Projects or Programs	Joint Project with other suppliers?		Additional Description	**Potable or Non-Potable** (after treatment if treated)	Planned Implementation Year	Planned for Use in Year Type	Expected Increase in Water Supply to Supplier (AF)
	Drop Down List (yes/no)	If Yes, Supplier Name					
Regional Conjunctive Use	Yes	Various	Regional water banking and aquifer storage and recovery projects.	Potable	2030	All Year Types	Unknown
Production/ASR Well Program Expansion	Yes		Development of new production wells with ASR capability for emergency supply resilience.	Potable	2030	Single-Dry and Multi-Dry Year	10,000-13,000 AF
PCWA-Roseville Cooperative Water Reliability Project	Yes	PCWA	Partnership with PCWA to optimize and improve existing interties to increase supply transfer volumes and reliability.	Potable	2030-2045		Not Yet Determined
NOTES: The City's groundwater wells are intended for emergency use only, as may be needed in drought conditions.							

6.13 Summary of Existing and Planned Sources of Water

The City's current planned sources of water can be summarized as such:

- The City is currently contracted with USBR and PCWA to purchase 66,000 total AF/yr of American River water diverted from Folsom Reservoir with certain restrictions (see Chapter 7).
- The City maintains groundwater wells for emergency supply. Six of the City's 7 existing active production wells possess ASR capability. The City has plans to expand its ASR Program.
- The City does not currently use storm water as a potable water offset. The City is investigating future opportunities to use stormwater in other beneficial ways.
- The City currently utilizes and has future plans to expand recycled water usage.
- The City neither currently uses nor plans to use desalinated water.
- The City maintains direct treated water interties with five surrounding jurisdictions for use in emergency or water transfer situations.

The actual 2025 water supplies for the City are summarized in DWR Table 6-8 and the future projected water supplies for the City are summarized in DWR Table 6-9.

DWR Table 6-8

Submittal Table 6-8 Retail: Water Supplies — Actual Water Code Section 10631(b)				
Water Supply	Additional Description	**2025**		
		Potable or Non-Potable (after treatment if treated)	Actual Volume (AF)	Total Entitlement (AF)
Purchased or Imported Water	US Bureau of Reclamation	Potable	29,739	32,000
Purchased or Imported Water	Placer County Water Agency	Potable	2,037	34,000
Supply from Storage		Potable	213	0
Groundwater (not desalinated)	City of Roseville owned ASR and production wells, emergency only	Potable	292	as needed, up to 18,700 AF of capacity
Recycled Water	Recycled water produced by City of Roseville WWTPs	Non-Potable	3,758	as needed
		Subtotal Potable	32,280	66,000
		Subtotal Non-Potable	3,758	0
		Total	36,038	66,000

DWR Table 6-9

Submittal Table 6-9 Retail: Water Supplies — Projected
Water Code Section 10631 (b)

Water Supply	Additional Detail on Water Supply	Potable or Non-Potable (after treatment if treated)	Projected Water Supply							
			2030		2035		2040		2045	
			Reasonably Available Volume (AF)	Total Entitlement (AF)	Reasonably Available Volume (AF)	Total Entitlement (AF)	Reasonably Available Volume (AF)	Total Entitlement (AF)	Reasonably Available Volume (AF)	Total Entitlement (AF)
Purchased or Imported Water	USBR - CVP Contract Supply	Potable	32,000	32,000	32,000	32,000	32,000	32,000	32,000	32,000
Purchased or Imported Water	PCWA - Middle Fork Project Supply	Potable	39,000	27,800	44,000	32,800	44,000	32,800	44,000	32,800
Groundwater (not desalinated)	Groundwater Wells - Emergency Supply Only	Potable	0	29,000	0	29,000	0	29,000	0	29,000
Purchased or Imported Water	PCWA - Emergency Treated Water Transfer[1]	Potable	0	11,200	0	11,200	0	11,200	0	11,200
Recycled Water	South Placer Wastewater Authority	Non-Potable	4,379	0	4,953	0	5,527	0	6,101	0
Other	Water Forum Limitation on American River Supply Diversion	Potable	-7,100	0	-7,100	0	-7,100	0	-7,100	0
Other	Artesian Project Agreement[2]	Potable	-4,460	0	0	0	0	0	0	0
		Subtotal Potable	59,440	100,000	68,900	105,000	68,900	105,000	68,900	105,000
		Subtotal Non-Potable	4,379	0	4,953	0	5,527	0	6,101	0
		Total	63,819	100,000	73,853	105,000	74,427	105,000	75,001	105,000

NOTES: Two supply limitations are shown in the table above to more accurately reflect available supply. Groundwater is used as emergency supply only and therefore are not shown as "reasonably available" but are depicted under available entitlements should they be required in emergency conditions.

[1]Similarly, this PCWA Emergency Treated Water Transfer is only available in the instance that supplies could not be drawn from Folsom Reservoir in a “dead pool” condition and that Roseville customers are implementing significant conservation measures, not in combination with the normal Middle Fork Project supplies. Therefore, in years where the PCWA Emergency Treated Water Transfer is shown, a resulting reduction in the PCWA – Middle Fork Project Supply is shown, as they are not additive. [2] The ARTESIAN Project contract is currently in an initial eight-year cycle that ends in 2032 and has the potential to move beyond that into a four-year contingency phase that would end in 2036.

6.14 Climate Change Impacts to Supply

6.14.1 Local Climate Change Outlook

The City has acknowledged and incorporated lessons learned from the last 15 years of climate related impacts to the reliability of its water supply. Beginning with the extended drought early in the previous decade, culminating with the extreme shortages experienced in 2015, Roseville has seen unprecedented curtailments of water supply and learned how important diversity of sources, diversion locations, and other options become when regular supply is interrupted.

It is expected that regional reductions in Sierra Nevada snowpack may continue and worsen in the coming years, creating uncertainty of surface water supplies – specifically the contract Roseville holds with USBR for 32,000 AF annually which can be curtailed down to 0% depending on each year's hydrologic outcome. Further, in drought years a lack of inflow to Folsom Reservoir can reduce water surface elevations significantly and quickly, with the possibility of exposing the intake facility at the dam, thereby making both the USBR and PCWA surface water contract supplies unavailable to the City.

The City's surface water supplies will be more vulnerable to declining snowpack in coming years, with potential for severe limitations in single dry years as well as periods of persistent drought. Integrating cross-seasonal groundwater management (injecting in times of excess for extraction in times of scarcity) will provide much needed resilience in the face of shifting climate conditions.

With these things in mind, the City has taken steps to strengthen its groundwater infrastructure and work toward a full operational suite of capability including beneficial use (injection) of excess wet season supplies in preparation for seasonal shortages in surface supply should it become necessary. It is important to note that Roseville is not simply planning to draw from the aquifer to offset its surface water contracts during emergencies, but rather that they are making concurrent plans to recharge this aquifer and bank supply before the need arises. It is this type of forward planning that Roseville brings to the regional stage in helping the group of agencies relying on these same supply sources to move toward a more sustainable outlook. Diversity of operations and supply sources allow a more flexible approach to each year's specific hydrologic conditions and water demand.

6.14.2 Regional Climate Studies

In 2020, the American River Basin (Basin) region conducted a climate change study in partnership with local water purveyors and the USBR. The purpose of the American River Basin Study (ARBS or Study), released in August of 2022, was to develop data, tools, analyses, identify supply-demand imbalances, and climate change adaptation strategies specific to the Basin. Under the "new normal" of a changing climate, the ARBS aims to improve the resolution of regional climate change data and to develop regionally specific mitigation and adaptation strategies. As a participant of the study, and service area contained within the Study Area, the following summarizes climate change findings pertinent for the region. More details, along with the approved study, can be found at www.pcwa.net/planning/arbs.

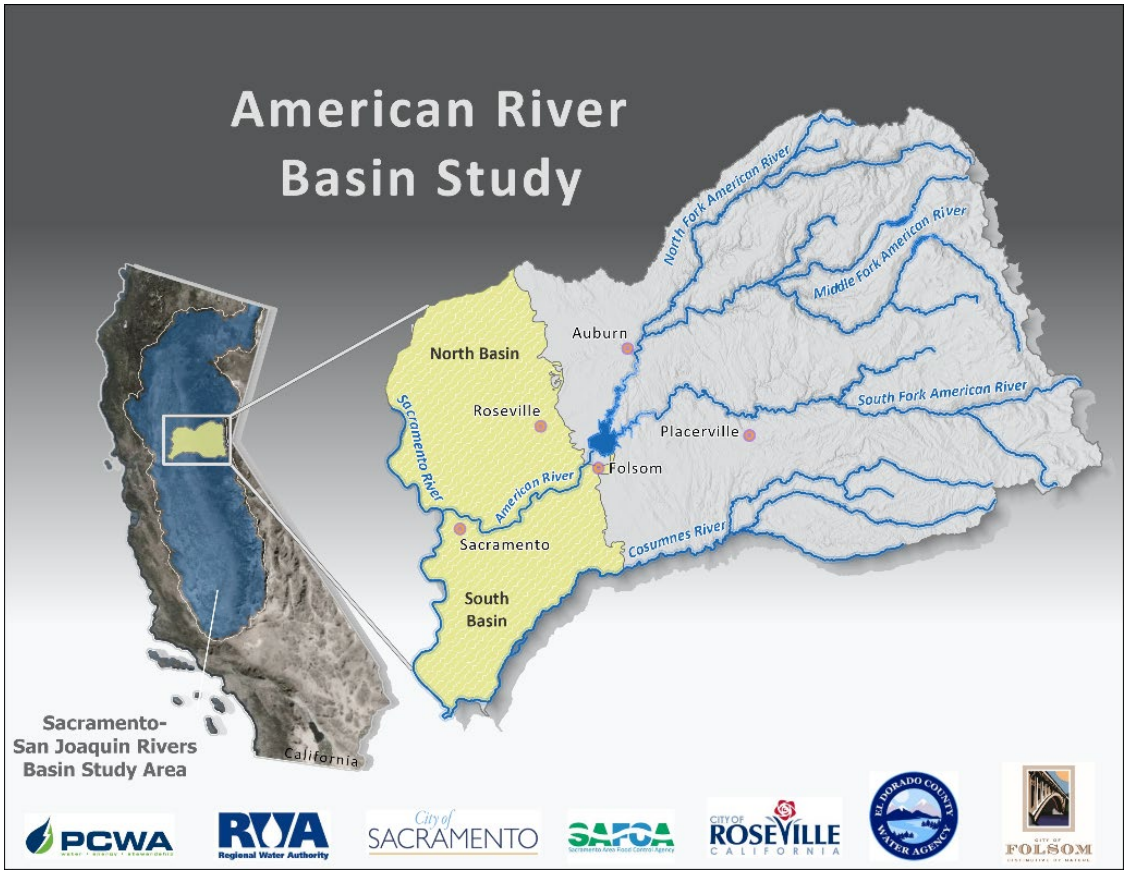


Figure 6-2 American River Basin Study Area

The Study Area is bounded by the Sierra Nevada Mountain range to the east, the Feather and Sacramento rivers to the west, the Bear River to the north, and the Cosumnes River to the south (see Figure 6-2). In addition to the American River Watershed, the Study Area encompasses the North and South American Groundwater Subbasins, and Non-Federal Partners' service areas outside of the American River Watershed.

6.14.3 Projected Future Conditions

Analysis of projected future climate conditions in the American River Basin and development of climate scenarios for the ARBS were based on an ensemble of bias-corrected and spatially downscaled climate projections[2]. This ensemble has been used by the California Water Commission and DWR as the primary source of climate projection information in several recent studies, including the Water Storage Investment Program (WSIP) and California's Fourth Climate Change Assessment (Pierce et.al., 2018). Projected future climate conditions were evaluated and characterized based on the ensemble of downscaled climate projections.

[2] Climate projections were developed using Global Climate Models from the Coupled Model Intercomparison Project Phase 5 (CMIP5) and downscaled using Localized Constructed Analogs (LOCA) method projected and coupled with two future emission scenarios (RCP 4.5 and RCP 8.5) available from Dr. David Pierce at the Scripps Institution of Oceanography.

Hydrology scenarios were used to develop streamflow inputs to CalSim 3.0, a comprehensive water resource model used by the State of California, which was then used to evaluate changes in water supplies, demands, and management throughout the CVP and State Water Project (SWP), including the Study Area. Demands for each water purveyor largely relied upon water purveyor's information provided in Regional Drought Contingency Plan/Regional Water Reliability Plan (RWRP) (Regional Water Authority, 2017) and 2015 UWMPs.

6.14.3.1 Temperature

Surface air temperatures are projected to increase steadily, with average summer temperatures increasing by approximately 7.2 degrees Fahrenheit (°F) by the end of the 21st century (see Figure 6-3), and winter temperatures increasing by 4.9°F. Projections of daily maximum and minimum temperatures suggest similar warming trends during all seasons, with maximum temperatures projected to increase as much as 7.3°F during the summer months.

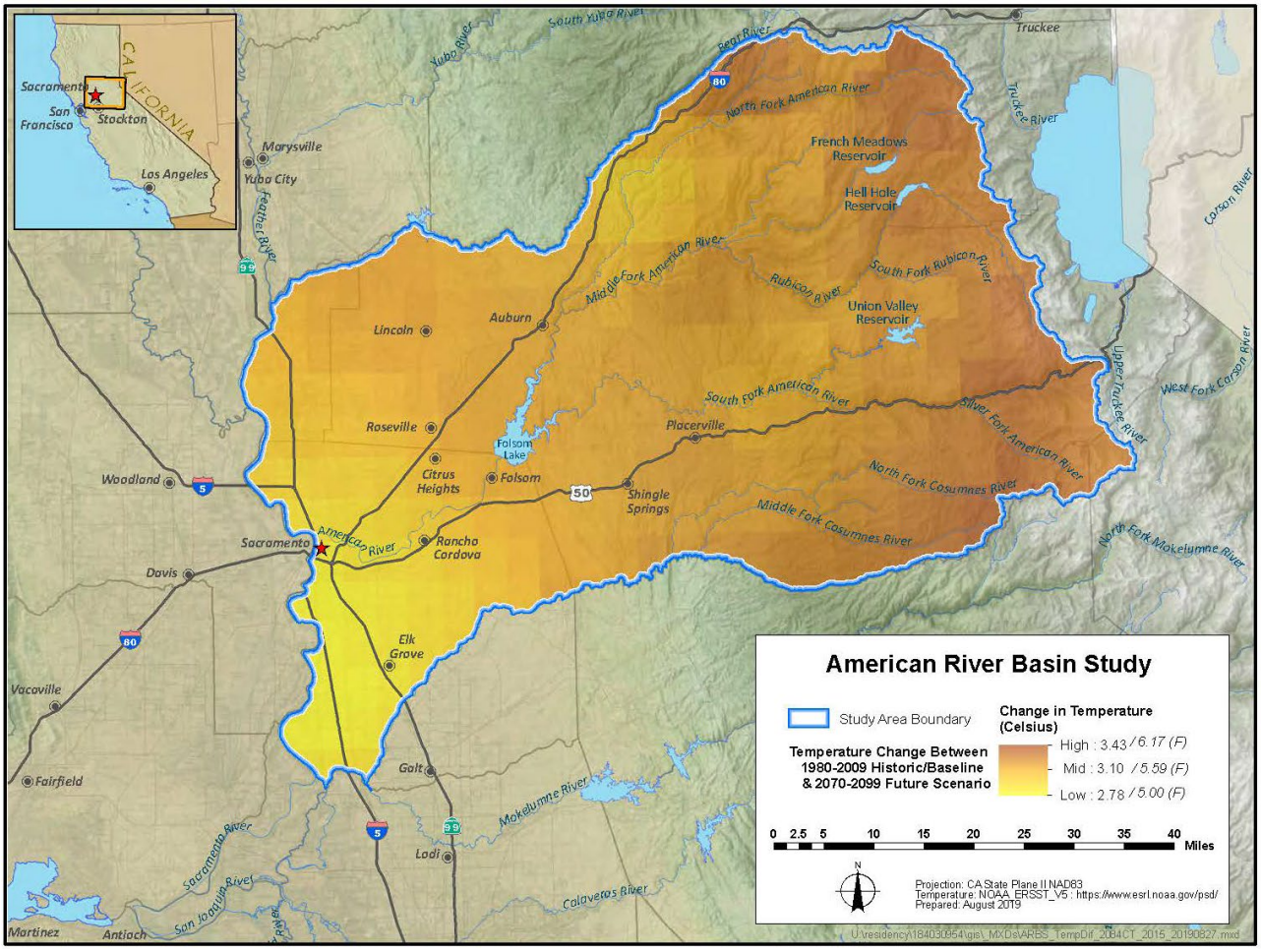


Figure 6-3 Projected Changes in July Temperature between Historical (1980-2009) and End of Century Under Central Tendency Climate Change

6.14.3.2 Precipitation

Annual precipitation projections in the ARBS show no significant trend in the median of change over the 21st century. Many of the available GCM projections show change in precipitation, but there is no consistency in the

magnitude and direction of projected change between models. Approximately half of the projections indicate a minor increase in annual precipitation and half indicate a minor decrease, highlighting the large uncertainty in future precipitation over this region. Although lacking clear trend in projected annual precipitation, by the end of the 21st century the average fall and spring precipitation is expected to decrease, with winter and summer precipitation increasing. Increasing variability is also projected in winter and fall precipitation. A summary of these projections is provided in COR Table 6-C.

COR Table 6-C Projected Change in Precipitation and Temperature Over the American River Basin Study Area Between 1980-2009 and 2070-2099

Season	Percent Change in Basin-Averaged Annual Mean Precipitation (%)	Change in Basin-Averaged Annual Mean Daily Air Temperature (°F)	Change in Annual Mean of Daily Maximum Air Temperature (°F)	Change in Annual Mean of Daily Minimum Air Temperature (°F)
Fall	-6.0	5.8	6.1	5.5
Winter	4.7	4.9	5.0	4.8
Spring	-11.9	5.8	6.3	5.1
Summer	10.4	7.2	7.3	7.0

6.14.3.3 Snowpack

Snow water equivalent (SWE) is a key indicator of water supplies in this region, where runoff is largely influenced by snowmelt. The increasing variability in precipitation combined with increases in surface air temperatures are key drivers in projections of a reduction in annual average SWE. Average SWE is forecasted to decrease by 50-85% across all climate scenarios and future time periods. In addition, areas that accumulate snow above Folsom Reservoir are also projected to have up to a 12-inch decrease in maximum snowpack by end of the century.

6.14.3.4 Evapotranspiration

Potential evapotranspiration (PET) serves as a key indicator of landscape water demands, including consumptive use by evaporation and transpiration from bare soil, water surfaces, native vegetation, and crops. Average annual PET is expected to increase 1.2 to 6.2 inches across all climate scenarios and future time periods. PET is strongly correlated with air temperature and thus expected to increase more under the hot scenarios (HD, HW) than under the warm scenarios (WD, WW).

6.14.3.5 Runoff

Watershed runoff is a direct indicator of local water supply available, as well as to statewide Central Valley Project and State Water Project systems. Climate change projections indicate a pronounced shift in the distribution of runoff from May and June to earlier in the season (December to March), implying a transition in precipitation from snow to rainfall and/or earlier snowmelt and increasing the amount of runoff during the winter months. Peak runoff is expected to shift by more than a month earlier by mid to late century (Figure 6-4). Spring runoff will decrease due to reduced winter snowpack. Similar to the precipitation scenarios, there is large uncertainty in projected runoff where the 'wet' scenarios suggest an increase in annual runoff and the 'dry' scenarios suggest a decrease in annual runoff. The projected changes in basin wide runoff range from an increase of 486 thousand acre-feet (TAF) under the warm-wet scenario to a decrease of 203 TAF under the hot-dry scenario by the end of the century.

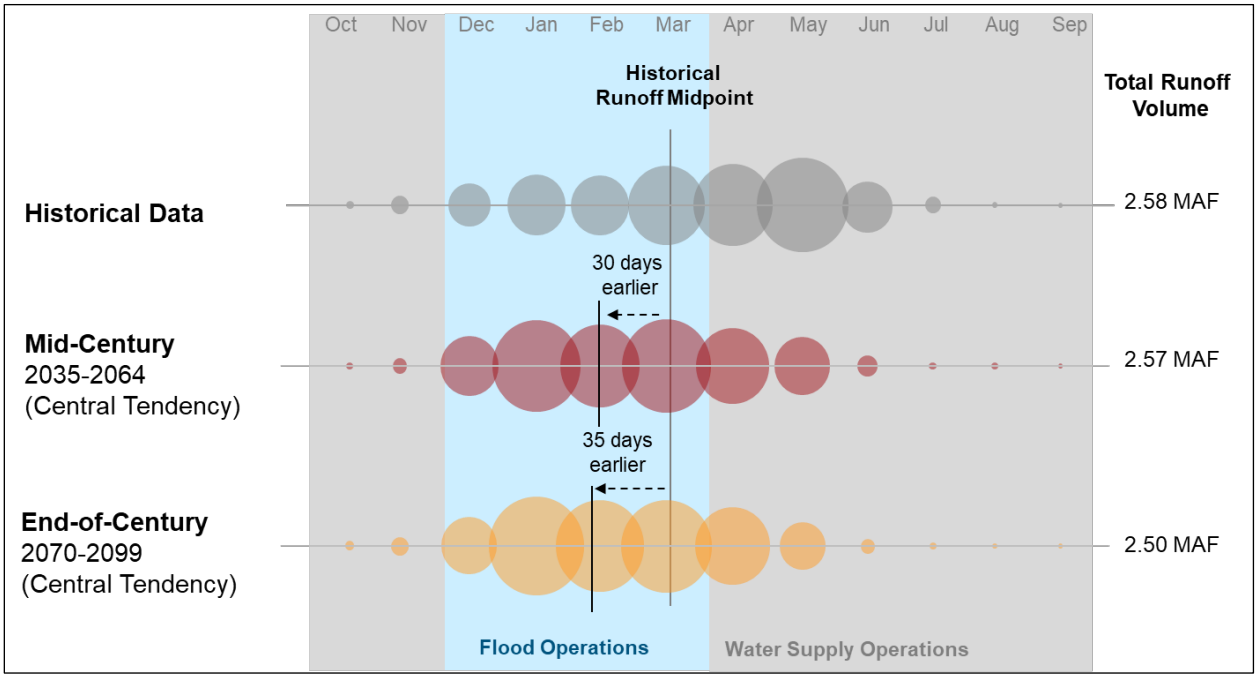


Figure 6-4 Distribution of Average Monthly Runoff for Historical Record (1922-2015) and Future Projections Under Central Tendency Climate Scenario

The change in annual climatic and hydrologic indicators between historical baseline observations (1915 to 2015) and projected future conditions for the ARBS area are listed in COR Table 6-D.

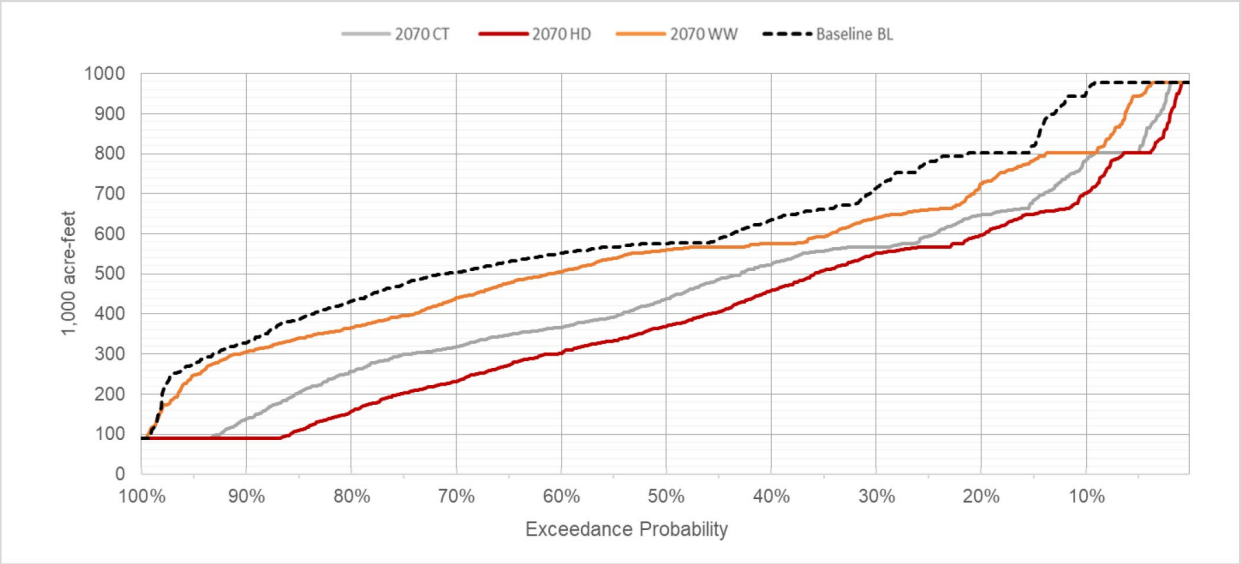
COR Table 6-D Change in Hydrologic Indicators Between Historical Observations and Projected Future Hydrology

Time Period	Climate Scenario	Precip (in)	T_{avg} (°F)	T_{max} (°F)	T_{min} (°F)	PET (in)	SWE_{avg} (in)	SWE_{max} (in)	Runoff (TAF)
1915-2015	Historical Observations	38.2	54.8	67.8	35.6	42.8	1.5	5.7	1,458
2040-2069	Warm-Wet	1.9	4	6.2	1.6	1.6	-0.7	-2.3	701
	Central Tendency	0.1	5	8.1	2.1	2.7	-0.9	-2.8	-2
	Hot-Dry	-2.8	6.2	10.4	2.7	3.7	-1.1	-3.4	-206
2055-2084	Warm-Wet	3.8	4.7	7.4	2	2	-0.8	-2.5	199
	Central Tendency	-1.1	6.3	11.1	2.6	4.1	-1.08	-3.5	-93
	Hot-Dry	-3.4	7.9	13.3	3.7	5	-1.2	-3.8	-185
2070-2099	Warm-Wet	7	5.4	8.3	2.5	1.8	-0.9	-2.9	486
	Central Tendency	-0.6	6.5	11	2.8	3.9	-1	-3.3	-54
	Hot-Dry	-4.6	8.9	15.7	4.1	6.2	-1.3	-4.3	-203

6.14.4 Water Supply Reliability

Changing climate conditions in the Sierra Nevada Mountains threaten the volume of water stored in the snowpack and the timing of runoff entering Folsom Reservoir. Consequently, they can also affect the critical role of Folsom Reservoir in the CVP Operations. Reliance on Folsom Reservoir is expected to increase commensurate with the impact of sea level rise on salinity in the Delta. Modeling of these factors has illustrated that, without operational

adjustments, Folsom Reservoir is projected to have lower end of conservation season (end of September) storage levels and approach "dead pool" more often under most future climate scenarios (see Figure 6-5). Similarly, increased early season runoff would increase flood risks along the Lower American River, leaving less water in the upper watershed available during water supply operations.



Key:
Baseline BL = Historic Conditions, 2070 CT = Central Tendency 2070 Climate Scenario, HD = Hot-Dry 2070 Climate Scenario, WW = Warm-Wet 2070 Climate Scenario

Figure 6-5 Exceedance Plot of Folsom Reservoir Storage (end of September) Under Future Climate Change

Under the 2070 level of development, the ARBS projects a supply-demand imbalance of 63 to 78 TAF/year in the Upper Basin (or Foothills Area) without further conservation or management actions. In the Lower Basin, groundwater extraction is expected to increase by 62 to 155 TAF/year to offset the projected imbalance, which would affect groundwater sustainability.

Based on the water supply and demand imbalance results, the region's water supply reliability has vulnerabilities. The ARBS assessed several adaptation portfolios for addressing the range of vulnerabilities and future supply-demand imbalances for the Study Area for regional benefits. Portfolios analyzed were:

1. Foundational Institutions
2. No Assurances for Long-term CVP Water Contract
3. Alder Creek Storage and Conservation Project
4. Sacramento River Diversion Project
5. Federally Recognized Groundwater Bank (North and South Basin)
6. Folsom Dam Raise with Groundwater Banking (South Basin)
7. Modified Flow Management Standard

The seven formulated adaptation portfolios were quantitatively evaluated using CalSim 3 to alleviate supply-demand imbalances and benefits to the region. The Study's intent was not focused on individual water-supplier's portfolio, but rather how the region could plan to increase regional reliability. The precise composition, scale,

operations, partnerships, funding, and governance to advance these project concepts will require further evaluations and coordination among Basin interests, including USBR, DWR, and SWRCB.

While climate change does have an impact on the basin, impacts are largely seen closer to the end of the century, and not within the timeline of the UWMP. Through proactive adaptation management actions, the Study highlights ways for the region to alleviate climate change impacts by the end of century. Therefore, in consideration of the timeline of the UWMP, the City of Roseville does not reflect any climate change impacts in supply and demand scenarios within this Plan.

6.15 Energy Intensity

A requirement of the CWC, pursuant to 10631.2. (a), is that suppliers must include information that can be used to calculate energy intensity of their water service. Typically, a large portion of energy consumed in municipalities is dedicated to the conveyance, treatment, distribution, and storage of water. Maintaining water systems involves numerous pumps, motors, and other equipment which run for most or all hours of the day year-round. Because the water operations consume a significant amount of energy, these facilities can be a substantial contributor to greenhouse gas emissions in communities. Understanding how much energy is consumed at the City's various facilities is critical to ensure that the City is mindfully and efficiently utilizing energy resources.

An analysis of the energy intensity, which is the amount of energy consumed per volume of potable water supplied, is provided in COR Table 6-E.

COR Table 6-E Energy Intensity Reporting

Start Date for Reporting Period	1/1/2025	Sum of Water Management Processes
End Date	12/31/2025	
Volume of Water Entering Process (AF)		31,893
Energy Consumed (kWh)		2,837,698
Energy Intensity (kWh/AF)		88.98
NOTES: Values include only water management processes that are under the City's operational control.		

The City treats and distributes the majority of its potable supply with the significant aid of gravity flow, from Folsom through the WTP and out into the distribution network throughout the City's service area. Data collected to support the analysis included in COR Table 6-E were primarily sourced from energy consumption billing data for the City's conveyance, treatment, distribution, and storage facilities for potable water. Where data was not available, estimates were made based upon similar facilities as well as calculations proportionate to the volume of water involved in the facility process. Some of the City's conveyance or distribution facilities do not have power sources or are owned by the adjacent utility and therefore do not represent consumption included in the calculation above.

Chapter 7 Water Service Reliability and Drought Risk Assessment

This chapter describes the long-term reliability of the City's water supply portfolio in all hydrologic year types through the year 2045. The City's existing and planned water management strategies and options for increasing the reliability of water supplies are also addressed. Shorter term reliability planning that may require immediate action, such as drought or a catastrophic supply interruption, is addressed in the Water Shortage Contingency Plan.

7.1 Constraints on Water Sources

This section addresses potential legal, environmental, water quality, and climatic effects on the reliability of water supply sources through the year 2045.

7.1.1 Legal Constraints

The City does not anticipate legal factors to affect the reliability of recycled water or purchased water supply within the planning horizon of this UWMP.

As of late 2025, the legal constraints governing groundwater in Roseville are primarily defined by the Sustainable Groundwater Management Act (SGMA). While the North American Subbasin is not currently adjudicated—meaning no court-mandated pumping limits exist—it is strictly regulated under the Groundwater Sustainability Plan (GSP) approved by the California Department of Water Resources (DWR) in 2023. The West Placer Groundwater Sustainability Agency (WPGSA) holds the legal authority to monitor well levels, impose fees, and limit extractions to prevent "undesirable results," such as land subsidence or chronic depletion. Currently, the City is fulfilling its legal mandate by participating in the subbasin's first five-year periodic evaluation, with a finalized update due to the state in January 2027. This evaluation focuses on refining Sustainable Management Criteria (SMC) – the specific legal thresholds for water levels and quality – and addressing DWR's recommended corrective actions. To remain compliant with these sustainability goals, Roseville utilizes its Aquifer Storage and Recovery (ASR) program as a regulated "water bank" to stabilize the aquifer, ensuring the subbasin stays on the legally required path to full sustainability by 2042.

7.1.2 Water Quality Constraints

The City's water supply portfolio consists of high-quality surface water, recycled water, and groundwater resources. In some areas of the City, iron and manganese can be found in native groundwater at concentrations both above and below the secondary taste and odor maximum contaminant level (MCL) established for these constituents. The City monitors groundwater quality closely, to ensure water provided for potable use does not exceed these standards.

7.1.3 Physical Constraints

The physical constraints of recycled water, surface water, and groundwater are discussed in the following sections.

7.1.3.1 Recycled Water

Recycled water is physically constrained by flows into the City's wastewater treatment plants and the resulting outflow of treated water. It is therefore seasonally available in higher quantities when demands are lowest during the wet season. The distribution network of "purple pipe" is also a physical constraint for this supply source, as it

only exists in the western portion of the City. Access to recycled water and its availability to offset potable needs are therefore limited by physical access to this pipe network.

7.1.3.2 Surface Water

The City has identified its Folsom Reservoir intake as a likely physical constraint on current surface water supplies. Both of the City's primary surface water contract supplies are received through this point of diversion, making it a critical facility for the reliability of Roseville's surface water supply. If the water level of Folsom Reservoir were to drop close to or below the intake elevation as it nearly did in 2015 (referred to as the "dead pool" condition) the City would not be able to divert water without additional infrastructure. The City is also able to receive supply through interties in emergency conditions; however, the WTP represents the primary diversion point. As a result of this vulnerability and lessons learned in the 2015 drought year when the "dead pool" condition became a real possibility, the City has continued to explore cooperative efforts with Folsom diversion and operation partners to duplicate or lower the intake facility to alleviate this concern. The City recently added the Woodcreek intertie with PCWA to their system and is continuing to examine options for alternate diversion points to increase reliability of physical water supply access.

The capacities of the Folsom Dam diversion, Roseville Water Treatment Plant, and distribution systems are sufficient to divert, treat, and convey the projected surface water demands. A 150 cubic feet per second (cfs) capacity limitation at the USBR pumping plant, which was agreed to based on recent pumping plant improvements, is sufficient to provide water to meet the City's needs.

7.1.3.3 Groundwater

The physical constraints on the current groundwater supply are the pumping capacities of existing wells. The total pumping capacities from all the seven wells are about 14,450 GPM, approximately 20.8 MGD. In this current phase of the ASR Program expansion, the City plans to install 4 additional wells by 2030 to provide additional groundwater supplies. Currently, the City plans to design and construct all new wells with ASR capability to allow for greater groundwater banking and extraction capability throughout seasonal variations in surface water supply availability. Many of these planned well sites have been reassessed and relocated to areas of the City with more advantageous groundwater conditions as well as hydraulics with respect to the distribution network. Installation of wells higher in the hydraulic grade of the system will allow for a greater downstream sphere of influence for this infrastructure and more flexible system operation in times of reliance on groundwater. The City will also embark on an update to its Ground Water Strategic Plan that will lay out the road map for the potential future expansion of its ASR Program.

7.1.4 Other Constraints

Aside from legal and physical constraints, several other considerations affect the availability and reliability of Roseville's water supply portfolio. The City's purchased surface water supply is subject to reductions during dry years (seasonal and climatic shortages) pursuant to the Water Forum Agreement (WFA), the USBR Operations Criteria and Plan (OCAP), and the Central Valley Project Municipal and Industrial Water Shortage Policy (CVP M&I WSP), as well as the new ARTESIAN Project Agreement. These agreements and programs are discussed in greater detail in the following subsections.

7.1.4.1 Sacramento Water Forum Agreement

The Sacramento Water Forum is a diverse group of business and agricultural leaders, citizen groups, and environmentalists, water managers, and local governments working together to balance two co-equal objectives:

1. Provide a reliable and safe water supply for the Sacramento region's long-term growth and economic health.
2. Preserve the fishery, wildlife, recreational and aesthetic values of the Lower American River.

The City, along with several other Sacramento-area water suppliers are signatory to the January 2000 Water Forum Agreement (WFA) which includes Purveyor Specific Agreements, with the most recent revisions to these agreements in 2015. The WFA provides the framework for how water resources, including surface water and groundwater supplies, would be used in the region through the year 2030. The City's Purveyor Specific Agreement includes limitations on City surface water diversions from the American River under various hydrologic conditions. The Water Forum categorized water years into three types, all of which are defined in terms of the projected March through November unimpaired flow into Folsom Reservoir. These hydrologic year types are as follows in COR Table 7-A.

COR Table 7-A Water Forum Agreement Hydrologic Year Types

Year Type	Unimpaired Flow into Folsom Reservoir
Normal/Average or Wet Year	Greater than or equal to 950,000 AF
Drier Year	Between 400,000 and 950,000 AF
Driest/Critically Dry Year	Less than 400,000 AF

Although Roseville's water contract entitlements total 66,000 AF/yr, the City's diversions from the American River are limited by the WFA in normal/wet years, drier, and driest years. In normal/wet years, the City has historically agreed to limit surface water diversions from the American River to 58,900 AF/yr. In driest or critically dry years, the maximum diversion from the American River has been limited to 39,800 AF/yr. In drier years, the City has diverted an amount between 39,800 and 58,900 AF/yr from the American River, calculated linearly depending on the unimpaired flow into Folsom Reservoir. As outlined in previous chapters, the City's supply contract with PCWA received through Folsom Reservoir has recently increased to 34,000 AF with planned subsequent increases to39,000 and 44,000 AF in 2030 and 2035, respectively. This has the effect of a proportional increase in the above limitations on diversions from the American River. Figure 7-1 depicts this change in the applicability of the WFA limitations over time.

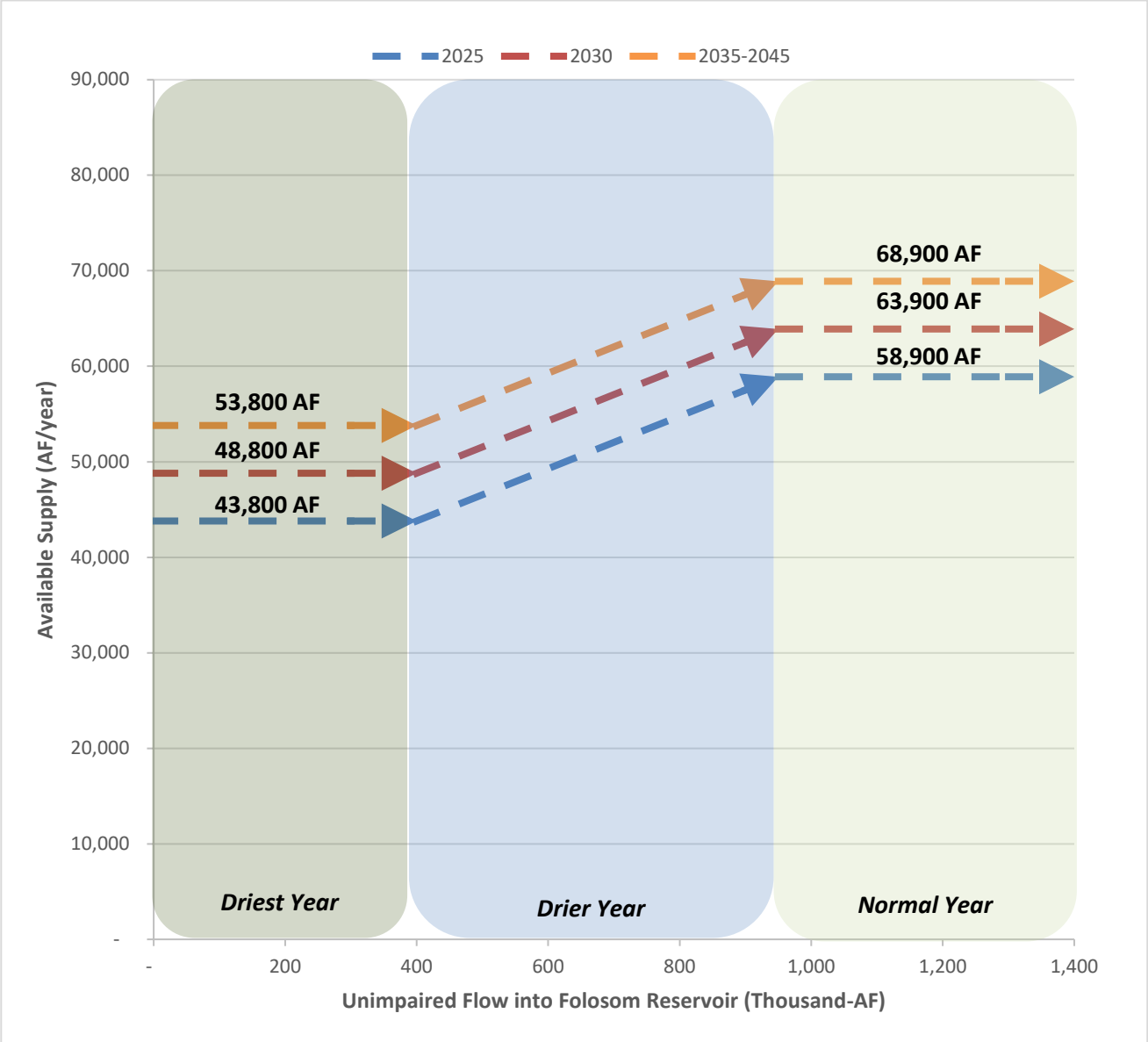


Figure 7-1 Water Forum Agreement Supply Limitations

During drier and driest years, the City also has an agreement with PCWA to release an additional 20,000 AF/yr of water down the American River on the City's behalf through re-operation of PCWA's American River Middle Fork Project (MFP). This 20,000 AF/yr of water is not part of the City's contracted supply of 66,000 AF/yr. The intent of the MFP re-operational releases during drier and driest years is to mitigate environmental impacts resulting from increased diversions above 1995 baseline levels.

7.1.4.2 USBR Operations Criteria and Plan

In addition to the WFA, the City's USBR water is also subject to restrictions as detailed in the 2004 Long Term Central Valley Project Operations and Criteria Plan (location on USBR's website). Chapter 5 of the OCAP entitled "Operations Forecasting" states that CVP allocations can be affected by:

- Forecasted reservoir inflows and Central Valley hydrologic water supply;
- Current amounts of storage in upstream reservoirs and in San Luis Reservoir;
- Projected water demands in the Sacramento Valley;
- Instream and Delta regulatory requirements;
- Annual management of 3406(b)(2) resources (related to fish and wildlife); and/or
- Efficient use of CVP-SWP export capacity through Joint Point of Diversion flexibility.

The OCAP includes a requirement that contractors be informed by USBR no later than February 15 of any possible deficiency in supplies that year. Since 1992, increasing constraints placed on operations by legislative and ESA requirements have made water delivery to CVP contractors more difficult, with recent drought conditions further impacting deliveries. Additionally, it is important to note that the City's USBR water deliveries may be curtailed purely based on downstream Delta conditions, irrespective of available upstream supply.

7.1.4.3 Central Valley Project Municipal and Industrial Water Shortage Policy

Upon a Condition of Shortage as determined by the OCAP, the CVP M&I WSP details the "incremental steps" by which available M&I water supply is allocated to the CVP water service contractors. From the November 2015 USBR news release, elements of the CVP M&I WSP include:

- Define water shortage terms and conditions for applicable CVP water service contractors, as appropriate.
- Determine the quantity of water made available to CVP water service contractors that, together with the M&I water service contractors' drought water conservation measures and other non-CVP water supplies, would assist the M&I water service contractors in their efforts to protect public health and safety during severe or continuing drought.
- Provide information to CVP water service contractors for their use in water supply planning and development of drought contingency plans.

The Final Environmental Impact Statement (EIS) describes the existing setting, alternatives for future operations under the CVP M&I WSP, and potential environmental impacts of each alternative. USBR selected Alternative 4, the Preferred Alternative, which comprises the Updated CVP M&I Water Shortage Policy developed by USBR with stakeholder input received during preparation of the Final EIS.

This decision will give USBR the greatest degree of flexibility to address CVP water service contractors' needs during a Condition of Shortage while recognizing that CVP deliveries are subject to the amount of CVP water available. The Updated CVP M&I WSP also provides clarity to the terms, conditions, and procedures of the CVP M&I WSP. A copy of the November 2015 Final Record of Decision is included in Appendix L.

7.2 Water Supply Reliability Assessment

This section addresses the reliability of the City's water supply in average, single dry, and multiple dry water years. The City uses the following water year definitions from the DWR 2025 Guidebook:

COR Table 7-B Reliability Assessment Year Type Characterization

Year Type	Description
Average or Normal Year	A single year or averaged range of years that most closely represents the average water supply available to the Supplier. The City estimates this as a year with a USBR allocation of 100%.
Single Dry Year	The year that represents the lowest water supply available to the Supplier. The City estimates this as a year with a USBR allocation of 25%.
Five Consecutive Year Drought	The driest five-year historical sequence for the supplier. [1]The City has represented this condition with a series of years in which the City receives USBR allocations of 75%, 50%, 25%, 25%, and 0%.
NOTES: [1]In this case, the City has elected to model a more severe five consecutive year drought than has historically occurred to facilitate the most robust forward planning.	

The reliability of the potable and recycled water supplies is discussed in the following sections and are compared to the projected potable and recycled water demand.

7.2.1 Potable Water Supply and Demand Assessment

This section provides an assessment of the City's expected water supply and demand for Normal Year, Single Dry Year, and Five Consecutive Year Drought scenarios, based on data available at the time of publication of this UWMP, and discusses the City plans to mitigate potential supply deficits.

The City has modeled the following year types according to historical USBR allocations which have the greatest degree of variability and impact to Roseville's supply portfolio each year. Although it is straightforward to select representative years for Normal and Single Dry, in the case of extended drought, the City has elected to analyze a more extreme sequence of USBR allocations than have actually occurred, ending with a "dead pool" scenario which has never occurred. Climate change trends make conditions such as the "dead pool" scenario more likely, which is why the City is analyzing it. This approach to the analysis is intended to be conservative and proactive given the real risk of restricted Bureau supply. The City established the following to guide this assessment:

- **Average or Normal Year:** 100% of accessible supplies are available.
- **Single Dry Year:** Lowest available supply with access to Folsom Reservoir; accessible supplies with all extreme dry year curtailments applied.
- **Five Consecutive Year Drought:** A sequence of increasingly reduced USBR allocations, culminating in a "dead pool" condition with no availability of USBR supplies or PCWA surface water supplies.

Quantification of available supplies will be thoroughly modeled in COR Table 7-D.

The City intends to use their groundwater supply only in emergency supply conditions, augmenting available supply where needed and only to the extent necessary. Under Normal Year conditions, the City does not intend to extract groundwater supplies, except for well maintenance activities, during which any volume pumped is returned to the aquifer. The City may also inject excess surface water supplies when available, resulting in a net benefit to groundwater storage. However, in a Single Dry Year or multi-year drought condition, the City will utilize their groundwater when necessary to meet demand. These assumptions and the resulting groundwater availability by year type are outlined in COR Table 7-C.

COR Table 7-C Groundwater Supply Availability by Year Type

Ground Water Supplies and Management by Year Type						
Well Data[1]	Operational Production and ASR Wells	7	11	11	11	11
	Total Annual Extraction Capacity	23,300	36,200	36,200	36,200	36,200
	Total Annual Injection Capacity	10,500	17,000	17,000	17,000	17,000
Year Type	**Assumptions**	**2025**	**2030**	**2035**	**2040**	**Buildout**
Normal	In a Normal Year, the City would typically inject and avoid extraction. The injection window is estimated to be between **3 months and 9 months** at **80% capacity** to allow for maintenance. Injection would typically be possible during the wet season when additional volume might be available.	(193)	(3,360-10,080)	(3,360-10,080)	(3,360-10,080)	(3,360-10,080)
Single Dry	In a Single Dry Year, the City would expect to pump **as needed** at **80% capacity** to allow for 20% down time for maintenance. Additional demand is included in the Single Dry Year as it is assumed to be a "call-year" for the ARTESIAN grant commitment.	0	19,629	21,664	23,511	24,979
Years 3 and 4 of a Multi-Year Drought	In the 3rd and 4th year of a 5 -Year Drought, the City would expect to pump **as needed** at **80% capacity** to allow for 20% down time for maintenance.	0	15,169	17,204	19,051	20,519
Year 5 of a Multi-Year Drought	In the 5th year of a 5 -Year Drought, the City would expect to pump at **full 80% capacity** to allow for 20% down time for maintenance.	18,700	29,000	29,000	29,000	29,000

NOTES: All values are in AF. Numbers shown in (parentheses) above are understood to be negative in value as they represent injection values not extraction.
[1]Well Data represents the total rated extraction and injection capacities of all operational wells in that year.

The number of operational production and ASR wells is projected to increase from 7 in 2025 to 11 by 2030, increasing total annual extraction capacity from 23,300 AF to 36,200 AF and total annual injection capacity from 10,500 AF to 17,000 AF. Extraction (pumping) rates are assumed at approximately 80 percent of total rated capacity to allow for maintenance. Injection rates are assumed to be 50 percent of extraction rates. Under Normal Year conditions, the City does not rely on groundwater extraction and instead prioritizes aquifer recharge, with injection occurring primarily during the wet season over a 3-to-9-month window; with net injection volumes ranging from approximately 3,360 to 10,080 AF annually. In a Single Dry Year, groundwater extraction is utilized as necessary, shown as projected supply augmentation in DWR Table 7-3. Similarly, in the third and fourth years of a multi-year drought, extraction provides additional supply shown as the projected supply augmentation in DWR Table 7-4 and DWR Table 7-5. By the fifth year of a prolonged drought, the City maximizes groundwater production, operating continuously at the assumed 80 percent capacity, producing 18,700 AF in 2025 and 29,000 AF from 2030 through buildout. Production and ASR well development is further characterized in Appendix S.

The availability of total water supply from each source by hydrologic year type is outlined in COR Table 7-D.

COR Table 7-D Potable Supply Availability by Year Type

Potable Water Supply Availability by Source and Hydrologic Year Type					
Supply Source	**2025 (current)**	**2030**	**2035**	**2040**	**2045**
NORMAL WATER YEAR[1]					
USBR	32,000	32,000	32,000	32,000	32,000
PCWA	34,000	39,000	44,000	44,000	44,000
PCWA Emergency	n/a	n/a	n/a	n/a	n/a
Water Forum Limitation	-7,100	-7,100	-7,100	-7,100	-7,100
Groundwater	0	0	0	0	0
Total Available Supply	58,900	63,900	68,900	68,900	68,900
SINGLE DRY YEAR[2]					
USBR	8,000	8,000	8,000	8,000	8,000
PCWA	25,540	25,540	25,540	25,540	25,540
PCWA Emergency	n/a	n/a	n/a	n/a	n/a
Water Forum Limitation	0	0	0	0	0
Groundwater	0	19,629	21,664	23,511	24,979
Total Available Supply	33,540	53,169	55,204	57,051	58,519
FIVE CONSECUTIVE YEAR DROUGHT - YEAR 1[3]					
USBR	24,000	24,000	24,000	24,000	24,000
PCWA	34,000	39,000	44,000	44,000	44,000
PCWA Emergency	n/a	n/a	n/a	n/a	n/a
Water Forum Limitation	0	0	0	0	0
Groundwater	0	0	0	0	0
Total Available Supply	58,000	63,000	68,000	68,000	68,000
FIVE CONSECUTIVE YEAR DROUGHT - YEAR 2[4]					
USBR	16,000	16,000	16,000	16,000	16,000
PCWA	34,000	39,000	44,000	44,000	44,000
PCWA Emergency	n/a	n/a	n/a	n/a	n/a
Water Forum Limitation	0	0	0	0	0
Groundwater	0	0	0	0	0
Total Available Supply	50,000	55,000	60,000	60,000	60,000
FIVE CONSECUTIVE YEAR DROUGHT - YEAR 3[5]					
USBR	8,000	8,000	8,000	8,000	8,000
PCWA	30,000	30,000	30,000	30,000	30,000
PCWA Emergency	n/a	n/a	n/a	n/a	n/a
Water Forum Limitation	0	0	0	0	0
Groundwater	0	15,169	17,204	19,051	20,519
Total Available Supply	38,000	53,169	55,204	57,051	58,519
FIVE CONSECUTIVE YEAR DROUGHT - YEAR 4[6]					
USBR	8,000	8,000	8,000	8,000	8,000
PCWA	30,000	30,000	30,000	30,000	30,000
PCWA Emergency	n/a	n/a	n/a	n/a	n/a
Water Forum Limitation	0	0	0	0	0
Groundwater	0	15,169	17,204	19,051	20,519
Total Available Supply	38,000	53,169	55,204	57,051	58,519
FIVE CONSECUTIVE YEAR DROUGHT - YEAR 5[7]					
USBR	0	0	0	0	0
PCWA	0	0	0	0	0
PCWA Emergency	11,200	11,200	11,200	11,200	11,200
Water Forum Limitation	0	0	0	0	0
Groundwater	18,700	29,000	29,000	29,000	29,000
Total Available Supply	29,900	40,200	40,200	40,200	40,200

NOTES: Groundwater is more significantly relied on in single dry years and years 3, 4, and 5 of a five consecutive year drought condition. Recycled water is included in this analysis with equal values on the demand and supply sides as it can be produced to meet the full amount of demand. All values are in AF.

Potable Water Supply Availability by Source and Hydrologic Year Type
[1] Normal Year defined by a 100% USBR allocation and full allotment from PCWA. [2] Single Dry Year defined by a 25% USBR allocation, 30,000 AF from PCWA, and a "call year" for the ARTESIAN Project requiring a 4,460 AF groundwater offset from surface supplies. [3] Five Year Drought – Year 1 defined by a 75% USBR allocation and full allotment from PCWA. [4] Five Year Drought – Year 2 defined by a 50% USBR allocation and full allotment from PCWA. [5] Five Year Drought – Year 3 defined by a 25% USBR allocation and 30,000AF from PCWA. [6] Five Year Drought – Year 4 defined by a 25% USBR allocation and 30,000AF from PCWA. [7] Five Year Drought – Year 5 defined by a 0% USBR allocation, and 0 AF of raw water supply from PCWA. This is otherwise known as the "dead pool condition" and represents a severe drought that renders the diversion point at Folsom Reservoir unusable. In this instance, PCWA Emergency supply of 11,200 AF of treated water via intertie would become available contingent upon both PCWA and Roseville customers attaining 20% conservation, and the City would utilize groundwater to the greatest extent possible.

7.2.2 Comparison of Supply and Demand

A comparison of projected water supply and demand during Normal, Single Dry, and Five Consecutive Year Drought conditions are included in DWR Table 7-2, DWR Table 7-3, DWR Table 7-4, and DWR Table 7-5. It is important to note that in all scenarios shown in these tables, Normal Year demands are shown without reflecting any of the passive conservation the City typically observes. No specific conservation effort to reduce demands in a drought year have been shown in these tables in order to depict the most conservative comparison of supply and demand in these year types. As shown, there is an adequate water supply in all normal years. In single dry years and in certain multiple dry years, water supply deficits may occur, and so groundwater is used to augment supply and make up the difference. In Year Five of the consecutive drought, modeling the "dead pool" condition, all available supplies are not sufficient to meet unconstrained demand, and so conservation measures will be required to balance the shortage.

7.2.3 Recycled Water Supply and Demand Comparison

The City's recycled water supply is an important resource as it is considered to be 100% reliable in all water year types. Recycled water supply has been set equal to the projected recycled water demand in these analyses because showing a surplus recycled water supply would mask potential potable water shortages. Hence, recycled water quantities are not included in supply and demand totals since the ultimate difference for those quantities is 0.

7.2.4 Total Water Supply and Demand Comparison

A comparison of projected total (potable and recycled) water supply and demand during a normal water year is included in DWR Table 7-2. As shown, there is an adequate water supply in normal years to meet demands through 2045.

DWR Table 7-2 NORMAL YEAR

Submittal Table 7-2 Retail: Normal Year Supply and Use Comparison Water Code Section 10635 (a)				
	2030 (AF)	**2035 (AF)**	**2040 (AF)**	**2045 (AF)**
Supply totals[1]	63,819	73,853	74,427	75,001
Use totals[2]	60,908	63,517	65,937	67,980
Surplus/(shortfall)	2,911	10,336	8,489	7,021

NOTES: All values are in AF. Recycled water is included on both the supply and demand sides of this calculation, in equal values that have no ultimate effect on the shortage analysis. Recycled water is produced in quantities that match current demand, as shown in DWR Table 6-4 and DWR Table 6-9.
[1]Supply Totals shown above are found in the Reasonably Available Volume column in DWR Table 6-9. Groundwater is not included here as the City will only use groundwater in drought conditions.
[2]Use Totals shown above represent "Demand" Totals and are found in DWR Table 4-2, including groundwater recharge in this year type.

A comparison of projected water supply and demand during a Single Dry Year is included in DWR Table 7-3.

DWR Table 7-3 SINGLE DRY YEAR

Submittal Table 7-3 Retail: Single Dry Year Supply and Use Comparison Water Code Section 10635(a)				
	2030 (AF)	**2035 (AF)**	**2040 (AF)**	**2045 (AF)**
Supply totals[1]	37,919	38,493	39,067	39,641
Use totals[2]	57,548	60,157	62,577	64,620
Surplus/(shortfall)	(19,629)	(21,664)	(23,511)	(24,979)
Planned WSCP Actions				
WSCP - supply augmentation benefit[3]	19,629	21,664	23,511	24,979
WSCP - use reduction savings benefit	0	0	0	0
Revised Surplus/(shortfall)	0	0	0	0

NOTES: All values are in AF. Recycled water is included on both the supply and demand sides of this calculation, in equal values that have no ultimate effect on the shortage analysis. Recycled water is produced in quantities that match current demand, as shown in DWR Table 6-4 and DWR Table 6-9.
[1]Supply Totals represent the Single Dry Year Total Available Supplies from COR Table 7-D, without groundwater as groundwater is shown separately as a Supply Augmentation, plus recycled water totals from DWR Table 6-4.
[2]Use Totals shown above represent DWR Table 4-2 "Demand" Totals. It is assumed that no groundwater recharge demand would apply in drought years.
[3]Supply Augmentation equates to the use of groundwater applied in the required amount to satisfy demand.

A comparison of projected water supply and demand during a Five Consecutive Year Drought in the long term is included in DWR Table 7-4.

DWR Table 7-4 LONG TERM FIVE CONSECUTIVE YEAR DROUGHT

Submittal Table 7-4 Retail: Multiple Dry Years Supply and Use Comparison Water Code Section 10635(a)					
		2030 (AF)	**2035 (AF)**	**2040 (AF)**	**2045 (AF)**
First year	Supply totals[1]	67,379	72,953	73,527	74,101
	Use totals[2]	57,548	60,157	62,577	64,620
	Surplus/(shortfall)	9,831	12,796	10,949	9,481
Second year	Supply totals[1]	59,379	64,953	65,527	66,101
	Use totals[2]	57,548	60,157	62,577	64,620
	Surplus/(shortfall)	1,831	4,796	2,949	1,481
Third year	Supply totals[1]	42,379	42,953	43,527	44,101
	Use totals[2]	57,548	60,157	62,577	64,620
	Surplus/(shortfall)	(15,169)	(17,204)	(19,051)	(20,519)
	Planned WSCP Actions				
	WSCP - supply augmentation benefit[4]	15,169	17,204	19,051	20,519
	WSCP - use reduction savings benefit	0	0	0	0
	Revised Surplus/(shortfall)	0	0	0	0
Fourth year	Supply totals[1]	42,379	42,953	43,527	44,101
	Use totals[2]	57,548	60,157	62,577	64,620
	Surplus/(shortfall)	(15,169)	(17,204)	(19,051)	(20,519)
	Planned WSCP Actions				
	WSCP - supply augmentation benefit[4]	15,169	17,204	19,051	20,519
	WSCP - use reduction savings benefit	0	0	0	0
	Revised Surplus/(shortfall)	0	0	0	0
Fifth year	Supply totals[1]	15,579	16,153	16,727	17,301
	Use totals[3]	57,198	59,807	62,227	64,270
	Surplus/(shortfall)	(41,619)	(43,654)	(45,501)	(46,969)
	Planned WSCP Actions				
	WSCP - supply augmentation benefit[4]	29,000	29,000	29,000	29,000
	WSCP - use reduction savings benefit[5]	12,619	14,654	16,501	17,969
	Revised Surplus/(shortfall)	0	0	0	0

NOTES: All values are in AF. Recycled water is included on both the supply and demand sides of this calculation, in equal values that have no ultimate effect on the shortage analysis. Recycled water is produced in quantities that match current demand as shown in DWR Table 6-4 and DWR Table 6-9.

[1]Supply Totals represent the Five Consecutive Year Drought Total Available Supplies from COR Table 7-D, without groundwater as groundwater is shown separately as a Supply Augmentation, plus recycled water totals from DWR Table 6-4.

[2]Use Totals shown above (First Year - Fourth Year) represent DWR Table 4-2 "Demand" Totals. It is assumed that no groundwater recharge demand would apply in drought years.

Submittal Table 7-4 Retail: Multiple Dry Years Supply and Use Comparison Water Code Section 10635(a)
[3]Use Totals shown above (Fifth Year) represent DWR Table 4-2 "Demand" Totals. It is assumed that no groundwater recharge demand or discharge to Linda Creek would apply in the "dead pool" condition represented. [4]Supply Augmentation equates to the use of groundwater applied in the required amount to satisfy demand. [5]Year 5 of the Consecutive Year Drought in the long term would require 22% use reduction in 2030, 25% in 2035, 27% in 2040, and 28% in 2045.

A comparison of projected water supply and demand during a Five Consecutive Year Drought in the short term is included in DWR Table 7-5.

DWR Table 7-5 SHORT TERM FIVE CONSECUTIVE YEAR DROUGHT

Submittal Table 7-5 Retail: Five-Year Drought Risk Assessment Water Code Section 10635(b)(3)	
2026	**Total**
Total Water Use (AF)[1]	40,186
Total Supplies (AF)[2]	61,882
Surplus/Shortfall w/o WSCP Action	21,696
2027	**Total**
Total Water Use (AF)	44,526
Total Supplies (AF)[2]	54,006
Surplus/Shortfall w/o WSCP Action	9,480
2028	**Total**
Total Water Use (AF)[1]	48,867
Total Supplies (AF)[2]	42,131
Surplus/Shortfall w/o WSCP Action	(6,736)
Planned WSCP Actions	
WSCP - supply augmentation benefit (AF)[4]	6,736
WSCP - use reduction savings benefit (AF)	0
Revised Surplus/(shortfall)	0
2029	**Total**
Total Water Use (AF)[1]	53,207
Total Supplies (AF)[2]	42,255
Surplus/Shortfall w/o WSCP Action	(10,952)
Planned WSCP Actions	
WSCP - supply augmentation benefit (AF)[4]	10,952
WSCP - use reduction savings benefit (AF)	0
Revised Surplus/(shortfall)	0
2030	**Total**
Total Water Use (AF)[3]	57,198
Total Supplies (AF)[2]	15,579

Submittal Table 7-5 Retail: Five-Year Drought Risk Assessment Water Code Section 10635(b)(3)	
Surplus/Shortfall w/o WSCP Action	(41,619)
Planned WSCP Actions	
WSCP - supply augmentation benefit (AF) [4]	29,000
WSCP - use reduction savings benefit (AF)[5]	12,619
Revised Surplus/(shortfall)	0

NOTES: All values are in AF. Recycled water is included on both the supply and demand sides of this calculation, in equal values that have no ultimate effect on the shortage analysis. Recycled water is produced in quantities that match current demand, as shown in DWR Table 6-4 and DWR Table 6-9.
[1]Total Water Use shown above (2026 - 2029) represent DWR Table 4- 1 and DWR Table 4-2 "Demand" Totals, excluding Groundwater Recharge, linearly interpolated between years 2025 and 2030 as shown in Appendix T.
[2]Total Supplies shown above represent the Five Consecutive Year Drought Total Available Supplies from COR Table 7-D, without groundwater as groundwater is shown separately as a Supply Augmentation, plus recycled water totals from DWR Table 6-4, linearly interpolated between years 2025 and 2030 as shown in Appendix T.
[3]Total Water Use shown above represents the DWR Table 4-2 "Demand" Total for 2030. It is assumed that no groundwater recharge demand or discharge to Linda Creek would apply in the "dead pool" condition represented.
[4]Supply Augmentation equates to the use of groundwater applied in the required amount to satisfy demand.
[5]Year 5 of the Consecutive Year Drought in the short term would require 22% use reduction.

As stated in DWR Table 7-2, there is sufficient supply to meet demands in Normal Years through 2045. In Single Dry Years and some extended drought years, shortages do occur. The remaining deficits shown will be mitigated by use of groundwater as supply augmentation and potable water conservation measures implemented as part of the Water Shortage Contingency Plan (WSCP).

7.2.5 Deficit Mitigation

Depending on the surface water supply available from USBR, and in accordance with the WFA, deficits in potable water supply may occur in a single dry year or the latter stages of an extended drought condition. As shown in DWR Table 7-4 and DWR Table 7-5, the greatest potential deficit between available supply and demand would occur in Year 5 of a Five Consecutive Year Drought condition.

Strategy to alleviate deficiencies shown above is indicated in the Planned WSCP Actions portion of DWR Table 7-3, DWR Table 7-4, and DWR Table 7-5. The volume of water savings resulting from potable water demand reductions are shown in these tables.

The City will determine the needed balance between water conservation and groundwater pumping on a case-by-case basis consistent with the City's Municipal Code. The City also continues to plan for and analyze opportunities for water supply projects or exchanges that would increase the reliability of the surface water supplies diverted from the American River.

7.3 Regional Supply and Reliability

All water consumed by the City comes from local supply sources. No water is imported from other regions, nor does the City anticipate importing water from other regions throughout the UWMP planning period. However,

the City is actively engaged in multiple planning projects and coordination intended to strengthen water supply reliability throughout the Sacramento area, in addition to long-term water storage projects like the future Sites Reservoir. Projects like Sites will not provide direct benefit in terms of water supply to Roseville; however, as a regional project it promises to strengthen the Northern California water portfolio as a whole, providing benefit to all who operate within this sphere. The City is a committed regional partner in working to solve supply shortage issues before they become a critical reality, with climate change and increasingly limited supply sources at the crux of the issue. The City will continue these efforts into the future and work with its partner agencies to find the best path forward.

Chapter 8 Water Shortage Contingency Plan

Following the severe drought of 2012-2016, the State of California Legislature sought to expand the water shortage contingency analysis under former law and mandated that a Water Shortage Contingency Plan (WSCP) be adopted by suppliers. A copy of the WSCP is provided in Appendix M.

WSCP Table 4, WSCP Table 7, and WSCP Table 6 in the Water Shortage Contingency Plan correspond with DWR Table 8-1, DWR Table 8-2, and DWR Table 8-3 respectively and are provided below.

DWR Table 8-1

Submittal Table 8-1: Cross-reference for Standard vs Supplier Shortage Levels
Water Code Section 10632(a)(3)(B)

Standard Shortage Levels	Percent Shortage Range	Suppliers Shortage Levels	Percent Shortage Range
1	Up to 10%	Basic Stage/Stage One Drought	City's water supply is adequate to meet all projected demands/City's water supply is adequate to meet 90% of projected demands
2	Up to 20%	Stage Two Drought	City's water supply is adequate to meet 80% of projected demands
3	Up to 30%	Stage Three Drought	City's water supply is adequate to meet 70% of projected demands
4	Up to 40%	Stage Four Drought	City's water supply is adequate to meet 60% of projected demands
5	Up to 50%	Stage Five Drought	City's water supply is adequate to meet 50% or less of projected demands
6	>50%	Stage Five Drought	City's water supply is adequate to meet 50% or less of projected demands

NOTES: Water shortage stages are defined in Chapter 14.09 of the City's Municipal Code.

DWR Table 8-2

Submittal Table 8-2 Retail: Supply Augmentation and Other Actions Water Code Section 10632(a)(4)(A), (C), and (E)				
Yes	Is the Supplier completing this table using the standard six levels? (yes/no)			
Shortage Level	Supply Augmentation Methods and Other Actions by Water Supplier	How much is this going to reduce the shortage gap?		Additional Explanation or Reference
		Volume or Percentage	Shortage Gap Reduction Value (AF)	
3	Stored Emergency Supply	Percentage	0-10%	Groundwater Pumped
4	Stored Emergency Supply	Percentage	0-20%	Groundwater Pumped
5 & 6	Stored Emergency Supply	Percentage	0-30%	Groundwater Pumped

DWR Table 8-3

Submittal Table 8-3 Retail: Demand Reduction Actions Water Code Section 10632(a)(4)(B), (D), and (E)					
Yes	Is the Supplier completing this table using the standard six levels? (yes/no)				
Shortage Level	Demand Reduction Actions	How much is this going to reduce the shortage gap?		Additional Explanation or Reference	Penalty, Charge, or Other Enforcement?
		Volume or Percentage	Shortage Gap Reduction Value (AF)		
1	Landscape - Restrict or prohibit runoff from landscape irrigation	Percentage	0%	14.09.030(A)	Yes
1	Landscape - Limit landscape irrigation to specific times	Percentage	0%	14.09.020(A)(1); No person shall use, or cause to be used, any city water for landscape irrigation between the hours of 10:00 a.m. and 8:00 p.m., unless the city manager, or designee provides prior written consent to a different time limitation. A waiver may be granted for turf areas if the landscape contains too many irrigation valves to complete an irrigation event within the watering window.	Yes
1	Landscape - Limit landscape irrigation to specific days	Percentage	0%	14.09.060(E)(2); Irrigation of new landscaping shall be allowed on any day of the week for a period of 30 days after the new landscaping is planted, unless the city manager, or designee, provides prior written consent to extend this time period based on plant type and the season when the new landscaping is planted. After the 30 days, irrigation days and run times should be decreased to settings appropriate for an established landscape.	Yes
1	Landscape - Prohibit certain types of landscape irrigation	Percentage	0%	14.09.030(E); Prohibit operation of an irrigation system that applies water to an impervious surface or that is in disrepair.	Yes
1	Landscape - Other landscape restriction or prohibition	Percentage	0%	14.09.030(G); Prohibit irrigation of landscaping during rainfall or 48 hours after a measurable rain event.	Yes
1	Landscape - Other landscape restriction or prohibition	Percentage	0%	14.090.060(E)(1); All landscaping installed in the City of Roseville shall comply with the water efficient landscape requirements adopted by resolution of the city council.	Yes

Submittal Table 8-3 Retail: Demand Reduction Actions Water Code Section 10632(a)(4)(B), (D), and (E)					
Yes	Is the Supplier completing this table using the standard six levels? (yes/no)				
Shortage Level	Demand Reduction Actions	How much is this going to reduce the shortage gap?		Additional Explanation or Reference	Penalty, Charge, or Other Enforcement?
		Volume or Percentage	Shortage Gap Reduction Value (AF)		
1	Other water feature or swimming pool restriction	Percentage	0%	14.09.030(C); Prohibit maintaining ponds, waterways, decorative basins, or swimming pools without water recirculation devices.	Yes
1	Other water feature or swimming pool restriction	Percentage	0%	14.09.030(D); Prohibit backwashing so as to discharge to waste swimming pools, decorative basins or ponds in excess of the frequency necessary to ensure the healthful condition of the water or in excess of that required by standards for professionally administered maintenance or to address structural considerations, as determined by the city manager, or designee.	Yes
1	Other water feature or swimming pool restriction	Percentage	0%	14.09.030(H); Prohibit overfilling of any pond, pool or fountain which results in water discharging to waste.	Yes
1	Other - Customers must repair leaks, breaks, and malfunctions in a timely manner	Percentage	0%	14.09.060(C)	Yes
1	Other - Require automatic shut of hoses	Percentage	0%	14.09.060(B); Free-flowing hoses for all uses are prohibited. Automatic shut-off devices shall be attached on any hose or filling apparatus in use.	Yes
1	Other	Percentage	0%	14.09.030(B); Prohibit water fixtures (including, but not limited to, toilets, faucets, shower heads) or heating or cooling devices to leak or run to waste.	Yes
1	Other	Percentage	0%	14.09.030(A); Prohibit water use for washing in excess of that necessary to wash, wet or clean the dirty or dusty object, such as an automobile, sidewalk, or parking area, flows to waste.	Yes

Submittal Table 8-3 Retail: Demand Reduction Actions Water Code Section 10632(a)(4)(B), (D), and (E)					
Yes	Is the Supplier completing this table using the standard six levels? (yes/no)				
Shortage Level	Demand Reduction Actions	How much is this going to reduce the shortage gap?		Additional Explanation or Reference	Penalty, Charge, or Other Enforcement?
		Volume or Percentage	Shortage Gap Reduction Value (AF)		
1	Other	Percentage	0%	14.09.060(A); Water shall be confined to the user's property and shall not be allowed to run off to adjoining properties, or to the roadside or to the gutter. Care shall be taken not to water past the point of saturation.	Yes
1	Other	Percentage	0%	14.09.060(F); All site reviews shall include an evaluation of using recycled water. Recycled water shall be required if economically feasible.	Yes
1	Landscape - Limit landscape irrigation to specific days	Percentage	1%	14.09.070(C) and 14.09.070(D); Residential and non-residential water users shall be permitted to irrigate with city water according to the schedule provided in 14.09.070(C) and 14.09.070(D), respectively.	Yes
1	Landscape - Other landscape restriction or prohibition	Percentage	1%	14.09.070(G); City park sites shall, as an aggregate, reduce usage up to 10 percent.	Yes
1	CII - Restaurants may only serve water upon request	Percentage	1%	14.09.070(I)	Yes
1	Other - Prohibit use of potable water for washing hard surfaces	Percentage	1%	14.09.070(H); Washing streets, parking lots, driveways, sidewalks or buildings, except as necessary for health or sanitary purposes or pursuant to a term or condition in a permit issued by a state or federal agency, is prohibited.	Yes
1	Other	Percentage	10%	14.09.070(B); Residential users and non-residential users shall reduce water usage up to 10 percent.	Yes
2	Landscape - Other landscape restriction or prohibition	Percentage	1%	14.09.070(C); City park sites shall, as an aggregate, reduce usage up to 20 percent.	Yes

Submittal Table 8-3 Retail: Demand Reduction Actions Water Code Section 10632(a)(4)(B), (D), and (E)					
Yes	Is the Supplier completing this table using the standard six levels? (yes/no)				
Shortage Level	Demand Reduction Actions	How much is this going to reduce the shortage gap?		Additional Explanation or Reference	Penalty, Charge, or Other Enforcement?
		Volume or Percentage	Shortage Gap Reduction Value (AF)		
2	Other - Prohibit vehicle washing except at facilities using recycled or recirculating water	Percentage	1%	14.09.080(H)	Yes
2	Other	Percentage	10-18%	14.09.080(B); Residential users and non-residential landscapes shall reduce water usage up to 20 percent.	Yes
3	Landscape - Limit landscape irrigation to specific days	Percentage	1%	14.09.090(D) and 14.09.090(E); Residential and non-residential water users shall be permitted to irrigate with city water according to the schedule provided in 14.09.090(D) and 14.09.090(E), respectively.	Yes
3	Landscape - Other landscape restriction or prohibition	Percentage	1%	14.09.090(C); City park sites shall, as an aggregate, reduce usage up to 30 percent.	Yes
3	Landscape - Other landscape restriction or prohibition	Percentage	1%	14.09.090(H); New or expanded landscaping is limited to drought-tolerant trees, shrubs, and groundcover and be irrigated using a low volume irrigation system. No new turf shall be planted, hydroseeded, or laid, unless prior written consent is received from the city manager. Low volume irrigation means the application of irrigation water at low pressure through a system of tubing or lateral lines and low-volume emitters such as drip or drip lines irrigating at less than two gallons per hour. These systems are specifically designed to apply small volumes of water slowly at or near the root zone of plants.	Yes

Submittal Table 8-3 Retail: Demand Reduction Actions Water Code Section 10632(a)(4)(B), (D), and (E)					
Yes	Is the Supplier completing this table using the standard six levels? (yes/no)				
Shortage Level	Demand Reduction Actions	How much is this going to reduce the shortage gap?		Additional Explanation or Reference	Penalty, Charge, or Other Enforcement?
		Volume or Percentage	Shortage Gap Reduction Value (AF)		
3	Water Features - Restrict water use for decorative water features, such as fountains	Percentage	1%	14.09.090(I)	Yes
3	Pools - Allow filling of swimming pools only when an appropriate cover is in place.	Percentage	1%	14.09.090(L)	Yes
3	Other - Prohibit use of potable water for construction and dust control	Percentage	1%	14.09.090(K)	Yes
3	Other	Percentage	1%	14.09.090(I); Except where recycled water is used, golf courses shall reduce irrigation up to 30 percent.	Yes
3	Other	Percentage	18-27%	14.09.090(B). Residential users and non-residential landscapes are to reduce water usage up to 30 percent.	Yes
4	Landscape - Limit landscape irrigation to specific days	Percentage	2%	14.09.100(D) and 14.09.100(E); Residential and non-residential water users shall be permitted to irrigate with city water according to the schedule provided in 14.09.100(D) and 14.09.100(E), respectively.	Yes
4	Landscape - Other landscape restriction or prohibition	Percentage	1%	14.09.100(C); City park sites shall, as an aggregate, reduce usage up to 40 percent.	Yes

Submittal Table 8-3 Retail: Demand Reduction Actions Water Code Section 10632(a)(4)(B), (D), and (E)					
Yes	Is the Supplier completing this table using the standard six levels? (yes/no)				
Shortage Level	Demand Reduction Actions	How much is this going to reduce the shortage gap?		Additional Explanation or Reference	Penalty, Charge, or Other Enforcement?
		Volume or Percentage	Shortage Gap Reduction Value (AF)		
4	Landscape - Other landscape restriction or prohibition	Percentage	1%	14.09.100(H); Installation of any new landscaping is prohibited unless irrigation is provided through connection to an active recycled water system. In the case of new construction, the city's building official will issue a temporary final upon completion of the structural development of the property. When the city has returned to a stage two drought restriction, landscaping installation can be completed, and a building final will become available upon inspection by the city.	Yes
4	Other water feature or swimming pool restriction	Percentage	1%	14.09.100(K); Existing pools shall not be emptied and refilled using city water unless required for health or safety reasons until the city has returned to a stage two drought restriction. Pools may be re-filled only to the extent necessary to replace evaporative losses.	Yes
4	Other - Prohibit vehicle washing except at facilities using recycled or recirculating water	Percentage	1%	14.09.100(J); Automobiles or equipment shall be washed only at commercial establishments that recycle their water or by equipment and means that separates debris and recycles wash water for continual use.	Yes
4	Other	Percentage	1%	14.09.100(I); Except where recycled water is used, golf courses shall reduce irrigation up to 40 percent.	Yes
4	Other	Percentage	0%	14.09.100(L); No commitments shall be made to provide water service as part of any new land use entitlement (general plan, specific plan or amendments requesting new water allocations) until the city has returned to a stage two drought restriction. Currently approved specific plans with accompanying development agreements and projects or properties that have received water allocations in advance of full entitlements may be issued building permits so long as they comply with the remainder of this chapter.	Yes
4	Other	Percentage	27-35%	14.09.100(B); Residential users and non-residential landscapes are to reduce water usage up to 40 percent.	Yes

Submittal Table 8-3 Retail: Demand Reduction Actions Water Code Section 10632(a)(4)(B), (D), and (E)					
Yes	Is the Supplier completing this table using the standard six levels? (yes/no)				
Shortage Level	Demand Reduction Actions	How much is this going to reduce the shortage gap?		Additional Explanation or Reference	Penalty, Charge, or Other Enforcement?
		Volume or Percentage	Shortage Gap Reduction Value (AF)		
5 & 6	Landscape - Other landscape restriction or prohibition	Percentage	5%	14.09.110(C); Except where recycled water is used, water users shall reduce landscape irrigation as follows: 1. Turf shall not be irrigated. 2. Trees and shrubs may be irrigated with a properly functioning low volume landscape irrigation system or by use of a handheld hose equipped with a nozzle capable of completely shutting off the flow of water except when positive action or pressure to maintain the flow of water is applied. Low volume irrigation means the application of irrigation water at low pressure through a system of tubing or lateral lines and low-volume emitters such as drip or drip lines irrigating at less than two gallons per hour. These systems are specifically designed to apply small volumes of water slowly at or near the root zone of plants.	Yes
5 & 6	Other water feature or swimming pool restriction	Percentage	1%	14.09.110(D); Filling new or existing swimming pools and spas with city water is prohibited.	Yes
5 & 6	Other	Percentage	33%	14.09.110(B); Residential users are to reduce water usage up to 50 percent.	Yes
NOTES: References in the 'Additional Explanation or Reference' column are from sections of the City's Water Conservation and Drought Mitigation Ordinance corresponding to demand reduction action. Explanations are provided as needed. For each successive drought level all preceding restrictions shall continue in place, except to the extent they are replaced by more restrictive conditions.					

Chapter 9 Demand Management Measures

This chapter describes the City's historical and existing water conservation program, status of implementation of Demand Management Measures (DMMs), and projected future conservation implementation. The CWC requires that the UWMP include a comprehensive description of historical, current, and projected water conservation programs.

> *CWC 10631 (e) Provide a description of the supplier's water demand management measures. This description shall include all of the following:*
>
> *(1) (A) For an urban retail water supplier, as defined in Section 10608.12, a narrative description that addresses the nature and extent of each water demand management measure implemented over the past five years. The narrative shall describe the water demand management measures that the supplier plans to implement to achieve its water use targets pursuant to Section 10608.20.*
>
> *(B) The narrative pursuant to this paragraph shall include descriptions of the following water demand management measures:*
>
> *(i) Water waste prevention ordinances.*
>
> *(ii) Metering.*
>
> *(iii) Conservation pricing.*
>
> *(iv) Public education and outreach.*
>
> *(v) Programs to assess and manage distribution system real loss.*
>
> *(vi) Water conservation program coordination and staffing support.*
>
> *(vii) Other demand management measures that have a significant impact on water use as measured in gallons per capita per day, including innovative measures, if implemented.*

In previous UWMPs, a substantial amount of data was required to document a water supplier's progress in implementing fourteen specific DMMs. In 2014, Assembly Bill 2067 simplified, clarified, and updated reporting requirements for DMMs. Starting with the 2015 UWMP, focus had turned away from detailed descriptions of each of the fourteen DMMs and turned to water conservation measures that were being implemented to achieve compliance with SB X7-7. Since the City met the SBX7-7 water use target in 2020 as discussed in Chapter 5, the focus is back on detailed descriptions of the now six (plus an "other" category) DMMs. A narrative description of the status of the DMMs is required while detailed data is not. Members of the CUWCC may include their reporting in the UWMP, but a narrative is also required.

9.1 Making Conservation a California Way of Life

The "Making Conservation a California Way of Life" regulatory framework establishes long-term urban water use efficiency standards for retail water suppliers, including the City of Roseville. The framework implements Senate Bill 606 (2018) and Assembly Bill 1668 (2018) and is intended to improve water supply reliability and drought resilience under conditions of increasing hydrologic variability.

The implementing regulations, adopted in 2022 and codified in California Code of Regulations, Title 23, Section 965 et seq., require urban retail water suppliers to calculate and annually report an Urban Water Use Objective

(UWUO). The UWUO represents a supplier-specific water use efficiency target based on state-defined standards and local service area characteristics.

The UWUO is calculated as the sum of efficient water use standards for four end-use sectors: indoor residential use, outdoor residential use, commercial, industrial, and institutional (CII) landscapes with dedicated irrigation meters, and distribution system water loss.

Beginning in 2023, the City of Roseville began annual calculation and reporting of its UWUO in accordance with State requirements. Compliance is evaluated by comparing actual potable water use to the calculated UWUO on an annual basis. Urban retail water suppliers are required to meet their UWUO targets by 2027, with enforcement provisions phased in thereafter.

The UWUO framework operates in coordination with other State planning requirements, including the Urban Water Management Plan (UWMP), Water Shortage Contingency Plan (WSCP), and Annual Water Supply and Demand Assessment (AWSDA). UWMP updates also incorporate implementation of water loss standards established by the California State Water Resources Control Board.

The City implements a range of demand management measures to support progress toward UWUO compliance, including water use efficiency programs, public education and outreach, and rebate programs promoting installation of water-efficient indoor and outdoor technologies. The City also continues to invest in system maintenance, leak detection, and water loss control.

The City will continue to monitor annual performance relative to its UWUO and adjust demand management strategies as needed to ensure compliance with State requirements and support long-term water supply reliability.

9.2 Demand Management Measures

The six DMMs required to be discussed in the 2025 UWMP include the following:

- Water waste prevention ordinances;
- Metering;
- Conservation pricing;
- Public Education and outreach;
- Programs to assess and manage distribution system real loss; and
  Water conservation program coordination and staffing support.

For each DMM, the current program is described, followed by a description of how the DMM was implemented over the previous five years.

9.2.1 Water Waste Prevention Ordinances

The City currently restricts water waste within its service area. Roseville Municipal Code Chapter 14.09, Water Conservation Ordinance (Appendix N), defines water waste and associated penalties of continued infractions. Per the ordinance, customers in violation are provided a series of notifications at one-week intervals: first a courtesy notice, second an administrative warning, and finally a formal citation. If the situation is not remedied by the time

specified in the formal citation, additional measures can be taken to enforce compliance. These measures include fines, water restrictions, low flow devices, or discontinued service. In addition, the City may waive the courtesy notice and administrative warning in times of drought.

To enforce the Water Waste Ordinance, the City dedicates seven full-time field technicians to patrol for water waste as part of their normal job duties. The City has also implemented new AMI (see Section 9.1.2) to support the field technicians in identifying leaks or misuse of water during normal work and non-work hours. In addition to patrols by City staff and the AMI, the City has an online reporting mechanism that allows customers to report observed water waste anonymously. Customers can visit www.roseville.ca.gov/waterwaste and submit an electronic form, which is then further investigated by City staff.

Implementation of this DMM is ongoing and expected to help minimize nonessential uses of water so that the water is available for human consumption, sanitation, and fire protection.

9.2.2 Metering

A meter retrofit program was developed and implemented from 2001 to 2011 as a foundational step toward improving water use accountability and long-term resource management. Implementation of metered rates began immediately on all residential metered connections established after January 1, 2002, with the remaining retrofitted homes transitioned in large blocks as retrofits were completed. To support a smooth transition and promote customer understanding, residents were provided with detailed water use information for a full year prior to the initiation of volumetric billing, allowing them to adjust consumption habits and better anticipate billing changes.

Building on these earlier efforts, the City completed a multi-year water meter upgrade project in 2023, marking a major advancement in water system modernization. This initiative involved replacing aging meters with industry-standard smart meters and deploying a comprehensive Advanced Metering Infrastructure (AMI) system. The AMI system uses a secure, encrypted, two-way wireless communication network that enables automatic meter reading and real-time transmission of usage data and system alerts. Full deployment began in July 2023 and was completed ahead of schedule, reflecting the City's commitment to efficiency and innovation.

This upgraded infrastructure significantly enhances the City's ability to manage its water system. By eliminating the need for manual meters to be manually read, it reduces operational costs, improves worker safety, and allows staff to focus on higher-value system management activities. The system also provides near real-time data on water consumption, enabling faster identification of leaks, unusual usage patterns, and potential service issues. In turn, this supports more proactive maintenance, quicker response times, and reduced water loss across the system.

From a customer perspective, the AMI system represents a substantial improvement in transparency and service. Customers benefit from more accurate and timely billing, as well as access to detailed consumption data that can help them better understand and manage their water use. The availability of high-resolution usage information supports informed decision-making and encourages conservation, particularly during periods of drought or water supply constraints.

The metering DMM, with the support of AMI, further strengthens these capabilities by providing precise and actionable water use data to both the customer and the City. Higher-than-normal comparative usage automatically triggers outreach to customers who may be experiencing leaks or inefficiencies, promoting early intervention and minimizing potential damage or waste. Additionally, the system enhances public awareness of efficient water use practices through data-driven insights and targeted communication.

Overall, the City's investment in metering and AMI technology represents a comprehensive approach to water management – improving operational efficiency, enhancing customer engagement, supporting conservation goals, and ensuring the long-term sustainability of the community's water resources.

9.2.3 Conservation Pricing

As a component of its meter retrofit program, the City adopted conservation pricing for water on all metered accounts from 2011 through 2015. Later, and to comply with Proposition 218 requirements, the City transitioned to a per-use, uniform billing rate structure in February 2016. Now, with the implementation of the AMI (see Section 9.1.2), the City and customers are able to see smarter water use billing information. A complete list of service charges, excess water use charges, and water rates are included in Roseville Municipal Code Sections 14.08.090 Service Charges for Metered Service through 14.08.100 Flat Water Rates. This information is included in Appendix O.

Implementation of this DMM ensures water customers pay the true cost of water. The City regularly analyzes this cost of water production, capital improvement project needs, level of service requirements and other costs of operating the water system during regular rate studies. Where adjustments need be made, extensive public education efforts are undertaken to maintain transparency of utility operations and funding to support any required rate changes. Sufficient revenue will continue to be available to fund water system operations, maintenance, and water conservation programs.

9.2.4 Public Education and Outreach

As part of outreach and engagement efforts, the City of Roseville has a dedicated team focused on informing, educating, and engaging customers to promote water-efficient behaviors and real action. This includes working with regional partners and teaming up with the Utility Exploration Center (UEC) to offer hands-on workshops and classes throughout the year. The City hosts practical sessions that show residents how to save water at home, while the UEC provides interactive learning opportunities for families and students.

The City shares information in ways that are easy to see and access. This includes paid and earned media, story placements, the City website, e-newsletters, and other City communication channels, along with social and digital media. Informational tips and updates can be seen in bill inserts, movie theater ads, brochures, vehicle decals, community events, and special events held throughout the year.

9.2.4.1 Utility Exploration Center

In 2008, the City's utilities jointly funded and created the Roseville Utility Exploration Center (UEC). In addition to serving as a "storefront" for the utilities, the Center is used by the City for community outreach and environmental education. Designed for an interactive experience, the UEC hosts multiple hands-on exhibits with a "learning lab"

for demonstrations, presentations, and workshops. Topics include water conservation and watershed protection, energy efficiency, waste reduction, and wastewater management.

Since opening, the Utility Exploration Center has hosted over 850,000 total program participants. This includes approximately 7,000+ students (preschool through twelfth grade) served annually with programing, targeted to their specific grade level standards, exploring utilities in their daily life; partnerships with cultural, recreational, and utility-related organizations to create a lively series of changing events, workshops, and activities; and connecting with residents in a variety of off-site outreach activities.

The Center is housed within the Gold LEED (Leadership in Energy and Environmental Design) certified Martha Riley Library building, which was the first building in Placer County to be so honored. Recent developments include the "Inspiration Garden," an outdoor learning space created in partnership with Roseville's Water Efficiency division with a goal of encouraging more residents to adopt water-wise gardening practices, which was completed in 2022. Furthermore, the visitor center exhibits recently underwent a full overhaul, finished in April of 2024, to update educational messages for the utilities as the City looks forward to the next ten years. A larger outdoor project, originally called the IDEAscape, would further expand exhibits to include topics such as river-friendly landscaping and irrigation, utility systems, solar energy, and watershed protection. The project is currently on hold but is anticipated for completion by 2035.

9.2.4.2 Student Outreach

In addition to Regional Water Authority (RWA) student outreach programs, the City independently provides presentations, conservation materials, and facility tours to local schools.

9.2.5 Regional Water Authority – Outreach and Education

In addition to local public education and outreach programs, the City also participates in a regional public education and outreach program through the Regional Water Authority. The Regional Water Authority (RWA) was formed in 2001 as a joint powers authority to serve and represent the interests of over 22 water suppliers and associated agencies in the greater Sacramento, Placer, El Dorado, Sutter, Nevada and Yolo County Region. RWA's mission is to serve, represent and align the interests of regional water suppliers and stakeholders for the purposes of improving water supply reliability, availability, quality, and affordability. In collaboration with 17 water supplier members and other wastewater, stormwater and energy partners, RWA formed the Water Efficiency Program (WEP) in 2001 to bring cost effectiveness through economies of scale to public education and outreach activities.

The WEP operates on an average annual budget of $610,000 funded by participating local water suppliers and is supplemented by grant funding. Grants are an important funding resource for the Program. Since 2003, the Program has been awarded $19.9 million in grant funding for public outreach and education as well as a variety of rebate programs, fixture direct installation programs, system water loss, individualized customer usage reports, large landscape budgets and more. Of those funds, $6.7 million was awarded between 2021 and 2025.

The main function of the WEP is to develop and distribute public outreach messages to customers in the region by collaborating with its water supplier members. The Program distributes these messages on a regional scale through regional media and advertising buys and was honored with the United States Environmental Protection Agency WaterSense Partner of the Year award in 2021 along with three Public Relations Society of America (PRSA),

California Capital Chapter awards in 2023/2024 for WEP's public outreach and school education programs. From 2021-2025, the WEP created a series of public outreach campaigns. Below is a summary of each campaign and highlighted achievements.

2021 was a year for nimble messaging and maximum flexibility to adapt outreach to the rapidly changing conditions. RWA's RWEP began 2021 with a focus on household leaks and then transitioned to the fourth year of an award-winning outreach campaign focused on tackling the landscape overwatering problem by encouraging residents to check soil moisture before turning on sprinklers (Check & Save). With the sudden emergence of drought in May 2021, the program introduced new creative and tools for RWEP participants. The goal: Help provide consistent and actionable tips region-wide while providing flexibility for RWA members to customize materials to reflect their unique water supply situation and call to action.

As the drought grew more serious through late 2021 and into 2022, the WEP updated messaging again and ramped up outreach, asking residents to reduce lawn watering while continuing to water trees (Stress Your Lawn, Save Your Trees), understanding that lawns can handle less water but that drought-stressed trees can be lost forever. This messaging supported the Governor's request of water suppliers to voluntarily reduce water use by 15 percent. Additionally, the WEP continued to partner with the Sacramento Tree Foundation to help educate residents and business on how to maintain and expand the region's healthy tree canopy and included a series of co-branded educational videos and materials.

After the drought subsided in 2023, the WEP launched a new multi-year outreach program aimed at encouraging water efficiency during a non-drought year. Research indicates that public engagement in water conservation tends to surge during drought periods, such as 2022, but declines during non-drought years, like 2023. Consequently, garnering attention and motivating action becomes more challenging during non-drought periods. To tackle this challenge, the 2023 outreach program focused on two main messages:

- SUMMER STRONG—focused on promoting water-wise best practices outdoors. A Summer Strong yard is tough enough to muscle through the Sacramento region's hottest days and still look its best. The campaign featured eye-catching graphics to promote efficient tree watering, adding low-water and native plants, checking soil moisture, using weather-based sprinkler timers, and watering early to minimize evaporation.

- SUDS WOULD BE DUDS WITHOUT H2O—With clean, reliable water essential to great beer (and to the success of local breweries), the WEP launched a pilot project to partner with local craft brewers, aiming to educate patrons about the importance of water to beer and how to preserve this natural resource. Initial partners included Jack Rabbit Brewing Company and Red Bus Brewing Company, which committed to distributing Be Water Smart materials to their customers. This campaign featured the development of a rebate program to upgrade brewing equipment to be more water efficient and the distribution of coasters, koozies and stickers with water savings messages.

In 2024, the WEP enhanced its existing Summer Strong campaign with the Summer Strong Yard Champs promotion, spotlighting Sacramento-area residents who transformed their landscapes into water-efficient yards. Homeowners nominated yards featuring low-water plants and efficient irrigation systems for a chance to be

featured on regional billboards. Nearly 50 nominations were reviewed, with winners receiving professional photoshoots. Featured yards included a mix of DIY and professionally designed landscapes, all showcasing water-saving practices like low-water and native plants, drip irrigation, and rainwater capture, inspiring others to adopt similar approaches. In 2025, the Summer Strong campaign added a new mascot, Jack LaPlant, an animated plant figure that carried on all the same water savings tips but with refreshed visuals to draw in a new audience. In 2024, the WEP expanded its successful pilot project, Suds Would be Duds without H2O, with local craft breweries to raise awareness about water's role in craft beer production and to promote water efficiency. The campaign visited 52 breweries across the Sacramento region. Around 20 breweries are considered active partners, including six of the top craft breweries in the area. Promotional materials, including 10,500 coasters and 7,200 stickers, were distributed by these partners and included water-saving tips and a link to our BeWaterSmart.Info website to access rebates. Additionally, two breweries, Urban Roots Brewery & Smokehouse and Solid Ground Brewing participated in WEP's commercial indoor rebate program. Each brewery received $15,000 to upgrade or add equipment that reduced water used for chilling and sanitizing processes.

Both campaigns, Summer Strong and Suds Would be Duds without H2O, were continued through the end of 2025 and were implemented through both paid advertising buys and earned media from public service announcements (PSAs) and aired in English and Spanish. Every year the campaigns' messaging can be heard on local radio stations such as Capital Public Radio and online through Google, Facebook and YouTube advertisements. For clarification below, impressions represent how many times an ad was seen.

From 2021-2025, the WEP public outreach campaigns produced:

Television Advertising 3,926 television advertisements 23,212,700 impressions	**Radio Advertising** 5,273 radio advertisements 19,994,200 impressions
Digital Advertising (Facebook, Google Display Network & Spotify) 29,472,602 million impressions 297,870 clicks	**Billboard advertising** 2,037,102 digital advertisements 62,807,653 impressions
Streaming Video Advertising (Comcast, EyeQ, Hearst, Paramount Plus, & Premion) 3,532,621 impressions 3,532,621 advertisements	**Facebook** 60 posts per year
Public Service Announcements (Television and Radio) 24,248,000 impressions $683,400 in value had they been purchased as advertising	

The Program continues to utilize our public outreach website, http://bewatersmart.info/, and the "Be Water Smart" brand to reach customers throughout the region. The website, which completed a major redesign and upgrade in 2025, contains customer-specific (enter your address) local water supplier information on rebates and services, general top ways to save for residents and businesses, an interactive watering guidelines and water waste reporting tool, a water-wise plant and gardening database, recent press releases, the Sacramento Smart Irrigation Scheduler tool, and more. Between 2021 and 2025, the website averaged 37,000 unique visitors per year.

For more targeted outreach, the Program distributed quarterly e-newsletters to enrolled residents. The e-newsletters are filled with water savings tips, upcoming events and region-specific articles. They are usually timed around changes in the weather to help signal the need for residents to adjust their irrigation systems, such as daylight savings coupled with a message to dial back/reduce sprinkler systems run times. The e-newsletter reaches 9,361 households.

The WEP selects 2 public events each year to attend as an opportunity for the public to interact with local water efficiency staff. This provides an opportunity for the region to communicate its messages in person. From 2023-2024, WEP attended ECOS Earth Day (April) and the Farm-to-Fork Festival (September).[3] In 2025, the WEP opted to attend the Sacramento Republic Brew Festival (June) instead of the Farm-to-Fork Festival to elevate our existing partnership with Sacramento Republic FC. At these events, the Be Water Smart team provided water-wise tips, encouraged visitors to sign the pledge banner, collected e-mails for those who wish to sign up for the e-newsletter list, as well as identified a customer's water supplier and connected them with rebates and services. Additionally, WEP, in coordination with participating local water suppliers, hosts an annual Mulch Mayhem event (May) in which customers can pick up a truck load of free mulch from selected locations throughout the region.[4] Combined, these in person events are attended by thousands of people each year throughout the region.

The Program provides a variety of "give-a-way" items to customers at in person public events and through direct mail requests from the http://bewatersmart.info/ website. From 2021-2025, WEP has distributed thousands of leak detection tablets, moisture meters, garden gloves and drink koozies to customers to encourage the water savings practices described in our public outreach campaigns and brewery partnerships.

The Program is also very active in communicating to local media outlets. Between 2021 and 2025, RWA issued 23 press releases on WEP activities and regionally significant news and participated in 17 radio public affairs interviews airing on 18 stations across the Sacramento region's major commercial radio networks. The RWA and the WEP were mentioned in dozens of news articles published by local and regional media outlets both within and outside of the Sacramento region during the same time frame.

Finally, the WEP partners with professional sports teams in the region to expand the Be Water Smart advertising to new and captive audiences. WEP partnered with the Sacramento River Cats (local Triple – A affiliate of the San Francisco Giants) in 2021, which included our long standing water savings advertisements on all bathroom stall doors as well as 30-second Check & Save spots broadcast on KMAX Channel 31 during each Saturday game and multiple 30-second radio spots broadcast during every game via their streaming radio coverage. The total attendance for regular season games was 342,861. In addition, 24 special events at Sutter Health Park drew 66,300 people in 2021. In 2023, RWEP launched a new partnership with Sacramento Republic FC (local USL professional soccer team), displaying water-wise messages at games to promote "Summer Strong" yards. The partnership continued through 2025 and included the following activities: a 30-second LED ad, messaging on water refill stations, and giveaways booths at events/games.

To support public outreach messaging and promote water savings tips, the Program also coordinated several regional rebate programs, which were partially or fully funded by state, federal and private foundation grants. A

[3] No public events were attended in 2021 and 2022 due to the COVID pandemic.
[4] The 2021 Mulch Mayhem event was held in September due to the COVID pandemic.

variety of high efficiency rebate options were provided including toilets, clothes washers and irrigation efficiencies (full summary in COR Table 9-A). Additionally, from August 2023 - November 2025, RWA managed a regional direct installation program, in which a contractor was hired to replace old high use fixtures in multifamily and commercial/institutional properties in disadvantaged communities in the region. Collectively these rebates and direct installations will produce an estimated lifetime (10 years) savings of 7.4 billion gallons of water and 7.9 million kilowatt hours of energy.

COR Table 9-A Regional Rebates and Installations from 2021 through 2025.

Rebate/Installation Type	2021	2022	2023	2024	2025	Lifetime Water Savings 2021-2025 (MG)	Lifetime Energy Savings 2021-2025 (kWh)**
High Efficiency Clothes Washer Rebates	359	265	307	321	298	74.7	79,309
High Efficiency Toilet Rebates	767	1,275	602	423	326	137.5	145,990
Smart Irrigation Controller Rebates	686	1,049	3,051	556	464	1,190.2	1,264,024
Irrigation Efficiences Rebates*	5,941	7,153	13,327	11,160	10,321	5,269.2	5,595,912
Turf Replacement Rebates (square feet)	153,880	239,645	135,607	300,152	266,840	405.6	430,711
Toilet Direct Installation	NA	NA	584	2,183	1,688	141.9	150,671
Showerhead Direct Installation	NA	NA	562	1,766	1,532	197.2	209,475
Faucet Aerators Direct Installation	NA	NA	884	3,215	2,343	20.6	21,850
Urinal Direct Installation	NA	NA	-	19	40	1.3	1,348
Total Water Savings (MG)						**7,438.1**	
Total Energy Savings (kWh)**							**7,899,291**
*Includes: pressure regulator equipment, pipe and pipe fittings, drip or low volume equipment, and sprinkler heads or nozzles.							
**Regional average of 1,062 kilowatt-hours per MG							
kWh = kilowatt-hour							
MG = million gallons							
NA = no funding available							
Lifetime = 10 years							

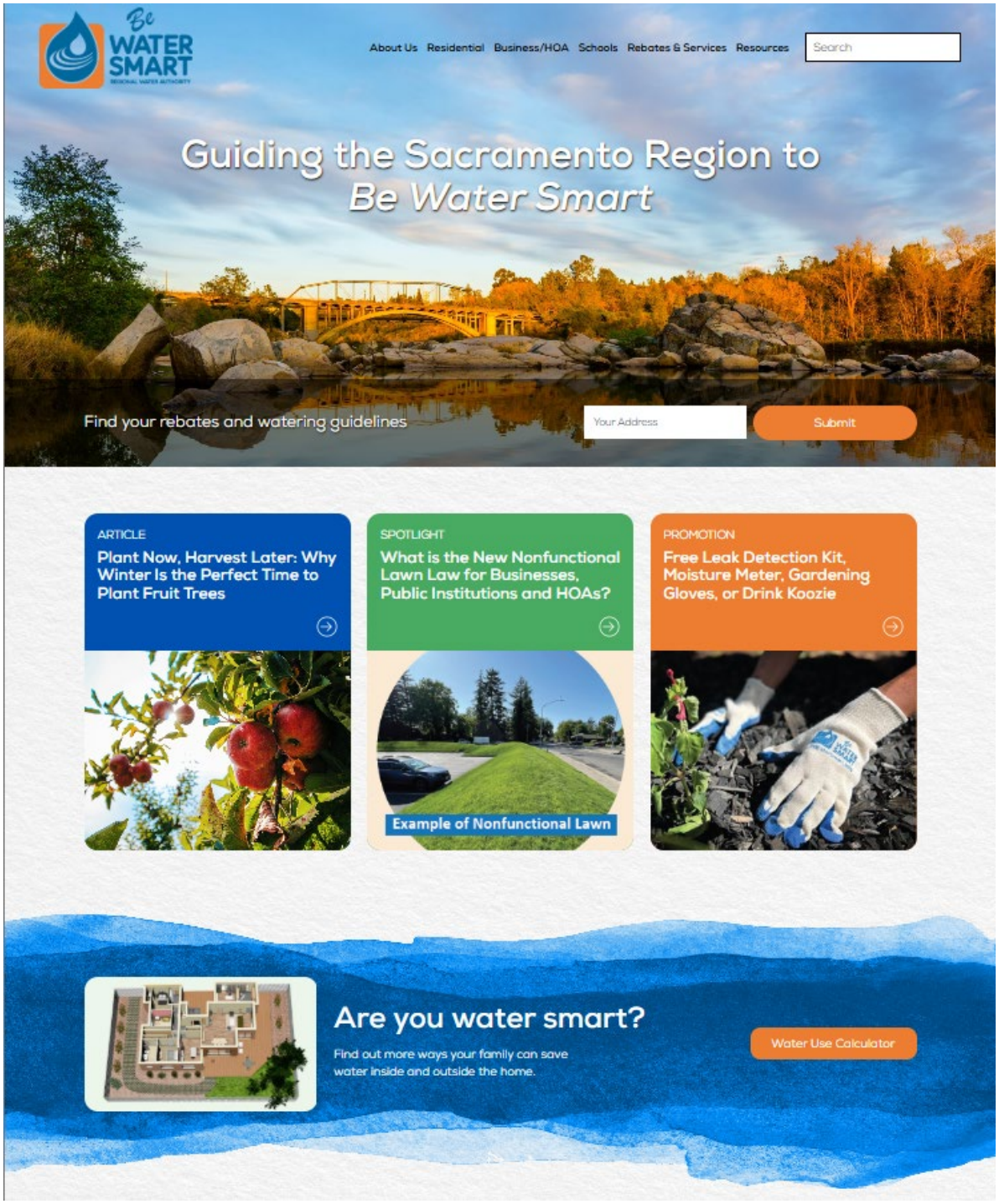
In addition to public outreach, the Program also coordinates regional school education activities. The RWA-sponsored water efficiency exhibits ($500,000 sponsorship) opened for viewing in 2021 at the new SMUD Museum of Science and Curiosity (MOSAC) in downtown Sacramento, reflecting years of input by RWA Water Efficiency Program Manager, Amy Talbot, who helped shape the exhibits. The exhibits teach visitors to become a "Home Water Detective," create their own mix tape from water conserving sounds in "Drop a Beat" and learn about local "Water Champions. MOSAC currently welcomes around 150,000 visitors a year from all over the region.

Since 2012[5], the Program has hosted the Water Spots Video Contest for high school and middle school students. The WEP provides a new contest theme each year and provides the region's teacher and students with relevant facts and images to help them develop 30 second video PSAs. The contest themes for 2022 and 2023 were "When in Drought…take action to reduce water use" and Do Your Part to Be Water Smart" respectively. Students submit their videos to WEP who hosts a panel of local celebrities including Monica Woods from ABC 10 to decide on a first, second and third place winner. The top 10 scoring videos are then posted online for public voting to select a "people's choice" winner as well. Both teachers and student receive cash prizes, and the winning videos are

[5] The program did not host a Water Spots Video Contest in 2021 due to the COVID pandemic.

played at Raley Field during River Cats games and in select movie theaters throughout the region (Example: Century Blue Oaks theatre in Rocklin and Century Laguna 16 in Elk Grove). The winning PSAs are incorporated into the WEP's media activities as well. The 2022 Grand Prize winner video "Doing Your Part" appeared 2,619 times in theatres and delivered 49,000 impressions. The 2023 Grand Prize winner video "Saving Water" appeared 2,149 times in theatres and delivered 47,000 impressions. Students from about a dozen area schools submitted a total of 54 videos total for the 2022 and 2023 contests.

In late 2023, WEP sunset the Water Spots Video Contest and launched a new school education program, Drip Drop, Hip Hop, in collaboration with NorCal School of the Arts (NorCal Arts), which brings together the worlds of art and sustainability to empower children, families, and communities in the Sacramento region. Funded by a $300,000 grant from the Capital Region Creative Corps and California Arts Council, Drip Drop, Hip Hop educates students and families about water efficiency through a two-person play and arts-integrated lesson plan. The program is free of charge for primarily Title I schools and community venues in Sacramento, Placer, and El Dorado counties plus the City of West Sacramento. The children receive a shower timer with water-efficiency tips with each classroom visit. Additionally, in 2024 the program developed a 30-second television and radio Public Service Announcement (PSA), found at https://bewatersmart.info/drip-drop-hip-hop-a-journey-through-the-american-river-watershed/, showcasing local children spreading the water efficiency message to a broader audience in both English and Spanish. In 2024, the PSA was broadcast 1,205 times in 7 television outlets for a total of 5.6 million impressions for an added value of $124,250 and 567 times in 17 radio outlets for a total of 1.2 million impressions and an added value of $45,290. As of the end of 2025, the Drip Drop Hip Hop reached 13,232 students through 509 classroom performances and additional community events in Sacramento, Placer, and El Dorado counties. Of the 509 performances, 25 reached Roseville City School District classrooms. Teachers reported increased water conservation knowledge and that students shared the information with their families.


Be WATER SMART
About Us
Residential
Business/HOA
Schools
Rebates & Services
Resources
Search
Guiding the Sacramento Region to Be Water Smart
Find your rebates and watering guidelines
Your Address
Submit
ARTICLE
Plant Now, Harvest Later: Why Winter Is the Perfect Time to Plant Fruit Trees
SPOTLIGHT
What is the New Nonfunctional Lawn Law for Businesses, Public Institutions and HOAs?
Example of Nonfunctional Lawn
PROMOTION
Free Leak Detection Kit, Moisture Meter, Gardening Gloves, or Drink Koozie
Are you water smart?
Find out more ways your family can save water inside and outside the home.
Water Use Calculator


Compruebe la humedad de la tierra antes de regar para que las plantas estén contentas y sanas.
MÁS INFORMACIÓN
BEWATERSMART.INFO
Be WATER SMART


Be WATER SMART
DROUGHT IS BACK
WATER Here
BeWaterSmart.info
LESS Here


Be WATER SMART
DROUGHT IS BACK
WATER YOUR TREES
BeWaterSmart.info
STRESS YOUR LAWN


SUMMER STRONG
Training Tips with Jack LaPlant
Trees = landscape core strength.
Deep watering with drip lines or soaker hoses keeps them healthy and strong.
Be WATER SMART
Regional Water Authority
Find tips at BeWaterSmart.info/trees


SUMMER STRONG
Training Tips with Jack LaPlant
Hydrate at dawn!
Watering early boosts absorption and minimizes evaporation—like a morning protein shake for your plants.
Be WATER SMART
Regional Water Authority
Learn more at BeWaterSmart.info


ARE YOU SUMMER STRONG?
Maurice is. He knows that native plants grow strong and deep roots that muscle through hot summers.
Be WATER SMART
Regional Water Authority
Be like Maurice. Learn to be Summer Strong at BeWaterSmart.info.


SUMMER STRONG
YARD CHAMP
Lost the lawn to help the bees
Learn her story at BeWaterSmart.info
Be WATER SMART
Regional Water Authority
City of SACRAMENTO
Robin
South Land Park
SAVE OUR WATER


SAVING WATER
ONE
BEER
AT A TIME
Be WATER SMART
BeWaterSmart.info


MORE GREAT WAYS TO SAVE
Set your sprinklers to rise with the sun.
Your yard will drink more and waste less.
Fix household leaks and drip no more,
then savor a rewarding pour.
Replace lawn with native plants.
Cheers to saving water and bees!
Be WATER SMART
Learn about water-wise rebates and free services at
BeWaterSmart.info


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SUDS
WOULD BE
DUDS
WITHOUT
H2O
Be WATER SMART



9.2.6 Programs to Assess and Manage Distribution System Real Loss

The City maintains a comprehensive water audit and leak-detection program to assess, identify, and repair potable distribution system losses.

In 2009, the City began using AWWA Water Loss software to develop an annual water loss audit. The City continues to employ this method in compliance with Senate Bill 555, validating the annual audit for accuracy prior to submission to DWR each year by the regulatory deadline of December 31. Results from the audit have helped the City identify where in the distribution process leaks are occurring. This information is coupled with detailed pipeline information stored in the City's asset management and GIS system. Audit information helps identify potentially leak prone areas of the City's distribution system for focused rehabilitation or repair projects.

The City is actively implementing a comprehensive auditory leak detection program, utilizing AMI, Water Distribution staff, and audit-based analysis to identify non-surfacing leaks. By reviewing work order data and evaluating areas with a history of leaks or infrastructure failures, the city can target zones that may be contributing to unquantified water loss. Currently, the City is developing a corrosion protection program designed to reduce future failures and extend the life of the water system. These identified areas are mapped and used to prioritize rehabilitation and replacement efforts. As part of this long-term strategy, the City recently completed Phase 1 of the Downtown Water Main Replacement Project and is preparing to begin Phase 2. This next phase will replace approximately three miles of aging water infrastructure, further strengthening system reliability and reducing water loss.

In combination, these measures and projects employed to identify and reduce system leakage offer the City a comprehensive and proactive approach to the reduction of lost water supply.

9.2.7 Water Conservation Program Coordination Staffing Support

In addition to the employees mentioned in Section 9.2.1, the City employs other individuals as members of the City's internal water conservation program team. Member qualifications include Certified Landscape Irrigation

Auditor (CLIA) certification, Water Distribution Operator D-2 certification, and extensive irrigation system management experience.

In compliance with DWR's UWMP guidelines, the cull contact information for the City's Water Conservation Administrator is listed below:

Bobby Alvarez
Water Conservation Administrator
City of Roseville, Environmental Utilities Department
916-746-1710 (office)
BAlvarez@roseville.ca.us

9.3 Other Demand Management Measures

In addition to the six DMMs described above, the City also implements the following programs:

- Residential Water Wise House Calls
- Residential HET Replacement Program
- Residential Cash for Grass Rebates
- Commercial Irrigation Water "Budgets"
- Commercial Irrigation Audit
- Commercial Cash for Grass Rebates
- Commercial Custom Rebate
- Commercial Irrigation Improvements Rebates
- Commercial Food Service Water Efficiency Rebates
- Commercial Landscape Water Use Reviews
- Commercial Interior Water Use Audits
- Commercial HET Replacement Program

These programs are described in Section 9.3.

9.3.1 Residential Conservation Programs

The City implements several programs to reduce the consumption of water to its residents. The activities of these various programs are described in the following subsections. Implementation of these programs is expected to help the City achieve its water use targets by reducing the amount of water consumed by its residential customers.

9.3.1.1 Water Wise House Calls

The City provides a free home water use inspection service known as the Water Wise House Call Program. Inspections are conducted by trained water conservation technicians and help identify potential water savings for the customer.

Single-family inspections are approximately one hour in length and consist of an indoor and outdoor evaluation. During the interior portion of the inspection, the technician measures flow rates of existing plumbing fixtures

(offering high-efficiency alternatives if necessary), checks all fixtures and appliances for leaks, and provides information on the City's currently available rebate programs (further described in Sections 9.2.2, 9.2.3, and 9.2.4).

Following the indoor evaluation, the technician then conducts an outdoor inspection. A typical outdoor inspection tests sprinkler system efficiency, distribution uniformity, pool equipment, as well as an evaluation for leaks via pressure test. Following the sprinkler test, soil moisture probes are utilized to optimize irrigation scheduling through adjustment of the residence's irrigation controller.

Finally, water use information is reviewed, and the customer is provided with suggested corrective actions, information regarding the City's rebate programs, and educational material on how to further water conservation.

In addition to local advertising, Water Wise House Calls are actively marketed to customers with higher than average water use by the City's Water Efficiency Division. In 2020, modifications were made to this program to adhere to recommended safety procedures in consideration for the global health crisis caused by COVID-19. Adjusted Water Wise House Calls continue to be conducted in a safe manner for both residents and City employees.

9.3.1.2 Residential High Efficiency Toilet (HET) Replacement Program

The City first established a HET rebate program in 2008. Residents can receive up to $100 for replacing an older (pre-1992), non-conserving toilet with a new 1.28 or less gallon per flush model. Rebates are offered on a first come/first service basis to customers on an annual basis, and the program is advertised regularly on bill inserts, conservation articles, newsletters, and the City's website. Customers can also obtain an application by request through the mail or at special events and City office public counters.

9.3.1.3 Residential Cash for Grass

In 2008, Roseville created a turf replacement program titled "Cash for Grass" that provides incentive for customers to replace their turf with water efficient landscaping. Turf is purchased at $1.50 per square foot up to $2,000 per residential site. To comply, participants must not only remove their turf but also install a low-volume irrigation system to irrigate their new water efficient landscape.

9.3.2 Commercial, Industrial, Institutional Conservation Programs

The City implements several programs to reduce the consumption of water to its commercial, industrial, and institutional customers. The activities of these various programs are described in the following subsections. Implementation of these programs is expected to help the City reduce the amount of water consumed by its non-residential customers.

9.3.2.1 Irrigation Water "Budgets"

The City has developed water "budgets" for every dedicated irrigation account (including those owned by the City). These budgets were created using the City's geographical information system (GIS) to determine irrigated landscape area and then field verified for accuracy. Landscape Water Budget Site Reports, produced for customers and included in their normal water bill for a period of 12 months, allow customers to see how their water usage and costs change from month to month allowing them enough time to modify irrigation practices before actual billing on a tiered metered rate structure begins. The proposed 3-tiered rate structure provides an incentive for

customers to stay within their established water budget and a dis-incentive if they use more than their established water budget.

9.3.2.2 Irrigation Audit

Similar to Water Wise House Calls, the City provides a free landscape audit service for irrigation customers upon request. Staff evaluates the irrigation system and makes recommendations for improvement. Rebates are available to further incentivize the customer to make improvements to their irrigation systems.

The City will continue to implement this program and will consider expansion based on the past years' participation.

9.3.2.3 Commercial Cash for Grass

Similar to the Residential Cash for Grass Program, the City offers rebates to commercial customers for replacing turf with water efficient landscaping. Commercial customers can receive $2.00 per square foot.

9.3.2.4 Commercial Irrigation Improvement Rebates

The City offers a suite of rebate opportunities for commercial irrigation customers including for conversion to drip irrigation, high efficiency nozzles, self-adjusting controllers, pressure regulators, as well as installation of irrigation submeters for a total potential rebate value of $15,000 during any fiscal year for those who meet the established criteria for their projects. Applications for these rebates are easily accessed through the City's website with clear outlines of qualifying equipment and labor for ease of submission.

9.3.2.5 Commercial Food Service Water Efficiency Rebates

The City also offers a series of rebates available to commercial customers in the food service industry through which they can apply for applicable benefits on the purchase and replacement of cooking appliances (steamers and combination ovens), sanitation equipment (dishwashers), as well as refrigeration equipment (ice machines) with improved efficiency.

9.3.2.6 Customized Rebate Program

In addition to the above rebates, the Customized Rebate Program helps commercial, industrial, and institutional customers save money with financial incentives on capital expenditures for retrofit of existing equipment with more water-efficient technologies. This program applies to hardware upgrades including equipment and technology for space cooling, refrigeration, laundry, cleaning, and flushing. The customized rebate amount is derived by measuring current usage of the process compared to the water usage of the new retrofitted process. Water savings are estimated using the number of days operated per year and the expected life of the equipment (capped at 10 years). The total amount of water saved is rebated at $0.50 per 100 cubic feet. Rebates will be paid on a first-come, first served basis until program funds are depleted.

9.3.2.7 Commercial Interior Water Use Audit

The Commercial Interior Water Use Audit assists commercial properties in lowering water, wastewater, and energy costs. A facility review identifies equipment inefficiencies and provides a detailed report of all inefficiencies and corresponding recommendations.

9.3.2.8 Commercial High Efficiency Toilet Replacement Program

Similar to the Residential High Efficiency Toilet Replacement Program, commercial customers can receive up to $200 for replacing an older (pre-1992), non-conserving toilet with a new 1.28 or less gallon per flush model.

9.4 Planned Implementation to Achieve Water Use Targets

In most instances, helping customers understand the savings that can be achieved and methods available to achieve these savings is enough to motivate change. Through the above DMMs, the City can help customers identify these savings, which in turn helps the City to achieve its water use targets. Additionally, the City will continue to work with the Parks Department, area school districts, landscape contractors, and property managers to improve water use efficiency.

9.5 Non-Functional Turf (AB 1572)

In 2023, California enacted Assembly Bill (AB) 1572 to reduce the wasteful use of potable (drinking) water and support state policies on water conservation and climate change. The law prohibits using potable water to irrigate nonfunctional turf (NFT) on commercial, industrial, and institutional (CII) properties and common landscape areas of Homeowners Associations (HOAs) starting in 2027. Turf is living ground cover surface of mowed grass (also called lawn, turfgrass or grass). Artificial turf, which is made of synthetic material and not irrigated, is excluded from this law. Artificial turf is used in sports arenas, residential lawns, and various commercial applications.

Functional turf is turf located in recreational areas or community spaces. Examples include:

- Sports fields (soccer, baseball, etc.)
- School recreation areas (playgrounds, running tracks, etc.)
- Areas regularly used for civic or community events (city parks, event centers, etc.)

Nonfunctional turf is turf used only for decoration with no regular recreational or civic use. As a general rule, turf that is accessed only for mowing is likely nonfunctional turf. Examples include:

- Decorative lawn not used for recreation, civic, and/or other community events
- Turf enclosed by fencing or other barriers to permanently block human access for recreation or assembly
- Turf in street rights-of-way and parking lots

The law does not ban turf—it prohibits using potable water on nonfunctional turf. Functional turf may still be irrigated with potable water, and nonfunctional turf may still be irrigated with recycled water. The law allows for the irrigation of trees located in nonfunctional turf with potable water as needed for the health of trees and other perennial non-turf plantings. The new law will be phased in over five years, starting in 2027, based on the type of property. The deadlines in COR Table 9-B are the compliance dates, which means the applicable property must stop irrigating nonfunctional turf with potable water by that date and may not irrigate with potable water in the future. AB 1572 does not apply to private residential properties. This is a permanent prohibition.

COR Table 9-B AB 1572 Compliance Dates

Property Type	Compliance Date
State/local government, local and regional public agencies, public water systems	January 1, 2027
All other institutional, commercial, and industrial properties (not described above)	January 1, 2028
HOA common areas, common interest developments and community service organizations, or similar entities	January 1, 2029
Government/public water system properties in disadvantaged communities	January 1, 2031, or when funding is available to convert NFT, whichever is later

The City is applying focused effort toward compliance with AB 1572 through a comprehensive set of initiatives focused on the removal of non-functional turf. The Parks Division is actively collaborating with other City departments to remove non-functional grass in public areas, administrative buildings, and library grounds, while planning the replacement of ornamental grass strips along City-maintained streets and parking lots. To encourage broader participation from residents and businesses, the City has boosted rebate programs with a tiered incentive structure offering $1.50 per square foot for standard turf removal and a higher $3.00 per square foot for small or narrow areas (under 10 feet wide), which frequently qualify as non-functional turf. Complementing these financial incentives, the Water Wise House Calls program provides approximately 1,000 free on-site consultations each year to help property owners identify non-functional turf and develop compliant retrofit plans. The City has expanded commercial engagement by hiring additional staff to support local businesses with reporting requirements and compliance strategies. These efforts are further supported by the WaterSmart Plant List, an official database on the City's website of low-water-use plants well-suited to the region's climate.

9.6 Members of the California Urban Water Conservation Council

In 1991 (amended September 16, 1999), a memorandum of understanding (MOU) regarding urban water conservation in California was made that formalizes an agreement between DWR, water utilities, environmental organizations, and other interested groups to implement Best Management Practices (BMPs) and make a cooperative effort to reduce the consumption of California’s water resources. This MOU is administered by the California Water Efficiency Partnership (CalWEP).

In 1991, Roseville became a voluntary signatory of CalWEP’s MOU (formerly the California Urban Water Conservation Council or CUWCC). Since becoming a signatory to the MOU, the City has implemented and promoted its water use efficiency programs to help customers reduce water demand. The City reports to CalWEP on its coverage of the recommended BMPs on a calendar year basis.

The Urban Water Management Planning Act (Water Code Section 10631 (j)) allows for an urban retail water agency that is a signatory member of CalWEP to meet the DMM requirements by documenting that CalWEP has determined the urban water agency is complying (coverage) with all of the provisions of the MOU. Documentation of the City’s compliance is provided in Appendix P.

Chapter 10 Plan Adoption and Submittal

This chapter provides information regarding the notification, public hearing, and adoption of the plan.

10.1 Inclusion of all 2025 Data

If a water supplier bases its accounting on a fiscal year (July through June) the data contained in the UWMP must be through the end of the 2025 fiscal year (June 2025). If the water supplier bases its accounting on a calendar year, the data must be through the end of the 2025 calendar year (December 2025).

As indicated in Chapter 1, the City uses a calendar year for the water supply and demand accounting, and therefore this 2025 UWMP includes data through December 2025.

10.2 Notice of Public Hearing

The City provided 60-day notice of the preparation of its 2025 UWMP, and the notice of the 2025 UWMP Public Hearing to the cities and counties listed in DWR Table 10-1.

DWR Table 10-1

Submittal Table 10-1 Retail: Notification to Cities and Counties Water Code Section 10621(b) and 10642		
City Name	60 Day Notice **Drop Down (yes/no)**	Notice of Public Hearing **Drop Down (yes/no)**
City of Roseville	Yes	Yes
City of Sacramento	Yes	Yes
County Name **Drop Down List**	60 Day Notice **Drop Down (yes/no)**	Notice of Public Hearing **Drop Down (yes/no)**
Placer County	Yes	Yes
Sacramento County	Yes	Yes

Other agencies notified included the following:

- California American Water
- Citrus Heights Water District
- Placer County Water Agency
- Regional Water Authority
- San Juan Water District
- Sacramento Municipal Utilities District
- Sacramento Suburban Water District
- US Bureau of Reclamation

Public hearing notifications for adopting the Plan will be published in the local newspaper (Roseville Press Tribune) and on the City's website. A copy of the published Notice of Public Hearing is included in Appendix B.

10.3 Public Hearing and Adoption

The City has encouraged community and public interest involvement in the Plan update through the use of public meetings and web-based communication. Copies of the City's outreach efforts are included in Appendix B.

On June 17, 2026, public hearings for the Urban Water Management Plan and Water Shortage Contingency Plan were held. The public hearings provided an opportunity for all City water users and the public to become familiar with the Urban Water Management Plan and Water Shortage Contingency Plan and to ask questions about the plan's contents. In addition, the hearings presented an opportunity for the public to learn about or comment on the City's continuing plans for providing a reliable, safe, high-quality water supply. Copies of the draft Urban Water Management Plan and Water Shortage Contingency Plan were made available for public inspection on the City's website in advance of the public hearings.

Following the public hearings, adoption hearings for the Urban Water Management Plan and Water Shortage Contingency Plan were held on June 17, 2026, for adoption by City Council. A copy of the adoption resolution for the 2025 Urban Water Management Plan has been provided in Appendix Q.

The adopted Water Shortage Contingency Plan has been included as Appendix M of this Urban Water Management Plan and a copy of the adoption resolution has been provided in Exhibit C of the Water Shortage Contingency Plan.

10.4 Plan Submittal

A copy of the 2025 UWMP was submitted to DWR within 30 days of adoption and by July 1, 2026. The adopted UWMP will be submitted electronically to DWR using the California Urban Water Use Efficiency (WUE) data submittal tool. An electronic copy of the adopted 2025 UWMP will also be submitted to the California State Library.

No later than 30 days after adoption, a copy of the adopted 2025 UWMP, including the Water Shortage Contingency Plan, will be provided to the cities and counties to which the City provides water.

10.5 Public Availability

No later than 30 days after submittal to DWR, copies of this 2025 UWMP will be available for public review at the City's public offices. An electronic copy of this Plan will also be available for review and download on the City's website: www.roseville.ca.gov/UWMP.

10.6 Public Implementation

This Plan will be the source document for any Senate Bill 610 Water Supply Assessment or Senate Bill 221 Water Supply Verifications required for any proposed projects between 2026 and 2030 that are subject to the California Environmental Quality Act (CEQA) and would demand an amount of water equivalent or greater than the amount of water by a 500-dwelling unit project. This Plan will also be the source document for water demand projections and water supply availability. Lastly, this Plan will provide guidance and direction on development of new local supplies and implementation of water conservation programs and recycled water expansion to meet the requirements of the Water Conservation Act and the "Making Conservation a California Way of Life" regulatory framework.

10.7 Amending an Adopted UWMP

If the City amends its 2025 UWMP or the Water Shortage Contingency Plan contained therein, copies of amendments or changes to the plans will be submitted to DWR, the California State Library, and any city or county within which the supplier provides water supplies within 30 days after adoption.

10.8 California Water Code Requirements

Demonstration of compliance with all applicable requirements of the California Water Code pertaining to Urban Water Management Plan and Water Shortage Contingency Plan is provided in Appendix R. Appendix R was developed based on the UWMP Checklist provided in the Guidebook and is organized by subject.

Appendix A – Notifications to Wholesale Suppliers

Environmental Utilities
Water Division
2005 Hilltop Circle
Roseville, California 95747

April 21, 2026

Mr. Drew Lessard, Area Manager
Central California Area Office
7794 Folsom Dam Road
Folsom, CA 95630

RE: City of Roseville 2025 Urban Water Management Plan Demand Projections

Dear Mr. Lessard:

We sent a notice earlier this year to inform you that the City of Roseville (City) Water Utility had begun preparation of the 2025 Urban Water Management Plan. In accordance with California Warter Code Section 10631, as the City is a retail water supplier receiving water from your agency, we have provided you with projected water use through 2045 in the table below. The City plans to make full beneficial use of each year's allotments.

Supply Source	2030	2035	2040	2045
US Bureau of Reclamation	32,000 AF	32,000 AF	32,000 AF	32,000 AF

A complete draft of the 2025 Urban Water Management Plan, which is inclusive of the updated Water Shortage Contingency Plan, can be accessed at www.roseville.ca.gov/UWMP. A public hearing of the Water Shortage Contingency Plan and Urban Water Management Plan will be held on June 17th at 6:00 pm. We encourage you to attend the public hearing which will be held at the first floor of the Electric Building at 116 South Grant Street, Roseville, CA 95678. For information regarding the meeting and providing public comment please visit the City's website at https://www.roseville.ca.gov/administration/city_council/index.php.

Should you wish to contact the City regarding either of the plans, you may do so by writing or emailing to the undersigned below. Thank you.

Sincerely,



George Hanson
Water Utility Manager
City of Roseville
Environmental Utilities Department

Environmental Utilities
Water Division
2005 Hilltop Circle
Roseville, California 95747

April 21, 2026

Mr. Jeremy Shepard, Director of Technical Services
Placer County Water Agency
PO Box 6570
Auburn, CA 95604-6570

RE: City of Roseville 2025 Urban Water Management Plan Demand Projections

Dear Mr. Shepard:

We sent a notice earlier this year to inform you that the City of Roseville (City) Water Utility had begun preparation of the 2025 Urban Water Management Plan. In accordance with California Warter Code Section 10631, as the City is a retail water supplier receiving water from your agency, we have provided you with projected water use through 2045 in the table below.

Supply Source	2030	2035	2040	2045
Placer County Water Agency Existing Contracts	39,000 AF	44,000 AF	44,000 AF	44,000 AF

A complete draft of the 2025 Urban Water Management Plan, which is inclusive of the updated Water Shortage Contingency Plan, can be accessed at www.roseville.ca.gov/UWMP. A public hearing of the Water Shortage Contingency Plan and Urban Water Management Plan will be held on June 17th at 6:00 pm. We encourage you to attend the public hearing which will be held at the first floor of the Electric Building at 116 South Grant Street, Roseville, CA 95678. For information regarding the meeting and providing public comment please visit the City's website at https://www.roseville.ca.gov/administration/city_council/index.php.

Should you wish to contact the City regarding either of the plans, you may do so by writing or emailing to the undersigned below. Thank you.

Sincerely,



George Hanson
Water Utility Manager
City of Roseville
Environmental Utilities Department

Appendix B – Public and Agency Outreach

Environmental Utilities
Water Division
2005 Hilltop Circle
Roseville, California 95747

February 4, 2026

S. Audie Foster, Director of Northern Operations
California American Water
4701 Beloit Drive
Sacramento, CA 95838

RE: City of Roseville 2025 Urban Water Management Plan

Dear S. Audie Foster:

The City of Roseville (City) water utility has begun preparing the 2025 Urban Water Management Plan, which must be completed by July 1, 2026. In accordance with California Water Code Section 10642, we are writing to notify you that preparation is underway and to encourage your active input and involvement in the process.

Prior to Board adoption of the plan a public hearing will be held, and we will notify you of the date, time, and location of the meeting. We will also make a draft of the 2025 Urban Water Management Plan available to your agency in advance of the public hearing.

If you wish to contact the City about its review process, you may do so by writing to the undersigned or by email to ghanson@roseville.ca.us. Thank you.

Sincerely,

George Hanson
Water Utility Manager
City of Roseville
Environmental Utilities Department

Environmental Utilities
Water Division
2005 Hilltop Circle
Roseville, California 95747

February 4, 2026

Mr. Hilary Straus, General Manager
Citrus Heights Water District
6230 Sylvan Road
Citrus Heights, CA 95610

RE: City of Roseville 2025 Urban Water Management Plan

Dear Mr. Straus:

The City of Roseville (City) water utility has begun preparing the 2025 Urban Water Management Plan, which must be completed by July 1, 2026. In accordance with California Water Code Section 10642, we are writing to notify you that preparation is underway and to encourage your active input and involvement in the process.

Prior to Board adoption of the plan a public hearing will be held, and we will notify you of the date, time, and location of the meeting. We will also make a draft of the 2025 Urban Water Management Plan available to your agency in advance of the public hearing.

If you wish to contact the City about its review process, you may do so by writing to the undersigned or by email to ghanson@roseville.ca.us. Thank you.

Sincerely,

George Hanson
Water Utility Manager
City of Roseville
Environmental Utilities Department

Environmental Utilities
Water Division
2005 Hilltop Circle
Roseville, California 95747

February 4, 2026

Ms. Maraskeshia Smith, City Manager
City of Sacramento
914 I Street
Sacramento, CA 95814

RE: City of Roseville 2025 Urban Water Management Plan

Dear Ms. Smith:

The City of Roseville (City) water utility has begun preparing the 2025 Urban Water Management Plan, which must be completed by July 1, 2026. In accordance with California Water Code Section 10642, we are writing to notify you that preparation is underway and to encourage your active input and involvement in the process.

Prior to Board adoption of the plan a public hearing will be held, and we will notify you of the date, time, and location of the meeting. We will also make a draft of the 2025 Urban Water Management Plan available to your agency in advance of the public hearing.

If you wish to contact the City about its review process, you may do so by writing to the undersigned or by email to ghanson@roseville.ca.us. Thank you.

Sincerely,

George Hanson
Water Utility Manger
City of Roseville
Environmental Utilities Department

Environmental Utilities
Water Division
2005 Hilltop Circle
Roseville, California 95747

February 4, 2026

Mr. Jeremy Shepard, Director of Technical Services
Placer County Water Agency
PO Box 6570
Auburn, CA 95604-6570

RE: City of Roseville 2025 Urban Water Management Plan

Dear Mr. Shepard:

The City of Roseville (City) water utility has begun preparing the 2025 Urban Water Management Plan, which must be completed by July 1, 2026. In accordance with California Water Code Section 10642, we are writing to notify you that preparation is underway and to encourage your active input and involvement in the process. Additionally, in accordance with California Water Code Section 10631, as we are a retail water supplier receiving water from your agency, we will provide you with projected water use for the next 20 years (up to the year 2045).

Prior to Board adoption of the plan a public hearing will be held, and we will notify you of the date, time, and location of the meeting. We will also make a draft of the 2025 Urban Water Management Plan available to your agency in advance of the public hearing.

If you wish to contact the City about its review process, you may do so by writing to the undersigned or by email to ghanson@roseville.ca.us. Thank you.

Sincerely,

George Hanson
Water Utility Manager
City of Roseville
Environmental Utilities Department

Environmental Utilities
Water Division
2005 Hilltop Circle
Roseville, California 95747

February 4, 2026

Mr. Derek Gade, Director
Placer County Public Works Department
3901 County Center Drive, Suite 220
Auburn, CA 95603

RE: City of Roseville 2025 Urban Water Management Plan

Dear Mr. Gade:

The City of Roseville (City) water utility has begun preparing the 2025 Urban Water Management Plan, which must be completed by July 1, 2026. In accordance with California Water Code Section 10642, we are writing to notify you that preparation is underway and to encourage your active input and involvement in the process.

Prior to Board adoption of the plan a public hearing will be held, and we will notify you of the date, time, and location of the meeting. We will also make a draft of the 2025 Urban Water Management Plan available to your agency in advance of the public hearing.

If you wish to contact the City about its review process, you may do so by writing to the undersigned or by email to ghanson@roseville.ca.us. Thank you.

Sincerely,

George Hanson
Water Utility Manager
City of Roseville
Environmental Utilities Department

Environmental Utilities
Water Division
2005 Hilltop Circle
Roseville, California 95747

February 4, 2026

Mr. James Peifer, Executive Director
Regional Water Authority
2295 Gateway Oaks Drive, Suite 100
Sacramento, CA 95833

RE: City of Roseville 2025 Urban Water Management Plan

Dear Mr. Peifer:

The City of Roseville (City) water utility has begun preparing the 2025 Urban Water Management Plan, which must be completed by July 1, 2026. In accordance with California Water Code Section 10642, we are writing to notify you that preparation is underway and to encourage your active input and involvement in the process.

Prior to Board adoption of the plan a public hearing will be held, and we will notify you of the date, time, and location of the meeting. We will also make a draft of the 2025 Urban Water Management Plan available to your agency in advance of the public hearing.

If you wish to contact the City about its review process, you may do so by writing to the undersigned or by email to ghanson@roseville.ca.us. Thank you.

Sincerely,

George Hanson
Water Utility Manager
City of Roseville
Environmental Utilities Department

Environmental Utilities
Water Division
2005 Hilltop Circle
Roseville, California 95747

February 4, 2026

Mr. Matt Robinson, Public Informant Officer
Sacramento County
827 7th Street, Room 301
Sacramento, CA 95814

RE: City of Roseville 2025 Urban Water Management Plan

Dear Mr. Robinson:

The City of Roseville (City) water utility has begun preparing the 2025 Urban Water Management Plan, which must be completed by July 1, 2026. In accordance with California Water Code Section 10642, we are writing to notify you that preparation is underway and to encourage your active input and involvement in the process.

Prior to Board adoption of the plan a public hearing will be held, and we will notify you of the date, time, and location of the meeting. We will also make a draft of the 2025 Urban Water Management Plan available to your agency in advance of the public hearing.

If you wish to contact the City about its review process, you may do so by writing to the undersigned or by email to ghanson@roseville.ca.us. Thank you.

Sincerely,

George Hanson
Water Utility Manager
City of Roseville
Environmental Utilities Department

Environmental Utilities
Water Division
2005 Hilltop Circle
Roseville, California 95747

February 4, 2026

Mr. Adam Larsen, General Manager
San Juan Water District
9935 Auburn-Folsom Road
Granite Bay, CA 95746

RE: City of Roseville 2025 Urban Water Management Plan

Dear Mr. Larsen:

The City of Roseville (City) water utility has begun preparing the 2025 Urban Water Management Plan, which must be completed by July 1, 2026. In accordance with California Water Code Section 10642, we are writing to notify you that preparation is underway and to encourage your active input and involvement in the process.

Prior to Board adoption of the plan a public hearing will be held, and we will notify you of the date, time, and location of the meeting. We will also make a draft of the 2025 Urban Water Management Plan available to your agency in advance of the public hearing.

If you wish to contact the City about its review process, you may do so by writing to the undersigned or by email to ghanson@roseville.ca.us. Thank you.

Sincerely,

George Hanson
Water Utility Manager
City of Roseville
Environmental Utilities Department

Environmental Utilities
Water Division
2005 Hilltop Circle
Roseville, California 95747

February 4, 2026

Mr. Paul Lau, Chief Executive Officer and General Manager
Sacramento Municipal Utility District
6201 S Street
Sacramento, CA 95817

RE: City of Roseville 2025 Urban Water Management Plan

Dear Mr. Lau:

The City of Roseville (City) water utility has begun preparing the 2025 Urban Water Management Plan, which must be completed by July 1, 2026. In accordance with California Water Code Section 10642, we are writing to notify you that preparation is underway and to encourage your active input and involvement in the process.

Prior to Board adoption of the plan a public hearing will be held, and we will notify you of the date, time, and location of the meeting. We will also make a draft of the 2025 Urban Water Management Plan available to your agency in advance of the public hearing.

If you wish to contact the City about its review process, you may do so by writing to the undersigned or by email to ghanson@roseville.ca.us. Thank you.

Sincerely,

George Hanson
Water Utility Manager
City of Roseville
Environmental Utilities Department

Environmental Utilities
Water Division
2005 Hilltop Circle
Roseville, California 95747

February 4, 2026

Mr. Daniel York, General Manager
Sacramento Suburban Water District
3701 Marconi Avenue, Suite 100
Sacramento, CA 95821

RE: City of Roseville 2025 Urban Water Management Plan

Dear Mr. York:

The City of Roseville (City) water utility has begun preparing the 2025 Urban Water Management Plan, which must be completed by July 1, 2026. In accordance with California Water Code Section 10642, we are writing to notify you that preparation is underway and to encourage your active input and involvement in the process.

Prior to Board adoption of the plan a public hearing will be held, and we will notify you of the date, time, and location of the meeting. We will also make a draft of the 2025 Urban Water Management Plan available to your agency in advance of the public hearing.

If you wish to contact the City about its review process, you may do so by writing to the undersigned or by email to ghanson@roseville.ca.us. Thank you.

Sincerely,

George Hanson
Water Utility Manager
City of Roseville
Environmental Utilities Department

Environmental Utilities
Water Division
2005 Hilltop Circle
Roseville, California 95747

February 4, 2026

Mr. Drew Lessard, Area Manager
Central California Area Office
7794 Folsom Dam Road
Folsom, CA 95630

RE: City of Roseville 2025 Urban Water Management Plan

Dear Mr. Lessard:

The City of Roseville (City) water utility has begun preparing the 2025 Urban Water Management Plan, which must be completed by July 1, 2026. In accordance with California Water Code Section 10642, we are writing to notify you that preparation is underway and to encourage your active input and involvement in the process. Additionally, in accordance with California Water Code Section 10631, as we are a retail water supplier receiving water from your agency, we will provide you with projected water use for the next 20 years (up to the year 2045).

Prior to Board adoption of the plan a public hearing will be held, and we will notify you of the date, time, and location of the meeting. We will also make a draft of the 2025 Urban Water Management Plan available to your agency in advance of the public hearing.

If you wish to contact the City about its review process, you may do so by writing to the undersigned or by email to sbigley@roseville.ca.us. Thank you.

Sincerely,

George Hanson
Water Utility Manager
City of Roseville
Environmental Utilities Department

Environmental Utilities
Water Division
2005 Hilltop Circle
Roseville, California 95747

February 4, 2026

Mr. Dominick Casey, City Manager
City of Roseville
311 Vernon Street
Roseville, CA 95678

RE: City of Roseville 2025 Urban Water Management Plan

Dear Mr. Casey:

The City of Roseville's (City) Water Utility Division has begun preparing the 2025 Urban Water Management Plan, which must be completed by July 1, 2026. In accordance with California Water Code Section 10642, we are writing to notify you that preparation is underway.

Prior to Board adoption of the plan a public hearing will be held, and per the Water Code, we will notify you of the date, time, and location of the meeting. We will also make a draft of the 2025 Urban Water Management Plan available for your review in advance of the public hearing.

Please let me know if you have any questions.

Sincerely,

George Hanson
Water Utility Manager
City of Roseville
Environmental Utilities Department

Environmental Utilities
Water Division
2005 Hilltop Circle
Roseville, California 95747

February 4, 2026

Mr. Paul Hellman, Director
Placer County Community Development Resource Agency
3091 County Center Drive
Auburn, CA 95603

RE: City of Roseville 2025 Urban Water Management Plan

Dear Mr. Hellman:

The City of Roseville (City) water utility has begun preparing the 2025 Urban Water Management Plan, which must be completed by July 1, 2026. In accordance with California Water Code Section 10642, we are writing to notify you that preparation is underway and to encourage your active input and involvement in the process.

Prior to Board adoption of the plan a public hearing will be held, and we will notify you of the date, time, and location of the meeting. We will also make a draft of the 2025 Urban Water Management Plan available to your agency in advance of the public hearing.

If you wish to contact the City about its review process, you may do so by writing to the undersigned or by email to ghanson@roseville.ca.us. Thank you.

Sincerely,

George Hanson
Water Utility Manager
City of Roseville
Environmental Utilities Department

Appendix C – Land Use Element

The Land Use Element of the City of Roseville's General Plan can be accessed at the link below.

https://www.roseville.ca.gov/development_services/planning/general_plan.php#doc_center_0_panel_0

Appendix D – AWWA Water Loss Audits

AWWA Free Water Audit Software: Worksheet

FWAS v6.0

American Water Works Association.

Water Audit Report for: City of Roseville

Audit Year: 2024 | Jan 01 2024 - Dec 31 2024 | Calendar

Click 'n' to add notes

Click 'g' to determine data validity grade

To edit water system info: go to start page

To access definitions, click the input name

All volumes to be entered as: ACRE-FEET PER YEAR

Water Supplied Error Adjustments

WATER SUPPLIED

choose entry option:

VOS	Volume from Own Sources:	n	g	7	31,245.460	Acre-ft/Yr	n	g	8	volume	462.300	acre-ft/yr	under-registration	VOSEA
WI	Water Imported:	n	g	6	1,698.300	Acre-ft/Yr	n	g		percent				WIEA
WE	Water Exported:	n	g	6	2,245.900	Acre-ft/Yr	n	g		percent				WEEA

WATER SUPPLIED: 31,160.160 Acre-ft/Yr

AUTHORIZED CONSUMPTION

choose entry option:

BMAC	Billed Metered:	n	g	8	28,039.000	Acre-ft/Yr			
BUAC	Billed Unmetered:	n	g	10	117.000	Acre-ft/Yr			
UMAC	Unbilled Metered:	n	g	10	172.150	Acre-ft/Yr			
UUAC	Unbilled Unmetered:	n	g	5	307.540	Acre-ft/Yr	custom	307.540	acre-ft/yr

AUTHORIZED CONSUMPTION: 28,635.690 Acre-ft/Yr

WATER LOSSES

2,524.470 Acre-ft/Yr

Apparent Losses

Default option selected for Systematic Data Handling Errors, with automatic data grading of 3

choose entry option:

SDHE	Systematic Data Handling Errors:	n	g	3	70.390	Acre-ft/Yr	0.25%	default	
CMI	Customer Metering Inaccuracies:	n	g	3	284.961	Acre-ft/Yr	1.00%	percent	under-registration
UC	Unauthorized Consumption:	n	g	3	70.390	Acre-ft/Yr	0.25%	default	

Default option selected for Unauthorized Consumption, with automatic data grading of 3

Apparent Losses: 425.741 Acre-ft/Yr

Real Losses

Real Losses: 2,098.729 Acre-ft/Yr

WATER LOSSES: 2,524.470 Acre-ft/Yr

NON-REVENUE WATER

NON-REVENUE WATER: 3,004.160 Acre-ft/Yr

SYSTEM DATA

Lm	Length of mains:	n	g	10	715.0	miles	(including fire hydrant lead lengths)
Nc	Number of service connections:	n	g	8	52,102		(active *and* inactive)
	Service connection density:				73	conn./mile main	

Are customer meters typically located at the curbstop/property line? Yes

Lp n g 10

Average length of customer service line has been set to zero and a data grading of 10 has been applied

AOP Average Operating Pressure: n g 9 82.8 psi

COST DATA

CRUC	Customer Retail Unit Charge:	n	g	10	$10.90	$/100 cubic feet (ccf)	Total Annual Operating Cost	
VPC	Variable Production Cost:	n	g	8	$138.12	$/acre-ft	$48,238,692	$/yr (optional input)

WATER AUDIT DATA VALIDITY TIER:

***** The Water Audit Data Validity Score is in Tier IV (71-90). See Dashboard tab for additional outputs. *****

go to dashboard

A weighted scale for the components of supply, consumption and water loss is included in the calculation of the Water Audit Data Validity Score

PRIORITY AREAS FOR ATTENTION TO IMPROVE DATA VALIDITY:

Based on the information provided, audit reliability can be most improved by addressing the following components:

1: Volume from Own Sources (VOS)

2: Customer Metering Inaccuracies (CMI)

3: Billed Metered (BMAC)

KEY PERFORMANCE INDICATOR TARGETS:

OPTIONAL: If targets exist for the operational performance indicators, they can be input below:

Unit Total Losses:		gal/conn/day
Unit Apparent Losses:		gal/conn/day
Unit Real Losses[^]:		gal/conn/day
Unit Real Losses[^]:		gal/mile/day

If entered above by user, targets will display on KPI gauges (see Dashboard)

AWWA Free Water Audit Software: Worksheet

FWAS v6.0

American Water Works Association.

Water Audit Report for: City of Roseville

Audit Year: 2023 | Jan 01 2023 - Dec 31 2023 | Calendar

Click 'n' to add notes

Click 'g' to determine data validity grade

To edit water system info: go to start page

To access definitions, click the input name

All volumes to be entered as: ACRE-FEET PER YEAR

Water Supplied Error Adjustments

WATER SUPPLIED

choose entry option:

		n	g				n	g						
VOS	Volume from Own Sources:	n	g	7	29,021.380	Acre-ft/Yr	n	g	8		volume	13.690	acre-ft/yr	under-registration VOSEA
WI	Water Imported:	n	g	6	1,775.800	Acre-ft/Yr	n	g	4		percent			WIEA
WE	Water Exported:	n	g	6	1,803.900	Acre-ft/Yr	n	g	4		percent			WEEA

WATER SUPPLIED: 29,006.970 Acre-ft/Yr

AUTHORIZED CONSUMPTION

choose entry option:

		n	g						
BMAC	Billed Metered:	n	g	8	27,078.020	Acre-ft/Yr			
BUAC	Billed Unmetered:	n	g	10	131.710	Acre-ft/Yr			
UMAC	Unbilled Metered:	n	g	10	133.860	Acre-ft/Yr			
UUAC	Unbilled Unmetered:	n	g	5	312.280	Acre-ft/Yr	custom	312.280	acre-ft/yr

AUTHORIZED CONSUMPTION: 27,655.870 Acre-ft/Yr

WATER LOSSES

1,351.100 Acre-ft/Yr

Apparent Losses

Default option selected for Systematic Data Handling Errors, with automatic data grading of 3

choose entry option:

		n	g						
SDHE	Systematic Data Handling Errors:	n	g	3	68.024	Acre-ft/Yr	0.25%	default	
CMI	Customer Metering Inaccuracies:	n	g	3	274.867	Acre-ft/Yr	1.00%	percent	under-registration
UC	Unauthorized Consumption:	n	g	3	68.024	Acre-ft/Yr	0.25%	default	

Default option selected for Unauthorized Consumption, with automatic data grading of 3

Apparent Losses: 410.916 Acre-ft/Yr

Real Losses

Real Losses: 940.184 Acre-ft/Yr

WATER LOSSES: 1,351.100 Acre-ft/Yr

NON-REVENUE WATER

NON-REVENUE WATER: 1,797.240 Acre-ft/Yr

SYSTEM DATA

		n	g				
Lm	Length of mains:	n	g	10	704.0	miles	(including fire hydrant lead lengths)
Nc	Number of service connections:	n	g	8	50,757		(active *and* inactive)
	Service connection density:				72	conn./mile main	

Are customer meters typically located at the curbstop/property line? Yes

Lp n g 10

Average length of customer service line has been set to zero and a data grading of 10 has been applied

AOP Average Operating Pressure: n g 9 82.2 psi

COST DATA

		n	g					
CRUC	Customer Retail Unit Charge:	n	g	10	$8.81	$/100 cubic feet (ccf)	Total Annual Operating Cost	
VPC	Variable Production Cost:	n	g	8	$144.27	$/acre-ft		$/yr (optional input)

WATER AUDIT DATA VALIDITY TIER:

***** The Water Audit Data Validity Score is in Tier IV (71-90). See Dashboard tab for additional outputs. ***** go to dashboard

A weighted scale for the components of supply, consumption and water loss is included in the calculation of the Water Audit Data Validity Score

PRIORITY AREAS FOR ATTENTION TO IMPROVE DATA VALIDITY:

Based on the information provided, audit reliability can be most improved by addressing the following components:

1: Volume from Own Sources (VOS)

2: Customer Metering Inaccuracies (CMI)

3: Billed Metered (BMAC)

KEY PERFORMANCE INDICATOR TARGETS:

OPTIONAL: If targets exist for the operational performance indicators, they can be input below:

Unit Total Losses:		gal/conn/day
Unit Apparent Losses:		gal/conn/day
Unit Real Losses[^]:		gal/conn/day
Unit Real Losses[=]:		gal/mile/day

If entered above by user, targets will display on KPI gauges (see Dashboard)

AWWA Free Water Audit Software: Worksheet

FWAS v6.0

American Water Works Association.

Water Audit Report for: City of Roseville

Audit Year: 2022 | Jan 01 2022 - Dec 31 2022 | Calendar

Click 'n' to add notes

Click 'g' to determine data validity grade

To edit water system info: go to start page

To access definitions, click the input name

All volumes to be entered as: ACRE-FEET PER YEAR

Water Supplied Error Adjustments

WATER SUPPLIED

choose entry option:

		n	g				n	g						
VOS	Volume from Own Sources:	n	g	7	29,720.700	Acre-ft/Yr	n	g	8		volume	23.600	acre-ft/yr	under-registration VOSEA
WI	Water Imported:	n	g	6	1,452.600	Acre-ft/Yr	n	g	4		percent			WIEA
WE	Water Exported:	n	g	6	1,648.800	Acre-ft/Yr	n	g	4		percent			WEEA

WATER SUPPLIED: 29,548.100 Acre-ft/Yr

AUTHORIZED CONSUMPTION

choose entry option:

		n	g						
BMAC	Billed Metered:	n	g	8	27,285.000	Acre-ft/Yr			
BUAC	Billed Unmetered:	n	g	10	127.000	Acre-ft/Yr			
UMAC	Unbilled Metered:	n	g	10	153.300	Acre-ft/Yr			
UUAC	Unbilled Unmetered:	n	g	5	320.020	Acre-ft/Yr	custom	320.020	acre-ft/yr

AUTHORIZED CONSUMPTION: 27,885.320 Acre-ft/Yr

WATER LOSSES

1,662.780 Acre-ft/Yr

Apparent Losses

Default option selected for Systematic Data Handling Errors, with automatic data grading of 3

choose entry option:

		n	g						
SDHE	Systematic Data Handling Errors:	n	g	3	68.530	Acre-ft/Yr	0.25%	default	
CMI	Customer Metering Inaccuracies:	n	g	3	277.155	Acre-ft/Yr	1.00%	percent	under-registration
UC	Unauthorized Consumption:	n	g	3	68.530	Acre-ft/Yr	0.25%	default	

Default option selected for Unauthorized Consumption, with automatic data grading of 3

Apparent Losses: 414.215 Acre-ft/Yr

Real Losses

Real Losses: 1,248.565 Acre-ft/Yr

WATER LOSSES: 1,662.780 Acre-ft/Yr

NON-REVENUE WATER

NON-REVENUE WATER: 2,136.100 Acre-ft/Yr

SYSTEM DATA

		n	g				
Lm	Length of mains:	n	g	10	690.0	miles	(including fire hydrant lead lengths)
Nc	Number of service connections:	n	g	8	49,482		(active *and* inactive)
	Service connection density:				72	conn./mile main	

Are customer meters typically located at the curbstop/property line? Yes

Lp n g 10

Average length of customer service line has been set to zero and a data grading of 10 has been applied

AOP Average Operating Pressure: n g 9 83.5 psi

COST DATA

		n	g					
CRUC	Customer Retail Unit Charge:	n	g	10	$6.68	$/100 cubic feet (ccf)	Total Annual Operating Cost	
VPC	Variable Production Cost:	n	g	8	$118.21	$/acre-ft		$/yr (optional input)

WATER AUDIT DATA VALIDITY TIER:

***** The Water Audit Data Validity Score is in Tier IV (71-90). See Dashboard tab for additional outputs. ***** go to dashboard

A weighted scale for the components of supply, consumption and water loss is included in the calculation of the Water Audit Data Validity Score

PRIORITY AREAS FOR ATTENTION TO IMPROVE DATA VALIDITY:

Based on the information provided, audit reliability can be most improved by addressing the following components:

1: Volume from Own Sources (VOS)

2: Customer Metering Inaccuracies (CMI)

3: Billed Metered (BMAC)

KEY PERFORMANCE INDICATOR TARGETS:

OPTIONAL: If targets exist for the operational performance indicators, they can be input below:

Unit Total Losses:		gal/conn/day
Unit Apparent Losses:		gal/conn/day
Unit Real Losses[^]:		gal/conn/day
Unit Real Losses[=]:		gal/mile/day

If entered above by user, targets will display on KPI gauges (see Dashboard)

AWWA Free Water Audit Software:
Reporting Worksheet

WAS v5.0

American Water Works Association.
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? Click to access definition
+ Click to add a comment

Water Audit Report for: City of Roseville (CA3110008)
Reporting Year: 2021 | 1/2021 - 12/2021

Please enter data in the white cells below. Where available, metered values should be used; if metered values are unavailable please estimate a value. Indicate your confidence in the accuracy of the input data by grading each component (n/a or 1-10) using the drop-down list to the left of the input cell. Hover the mouse over the cell to obtain a description of the grades

All volumes to be entered as: ACRE-FEET PER YEAR

To select the correct data grading for each input, determine the highest grade where the utility meets or exceeds all criteria for that grade and all grades below it.

Master Meter and Supply Error Adjustments

WATER SUPPLIED

<---------- Enter grading in column 'E' and 'J' ---------->

					Pcnt:	Value:	
Volume from own sources:	7	29,242.520	acre-ft/yr	7	-1.04%		acre-ft/yr
Water imported:	5	1,738.400	acre-ft/yr				acre-ft/yr
Water exported:	4	1,780.600	acre-ft/yr				acre-ft/yr

Enter negative % or value for under-registration
Enter positive % or value for over-registration

WATER SUPPLIED: 29,507.638 acre-ft/yr

AUTHORIZED CONSUMPTION

Click here: ? for help using option buttons below

				Pcnt:	Value:	
Billed metered:	7	28,541.670	acre-ft/yr			
Billed unmetered:	10	125.260	acre-ft/yr			
Unbilled metered:	7	109.060	acre-ft/yr			
Unbilled unmetered:	8	19.590	acre-ft/yr		19.590	acre-ft/yr

Use buttons to select percentage of water supplied **OR** value

AUTHORIZED CONSUMPTION: 28,795.580 acre-ft/yr

WATER LOSSES (Water Supplied - Authorized Consumption) 712.058 acre-ft/yr

Apparent Losses

				Pcnt:	Value:	
Unauthorized consumption:		73.769	acre-ft/yr	0.25%		acre-ft/yr

Default option selected for unauthorized consumption - a grading of 5 is applied but not displayed

Customer metering inaccuracies:	6	289.401	acre-ft/yr	1.00%		acre-ft/yr
Systematic data handling errors:	5	71.354	acre-ft/yr	0.25%		acre-ft/yr

Default option selected for Systematic data handling errors - a grading of 5 is applied but not displayed

Apparent Losses: 434.525 acre-ft/yr

Real Losses (Current Annual Real Losses or CARL)

Real Losses = Water Losses - Apparent Losses: 277.534 acre-ft/yr

WATER LOSSES: 712.058 acre-ft/yr

NON-REVENUE WATER

NON-REVENUE WATER: 840.708 acre-ft/yr

= Water Losses + Unbilled Metered + Unbilled Unmetered

SYSTEM DATA

Length of mains:	9	686.0	miles
Number of active AND inactive service connections:	9	47,930	
Service connection density:		70	conn./mile main
Are customer meters typically located at the curbstop or property line?		Yes	
Average length of customer service line:			(length of service line, beyond the property boundary, that is the responsibility of the utility)

Average length of customer service line has been set to zero and a data grading score of 10 has been applied

Average operating pressure:	7	81.9	psi

COST DATA

Total annual cost of operating water system:	10	$42,460,847	$/Year	
Customer retail unit cost (applied to Apparent Losses):	9	$5.70	$/100 cubic feet (ccf)	
Variable production cost (applied to Real Losses):	6	$109.24	$/acre-ft	☐ Use Customer Retail Unit Cost to value real losses

WATER AUDIT DATA VALIDITY SCORE:

***** YOUR SCORE IS: 72 out of 100 *****

A weighted scale for the components of consumption and water loss is included in the calculation of the Water Audit Data Validity Score

PRIORITY AREAS FOR ATTENTION:

Based on the information provided, audit accuracy can be improved by addressing the following components:

1: Volume from own sources
2: Billed metered
3: Customer metering inaccuracies

AWWA Free Water Audit Software:
Reporting Worksheet

WAS v5.0

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? Click to access definition
+ Click to add a comment

Water Audit Report for: City of Roseville (3110008)
Reporting Year: 2020 1/2020 - 12/2020

Please enter data in the white cells below. Where available, metered values should be used; if metered values are unavailable please estimate a value. Indicate your confidence in the accuracy of the input data by grading each component (n/a or 1-10) using the drop-down list to the left of the input cell. Hover the mouse over the cell to obtain a description of the grades

All volumes to be entered as: ACRE-FEET PER YEAR

To select the correct data grading for each input, determine the highest grade where the utility meets or exceeds all criteria for that grade and all grades below it.

Master Meter and Supply Error Adjustments

WATER SUPPLIED

<---------- Enter grading in column 'E' and 'J' ---------->

						Pcnt:	Value:	
Volume from own sources:	8	29,631.250	acre-ft/yr	7			194.490	acre-ft/yr
Water imported:	5	1,351.500	acre-ft/yr					acre-ft/yr
Water exported:	4	1,450.700	acre-ft/yr					acre-ft/yr

Enter negative % or value for under-registration
Enter positive % or value for over-registration

WATER SUPPLIED: 29,337.560 acre-ft/yr

AUTHORIZED CONSUMPTION

Click here: ? for help using option buttons below

				Pcnt:	Value:	
Billed metered:	7	28,133.950	acre-ft/yr			
Billed unmetered:	10	114.700	acre-ft/yr			
Unbilled metered:	7	7.560	acre-ft/yr			
Unbilled unmetered:	8	25.080	acre-ft/yr		25.080	acre-ft/yr

Use buttons to select percentage of water supplied **OR** value

AUTHORIZED CONSUMPTION: 28,281.290 acre-ft/yr

WATER LOSSES (Water Supplied - Authorized Consumption) 1,056.270 acre-ft/yr

Apparent Losses

				Pcnt:	Value:	
Unauthorized consumption:		73.344	acre-ft/yr	0.25%		acre-ft/yr

Default option selected for unauthorized consumption - a grading of 5 is applied but not displayed

Customer metering inaccuracies:	6	284.258	acre-ft/yr	1.00%		acre-ft/yr
Systematic data handling errors:		70.335	acre-ft/yr	0.25%		acre-ft/yr

Default option selected for Systematic data handling errors - a grading of 5 is applied but not displayed

Apparent Losses: 427.936 acre-ft/yr

Real Losses (Current Annual Real Losses or CARL)

Real Losses = Water Losses - Apparent Losses: 628.334 acre-ft/yr

WATER LOSSES: 1,056.270 acre-ft/yr

NON-REVENUE WATER

NON-REVENUE WATER: 1,088.910 acre-ft/yr

= Water Losses + Unbilled Metered + Unbilled Unmetered

SYSTEM DATA

Length of mains:	9	660.8	miles	
Number of active AND inactive service connections:	9	46,426		
Service connection density:		70	conn./mile main	
Are customer meters typically located at the curbstop or property line?		Yes		
Average length of customer service line:				(length of service line, beyond the property boundary, that is the responsibility of the utility)

Average length of customer service line has been set to zero and a data grading score of 10 has been applied

Average operating pressure:	7	82.2	psi	

COST DATA

Total annual cost of operating water system:	10	$14,545,147	$/Year	
Customer retail unit cost (applied to Apparent Losses):	9	$3.28	$/100 cubic feet (ccf)	
Variable production cost (applied to Real Losses):	5	$116.00	$/acre-ft	☐ Use Customer Retail Unit Cost to value real losses

WATER AUDIT DATA VALIDITY SCORE:

***** YOUR SCORE IS: 75 out of 100 *****

A weighted scale for the components of consumption and water loss is included in the calculation of the Water Audit Data Validity Score

PRIORITY AREAS FOR ATTENTION:

Based on the information provided, audit accuracy can be improved by addressing the following components:

1: Volume from own sources
2: Variable production cost (applied to Real Losses)
3: Billed metered

Appendix E – SWRCB Calculated Water Loss Standards

The California State Water Resources Control Board's (SWRCB) calculated water loss standards can be accessed at the link below.

https://view.officeapps.live.com/op/view.aspx?src=https%3A%2F%2Fwww.waterboards.ca.gov%2Fconservation%2Fdocs%2Fwaterlosscontrol%2Fstandards-released.xlsx&wdOrigin=BROWSELINK

Appendix F – 2015 SBX7-7 Verification Form

SB X7-7 Table 0: Units of Measure Used in UWMP* *(select one from the drop down list)*
Acre Feet
**The unit of measure must be consistent with Table 2-3*
NOTES:

SB X7-7 Table-1: Baseline Period Ranges

Baseline	Parameter	Value	Units
10- to 15-year baseline period	2008 total water deliveries	34,052	Acre Feet
	2008 total volume of delivered recycled water	2,985	Acre Feet
	2008 recycled water as a percent of total deliveries	8.77%	Percent
	Number of years in baseline period[1, 2]	10	Years
	Year beginning baseline period range	1995	
	Year ending baseline period range[3]	2004	
5-year baseline period	Number of years in baseline period	5	Years
	Year beginning baseline period range	2003	
	Year ending baseline period range[4]	2007	

[1] If the 2008 recycled water percent is less than 10 percent, then the first baseline period is a continuous 10-year period. If the amount of recycled water delivered in 2008 is 10 percent or greater, the first baseline period is a continuous 10- to 15-year period. *[2] The Water Code requires that the baseline period is between 10 and 15 years. However, DWR recognizes that some water suppliers may not have the minimum 10 years of baseline data.*

[3] The ending year must be between December 31, 2004 and December 31, 2010.

[4] The ending year must be between December 31, 2007 and December 31, 2010.

NOTES:

SB X7-7 Table 2: Method for Population Estimates	
Method Used to Determine Population (may check more than one)	
☑	**1. Department of Finance** (DOF) DOF Table E-8 (1990 - 2000) and (2000-2010) and DOF Table E-5 (2011 - 2015) when available
☐	**2. Persons-per-Connection Method**
☐	**3. DWR Population Tool**
☐	**4. Other** DWR recommends pre-review
NOTES:	

SB X7-7 Table 3: Service Area Population		
Year		**Population**
10 to 15 Year Baseline Population		
Year 1	1995	54,602
Year 2	1996	58,424
Year 3	1997	62,619
Year 4	1998	66,761
Year 5	1999	71,824
Year 6	2000	74,562
Year 7	2001	78,420
Year 8	2002	83,167
Year 9	2003	89,289
Year 10	2004	94,561
5 Year Baseline Population		
Year 1	2003	89,289
Year 2	2004	94,561
Year 3	2005	99,295
Year 4	2006	101,641
Year 5	2007	103,693
2015 Compliance Year Population		
2015		123,572
NOTES: Does not include approximately 4,810 person living within City limits, but outside the water service area.		

SB X7-7 Table 4-A: Volume Entering the Distribution System(s)

Complete one table for each source.

Name of Source	All Sources
This water source is:	
☑	The supplier's own water source
☑	A purchased or imported source

Baseline Year *Fm SB X7-7 Table 3*		Volume Entering Distribution System	Meter Error Adjustment* *Optional (+/-)*	Corrected Volume Entering Distribution System
10 to 15 Year Baseline - Water into Distribution System				
Year 1	1995	18,841		18,841
Year 2	1996	21,254		21,254
Year 3	1997	23,001		23,001
Year 4	1998	20,462		20,462
Year 5	1999	24,179		24,179
Year 6	2000	25,646		25,646
Year 7	2001	28,100		28,100
Year 8	2002	29,853		29,853
Year 9	2003	29,714		29,714
Year 10	2004	32,468		32,468
5 Year Baseline - Water into Distribution System				
Year 1	2003	29,714		29,714
Year 2	2004	32,468		32,468
Year 3	2005	31,481		31,481
Year 4	2006	33,637		33,637
Year 5	2007	33,864		33,864
2015 Compliance Year - Water into Distribution System				
2015		22,881		22,881

** Meter Error Adjustment - See guidance in Methodology 1, Step 3 of Methodologies Document*

NOTES:

SB X7-7 Table 4: Annual Gross Water Use *

Baseline Year *Fm SB X7-7 Table 3*		Volume Into Distribution System *This column will remain blank until SB X7-7 Table 4-A is completed.*	Deductions					Annual Gross Water Use
			Exported Water	Change in Dist. System Storage (+/-)	Indirect Recycled Water *This column will remain blank until SB X7-7 Table 4-B is completed.*	Water Delivered for Agricultural Use	Process Water *This column will remain blank until SB X7-7 Table 4-D is completed.*	
10 to 15 Year Baseline - Gross Water Use								
Year 1	1995	18,841			-		-	18,841
Year 2	1996	21,254			-		-	21,254
Year 3	1997	23,001			-		-	23,001
Year 4	1998	20,462			-		-	20,462
Year 5	1999	24,179			-		-	24,179
Year 6	2000	25,646			-		-	25,646
Year 7	2001	28,100			-		-	28,100
Year 8	2002	29,853			-		-	29,853
Year 9	2003	29,714			-		-	29,714
Year 10	2004	32,468			-		-	32,468
10 - 15 year baseline average gross water use								**25,352**
5 Year Baseline - Gross Water Use								
Year 1	2003	29,714			-		-	29,714
Year 2	2004	32,468			-		-	32,468
Year 3	2005	31,481			-		-	31,481
Year 4	2006	33,637			-		-	33,637
Year 5	2007	33,864			-		-	33,864
5 year baseline average gross water use								**32,233**
2015 Compliance Year - Gross Water Use								
2015		22,881	-		-		-	**22,881**

* NOTE that the units of measure must remain consistent throughout the UWMP, as reported in Table 2-3

NOTES:

SB X7-7 Table 5: Gallons Per Capita Per Day (GPCD)				
Baseline Year *Fm SB X7-7 Table 3*		Service Area Population *Fm SB X7-7 Table 3*	Annual Gross Water Use *Fm SB X7-7 Table 4*	Daily Per Capita Water Use (GPCD)
10 to 15 Year Baseline GPCD				
Year 1	1995	54,602	18,841	308
Year 2	1996	58,424	21,254	325
Year 3	1997	62,619	23,001	328
Year 4	1998	66,761	20,462	274
Year 5	1999	71,824	24,179	301
Year 6	2000	74,562	25,646	307
Year 7	2001	78,420	28,100	320
Year 8	2002	83,167	29,853	320
Year 9	2003	89,289	29,714	297
Year 10	2004	94,561	32,468	307
10-15 Year Average Baseline GPCD				**309**
5 Year Baseline GPCD				
Baseline Year *Fm SB X7-7 Table 3*		Service Area Population *Fm SB X7-7 Table 3*	Gross Water Use *Fm SB X7-7 Table 4*	Daily Per Capita Water Use
Year 1	2003	89,289	29,714	297
Year 2	2004	94,561	32,468	307
Year 3	2005	99,295	31,481	283
Year 4	2006	101,641	33,637	295
Year 5	2007	103,693	33,864	292
5 Year Average Baseline GPCD				**295**
2015 Compliance Year GPCD				
2015		123,572	22,881	**165**
NOTES:				

SB X7-7 Table 6: Gallons per Capita per Day *Summary From Table SB X7-7 Table 5*	
10-15 Year Baseline GPCD	309
5 Year Baseline GPCD	295
2015 Compliance Year GPCD	165
NOTES:	

SB X7-7 Table 7: 2020 Target Method *Select Only One*		
Target Method		Supporting Documentation
☑	Method 1	SB X7-7 Table 7A
☐	Method 2	SB X7-7 Tables 7B, 7C, and 7D *Contact DWR for these tables*
☐	Method 3	SB X7-7 Table 7-E
☐	Method 4	Method 4 Calculator
NOTES:		

SB X7-7 Table 7-A: Target Method 1 20% Reduction	
10-15 Year Baseline GPCD	**2020 Target GPCD**
309	**247**
NOTES:	

SB X7-7 Table 7-F: Confirm Minimum Reduction for 2020 Target			
5 Year Baseline GPCD *From SB X7-7 Table 5*	Maximum 2020 Target[1]	Calculated 2020 Target[2]	**Confirmed 2020 Target**
295	280	247	**247**

[1] Maximum 2020 Target is 95% of the 5 Year Baseline GPCD *[2] 2020 Target is calculated based on the selected Target Method, see SB X7-7 Table 7 and corresponding tables for agency's calculated target.*

NOTES:

SB X7-7 Table 8: 2015 Interim Target GPCD		
Confirmed 2020 Target *Fm SB X7-7 Table 7-F*	10-15 year Baseline GPCD *Fm SB X7-7 Table 5*	**2015 Interim Target GPCD**
247	309	**278**

NOTES:

SB X7-7 Table 9: 2015 Compliance								
Actual 2015 GPCD	2015 Interim Target GPCD	Optional Adjustments *(in GPCD)* Enter "0" if Adjustment Not Used: Extraordinary Events	Weather Normalization	Economic Adjustment	TOTAL Adjustments	Adjusted 2015 GPCD	2015 GPCD *(Adjusted if applicable)*	**Did Supplier Achieve Targeted Reduction for 2015?**
165	278	*From Methodology 8 (Optional)*	*From Methodology 8 (Optional)*	*From Methodology 8 (Optional)*	-	165	165	**YES**

NOTES:

Appendix G – 2020 SBX7-7 Compliance Form

SB X7-7 Table 0: Units of Measure Used in 2020 UWMP* *(select one from the drop down list)*
Acre Feet
**The unit of measure must be consistent throughout the UWMP, as reported in Submittal Table 2-3.*
NOTES:

SB X7-7 Table 2: Method for 2020 Population Estimate	
Method Used to Determine 2020 Population (may check more than one)	
☑	**1. Department of Finance** (DOF) or **American Community Survey** (ACS)
☐	**2. Persons-per-Connection Method**
☐	**3. DWR Population Tool**
☑	**4. Other** DWR recommends pre-review
NOTES: The population for areas in the City of Roseville boundary not served by the City of Roseville Water Utility was subtracted from the total 2020 DOF population.	

SB X7-7 Table 3: 2020 Service Area Population	
2020 Compliance Year Population	
2020	140,187
NOTES:	

SB X7-7 Table 4: 2020 Gross Water Use							
		2020 Deductions					
Compliance Year 2020	2020 Volume Into Distribution System *This column will remain blank until SB X7-7 Table 4-A is completed.*	Exported Water *	Change in Dist. System Storage* (+/-)	Indirect Recycled Water *This column will remain blank until SB X7-7 Table 4-B is completed.*	Water Delivered for Agricultural Use*	Process Water *This column will remain blank until SB X7-7 Table 4-D is completed.*	2020 Gross Water Use
	33,263	1,451	-	-	-	-	**31,813**
* **Units of measure (AF, MG , or CCF)** must remain consistent throughout the UWMP, as reported in SB X7-7 Table 0 and Submittal Table 2-3.							
NOTES:							

SB X7-7 Table 4-A: 2020 Volume Entering the Distribution System(s), Meter Error Adjustment

Complete one table for each source.

Name of Source	Folsom Lake
This water source is *(check one)* **:**	
☑	The supplier's own water source
☐	A purchased or imported source

Compliance Year 2020	Volume Entering Distribution System [1]	Meter Error Adjustment [2] *Optional (+/-)*	Corrected Volume Entering Distribution System
	31,711	-	31,711

[1] ***Units of measure (AF, MG , or CCF)*** *must remain consistent throughout the UWMP, as reported in SB X7-7 Table 0 and Submittal Table 2-3.*

[2] ***Meter Error Adjustment*** *- See guidance in Methodology 1, Step 3 of Methodologies Document*

NOTES: Total volume excludes raw water delivered to Linda Creek.

SB X7-7 Table 4-A: 2020 Volume Entering the Distribution System(s) Meter Error Adjustment

Complete one table for each source.

Name of Source	Ground Water
This water source is *(check one)* **:**	
☑	The supplier's own water source
☐	A purchased or imported source

Compliance Year 2020	Volume Entering Distribution System [1]	Meter Error Adjustment [2] *Optional (+/-)*	Corrected Volume Entering Distribution System
	201	0	201

[1] ***Units of measure (AF, MG , or CCF)*** *must remain consistent throughout the UWMP, as reported in SB X7-7 Table 0 and Submittal Table 2-3.*

[2] ***Meter Error Adjustment*** *- See guidance in Methodology 1, Step 3 of Methodologies Document*

NOTES:

SB X7-7 Table 4-A: 2020 Volume Entering the Distribution System(s), Meter Error Adjustment

Complete one table for each source.

Name of Source	Total water delivered from other suppliers to Roseville
This water source is *(check one)* **:**	
☐	The supplier's own water source
☑	A purchased or imported source

Compliance Year 2020	Volume Entering Distribution System [1]	Meter Error Adjustment [2] *Optional (+/-)*	Corrected Volume Entering Distribution System
	1,352	0	1,352

[1] ***Units of measure (AF, MG , or CCF)*** *must remain consistent throughout the UWMP, as reported in SB X7-7 Table 0 and Submittal Table 2-3.*

[2] ***Meter Error Adjustment*** *- See guidance in Methodology 1, Step 3 of Methodologies Document*

NOTES:

SB X7-7 Table 5: 2020 Gallons Per Capita Per Day (GPCD)		
2020 Gross Water *Fm SB X7-7 Table 4*	**2020 Population** *Fm SB X7-7 Table 3*	**2020 GPCD**
31,813	140,187	**203**
NOTES:		

SB X7-7 Table 9: 2020 Compliance							
Actual 2020 GPCD[1]	Optional Adjustments to 2020 GPCD Enter "0" if Adjustment Not Used			TOTAL Adjustments[1]	Adjusted 2020 GPCD [1] *(Adjusted if applicable)*	2020 Confirmed Target GPCD [1, 2]	**Did Supplier Achieve Targeted Reduction for 2020?**
	Extraordinary Events[1]	Weather Normalization[1]	Economic Adjustment[1]				
203	-	-	-	-	203	247	**YES**
[1] *All values are reported in GPCD*							
[2] ***2020 Confirmed Target GPCD*** *is taken from the Supplier's SB X7-7 Verification Form Table SB X7-7, 7-F.*							
NOTES:							

Appendix H – Intent to Retain Control of Conserved Water

RESOLUTION NO. 09-64

DECLARING AN INTENT TO RETAIN CONTROL OF CONSERVED WATER

WHEREAS, the City has contractual entitlements to divert water from Folsom Reservoir, under which the City diverts and treats water for distribution to its residents and water users; and

WHEREAS, the City plans to implement a series of water conservation projects and programs for the purpose of eliminating losses of water within its water transmission and distribution system and for reducing consumption of water by its customers through on-site efficiency improvements and curtailment of water waste; and

WHEREAS, Water Code section 1011 provides that water is deemed conserved when less water is used to accomplish the same purposes of use allowed under a water right and that such cessation or reduction in use is deemed a beneficial use of a water right to the extent of such cessation or reduction in use; and

WHEREAS, Water Code section 1011 and the City's CVP water service contract authorizes the City to make water conserved as a result of such water conservation projects and programs available for use, sale, lease, exchange or short- or long-term transfers inside and outside of the City; and

NOW, THEREFORE, BE IT RESOLVED by the Council of the City of Roseville as follows:

1. The foregoing recitals are true and are incorporated into this Resolution by this reference.

2. The City Council finds and determines that: (a) making significant investments in infrastructure and administrative resources protects the City's water supplies for the benefit of all residents and water users in the City; (b) protecting all of the City's water supplies is of paramount importance to the health and welfare of the City's residents and water users; (c) conserving water through reductions in use is intended to promote statewide policies mandating and encouraging beneficial use of water; and (d) preserving conserved water supplies and making those supplies available for use, sale or transfer is in the best interests of the City and its residents and water users.

3. The City Council declares that, by instituting programs to conserve water, it abandons no right, title or interest in or to any City water rights, contractual entitlements or any appurtenant rights necessary to exercise such water rights or entitlements.

4. In accordance with Water Code section 1011 and any contractual rights, the City reserves the right to sell, lease, exchange, or otherwise transfer for use within or outside of the City's boundaries all water that has been conserved as a result of its water conservation projects and programs.

5. The Environmental Utilities Director and staff are directed to take all actions necessary to implement this Resolution, including the filing of annual reports of reductions in water use resulting from any water conservation projects and programs carried out under this Resolution with the State Water Resources Control Board.

PASSED AND ADOPTED by the City Council of the City of Roseville on the 18th day of February 2009, by the following vote:

AYES COUNCILMEMBERS: Allard, Gray, Garcia, Roccucci, Garbolino

NOES COUNCILMEMBERS: None

ABSENT COUNCILMEMBERS: None

MAYOR

Attest:

City Clerk

Appendix I – Groundwater Sustainability Plan

The North American Subbasin Ground Water Sustainability Plan can be accessed at the link below.

https://sgma.water.ca.gov/portal/gsp/preview/100

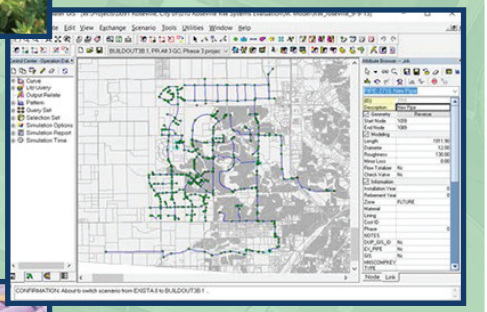
Appendix J – 2025 Recycled Water Systems Evaluation Report

CITY OF ROSEVILLE CALIFORNIA

RECYCLED WATER SYSTEMS EVALUATION

MAY 2025









Prepared by:

Woodard & Curran

Recycled Water Systems Evaluation Report





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Walnut Creek, California 94596
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0012204.00

City of Roseville

May 2025

TABLE OF CONTENTS

SECTION **PAGE NO.**

EXECUTIVE SUMMARY **ES-1**

1. INTRODUCTION **1-1**

1.1 Background 1-1
1.2 Project Goals and Approach 1-1

2. RECYCLED WATER SUPPLIES **2-1**

2.1 Existing Supply 2-1
2.2 Projected Supplies 2-2

3. RECYCLED WATER DEMANDS **3-1**

3.1 Peaking Factors 3-1
3.2 Diurnal Patterns 3-3
3.3 Existing Customer Demand 3-7
3.4 Potential Future Customer Demand 3-9
3.4.1 Near-Term Potential Customers 3-9
3.4.2 UGA Demand 3-9
3.5 Supply versus Demand Comparison 3-10
3.5.1 Supply versus Maximum Day Demand Comparison 3-11
3.5.2 Peak Hourly Demand Versus Supply Comparison 3-11

4. SYSTEM EVALUATION **4-1**

4.1 Evaluation Methodology and Criteria 4-1
4.1.1 Design Criteria 4-1
4.2 Existing System Evaluation 4-2
4.2.1 West Zone Evaluation 4-4
4.2.2 Gravity Zone Evaluation 4-7
4.3 Buildout System Evaluation 4-1
4.3.1 Buildout Model Results 4-1
4.3.2 Hydraulic Analysis of Placer Vineyards UGA Pipeline 4-4

5. IMPLEMENTATION PLAN **5-1**

5.1 Cost Estimating Assumptions 5-1
5.2 Project Descriptions 5-3
5.2.1 Pump Station Improvements 5-3
5.2.2 Storage Improvements 5-5
5.2.3 Pipeline Improvements 5-8
5.3 Phasing Summary 5-9
5.4 Additional Recommendations 5-13
5.4.1 West Roseville Pump Station Facility Planning 5-13
5.4.2 System Operation Plan 5-13
5.4.3 Coordination with UGA System Operations 5-13

5.4.4 Future Updates 5-14

TABLES

Table ES- 1: Existing and Projected WWTP Recycled Water Supplies
Table ES- 2: Summary of Exisitng Customers
Table ES- 3: Urban Growth Area Potential Demands
Table ES- 4: Existing Recycled Water System Pump Station Flowrates and Pressures
Table ES- 5: Effectiveness of Operational Improvements
Table ES- 6: Buildout Max Day Storage Analysis
Table ES- 7: Proposed Pump Station Design Points at Buildout
Table ES- 8: Pipeline and Supply Projects Summary
Table ES- 9: Pump Station Improvements Summary
Table ES- 10: Storage Improvements Summary
Table ES- 11: Phasing SUmmary
Table 2-1: Existing and Projected WWTP Recycled water Supply
Table 3-1: Monthly Production Analysis
Table 3-2: Recycled Water Peaking Factors
Table 3-3: Diurnal demand patterns for Existing Customers
Table 3-4: Summary of Existing Customers
Table 3-5: Urban Growth Area Potential Demands
Table 4-1: Hydraulic Design Criteria for Model Development
Table 4-2: Existing Recycled Water System Pump Station Flowrates and Pressures
Table 4-3: Effectiveness of Near-Term Operational Improvements
Table 4-4: Buildout Max Day Storage Analysis
Table 4-5: Proposed Pump Station Design Points at Buildout
Figure 4-5: Proposed Placer Vineyards Pipeline
Figure 4-6: Hydraulic Analysis of 24" Gravity Pipeline to Placer Vineyards
Table 5-1: Implementation Allowances
Table 5-2: West Roseville Pump Station Phasing
Table 5-3: DC WWTP Recycled Water Storage Phasing
Table 5-4: Estimated Costs for Additional Storage Improvements
Table 5-5: Pipeline and Supply Projects Summary
Table 5-6: Phasing Summary

FIGURES

Figure ES- 1: Existing Recycled Water System
Figure ES- 2 PGWWTP and DCWWTP Supply Patterns
Figure ES- 3: Existing Recycled Water Customers
Figure ES- 4: Projected Buildout Max Day Supply and Demand Comparison
Figure ES- 5: Hourly comparison of Supply and Demands Buildout Max Day Conditions

Figure ES- 6: Proposed Improvements
Figure ES- 7: DC WWTP Recyceld Water Storage Improvement Project
Figure 1-1: Recycled Water System and Vicinity
Figure 2-1: PGWWTP and DCWWTP Supply Patterns
Figure 3-1: Average daily production for each month (2017-2022)
Figure 3-2: Existing Demand and Supply Patterns
Figure 3-3: Proposed modificaitons to existing Demand and supply Patterns
Figure 3-4: Existing Recycled Water Customers
Figure 3-5: Projected Buildout Max Day Supply and Demand Comparison
Figure 3-6: Hourly comparision of Supply and Demands Buildout Max Day Conditions
Figure 4-1: Existing System Operation Zones
Figure 4-2: Existing MDD Scenario Model Results
Figure 4-3: Hydraulic analysis of Existing Gravity System from DCWWTP
Figure 4-4: Buildout Model Results
Figure 5-1: DC WWTP Recycled Water Storage Improvements
Figure 5-2: Proposed Pipeline Improvement Projects

APPENDICES

Appendix A: Near-Term Potential Demand Customers
Appendix B: Existing Pump Curves
Appendix C: Detailed Cost Estimates
Appendix D: Alternatives Development and Evaluation for Reycled Water Distribution System (TM 5b)

EXECUTIVE SUMMARY

This report presents the findings of the Recycled Water Systems Evaluation (Systems Evaluation) for the City of Roseville (City). The objectives of the Systems Evaluation include documenting an updated assessment of the system's supplies and demands to determine recycled water infrastructure needed to supply potential future customers and UGAs. Additionally, this report details an implementation plan. The document includes recommended improvements for the City's existing system to address anticipated future demands and identifies the location of connections for those future demands. Sizing and alignments of future piping to serve these new demands is not evaluated in this report and is left flexible to accommodate evolving development plans for future service areas

ES-1. Existing System

The City of Roseville operates a recycled water distribution system supplied by two wastewater treatment plants (WWTPs), as shown in **Figure ES- 1**. Future development is anticipated in several Urban Growth Areas (UGAs), which will significantly increase the demand for recycled water; these UGAs are also identified in **Figure ES- 1**.

ES-2. Recycled Water Supplies

The City's recycled water system is supplied by both the Dry Creek Wastewater Treatment Plant (DCWWTP) and the Pleasant Grove Wastewater Treatment Plant (PGWWTP). Existing supply SCADA data provided by the City and future supply projections provided by the City on behalf of SPWA partner agencies were reviewed and compared to existing demands and future demand projections.

ES-2.1 Existing Supplies

Effluent flow data for the Dry Creek WWTP from 2020 through 2022 was assessed as part of the DCWWTP Capacity Capital Analysis Draft TM[1] to estimate an Average Dry Weather Flow (ADWF) of 8.60 mgd. As part of a similar study currently in progress, 2023 effluent flow data for the Pleasant Grove WWTP was assessed to estimate an ADWF of 8.49 mgd. 24-hour diurnal patterns for influent and effluent flow were developed and compared based on the provided SCADA data. A four-hour lag was noted between influent and effluent peaking factors. The hourly influent data was lagged by four hours and used to represent the diurnal pattern for available supply from each treatment plant. Resulting peaking factors are provided in **Figure ES-2.**

[1] Woodard & Curran, Dry Creek Wastewater Treatment Plant Capacity Capital Analysis Draft Technical Memorandum, July 2023.

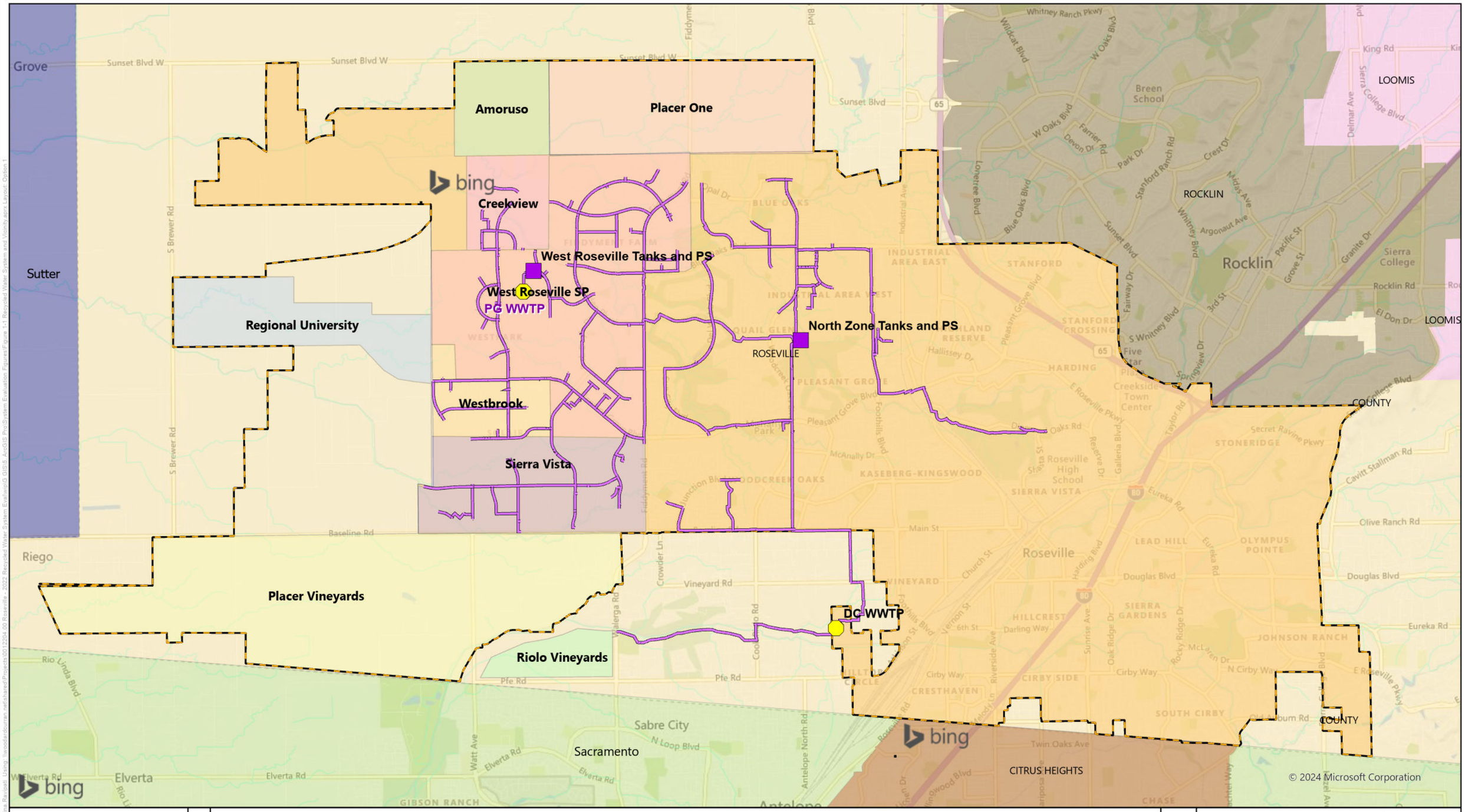


Figure ES-1
Recycled Water System and Vicinity
Roseville Recycled Water Systems Evaluation

Legend

- Existing Recycled Water Pipeline
- Study Area
- City of Rosevillle Limits
- Pump Station
- WWTP

0 0.25 0.5 1 Miles

N

CITY OF ROSEVILLE CALIFORNIA

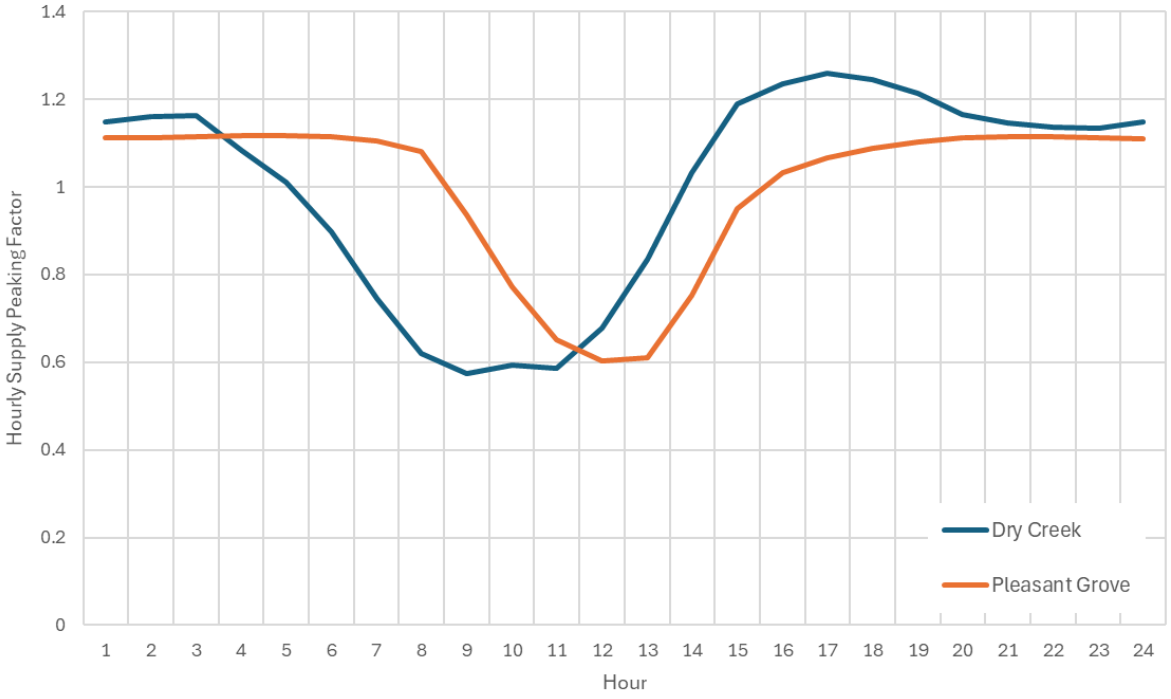
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Figure Exported: 8/6/2024 By: Karina Ravipati Using: \\woodardcurran.net\shared\Projects\0012204.00 Roseville - 2022 Recycled Water System Evaluation\GIS\G GIS\6 ArcGIS Pro\System Evaluation Figures\Figure 1-1 Recycled Water System and Vicinity alonx Layout: Option 1

FIGURE ES- 2 PGWWTP AND DCWWTP SUPPLY PATTERNS



ES-2.2 Projected Supplies

Future plant sewage flows were projected to the planning horizon of fiscal year 2059-2060 (FY 59/60)[1] and to ultimate buildout conditions, calculated by multiplying Equivalent Dwelling Unit (EDU) projections by the flow contribution per EDU. EDU projections were prepared by the South Placer Wastewater Authority (SPWA) partners and provided to W&C as part of this study in May 2025; the projections generally assume linear growth. Current flow factors are approximately 144 gpd/EDU for PGWWTP and 150 gpd/EDU for DCWWTP. Projected flow factors are 150 gpd/EDU. Potential future flows are presented in **Table ES- 1**. For this analysis, it has been assumed that all influent sewer flows would be available for use as recycled water.

TABLE ES- 1: EXISTING AND PROJECTED WWTP RECYCLED WATER SUPPLIES

	Existing Supply (mgd)	2060 Projected EDU Growth (EDUs)	2060 Projected Supply @ 150 gpd/EDU (mgd)
PGWWTP	8.49	80,566	19.6
DCWWTP	8.60	46,270	14.2
Total	**17.09**	**126,836**	**33.8**

[1]SPWA's fiscal year runs from July 1 to June 30.

ES-3. Recycled Water Demands

The existing recycled water system customers and associated demands were examined and potential future demands from expected customers within the City and from Urban Growth Areas (UGAs) were identified. Recycled water production data was used to verify peaking previously developed in the 2016 Recycled Water System Evaluation Report. Potential future recycled water demand was compared with projections of future wastewater flows to identify potential recycled water supply issues.

ES-3.1 Existing Demands

Existing recycled water customers were identified through review of prior studies, discussions with City staff, and the City's billing records. Billing data from 2017 to 2022 was collected and analyzed to determine average annual demands for each customer. This data was used to add new customers whose service began after August 2019 (customers added before August 2019 were already included in the model as part the 2020 Model Report model update). Including these additional customers, annual average demands were estimated to be approximately 3.8 mgd.

A summary of the ten largest demand customers is included in **Table ES- 2**. Locations of the existing customers are shown in **Figure ES- 3**. In addition to the customers shown in **Figure ES- 3**, DC WWTP is required to discharge a minimum of 4 mgd to Dry Creek to maintain a year round flow in the creek per California Department of Fish and Wildlife (CDFW) requirements. Note that there is no specific minimum instantaneous flow requirement for this flow into Dry Creek, just a minimum requirement of 4 million gallons over the course of the day.

TABLE ES- 2: SUMMARY OF EXISITNG CUSTOMERS

Customer Name	Customer Type	On-Site Storage (Yes/No)	Zone	Annual Average Demand[a] (AFY)	Average Day Demand (MGD)	Peak Day Demand[b] (gpm)
Sierra Pines (Sun City) Golf Course	Golf Course	Yes	Main	805	0.72	1,248
Morgan Creek Golf Course	Golf Course	Yes	South	377	0.34	584
Roseville Energy Park	Other	No	PGWWTP	355	0.32	550
Woodcreek Oaks Golf Course	Golf Course	Yes	Main	353	0.32	548
Diamond Oaks Golf Course	Golf Course	Yes	North	352	0.31	546
Timber Creek Golf Course	Golf Course	Yes	Main	120	0.11	186
West Park High School	Irrigation	No	Main	92	0.08	142
Other Customers within WRSP Area			Main	971	0.87	1,504
Other Customers within Sierra Vista Area			Main	263	0.23	408
Other Customers within Creekview Area			Main	34	0.03	53
All Other City Customers				498	0.44	772
Total				**4219**	**3.77**	**6540**

Footnotes:

a. Based on average billing data from January 2018 to October 2022
b. Based on peaking factor of 2.5 multiplied by ADD.

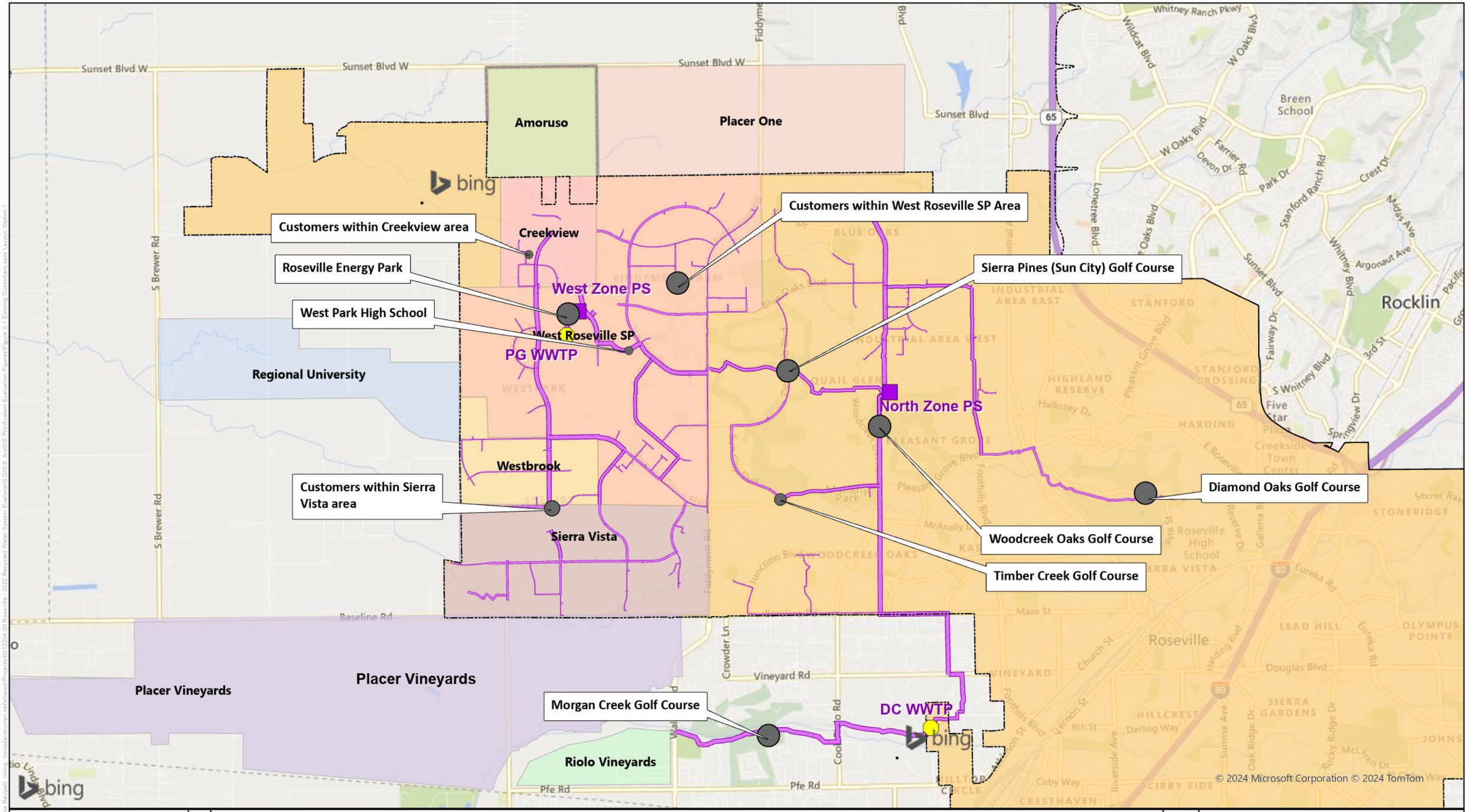


Figure ES-3
Existing Recycled Water Customers
Roseville Recycled Water Systems Evaluation

Legend

- Pump Station
- WWTP
- City Limits
- Potential City limits
- Existing RW Pipeline: < 10 in; 10 - 14 in; 16 - 20 in; > 20 in
- Demand (AFY): 1 - 100; 101 - 250; 251 - 350; 351 - 1000
- City of Roseville Limits

N

0 0.2 0.4 0.8 Miles

CITY OF ROSEVILLE CALIFORNIA

Woodard & Curran

Project #: 0012204.00
Map Created: July 2024

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Figure Exported: 8/6/2024 By: Karina Ravipati Using: \\woodardcurran.net\shared\Projects\0012204.00 Roseville - 2022 Recycled Water System Evaluation\GIS\ArcGIS Pro\System Evaluation Figures\Figure 2-1 Existing Customers.aprx Layout: Option 1

ES-3.2 Future Demands

Potential future customers include near-term potential recycled water customers identified by the City and Urban Growth Areas (UGAs). Potential future customer locations are shown in **Appendix A** and were identified based on the review of existing recycled water study reports, discussions with City staff, and review of development master plans. Peaking factors used for existing customers were also used to calculate peak day demand for potential future customers.

Near-term potential customers were identified through a review of prior studies. The largest near-term potential customers (not including UGAs,) include the Hewlett Packard Enterprise campus and the Campus Oaks Apartments. Once all customers are on-line, the annual demand for near-term potential customers is projected to be 2,360 AFY, with a peak day demand of 5.27 mgd.

The City of Roseville is anticipating the eventual connection of eight UGAs. Four of these UGAs (Sierra Vista/Westbrook, Creekview, Amoruso Ranch and the West Roseville Specific Plan) are within current City limits and are partially developed. Total existing and anticipated buildout demands for these areas are shown in **Table ES- 3**.

TABLE ES- 3: URBAN GROWTH AREA POTENTIAL DEMANDS

UGA	Potential Service Zone	Within City Limits	Existing Average Day Demand (mgd)	Buildout Average Day Demand (mgd)	Buildout Peak Day Demand (gpm)	Assumed Initial Connection Date[a]
Sierra Vista /Westbrook[b]	West	Yes	0.41	0.96	1,390	2020
Amoruso Ranch[c]	West	Yes	0	0.22	389	2025
Creekview[d]	West	Yes	0.05	0.10	174	2020
West Roseville Specific Plan[e]	West	Yes	1.34	2.02	3,507	2020
Regional University[f]	West	No	0	0.59	1,031	2030
Placer One / Sunset Industrial Area[g]	North	No	0	0.34	1,451	2025
Placer Vineyards[f]	Gravity	No	0	1.44	2,505	2030
Riolo Vineyards[f]	Gravity	No	0	0.37	639	2030

Footnotes:

a. For purposes of phasing, it was assumed that implementation of full demand would occur over 8 years from the initial connection date. Developments with existing demands were assumed to have been connected to the system by 2020. Note that the initial connection date may not represent the beginning of UGA development.
b. Sierra Vista Specific Plan, Amended April 2016
c. Draft Addendum to the Amoruso Ranch Specific Plan Area Recycled Water Master Plan, June 2024
d. Creekview Specific Plan, March 2022
e. Recycled Water Study for West Roseville Specific Plan Area, May 2003
f. Based on estimates provided by City staff, 2025
g. Placer One Recycled Water Master Plan, November 2024

ES-3.3 Comparison of Supply and Demands

A supply and demand comparison was performed over the West Zone, rather than on the individual WWTPs as the system has multiple points of interconnection allowing either WWTP to service the West Zone. Estimated growth in average dry weather flow generated from the entire SPWA sewer service area through 2060 was referenced from updated data provided by the City on behalf of the SPWA partner agencies.

Figure ES- 4 shows the current projections of annual recycled water demand and supply available during maximum day conditions. As shown in the figure, there appears to be sufficient supply to meet anticipated demands. It should be noted, however, that there is significant uncertainty in the timing of growth of both future demands and future supplies. There is also significant uncertainty in the projected demands, as demands for several of the UGAs were based on estimates from several years ago (as indicated in **Table ES- 3**) and likely do not reflect current irrigation practices.

Figure ES- 5 shows anticipated max day buildout demand conditions compared to 2060 supply. While hourly projected supplies are greater than hourly buildout demands, there may still be a need for operational storage (aka daily storage) to shift the available supply of recycled water to the higher evening demand periods when supplies are limited. The City can undertake efforts to manage peak usage and reduce overnight demands, especially with customers that have storage facilities who may be more adept at distributing demands across a day to limit peak hourly usage as much as possible.

FIGURE ES- 4: PROJECTED BUILDOUT MAX DAY SUPPLY AND DEMAND COMPARISON

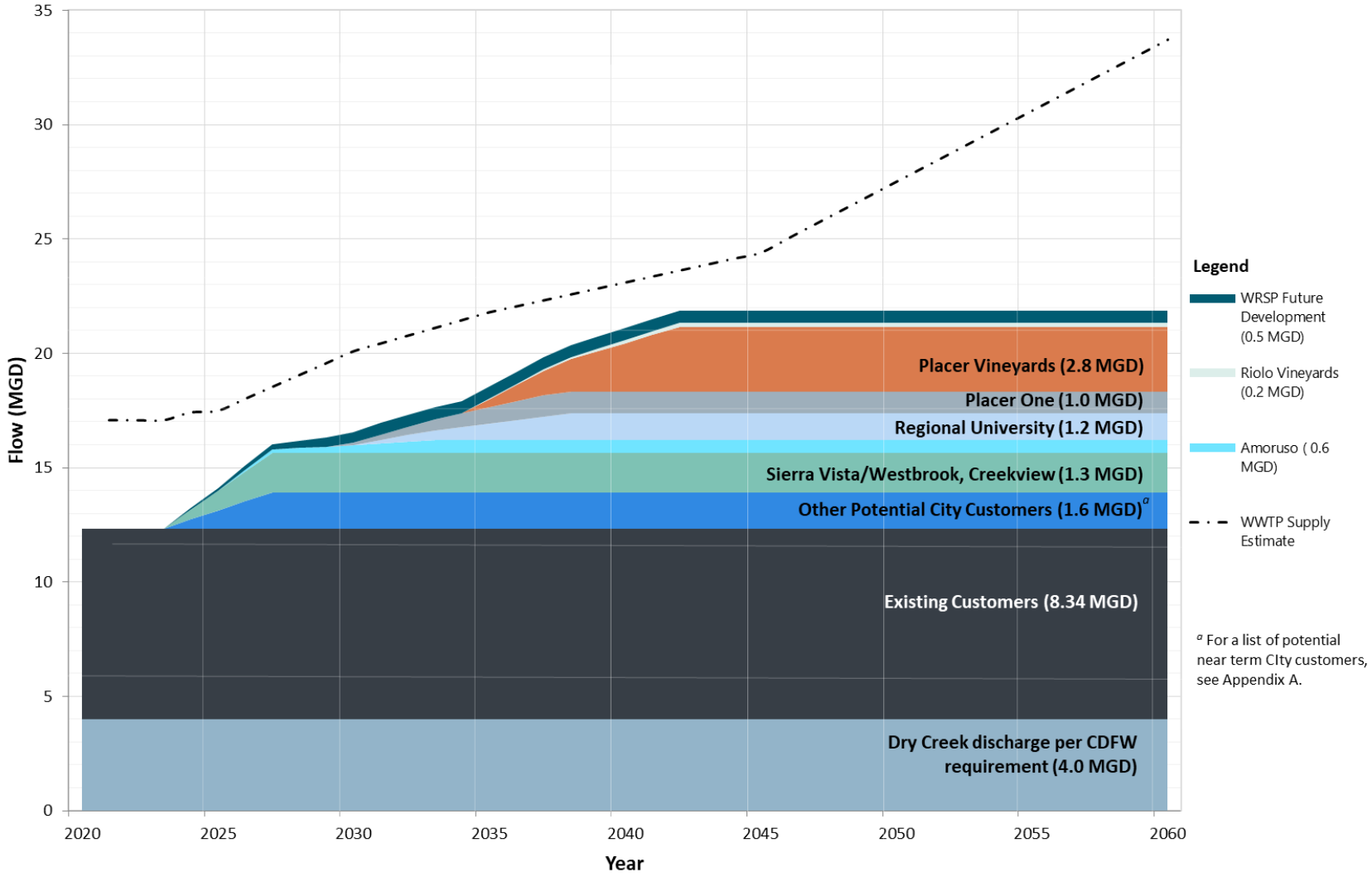
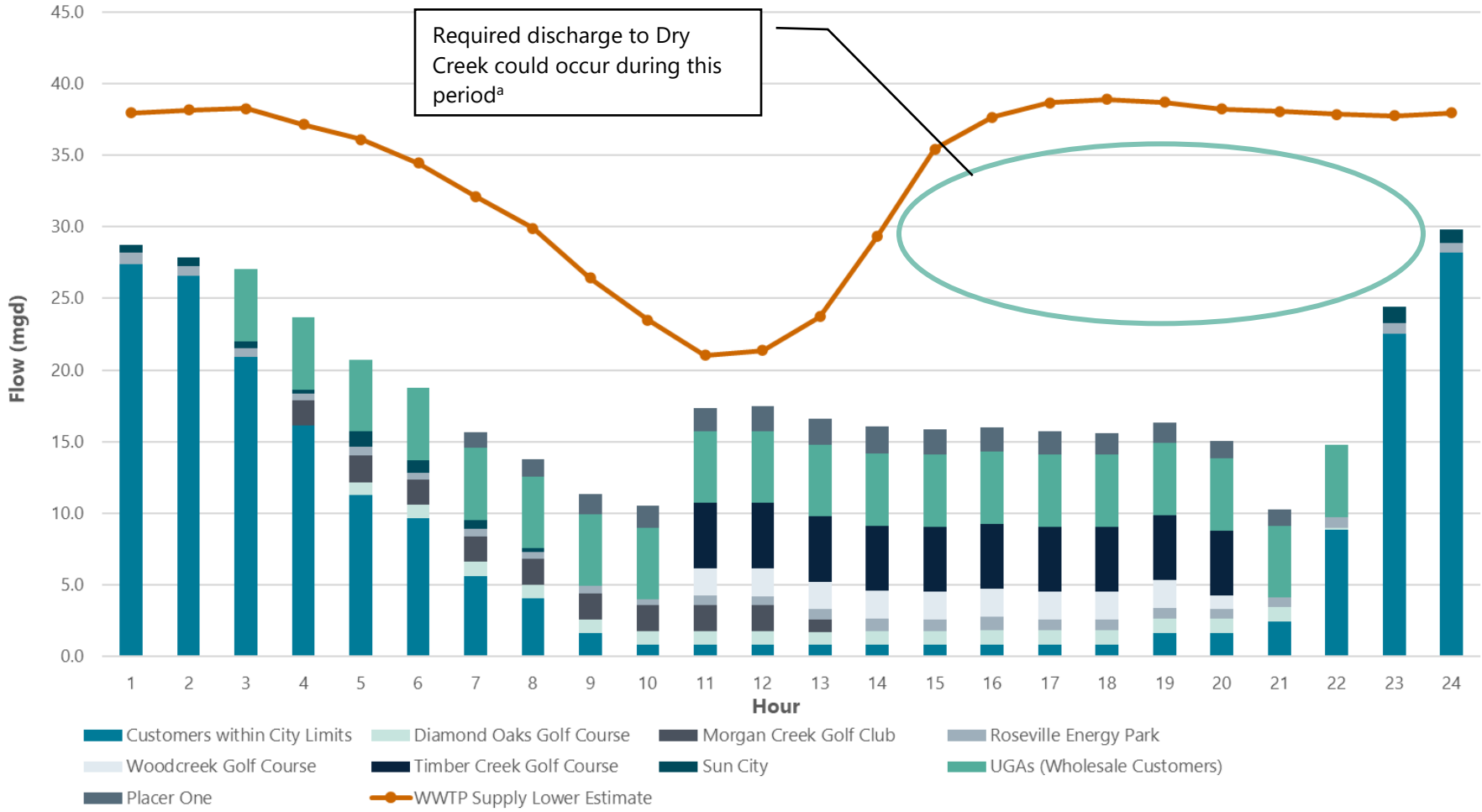


FIGURE ES- 5: HOURLY COMPARISON OF SUPPLY AND DEMANDS BUILDOUT MAX DAY CONDITIONS



Footnote:

a) Discharge to Dry Creek, as required by CDFW, is not included on this plot as City operations staff can elect to discharge the required 4 mgd when it best suits system performance. In the case of the proposed patterns being implemented, this could be between 11am and 11pm.

ES-4. Systems Evaluation

Model scenarios of the City's existing recycled water distribution system were developed. Sizing of new pipes, and evaluation of the capacity of the existing facilities, was performed using the design criteria described in **Section 4.1.1**. Buildout alternatives were evaluated for comparative life cycle costs using the capital and O&M cost criteria described in **Section ES-4.3**.

ES-4.1 Existing System Evaluation

The existing recycled water system was run under existing average day and maximum day demand conditions to assess the system's performance. Node pressures and pipeline velocities were compared to criteria established in **Table 4-1**. **Table ES- 4** summarizes the peak hour operating points of each pump station in the existing system. These peak hour flowrates represent an estimated pump station capacity accounting for pumping against system pressure under design conditions. Pump curves for each pump station are included in **Appendix B**. Based on a comparison of the peak hour flows and pressures against the pump curves shown in **Appendix B**, all existing pump stations have capacity for existing peak flows.

TABLE ES- 4: EXISTING RECYCLED WATER SYSTEM PUMP STATION FLOWRATES AND PRESSURES

Pump Station	Peak Hour Operating Point
Pleasant Grove WWTP	6,585 gpm, 26-ft (11 psi)[a]
West Roseville PS	8 ,725 gpm, 173-ft (75 psi)[a]
Dry Creek WWTP	5,200 gpm, 138-ft (60 psi)[a]

Footnotes:

a. Total Dynamic Head (TDH) modeled directly downstream of the pump station.

Based on these model results, no existing capacity deficiencies have been identified in the West Zone nor the Gravity Zone. However, very little additional demand can be added without resulting in overuse of the West Roseville tanks or inadequate supply from DCWWTP. However, some operational changes can be implemented at low or no cost to increase system capacity. These include: 1) adjusting demand patterns for customers with storage to shift their peak demands off of the system peak demands, 2) increasing the pressure supplied by WRPS, and 3) connecting North Zone tanks and pump station to the system, which are currently offline. Items 1 and 2 provide potential increases in peak day demand as shown in **Table ES- 5**. Item 3 is not presented in **Table ES- 5** as buildout model results discussed in **Section ES-4.2** indicate that the North Zone PS is not required for the buildout system and so is not recommended for rehabilitation at this time.

TABLE ES- 5: EFFECTIVENESS OF OPERATIONAL IMPROVEMENTS

Scenario	Potential Peak Day Demand[a] (MGD)
Existing, No Change	8.7[b]
+ Adjust Demand Patterns	10.4
+ Increase WRPS Supply Pressure	10.9

Footnotes:

a. Represents the maximum peak day demand that could be met while meeting criteria established in **Table 4-1**. Current maximum peak demands are estimated to be 8.34 MGD

b. The model predicts that some customers in the southern part of the system would not meet 40 psi during existing peak day demands at peak hour, due to limitations in available supply at Dry Creek. It is possible that some demand shifting has already occurred to mitigate this deficiency.

ES-4.2 Buildout System Evaluation

Buildout model demands were run with the updated demand patterns as discussed in **Section ES-4.1**. To conservatively determine storage requirement, supply estimates for 2045 were used for modeling purposes to complete the buildout max day model runs. This represents a period of time when anticipated max day demands are closest to projected supplies, projected supplies being approximately 3 MGD. The model was run with North Zone Pump Station offline to determine if the pump station would be required for buildout conditions.

Pipeline Improvements

Under buildout max day demands, existing infrastructure provides system pressures lower than the established criteria. These pressure deficiencies are resolved with improvements to West Roseville Pump Station pumping capacity and "pinch-point" improvements discussed below. Under modeled conditions, North Zone Pump Station could remain offline and system demands could be met at sufficient pressures. However, significant differences between the modeled demand patterns and the actual demand patterns may necessitate the recommissioning of North Zone Pump Station to meet peak demands.

Two projects were identified as "pinch-point" improvements:

1. The existing 24-inch pipeline directly downstream of the WRPS to Westpark Drive. A parallel 24-inch pipeline could be installed to increase the service pressures and capacity throughout the system.

2. The existing 8-inch pipeline on Blue Oaks Blvd between Woodcreek Oaks Blvd and Diamond Creek Blvd. A new 12-inch pipe connecting to the 30-inch main on Woodcreek Oaks Blvd and to the 8-inch main on Prairie Woods Way via Painted Desert Drive would address this deficiency.

Storage Improvements

Storage improvements will also be needed. Operational storage under buildout maximum day conditions is approximately 1.2 million gallons (MG) for the West Zone. **Table ES- 6** presents the storage requirements based on this analysis. **Section ES-5** provides a storage improvement project to enhance buffer storage to accommodate the additional 1.28 MG of required storage based on the analysis below.

TABLE ES- 6: BUILDOUT MAX DAY STORAGE ANALYSIS

Pressure Zone [a]	Customers w/out Storage Buildout MDD (mgd)	Operational Storage Required [b] (MG)	Buffer Storage Required [c] (MG)	Total Storage Required [d] (MG)	Existing Storage (MG)	Potential Required Storage (MG)
West Zone (West Roseville Tanks	8.34	1.19	2.09	3.28	2.0	1.28

Footnotes:

a. The Gravity pressure zone is not included as there are few, if any, customer demands without dedicated storage in this zone.
b. Operational storage requirement is derived from model runs. It is based on assumptions built into the model including pump station controls, PRV settings, and demand patterns presented in this report.
c. Buffer storage required was assumed to be 25% of MDD for customers without dedicated storage for a one-day period.
d. Total required storage = Operational Storage + Buffer Storage.

Pumping Improvements

Before total buildout demands are realized the West Roseville pump station would need to be improved to meet flow and pressure design criteria. Design points for each pump station under buildout max day demand conditions are summarized in **Table ES- 7**. These design points represent the maximum peak hour flowrate and associated total dynamic head under max day conditions with the diurnal patterns applied to the demands. Potential operating points relative to the existing pump curves are shown in **Appendix B**.

TABLE ES- 7: PROPOSED PUMP STATION DESIGN POINTS AT BUILDOUT

Pump Station	Existing MDD Design Point		Buildout MDD Design Point	
	Peak Flowrate (gpm)	Total Dynamic Head (ft)	Peak Flowrate (gpm)	Total Dynamic Head (ft)
PG WWTP PS	6,585	26	10,500	24
West Roseville PS	8,725	173	13,340	162
Dry Creek WWTP PS	5,200	138	6,150	140

ES-4.3 Implementation Plan

Construction cost estimates have been developed to provide planning level estimates of future facility costs. These cost estimates are planning or conceptual level estimates and are considered to have an estimated accuracy range of -30 to +50 percent. This level of accuracy corresponds to a "Class 4" cost estimate as defined by the American Association of Cost Estimators. These estimates are suitable for use for budget forecasting, CIP development, and project evaluations, with the understanding that refinements to the project details and costs would be necessary as projects proceed into the design and construction phases.

Unit capital costs are based on engineering experience and recent bid prices for similar projects. Unit costs are indexed to the March 2025 Engineering News Record Construction Cost Index (CCI). The CCI value used (14,511) was an average of the 20 Cities Average value (13,783) and the San Francisco value (15,239).

ES-5. Project Descriptions

Pipeline improvement projects include projects to alleviate the deficiencies identified in **Section ES-4.2**, as well as projects to improve the reliability of the system through improved interties between pressure zones. Detailed cost estimates can be found in **Appendix C**. The proposed improvements are shown in **Figure ES- 6**.

ES-5.1 Pipeline Improvements

Pipeline improvements are defined below and costs summarized in **Table ES- 8**.

Project B-1 would increase the size of the bypass pipeline from the Pleasant Grove WWTP pumps to the West Zone system from 10-inches to 24-inches. This would improve the City's ability to take the West Roseville Pump Station offline, either to perform maintenance or for efficiency purposes.

Project I-1 would add a 6-inch intertie pipeline between the West Zone and the North Zone at Angus Road and Casa Sedona Drive. This provides two benefits:

- Improves reliability by improving the system's ability to backfeed from the North Zone into the West Zone during low demand periods.
- Improves the City's ability to serve the North Zone directly from either the West Roseville Pump Station or the pumps at the PG WWTP during low demand periods.

Project I-2 would add a 6-inch intertie pipeline between the West Zone and the South Zone at Blue Oaks Boulevard. The intertie provides two benefits:

- Improves reliability by allowing the system to bypass either the West Zone or the North Zone during low demand periods.
- Potentially improves efficiency by improving the City's ability to bypass either the West Roseville Pump Station or DC WWTP pumps during low demand periods.

Project I-3 would add an 8-inch intertie pipeline between the West Zone and the South Zone at Baseline Road and Fiddyment Road. This project would also increase the reliability of the system by improving the system's ability to bypass either the West Roseville PS or the pumps at DC WWTP.

Project I-4 would add a 10-inch intertie pipeline from the end of Project I-3 further south to interconnect the Main Zone with the Gravity System at Walerga Rd and Dry Creek Community Park. This project would increase the reliability of the gravity system by allowing the system to be supplied from the Main Zone if the gravity system supply was limited or taken offline. This intertie will likely not be able to convey max day, peak hour demand conditions to all customers, but under average day conditions it would provide customers with a reasonable level of service pressure for their anticipated demands. However, system performance may vary depending on the season and time of day that the intertie is operated. Under normal operating conditions, this line would be valved out of service.

Project PP-1 would install a parallel 24-inch pipeline between the West Roseville Pump Station (WRPS) and West Park Drive via Phillip Road (approx. 485 LF pipeline). This pipeline would only be needed when velocities in the existing 24-inch pipe exceed design criteria once West Roseville Pump Station improvements are implemented.

Installing the parallel pipeline would improve redundancy for a critical component, as well as allowing greater flexibility for providing system supply during low demand periods directly from the PG WWTP pumps.

Project PP-2 proposes adding a looped pipe in the North Zone pressure zone to relieve a headloss deficiency identified under buildout max day demand conditions. Project PP-2 includes the installation of 1,600 linear feet of a new 12" main from the existing main on Woodcreek Oaks Boulevard, connecting to the existing 8" main on Prairie Woods Way via Painted Desert Drive. This project should be completed before connecting additional customers west of Woodcreek Oaks Boulevard.

Project PP-3 would upsize the existing pipeline from DC WWTP Pumps to the South Zone from a 20-inch to a 30-inch pipe. This project relieves a bottleneck from DC WWTP that contributes to pressure drop in the system. The additional capacity in the system provides necessary pressure improvements under buildout conditions and would allow for greater utilization of the DC CCB recycled water storage.

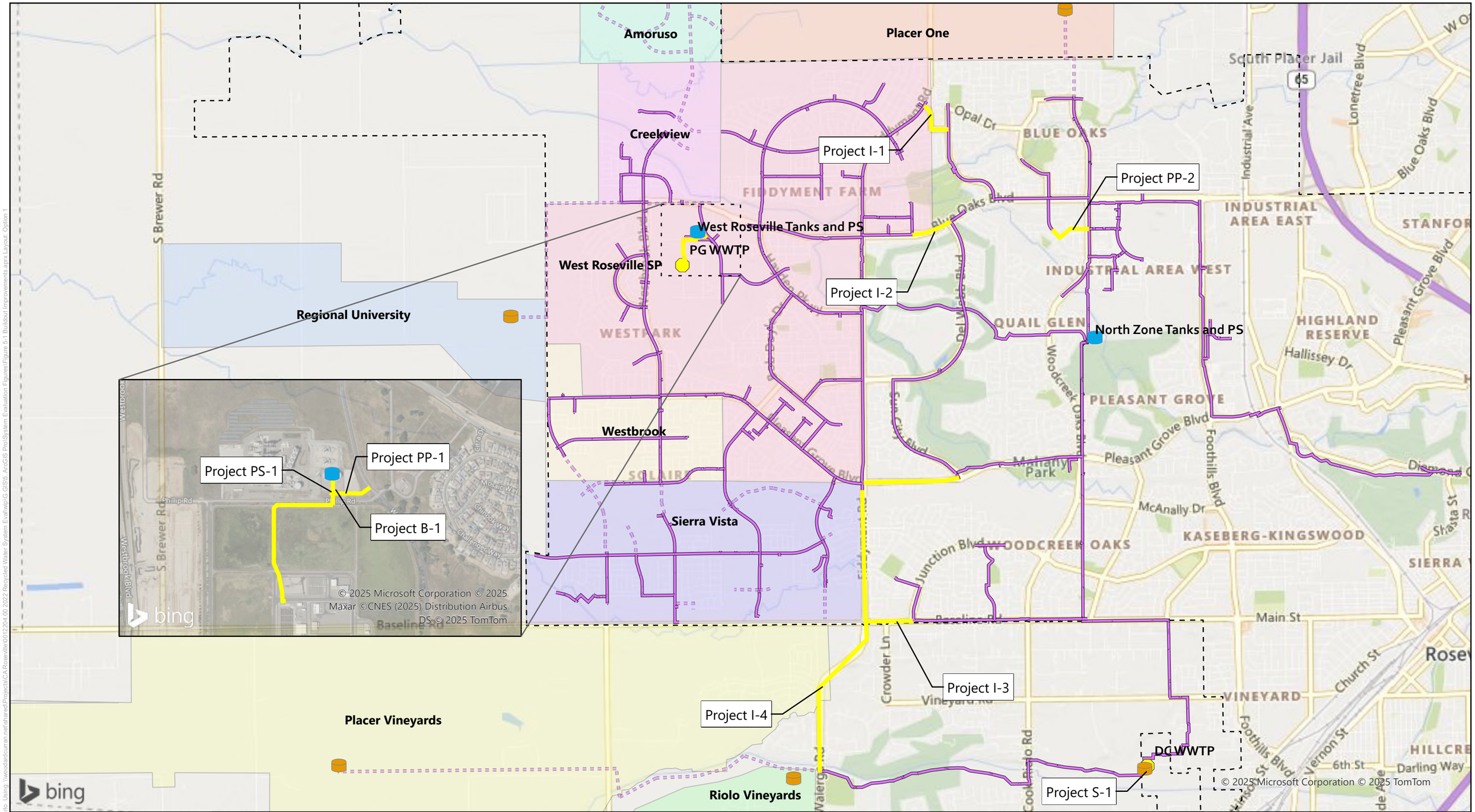


Figure ES-6 Buildout Improvements

Roseville Recycled Water Systems Evaluation

Legend

- WWTP
- Existing Recycled Water Main
- Future Recycled Water Pipeline
- City Limits

FutureStructures

Status

- Existing Storage and PS
- Future Storage and PS
- ProjectPipes

0 0.15 0.3 0.6 Miles

N

CITY OF ROSEVILLE CALIFORNIA

Woodard & Curran

Project #: 0012204.00
Map Created: July 2024

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Figure Exported: 5/29/2025 By: dmerlo Using: \\woodardcurran.net\shared\Projects\CA Roseville\0012204.00 2022 Recycled Water System Eval\wip\G GIS\5 GIS\wipG GIS\5 ArcGIS Pro\System Evaluation Figures\Figure 5-1 Buildout Improvements aprx Layout: Option 1

TABLE ES- 8: PIPELINE AND SUPPLY PROJECTS SUMMARY

Project Number	Project Description	Location	Size	Quantity	Estimated Raw Construction Cost	Estimated Capital Cost[a, b]
Reliability Projects						
B-1	Upsize bypass at West Roseville PS/Pleasant Grove WWTP from 10" to 24"	West Roseville PS	24-in	50-LF	$66,000	$115,000
I-1	Install an intertie between the West Zone and North Zone	Angus Rd and Casa Sedona Dr	6-in	1640-LF	$431,000	$672,000
I-2	Install an intertie between the West Zone and South Zone	Blue Oaks Blvd	6-in	1520-LF	$400,000	$622,000
I-3	Install an intertie between the West Zone and South Zone	Baseline Rd and Fiddyment Rd	8-in	6,700-LF	$1,985,000	$3,097,000
I-4	Install an intertie between West / South Zone and Gravity Zone	Baseline Rd and Walerga Rd	10-in	6,300-LF	$1,885,000	$2,941,000
Reliability Projects Subtotal					**$4,767,000**	**$7,447,000**
Pinch Point Projects						
PP-1	Install 485 LF of parallel 24” pipeline between West Roseville Pump Station and West Park Drive.	Between the WRPS and West Park Drive	24-in	485-LF	$289,000	$451,000
PP-2	Install 1,600 LF of 12” pipeline along Painted Desert Drive and Prairie Woods Way.	Painted Desert Drive and Prairie Woods Way	12-in	1,600-LF	$628,000	$980,000
PP-3	Install 2,530 ilnear feet of 30” pipe from DC WWTP recycled water pumps	DC WWTP Recycled Water Pumps	30-in	2,530-LF	$1,400,000	$2,184,000
Pinch Point Projects Subtotal					**$2,317,000**	**$3,615,000**
Total					**$7,084,000**	**$11,062,000**

Footnotes:

a. Includes implementation costs as described in Section 5.1.

b. Costs in March 2025 dollars

ES-5.2 Pumping Improvements

At buildout, peak flows at the West Roseville pump station will increase from about 8,725 gpm to 13,950 gpm. To achieve buildout flows, it was assumed pumps at West Roseville would be replaced with larger horsepower pumps. To avoid unnecessary operation and maintenance costs, installation of the replacement pumps should be phased to match the projected flow as service connections are added. To maintain operation of 5 duty pumps and 1 standby, three of the existing 150 hp West Roseville Pumps (2 duty and 1 standby) should be replaced with higher capacity pumps (300 hp motor). Note, it is possible that replacement of these pumps with larger pumps is not possible and instead the pump station would have to be modified, or new pump station constructed. This should be studied further to determine a more accurate cost estimate. Additional funds for a pump station alternatives analysis are included in the cost summary presented in **Table ES- 9.**

TABLE ES- 9: PUMP STATION IMPROVEMENTS SUMMARY

Project ID	Installed Pumps / Capacity	Estimated Raw Construction Cost[a]	Estimated Capital Cost[b]
PS-1[c]	Replace three pumps with 300 hp pumps (two duty, one standby) ~13,950 gpm firm pump station capacity	3 new 300 hp pumps: 3 x $564,000 = $1,692,000 Pump Upgrade Alternatives Analysis: $100,000	$3,145,000

Footnotes:

a. Costs basis is March 2025 average of ENR 20 Cities and San Francisco CCI (14,511)
b. CIP Costs include implementation costs as summarized in Section 5.1.
c. Project cost assumes that pump may be replaced within the pump station. The presented value includes funds to perform a pump station alternatives analysis to determine whether an expansion of WRPS would be required. See Section 5.4.1.

ES-5.3 Potential Additional Storage Improvements

The DC WWTP pump station is currently served directly from treated effluent from the plant. There is currently no effective storage located at DC WWTP. This project proposes modifying the existing Chlorine Contact Basins (CCB) at the DCWWTP for use as RW storage basins. Adding storage at DC WWTP would address the anticipated storage deficiency under buildout demands. This also provides a level of operational resilience in the event the DC WWTP needs to be taken offline, there would be some available supply for the recycled water system to utilize from DC WWTP.

A conceptual diagram of the project is shown in **Figure ES- 7** below. The proposed project cost shown in **Table ES- 10** include costs for piping, slide gate, valves, concrete, demolition, and other modifications to provide an additional 1.1 MG of RW storage capacity.

In addition to the recycled water storage provided by conversion of the Dry Creek CCBs an additional 0.18 MG of storage will be needed to provide the City with the operational and buffer storage for max day conditions. Three alternatives could be pursued to address this, however the City should monitor recycled water supplies and demands as new customers are connected to the system. Changes to supply or demand may change the need for or quantity of additional recycled water storage.

- Connect North Zone Tank and Pump Station
    - Connecting North Zone Pump Station and Tank to the system would provide additional storage, however, demands in North Zone are lower than demands in the West Zone and South Zone, so adding storage here does not provide much hydraulic benefit, and would increase O&M costs. Estimated costs to rehabilitate North Zone Tank and Pump Station are presented in **Table ES- 10** for informational purposes**.**
- Rehabilitate PG CCBs
    - Similar to the Dry Creek CCBs, Pleasant Grove WWTP has CCBs that could be rehabilitated and converted to recycled water storage. It is estimated that conversion of the PG CCBs would result in an additional 2 MG of storage. Hydraulically, storage at this location would be beneficial for system performance, however, costs to rehabilitate the PG CCBs will likely be more expensive than recommissioning North Zone Tank, the PG CCBs are currently uncovered. Costs for this alternative were not developed for this study but should be in subsequent studies if additional storage is required.
- Additional Tank at WRPS
    - The City has previously considered adding a recycled water storage tank at WRPS. Storage at this location would benefit system performance and operation as demands increase as WRPS provides a majority of the West Zone with recycled water. However, costs for an additional tank may be significant. The minimum size of this tank would be 0.2 MG to meet storage requirements, however, the City could consider upsizing this to 1.0 MG so potential future customers not considered as part of this report could be serviced. The cost for a 1.0 MG storage tank is presented in **Table ES- 10**.
- Operate system with less buffer storage
    - Another alternative is to operate the system with less buffer storage than 25% of max day demand for customers without storage. With the DC CCBs converted to recycled water storage, total buffer storage will be approximately 23% of the abovementioned max day demands. While it does not meet the criteria previously presented, the City may find this buffer storage is sufficient for their needs. No project is required for this alternative.

TABLE ES- 10: STORAGE IMPROVEMENTS SUMMARY

Project ID	Project	Estimated Raw Construction Cost[a]	Estimated Capital Cost[b]
S-1	Rehabilitate DC WWTP CCB to utilize as 1.1 MG of RW storage	$925,000	$1,443,000
Alternative S-2A	Rehabilitate NZ Tanks and Pump Station	$610,000	$950,000
Alternative S-2B	Additional 1.0 MG Storage Tank at WRPS	$3,335,00	$5,203,000

Footnotes:

a. Costs basis is March 2025 average of ENR 20 Cities and San Francisco CCI (14,511)

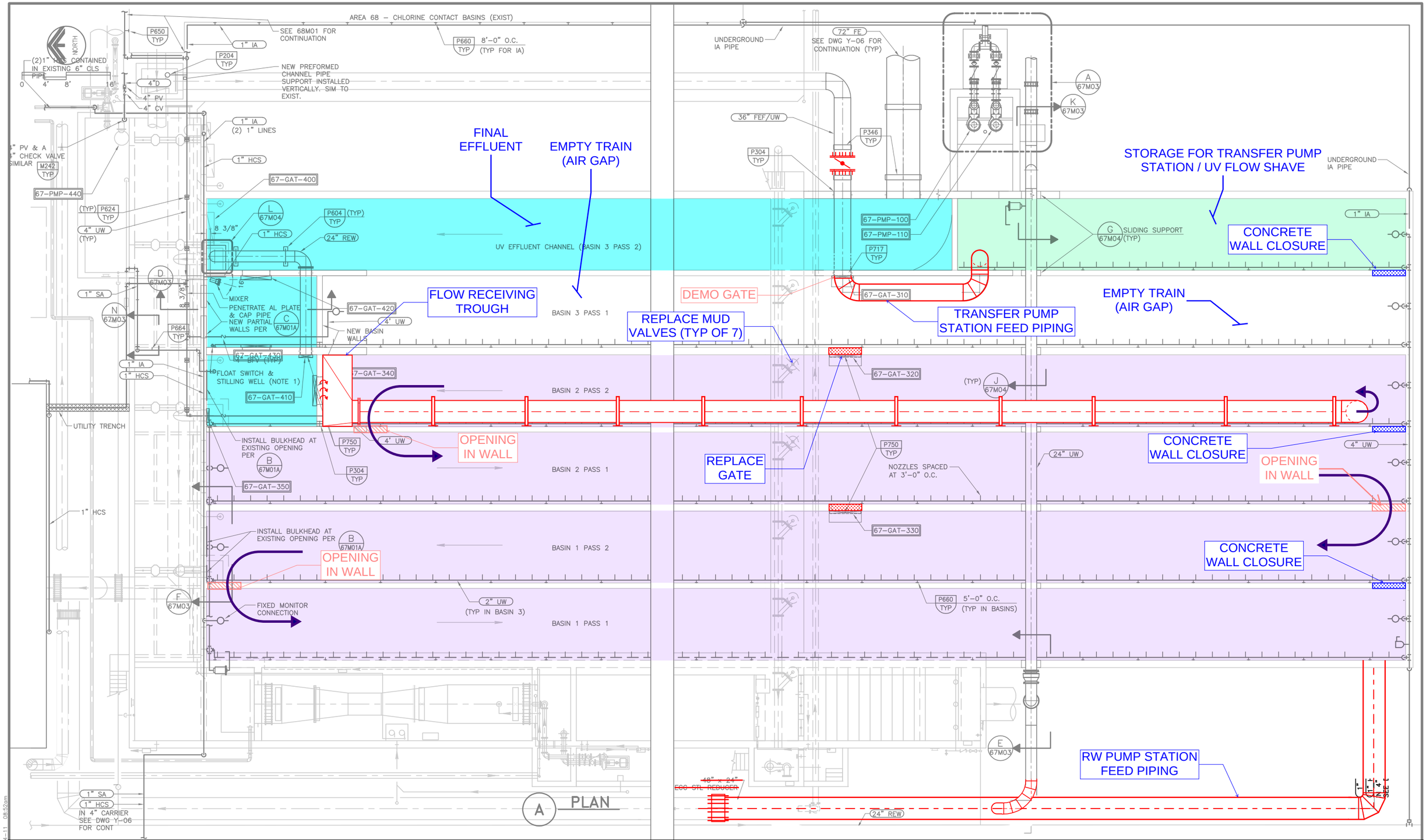


FIGURE ES-7
DCWWTP RECLAIMED WATER STORAGE IMPROVEMENTS CONCEPT FIGURE
RECLAIMED WATER SYSTEM EVALUATION
SCALE: 1/16" = 1'-0"

ES-5.4 Phasing Summary

Many of the projects identified in **Section ES-5** can be phased in as recycled water demand increases. **Table ES-11** below summarizes the potential phases.

TABLE ES- 11: PHASING SUMMARY

Development Phase	Incremental MDD (mgd)	Project Required	Estimated Capital Cost
Existing	8.34	--	--
2025-2030	5.4	PP-2	$980,000
		PS-1	$3,145,000
		S-1	$1,443,000
		PP-1	$451,000
2030-2035	4.18	PP-3	$2,184,000
Total	***17.92***		***$8,203,000***

ES-5.5 Additional Recommendations

The proposed phasing plan and cost estimate identified in this report for the West Roseville Pump Station was prepared at a feasibility study level and are not suitable for more detailed planning. As noted, it may be feasible to replace existing pumps with larger pumps without other significant improvements to the station. If more substantial improvements are required, additional facility planning is recommended to investigate the potential site in more detail, particularly as more information is available on potential future demands. The facility plan would provide a better estimate of the future costs of the pump station, and give more certainty about the future layout and facilities that will need to be constructed as the developers are connected.

This Systems Evaluation anticipates that as recycled water demands grow, operation of the facilities will become more challenging. The City should develop a System Operation Plan to provide an operational approach for challenging conditions.

Several of the UGAs (Regional University, Placer One, and Placer Vineyards), are anticipated to have storage tanks that the City's system will discharge into. The City should work with the UGA operators to maintain control of storage tank fill rates and times, and ensure that recycled water supply agreements with the UGAs provide for City to have the control needed to implement the System Operation Plan.

It is recommended this Systems Evaluation be updated every five to ten years or as significant changes in potential demands are identified to ensure that the Systems Evaluation remains current. This will also provide an opportunity to review observed peaking factors and diurnal patterns, and update the model to enable the model to continue answering operational questions.

1. INTRODUCTION

The City of Roseville has been irrigating landscaped areas throughout the City and planning recycled water implementation as part of new development surrounding the City. This Recycled Water Systems Evaluation has been prepared to position the City for implementing the next phases of recycled water projects as new users within the City come online, and as the various UGAs plan for and install recycled water infrastructure. The overall implementation plan contemplates reliability improvements, pump station improvements and more improvements including storage facilities.

This chapter includes background on the City of Roseville (City) and the Recycled Water Systems Evaluation (Systems Evaluation), documentation of goals, discussion of Systems Evaluation objectives and approach, and a summary of the report organization.

1.1 Background

The City of Roseville is located 20 miles northeast of Sacramento, in the southwestern portion of Placer County. The City is bordered by Rocklin to the northeast, Citrus Heights to the south and unincorporated Placer County to the west. The City operates a recycled water distribution system supplied by two wastewater treatment plants (WWTPs), as shown in **Figure 1-1**. Future development is anticipated in several Urban Growth Areas (UGAs), which will significantly increase the demand for recycled water; these UGAs are also identified in **Figure 1-1**.

An evaluation of the recycled water system was previously completed in 2016[1] (2016 Systems Evaluation). The 2016 Systems Evaluation generally identified that capacity improvements are not needed to serve the current customers, but significant storage and pumping capacity improvements to the West Roseville Pump Station (WRPS) would be needed to serve the future UGA connections. The 2016 Systems Evaluation also identified other (smaller) reliability and capacity improvement projects in other parts of the system.

Since the 2016 Systems Evaluation, new recycled water infrastructure has been installed in the vicinity of WRPS and the City has added new customers including Sierra Vista, Westbrook, and Creekview UGAs. The model was recently updated and re-calibrated to reflect those changes, as documented in the 2020 Model Development Report[2]; the recalibration also included development of demand patterns to allow for extended-period simulations, which can be used to evaluate the system's use of storage. Additionally, development plans for Placer One, a proposed UGA that was not considered in the 2016 Systems Evaluation, have progressed and incorporated a recycled water component. Further, several of the UGAs are nearing development. For all of these reasons, a more detailed review of potential storage requirements was needed to reasonably project future funding needs.

1.2 Project Goals and Approach

The objectives of this report include documenting an updated assessment of the system's supplies and demands to determine recycled water infrastructure needed to supply potential future customers and UGAs. Additionally, this report details an implementation plan. The document includes recommended improvements for the City's existing system to address anticipated future demands and identifies the location of connections for those future demands. Sizing and alignments of future piping to serve these new demands is not evaluated in this report and is left flexible to accommodate evolving development plans for future service areas.

[1] RMC, City of Roseville Recycled Water Systems Evaluation Final Report, July 2016

[2] Brown & Caldwell, 2020 Recycled Water System Model Development Report, August 2020

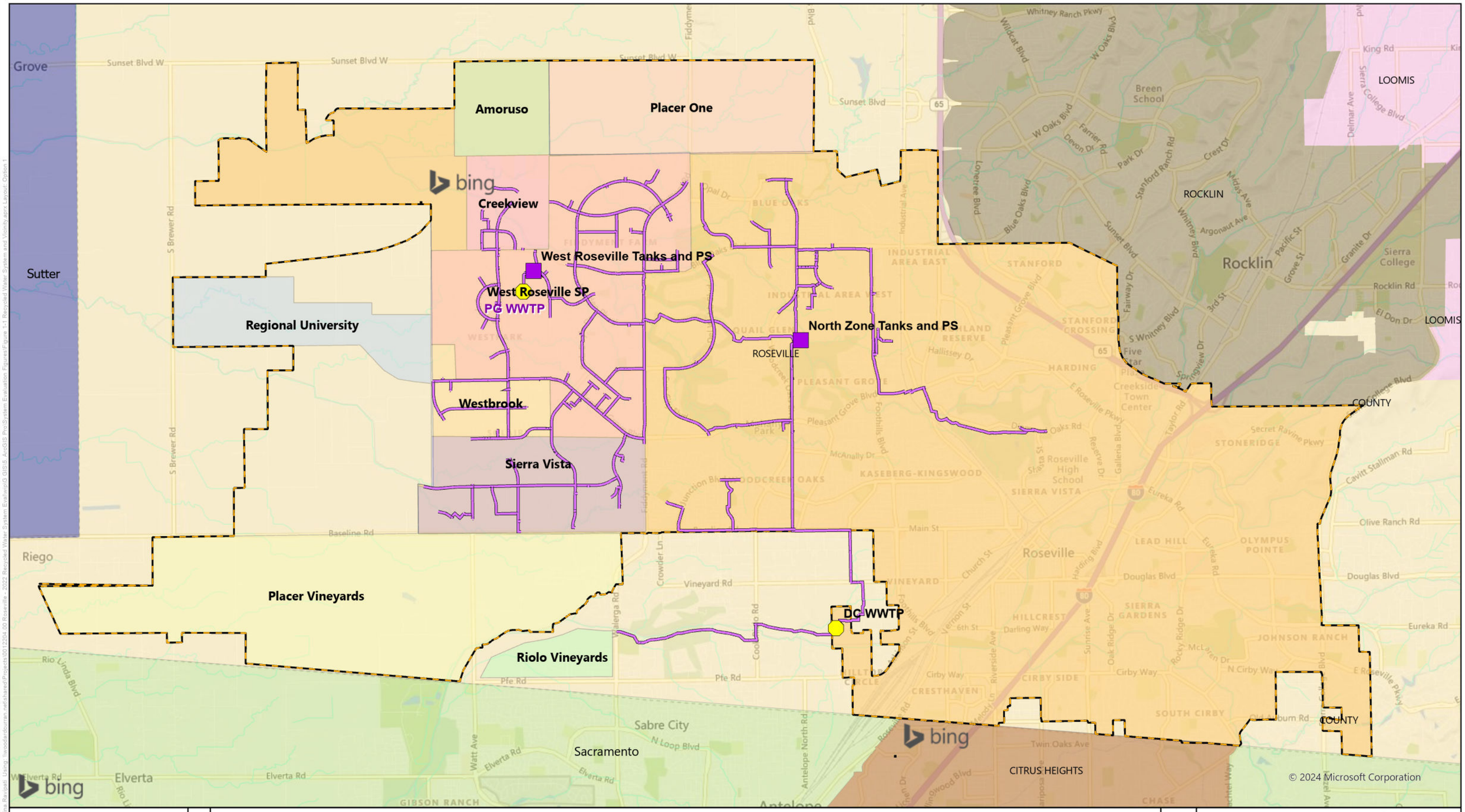


Figure 1-1
Recycled Water System and Vicinity
Roseville Recycled Water Systems Evaluation

Legend

- Existing Recycled Water Pipeline
- Study Area
- City of Rosevillle Limits
- Pump Station
- WWTP

0 0.25 0.5 1 Miles

N

CITY OF ROSEVILLE CALIFORNIA

Woodard & Curran

Project #: 0012204.00
Map Created: July 2024

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Figure Exported: 8/6/2024 By: Karina Ravipati Using: \\woodardcurran.net\shared\Projects\0012204.00 Roseville - 2022 Recycled Water System Evaluation\GIS\ArcGIS Pro\System Evaluation Figures\Figure 1-1 Recycled Water System and Vicinity alorx Layout: Option 1

2. RECYCLED WATER SUPPLIES

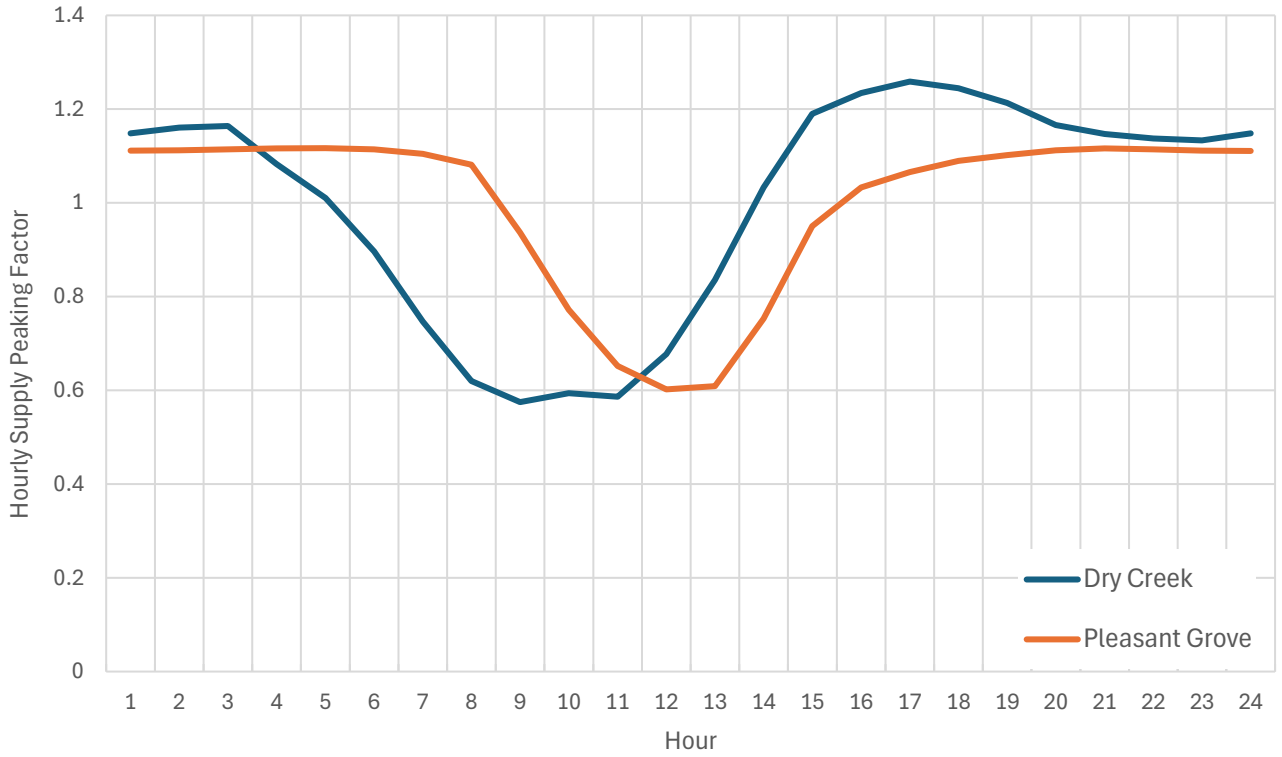
The City's recycled water system is supplied by both the Dry Creek Wastewater Treatment Plant (DCWWTP) and the Pleasant Grove Wastewater Treatment Plant (PGWWTP). Previously, for modeling purposes, the treatment plants had been assumed to have an infinite supply of recycled water available to meet the recycled water demand. To better assess the impact of supply limitations on storage, existing and future supply has been estimated and applied to the model.

2.1 Existing Supply

Effluent flow data for the Dry Creek WWTP from 2020 through 2022 was assessed as part of the DCWWTP Capacity Capital Analysis Draft TM[1] to estimate an Average Dry Weather Flow (ADWF) of 8.60 mgd. As part of a similar study currently in progress, 2023 effluent flow data for the Pleasant Grove WWTP was assessed to estimate an ADWF of 8.49 mgd.

24-hour diurnal patterns for influent and effluent flow were developed and compared based on the provided SCADA data. A four-hour lag was noted between influent and effluent peaking factors. The hourly influent data was lagged by four hours and used to represent the diurnal pattern for available supply from each treatment plant. Resulting peaking factors are provided in **Figure 2-1.**

FIGURE 2-1: PGWWTP AND DCWWTP SUPPLY PATTERNS



[1] Woodard & Curran, Dry Creek Wastewater Treatment Plant Capacity Capital Analysis Draft Technical Memorandum, July 2023.

2.2 Projected Supplies

Future plant sewage flows were projected to the planning horizon of fiscal year 2059-2060 (FY 59/60)[1] and to ultimate buildout conditions, calculated by multiplying Equivalent Dwelling Unit (EDU) projections by the flow contribution per EDU. EDU projections were prepared by the South Placer Wastewater Authority (SPWA) partners and provided to W&C as part of this study in May 2025; the projections generally assume linear growth. Current flow factors are approximately 144 gpd/EDU for PGWWTP and 150 gpd/EDU for DCWWTP. Projected flow factors are at 150 gpd/EDU. Potential future flows are presented in **Table 2-1.** For this analysis, it has been assumed that all influent sewer flows would be available for use as recycled water.

It should be noted that in addition to uncertainties regarding the per EDU flow factor, there is also significant uncertainty regarding the number and timing of future EDUs. As discussed further in **Section 3**, careful monitoring of the City's available recycled water supplies is recommended as additional customers are considered.

TABLE 2-1: EXISTING AND PROJECTED WWTP RECYCLED WATER SUPPLY

	Existing Supply (mgd)	2060 Projected EDU Growth (EDUs)	2060 Projected Supply @ current gpd/EDU (mgd)	2060 Projected Supply @ 190 gpd/EDU (mgd)
PGWWTP	8.49	35,092	13.5	15.2
DCWWTP	8.60	27,942	12.8	13.9
Total	**17.09**	**63,035**	**26.3**	**29.1**

[1]SPWA's fiscal year runs from July 1 to June 30.

3. RECYCLED WATER DEMANDS

This section examines the existing recycled water system customers and associated demands and identifies potential future demands from expected customers within the City and from Urban Growth Areas (UGAs).

The approach to perform this market assessment was to use a combination of customer meter data and planning documents and staff estimates for existing and potential future customer demands respectively. Recycled water production data was used to verify peaking previously developed in the 2016 Recycled Water System Evaluation Report. Potential future recycled water demand was compared with projections of future wastewater flows to identify potential recycled water supply issues.

3.1 Peaking Factors

Previous iterations of the recycled water systems evaluation (including the 2016 Systems Evaluation, as well as the 2009 Systems Evaluation[1]), used a peak month/average day peaking factor of 2.5. To confirm that this peaking factor would be applicable for this assessment, recycled water production data from January 2017 to November 2022 was analyzed to determine typical peaking factors within the existing system.

Average daily recycled water production was compared across months to demonstrate seasonal trends in irrigation use. **Table 3-1** and **Figure 3-1** show the variation in average daily recycled water production with a peak in July corresponding to a peaking factor (average daily production in a given month / average daily production across the analysis period) of 2.23. **Table 3-2** summarizes the calculated peaking factors for each year from 2017 through 2022.

TABLE 3-1: MONTHLY PRODUCTION ANALYSIS

Month	Average Day Production (MGD)	Peaking Factor Average Daily for Month / Average Daily for Year
Jan	0.33	0.11
Feb	0.70	0.24
March	0.79	0.27
April	1.83	0.62
May	4.23	1.44
June	5.67	1.93
July	***6.56***	***2.23***
Aug	5.89	2.00
Sept	4.33	1.47
Oct	2.88	0.98
Nov	1.05	0.36
Dec	0.43	0.15
Annual Average	**2.94**	**1.0**

[1] RMC Water & Environment, South Placer Regional Wastewater and Recycled Water Systems Evaluation, December 2009

FIGURE 3-1: AVERAGE DAILY PRODUCTION FOR EACH MONTH (2017-2022)

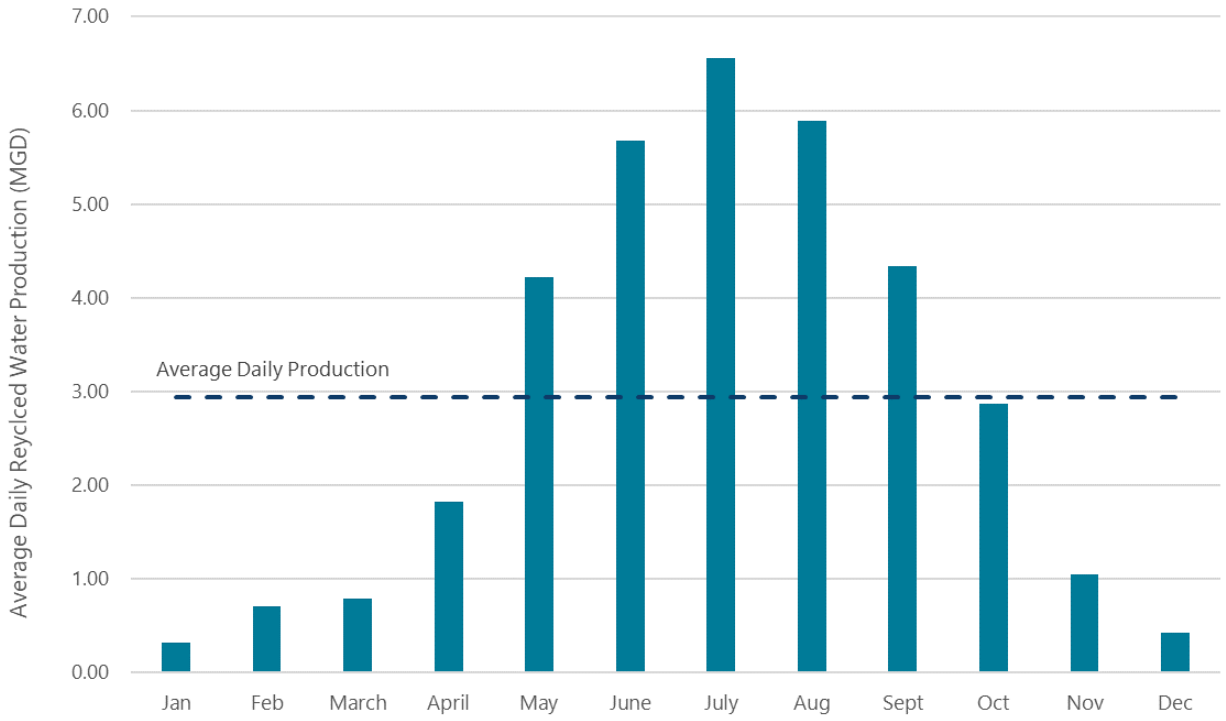


TABLE 3-2: RECYCLED WATER PEAKING FACTORS

Year	Recycled Water Production[1]			Peaking Factors Peak Value/Annual Average	
	Average Day (MGD)	Max Month (MGD)	Max Day (MGD)	Max Month	Max Day
2017	2.28	5.76	7.11	2.53	3.12
2018	2.61	6.18	7.80	2.37	2.99
2019	2.45	5.47	7.14	2.23	2.91
2020	3.07	6.78	7.99	2.21	2.60
2021	3.33	7.40	8.29	2.23	2.49
2022	3.63	7.10	8.67	1.96	2.38
Average	**2.89**	**6.45**	**7.83**	**2.25**	**2.75**

Footnotes:

1. Recycled Water Production Data is based on flows from West Roseville Pump Station and the Dry Creek Gravity and Pump Station pipelines.

As indicated in Table 3-2, the Maximum Day/Annual Average peaking factor is generally slightly above 2.5, while Maximum Month/Annual Average is slightly below 2.5. This suggests that within the peak month there was a

shorter duration period of higher demands, which may coincide with a heat wave, or atypical irrigation patterns. The current recycled water system has sufficient capacity to handle these short durations of higher demands. In the future, as recycled water demands approach system design limits, irrigation during peak demand periods may need to be more tightly managed to meet all demands. As the duration of the higher demands was generally short, it has been assumed that irrigation during these high demand periods can be managed to limit taxing the system significantly beyond typical peak month demands. Therefore, the peak day peaking factor of 2.5 used in previous system planning has been carried forward for the current analysis of buildout system needs.

For modeling purposes, existing maximum day demands were scaled to match the maximum day demand observed on June 24, 2022, of 8.7 mgd, as discussed further in Section 3.3 of this report. As future customers are added, peaking factors should continue to be monitored. Potential mitigations to address supply shortfalls are discussed in Section 3.5.1.

3.2 Diurnal Patterns

Peaking factors for hourly demand patterns were previously developed as part of the 2020 Model Development Report for use in extended period simulations (EPS). Total demands under each pattern were summed, the pattern was applied, and hourly demand values were plotted on **Figure 3-2**, along with the supply patterns discussed in Chapter 2. The demands follow a typical irrigation demand pattern with peak flows occurring overnight and in the morning.

As indicated in **Figure 3-2**, peak recycled water demands occur overnight while peak recycled water supply occurs in the afternoon and stays fairly constant throughout the evening. Low demands occur in the middle of the afternoon while low supply occurs in the middle of the morning. One way to increase the capacity of the recycled water system in the future would be to modify the hourly demand patterns for customers with storage ponds (i.e., golf courses). Aligning the system supply pattern for customers with storage with the system-wide demand pattern would optimize the operation of the system. This modification is included in this evaluation and discussed in Section 4.2.1.2. The proposed modified patterns are shown in **Table 3-3** and the resultant hourly demands compared to supply is shown in **Figure 3-3**. The additional capacity provided by this pattern modification was determined as part of the analysis discussed in Section 4 of this report. Modification of customer demand schedules to off-peak hours would help accommodate additional system demands on the recycled water system.

For future UGA customers with storage (Placer Vineyards, Riolo Vinyards, Placer One, and Regional University), it was assumed that the City could supply recycled water when convenient for the City system to reduce peak demands. For this study this was assumed to be a constant supply over the entire day (peak hour factor equal to 1.0), except for supply to Placer One which was assumed to have a fill time during the middle of the day.

FIGURE 3-2: EXISTING DEMAND AND SUPPLY PATTERNS

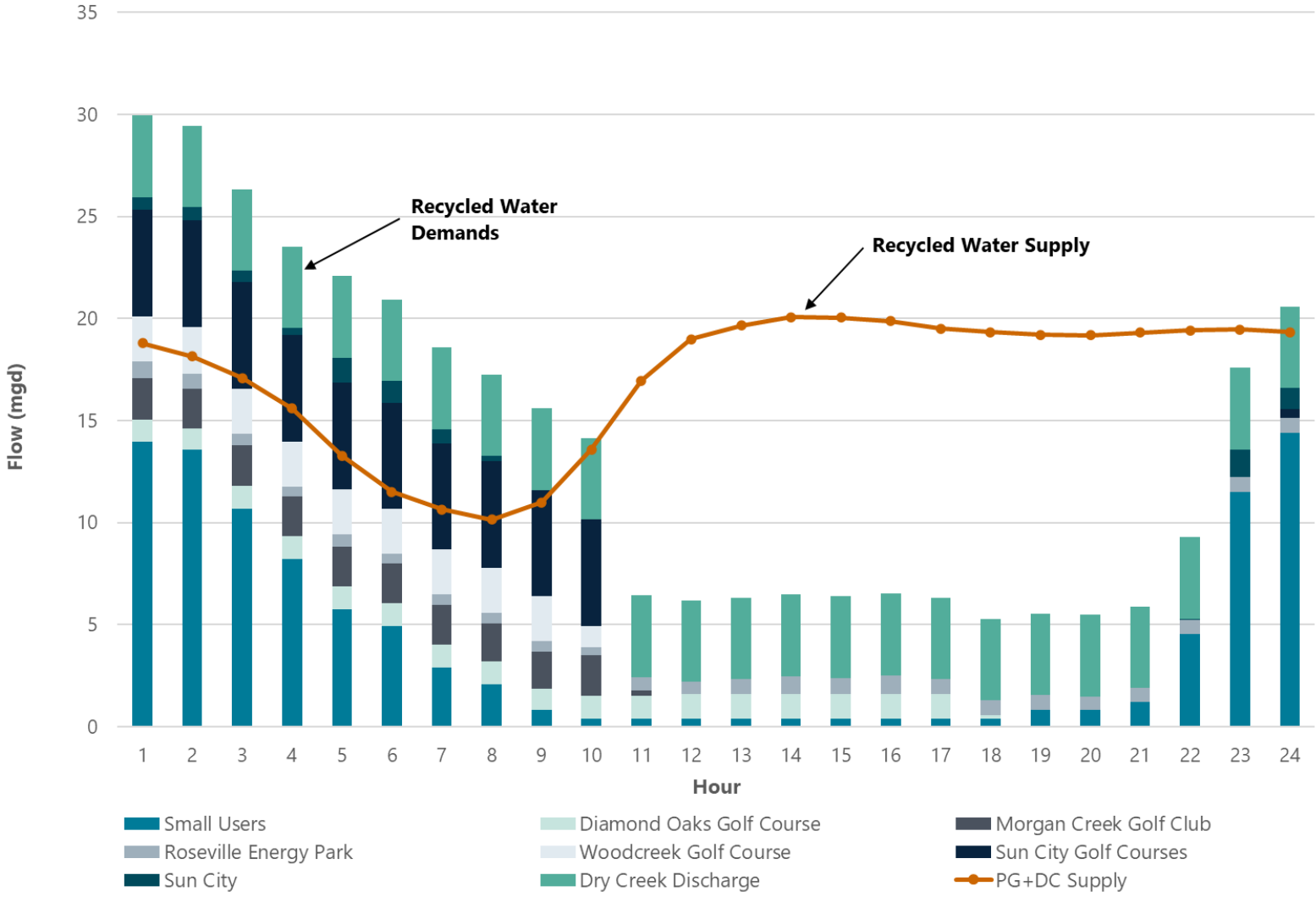
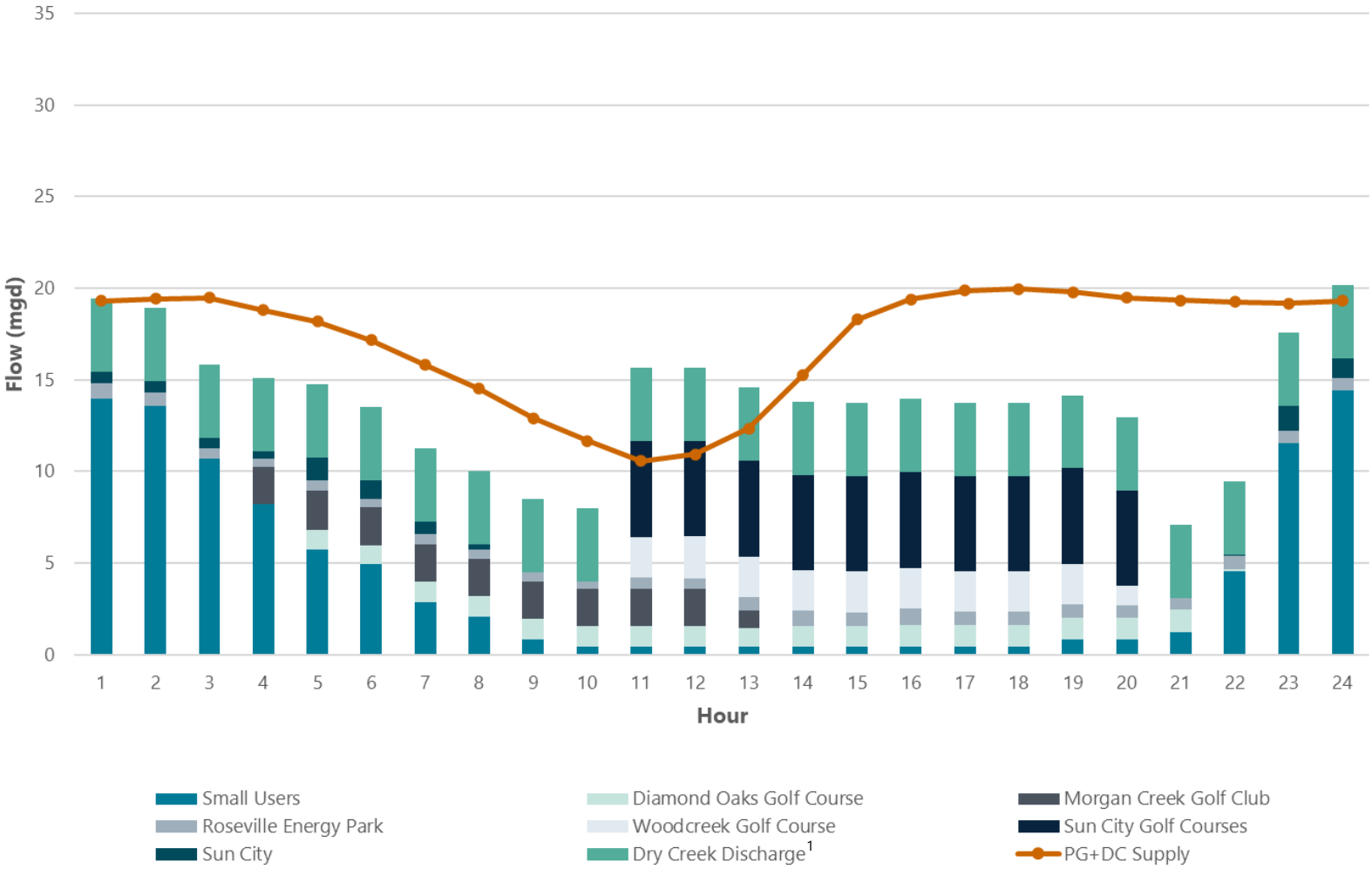


FIGURE 3-3: PROPOSED MODIFICAITONS TO EXISTING DEMAND AND SUPPLY PATTERNS



[1] The diurnal pattern for discharge to Dry Creek is assumed to be constant at 4 mgd over 24 hours, however the pattern can be modified to better match the supply and demand patterns as long as 4 MG is discharged per day.

TABLE 3-3: DIURNAL DEMAND PATTERNS FOR EXISTING CUSTOMERS

Hour	Hourly Demand Pattern Peaking Factors [a]										
	Roseville Energy Park	Sun City Irrigation	(E) Diamond Oaks GC	(P) Diamond Oaks GC	(E) Morgan Creek GC	(P) Morgan Creek GC	(E) Timber Creek GC	(P) Timber Creek GC	(E) Woodcreek GC	(P) Woodcreek GC	Small Users
0	1.3	1.9	1.3	0	2.5	0	2.4	0	2.5	0	3.4
1	1.1	2	1.3	0	2.4	0	2.4	0	2.6	0	3.3
2	0.9	1.7	1.4	0	2.4	0	2.4	0	2.5	0	2.6
3	0.7	1.1	1.4	0	2.4	2.5	2.4	0	2.5	0	2
4	0.9	3.8	1.4	1.3	2.4	2.6	2.4	0	2.5	0	1.4
5	0.7	3.2	1.4	1.3	2.4	2.5	2.4	0	2.5	0	1.2
6	0.8	2.1	1.4	1.4	2.4	2.5	2.4	0	2.5	0	0.7
7	0.8	0.8	1.4	1.4	2.3	2.5	2.4	0	2.5	0	0.5
8	0.8	0	1.3	1.4	2.2	2.5	2.4	0	2.5	0	0.2
9	0.6	0	1.4	1.4	2.4	2.5	2.4	0	1.2	0	0.1
10	1	0	1.4	1.4	0.3	2.5	0	2.4	0	2.5	0.1
11	0.9	0	1.5	1.4	0	2.5	0	2.4	0	2.6	0.1
12	1.1	0	1.5	1.3	0	1.2	0	2.4	0	2.5	0.1
13	1.3	0	1.5	1.4	0	0	0	2.4	0	2.5	0.1
14	1.2	0	1.5	1.4	0	0	0	2.4	0	2.5	0.1
15	1.4	0	1.5	1.5	0	0	0	2.4	0	2.5	0.1
16	1.1	0	1.5	1.5	0	0	0	2.4	0	2.5	0.1
17	1.1	0	0.2	1.5	0	0	0	2.4	0	2.5	0.1
18	1.1	0	0	1.5	0	0	0	2.4	0	2.5	0.2
19	1	0	0	1.5	0	0	0	2.4	0	1.2	0.2
20	1	0	0	1.5	0	0	0	0	0	0	0.3
21	1.1	0.1	0	0.2	0	0	0	0	0	0	1.1
22	1.1	4.1	0	0	0	0	0	0	0	0	2.8
23	1.1	3.2	0	0	0	0	0.2	0	0	0	3.5

Footnotes:

a) "(E)" indicates current demand pattern derived in the 2020 Model Development Report. "(P)" indicates a proposed pattern with a shift in hourly demands to align system demand patterns with system supply patterns.

3.3 Existing Customer Demand

Existing recycled water customers were identified through review of prior studies, discussions with City staff, and the City's billing records. Billing data from 2017 to 2022 was collected and analyzed to determine average annual demands for each customer. This data was used to add new customers whose service began after August 2019 (customers added before August 2019 were already included in the model as part the 2020 Model Report model update). Including these additional customers, annual average demands were estimated to be approximately 3.5 mgd.

As indicated in **Table 3-2**, the highest peak day demand observed was 8.7 mgd, which occurred on June 24, 2022. Modeled demands were scaled such that the total max day modeled demands matched the observed peak day demand of 8.7 mgd.

A summary of the largest demand customers is included in **Table 3-4**. Locations of the existing customers are shown in **Figure 3-4**. In addition to the customers shown in **Figure 3-4**, DC WWTP is required to discharge a minimum of 4 mgd to Dry Creek to maintain a year round flow in the creek per California Department of Fish and Wildlife (CDFW) requirements. Note that there is no specific minimum instantaneous flow requirement for this flow into Dry Creek, just a minimum requirement of 4 million gallons over the course of the day.

TABLE 3-4: SUMMARY OF EXISTING CUSTOMERS

Customer Name	Customer Type	On-Site Storage (Yes/No)	Zone	Annual Average Demand[a] (AFY)	Average Day Demand (MGD)	Peak Day Demand[b] (MGD)
Sun City Golf Courses	Golf Course	Yes	Main	851	0.76	1.9
Morgan Creek Golf Course	Golf Course	Yes	South	320	0.29	0.71
Roseville Energy Park	Other	No	Main	293	0.26	0.65
Woodcreek Oaks Golf Course	Golf Course	Yes	Main	345	0.31	0.77
Diamond Oaks Golf Course	Golf Course	Yes	North	315	0.28	0.70
Sun City Irrigation	Irrigation	No	Main	129	0.11	0.29
West Park High School	Irrigation	No	Main	79	0.07	0.18
Other Customers within WRSP Area			Main	836	0.75	1.87
Other Customers within Creekview Area			Main	33	0.03	0.07
All Other City Customers				534	0.48	1.2
Total				**3735**	**3.34**	**8.34**

Footnotes:

a. Based on average billing data from January 2018 to October 2022

b. Based on peaking factor of 2.5 multiplied by ADD.

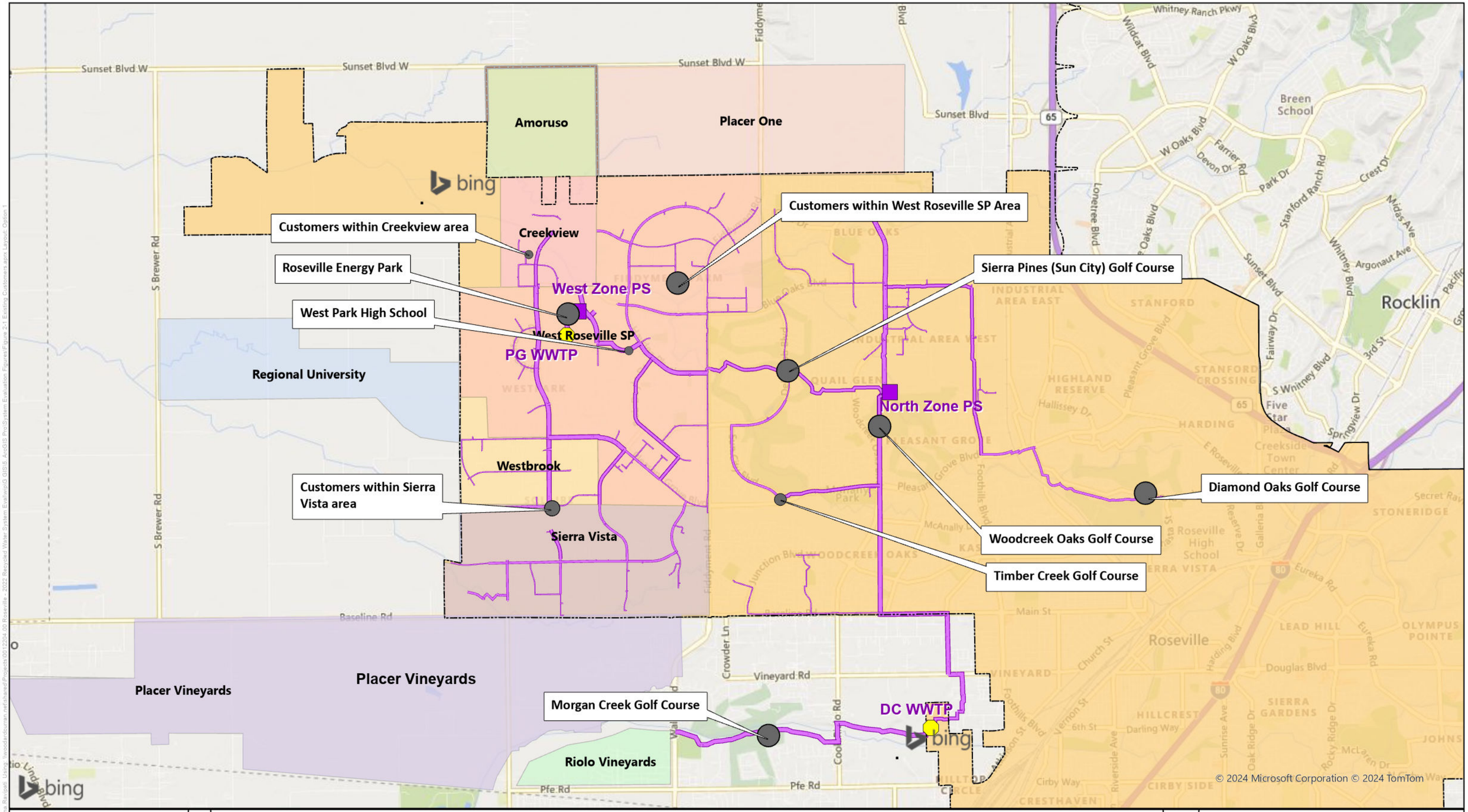


Figure 3-4
Existing Recycled Water Customers
Roseville Recycled Water Systems Evaluation

Legend

- Pump Station
- WWTP
- City Limits
- Potential City limits
- Existing RW Pipeline: < 10 in; 10 - 14 in; 16 - 20 in; > 20 in
- Demand (AFY): 1 - 100; 101 - 250; 251 - 350; 351 - 1000
- City of Roseville Limits

N

0 0.2 0.4 0.8 Miles

CITY OF ROSEVILLE CALIFORNIA

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Figure Exported: 8/6/2024 By: Karina Ravipati Using: \\woodardcurran.net\shared\Projects\0012204.00 Roseville - 2022 Recycled Water System Eval\wip\G GIS\5. ArcGIS Pro\System Evaluation Figures\Figure 2-1 Existing Customers.aprx Layout: Option 1

3.4 Potential Future Customer Demand

Potential future customers include near-term potential recycled water customers identified by the City and Urban Growth Areas (UGAs). Potential future customer locations are shown in **Appendix A** and were identified based on review of existing recycled water study reports, discussions with City staff, and review of development master plans. Peaking factors used for existing customers were also used to calculate peak day demand for potential future customers.

3.4.1 Near-Term Potential Customers

Near-term potential customers were identified through a review of prior studies and estimated demands for potential customers were updated where service had begun since the last update to the future customer dataset. The largest near-term potential customers (not including UGAs, discussed in Section 3.4.2) include the Hewlett Packard Enterprise campus and the Campus Oaks Apartments.

For the purposes of the supply and demand evaluation, it has been assumed that connection of new customers would begin in 2024 with growing participation occurring over the following four years. Once all customers are on-line, the annual demand for near-term potential customers is projected to be 2,360 AFY, with a peak day demand of 5.27 mgd. Potential near-term customers are identified in **Appendix A**.

3.4.2 UGA Demand

The City of Roseville is anticipating the eventual connection of eight UGAs. Four of these UGAs (Sierra Vista/Westbrook, Creekview, Amoruso Ranch and the West Roseville Specific Plan) are within current City limits and are partially developed. Regional University, Placer Vineyards, Riolo Vineyards, and Placer One/Sunset Industrial Area are outside of the City limits with currently no plans for annexation. Curry Creek is not included in this analysis because the City has not agreed to provide recycled water to the UGA, and due to supply limitations, as discussed in **Section 3.5**, supply may not be available.

Note that the Creekview and the West Roseville Specific Plan area UGAs (discussed further below) have already been partially developed; recycled water use is therefore listed as both an existing and potential future customer. Total existing and anticipated buildout demands for these areas are shown in **Table 3-5**.

Recycled water service to UGAs is limited by supply; customers within the City limits will have priority and potential customers outside the City will have agreements signed that allow service on a first-come, first-served basis. Regional University, Placer Vineyards, Riolo Vineyards, and Placer One / Sunset Industrial Area would be served as wholesale customers with recycled water delivered to an on-site storage tank and distributed within the UGA by another retailer. Other UGAs (Sierra Vista, Creekview and Amoruso) would have storage located at the West Roseville pump station site.

Estimated demands for the UGAs are shown in **Table 3-5**. Demands were derived from previous studies and a review of planning documents. The assumed connection date indicated in **Table 3-5** is the initial connection; it was assumed for this analysis that the entire demand will not be realized until eight years after the initial connection date. For UGAs with existing demands, it was assumed the initial connection date occurred in 2020 and that the entire demand would be realized in 2028. The peaking factor described in **Section 3.1** was used to estimate potential max day demands. The supply window for Regional University, Placer Vineyards, and Riolo Vineyards was assumed to be constant between the hours of 3am and 10pm;

the supply window for Placer One was assumed to be between 7am and 9pm. For other UGAs the "Small Users Pattern" from **Table 3-3** was used.

TABLE 3-5: URBAN GROWTH AREA POTENTIAL DEMANDS

UGA	Potential Service Zone	Within City Limits	Existing Average Day Demand (mgd)	Buildout Average Day Demand (mgd)	Buildout Peak Day Demand (gpm)	Assumed Initial Connection Date[a]
Sierra Vista / Westbrook[b]	West	Yes	0	0.62	1,078	2025
Amoruso Ranch[c]	West	Yes	0	0.22	389	2025
Creekview[d]	West	Yes	0.03	0.10	174	2020
West Roseville Specific Plan[e]	West	Yes	0.75	2.02	3,507	2020
Regional University[f]	West	No	0	0.47	812	2030
Placer One / Sunset Industrial Area[g]	North	No	0	0.38	660	2025
Placer Vineyards[f]	Gravity	No	0	1.13	1,966	2030
Riolo Vineyards[f]	Gravity	No	0	0.07	127	2030

Footnotes:

a. For purposes of phasing, it was assumed that implementation of full demand would occur over 8 years from the initial connection date. Developments with existing demands were assumed to have been connected to the system by 2020. Note that the initial connection date may not represent the beginning of UGA development.
b. Sierra Vista Specific Plan, Amended April 2016
c. Draft Addendum to the Amoruso Ranch Specific Plan Area Recycled Water Master Plan, June 2024
d. Creekview Specific Plan, March 2022
e. Recycled Water Study for West Roseville Specific Plan Area, May 2003
f. Based on estimates provided by City staff, 2025
g. Placer One Recycled Water Master Plan, November 2024

3.5 Supply versus Demand Comparison

Recycled water supply is provided from two WWTPs owned and operated by the City of Roseville, on behalf of the SPWA: Dry Creek WWTP and Pleasant Grove WWTP. These two WWTPs collect and treat all wastewater generated within the SPWA service area. The recycled water distribution system has interconnection points that allow significant flexibility for deliveries. In particular, there are existing interconnections to allow either treatment plant to serve the North Zone system and the Sun City Golf Course. Because of this flexibility, a supply and demand comparison was performed over the entire system, rather than on the individual WWTPs. Estimated growth in average dry weather flow generated from the entire SPWA sewer service area through 2060 was referenced from the 2020 SPWA Systems Evaluation Report[1].

[1] South Placer Regional Wastewater 2020 Systems Evaluation Report.

3.5.1 Supply versus Maximum Day Demand Comparison

Figure 3-5 shows the current projections of annual recycled water demand and supply available during maximum day conditions. As shown in the figure, there appears to be sufficient supply to meet anticipated demands. It should be noted, however, that there is significant uncertainty in the timing of growth of both future demands and future supplies. There is also significant uncertainty in the projected demands, as demands for several of the UGAs was based on estimates from several years ago (as indicated in **Table 3-5**) and likely do not reflect current irrigation practices. If demand begins to increase faster than supply, the City can address a potential shortfall in supply with the following methods:

- Encourage water-efficient landscaping.
- Encourage reduction in peak usage for future recycled water customers.
- Consider limiting recycled water demands to customers on the hottest days of the year (i.e., capping demands).
- Work with customers with storage to determine if demands could be spread across days to reduce a single-day peak demand.
- Continue monitoring summer peak demands and creek discharges as demands are added to identify potential supply limitations.
- Prepare to have supplemental potable water supplies available in the event of a shortfall or source other local raw wastewater supplies to increase available recycled water supply during summer months.

3.5.2 Peak Hourly Demand Versus Supply Comparison

Although supplies are anticipated to continue increasing beyond 2060, the projected 2060 has been used for modeling purposes to estimate the potential storage requirements. **Figure 3-6** shows anticipated max day buildout demand conditions compared to 2060 supply. While hourly projected supplies are greater than hourly buildout demands, there may still be a need for operational storage (aka daily storage) to shift the available supply of recycled water to the higher evening demand periods when supplies are limited. The City can undertake efforts to manage peak usage and reduce overnight demands, especially with customers that have storage facilities who may be more adept to distribute demands across a day to limit peak hourly usage as much as possible. Note that **Figure 3-6** was developed using proposed peaking factors as presented in **Table 3-3**.

FIGURE 3-5: PROJECTED BUILDOUT MAX DAY SUPPLY AND DEMAND COMPARISON

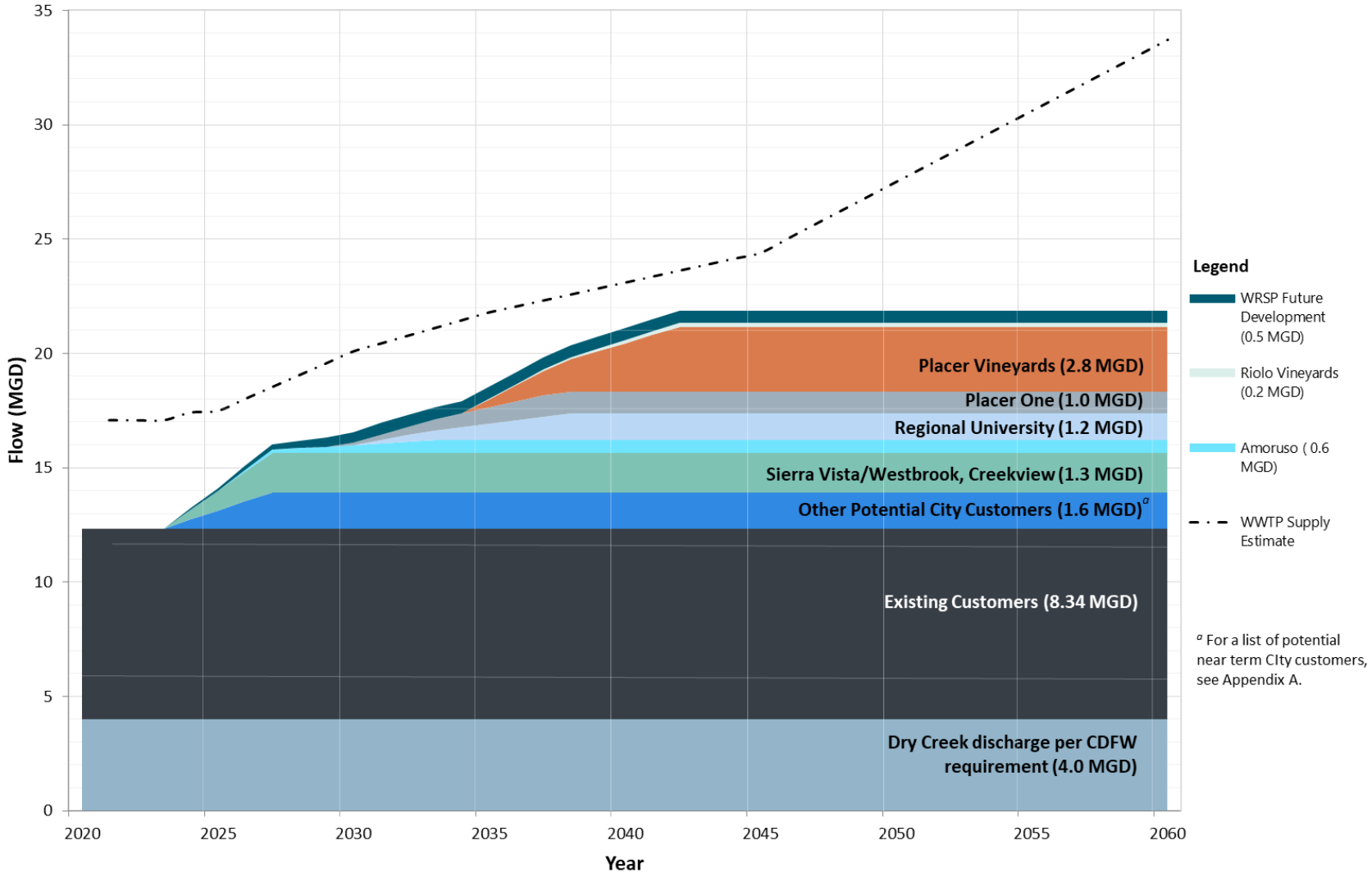
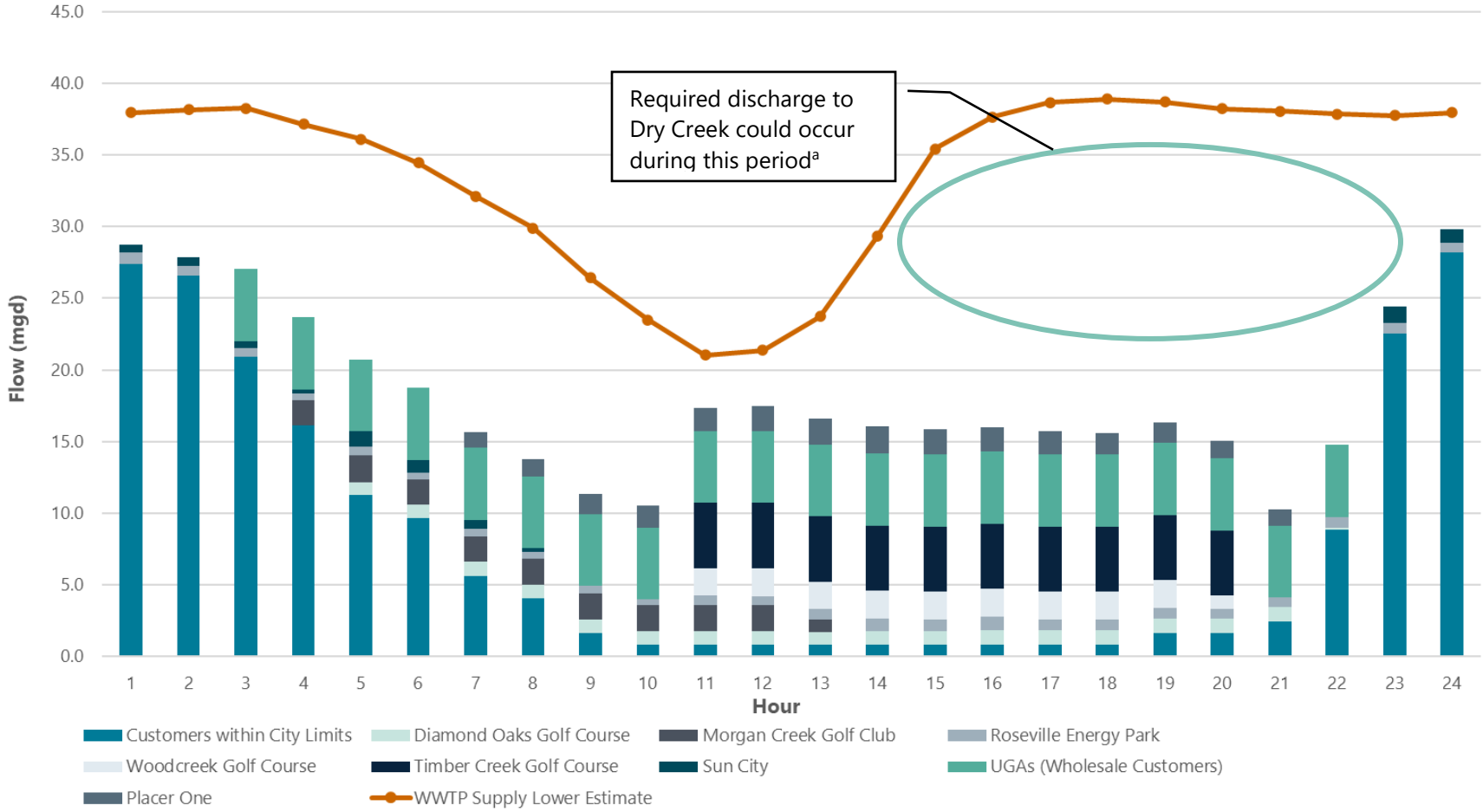


FIGURE 3-6: HOURLY COMPARISION OF SUPPLY AND DEMANDS BUILDOUT MAX DAY CONDITIONS



Footnote:

a) Discharge to Dry Creek, as required by CDFW, is not included on this plot as City operations staff can elect to discharge the required 4 mgd when it best suits system performance. In the case of the proposed patterns being implemented, this could be between 1pm and 11pm.

4. SYSTEM EVALUATION

4.1 Evaluation Methodology and Criteria

Model scenarios of the City's existing recycled water distribution system were developed. Sizing of new pipes, and evaluation of the capacity of the existing facilities, was performed using the design criteria described in **Section 4.1.1**. Buildout alternatives were evaluated for comparative life cycle costs using the capital and O&M cost criteria described in **Section 5**.

4.1.1 Design Criteria

Design criteria were compiled to reflect current City standards for recycled water distribution. These criteria, found in **Table 4-1**, were used to assess any deficiencies in the existing facilities and to appropriately size pipelines, pump stations, and storage tanks at buildout.

TABLE 4-1: HYDRAULIC DESIGN CRITERIA FOR MODEL DEVELOPMENT

System Component	Unit	Value
Demand Nodes		
Minimum Pressure at Peak Day for Customers without Storage	psi	40
Minimum Pressure at Peak Day for Customers with Storage	psi	5
Maximum Pressure in system	psi	100
Distribution Pipes		
Minimum Pipe Size (including laterals)	inches	6
Allowable Pipe Sizes [a]	inches	6, 8, 12, 16, 24, 30
Maximum Head Loss (existing pipe)	feet per 1,000 feet	10
Maximum Head Loss (new pipe)	feet per 1,000 feet	5
Maximum Velocity (existing pipe)	feet per second	8
Maximum Velocity (new pipe)	feet per second	5
Hazen-Williams Coefficient for Head Loss Calculation	n/a	130
Storage Tanks		
Minimum Tank Storage	MG	Operational Storage + Buffer Storage
Operational Storage	MG	As Modeled
Buffer Storage[b]	MG	0.25 * MDD

a. Per Roseville Standards for Recycled Water.
b. Buffer storage is intended to allow the system to operate in the event of unforeseen conditions (e.g. a brief supply limitation).

4.2 Existing System Evaluation

The recycled water system includes approximately 40 miles of recycled water pipelines, recycled water pumping facilities at the two WWTPs (Pleasant Grove and Dry Creek), and two booster pump stations and storage facilities. The recycled water system, including facility locations and pressure zones, is shown in **Figure 4-1**. Pleasant Grove WWTP recycled water pumps supply water to the West Roseville storage tanks located near the treatment plant. The West Roseville pump station draws from that storage and supplies pressure to customers in West Roseville and others. The Dry Creek WWTP recycled water pumps supply portions of the main pressure zone, primarily in eastern Roseville. The Dry Creek WWTP pumps also supply the North Zone storage tank with recycled water, when connected to the system. The North Zone Pump station is located adjacent to the North Zone storage tank and although the tank and pump station were constructed, the City has operated the system without the North Zone storage tanks and pump station for several years (i.e. these facilities are currently disconnected from the recycled water system).

The City's recycled water model, as documented in the 2020 Model Development Report and updated based on the current supply and demand data described in **Section 2** and **Section 3**, was used for this evaluation. Two demand scenarios were evaluated: average day demand (ADD) and maximum day demand (MDD). Each demand scenario has diurnal patterns applied so that peak hour conditions could be evaluated based on patterns discussed in **Section 3.2**. Results from both demand scenarios indicate that sufficient pressure could be provided throughout the network to meet the established design criteria, as shown in **Figure 4-2**. Under the MDD scenario, the West Roseville Pump Station storage tanks combined modeled operational storage is 0.8 MG (each tank cycles approximately 0.4 MG).

The City's existing recycled water system is best analyzed as two distinct systems under current operating conditions: the main pressure zone, termed West Zone, servicing a majority of the systems' demands, supplied by West Roseville Pump Station and Dry Creek WWTP, and the gravity system, termed Gravity Zone, servicing a portion of the City's customers south of Baseline Road, including Morgan Creek Golf Club, supplied by the Dry Creek WWTP.

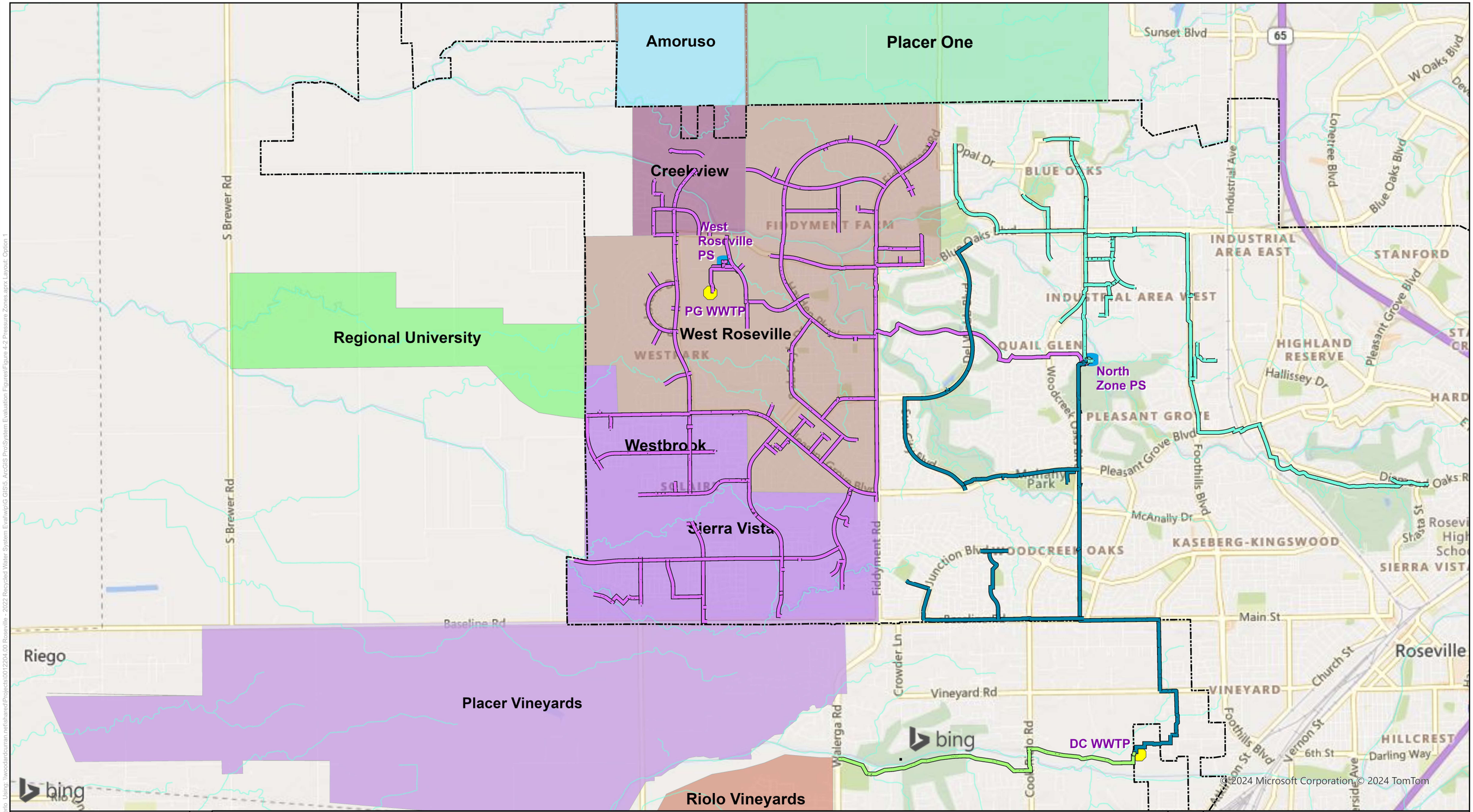


Figure 4-1
Recycled Water System Pressure Zones
Roseville Recycled Water Systems Evaluation

Legend

- City Limits
- Potential City limits
- WWTP
- Storage and Pump Station

Pipeline Pressure Zone

- PG WWTP
- West Roseville PS Zone
- North Zone
- South Zone
- Gravity

Note: The West Roseville PS Zone, North Zone, and South Zone, are all supplied by both DC and PG WWTPs. These zones are jointly referred to as the West Zone.

N

0 0.17 0.35 0.7 Miles

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Figure Exported: 7/31/2024 By: dmerlo Using: \\woodardcurran.net\shared\Projects\0012204.00 Roseville - 2022 Recycled Water System Eval\wip\G GIS\5. ArcGIS Pro\System Evaluation Figures\Figure 4-2 Pressure Zones.aprx Layout: Option 1

4.2.1 West Zone Evaluation

Node pressures and pipeline velocities were compared to criteria established in **Table 4-1**. **Table 4-2** summarizes the peak hour operating points of each pump station in the existing system. These peak hour flowrates represent an estimated pump station capacity accounting for pumping against system pressure under design conditions. Pump curves for each pump station are included in **Appendix B**. Based on a comparison of the peak hour flows and pressures against the pump curves shown in **Appendix B**, all existing pump stations have capacity for existing peak flows.

TABLE 4-2: EXISTING RECYCLED WATER SYSTEM PUMP STATION FLOWRATES AND PRESSURES

Pump Station	Peak Hour Operating Point
Pleasant Grove WWTP	6,585 gpm, 26-ft (11 psi)[a]
West Roseville PS	8 ,725 gpm, 173-ft (75 psi)[a]
Dry Creek WWTP	5,200 gpm, 138-ft (60 psi)[a]

Footnotes:

a. Total Dynamic Head (TDH) modeled directly downstream of the pump station.

Based on these model results, no existing capacity deficiencies have been identified. However, very little additional demand can be added without resulting in overuse of the West Roseville tanks or inadequate supply from DCWWTP. However, some operational changes can be implemented at low or no cost to increase system capacity. These changes are discussed further in **Section 4.2.1.2**.

Figure 4-2
Existing MDD Model Results

Roseville Recycled Water Systems Evaluation

Legend

Tank & PS
WWTP
City Limits

Max Velocity	Minimum Pressure
< 4 fps	< 30 psi
4 - 6 fps	30 - 40 psi
6 - 8 fps	40 - 60 psi
> 8 fps	60 - 80 psi
	> 80 psi

52 Minimum Node Pressure (psi)

0 0.15 0.3 0.6 Miles

N

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4.2.1.1 Reliability and Efficiency Improvements

Several projects have been identified that would improve the City's ability to convey recycled water between zones. These projects would improve the ability of the City to serve multiple zones from a single pump station during low demand periods, potentially reducing electrical costs. The projects would also allow the City to better manage operations during maintenance shutdowns. These projects are described in **Section 5.2.3.**

4.2.1.2 Existing System Operational Capacity Improvements

While analyzing the existing system performance, it was recognized that there are several opportunities for system operational changes that provide the City with additional capacity to service near-term potential demands without constructing new infrastructure. The operational changes included adjusting demand patterns for customers with storage and adjusting the PRV settings at West Roseville PS and DC WWTP PS. These changes were modeled with increasing demands until a hydraulic deficiency was identified. The increases to system capacity correlating to the adjustments are summarized in **Table 4-3**. Specific adjustments are discussed in detail below.

TABLE 4-3: EFFECTIVENESS OF NEAR-TERM OPERATIONAL IMPROVEMENTS

Scenario	Potential Peak Day Demand[a] (MGD)
Existing, No Change	8.7[b]
+ Adjust Demand Patterns	10.4
+ Increase WRPS Supply Pressure	10.9

Footnotes:

a. Represents the maximum peak day demand that could be met while meeting criteria established in **Table 4-1**. Current maximum peak demands are estimated to be 8.34 MGD

b. The model predicts that some customers in the southern part of the system would not meet 40 psi during existing peak day demands at peak hour, due to limitations in available supply at Dry Creek. It is possible that some demand shifting has already occurred to mitigate this deficiency.

Demand Pattern Shift

As discussed in Section 3.2, aligning the system demand pattern with the system supply pattern will maximize the available capacity of the system. One way this could be facilitated would be by shifting demand patterns for customers that have storage ponds. There are five customers with storage ponds to accommodate the demand pattern shifts proposed in Section 3.2. Shifting high demand customers with storage to an "off-peak" demand pattern would provide approximately an additional 0.7 mgd of average day demand (1.7 mgd of MDD with the "Small Users" pattern applied) before storage requirements as presented in **Table 4-1** would be exceeded.

Increase WRPS Supply Pressure

If Dry Creek WWTP appears to be running low on supply, an increase in pressure from the Pleasant Grove WWTP can be used to supplement the customers served by Dry Creek and increase capacity to the system. However, this may increase operational storage requirements at West Roseville. Balancing the two supplies can help mitigate storage requirements at West Roseville while meeting max day demands. An estimated additional 0.5 mgd of capacity could be realized through optimization of the supplies, however this could

vary depending on how the system is operated such as where the City sets the VFDs at the pumps at West Roseville and Dry Creek. However, based on modeled results, the system has capacity to adjust supply pressures leaving West Roseville and Dry Creek to increase available peak demands while maintaining minimum service pressures presented in **Table 4-1**.

Connection of North Zone Tank and Pump Station

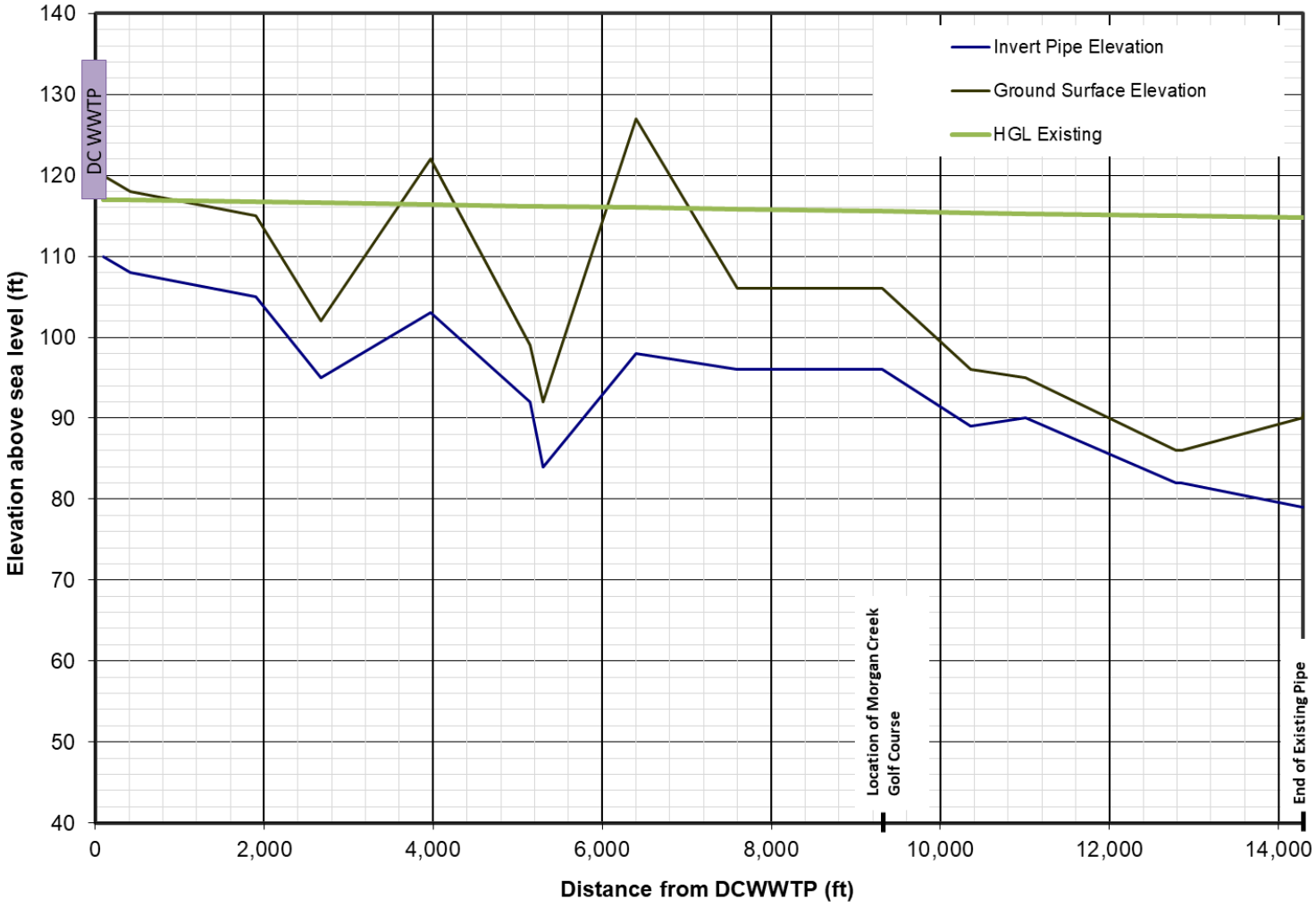
The North Zone Tank and Pump Station are currently not being operated in the system. Connecting the North Zone Tank and Pump Station back into the system would provide additional capacity to the North Zone, as well as relieve West Roseville Pump Station of servicing demands in this part of the system. However, significant rehabilitation would be needed to operate the North Zone PS. As discussed in later sections of this report, the buildout system does not require the North Zone PS, so rehabilitation is not recommended at this time

4.2.2 Gravity Zone Evaluation

The City serves customers south of Baseline Road directly from Dry Creek WWTP with 14,000 linear feet of 24-inch diameter pipe that is pressurized by gravity. The Gravity Zone is shown in **Figure 4-1**. Existing average day and max day demands for the gravity system are 0.8 mgd and 2.0 mgd, respectively. Due to this portion of the system being supplied directly from DCWWTP effluent storage, the pressures in the system are lower than recommended in **Table 4-1**, however the largest customer connected to the gravity system, Morgan Creek Golf Club, utilizes storage and their own irrigation system, reducing the required service pressure. City staff report that the system currently operates well. **Figure 4-3** shows the hydraulic profile of the existing system based on peak hour demand.

Currently, the gravity system is independent from the West Zone, and there are no interconnections between the two. This means that if DCWWTP were to be taken offline for maintenance, customers on the gravity system would be without recycled water. A reliability project is proposed in **Section 5.2.3** to connect the gravity system to the West Zone, to ensure a consistent supply of recycled water in the event that DCWWTP is temporarily taken offline or if future supplies or pressures are inadequate under buildout conditions.

FIGURE 4-3: HYDRAULIC ANALYSIS OF EXISTING GRAVITY SYSTEM FROM DCWWTP



4.3 Buildout System Evaluation

The existing recycled water model was evaluated under buildout demand conditions, as described in Section 3.4. Demands for potential future customers were assigned to model nodes as indicated in Table 3-5. This section discusses build out demand scenario model results and improvements identified to ensure system operability under buildout conditions.

4.3.1 Buildout Model Results

Modeling results for buildout max day demands are shown in **Figure 4-4**. Buildout model demands were run with the updated demand patterns presented in **Section 3.2**. To conservatively determine storage requirement, supply estimates for 2045 were used for modeling purposes to complete the buildout max day model runs. This represents a period of time when anticipated max day demands are closest to projected supplies. The model was run with North Zone Pump Station offline to determine if the pump station would be required for buildout conditions.

Under buildout max day demands, existing infrastructure provides system pressures lower than criteria established in **Table 4-1**. These pressure deficiencies are resolved with improvements to West Roseville Pump Station pumping capacity and "pinch-point" improvements discussed below. Under modeled conditions, North Zone Pump Station could remain offline and system demands could be met at sufficient pressures. Note that this analysis assumes that water usage patterns can be adjusted as described in **Section 4.2.1.2**, and Placer One demands can be met off-peak; significant differences from this assumption may necessitate the recommissioning of North Zone Pump Station to meet peak demands.

As future demands are connected and the West Roseville Pump Station pumping capacity is increased (described in **Section 4.3.1.2**), the existing 24-inch pipeline directly downstream of the pump station to Westpark Drive is deficient under the velocity and headloss design criteria. A parallel 24-inch pipe could be installed to relieve this deficiency and increase service pressures and capacity throughout the system. It is recommended that this improvement be implemented in parallel to pumping capacity improvements at West Roseville Pump Station (See **Figure 5-2**).

The existing 8-inch pipe on Blue Oaks Boulevard between Woodcreek Oaks Boulevard and Diamond Creek Boulevard is deficient in the headloss design criteria. This deficiency could be improved by installing a new 12-inch pipe connecting to the 30-inch main on Woodcreek Oaks Boulevard and the 8-inch main on Prairie Woods Way via Painted Desert Drive. Alternatively, the existing main on Blue Oaks Boulevard could be upsized to a 16-inch main, however construction on Blue Oaks Drive may be expensive and difficult.

The above deficiencies are proposed "pinch-point" improvements, or improvements that increase the service capacity of the system. Both projects are discussed in further detail in **Section 5.2**.

As noted above, this evaluation is based on supply projections provided by the City and SPWA partner agencies. Depending on the trajectory of supply and demand growth, supply may be more constrained in earlier years. This would increase the use of storage, and may trigger the need to implement some of the mitigation measures identified in **Section 3.5.1**.

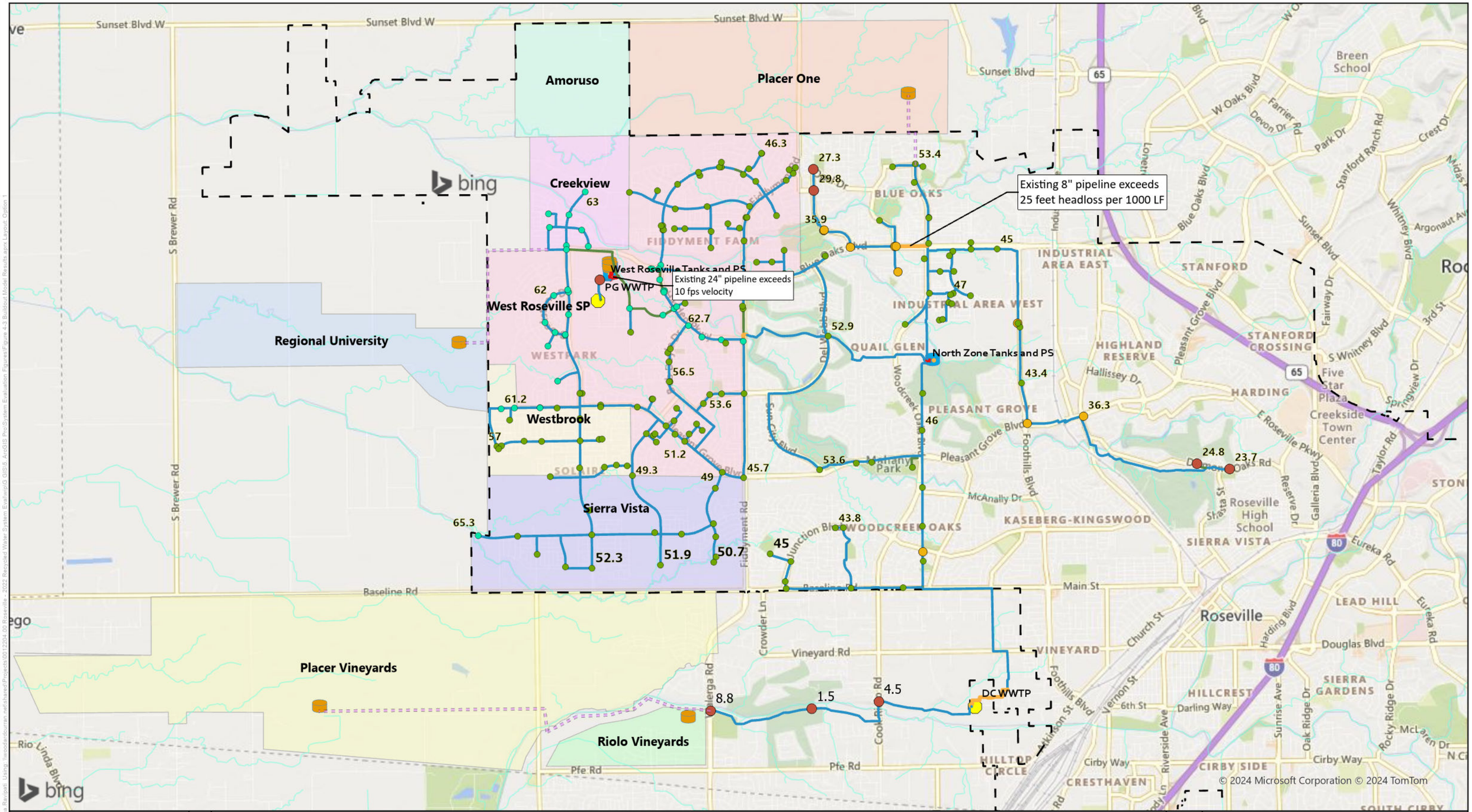


Figure 4-4
Buildout Model Results

Roseville Recycled Water Systems Evaluation

Legend

Max Velocity
- < 4 fps
- 4 - 6 fps
- 6 - 8 fps
- > 8 fps

Minimum Pressure
- < 30 psi
- 30 - 40 psi
- 40 - 60 psi
- 60 - 80 psi
- > 80 psi

- City Limits
- Future Recycled Water Pipeline
- Existing Storage and PS
- Future Storage and PS
- WWTP
- 52 Minimum Junction Pressure (psi)

0 0.2 0.4 0.8 Miles

N

CITY OF ROSEVILLE CALIFORNIA

Woodard & Curran

Project #: 0012204.00
Map Created: July 2024

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Figure Exported: 8/6/2024 By: Karina Ravnaki Using: \\woodardcurran.net\shared\Projects\0012204.00 Roseville - 2022 Recycled Water System Eval\wip\G GIS\6. ArcGIS Pro\System Evaluation Figures\Figure 4-3 Buildout Model Results.aprx Layout: Option 1

4.3.1.1 Potential Storage Requirements

Storage improvements will also be needed. **Table 4-1** presents criteria for determining storage requirements. Operational storage under buildout maximum day conditions is approximately 1.0 million gallons (MG) for the West Zone. **Table 4-4** presents the storage requirements based on this analysis. Section 5.2.2 provides a storage improvement project to enhance buffer storage to accommodate the additional 1.0 MG of required storage based on the analysis below.

TABLE 4-4: BUILDOUT MAX DAY STORAGE ANALYSIS

Pressure Zone [a]	Customers w/out Storage Buildout MDD (mgd)	Operational Storage Required [b] (MG)	Buffer Storage Required [c] (MG)	Total Storage Required [d] (MG)	Existing Storage (MG)	Potential Required Storage (MG)
West Zone (West Roseville Tanks	8.34	1.19	2.09	3.28	2.0	1.28

Footnotes:

e. The Gravity pressure zone is not included as there are few, if any, customer demands without dedicated storage in this zone.
f. Operational storage requirement is derived from model runs. It is based on assumptions built into the model including pump station controls, PRV settings, and demand patterns presented in this report.
g. Buffer storage required was assumed to be 25% of MDD for customers without dedicated storage for a one-day period.
h. Total required storage = Operational Storage + Buffer Storage.

4.3.1.2 Pump Station Flow Requirements at Buildout

Before total buildout demands are realized the West Roseville pump station would need to be improved to meet flow and pressure design criteria. Design points for each pump station under buildout max day demand conditions are summarized in **Table 4-5**. These design points represent the maximum peak hour flowrate and associated total dynamic head under max day conditions with the diurnal patterns applied to the demands. Potential operating points relative to the existing pump curves are shown in **Appendix B**. The table assumes that under peak demand conditions the PG WWTP pumps would deliver flow to the tanks at the West Roseville Pump Station, which would then deliver flow to a tank in Regional University during the off-peak period. Alternatively, the PG WWTP could deliver flow directly to a tank in Regional University, but this would require a parallel pump station and piping to provide acceptable head at peak flowrates.

Upgrade recommendations to achieve buildout flows at each pump station are described in more detail in **Section 5**.

TABLE 4-5: PROPOSED PUMP STATION DESIGN POINTS AT BUILDOUT

Pump Station	Existing MDD Design Point		Buildout MDD Design Point	
	Peak Flowrate (gpm)	Total Dynamic Head (ft)	Peak Flowrate (gpm)	Total Dynamic Head (ft)
PG WWTP PS	6,585	26	10,500	24
West Roseville PS	8,725	173	13,340	162
Dry Creek WWTP PS	5,200	138	6,150	140

4.3.2 Hydraulic Analysis of Placer Vineyards UGA Pipeline

The proposed Placer Vineyards development is located southeast of City boundaries and is proposed to be served through an extension of the existing gravity pipeline serving customers east of Dry Creek WWTP (see **Figure 4-5**). A previous study (**Appendix D**) evaluated the existing gravity pipeline that will be extended to serve Placer Vineyards. The study proposed locating the Placer Vineyards recycled water storage tank on the southwest corner of West Dyer Lane and 16th Street, which is in the center of the UGA. The alignment used in this study through Placer Vineyards was along West Dyer Lane. Since this study was performed, project demands for Placer Vineyards have changed and so a similar analysis was performed to determine if the existing 24" gravity pipe could remain a gravity pipe at the updated buildout demands.

The analysis was conducted for peak day demands, without consideration for peak hour demands. During peak days, the 24" pipe can remain gravity while re-filling the Placer Vineyards storage tank within 15 hours. The results of the analysis conclude that during a peak day, the 24" pipe can remain gravity flow if Placer Vineyards storage tank is placed at the proposed storage tank location (southwest corner of West Dyer Lane and 16th Street). The hydraulic grade line of this pipeline under gravity flow is shown in **Figure 4-6.** To fill the tank in under 15 hours under peak conditions, a new pump station would need to be constructed. Sizing the pump station would depend on the desired time to fill the Placer Vineyards recycled water storage tank. **Figure 4-6** shows an option to decrease the fill time of the tank to 12 hours by installing a 30 HP pump station. An alternative to a new pump station is to augment the recycled water supply with one or more irrigation wells pumping into the storage tank or to locate and partially bury the storage tank at a lower elevation near Dry Creek. These alternatives could increase the fill time of the tank while maintaining the existing 24" pipe as a gravity pipe.

FIGURE 4-5: PROPOSED PLACER VINEYARDS PIPELINE

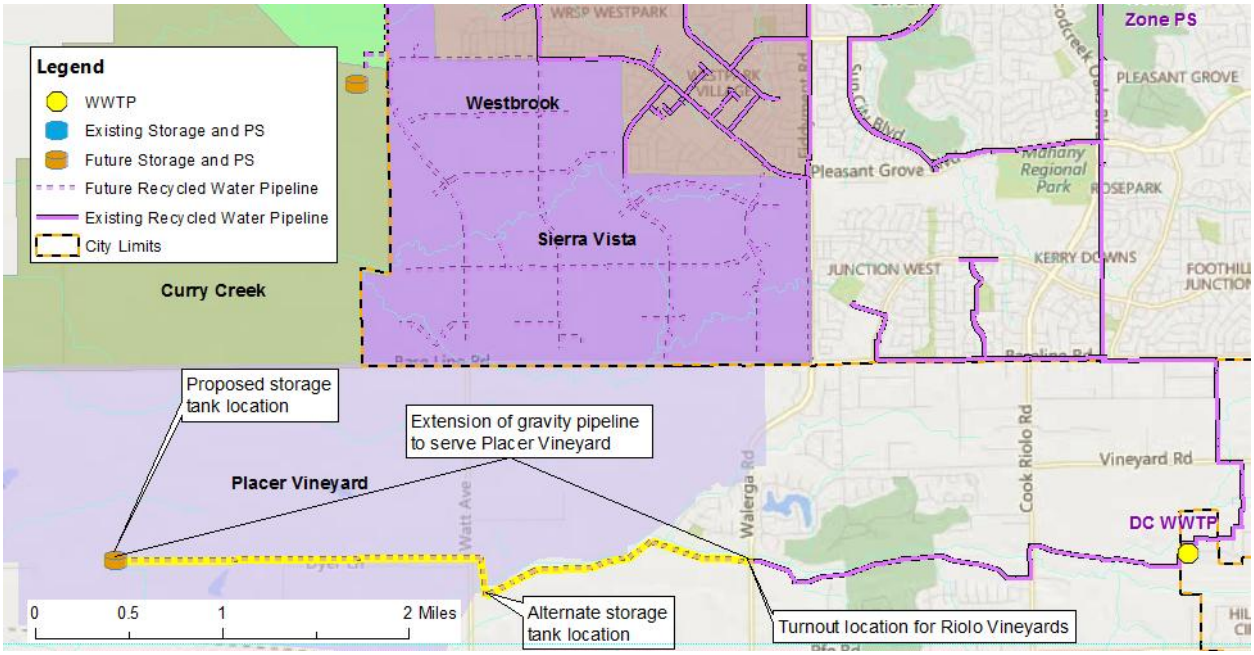
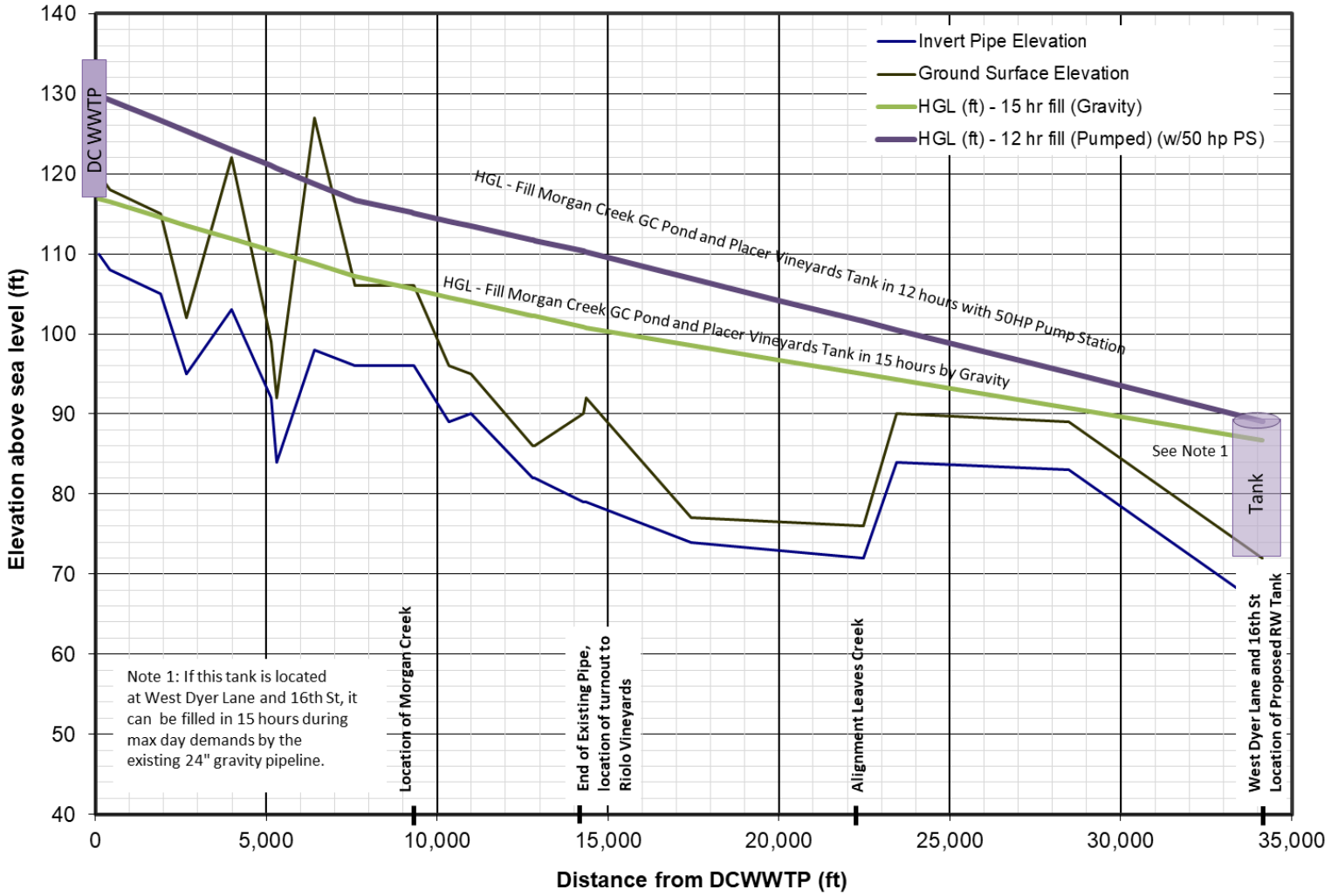


FIGURE 4-6: HYDRAULIC ANALYSIS OF 24" GRAVITY PIPELINE TO PLACER VINEYARDS



5. IMPLEMENTATION PLAN

5.1 Cost Estimating Assumptions

Construction cost estimates have been developed to provide planning level estimates of future facility costs. These cost estimates are planning or conceptual level estimates and are considered to have an estimated accuracy range of -30 to +50 percent. This level of accuracy corresponds to a "Class 4" cost estimate as defined by the American Association of Cost Estimators. These estimates are suitable for use for budget forecasting, CIP development, and project evaluations, with the understanding that refinements to the project details and costs would be necessary as projects proceed into the design and construction phases.

5.1.1.1 Capital Cost Criteria

A planning-level construction cost estimate for each distribution system component has been developed. Unit capital costs are based on engineering experience and recent bid prices for similar projects. Unit costs are indexed to the March 2025 Engineering News Record Construction Cost Index (CCI). The CCI value used (14,511) was an average of the 20 Cities Average value (13,783) and the San Francisco value (15,239).

Pipeline construction cost estimates utilize a raw construction cost based on the size of the pipe and the location of construction. Construction costs for proposed pipelines were based on recent bids received by Woodard & Curran for PVC pressure pipe projects in northern California. Average bid unit costs were plotted and a trendline developed to estimate unit cost of pipe per inch diameter. These align with Woodard & Curran's typical planning estimates for pipes. Contractor markups, taxes, overhead, profit, other miscellaneous costs and a contingency were added to the raw construction cost to generate a total cost of construction

Costs for increasing the capacity of pump stations were developed based on additional required horsepower and a calculated cost per unit horsepower developed from recent bid data. Required brake horsepower for pump stations was calculated based on the total dynamic head and peak flowrate modeled in the Buildout MDD scenario, with an assumed conservative pumping wire-to-water efficiency of 70 percent. Standard NEMA motor sizes were selected based on this configuration and at least 110% of the calculated brake horsepower. Total pump station horsepower was calculated from the number of duty plus standby pumps times the selected motor size. Each pump station was assumed to have one standby pump.

Existing maximum pump station capacity was calculated based on pump curves minus the standby pump capacity. Pump curves are provided as **Appendix B** of this report. Additional capacity required by each pump station was calculated as the difference between the required capacity at buildout and the existing capacity minus the standby pump. The additional pumping capacity required was divided among an appropriate number of pump upgrades using engineering judgement. Due to assumed site constraints, pumps were selected for replacement rather than additional pumps added to the pump stations.

Costs for backup power systems (sized to keep the entire pump station operational) and surge tanks were developed based on recently bid projects.

Raw construction costs for new storage tanks is estimated at $2.3 million per 1 MG of storage capacity. This cost includes all site work for the storage tank, but does not include land acquisition as it is assumed the

tanks will be located on land just north of the existing West Roseville Tanks and Roseville Energy Park on land already owned by the City.

5.1.1.2 Implementation Costs and Allowances

Implementation costs are defined as those non-construction costs associated with a project. These costs can include the following:

- Environmental, Legal, and Administrative (ELA) Allowance
  - Owner's administration costs
  - Owner's legal costs associated with contracting and related issues
  - Environmental documentation (CEQA and NEPA compliance)
- Engineering/Construction Management (CM) Allowance
  - Permitting
  - Engineering
  - Construction management and inspection
- Project Contingency
  - For unknown cost items, based on the level of engineering development of the project facilities.

Implementation allowances were applied as summarized in **Table 5-1**. Note that large new storage tanks can have significant engineering costs; engineering/CM allowance has been increased to 20% for these facilities to account for potential unknowns.

TABLE 5-1: IMPLEMENTATION ALLOWANCES

Element	Values for New Storage Tanks	Values for Other Facilities
1. Raw Construction Cost	Raw Cost	Raw Cost
Environmental, Legal, and Administrative (ELA) Allowance	10%	10%
Engineering/Construction Management (CM) Allowance	20%	10%
2. Raw Cost + Engineering + Implementation Allowances	1.3 x Raw Cost	1.2 x Raw Cost
Project Contingency (Uncertainty in project facilities)	30%	30%
3. Final (Fully Loaded) Cost	1.69 x Raw Cost	1.56 x Raw Cost

5.2 Project Descriptions

This section presents the project component descriptions, a summary of the deficiency each project will address, potential phasing options, and any implementation issues that have been identified.

5.2.1 Pump Station Improvements

5.2.1.1 West Roseville Pump Station

At buildout, peak flows at the West Roseville pump station will increase from about 8,725 gpm to 13,950 gpm. To achieve buildout flows, it was assumed pumps at West Roseville would be replaced with larger horsepower pumps. To avoid unnecessary operation and maintenance costs, installation of the replacement pumps should be phased to match the projected flow as service connections are added. Construction can be broken into two phases as described in **Table 5-2**. To maintain operation of 5 duty pumps and 1 standby, three of the existing 150 hp West Roseville Pumps (2 duty and 1 standby) should be replaced with higher capacity pumps (300 hp motor). Note, it is possible that replacement of these pumps with larger pumps is not possible and instead the pump station would have to be modified or new pump station constructed. This should be studied further to determine a more accurate cost estimate as recommended in **Section 5.4.1**. Additional funds for a pump station alternatives analysis are included in the cost summary presented in **Table 5-2.**

TABLE 5-2: WEST ROSEVILLE PUMP STATION PHASING

Development Phase	Incremental Flowrate for Phase[a] (gpm)	Project ID	Installed Pumps / Capacity	Estimated Raw Construction Cost[b]	Estimated Capital Cost[c]
Existing	8,500	--	--	--	--
2025-2030	4,473	PS-1[d]	Replace three pumps with 300 hp pumps (two duty, one standby)[d] ~13,950 gpm firm pump station capacity	3 new 300 hp pumps: 3 x $564,000 = $1,692,000 Pump Upgrade Alternatives Analysis: [d] $100,000	$3,145,000 [d]
2030-2035[e]	974	--	--	--	--
Total	***13,947***				***$3,145,000***

Footnotes:

a. Peak flowrate defined as the MDD multiplied by the diurnal pattern factor at the time of the modeled peak flowrate from WRPS.
b. Costs basis is March 2025 average of ENR 20 Cities and San Francisco CCI (14,511)
c. CIP Costs include implementation costs as summarized in Section 5.1.
d. Project assumes that pump may be replaced within the pump station. The presented value includes funds to perform a pump station alternatives analysis to determine whether an expansion of WRPS would be required. See Section 5.4.1.
e. When demands increase on the gravity system in this phase, supply from Dry Creek WWTP to the Main Zone will diminish. This drop in supply will need to be compensated through additional pumping capacity at West Roseville Pump Station.

5.2.1.2 PG WWTP Recycled Water Pumps

Peak day flows from PG WWTP PS to the West Roseville PS would increase from about 6,600 gpm under existing demands to about 11,700 gpm at buildout. Currently, there are three pumps at the station with room for one more. However, the pumps are sized for higher head than necessary to deliver supply to West Roseville PS tanks and have sufficient capacity needed for buildout flows. Another potential project, not thoroughly discussed in this report, would be to install additional pumps to increase the frequency that the West Zone is served directly from the PG WWTP pump station, allowing operators to take West Roseville pump station offline and thereby conserving energy.

5.2.2 Storage Improvements

5.2.2.1 DC WWTP Recycled Water Storage Project

The DC WWTP pump station is currently served directly from treated effluent from the plant. There is currently no effective storage located at DC WWTP. This project proposes modifying the existing Chlorine Contact Basins (CCB) at the DCWWTP for use as RW storage basins. Adding storage at DC WWTP would address the anticipated storage deficiency under buildout demands as presented in **Table 4-4**. This also provides a level of operational resilience in the event the DC WWTP needs to be taken offline, there would be some available supply for the recycled water system to utilize from DC WWTP.

A conceptual diagram of the project is shown in **Figure 5-1** below. The proposed project costs shown in **Table 5-3** include costs for piping, slide gate, valves, concrete, demolition, and other modifications to provide an additional 1.1 MG of RW storage capacity. Basins 1 and 2 would operate as a single plug-flow RW storage basin. Basin 3, Pass 1 is maintained empty as an airgap between the UV Effluent Channel (CCB, Pass 2) and proposed RW storage basins. A concrete repair allowance for the CCBs has been included; however, it is recommended that the City further evaluate basin conditions during the design stage to refine this cost.

Note that the currently unused CCB at the PGWWTP could also provide greater than 2 MG of additional RW storage. However, this basin is currently uncovered and is expected to require significant additional improvements for RW storage usage so has not been recommended as a potential capital improvement project at this time.

TABLE 5-3: DC WWTP RECYCLED WATER STORAGE PHASING

Phase	Project ID	Project	Estimated Raw Construction Cost[a]	Estimated Capital Cost[b]
Existing		--	--	--
2025-2030	S-1	Rehabilitate DC WWTP CCB to utilize as 1.1 MG of RW storage	$925,000	$1,443,000
	Total		**$925,000**	**$1,443,000**

Footnotes:

a. Costs basis is March 2025 average of ENR 20 Cities and San Francisco CCI (14,511)
b. CIP Costs include implementation costs as summarized in Section 5.1

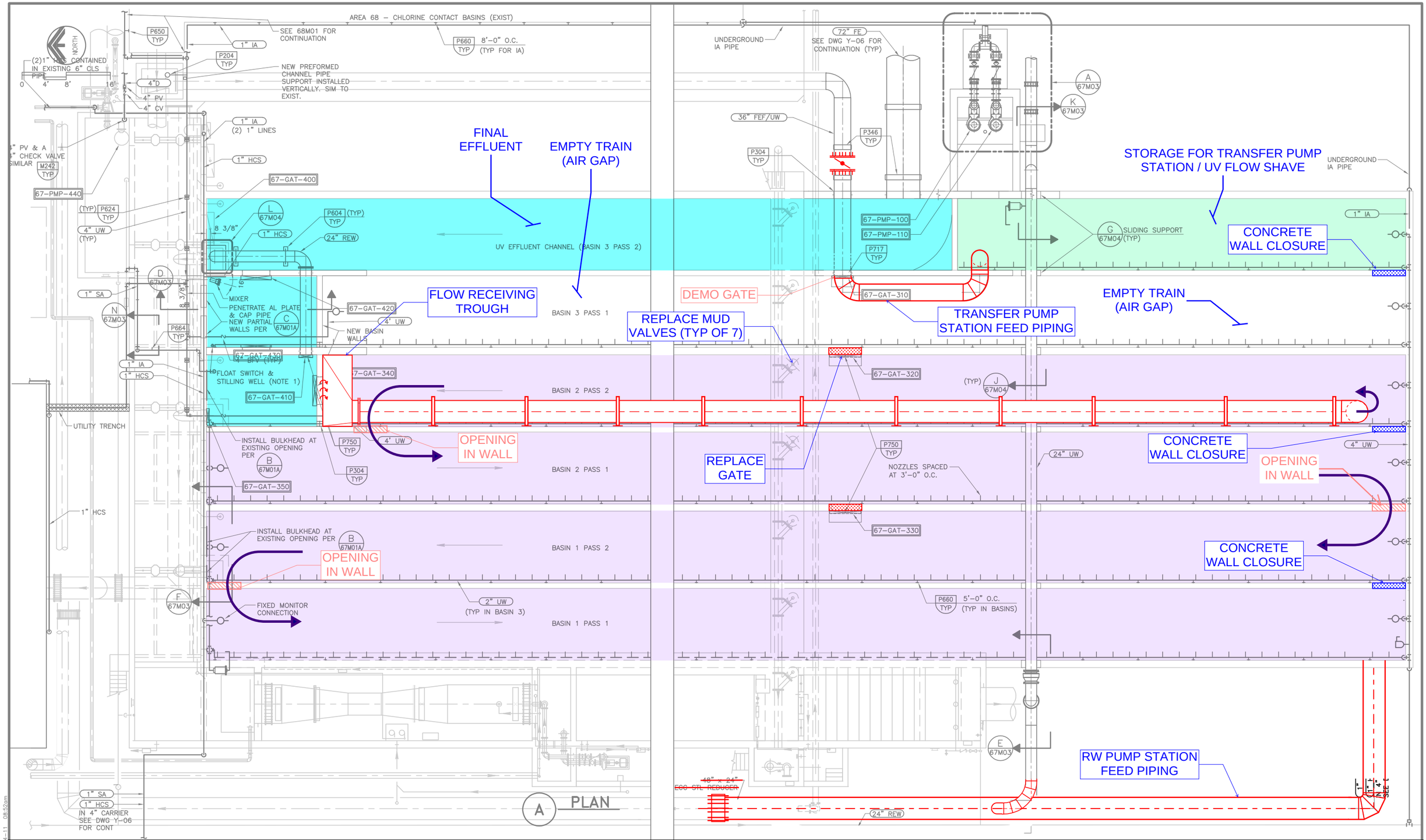


FIGURE 5-1
DCWWTP RECLAIMED WATER STORAGE IMPROVEMENTS CONCEPT FIGURE
RECLAIMED WATER SYSTEM EVALUATION
SCALE: 1/16" = 1'-0"

5.2.2.2 Potential Additional Storage Improvements

Based on the criteria and analysis presented in **Table 4-4**, an additional 0.18 MG of storage will be needed, in addition to the recycled water storage provided by conversion of the Dry Creek CCBs, to provide the City with the operational and buffer storage for max day conditions. Three alternatives could be pursued to address this, however the City should monitor recycled water supplies and demands as new customers are connected to the system. Changes to supply or demand may change the need for or quantity of additional recycled water storage.

- Connect North Zone Tank and Pump Station
    - Connecting North Zone Pump Station and Tank to the system would provide additional storage, however, demands in North Zone are lower than demands in the West Zone and South Zone, so adding storage here does not provide much hydraulic benefit and would increase O&M costs. Estimated costs to rehabilitate North Zone Tank and Pump Station are presented in **Table 5-4** for informational purposes**.**
- Rehabilitate PG CCBs
    - Similar to the Dry Creek CCBs, Pleasant Grove WWTP has CCBs that could be rehabilitated and converted to recycled water storage. It is estimated that conversion of the PG CCBs would result in an additional 2 MG of storage. Hydraulically, storage at this location would be beneficial for system performance, however, costs to rehabilitate the PG CCBs will likely be more expensive than recommissioning North Zone Tank, the PG CCBs are currently uncovered. Costs for this alternative were not developed for this study but should be in subsequent studies if additional storage is required.
- Additional Tank at WRPS
    - The City has previously considered adding a recycled water storage tank at WRPS. Storage at this location would benefit system performance and operation as demands increase as WRPS provides a majority of the West Zone with recycled water. However, costs for an additional tank may be significant. The minimum size of this tank would be 0.2 MG to meet storage requirements, however, the City could consider upsizing this to 1.0 MG so potential future customers not considered as part of this report could be serviced. The cost for a 1.0 MG storage tank is presented in **Table 5-4**.
- Operate system with less buffer storage
    - Another alternative is to operate the system with less buffer storage than 25% of max day demand for customers without storage. With the DC CCBs converted to recycled water storage, total buffer storage will be approximately 23% of the abovementioned max day demands. While it does not meet the criteria previously presented, the City may find this buffer storage is sufficient for their needs. No project is required for this alternative.

TABLE 5-4: ESTIMATED COSTS FOR ADDITIONAL STORAGE IMPROVEMENTS OPTIONS

Alternative	Estimated Raw Construction Cost[a]	Estimated Capital Cost[b]
Rehabilitate NZ Tanks and Pump Station	$610,000	$950,000
Additional 1.0 MG Storage Tank at WRPS	$3,335,00	$5,203,000

Footnotes:

a. Costs basis is March 2025 average of ENR 20 Cities and San Francisco CCI (14,511)
b. CIP Costs include implementation costs as summarized in Section 5.1.

5.2.3 Pipeline Improvements

Pipeline improvement projects include projects to alleviate the deficiencies identified in **Section 4.2** and **Section 4.3**, as well as projects to improve the reliability of the system through improved interties between pressure zones. Detailed cost estimates can be found in **Appendix C**. The proposed improvements are shown in **Figure 5-2** and their estimated costs are summarized in **Table 5-5**.

5.2.3.1 B-1

Project B-1 would increase the size of the bypass pipeline from the Pleasant Grove WWTP pumps to the West Zone system from 10-inches to 24-inches. This would improve the City's ability to take the West Roseville Pump Station offline, either to perform maintenance or for efficiency purposes.

5.2.3.2 I-1

Project I-1 would add a 6-inch intertie pipeline between the West Zone and the North Zone at Angus Road and Casa Sedona Drive. This provides two benefits:

- Improves reliability by improving the system's ability to backfeed from the North Zone into the West Zone during low demand periods.
- Potentially improves efficiency by improving the City's ability to serve the North Zone directly from either the West Roseville Pump Station or the pumps at the PG WWTP during low demand periods.

5.2.3.3 I-2

Project I-2 would add a 6-inch intertie pipeline between the West Zone and the South Zone at Blue Oaks Boulevard. The intertie provides two benefits:

- Improves reliability by allowing the system to bypass either the West Zone or the North Zone during low demand periods.
- Potentially improves efficiency by improving the City's ability to bypass either the West Roseville Pump Station or DC WWTP pumps during low demand periods.

5.2.3.4 I-3

Project I-3 would add an 8-inch intertie pipeline between the West Zone and the South Zone at Baseline Road and Fiddyment Road. This project would also increase the reliability of the system by improving the system's ability to bypass either the West Roseville PS or the pumps at the DC WWTP. This project provides hydraulic improvements to the system under buildout conditions and would reduce operational storage by an estimated 0.1 MG.

5.2.3.5 I-4

Project I-4 would add a 10-inch intertie pipeline from the end of Project I-3 further south to interconnect the Main Zone with the Gravity System at Walerga Rd and Dry Creek Community Park. This project would increase the reliability of the gravity system by allowing the system to be supplied from the Main Zone if the gravity system supply was limited or taken offline. This intertie will likely not be able to convey max day, peak hour demand conditions to all customers, but under average day conditions it would provide customers with a reasonable level of service pressure for their anticipated demands. However, system performance may vary depending on the season and time of day that the intertie is operated. Under normal operating conditions, this line would be valved out of service.

5.2.3.6 PP-1

Project PP-1 would install a parallel 24-inch pipeline between the West Roseville Pump Station (WRPS) and West Park Drive via Phillip Road (approx. 485 LF pipeline). This pipeline would only be needed when velocities in the existing 24-inch pipe exceed design criteria once West Roseville Pump Station improvements are implemented. Installing the parallel pipeline would improve redundancy for a critical component, as well as allowing greater flexibility for providing system supply during low demand periods directly from the PG WWTP pumps.

5.2.3.7 PP-2

Project PP-2 proposes adding a looped pipe in the North Zone pressure zone to relieve a headloss deficiency identified under buildout max day demand conditions. Project PP-2 includes the installation of 1,600 linear feet of a new 12" main from the existing main on Woodcreek Oaks Boulevard, connecting to the existing 8" main on Prairie Woods Way via Painted Desert Drive. This project should be completed before connecting additional customers west of Woodcreek Oaks Boulevard.

5.2.3.8 PP-3

Project PP-3 would upsize the existing pipeline from DC WWTP Pumps to the South Zone from a 20-inch to a 30-inch pipe. This project relieves a bottleneck from DC WWTP that contributes to pressure drop in the system. The additional capacity in the system provides necessary pressure improvements under buildout conditions and would allow for greater utilization of the DC CCB recycled water storage.

5.3 Phasing Summary

Many of the projects identified in Section 4.2 can be phased in as recycled water demand increases. **Table 5-6** below summarizes the potential phases.

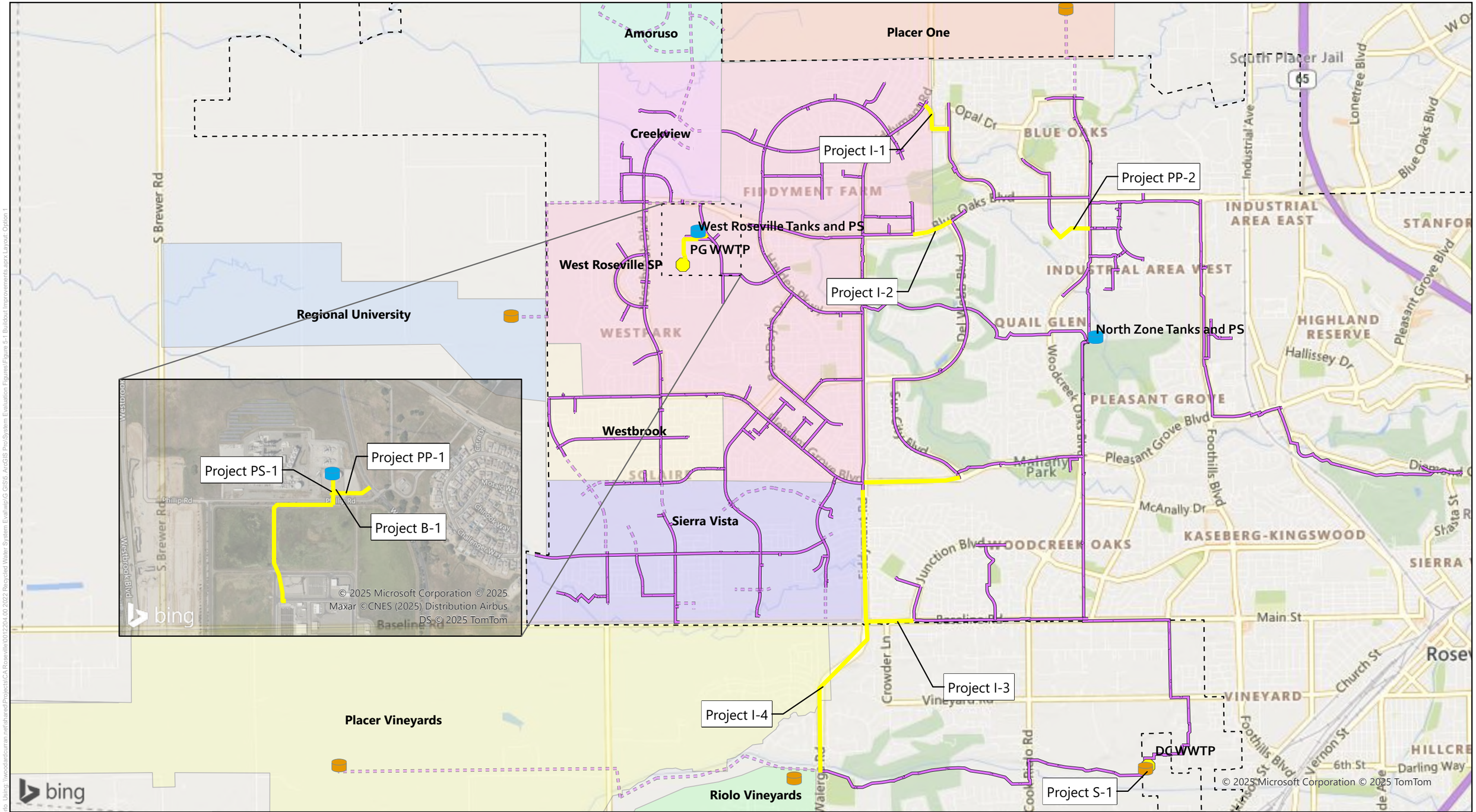


Figure 5-2 Buildout Improvements

Roseville Recycled Water Systems Evaluation

Legend

- WWTP
- Existing Recycled Water Main
- Future Recycled Water Pipeline
- City Limits

FutureStructures

Status

- Existing Storage and PS
- Future Storage and PS
- ProjectPipes

0 0.15 0.3 0.6 Miles

N

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Woodard & Curran

Project #: 0012204.00
Map Created: July 2024

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TABLE 5-5: PIPELINE AND SUPPLY PROJECTS SUMMARY

Project Number	Project Description	Location	Size	Quantity	Estimated Raw Construction Cost	Estimated Capital Cost[a, b]
Reliability Projects						
B-1	Upsize bypass at West Roseville PS/Pleasant Grove WWTP from 10" to 24"	West Roseville PS	24-in	50-LF	$66,000	$115,000
I-1	Install an intertie between the West Zone and North Zone	Angus Rd and Casa Sedona Dr	6-in	1640-LF	$431,000	$672,000
I-2	Install an intertie between the West Zone and South Zone	Blue Oaks Blvd	6-in	1520-LF	$400,000	$622,000
I-3	Install an intertie between the West Zone and South Zone	Baseline Rd and Fiddyment Rd	8-in	6,700-LF	$1,985,000	$3,097,000
I-4	Install an intertie between West / South Zone and Gravity Zone	Baseline Rd and Walerga Rd	10-in	6,300-LF	$1,885,000	$2,941,000
Reliability Projects Subtotal					**$4,767,000**	**$7,447,000**
Pinch Point Projects						
PP-1	Install 485 LF of parallel 24” pipeline between West Roseville Pump Station and West Park Drive.	Between the WRPS and West Park Drive	24-in	485-LF	$289,000	$451,000
PP-2	Install 1,600 LF of 12” pipeline along Painted Desert Drive and Prairie Woods Way.	Painted Desert Drive and Prairie Woods Way	12-in	1,600-LF	$628,000	$980,000
PP-3	Install 2,530 ilnear feet of 30” pipe from DC WWTP recycled water pumps	DC WWTP Recycled Water Pumps	30-in	2,530-LF	$1,400,000	$2,184,000
Pinch Point Projects Subtotal					**$2,317,000**	**$3,615,000**
Total					**$7,084,000**	**$11,062,000**

Footnotes:

c. Includes implementation costs as described in Section 5.1.

d. Costs in March 2025 dollars

TABLE 5-6: PHASING SUMMARY

Development Phase	Incremental MDD (mgd)	Project Required	Estimated Capital Cost
Existing	8.34	--	--
2025-2030	5.4	PP-2	$980,000
		PS-1	$3,145,000
		S-1	$1,443,000
		PP-1	$451,000
2030-2035	4.18	PP-3	$2,184,000
Total	***17.92***		***$8,203,000***

5.4 Additional Recommendations

5.4.1 West Roseville Pump Station Facility Planning

The proposed phasing plan and cost estimate identified in this report for the West Roseville Pump Station was prepared at a feasibility study level and are not suitable for more detailed planning. As noted, it may be feasible to replace existing pumps with larger pumps without other significant improvements to the station. If more substantial improvements are required, additional facility planning is recommended to investigate the potential site in more detail, particularly as more information is available on potential future demands. The facility plan would provide a better estimate of the future costs of the pump station, and give more certainty about the future layout and facilities that will need to be constructed as the developers are connected.

The facility plan should investigate the following items that may significantly impact the pump station design:

- Need for new electrical service and other electrical upgrades, which could be a significant cost item
- A plan for integration of the new pump station with the City's SCADA and control system.
- Consideration of potential surge control measures and needs.
- More detailed examination of potential phasing approaches and integration with system operations.

5.4.2 System Operation Plan

This System's Evaluation anticipates that as recycled water demands grow, operation of the facilities will become more challenging. The City should develop a System Operation Plan to provide an operational approach for challenging conditions. This System Operation Plan can address issues such as:

- Inadequate supply at either Pleasant Grove or Dry Creek WWTPs.
- Storage levels drop below acceptable levels.
- Allowable usage patterns for specific customers, including times for filling tanks.

These conditions may require coordination with customers, and the System Operation Plan can provide a pathway to communicate any customer requirements.

5.4.3 Coordination with UGA System Operations

Several of the UGAs (Regional University, Placer One, and Placer Vineyards), are anticipated to have storage tanks that the City's system will discharge into. The City should work with the UGA operators to maintain control of storage tank fill rates and times, and ensure that recycled water supply agreements with the UGAs provide for City to have the control needed to implement the System Operation Plan.

5.4.4 Future Updates

As previously noted, the operation of the system depends heavily on the balance of projected supplies and demands, and the daily patterns associated with each. A number of assumptions have been made about future uses, including adjustments to demand patterns associated with customers who have on-site storage, as well as demands associated with urban growth areas. As development plans are updated, or as new developments in West Roseville or other UGAs are constructed, these demand estimates may become outdated. New customers may also be identified with potentially significant demands, and the consumption patterns may differ from the assumptions described in this report.

It is therefore recommended this Systems Evaluation be updated every five to ten years or as significant changes in potential demands are identified to ensure that the Systems Evaluation remains current. This will also provide an opportunity to review observed peaking factors and diurnal patterns, and update the model to enable the model to continue answering operational questions.

APPENDIX A: NEAR-TERM POTENTIAL DEMAND CUSTOMERS

ID	Customer Name	Customer Type	On-Site Storage (Yes/No)	Annual Average Demand (AFY)	Average Day Demand (MGD)	Peak Day Demand (gpm)	Modeled Demand Node(s)
1	Mahaney Park	Park	No	4	0.003	6	J-115
2	Silverado Middle School	School	No	47	0.042	73	J-70
3	Robert Cooley School	School	No	38	0.034	59	J-476
4	Blue Oaks Median	Streetscape	No	-41	-0.037	0	J-457
5	Diamond Oaks Park	Park	No	20	0.018	31	J-129
6	Woodcreek Oaks School	School	No	58	0.052	90	J-117
7	Blue Oaks Streetscape	Streetscape	No	6	0.005	9	J-457
8	Catholic Church	Church	No	16	0.014	25	J-719
9	Sadona Streetscape	Streetscape	No	16	0.014	25	J-714
10	Safeway Store	Commercial	No	11	0.010	17	J-701
11	Aquatic Center	Commercial	No	16	0.014	25	J-117
12	Blue Oaks Elementary School	School	No	14	0.012	22	J-238
13	Bank of America Building	Commercial	No	15	0.013	23	J-497
14	Pleasant Grove Condos	Condo	No	8	0.007	12	J-98
15	Pleasanton Grove Church	Church	No	7	0.006	11	J-98
16	Quail Glenn School/Bob Doyle	School/Park	No	19	0.017	29	J-724
17	Coyote School	School	No	17	0.015	26	J-720
18	Mistywood Park	Park	No	8	0.007	12	J-123
19	Fiddyment and Baseline Streetscape	Streetscape	No	13	0.012	20	J-718
20	Paul Lundardi	Commercial	No	6	0.005	9	J-70
21	Duke Davis Park	Park	No	17	0.015	26	J-652
22	Park Regency	Park	No	11	0.010	17	J-721
23	North Central Zone G	Industrial	No	6	0.005	9	J-275
24	Blue Oaks Park	Park	No	10	0.009	15	J-726
25	WAPA Easement	Streetscape	No	112	0.100	174	J-118
26	Homestead Elementary School	School	No	18	0.016	28	J-411
27	Hewlett Packard/Campus Oaks	Commercial	No	179	0.160	278	J-261

ID	Customer Name	Customer Type	On-Site Storage (Yes/No)	Annual Average Demand (AFY)	Average Day Demand (MGD)	Peak Day Demand (gpm)	Modeled Demand Node(s)
28	James Hill Park	Park	No	18	0.016	28	J-64
29	Placer One + Sunset Industrial Area	UGA	Yes	373	0.333	1451	J-650
30	Regional University	UGA	Yes	650	0.580	1031	J-772
31	Sierra Vista/Westbrook	UGA	No	502	0.448	802	J-173
32	Placer Vineyards	UGA	Yes	1580	1.411	2505	J-55
32	Riolo Vineyards	UGA	Yes	403	0.360	639	J-55
33	Amoruso Ranch	UGA	No	245	0.219	388	J-971
34	Creekview	UGA	No	73	0.065	116	J-971
35	West Roseville SP	UGA	No	-265	-0.236	30	J-606, J-667, J-661, J-760, J-870, J-756, J-754, J-891, J-589, J-873, J-661, J-410

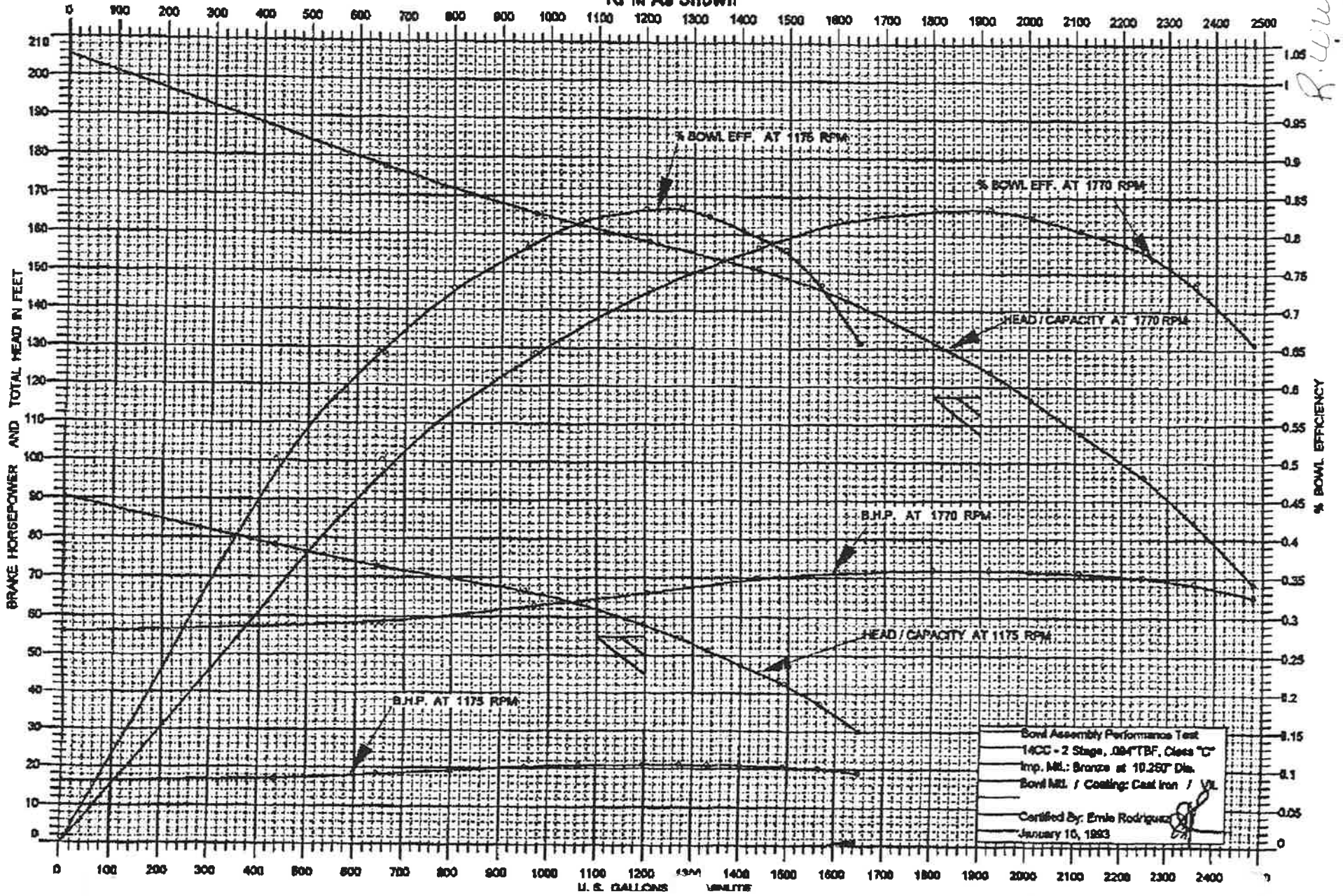
APPENDIX B: EXISTING PUMP CURVES

Dry Creek WWTP PS - Pump 1

002

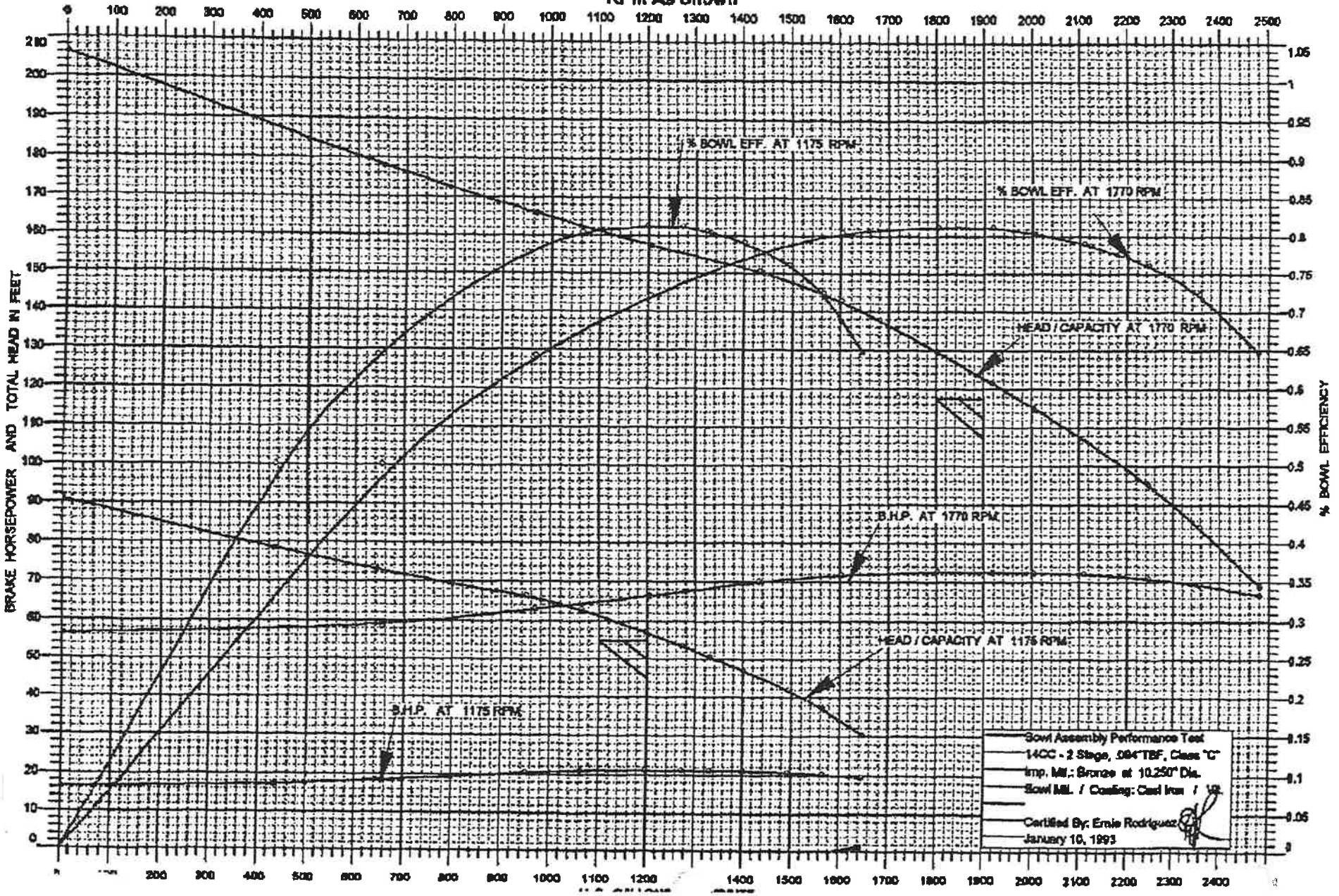
01/11/93 15:13 JOHNSTON PUMP

Johnston Pump Company
Brookshire, Texas
Customer: Mc Lemore Pump, Inc.
Job #: TC - 2123 TC #:06817
Tag Equipment #: 66-P-01-REW Reclaimed Water
RPM As Shown



Dry Creek WWTP PS - Pump 2

Johnston Pump Company
Brookshire, Texas
Customer: Mc Lemore Pump, Inc.
Job #: TC - 2124 TC #:06818
Tag Equipment #: 66-P-02-REW Reclaimed Water
RPM As Shown



003 JOHNSTON PUMP 15:15 01/11/93

Dry Creek WWTP PS - Pump 3

Johnston Pump Company
Brookshire, Texas
Customer: Mc Lemore Pump, Inc.
Job #: TC - 2125 TC #:06819
Tag Equipment #: 66-P-03-REW Reclaimed Water
RPM As Shown

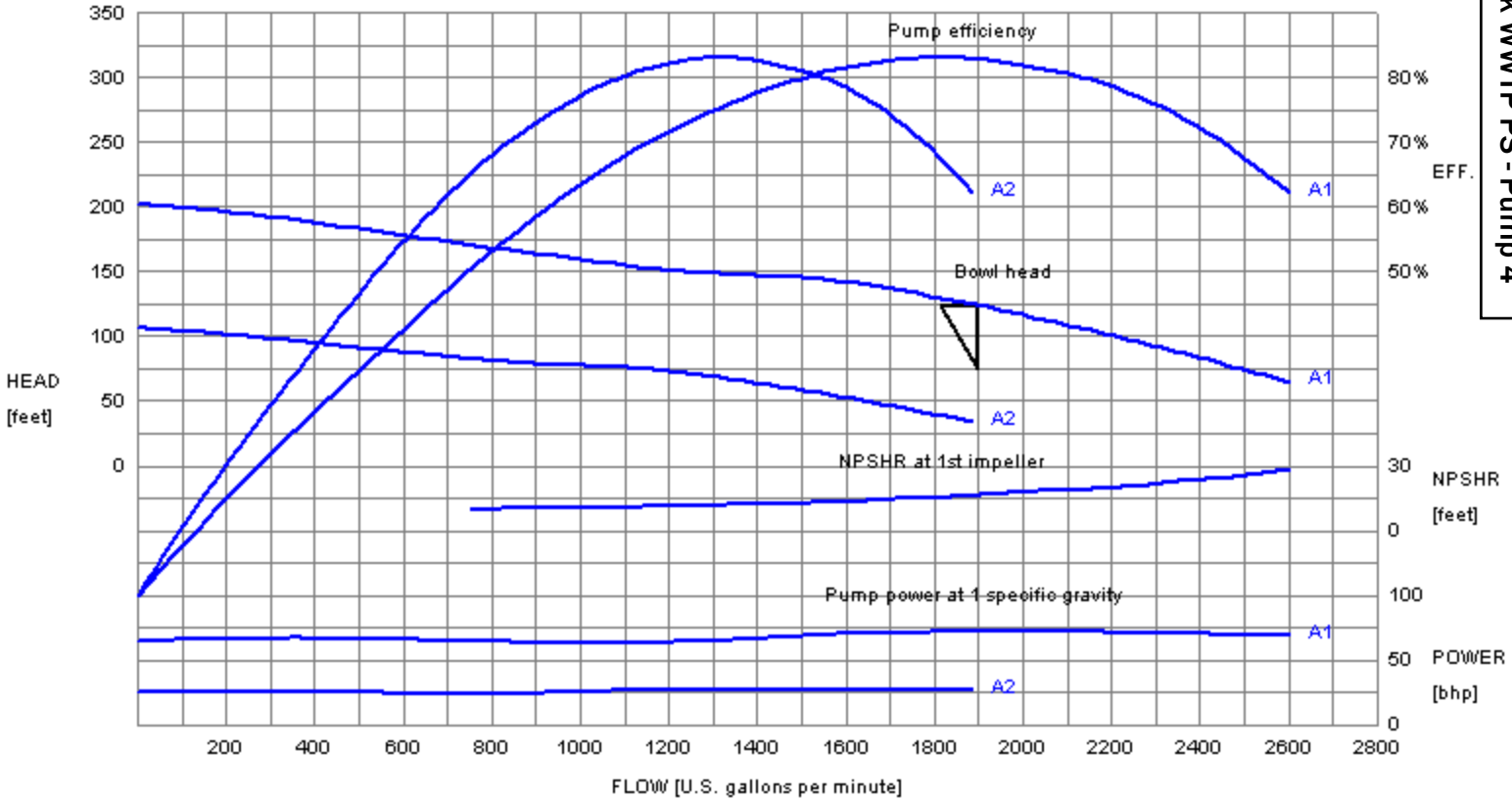
004 JOHNSTON PUMP 15:16 01/11/93

The head and power may be different than shown in accordance with Hydraulic Institute standards.

Trim Diameter: 8.242
Pump Downthrust at design: 2249 lbs
Pump Downthrust at shutoff: 3342 lbs
A1 = 1780 RPM
A2 = 1290 RPM

City of Roseville
Placer County, Ca.
(1) 75 HP Recycled Water Pump
Item 66-P-004-RW

Dry Creek WWTP PS - Pump 4



Manito Construction
1048 Serpentine Lane, Suite 306
Pleasanton, Ca 94566

FLOWAY PUMPS
FRESNO, CALIFORNIA
A WEIR COMPANY

TYPE:	14DKH
NO. OF STAGES:	2
R.P.M.:	1770
PUMP SERIAL NO.:	48547-1/1

DWG. NO. 4854701PC

DWN. BY: TLL

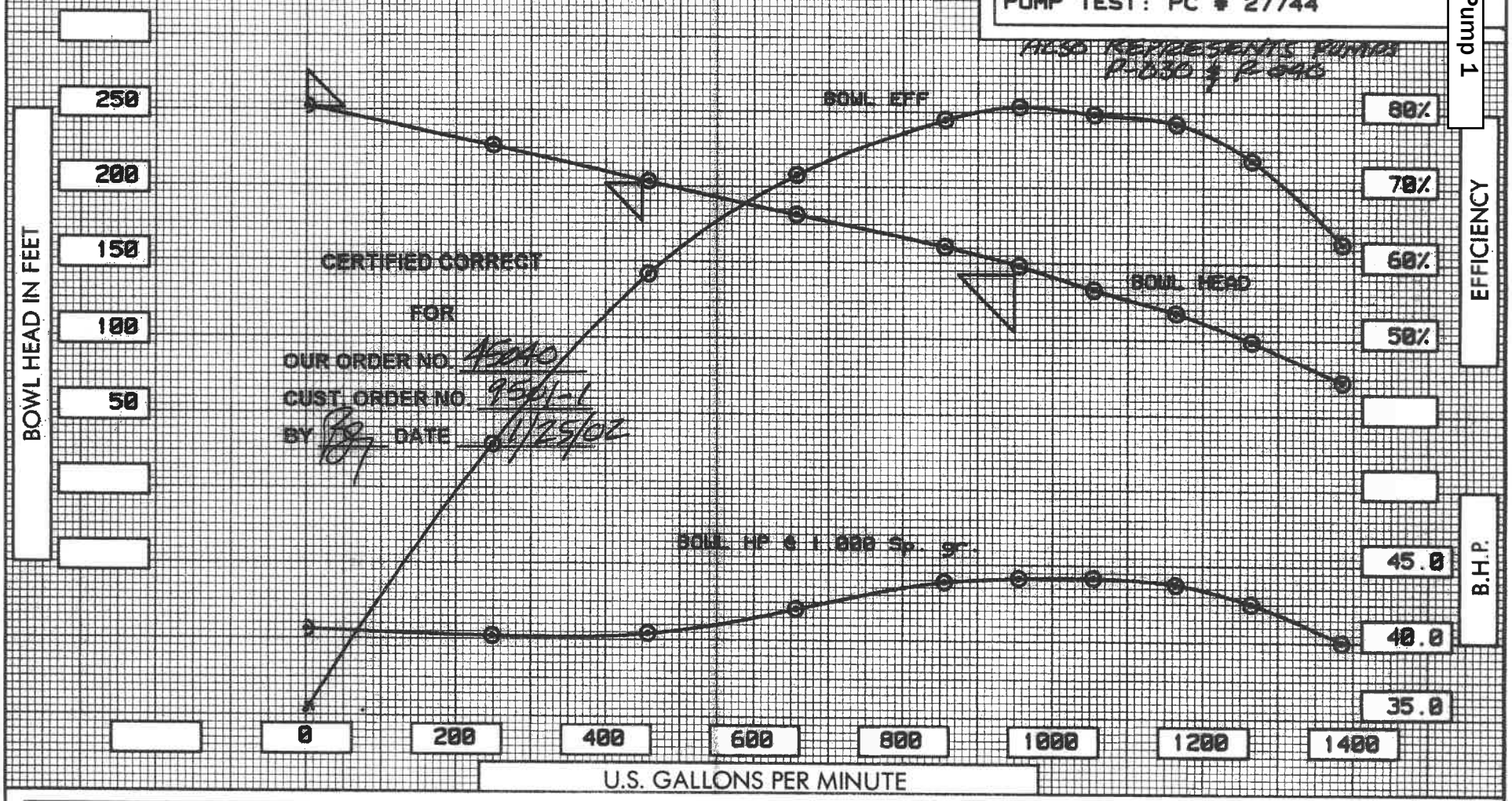
DATE: 07/10/2002

Copyright © 2002 Floway Pumps All Rights Reserved

North Zone PS - Pump 1

CITY OF ROSEVILLE. CA
ROSEVILLE RECYCLED WATER PROJE
RECYCLED WATER PUMP
P-020
PUMP TEST: PC # 27744

TEST ACROSS-THE-LINE, CESS VFD FOR PERFORMANCE EVALUATION



CERTIFIED CORRECT
FOR
OUR ORDER NO. 45040
CUST. ORDER NO. 9561-1
BY BMT DATE 01/25/02

SYBLON-REID CO. INC.
SRC CONTRACTORS
1130 SIBLEY ST. BOX 100
FOLSOM CA 95630-0100

FLOWAY PUMPS
FRESNO, CALIFORNIA

A WEIR COMPANY

TYPE 12 DKL
NO. OF STAGES 3
R.P.M. 1780
PUMP SERIAL NO. 45040-3-1

DWG. NO. 45040-3-1-T1

DWN. BY BMT DATE 01-09-2002

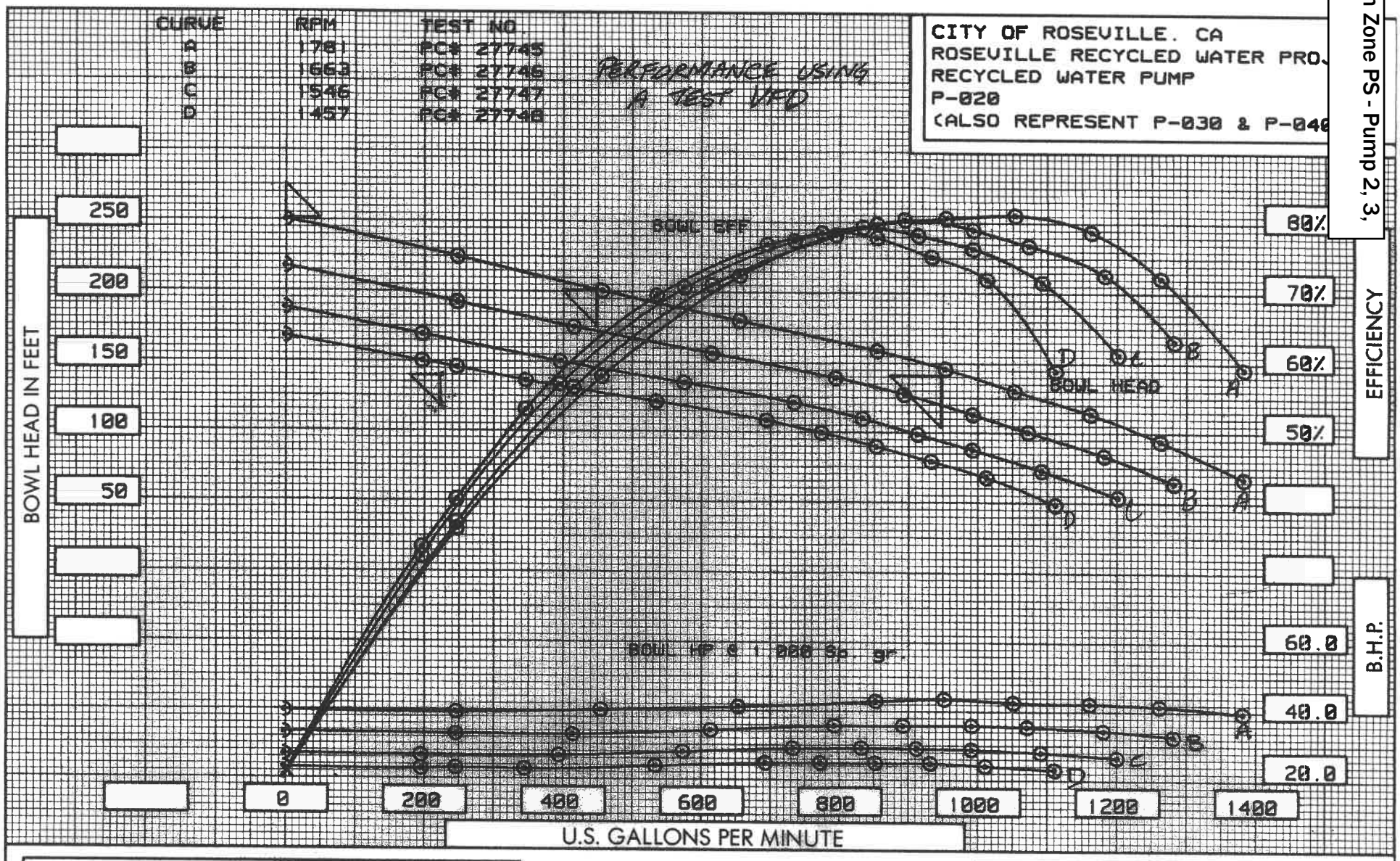
PF-614

North Zone PS - Pump 2, 3, & 4

CURVE	RPM	TEST NO.
A	1781	FC# 27745
B	1663	FC# 27746
C	1546	FC# 27747
D	1457	FC# 27748

PERFORMANCE USING A TEST VFD

CITY OF ROSEVILLE. CA
ROSEVILLE RECYCLED WATER PRO
RECYCLED WATER PUMP
P-020
(ALSO REPRESENT P-030 & P-040



SYBLON-REID CO. INC.
SRC CONTRACTORS
1130 SIBLEY ST. BOX 100
FOLSOM CA 95630-0100

DWG. NO. 45040-3-1-T1 MULT

FLOWAY PUMPS
FRESNO, CALIFORNIA

A WSR COMPANY

TYPE 12 DKL
NO. OF STAGES 3
R.P.M. SEE LEGEND
PUMP SERIAL NO 45040-3-1

DWN. BY BMT DATE 1/24/02

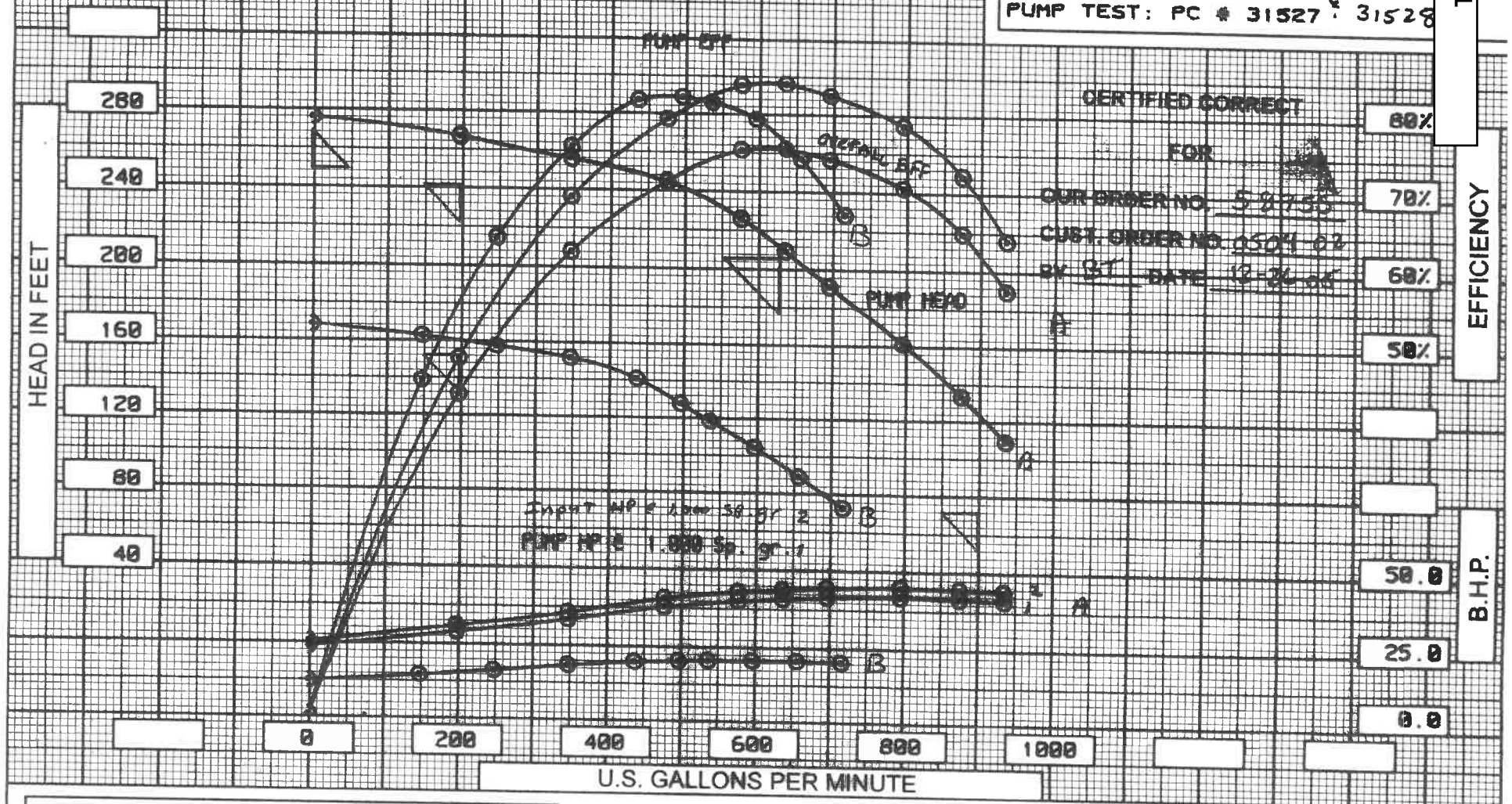
PF-614

WRPS - Pump 1

CURVE A = FULL SPEED (1792 RPM)
CURVE B = REDUCE SPEED 1376 RPM

CITY OF ROSEVILLE
WEST ROSEVILLE RECYCLED WATER
STORAGE TANK & PUMP STATION
P-100
PUMP TEST: PC # 31527 & 31528

CERTIFIED CORRECT
FOR
OUR ORDER NO. 5 [illegible]
CUST. ORDER NO. 450[illegible] 02
BY GT DATE 12-[illegible]-05



MANITO CONSTRUCTION INC
1046 SERPENTINE LAN SUITE I
PLEASANTON CA 94566

DWG. NO. 58755-1-1-T2

CLEAR LIQUID

TYPE 10 JKH
NO. OF STAGES 5
R.P.M. 1792
PUMP SERIAL NO. 58755-1-1

DWN. BY BMT DATE 12-26-2005

PF-614

WZPS Pump 2, 3, 4, 5, & 6

CURVE A = FULL SPEED (1792 RPM)
CURVE B = REDUCE SPEED 1837 RPM
CERTIFIED CORRECT

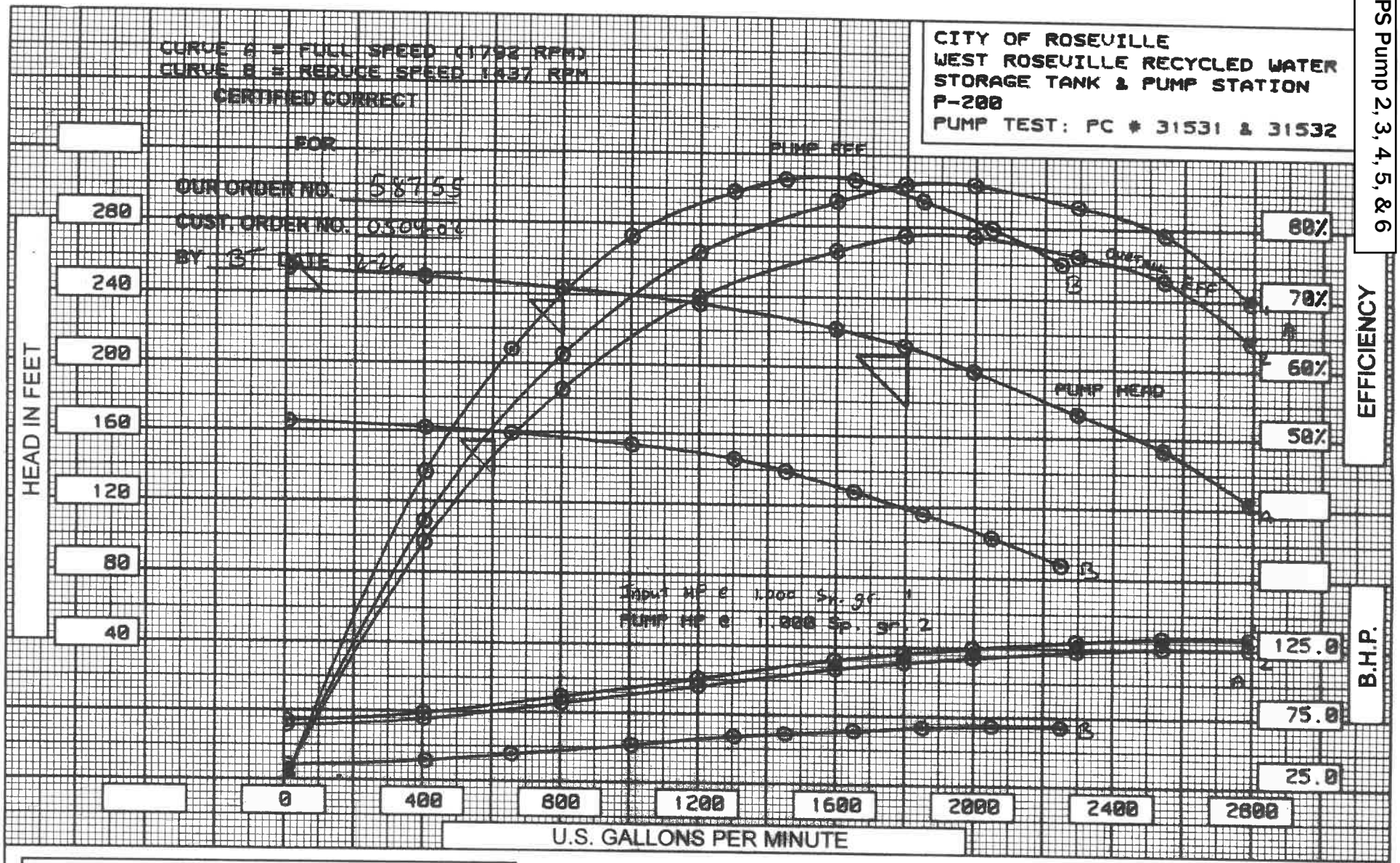
FOR

OUR ORDER NO. 58755

CUST. ORDER NO. 05044

BY BT DATE 1-26

CITY OF ROSEVILLE
WEST ROSEVILLE RECYCLED WATER
STORAGE TANK & PUMP STATION
P-200
PUMP TEST: PC # 31531 & 31532



MANITO CONSTRUCTION INC
1048 SERPENTINE LANE SUITE I
PLEASANTON CA 94566

DWG. NO. 58755-4-1-T1

CLEAR LIQUID

TYPE 14 JKH
NO. OF STAGES 2
R.P.M. 1792
PUMP SERIAL NO. 58755-4-1

DWN. BY BMT DATE 12-26-2005

PF-814

Pleasant Grove WWTP PS
250 hp - Pump 1

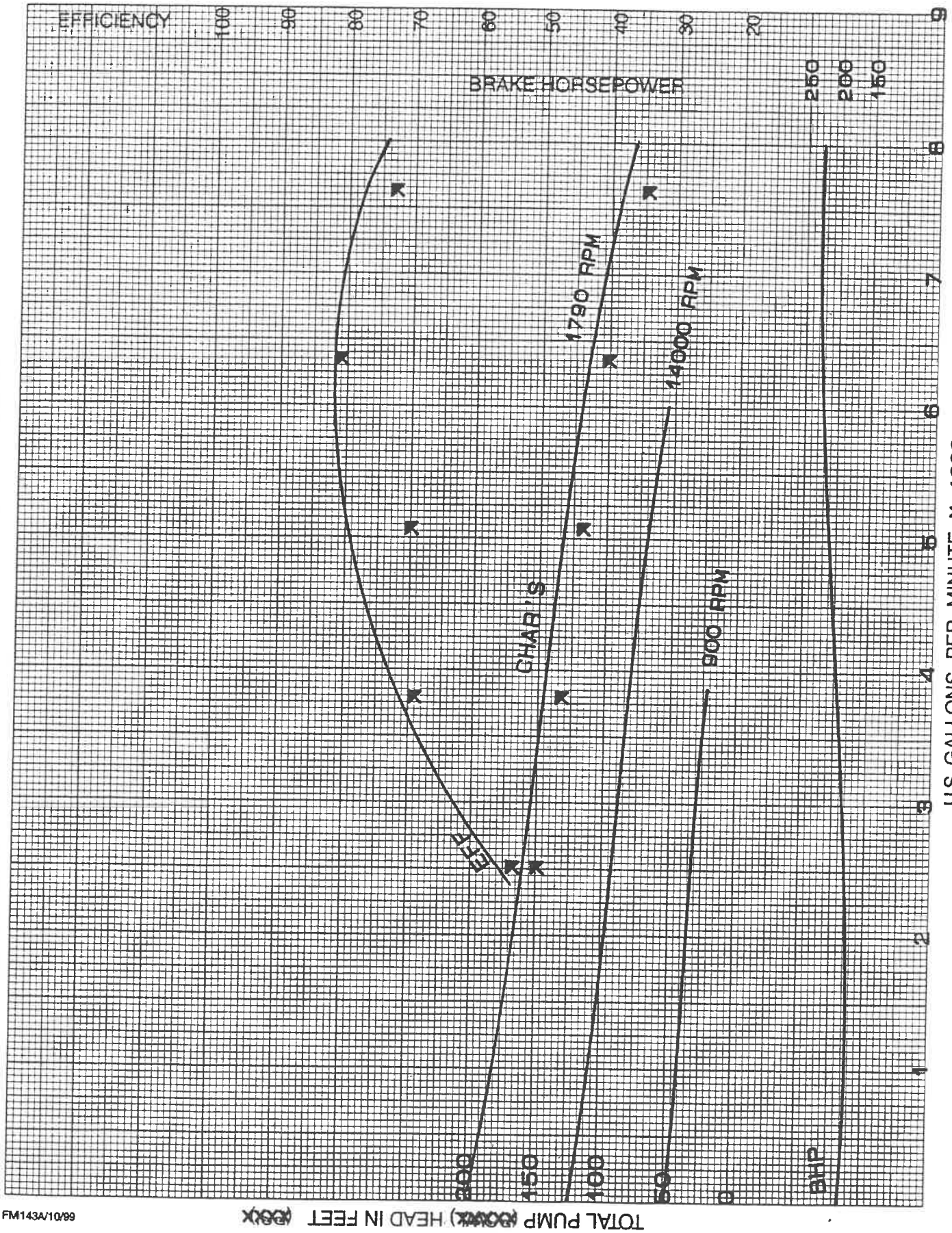
Fairbanks Morse

113128/2029

CERTIFIED CURVE

SERIAL NO. 328142-0 NO. STAGES ONE SIZE-MODEL 19B-7100AW
TEST DATE 04/08/02 DRIVER TM-250 MTR IMPELLER STD
IMPELLER DIA. 13.95"
CERTIFIED CORRECT BY _____ 04/02 RPM(S) 1790
TEST DEPARTMENT DATE

CERTIFIED PUMP PERFORMANCE CURVE



PROJECT NO. 063196

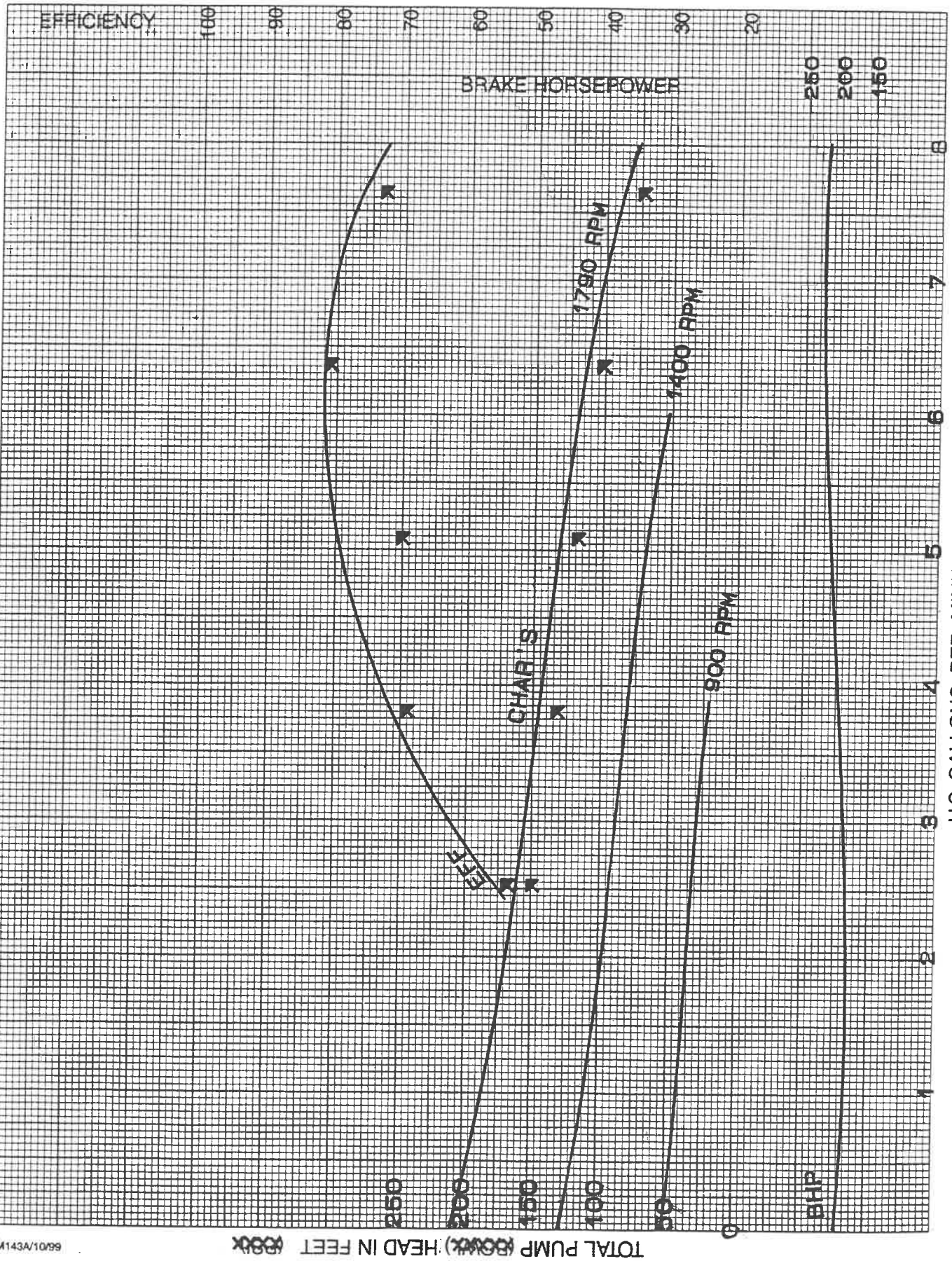
FM143A/10/99

Fairbanks Morse
Pentair Pump Group

CERTIFIED CURVE

Pleasant Grove WWTP PS
250 hp - Pump 2

2-1 NO. STAGES ONE SIZE-MODEL 198-7100AW
TEST DATE 04/08/02 DRIVER TM-250 MTR IMPELLER STD
IMPELLER DIA. 13.95"
CERTIFIED CORRECT BY [signature] 04/08 RPM(S) 1790
TEST DEPARTMENT DATE



CERTIFIED PUMP PERFORMANCE CURVE

PROJECT NO. 063196

U.S. GALLONS PER MINUTE X 1000

TOTAL PUMP (XXXX) HEAD IN FEET (XXXX)

FM143A/10/99

Pleasant Grove WWTP PS
30 hp - Pump 3

Fairbanks Morse Pump
A Member of Pentair Pump Group

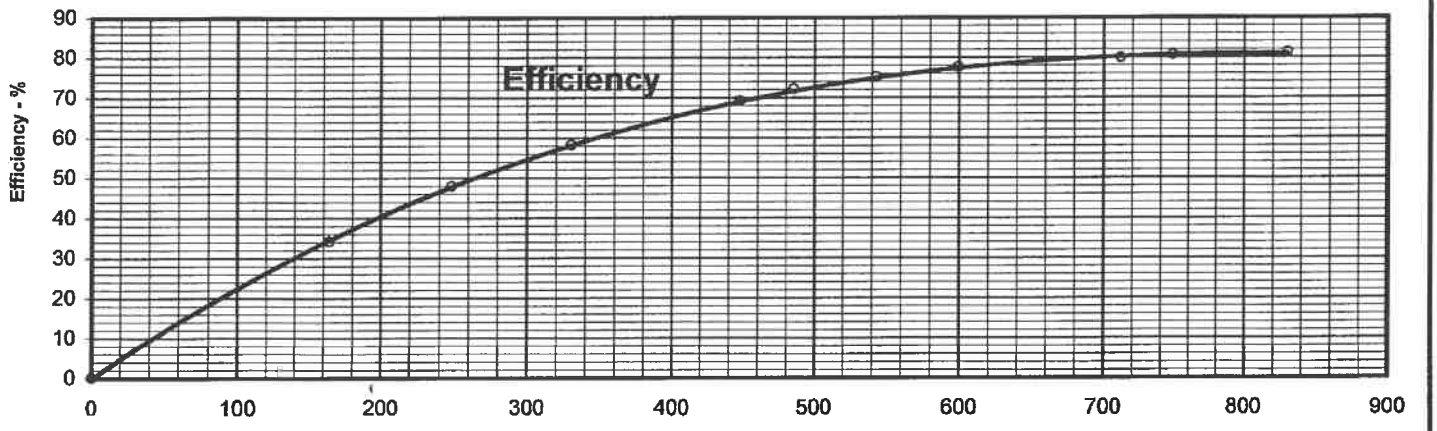
Certified Pump Performance Curve

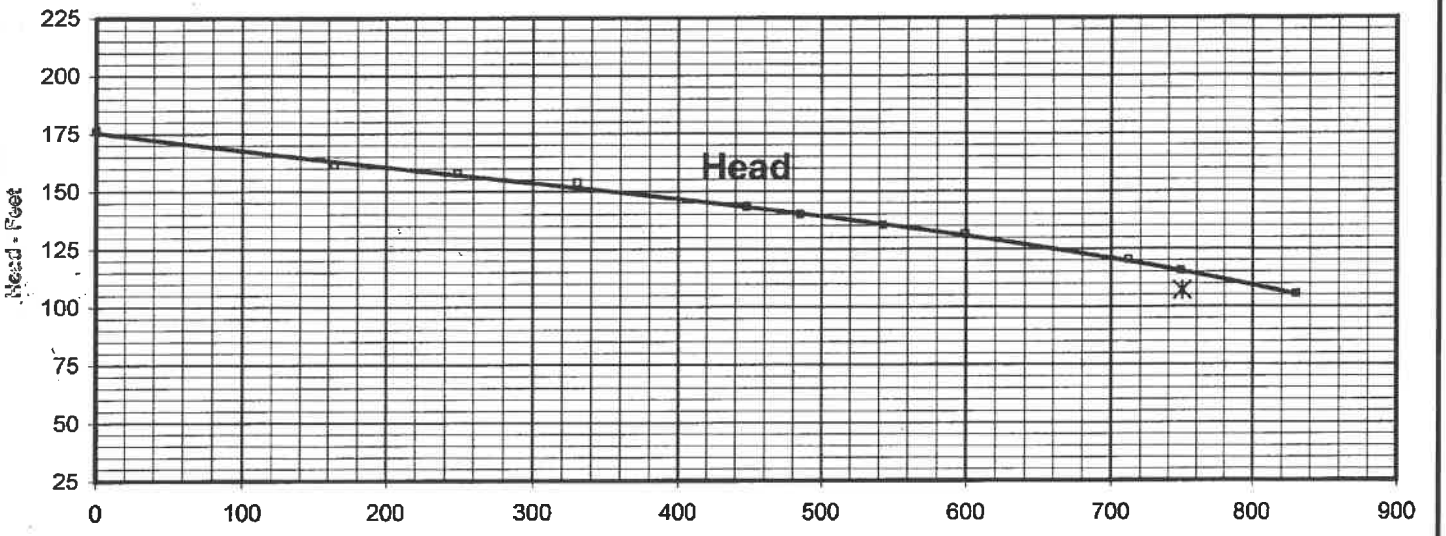
Guaranteed Values					
GPM	750				
HEAD	107				
Eff					
RPM	1765				

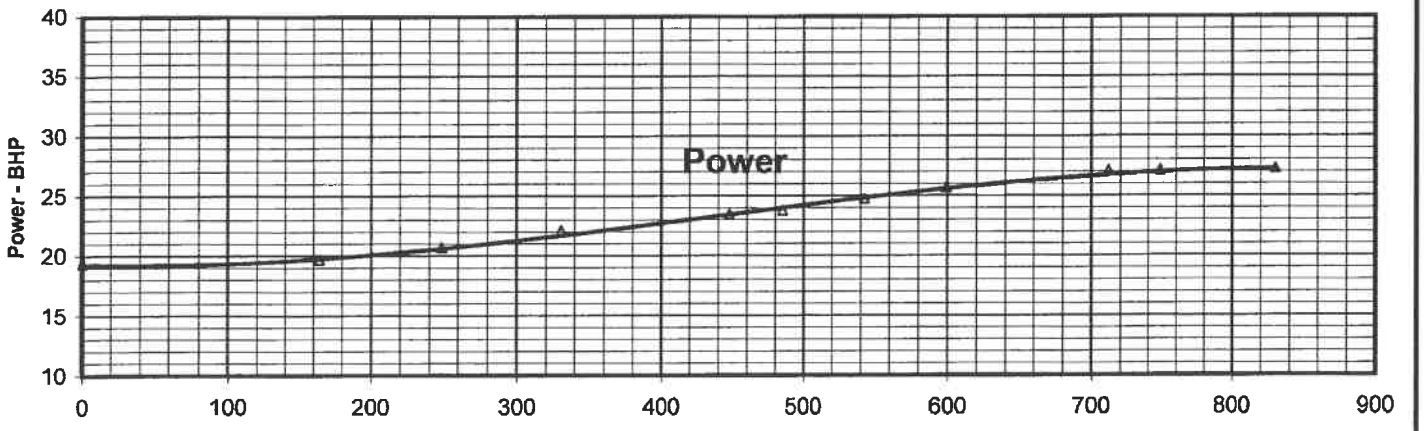
Size-Model	10G	7100AW		CCW
Impeller:		LV4455277208		
Impeller Dia:		7.96"		
Driver:	60 HP and 1800 RPM VHS		HP:	30
RPM:	1765	Stages:	3	

Serial Number:	1485699		
Project Number:	090384		
Test Date:	5/1/2007		

Certified By: [signature] Test Department — 05/07 Date







APPENDIX C: DETAILED COST ESTIMATES

Cost Estimating Worksheet

ROSEVILLE RECYCLED WATER SYSTEM PROJECT DESCRIPTION	
PROJECT ID:	B-1
LOCATION:	West Roseville PS
BRIEF PROJECT DESCRIPTION:	Upsize bypass at West Roseville PS/Pleasant Grove WWTP from 10" to 24"
PROPOSED PROJECT PHASING:	0
REASON FOR PROJECT:	Improve system reliability and flexibility
SPECIAL CONSIDERATIONS:	Small project (additional 15% contingency)
ALTERNATIVES:	Parallel pipe could be installed.

MAJOR ITEMS	Size	Quantity	Unit	UNIT COST	COST
Baseline Pipe Construction Cost					
Pipe (PVC)	24 in.	50	LF	365 $/ft	$18,245
Connection to Existing System		2	EA	19,607 $/EA	$39,215
Surface Restoration					
Pavement Restoration	50' long	6' wide	300' SF	9.62 $/sf	$2,887
Subtotal					$60,346
Mobilization and Demobilization				**10%**	$6,035
Raw Construction Cost Subtotal					**$66,000**
Engineering/Construction Management and Administration, and Legal Costs				**20%**	$13,200
Subtotal					**$79,200**
Project Contigency				**30%**	$23,760
Small Project Contingency				**15%**	$11,880

Capital Improvement Cost Total **$115,000**

ENR = 14,511 (Average of 20 Cities and San Francisco, March 2025)

Cost Estimating Worksheet

ROSEVILLE RECYCLED WATER SYSTEM PROJECT DESCRIPTION	
PROJECT ID:	I-1
LOCATION:	Angus Rd and Casa Sedona Dr
BRIEF PROJECT DESCRIPTION:	Add an intertie between the the West and North Pressure Zones
PROPOSED PROJECT PHASING:	0
REASON FOR PROJECT:	Improve system reliability and flexibility
SPECIAL CONSIDERATIONS:	
ALTERNATIVES:	A different alignment could be used. A larger diameter pipe could be considered to provide additional future flexibility.

MAJOR ITEMS	Size	Quantity	Unit	UNIT COST	COST
Baseline Pipe Construction Cost					
Pipe (PVC)	6 in.	1640	LF	180 $/ft	$295,669
Connection to Existing System		2	EA	1,429 $/EA	$2,858
Misc. Pipe Appurtenances (valves)				5%	$14,926
Traffic and Construction Productivity Factors					
Traffic Control		5% of baseline pipe cost		5%	$14,783
Surface Restoration					
Pavement Restoration	1,640' long	4' wide	6,560' SF	9.62 $/sf	$63,128
Subtotal					$391,365
Mobilization and Demobilization				**10%**	$39,136
Raw Construction Cost Subtotal					**$431,000**
Engineering/Construction Management and Administration, and Legal Costs				**20%**	$86,200
Subtotal					**$517,200**
Project Contigency				**30%**	$155,160

Capital Improvement Cost Total **$672,000**

ENR = 14,511 (Average of 20 Cities and San Francisco, March 2025)

Cost Estimating Worksheet

ROSEVILLE RECYCLED WATER SYSTEM PROJECT DESCRIPTION

PROJECT ID: I-2

LOCATION: Blue Oaks Blvd

BRIEF PROJECT DESCRIPTION: Add an intertie between the the West and South Pressure Zones

PROPOSED PROJECT PHASING: 0

REASON FOR PROJECT: Improve system reliability and flexibility

SPECIAL CONSIDERATIONS:

ALTERNATIVES: A larger diameter pipe could be considered to provide additional future flexibility.

MAJOR ITEMS	Size	Quantity	Unit	UNIT COST	COST
Baseline Pipe Construction Cost					
Pipe (PVC)	6 in.	1520	LF	180 $/ft	$274,035
Connection to Existing System		2	EA	1,429 $/EA	$2,858
Misc. Pipe Appurtenances (valves)				5%	$13,845
Traffic and Construction Productivity Factors					
Traffic Control		5% of baseline pipe cost		5%	$13,702
Surface Restoration					
Pavement Restoration	1,520' long	4' wide	6,080' SF	9.62 $/sf	$58,509
Subtotal					$362,948
Mobilization and Demobilization				**10%**	$36,295
Raw Construction Cost Subtotal					**$399,000**
Engineering/Construction Management and Administration, and Legal Costs				**20%**	$79,800
Subtotal					**$478,800**
Project Contigency				**30%**	$143,640

Capital Improvement Cost Total **$622,000**

ENR = 14,511 (Average of 20 Cities and San Francisco, March 2025)

Cost Estimating Worksheet

ROSEVILLE RECYCLED WATER SYSTEM PROJECT DESCRIPTION

PROJECT ID: I-3

LOCATION: Baseline Rd and Fiddyment Rd

BRIEF PROJECT DESCRIPTION: Add an intertie between the the West and South Pressure Zones

PROPOSED PROJECT PHASING: 3

REASON FOR PROJECT: Improve system reliability

SPECIAL CONSIDERATIONS: Requires future extension of recycled water main south on Fiddyment Rd.

ALTERNATIVES: A larger diameter pipe could be considered to provide additional future flexibility.

MAJOR ITEMS	Size	Quantity	Unit	UNIT COST	COST
Baseline Pipe Construction Cost					
Pipe (PVC)	8 in.	6681	LF	201 $/ft	$1,341,531
Connection to Existing System		3	EA	1,429 $/EA	$4,286
Misc. Pipe Appurtenances (valves)				5%	$67,291
Traffic and Construction Productivity Factors					
Congested Traffic or Utility Corridor Factor		5% of baseline pipe cost		5%	$67,077
Traffic Control		5% of baseline pipe cost		5%	$67,077
Surface Restoration					
Pavement Restoration	6,681' long	4' wide	26,724' SF	9.62 $/sf	$257,171
Subtotal					$1,804,432
Mobilization and Demobilization				**10%**	$180,443
Raw Construction Cost Subtotal					**$1,985,000**
Engineering/Construction Management and Administration, and Legal Costs				**20%**	$397,000
Subtotal					**$2,382,000**
Project Contigency				**30%**	$714,600
Capital Improvement Cost Total					**$3,097,000**

ENR = 14,511 (Average of 20 Cities and San Francisco, March 2025)

Cost Estimating Worksheet

ROSEVILLE RECYCLED WATER SYSTEM PROJECT DESCRIPTION

PROJECT ID: I-3

LOCATION: Baseline Rd and Fiddyment Rd

BRIEF PROJECT DESCRIPTION: Add an intertie between the the West and South Pressure Zones

PROPOSED PROJECT PHASING: 3

REASON FOR PROJECT: Improve system reliability

SPECIAL CONSIDERATIONS: Requires future extension of recycled water main south on Fiddyment Rd.

ALTERNATIVES: A larger diameter pipe could be considered to provide additional future flexibility.

MAJOR ITEMS	Size	Quantity	Unit	UNIT COST	COST
Baseline Pipe Construction Cost					
Pipe (PVC)	10 in.	6316	LF	221 $/ft	$1,397,794
Connection to Existing System		2	EA	1,429 $/EA	$2,858
Misc. Pipe Appurtenances (valves)				5%	$70,033
Traffic and Construction Productivity Factors					
Congested Traffic or Utility Corridor Factor		5% of baseline pipe cost		5%	$0
Traffic Control		5% of baseline pipe cost		5%	$0
Surface Restoration					
Pavement Restoration	6,316' long	4' wide	25,264' SF	9.62 $/sf	$243,121
Subtotal					$1,713,805
Mobilization and Demobilization				**10%**	$171,380
Raw Construction Cost Subtotal					**$1,885,000**
Engineering/Construction Management and Administration, and Legal Costs				**20%**	$377,000
Subtotal					**$2,262,000**
Project Contigency				**30%**	$678,600

Capital Improvement Cost Total **$2,941,000**

ENR = 14,511 (Average of 20 Cities and San Francisco, March 2025)

Cost Estimating Worksheet

ROSEVILLE RECYCLED WATER SYSTEM PROJECT DESCRIPTION

PROJECT ID:..... PP-1

LOCATION:.....West Roseville Pump Station to West Park Drive

BRIEF PROJECT DESCRIPTION:..... Install parallel 24" pipe (1891 LF)

PROPOSED PROJECT PHASING: ..... Implement when upgrading West Roseville PS capacity

REASON FOR PROJECT:..... Reduced headloss during peak periods and increase conveyance capacity.

SPECIAL CONSIDERATIONS:.....

ALTERNATIVES:..... Remove and replace existing or install parallel pipe

MAJOR ITEMS	Size	Quantity	Unit	UNIT COST	COST
Baseline Pipe Construction Cost					
Pipe (PVC)	24	485	LF	365 $/ft	$176,974
Connection to Existing System		2	EA	19,607 $/EA	$39,215
Traffic and Construction Productivity Factors					
Traffic Control		5% of baseline pipe cost		5%	$8,849
Surface Restoration					
Pavement Restoration	485' long	8' wide	3,880' SF	9.62 $/sf	$37,338
Subtotal					$262,375
Mobilization and Demobilization				**10%**	$26,238
Raw Construction Cost Subtotal					**$289,000**
Engineering/Construction Management and Administration, and Legal Costs				**20%**	$57,800
Subtotal					**$346,800**
Project Contigency				**30%**	$104,040

Capital Improvement Cost Total **$451,000**

ENR = 14,511 (Average of 20 Cities and San Francisco, March 2025)

Cost Estimating Worksheet

ROSEVILLE RECYCLED WATER SYSTEM PROJECT DESCRIPTION

PROJECT ID:	PP-2 note acutally triggered by city future
LOCATION:	Blue Oaks Blvd west of Woodcreek Oaks Blvd
BRIEF PROJECT DESCRIPTION:	Replace 8" pipe with 15" pipe along Blue Oaks Blvd between Woodcreek Oaks and Diamond Creek Blvd
PROPOSED PROJECT PHASING:	Before additional customers are added west of Woodcreek Oaks Blvd
REASON FOR PROJECT:	Reduced headloss during peak periods and improve system reliability.
SPECIAL CONSIDERATIONS:	
ALTERNATIVES:	Install parallel 8" pipe

MAJOR ITEMS	Size	Quantity	Unit	UNIT COST	COST
Baseline Pipe Construction Cost					
Pipe (PVC)	12	1600	LF	242 $/ft	$386,915
Connection to Existing System		2	EA	19,607 $/EA	$39,215
Traffic and Construction Productivity Factors					
Traffic Control		5% of baseline pipe cost		5%	$21,307
Surface Restoration					
Pavement Restoration	1,600' long	8' wide	12,800' SF	9.62 $/sf	$123,177
Subtotal					$570,614
Mobilization and Demobilization				**10%**	$57,061
Raw Construction Cost Subtotal					**$628,000**
Engineering/Construction Management and Administration, and Legal Costs				**20%**	$125,600
Subtotal					**$753,600**
Project Contigency				**30%**	$226,080

Capital Improvement Cost Total **$980,000**

ENR = 14,511 (Average of 20 Cities and San Francisco, March 2025)

Cost Estimating Worksheet

ROSEVILLE RECYCLED WATER SYSTEM PROJECT DESCRIPTION

PROJECT ID:..... PP-3

LOCATION:..... Dry Creek WWTP

BRIEF PROJECT DESCRIPTION:..... Replace 20" pipe with 30" pipe along Blue Oaks Blvd between Woodcreek Oaks and Diamond Creek Blvd

PROPOSED PROJECT PHASING: ..... Before Placer One Demands added

REASON FOR PROJECT:..... Reduced headloss during peak periods and improve system reliability.

SPECIAL CONSIDERATIONS:.....

ALTERNATIVES:..... Install parallel 12" pipe

MAJOR ITEMS	Size	Quantity	Unit	UNIT COST	COST
Baseline Pipe Construction Cost					
Pipe (PVC)	30	2533	LF	426 $/ft	$1,080,147
Connection to Existing System		2	EA	19,607 $/EA	$39,215
Traffic and Construction Productivity Factors					
Traffic Control		5% of baseline pipe cost		5%	$55,968
Surface Restoration					
Pavement Restoration	2,533' long	8' wide	20,264' SF	4.81 $/sf	$97,502
Subtotal					$1,272,832
Mobilization and Demobilization				**10%**	$127,283
Raw Construction Cost Subtotal					**$1,400,000**
Engineering/Construction Management and Administration, and Legal Costs				**20%**	$280,000
Subtotal					**$1,680,000**
Project Contigency				**30%**	$504,000

Capital Improvement Cost Total **$2,184,000**

ENR = 14,511 (Average of 20 Cities and San Francisco, March 2025)

Cost Estimating Worksheet

ROSEVILLE RECYCLED WATER SYSTEM PROJECT DESCRIPTION

PROJECT ID:..... PS-1

LOCATION:.....West Roseville Pump Station

BRIEF PROJECT DESCRIPTION:..... Replace three pumps at West Roseville Pump Station for added capacity

PROPOSED PROJECT PHASING: X

REASON FOR PROJECT:..... Increase system capacity required for future buildout

SPECIAL CONSIDERATIONS:.....

ALTERNATIVES:.....Install new pumps at West Roseville Pump Station

MAJOR ITEMS	Size	Quantity	Unit	UNIT COST	COST
Baseline Pipe Construction Cost					
Replacement of Pumps	300 HP	3	EA	$564,000	$1,692,000
Subtotal					$1,692,000
Mobilization and Demobilization				**10%**	$169,200
Raw Construction Cost Subtotal					**$1,861,000**
Alternatives Analysis				**10%**	$186,100
Engineering/Construction Management and Administration, and Legal Costs				**20%**	$372,200
Subtotal					**$2,419,300**
Project Contigency				**30%**	$725,790

Capital Improvement Cost Total **$3,145,000**

ENR = 14,511 (Average of 20 Cities and San Francisco, March 2025)

Cost Estimating Worksheet

ROSEVILLE RECYCLED WATER SYSTEM PROJECT DESCRIPTION

PROJECT ID: S-1

LOCATION: Dry Creek Wastewater Treatment Plant

BRIEF PROJECT DESCRIPTION: Improvements to modify (2) existing Chlorine Contact Basins for use as Reclaimed Water Storage Basins

PROPOSED PROJECT PHASING:

REASON FOR PROJECT: Increase reclaimed water storage volume.

SPECIAL CONSIDERATIONS:

ALTERNATIVES:

MAJOR ITEMS	Size	Quantity	Unit	UNIT COST	COST
Baseline Construction Cost					
Demo - Gates		2	EA	$3,000	$6,000
Demo - Mud Valves, Slab		7	EA	$2,000	$14,000
Demo - Wall Opening, 6'x6', Add'l. Reinf.		3	EA	$4,000	$12,000
Demo - Existing 24"-REW		1	LS	$8,000	$8,000
Concrete Wall Closure		3	EA	$6,000	$18,000
Aluminum Flow Rec. Trough		1	EA	$20,000	$20,000
48"-DI Pipe		158760	LBS	$1.20	$190,512
Piping Installation Labor		1	LS	$19,051	$19,051
DI Pipe Supports, 304 SS		18	EA	$2,500	$45,000
48"-DI 90* Bend		1	EA	$8,000	$8,000
48"-DI REW Feed Piping		132300	LBS	$1.20	$158,760
Piping Installation Labor		1	LS	$15,876	$15,876
48"-DI REW Feed Fittings, Couplings		3	EA	$8,000	$24,000
48"-DI REW Feed Wall Pen's		1	EA	$2,000	$2,000
24"-DI REW Piping		4575	LBS	$1.10	$5,033
Piping Installation Labor		1	LS	$5,033	$5,033
24"-DI REW Fittings, Couplings		3	EA	$5,000	$15,000
36"-DI REW Feed Piping		18300	LBS	$1.15	$21,045
Piping Installation Labor		1	LS	$10,523	$10,523
36"-DI REW Feed Fittings, Couplings		4	EA	$7,000	$28,000
DI Pipe Supports, 304 SS		4	EA	$2,500	$10,000
36" Butterfly Valve		1	EA	$30,000	$30,000
12" Mud Valve		7	EA	$5,000	$35,000
Concrete Repair Allowance		1	LS	$100,000	$100,000
Aluminum Slide Gate		2	EA	$20,000	$40,000
Subtotal					$840,832
Mobilization and Demobilization				**10%**	$84,083
Raw Construction Cost Subtotal					**$925,000**
Engineering/Construction Management and Administration, and Legal Costs				**20%**	$185,000
Subtotal					**$1,110,000**
Project Contigency				**30%**	$333,000

Capital Improvement Cost Total **$1,443,000**

ENR = 14,511 (Average of 20 Cities and San Francisco, March 2025)

APPENDIX D: ALTERNATIVES DEVELOPMENT AND EVALUATION FOR REYCLED WATER DISTRIBUTION SYSTEM (TM 5B)

Technical Memorandum

South Placer Regional Wastewater & Recycled Water Systems Evaluation Project

Subject:	**Alternatives Development and Evaluation for Recycled Water Distribution System (TM 5b)**
Prepared For:	Art O'Brien – City of Roseville Ed Wydra – Placer County
Prepared by:	Amanda Schmidt Glenn Hermanson Andy Smith
Reviewed by:	Dave Richardson
Date:	February 8, 2007; updated February 11, 2008
Reference:	0091.05

0 Previous TM Publication and Updates

Since the latest publication of technical memorandum (TM) 5b on February 8, 2007, changes in information available for the South Placer Wastewater and Recycled Water Systems Evaluation (Systems Evaluation), as well as changes in the data, have resulted in the need to identify and update out-of-date information. This newest publication of TM 5b reflects the changes in available data and/or assumptions.

1 Introduction

The objectives of this TM are to define and evaluate recycled water facilities alternatives to serve the existing City of Roseville (City) service area and Urban Growth Areas (UGAs).

This TM is organized as follows:

- Introduction
- Alternatives Development
- Alternatives Evaluation
- Implementation Plan
- Bibliography

1.1 Project Alternative Definition

Each recycled water project alternative is defined as the combination of the treatment, storage/pumping, and distribution options (supply side) necessary to serve targeted users located in a given service area (demand side). Alternatives for delivering recycled water were evaluated using H_2ONet hydraulic modeling software.

The development of the recycled water project alternatives involved defining the following components for each alternative:

- **Service Area:** Where would recycled water be used?

  Recycled water will be used in the existing Roseville service area (generally in the vicinities of the regional WWTPs; north and west of I-80/UPRR) in addition to Urban Growth Areas.

Recycled water will be used as irrigation for business parks, commercial, multi-family developments, golf courses, parks, and streetscape. Industrial customers will use recycled water for non-contact cooling processes.

- **Treatment:** Where would recycled water be produced?

  Recycled water would be produced at the Pleasant Grove Wastewater Treatment Plant (PGWWTP) and at the Dry Creek Wastewater Treatment Plant (DCWWTP) to supply customers in the existing service area and UGAs.

  An option of satellite treatment will be evaluated for Placer Vineyards (PV) and Placer Ranch (PR) UGAs. Satellite treatment would consist of seasonally operated treatment facilities to treat wastewater from the UGA before it reaches the WWTP. Treated recycled water would be directly pumped back to the corresponding UGA.

- **Storage:** How much recycled water would need to be stored and where?

  Each UGA will be required to have a storage facility to hold recycled water. The minimum operational storage volume of each UGA storage tank is equal to the maximum day demand of recycled water.

  The existing 1.5 MG storage tank at the North Zone Pump Station (NZPS) will be utilized to hold recycled water supplied by DCWWTP and a supplemental supply will be provided from PGWWTP.

  The need for operational storage at PGWWTP and DCWWTP will be evaluated.

- **Distribution:** How would recycled water be distributed to the different users?

  In general, pipelines will be located in major corridors (roadways or along property boundaries), but have flexibility in the specific alignment.

1.2 Project Alternatives Development and Evaluation Update

The recycled water setting has changed since the development of the April 2000 Recycled Water Distribution Feasibility Study (RWFS), presenting new opportunities and new challenges. Because of these changes, the recommended recycled water project and associated implementation plan included in the 2000 RWFS were revisited. The treatment, storage/pumping, and distribution options identified in the 2000 RWFS formed the basis for project alternative development and evaluation. Existing facilities are listed in **Table 1**. Additional facility improvements will be evaluated in the following sections.

Table 1: Storage and Pumping Facilities

Existing Storage and Pumping Facilities Used in the Hydraulic Model		
North Zone Storage Tank	(Feet)	**North Zone Pump Station**
Base Elevation (floor)	123.0	Pumps
Minimum Water Level	5.0	2 duty pumps, 1 standby
Maximum Water Level	16.5	Pump Curve (all three pumps)
Initial Water Level (for modeling)	5.0	Design Point: 950 gpm at 140 feet
Diameter	124.0	Shutoff Head: 0 gpm at 234 feet
Datum for all elevations: Sea Level (0 feet)		High Flow: 1,338 gpm at 0 feet
		Pumps water from Storage Tank
Dry Creek Pump Station		**Pleasant Grove Pump Station**
Pumps		Pumps
3 duty pumps, 1 standby		2 duty pumps
Pump Curve (all four pumps)		Pump Curve (both pumps)
Design Point: 1,900 gpm at 124.6 feet		Design Point: 5,120 gpm at 124 feet
Shutoff Head: 0 gpm at 206 feet		Shutoff Head: 0 gpm at 192 feet
High Flow: 2,480 gpm at 0 feet		High Flow: 7,680 gpm at 0 gpm
Pumps from a wet well with a water surface elevation of 114 ft.		Pumps from a wet well with a surface elevation of 90 ft.

1.3 Approach

The following approach was adopted to meet the TM objectives described above:

- Develop a list of conceptual alternatives (including preliminary sizing and alignments, pumping requirements and location and storage requirements) building on the technical work of the 2000 Recycled Water Distribution Feasibility Study
- Evaluate the pros and cons of each conceptual alternative to find the preferred alternative

2 Alternatives Development

This section presents the recycled water facilities alternatives that were developed by:

- Considering the different options available for each project component
- Combining these options to form logical project alternatives
- Developing the necessary technical information necessary to define and evaluate each alternative

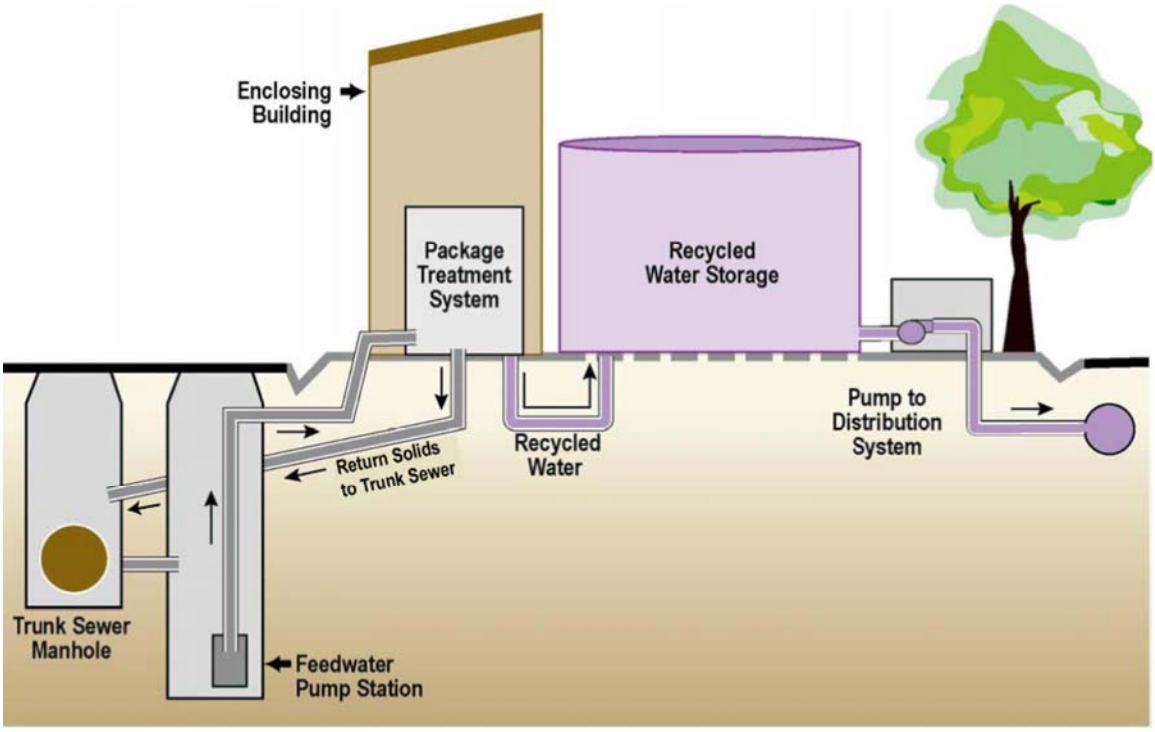
2.1 Alternatives Identification

Two basic categories of options are available for the production of recycled water: centralized treatment with distribution from Pleasant Grove and Dry Creek WWTPs, and satellite treatment and distribution. This section will discuss satellite treatment, detail the treatment process, costs, and advantages and disadvantages (relative to centralized treatment). Distribution options and pipeline alignments along with storage requirements will also be discussed in this section.

2.1.1 Satellite Treatment

Satellite facilities would treat the wastewater from local trunk sewers to tertiary standards and likely return solids back to the trunk sewer. Recycled water would be available for use in the vicinity of the satellite plant. A conceptual illustration of a facility is shown in **Figure 1**. Seasonally operated satellite treatment could be used to supply the furthest UGA from PGWWTP, which is Placer Ranch and DCWWTP which is Placer Vineyards.

Figure 1: Conceptual Illustration of Satellite Recycled Water Facility



The treatment technology most widely used currently for new satellite treatment facilities is a membrane bioreactor (MBR). This technology combines the secondary biological process with the filtration process in a single reactor, an aeration tank with submerged membranes. RMC gathered data from ten satellite plants ranging in size from 0.3 mgd to 10 mgd (RMC, 2004). Information gathered included capital cost, MBR equipment costs, and operation and maintenance (O&M) costs for the surveyed satellite treatment facilities (all costs are expressed in 2004 dollars). Using this information, RMC has investigated the degree to which satellite treatment facilities could be more cost effective than serving recycled water from the central treatment plant through a pipeline.

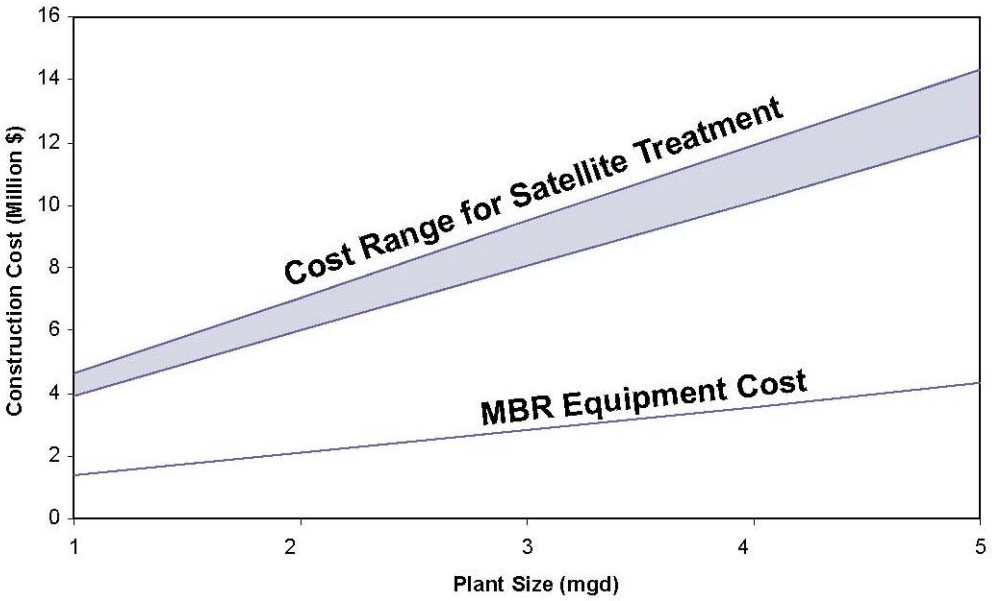
Footprint Size

Footprint sizes can vary widely; from the available data it was extrapolated that a plant size ranging from 1 to 5 mgd would require approximately 4 acres of land. This would be an appropriate land assumption for PR and PV because their demands are 3.34 and 5.4 mgd, respectively. This footprint requirement includes space for the treatment process, as well as for a distribution pump station. It does not include land requirements for recycled water storage, which might add an additional acre of land depending upon tank configuration and surrounding land use.

Construction Costs

Capital costs varied widely due to the variety in construction and operation of each plant. A cost curve was developed based on MBR quotes from Zenon and US Filter and construction cost information from interviewed satellite treatment facilities, shown in **Figure 2**.

Figure 2: Planning Level Cost Guidelines – Construction Cost ($ 2004)



A reasonable construction cost estimate for PR is $12.5 million (including MBR equipment costs). Similarly, PV construction cost estimate would be $18.75 million. Placer Vineyards costs were extrapolated from the graph. This does not include the cost of land. Also this does not include the cost of recycled water storage and distribution facilities, since these costs are paid for by the developer in both the satellite and central treatment options. For reference, from this estimate, MBR equipment costs would be approximately $3.25 million for PR and $4.75 million for PV.

Operation and Maintenance Costs

Annual O&M Costs are shown on **Figure 3** below. Again, the annual cost for each plant varies. This variability is due to different unit processes and different approaches to operation and maintenance that each plant employs. From the information obtained in Figure 3, annual operation and maintenance costs will be approximately $300,000 for PR and $500,000 for PV per year.

Figure 3: Comparison of Annual O&M Cost to Plant Size ($ 2004)

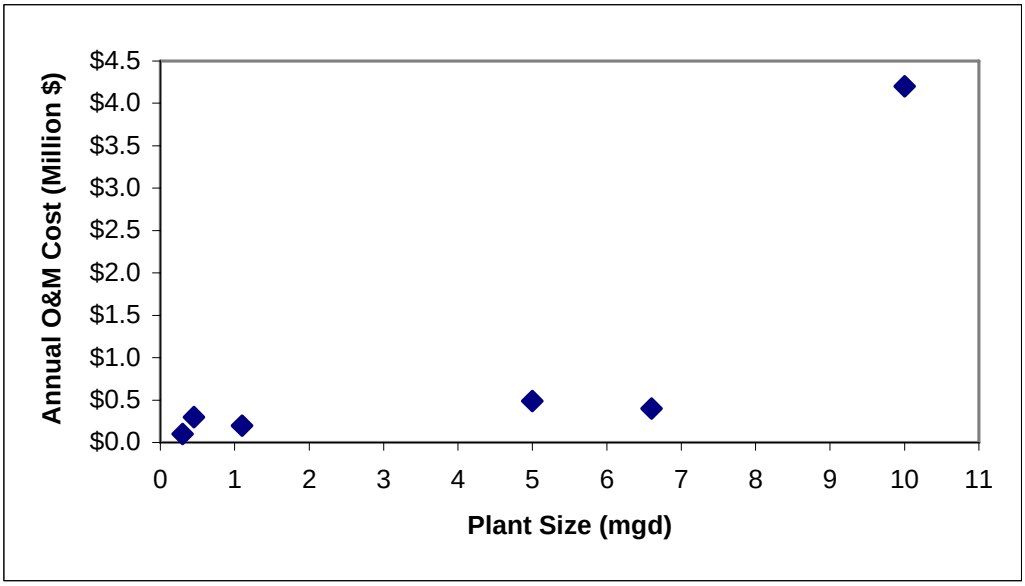


Table 2 provides a cost summary to build and operate a satellite treatment facility at PR and PV. Total present value cost for PR would be $17.4 million and PV would be $27 million.

Table 2: Satellite Treatment Cost Summary

Cost [a]	Placer Ranch	Placer Vineyards
Construction Costs	$12,500,000	$18,750,000
Present Value O&M Cost [b]	$9,905,000	$8,176,000
Total Present Value Cost for Satellite Treatment Alternative	**$17,405,000**	**$26,926,000**
Pipeline Cost for Centralized Transmission Treatment Alternative [c]	**$1,207,000**	**$2,840,000**
Low Cost Alternative	**Centralized**	**Centralized**

Footnotes:

a. 2004 dollars, no inflation assumed
b. Present value is calculated over a 20 year period. Assumed inflation rate = 3%, interest rate = 5%, therefore the discount rate = 2%.
c. Cost to install recycled water pipeline including contingency factors. See Section 4.2 and Attachment C.

Conclusions

Feasibility of satellite recycled water treatment can be determined by comparing its cost effectiveness to the development or expansion of centralized water recycling and transmission of recycled water to the use site.

Note: From a cost standpoint, satellite recycled water treatment has become a competitive alternative for recycled water production and delivery to remote areas; generally 5 to 10 miles beyond the central WWTP and other recycled water customers. PR and PV are the furthest UGAs from Pleasant Grove WWTP, but their distances are not remote enough to offset the capital and O&M costs associated with satellite treatment. PR and PV are both adjacent to other recycled water

customers (UGAs) and, depending on the location where recycled water is delivered, are only 1 to 3 miles from the nearest customer.

Proposed recycled water pipelines will distribute water to UGAs along a path towards PR and PV. It would be unreasonable to pursue the option of satellite recycled water treatment because of the following reasons: the PGWWTP and DCWWTP can provide the required recycled water, a recycled water distribution system is currently being developed, and PR and PV are less then 5 miles from the nearest recycled water customer. The option best suited for the given situation would be a centralized treatment and distribution from the Pleasant Grove and Dry Creek WWTPs. Incidentally, if recycled water were needed to be distributed to regions within South Placer Wastewater Authority (SPWA) service area further from the WWTPs, (e.g. Granite Bay, Rocklin, or Loomis) at some point in the future satellite treatment may be the best choice.

2.1.2 Description of Pipeline Alternatives

A hydraulic analysis using H_2O Net was performed to compute the pipeline diameter needed to serve the identified customers while conforming to a set of hydraulic criteria. The set of hydraulic criteria that was used is shown in **Table 3**.

Table 3: Hydraulic Design Criteria for Model Development

System Component	Unit	Value
Minimum Pressure at Customer Connections During Irrigation Period [a]	psi	60 [b]
Minimum Pressure at Customer Connections During Non-irrigation Period	psi	40
Maximum Pressure	psi	120
Minimum Pipe Size (including laterals)	inches	6
Available Pipe Sizes [c]	inches	6, 8, 12, 16, 24, 30
Maximum Head Loss	feet per 1000 feet	5
Velocity Range	feet per second	2 – 8
Hazen-Williams Coefficient for Headloss Calculation	n/a	130

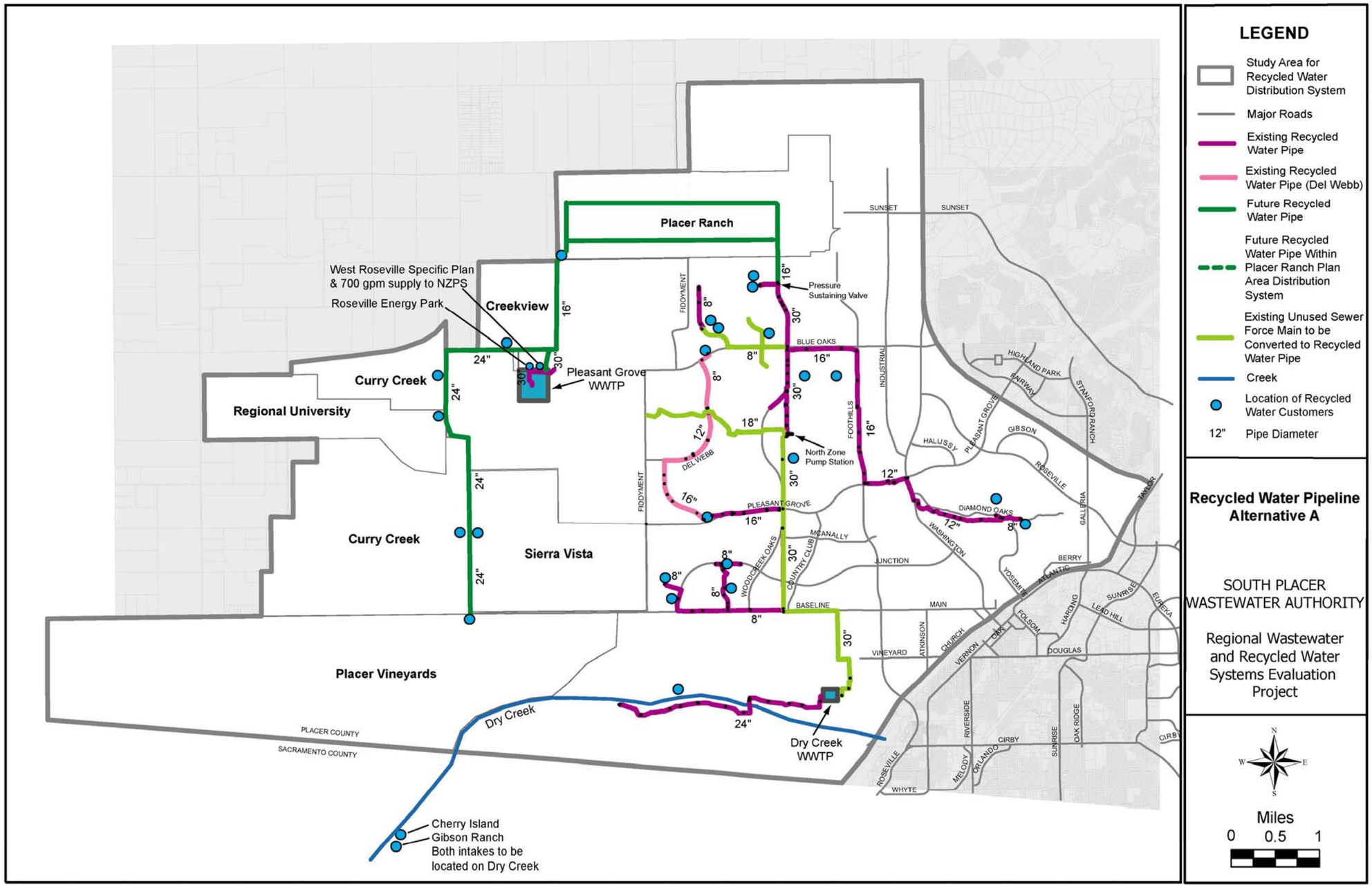
Footnotes:

a. South zone of Recycled Water System (south of North Zone Pump Station) will have an operating pressure of 30 psi
b. This pressure is for customers without a recycled water storage facility.
c. Per Roseville Standards for Recycled Water.

Since satellite treatment is not recommended for currently anticipated demands, there are three distribution alternatives that will be evaluated in this TM. The following alternatives are described below.

- **Alternative A: Non-Looped System.** New pipe from Pleasant Grove WWTP will connect to existing recycled water pipe along Phillip Road, and follow UGA boundaries around the western border of West Roseville Specific Plan and Sierra Vista. The pipe will end at the northern boundary of Placer Vineyards as shown in **Figure 4**. The pipeline will also run north on the eastern side of Creekview and end at the southwest corner of Placer Ranch. An internal Placer Ranch pipe will connect to the 30" recycled water pipeline stub on Woodcreek Oaks Blvd. with a pressure sustaining valve. This configuration will allow recycled water to flow either to or from the North Zone tank. In this alternative, it is assumed that PGWWTP will supply Placer Vineyards.

Figure 4: Map of Alternative A – Non-Looped System



- **Alternative B: Looped System.** Recycled water pipelines would follow similar alignments as Alternative A, however pipe will continue east along the northern border of Placer Vineyards and connect the 24" gravity recycled water line near Dry Creek as shown in **Figure 5**. Placer Vineyards could be supplied by either DCWWTP or PGWWTP. The 24" gravity line may need to be pressurized; therefore changes may be required at the DCWWTP recycled water pump station. Currently recycled water flows by gravity from the chlorine contact basins to Morgan Creek Golf Course. Additional pumping will most likely be required to have the necessary hydraulic head to reach Morgan Creek Golf Course and Placer Vineyards. This will be described in more detail later in the TM.
- **Alternative C: Additional Flow through West Roseville Specific Plan.** New pipe from PGWWTP will connect existing recycled water pipe along Phillip Road, and follow UGA boundaries around the western border of West Roseville Specific Plan and Sierra Vista. The pipe will end at the northern boundary of Curry Creek South and Sierra Vista as shown in **Figure 6**. The pipeline will also run north on the eastern side of Creekview and end at the southwestern corner of Placer Ranch. Placer Vineyards will be supplied recycled water from DCWWTP via the 24" pipeline running parallel to Dry Creek. Placer Vineyards will install a pipe to distribute recycled water from the terminus of the existing 24-inch recycled water pipeline along Dry Creek to a storage tank on West Dyer Lane and 16th Street.

  To balance the recycled water demands on each wastewater treatment plant, recycled water will be distributed from PGWWTP to Woodcreek Oaks Golf Course (WOGC) and Sun City Golf Course (SCGC). Their pipe connections can be retrofitted to receive recycled water from DCWWTP or PGWWTP as the system grows to best use available recycled water. This will be described more in detail in the following section.

  Water will be transferred to WOGC and SCGC via the 24" recycled water pipeline through West Roseville Specific Plan and through the 18" converted force main. To minimize the amount of pumping, the WRSP pump station 24" inlet is connected to the to the 24" outlet, which allows bypassing the WRSP pump station. Recycled water can then be sent to the WOGC and SCGC storage facilities directly from the PGWWTP pump station. This configuration provides flexibility for supplying RW to the WOGC and SCGC during the 15-hour non-irrigation period. This option is available during the non-irrigation period because the WRSP pump station will not be used. During the irrigation period the bypass will be closed and the pump station will operate normally.

  The Sun City Golf Course storage pond can be connected by tying the 18" converted force main in Del Webb Boulevard into an existing 8-inch recycled water main in Del Webb Boulevard. This will serve the purpose of filling the SCGC pond from PGWWTP. The Woodcreek Oaks Golf Course would utilize a portion of the existing 18" recycled water line which will be decommissioned. Recycled water will flow south through the 18" recycled water line from the 18" converted force main/30" converted force main connection to the lake. When completed there will be two connections to the Woodcreek Oaks Golf Course lake, the 18" recycled water line and the 30" converted force main.

Figure 5: Map of Alternative B – Looped System

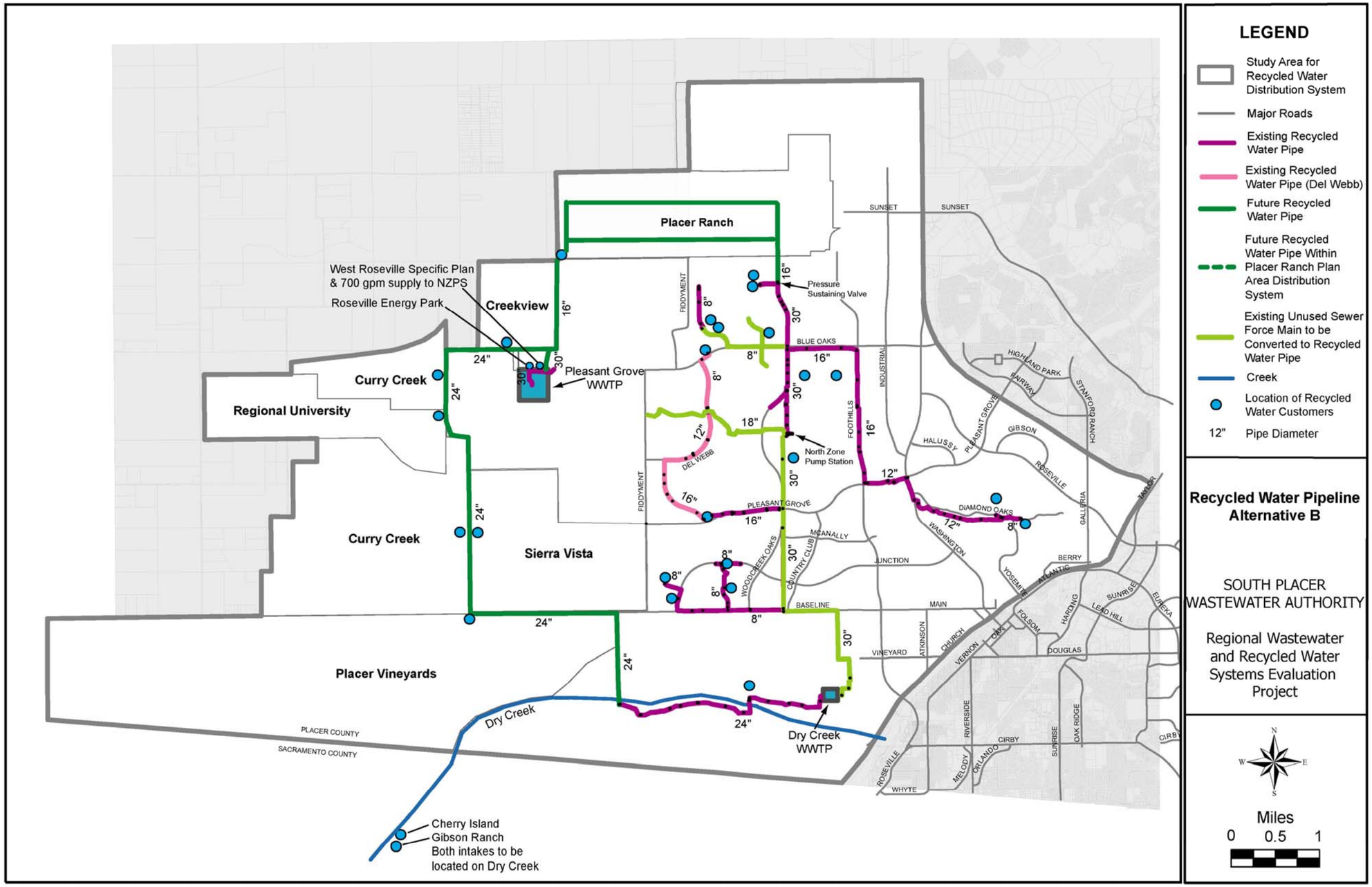


Figure 6: Map of Alternative C – Additional Flow through West Roseville Specific Plan

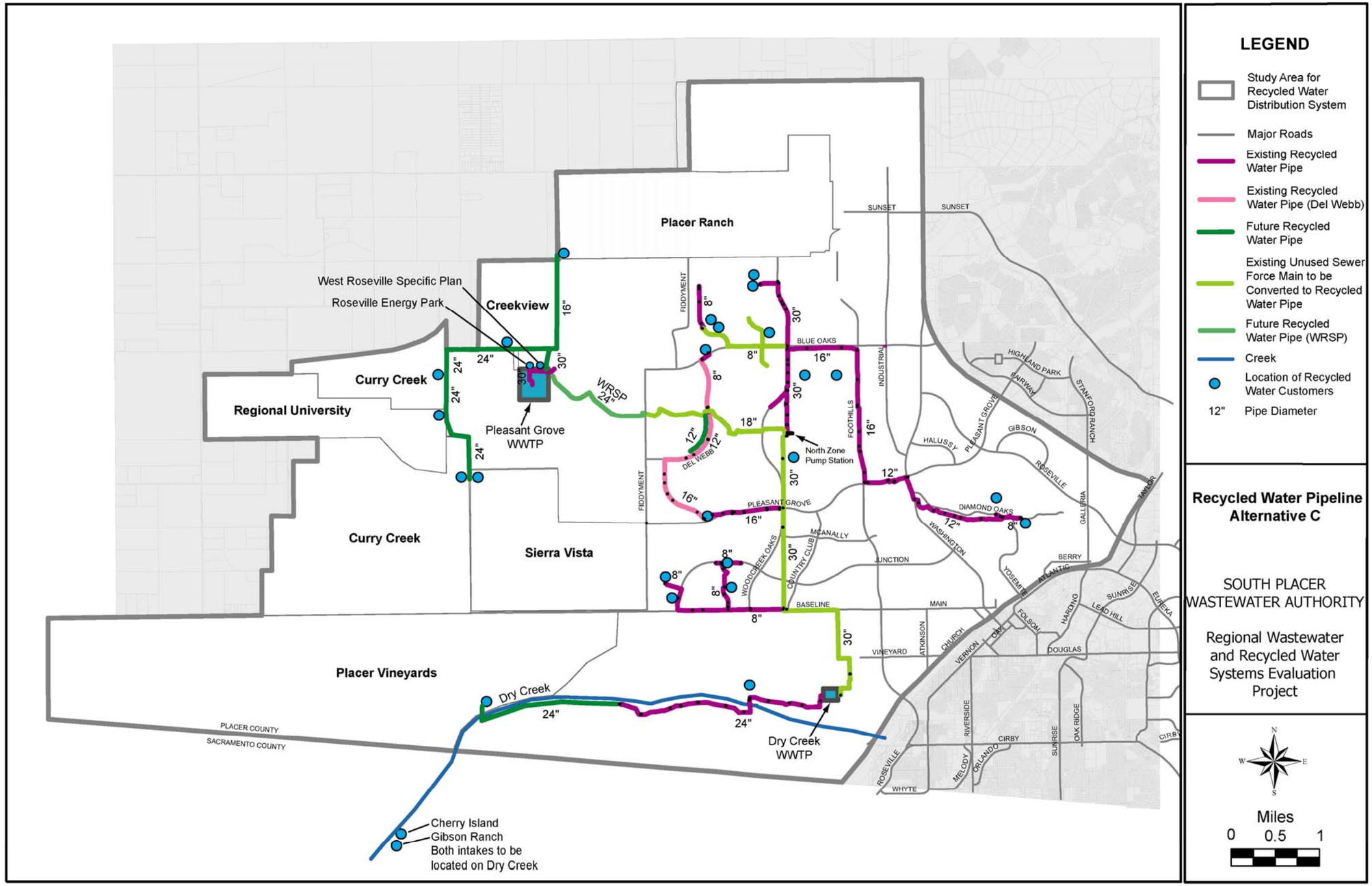


Table 4 lists the lengths and diameters of new recycled water pipelines that would be installed for each alternative and the existing force mains that will be converted to recycled water pipes. Alternative B has the largest amount of pipe installed because the northern and southern sections of the City are connected.

Table 4: Description of Alternatives

	New Pipe Diameter (inches)	Existing Force Main to be Converted to Recycled Water Pipe (feet)	Length of New RW Pipe (feet)
All Three Alternatives	30”	19,600	-
	18”	9,700	-
	8”	8,900	-
	Total	**38,200**	**-**
Alternative A	30”	-	3,100
	24”	-	23,000
	16”	-	7,300
	Total	**38,200**	**33,400**
Alternative B	30”	-	3,100
	24”	-	37,300
	16”	-	7,300
	Total	**38,200**	**47,700**
Alternative C	30”	-	3,100
	24”	-	21,400
	16”	-	5,800
	12”	-	2,700
	Total	**38,200**	**33,000**

2.1.3 Recycled Water Storage Analysis

Due to the high demand for recycled water, hourly irrigation patterns, and diurnal fluctuations of wastewater effluent, an hour-by-hour analysis has been conducted to determine the storage requirement and the operational scenarios at the Pleasant Grove and Dry Creek WWTPs to optimize recycled water distribution. Scenarios are developed assuming there will be a storage facility (tank or pond) at each UGA with a volume to store one peak day (July day) of recycled water demand. Diurnal fluctuations in recycled water generation produce a challenge in supplying customers during the irrigation period from 9:00 PM to 6:00 AM for the following reasons: the highest demand for recycled water comes during the period of lowest generation and recycled water must be supplied during the non-irrigation period in addition to the irrigation period to fulfill the total demand of the UGAs.

Alternative C Storage Analysis

Multiple scenarios were evaluated to distribute recycled water to customers to show the amount of storage needed at either DCWWTP or PGWWTP in Alternative C. From the supply availability analysis, the recycled water demand in Alternatives A and B exceeded available supply, therefore a storage analysis was not deemed necessary. From the storage analysis, it was determined that recycled water storage will not be required at PGWWTP if recycled water is distributed to the UGAs as it is generated. Storage is

also not required at DCWWTP. The detailed storage calculations can be found in **Attachment A** and are summarized in **Table 5**. The following scenarios present variations in recycled water distribution to customers with storage facilities.

Pleasant Grove WWTP Distribution Scenarios:

- 24-hour Distribution – Recycled water would be distributed equally to all customers over a 24 hour period. For UGAs, the storage tank is filled evenly through the day. Recycled water generated in excess of the water supplied to the UGAs will be discharged to the creek.
- 15-hour Distribution – Recycled water would be distributed to customers over the non-irrigation 15-hour period (from 6:00 AM to 9:00 PM). In this scenario, while water could be distributed during the irrigation period, it is assumed that all water produced during this time period will be discharged to the creek
- Equal Tank Fill – Recycled water would be distributed as it is generated and all UGA storage facilities are filled at the same rate. Once a tank is full, remaining water will be supplied to other storage facilities until all are filled. Excess water will be discharged to the creek after all the tanks are full. Four recycled water pumps will be required to pump the maximum effluent flow rate.
- Two Tank Fill – Recycled water would be distributed as it is generated and two UGA storage tanks will be filled at a time. Excess recycled water generated after all tanks are filled will be discharged to the creek. Four recycled water pumps will be required to pump the maximum effluent flow rate.
- Capped Flow Distribution – Recycled water would be distributed as generated but will not exceed a maximum flow rate of 16,000 gpm and water generated in excess of 16,000 gpm will be discharged to the creek. In this scenario, a minimum pressure of 10 psi will be at the furthest UGAs, with only three pumps operating at the PGWWTP recycled water pump station.

Dry Creek WWTP Distribution Scenarios:

- 24-hour Distribution – Recycled water would be distributed equally to creek customers over a 24 hour period.
- 15-hour Distribution – Recycled water would be only distributed to creek customers during the non-irrigation 15-hour period (from 6:00 AM to 9:00 PM).
- Creek Distribution – Recycled water would be distributed as it is generated to fill the North Zone Pump Station tank and to customers with storage facilities. Excess water from the filling the tank and pipeline distribution will be discharged to the creek. Creek customers will be supplied with recycled water until demand is fulfilled.
- Proportional Flow to Creek Customers – Recycled water would be distributed as it is generated to fill the North Zone Pump Station tank and to customers with storage facilities. Excess water from the filling the tank and pipeline distribution will be discharged to the creek. Creek customers will be supplied proportionally to volume demanded. This distribution is more theoretical because the creek customer's demands will be fulfilled at the same time. In proportional flow more recycled water is distributed to Gibson Ranch than Cherry Island per hour because the recycled water demand at Gibson Ranch is higher than Cherry Island.

Table 5: Storage Analysis for Alternative C

Scenario	Available RW to Supply to Customers During Low Generation Period	Required Storage at DCWWTP	Peak Flow Distributed through RW Pipeline (gpm)	Rank [a]
PGWWTP				
24-hour Distribution	No	Yes, 2.14 MG	15,825	3 (tie)
15-hour Distribution	No	Yes, 1.97 MG	23,193	3 (tie)
Equal Tank Fill	Yes	None	26,156 [b, e]	1 (tie)
Two Tank Fill	Yes	None	26,156 [b, e]	1 (tie)
Capped Flow Distribution	No [c]	None	16,000	4
DCWWTP				
24-hour Distribution	No	Yes, 1.70 MG	6,782	4
15-hour Distribution	No	Yes, 0.55 MG	6,782	3
Creek Distribution	Yes [d]	None	6,782	1
Proportional Flow to Creek Customers	Yes [d]	None	6,782	2

Footnotes:

a. Qualitative ranking based on analysis of required storage, supply and peak flow distribution.
b. These two scenarios would require a velocity greater than 10 ft/sec in the existing 30" recycled water pipe at the PGWWTP.
c. There is not enough time to fill all UGA tanks within 24 hour period if recycled water distribution is limited to 16,000 gal/min.
d. There is supply deficiency between 5:00 AM and 6:00 AM. From 5:00 AM – 6:00 AM an additional supply of 11,073 gallons is needed. This supply deficit of ~11,000 gallons can be eliminated if customers with storage facilities (like golf courses) are supplied more water during periods of higher recycled water generation
e. This scenario would require control and valve modifications to the West Roseville and North Zone Pump Stations, as well as design modifications to future pump stations.

Criteria used in ranking the distribution scenarios are based on the necessity of required storage at the treatment plant, availability of supply during all hours of the day, and the peak flow being pumped from the treatment plant pump station. Scenarios that do not require storage at the treatment plant rank higher than those that do; additionally, scenarios that do not have available supply for the demand are infeasible. Peak flow from the treatment plant is evaluated to determine pumping requirements. Maximum flow rates may occur for only a few hours a day, however exceeding the proposed design criteria is not recommended.

According to the hydraulic model and the storage analysis, in both the Equal Tank Fill and Two Tank Fill scenarios the maximum flowrate pumped between approximately 12:00 PM and 1:00 AM will exceed the velocity design criteria of 8 ft/sec in the 30" pipe from the PGWWTP pump station to the West Roseville Specific Plan Pump Station. This is assuming all UGAs are receiving the peak day demand at buildout. The velocity in that section of pipe (maximum 12 ft/sec) will be above 8 ft/sec for 13 hours per day and the 10 ft/sec for 4 hours per day. This daily maximum flow will peak during July and a total of four pumps would be needed to maintain pressure at the furthest UGAs from the PGWWTP. To accommodate either of these scenarios, two separate fill valves will be required to each tank at all future pump stations. This design will allow for the flexibility needed to distribute the recycled water supply as necessary.

It was concluded that this maximum flowrate and velocity would not be acceptable. To reduce the amount of flow in the 30" pipe, a new 30" pipe should be installed parallel to the existing pipe from the recycled

water pump station to the junction of the West Roseville Specific Plan pump station. It is recommended to monitor the pipe velocity over time to identify when and the length of time it is over 8 ft/sec. In the future, a parallel pipe can be installed. The 30" parallel pipe is being included as a recommended project. It is recognized that this additional 30" parallel pipe will only be needed at buildout and if the UGAs develop as indicated herein. It is recommended to revisit this analysis approximately every 5 years to confirm the need for this parallel pipe.

Another option to reduce the maximum flow in the 30" pipe is to "shave off" the peak flow rate and pump a maximum of 16,000 gpm from the pump station. Any flow in excess of the 16,000 gpm would be discharged to Pleasant Grove Creek. This would keep the velocity in the pipe around 7.5 ft/sec. This alternative is infeasible because there is not enough recycled water to supply UGA customers with their Peak (July) Day Demand.. Too much recycled water is "shaved off" and sent to the creek. The Two Tank or Equal Tank Fill is the recommended fill scenario.

For DCWWTP, distributing recycled water to the creek customers when available is the best operational scenario. There is enough supply at DCWWTP to serve customers south of the North Zone pump station and the customers from the 24" gravity line. The creek customers have storage ponds; therefore there is flexibility to fill throughout the day. As mentioned in Footnote D from **Table 5**, the demand exceeds supply from 5:00 to 6:00 AM. The supply deficit of 11,073 gallons can be eliminated if customers with storage facilities are supplied extra recycled water during period with excess supply.

2.1.4 Hydraulic Analysis for 24-inch Gravity Line

A hydraulic analysis was completed to determine if the 24" recycled water line from DCWWTP to Morgan Creek Golf Course and Placer Vineyards (PV) could remain a gravity line, as shown in **Attachment B**.. The proposed location of the (PV) recycled water storage tank is on the southwest corner of West Dyer Lane and 16th Street, in the center of UGA. The pipeline alignment used in this analysis through (PV) is along West Dyer Lane. The results of the analysis show the 24" pipe can remain gravity flow with certain limitations. The storage facilities must be filled in 24 hours,. A fill time of 15 hours representing the non-irrigation period is also not possible. A gravity line will limit the City's operational flexibility to supply recycled water. The pipeline also cannot be shut down in the summer months for maintenance or repair.

It is recommended to install a booster pump station at the recycled water pipe stub at Wallerga Road. This will provide the additional head needed to fill the Placer Vineyards tank in a shorter period than 24 hours. It is also recommended to connect the 24" line to the Dry Creek WWTP recycled water pump station or a low head pump to provide pressure for the storage facilities and to two future direct tap customers. The pressurized pipe will allow the City to supply customers with recycled water when it is available. If the 24" line is pressurized from DCWWTP, then the booster pump may not be needed.

3 Alternatives Evaluation

This Section will:

- Present criteria that will be used to evaluate project alternatives identified in Section 2
- Show results of the alternatives evaluation
- Present the alternative that is recommended

3.1 Evaluation Criteria

A set of economic and non-economic criteria addressing specific issues within the planning area will be developed to evaluate the recycled water facilities alternatives. These criteria are found in **Table 6** as follows:

Table 6: Alternative Evaluation Criteria

Criteria	Description
Meets Recycled Water Demand	Ability to meet total recycled water demand
Estimated Cost	Total Capital Costs
Flexibility	Ease with which (1) recycled water can be delivered from either treatment facility to meet demand, (2) SPWA can adapt to changes in planning assumptions regarding future demand patterns, projected resources or other uncertainties, and (3) system can be phased
Ease of Implementation	Ease with which alternative can be permitted and constructed. This also includes easement acquisition and congestion concerns
Adaptability	Degree of synergy with existing recycled water system and ability to adapt to existing recycled water system
Environmental/Social Impacts	Various impacts including risk of impact to biological systems and construction related impacts (i.e. traffic disruptions)

Capital cost for the project alternatives are shown in **Table 7**. A flat cost of $8/LF-in diameter is used for 16” diameter to 30” diameter pipes installed in developing areas, like the UGAs. A cost of $12/LF-in diameter is used for urban areas where there are existing roads and/or pavement. **Table 6** also includes a line item for the connection of the 24” gravity line to the DCWWTP recycled water pump station. The cost only includes the connection; pumping capacity at DCWWTP is addressed in **Table 9**.

Table 7: Economic Assumptions and Unit Costs

Item	Cost [a]
Open Trench Installation	
30" Pipe Installation Cost	$240 /linear foot
24" Pipe Installation Cost	$192 /linear foot
16" Pipe Installation Cost	$128 /linear foot
12" Pipe Installation Cost	$144 /linear foot
Conversion of DCWWTP to pump into 24" gravity line [b]	$60,000
Other Cost Estimate Criteria [c]	
Construction Cost Contingency	30% of pipeline costs
Engineering and Administration	25% of pipeline costs

Footnotes:

a. Unit costs are in October 2005 dollars.
b. Short pipe connection between 24" gravity line and existing recycled water pump station discharge will be required.
c. An overhead markup of 62.5% was applied based on a 30% construction cost contingency a plus a 25% engineering and administration factor to calculate the capital cost. Hence, for budgeting purposes, it is assumed that the contingency and project implementation multiplier is 1.625 (1.00 x 1.30 x 1.25 = 1.625)

3.2 Evaluation Results

3.2.1 Alternatives Evaluation

Preliminary cost estimates based upon economic assumptions in **Table 7** are listed in **Table 8**. Detailed cost estimates for the alternatives can be found in **Attachment C**. Criteria from **Table 6** are used to evaluate the two alternatives and are listed in **Table 8**.

Table 8: Alternatives Evaluation

Evaluation Criteria (from Table 6)	Alternative A – Non-Looped System	Alternative B – Looped System	Alternative C – Flow Through WRSP
Meets Recycled Water Demand	High	High	High
Estimated Cost [a]	$11,002,000	$15,321,000 [b]	$10,883,000 [b]
Flexibility			
Flexibility to supply RW from more than one plant	Medium	High	High
Adapt to changes in planning assumptions	Medium	High	High
Ability for project phasing	Medium	Medium	High
Ease of Implementation			
Ease to be designed, permitted, and constructed	High	Medium	High
Easement Acquisition	High	High	High
Adaptability			
Degree of synergy with existing recycled water system	High	Medium	High
Environmental/Social Impact			
Biological Impacts and Construction Related Impacts	Low	Low	Low
Utility Congestion	Low	Low	Low
Rank [c]	2	3	1

Footnotes:

a. Total capital costs are in October 2005 dollars and include all construction costs, contingencies, and fees.
b. Price includes $60,000 for the retrofit of DCWWTP recycled water pump station to connect the 24" gravity line. Refer to Table 7.
c. Qualitative ranking based on analysis of benefits, risks and degrees of impact.

3.3 Conclusions

Based upon the evaluation presented in **Table 8**, Alternative C is the recommended choice because it is an interconnected system that provides the optimum balance of recycled water supply and demand. Alternative A is a moderately connected system, with Placer Ranch internal recycled water piping connecting to the 30" pipe on Woodcreek Oaks Blvd. Alternative B joins both the north and south sections of the distribution system, but there is a considerable distance between Placer Vineyards demand location and the stub of the 24" gravity line. To connect the two pipes, 14,400 linear feet of pipe would need to be installed and a piping/pumping modification at DCWWTP would need to be constructed with an additional cost of $2.8 million. Both Alternatives A and B have a recycled water demand that exceeds supply.

It is recommended that under typical operating scenarios, customers be supplied recycled water by a particular treatment facility; Alternatives B and C allow operational changes to be made in the pipeline system to move recycled water across the distribution system in response to an atypical operating scenario. Looping the southern portion of the distribution system is less beneficial than connecting PGWWTP through the West Roseville Specific Plan and converted force main because of the pipeline capital costs and the distance of the customers from the pipe. The majority of the customers are in the central potion of Roseville, in close proximity to the North Zone Tank. It would be better to have the operational flexibility in that area rather than on the outskirts of the distribution system.

4 Implementation Plan

The goal of the Recycled Water System Evaluation is to develop a long-term strategy for the ultimate implementation recycled water projects in the region. Numerous tasks would need to take place between the completion of the Systems Evaluation and construction of the ultimate buildout, including conceptual engineering, environmental documentation and permitting, public outreach, funding, financing, design, and construction. This draft implementation plan describes the tasks required to implement the recycled water projects and provides an approximate schedule for their completion. The City's pipeline infrastructure will include the trunk line from the wastewater treatment plant as well as the storage, pumping and distribution of recycled water within the property. Trunk recycled water pipeline sections from the PGWWTP to the Urban Growth Area will be installed by the City and reimbursed by individual land owners. The recycled pipeline will be built according to phasing described in the following sections. Any interim measures/solutions developed by the UGA developers for receiving recycled water will be approved by the City.

4.1 Preferred Alternative

The preferred alternative is Alternative C with recycled water sent from PGWWTP to supply Woodcreek Oaks and Sun City Golf Courses. This system will be described in detail and individual projects will be identified in the following sections. The recycled water system has been divided into projects and is shown in **Figure 7**. Projects are numbered in no particular order, but are organized according to implementation schedule. Projects shown in Figure 7 are listed in **Table 9** with length and diameter of pipe that will be installed. Pipeline costs include contingencies and pump costs include installation. Detailed cost information is found in **Attachment C**.

4.2 Project Phasing

An implementation strategy for each preferred alternative project phase is presented in this section. The phasing of the preferred alternative is summarized as follows:

Phase I – This phase includes the existing recycled water distribution system and existing users. Recycled water is supplied from Dry Creek WWTP. This phase also includes the conversion of 8", 18", and 30" force mains to recycled water pipelines, which is currently in progress. Woodcreek Oaks Golf Course and Sun City Golf Course will be supplied recycled water from the PGWWTP.

Phase II – This phase expands on the current distribution system with the addition of "Existing Near Future Recycled Water Customers" from the RW Market Assessment (RMC, 2005). The new customers will be supplied by Dry Creek WWTP. DCWWTP and the North Zone pump station will install new recycled water pumps.

Phase III – This phase builds from Phase II to include all Urban Growth Areas. Pleasant Grove WWTP will supply recycled water to these customers except for Placer Vineyards. Two additional duty pumps and one standby pump will be added to the PGWWTP recycled water pump station. At the point when the velocity in 30" pipe from the PGWWTP pump station to the West Roseville Pump Station become higher than 8 ft/sec for a hours at a time a new 30" parallel pipe should be constructed. The 24" line supplying Placer Vineyards will be connected to the DCWWTP pump station.

Figure 7: Recommended Projects for Recycled Water Distribution System

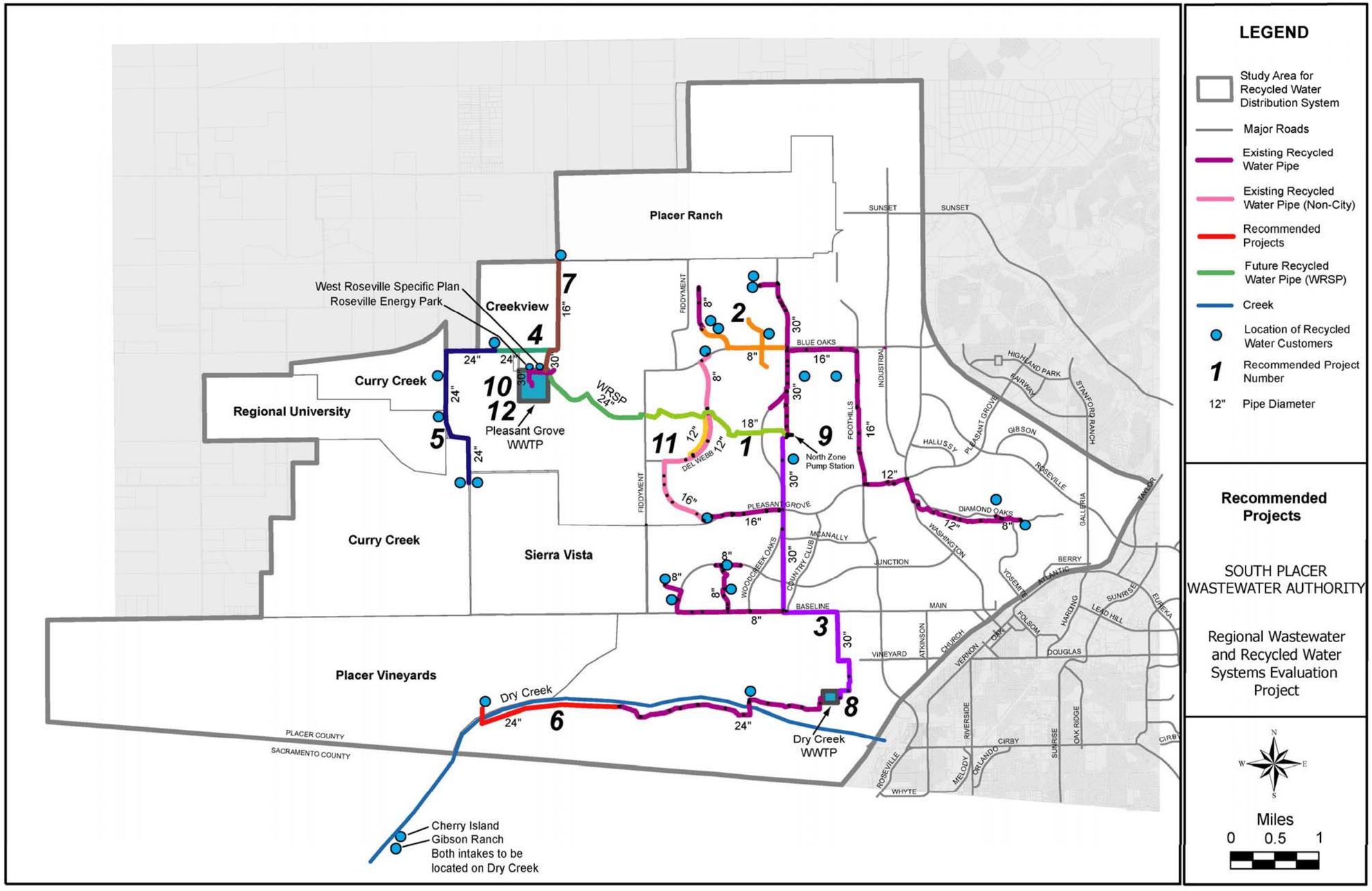


Table 9: Recommended Projects by Phase

Project No.	Description	Size (in.) or flow (gpm)	Length (ft.)	Cost
	Phase I (in Progress) [a]			
1	18" FM Conversion for RW Use from PGWWTP	18"	9,700	n/a
11	Sun City Pipeline from 18" Converted Force Main (with option to supply WOGC and SCGC)	12"	2,700	632,000
2	8" FM Conversion for RW Use	8"	8,900	n/a
3	30" FM Conversion for RW Use South of North Zone Pump Station	30"	19,600	n/a
		Subtotal	**40,900**	**$632,000**
	Phase II (Year 2005 to 2010) [a]			
8	DCWWTP one-50 HP pump	1,900 gpm	-	98,000
9	North Zone PS one-50 HP pump	950 gpm	-	57,000
		Subtotal	**-**	**$155,000**
	Phase III (Year 2010 to 2025) [a]			
4	Creekview Pipeline	24"	3,300	1,030,000
5	Creekview to Curry Creek North	24"	4,600	1,436,000
	Curry Creek North to Regional University	24"	2,100	655,000
	Regional University to Curry Creek South and Sierra Vista	24"	2,300	718,000
6	Placer Vineyards Pipeline	24"	9,100	2,840,000
7	North from PGWWTP to "Tee"	30"	1,400	546,000
	Pipeline from "Tee" to Placer Ranch PS	16"	5,800	1,207,000
10	PGWWTP three-250 HP pumps	15,360 gpm	-	609,000
12	Addition of 30" Pipe at PGWWTP for Maximum Flow Conveyance	30"	1,700	995,000
		Subtotal	**30,300**	**$10,036,000**
Total			**71,200**	**$10,823,000**

Footnotes:

a. Recycled water project phasing depends on development timing.

4.2.1 Phase I

This phase includes the conversion of 8", 18", and 30" sewer force main (FM) to recycled water pipe, which is in progress. The existing 24" recycled water pipe connecting the Dry Creek WWTP with the North Zone Pump Station (NZPS) will be decommissioned and the 30" FM will be used instead. An 18" FM will also be converted connecting the NZPS to Pleasant Grove WWTP via the West Roseville Specific Plan recycled water pipeline. In the northern portion of Roseville, an 8" FM will be converted and connected to an existing 30" recycled water pipe. These are Projects #1 through #3 from Figure 7. It is recommended the FM conversions be completed before the addition of the "Existing Near Future Recycled Water Customers" (referenced from the SPWA Recycled Water Market Assessment) to the network. The pipeline from the converted 18" force main to the Sun City Golf Course pond inlet, Project

#11, will be constructed during this phase. Additionally, once the 30" force main is converted Woodcreek Oaks Golf Course can be connected to the 18" converted force main. Connecting these customers to both PGWWTP and DCWWTP supply will allow the City greater flexibility as both distribution systems are growing.

4.2.2 Phase II

Phase II includes the existing customers and distribution system of Phase I, plus additional recycled water customers as sufficient supply from Dry Creek WWTP is available. Projected wastewater flows from the SPWA Projected WWTP Projected Loadings and Buildout TM 4a, estimates there will be adequate supply in 2012 to provide "Existing Near Future Recycled Water Customers" (identified in the Market Assessment TM) with recycled water. "Existing Near Future Recycled Water Customers" include Cherry Island Golf Course, Diamond Creek Park, Diamond Oaks Park, Eskaton Retirement Community, Fiddyment Park, Free Run Park, Gibson Ranch County Park, Homestead Park, Homestead Elementary School, HP Campus Current Landscaping, HP Rezone, West Roseville Specific Plan, and Woodcreek West Park.

In this phase, the Dry Creek WWTP and North Zone pump stations will need to be upgraded. Projects #8 and #9 specify the addition of one 50 hp pump at DCWWTP and one 50 hp pump at NZPS, respectively. Based on the hydraulic model, these additional pumps will be necessary to maintain a minimum pressure of 10 psi for the furthest customers on the recycled water distribution pipeline. The additional pumps will be required during high flow periods. A volume increase to the North Zone storage tank will not be required.

4.2.3 Phase III

Phase III includes all of the customers in Phase II plus the Urban Growth Areas. New recycled water pipeline installations to Creekview, Curry Creek, Regional University, Sierra Vista, and Placer Ranch are Projects #4, #5, and #7. The Urban Growth Areas will begin construction in 2008 through 2010, with buildout of the recycled water service area estimated to be completed in 2025. Based on the hydraulic model two additional duty pumps and one standby pump will be required at the Pleasant Grove WWTP recycled water pump station. The additional pumps will be required to keep a minimum pressure of 10 psi in the pipeline at the furthest customers and to supply recycled water to the Woodcreek Oaks (WOGC) and Sun City Golf Courses (SCGC). Upgrades to the Pleasant Grove WWTP pump station is Project #10. The installation of a 30" parallel pipe from PGWWTP to the West Roseville Specific Plan pump station (Project #12) should occur when the velocity in the existing 30" line increases over 8 ft/sec. This project should occur before UGA buildout. Recycled water from PGWWTP will be transferred to the WOGC and SCGC through the West Roseville Specific Plan pipeline and the 18" converted force main. A continuation of the 24" pipe will be installed to serve Placer Vineyards, Project #6. The booster pump station at the recycled water pipe stub at Wallerga Road could be installed to produce the hydraulic head to fill the tank in a shorter period than 24 hours.

4.2.4 Urban Growth Area Storage Requirement

UGAs will be required to have a recycled water storage facility with the capacity to store one peak day (July day) demand volume. July demands have been documented in the SPWA Market Assessment TM (RMC, January 2008). The minimum storage tank volume required for each UGA is listed in **Table 10**.

Table 10: Minimum Required Storage Volumes

UGA	Minimum Tank Volume (MG)
Brookfield	0.94
Creekview & Panhandle	1.25
Curry Creek North	0.78
Curry Creek South	3.33
Placer Ranch	3.34
Placer Vineyards	3.50
Regional University	1.72
Sierra Vista	2.46

4.3 Permitting

The State Water Resources Control Board (SWRCB) and the State Department of Health Services (DHS) have regulatory and permitting authority over recycled water projects in the State of California. The City of Roseville must have a Master Water Reclamation Permit from the Central Valley Regional Water Quality Control Board (RWQCB). The City has Master Reclamation Permit No. 97-147, and it is understood that a new permit has been adopted by the Regional Board recently.

4.4 Funding

The following are the possible funding sources for the projects in this report:

- Connection Fees – Currently, the City does not collect a connection fee for recycled water connections. A connection fee analysis could be performed and connection fees collected would fund regional facilities necessary to serve new developments.
- Developer/Community Facilities District – In this financing scenario, developer funded community facilities would be shared through reimbursement agreements.

4.4.1 Pipelines to Urban Growth Areas

Recycled water pipeline to the UGAs will be paid for by the Urban Growth Area developers. Individual UGA developers will be responsible for the construction of the recycled water transmission pipeline from the upstream UGA to their connection point with a pipe diameter appropriate to the peak day July recycled water demand. UGAs will also be responsible for upsizing recycled water pipe upstream of their location. As an example, Curry Creek North will need an 8” pipe to deliver recycled water. The 8” section of pipe connecting Creekview downstream to Curry Creek North will be paid for by Curry Creek North. Since 3 UGAs are downstream, the 8” pipe will need to be upsized to a 24” pipe. The upsizing cost will be split amongst the other 3 UGAs proportional to their recycled water demand. This process is continued down the recycled water pipe to Curry the Creek South/Sierra Vista connection point. Since Placer Vineyards is the only user on the pipe after the Morgan Creek Golf Course connection point, Placer Vineyards will pay the full installation cost of the 24” pipe. Further details of pipeline costs are found in **Attachment D**. Developers will be required to reimburse the City (or other funding party) if the transmission pipeline is built before the UGA undergoes construction.

4.5 CEQA/NEPA Compliance

CEQA review will be conducted by the City of Roseville for Regional Facilities. Mainly construction-related impacts will be addressed in the CEQA review. Urban Growth Area CEQA/NEPA review will be the responsibility of the UGA developers. The letter from the City of Roseville to Jim Durfee dated April 26, 2005 provides guidance for the preparation of environmental impact documents, consistent with the requirements of the California Environmental Quality Act (CEQA).

5 Bibliography

RMC Water and Environment. Sacramento Regional County Sanitation District (SRCSD) Recycled Water Satellite Facility Study, June 2004.

RMC Water and Environment. SPWA Recycled Water Market Assessment, November 2005.

Attachment A

Storage Analysis

Pleasant Grove Wastewater Treatment Plant Supply Analysis for Alternative C

24-hour Recycled Water Distribution

Hour	Effluent Flow into Chlorine Contact Basin (gal)	Flow to NZ Tank for WOGC & SCGC (gal)	Roseville Energy Park (gal)	Brookfield (gal)	Curry Creek North (gal)	Curry Creek South (gal)	Regional University (gal)	Placer Ranch (gal)	Creekview (gal)	Sierra Vista (gal)	WRSP (gal)	Recycled Water sent to Creek (gal)	Flow Leaving Plant to be pumped in distribution system (gpm)	Supply and Demand Check
		gpd 2,200,756	gpd 1,584,000	gpd 940,000	gpd 776,816	gpd 3,333,321	gpd 1,720,000	gpd 3,340,000	gpd 1,250,000	gpd 2,460,000	gpd 3,862,911			
6:00	524,393	146,717	66,000	39,167	32,367	138,888	71,667	139,167	52,083	102,500	160,955	0	15,825	-425,118
7:00	495,114	146,717	66,000	39,167	32,367	138,888	71,667	139,167	52,083	102,500	160,955	0	15,825	-454,396
8:00	535,354	146,717	66,000	39,167	32,367	138,888	71,667	139,167	52,083	102,500	160,955	0	15,825	-414,157
9:00	666,840	146,717	66,000	39,167	32,367	138,888	71,667	139,167	52,083	102,500	160,955	0	15,825	-282,671
10:00	852,098	146,717	66,000	39,167	32,367	138,888	71,667	139,167	52,083	102,500	160,955	0	15,825	-97,413
11:00	971,019	146,717	66,000	39,167	32,367	138,888	71,667	139,167	52,083	102,500	160,955	21,508	15,825	0
12:00	1,213,621	146,717	66,000	39,167	32,367	138,888	71,667	139,167	52,083	102,500	160,955	264,111	15,825	0
13:00	1,257,452	146,717	66,000	39,167	32,367	138,888	71,667	139,167	52,083	102,500	160,955	307,941	15,825	0
14:00	1,189,343	146,717	66,000	39,167	32,367	138,888	71,667	139,167	52,083	102,500	160,955	239,832	15,825	0
15:00	1,299,146	146,717	66,000	39,167	32,367	138,888	71,667	139,167	52,083	102,500	160,955	349,635	15,825	0
16:00	1,257,229	146,717	66,000	39,167	32,367	138,888	71,667	139,167	52,083	102,500	160,955	307,718	15,825	0
17:00	1,202,861	146,717	66,000	39,167	32,367	138,888	71,667	139,167	52,083	102,500	160,955	253,350	15,825	0
18:00	1,128,692	146,717	66,000	39,167	32,367	138,888	71,667	139,167	52,083	102,500	160,955	179,182	15,825	0
19:00	1,390,748	146,717	66,000	39,167	32,367	138,888	71,667	139,167	52,083	102,500	160,955	441,237	15,825	0
20:00	1,563,137	146,717	66,000	39,167	32,367	138,888	71,667	139,167	52,083	102,500	160,955	613,627	15,825	0
21:00	1,569,379	0	66,000	39,167	32,367	138,888	71,667	139,167	52,083	102,500	160,955	766,585	13,380	0
22:00	1,492,147	0	66,000	39,167	32,367	138,888	71,667	139,167	52,083	102,500	160,955	689,354	13,380	0
23:00	1,165,859	0	66,000	39,167	32,367	138,888	71,667	139,167	52,083	102,500	160,955	363,065	13,380	0
0:00	1,178,080	0	66,000	39,167	32,367	138,888	71,667	139,167	52,083	102,500	160,955	375,286	13,380	0
1:00	1,020,537	0	66,000	39,167	32,367	138,888	71,667	139,167	52,083	102,500	160,955	217,743	13,380	0
2:00	839,464	0	66,000	39,167	32,367	138,888	71,667	139,167	52,083	102,500	160,955	36,671	13,380	0
3:00	747,830	0	66,000	39,167	32,367	138,888	71,667	139,167	52,083	102,500	160,955	0	13,380	-54,964
4:00	635,130	0	66,000	39,167	32,367	138,888	71,667	139,167	52,083	102,500	160,955	0	13,380	-167,664
5:00	561,868	0	66,000	39,167	32,367	138,888	71,667	139,167	52,083	102,500	160,955	0	13,380	-240,926
Totals	**24,757,340**	**2,200,756**	**1,584,000**	**940,000**	**776,816**	**3,333,321**	**1,720,000**	**3,340,000**	**1,250,000**	**2,460,000**	**3,862,911**	**5,426,845**		

Pleasant Grove Wastewater Treatment Plant Supply Analysis for Alternative C

15-hour Recycled Water Distribution

Hour	Effluent Flow into Chlorine Contact Basin (gal)	gpd 2,200,756 Flow to NZ Tank for WOGC & SCGC (gal)	gpd 1,584,000 Roseville Energy Park (gal)	gpd 940,000 Brookfield (gal)	gpd 776,816 Curry Creek North (gal)	gpd 3,333,321 Curry Creek South (gal)	gpd 1,720,000 Regional University (gal)	gpd 3,340,000 Placer Ranch (gal)	gpd 1,250,000 Creekview (gal)	gpd 2,460,000 Sierra Vista (gal)	gpd 3,862,911 WRSP (gal)	Recycled Water sent to Creek (gal)	Flow Leaving Plant to be pumped in distribution system (gpm)	Supply and Demand Check
6:00	524,393	146,717	66,000		0	0	0	0	0	0	0	311,676	3,545	0
7:00	495,114	146,717	66,000		0	0	0	0	0	0	0	282,397	3,545	0
8:00	535,354	146,717	66,000		0	0	0	0	0	0	0	322,637	3,545	0
9:00	666,840	146,717	66,000		0	0	0	0	0	0	0	454,123	3,545	0
10:00	852,098	146,717	66,000		0	0	0	0	0	0	0	639,381	3,545	0
11:00	971,019	146,717	66,000		0	0	0	0	0	0	0	758,302	3,545	0
12:00	1,213,621	146,717	66,000	62,667	51,788	222,221	114,667	222,667	83,333	164,000	257,527	0	20,227	-177,966
13:00	1,257,452	146,717	66,000	62,667	51,788	222,221	114,667	222,667	83,333	164,000	257,527	0	20,958	-134,135
14:00	1,189,343	146,717	66,000	62,667	51,788	222,221	114,667	222,667	83,333	164,000	257,527	0	19,822	-202,244
15:00	1,299,146	146,717	66,000	62,667	51,788	222,221	114,667	222,667	83,333	164,000	257,527	0	21,652	-92,441
16:00	1,257,229	146,717	66,000	62,667	51,788	222,221	114,667	222,667	83,333	164,000	257,527	0	20,954	-134,358
17:00	1,202,861	146,717	66,000	62,667	51,788	222,221	114,667	222,667	83,333	164,000	257,527	0	20,048	-188,726
18:00	1,128,692	146,717	66,000	62,667	51,788	222,221	114,667	222,667	83,333	164,000	257,527	0	18,812	-262,895
19:00	1,390,748	146,717	66,000	62,667	51,788	222,221	114,667	222,667	83,333	164,000	257,527	0	23,179	-839
20:00	1,563,137	146,717	66,000	62,667	51,788	222,221	114,667	222,667	83,333	164,000	257,527	171,551	23,193	0
21:00	1,569,379	0	66,000	62,667	51,788	222,221	114,667	222,667	83,333	164,000	257,527	324,509	20,748	0
22:00	1,492,147	0	66,000	62,667	51,788	222,221	114,667	222,667	83,333	164,000	257,527	247,277	20,748	0
23:00	1,165,859	0	66,000	62,667	51,788	222,221	114,667	222,667	83,333	164,000	257,527	0	19,431	-79,011
0:00	1,178,080	0	66,000	62,667	51,788	222,221	114,667	222,667	83,333	164,000	257,527	0	19,635	-66,790
1:00	1,020,537	0	66,000	62,667	51,788	222,221	114,667	222,667	83,333	164,000	257,527	0	17,009	-224,333
2:00	839,464	0	66,000	62,667	51,788	222,221	114,667	222,667	83,333	164,000	257,527	0	13,991	-405,405
3:00	747,830	0	66,000		0	0	0	0	0	0	0	681,830	1,100	0
4:00	635,130	0	66,000		0	0	0	0	0	0	0	569,130	1,100	0
5:00	561,868	0	66,000		0	0	0	0	0	0	0	495,868	1,100	0
Totals	**24,757,340**	**2,200,756**	**1,584,000**	**940,000**	**776,816**	**3,333,321**	**1,720,000**	**3,340,000**	**1,250,000**	**2,460,000**	**3,862,911**	**5,258,680**		

Pleasant Grove Wastewater Treatment Plant Supply Analysis for Alternative C

Equal Tank Fill

		gpd 2,200,756	gpd 1,584,000	gpd 940,000	gpd 776,816	gpd 3,333,321	gpd 1,720,000	gpd 3,340,000	gpd 1,250,000	gpd 2,460,000	gpd 3,862,911			
Hour	Effluent Flow into Chlorine Contact Basin (gal)	Flow to NZ Tank for WOGC & SCGC (gal)	Roseville Energy Park (gal)	Brookfield (gal)	Curry Creek North (gal)	Curry Creek South (gal)	Regional University (gal)	Placer Ranch (gal)	Creekview & Panhandle (gal)	Sierra Vista (gal)	WRSP (gal)	Recycled Water sent to Creek (gal)	Flow Leaving Plant to be pumped in distribution system (gpm)	Supply and Demand Check
6:00	524,393	146,717	66,000	38,959	38,959	38,959	38,959	38,959	38,959	38,959	38,959	0	8,740	0
7:00	495,114	146,717	66,000	35,300	35,300	35,300	35,300	35,300	35,300	35,300	35,300	0	8,252	0
8:00	535,354	146,717	66,000	40,330	40,330	40,330	40,330	40,330	40,330	40,330	40,330	0	8,923	0
9:00	666,840	146,717	66,000	56,765	56,765	56,765	56,765	56,765	56,765	56,765	56,765	0	11,114	0
10:00	852,098	146,717	66,000	79,923	79,923	79,923	79,923	79,923	79,923	79,923	79,923	0	14,202	0
11:00	971,019	146,717	66,000	94,788	94,788	94,788	94,788	94,788	94,788	94,788	94,788	0	16,184	0
12:00	1,213,621	146,717	66,000	125,113	125,113	125,113	125,113	125,113	125,113	125,113	125,113	0	20,227	0
13:00	1,257,452	146,717	66,000	130,592	130,592	130,592	130,592	130,592	130,592	130,592	130,592	0	20,958	0
14:00	1,189,343	146,717	66,000	122,078	122,078	122,078	122,078	122,078	122,078	122,078	122,078	0	19,822	0
15:00	1,299,146	146,717	66,000	135,804	135,804	135,804	135,804	135,804	135,804	135,804	135,804	0	21,652	0
16:00	1,257,229	146,717	66,000	149,216		149,216	149,216	149,216	149,216	149,216	149,216	0	20,954	0
17:00	1,202,861	146,717	66,000			165,024	165,024	165,024	165,024	165,024	165,024	0	20,048	0
18:00	1,128,692	146,717	66,000			183,195	183,195	183,195		183,195	183,195	0	18,812	0
19:00	1,390,748	146,717	66,000			235,606	235,606	235,606		235,606	235,606	0	23,179	0
20:00	1,563,137	146,717	66,000			270,084	270,084	270,084		270,084	270,084	0	26,052	0
21:00	1,569,379	0	66,000			375,845		375,845		375,845	375,845	0	26,156	0
22:00	1,492,147	0	66,000			356,537		356,537		356,537	356,537	0	24,869	0
23:00	1,165,859	0	66,000			366,620		366,620			366,620	0	19,431	0
0:00	1,178,080	0	66,000			370,693		370,693			370,693	0	19,635	0
1:00	1,020,537	0	66,000								954,537	0	17,009	0
2:00	839,464	0	66,000									773,464	1,100	0
3:00	747,830	0	66,000									681,830	1,100	0
4:00	635,130	0	66,000									569,130	1,100	0
5:00	561,868	0	66,000									495,868	1,100	0
Totals	**24,757,340**	**2,200,756**	**1,584,000**	**1,008,867**	**859,651**	**3,332,471**	**1,862,776**	**3,332,471**	**1,173,891**	**2,595,158**	**4,287,008**	**2,520,292**		

Pleasant Grove Wastewater Treatment Plant Supply Analysis for Alternative C

Two Tank Fill

Hour	Effluent Flow into Chlorine Contact Basin (gal)	Flow to NZ Tank for WOGC & SCGC (gal)	Roseville Energy Park (gal)	Brookfield (gal)	Curry Creek North (gal)	Curry Creek South (gal)	Regional University (gal)	Placer Ranch (gal)	Creekview & Panhandle (gal)	Sierra Vista (gal)	WRSP (gal)	Recycled Water sent to Creek (gal)	Flow Leaving Plant to be pumped in distribution system (gpm)	Supply and Demand Check
		gpd 2,200,756	gpd 1,584,000	gpd 940,000	gpd 776,816	gpd 3,333,321	gpd 1,720,000	gpd 3,340,000	gpd 1,250,000	gpd 2,460,000	gpd 3,862,911			
6:00	524,393	146,717	66,000	155,838	155,838							0	8,740	0
7:00	495,114	146,717	66,000	141,199	141,199							0	8,252	0
8:00	535,354	146,717	66,000	161,318	161,318							0	8,923	0
9:00	666,840	146,717	66,000	227,061	227,061							0	11,114	0
10:00	852,098	146,717	66,000	319,690			319,690					0	14,202	0
11:00	971,019	146,717	66,000				379,151	379,151				0	16,184	0
12:00	1,213,621	146,717	66,000				500,452	500,452				0	20,227	0
13:00	1,257,452	146,717	66,000				522,367	522,367				0	20,958	0
14:00	1,189,343	146,717	66,000					488,313	488,313			0	19,822	0
15:00	1,299,146	146,717	66,000					543,215	543,215			0	21,652	0
16:00	1,257,229	146,717	66,000					522,256	522,256			0	20,954	0
17:00	1,202,861	146,717	66,000			495,072		495,072				0	20,048	0
18:00	1,128,692	146,717	66,000			457,988				457,988		0	18,812	0
19:00	1,390,748	146,717	66,000			589,015				589,015		0	23,179	0
20:00	1,563,137	146,717	66,000			675,210				675,210		0	26,052	0
21:00	1,569,379	0	66,000			751,689				751,689		0	26,156	0
22:00	1,492,147	0	66,000			713,074					713,074	0	24,869	0
23:00	1,165,859	0	66,000								1,099,859	0	19,431	0
0:00	1,178,080	0	66,000								1,112,080	0	19,635	0
1:00	1,020,537	0	66,000								954,537	0	17,009	0
2:00	839,464	0	66,000									773,464	1,100	0
3:00	747,830	0	66,000									681,830	1,100	0
4:00	635,130	0	66,000									569,130	1,100	0
5:00	561,868	0	66,000									495,868	1,100	0
Totals	**24,757,340**	**2,200,756**	**1,584,000**	**1,005,107**	**685,416**	**3,682,048**	**1,721,661**	**3,450,826**	**1,553,783**	**2,473,903**	**3,879,549**	**2,520,292**		

Pleasant Grove Wastewater Treatment Plant Supply Analysis for Alternative C

Capped Flow of 16,000 gpm

Max flow 16,000 gpm		gpd	gpd	gpd	gpd	gpd	gpd	gpd	gpd	gpd	gpd			
Max flow 960,000 gal/hr		2,200,756	1,584,000	940,000	776,816	3,333,321	1,720,000	3,340,000	1,250,000	2,460,000	3,862,911			
Hour	Effluent Flow into Chlorine Contact Basin (gal)	Flow to NZ Tank for WOGC & SCGC (gal)	Roseville Energy Park (gal)	Brookfield (gal)	Curry Creek North (gal)	Curry Creek South (gal)	Regional University (gal)	Placer Ranch (gal)	Creekview (gal)	Sierra Vista (gal)	WRSP (gal)	Recycled Water sent to Creek (gal)	Flow Leaving Plant to be pumped in distribution system (gpm)	Supply and Demand Check
6:00	524,393	146,717	66,000	38,959	38,959	38,959	38,959	38,959	38,959	38,959	38,959	0	8,740	0
7:00	495,114	146,717	66,000	35,300	35,300	35,300	35,300	35,300	35,300	35,300	35,300	0	8,252	0
8:00	535,354	146,717	66,000	40,330	40,330	40,330	40,330	40,330	40,330	40,330	40,330	0	8,923	0
9:00	666,840	146,717	66,000	56,765	56,765	56,765	56,765	56,765	56,765	56,765	56,765	0	11,114	0
10:00	852,098	146,717	66,000	79,923	79,923	79,923	79,923	79,923	79,923	79,923	79,923	0	14,202	0
11:00	971,019	146,717	66,000	93,410	93,410	93,410	93,410	93,410	93,410	93,410	93,410	11,019	16,000	0
12:00	1,213,621	146,717	66,000	93,410	93,410	93,410	93,410	93,410	93,410	93,410	93,410	253,621	16,000	0
13:00	1,257,452	146,717	66,000	93,410	93,410	93,410	93,410	93,410	93,410	93,410	93,410	297,452	16,000	0
14:00	1,189,343	146,717	66,000	93,410	93,410	93,410	93,410	93,410	93,410	93,410	93,410	229,343	16,000	0
15:00	1,299,146	146,717	66,000	93,410	93,410	93,410	93,410	93,410	93,410	93,410	93,410	339,146	16,000	0
16:00	1,257,229	146,717	66,000	93,410	93,410	93,410	93,410	93,410	93,410	93,410	93,410	297,229	16,000	0
17:00	1,202,861	146,717	66,000	106,755		106,755	106,755	106,755	106,755	106,755	106,755	242,861	16,000	0
18:00	1,128,692	146,717	66,000	106,755		106,755	106,755	106,755	106,755	106,755	106,755	168,692	16,000	0
19:00	1,390,748	146,717	66,000			124,547	124,547	124,547	124,547	124,547	124,547	430,748	16,000	0
20:00	1,563,137	146,717	66,000			124,547	124,547	124,547	124,547	124,547	124,547	603,137	16,000	0
21:00	1,569,379	0	66,000			178,800	178,800	178,800		178,800	178,800	609,379	16,000	0
22:00	1,492,147	0	66,000			178,800	178,800	178,800		178,800	178,800	532,147	16,000	0
23:00	1,165,859	0	66,000			178,800	178,800	178,800		178,800	178,800	205,859	16,000	0
0:00	1,178,080	0	66,000			223,500		223,500		223,500	223,500	218,080	16,000	0
1:00	1,020,537	0	66,000			223,500		223,500		223,500	223,500	60,537	16,000	0
2:00	839,464	0	66,000			193,366		193,366		193,366	193,366	0	13,991	0
3:00	747,830	0	66,000			227,277		227,277			227,277	0	12,464	0
4:00	635,130	0	66,000			189,710		189,710			189,710	0	10,585	0
5:00	561,868	0	66,000			165,289		165,289			165,289	0	9,364	0
Totals	**24,757,340**	**2,200,756**	**1,584,000**	**1,025,248**	**811,739**	**3,033,384**	**1,810,743**	**3,033,384**	**1,274,343**	**2,451,109**	**3,033,384**	**4,499,250**		

Dry Creek Wastewater Treatment Plant Recycled Water Supply Analysis for Alternative C

24-hour Distribution

Hour	Effluent Flow into Chlorine Contact Basin (gal)	RW Pumped to North & South Zone (gal)	Flow in 24" RW Line (gal)	Recycled Water to Cherry Island (gal)	Recycled Water to Gibson Ranch (gal)	Flow to meet min. Fish and Game Req. (gal)	Excess flow in Creek (gal)	Total Flow Down the Creek (gal)	Flow Leaving Plant into distribution system (gal/hr)	Flow Leaving Plant (gal/min)	Supply and Demand Check
			gpd 4,747,168	gpd 1,103,689	gpd 2,876,213	gpd 4,000,000					
6:00	369,449	32,500	197,799	45,987	119,842	166,666	0	332,495	230,299	3,838	-193,345
7:00	348,822	32,500	197,799	45,987	119,842	166,666	0	332,495	230,299	3,838	-213,972
8:00	377,171	32,500	197,799	45,987	119,842	166,666	0	332,495	230,299	3,838	-185,623
9:00	469,807	32,500	197,799	45,987	119,842	166,666	0	332,495	230,299	3,838	-92,987
10:00	600,326	32,500	197,799	45,987	119,842	166,666	37,532	370,027	230,299	3,838	0
11:00	684,109	32,500	197,799	45,987	119,842	166,666	121,315	453,811	230,299	3,838	0
12:00	855,029	32,500	197,799	45,987	119,842	166,666	292,235	624,730	230,299	3,838	0
13:00	885,909	32,500	197,799	45,987	119,842	166,666	323,115	655,610	230,299	3,838	0
14:00	837,924	32,500	197,799	45,987	119,842	166,666	275,130	607,625	230,299	3,838	0
15:00	915,284	32,500	197,799	45,987	119,842	166,666	352,490	684,985	230,299	3,838	0
16:00	885,752	32,500	197,799	45,987	119,842	166,666	322,958	655,453	230,299	3,838	0
17:00	847,448	32,500	197,799	45,987	119,842	166,666	284,654	617,149	230,299	3,838	0
18:00	795,194	32,500	197,799	45,987	119,842	166,666	232,400	564,896	230,299	3,838	0
19:00	979,819	32,500	197,799	45,987	119,842	166,666	417,026	749,521	230,299	3,838	0
20:00	1,101,273	32,500	197,799	45,987	119,842	166,666	538,479	870,974	230,299	3,838	0
21:00	1,105,670	209,125	197,799	45,987	119,842	166,666	366,251	698,746	406,924	6,782	0
22:00	1,051,258	209,125	197,799	45,987	119,842	166,666	311,839	644,335	406,924	6,782	0
23:00	821,379	209,125	197,799	45,987	119,842	166,666	81,960	414,456	406,924	6,782	0
0:00	829,989	209,125	197,799	45,987	119,842	166,666	90,570	423,065	406,924	6,782	0
1:00	718,996	209,125	197,799	45,987	119,842	166,666	0	332,495	406,924	6,782	-20,423
2:00	591,425	209,125	197,799	45,987	119,842	166,666	0	332,495	406,924	6,782	-147,994
3:00	526,866	209,125	197,799	45,987	119,842	166,666	0	332,495	406,924	6,782	-212,553
4:00	447,466	209,125	197,799	45,987	119,842	166,666	0	332,495	406,924	6,782	-291,953
5:00	395,851	209,125	197,799	45,987	119,842	166,666	0	332,495	406,924	6,782	-343,568
Totals	**17,442,217**	**2,369,625**	**4,747,168**	**1,103,689**	**2,876,213**	**3,999,984**	**4,047,954**	**12,027,840**			

Dry Creek Wastewater Treatment Plant Recycled Water Supply Analysis for Alternative C

15-hour Distribution

Hour	Effluent Flow into Chlorine Contact Basin (gal)	RW Pumped to North & South Zone (gal)	Flow in 24" RW Line (gal)	Recycled Water to Cherry Island (gal)	Recycled Water to Gibson Ranch (gal)	Flow to meet min. Fish and Game Req. (gal)	Excess flow in Creek (gal)	Total Flow Down the Creek (gal)	Flow Leaving Plant into distribution system (gal/hr)	Flow Leaving Plant (gal/min)	Supply and Demand Check
			gpd 4,747,168	gpd 1,103,689	gpd 2,876,213	gpd 4,000,000					
6:00	369,449	32,500	197,799	0	0	0	139,150	139,150	230,299	3,838	0
7:00	348,822	32,500	197,799	0	0	0	118,523	118,523	230,299	3,838	0
8:00	377,171	32,500	197,799	0	0	0	146,873	146,873	230,299	3,838	0
9:00	469,807	32,500	197,799	0	0	0	239,508	239,508	230,299	3,838	0
10:00	600,326	32,500	197,799	0	0	0	370,027	370,027	230,299	3,838	0
11:00	684,109	32,500	197,799	73,579	191,748	266,667	0	531,993	230,299	3,838	-78,183
12:00	855,029	32,500	197,799	73,579	191,748	266,667	92,737	624,730	230,299	3,838	0
13:00	885,909	32,500	197,799	73,579	191,748	266,667	123,617	655,610	230,299	3,838	0
14:00	837,924	32,500	197,799	73,579	191,748	266,667	75,632	607,625	230,299	3,838	0
15:00	915,284	32,500	197,799	73,579	191,748	266,667	152,992	684,985	230,299	3,838	0
16:00	885,752	32,500	197,799	73,579	191,748	266,667	123,459	655,453	230,299	3,838	0
17:00	847,448	32,500	197,799	73,579	191,748	266,667	85,156	617,149	230,299	3,838	0
18:00	795,194	32,500	197,799	73,579	191,748	266,667	32,902	564,896	230,299	3,838	0
19:00	979,819	32,500	197,799	73,579	191,748	266,667	217,527	749,521	230,299	3,838	0
20:00	1,101,273	32,500	197,799	73,579	191,748	266,667	338,981	870,974	230,299	3,838	0
21:00	1,105,670	209,125	197,799	73,579	191,748	266,667	166,753	698,746	406,924	6,782	0
22:00	1,051,258	209,125	197,799	73,579	191,748	266,667	112,341	644,335	406,924	6,782	0
23:00	821,379	209,125	197,799	73,579	191,748	266,667	0	531,993	406,924	6,782	-117,538
0:00	829,989	209,125	197,799	73,579	191,748	266,667	0	531,993	406,924	6,782	-108,928
1:00	718,996	209,125	197,799	73,579	191,748	266,667	0	531,993	406,924	6,782	-219,921
2:00	591,425	209,125	197,799	0	0	0	184,502	184,502	406,924	6,782	0
3:00	526,866	209,125	197,799	0	0	0	119,943	119,943	406,924	6,782	0
4:00	447,466	209,125	197,799	0	0	0	40,543	40,543	406,924	6,782	0
5:00	395,851	209,125	197,799	0	0	0	0	0	406,924	6,782	-11,073
Totals	**17,442,217**	**2,369,625**	**4,747,168**	**1,103,689**	**2,876,213**	**4,000,000**	**2,881,165**	**10,861,067**			

Dry Creek Wastewater Treatment Plant Recycled Water Supply Analysis for Alternative C

Creek Distribution

Hour	Effluent Flow into Chlorine Contact Basin (gal)	RW Pumped to North & South Zone (gal)	Flow in 24" RW Line (gal)	Recycled Water to Cherry Island (gal)	Recycled Water to Gibson Ranch (gal)	Flow to meet min. Fish and Game Req. (gal)	Excess flow in Creek (gal)	Total Flow Down the Creek (gal)	Flow Leaving Plant into distribution system (gal/hr)	Flow Leaving Plant (gal/min)	Supply and Demand Check
			gpd 4,747,168	gpd 1,103,689	gpd 2,876,213	gpd 4,000,000					
6:00	369,449	32,500	197,799	46,383	46,383	46,383	0	139,150	230,299	3,838	0
7:00	348,822	32,500	197,799	39,508	39,508	39,508	0	118,523	230,299	3,838	0
8:00	377,171	32,500	197,799	48,958	48,958	48,958	0	146,873	230,299	3,838	0
9:00	469,807	32,500	197,799	79,836	79,836	79,836	0	239,508	230,299	3,838	0
10:00	600,326	32,500	197,799	123,342	123,342	123,342	0	370,027	230,299	3,838	0
11:00	684,109	32,500	197,799	151,270	151,270	151,270	0	453,811	230,299	3,838	0
12:00	855,029	32,500	197,799	208,243	208,243	208,243	0	624,730	230,299	3,838	0
13:00	885,909	32,500	197,799	218,537	218,537	218,537	0	655,610	230,299	3,838	0
14:00	837,924	32,500	197,799	202,542	202,542	202,542	0	607,625	230,299	3,838	0
15:00	915,284	32,500	197,799	228,328	228,328	228,328	0	684,985	230,299	3,838	0
16:00	885,752	32,500	197,799		327,726	327,726	0	655,453	230,299	3,838	0
17:00	847,448	32,500	197,799		308,575	308,575	0	617,149	230,299	3,838	0
18:00	795,194	32,500	197,799		282,448	282,448	0	564,896	230,299	3,838	0
19:00	979,819	32,500	197,799		374,760	374,760	0	749,521	230,299	3,838	0
20:00	1,101,273	32,500	197,799		435,487	435,487	0	870,974	230,299	3,838	0
21:00	1,105,670	209,125	197,799		349,373	349,373	0	698,746	406,924	6,782	0
22:00	1,051,258	209,125	197,799			644,335	0	644,335	406,924	6,782	0
23:00	821,379	209,125	197,799			414,456	0	406,924	406,924	6,782	0
0:00	829,989	209,125	197,799				423,065	1,253,055	406,924	6,782	0
1:00	718,996	209,125	197,799				312,072	1,031,068	406,924	6,782	0
2:00	591,425	209,125	197,799				184,502	775,927	406,924	6,782	0
3:00	526,866	209,125	197,799				119,943	646,809	406,924	6,782	0
4:00	447,466	209,125	197,799				40,543	488,009	406,924	6,782	0
5:00	395,851	209,125	197,799				0	395,851	406,924	6,782	-11,073
Totals	**17,442,217**	**2,369,625**	**4,747,168**	**1,346,948**	**3,425,317**	**4,484,107**	**1,080,125**	**13,839,559**			

Dry Creek Wastewater Treatment Plant Recycled Water Supply Analysis for Alternative C

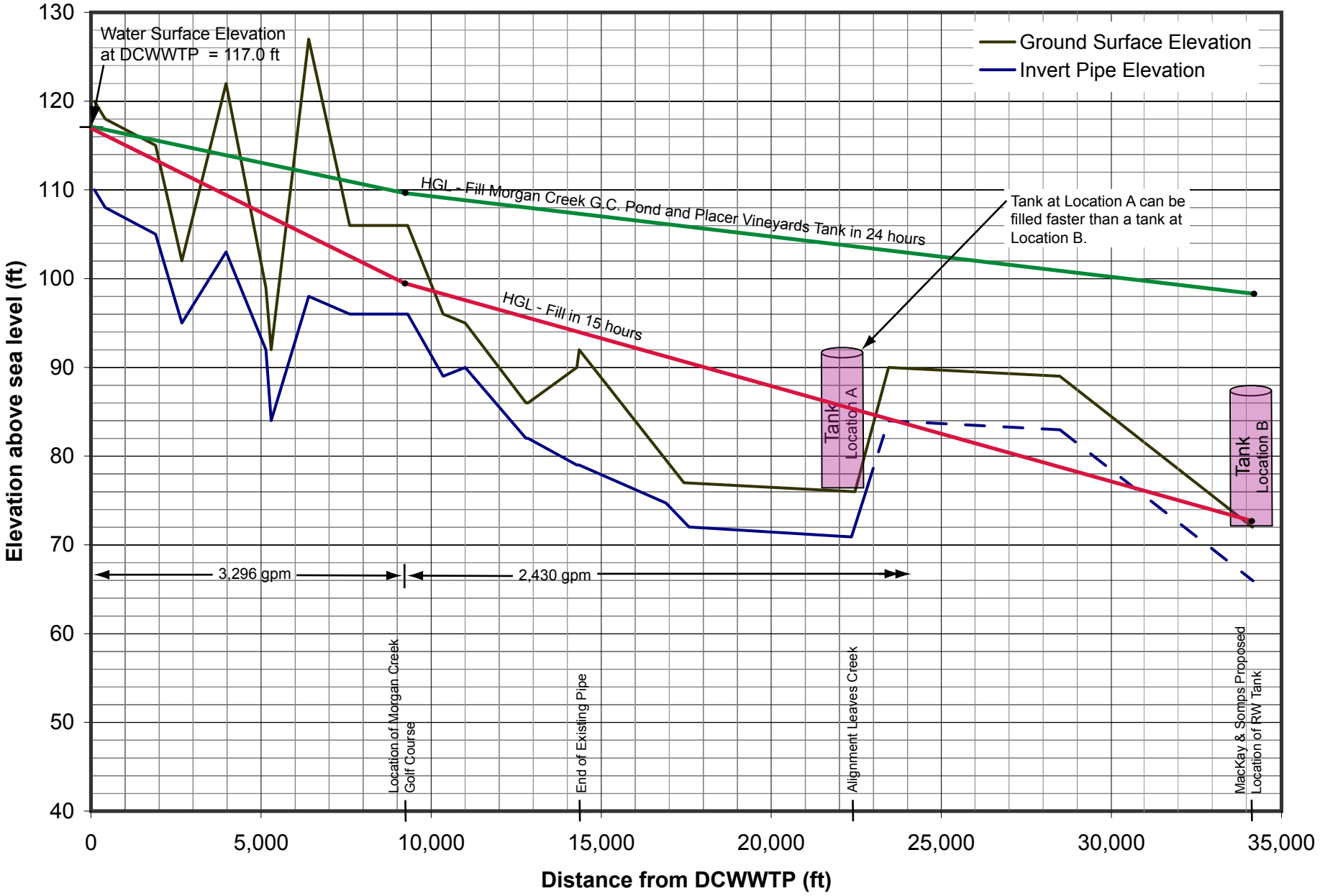
Proportional Flow to Creek Customers

		7,979,902	gpd 4,747,168	gpd 1,103,689 0.14	gpd 2,876,213 0.36	gpd 4,000,000 0.50					
Hour	Effluent Flow into Chlorine Contact Basin (gal)	RW Pumped to North & South Zone (gal)	Flow in 24" RW Line (gal)	Recycled Water to Cherry Island (gal)	Recycled Water to Gibson Ranch (gal)	Flow to meet min. Fish and Game Req. (gal)	Excess flow in Creek (gal)	Total Flow Down the Creek (gal)	Flow Leaving Plant into distribution system (gal/hr)	Flow Leaving Plant (gal/min)	Supply and Demand Check
6:00	369,449	32,500	197,799				139,150	139,150	230,299	3,838	0
7:00	348,822	32,500	197,799				118,523	118,523	230,299	3,838	0
8:00	377,171	32,500	197,799				146,873	146,873	230,299	3,838	0
9:00	469,807	32,500	197,799	33,126	86,326	120,056	0	239,508	230,299	3,838	0
10:00	600,326	32,500	197,799	51,178	133,370	185,480	0	370,027	230,299	3,838	0
11:00	684,109	32,500	197,799	62,766	163,568	227,477	0	453,811	230,299	3,838	0
12:00	855,029	32,500	197,799	86,406	225,173	313,152	0	624,730	230,299	3,838	0
13:00	885,909	32,500	197,799	90,677	236,303	328,631	0	655,610	230,299	3,838	0
14:00	837,924	32,500	197,799	84,040	219,008	304,578	0	607,625	230,299	3,838	0
15:00	915,284	32,500	197,799	94,739	246,891	343,355	0	684,985	230,299	3,838	0
16:00	885,752	32,500	197,799	90,655	236,246	328,552	0	655,453	230,299	3,838	0
17:00	847,448	32,500	197,799	85,357	222,440	309,352	0	617,149	230,299	3,838	0
18:00	795,194	32,500	197,799	78,130	203,607	283,159	0	564,896	230,299	3,838	0
19:00	979,819	32,500	197,799	103,665	270,151	375,704	0	749,521	230,299	3,838	0
20:00	1,101,273	32,500	197,799	120,463	313,927	436,584	0	870,974	230,299	3,838	0
21:00	1,105,670	209,125	197,799	96,643	251,851	350,253	0	698,746	406,924	6,782	0
22:00	1,051,258	209,125	197,799				644,335	644,335	406,924	6,782	0
23:00	821,379	209,125	197,799				414,456	414,456	406,924	6,782	0
0:00	829,989	209,125	197,799				423,065	423,065	406,924	6,782	0
1:00	718,996	209,125	197,799				312,072	312,072	406,924	6,782	0
2:00	591,425	209,125	197,799				184,502	184,502	406,924	6,782	0
3:00	526,866	209,125	197,799				119,943	119,943	406,924	6,782	0
4:00	447,466	209,125	197,799				0	0	406,924	6,782	0
5:00	395,851	209,125	197,799				0	0	406,924	6,782	-11,073
Totals	**17,442,217**	**2,369,625**	**4,747,168**	**1,077,844**	**2,808,860**	**3,906,332**	**2,502,918**	**10,295,954**			

Attachment B

24-inch Gravity Line Hydraulic Analysis

Hydraulic Analysis of 24" RW Pipe from DCWWTP to Placer Vineyards Recycled Water Tank



Attachment C

Detailed Cost Analysis

Preliminary Construction Cost Estimate for
Recycled Water System Evaluation Improvements
Alternative A

Project No.	Capital Construction Item	Size	Length	Unit Cost[1]	OH Factor[2]	Total Amount
1	18" FM Converted for RW Use from PGWWTP	18 in.	9,700 ft			n/a
1 Total			**9,700 ft**			
2	8" FM Converted for RW Use	8 in.	8,900 ft			n/a
2 Total			**8,900 ft**			
3	30" FM Converted for RW Use South of NZPS	30 in.	19,600 ft			n/a
3 Total			**19,600 ft**			
4	Creekview Pipeline	24 in.	3,300 ft	192 $/LF	1.625	$ 1,029,600
4 Total			**3,300 ft**			**$ 1,030,000**
5	Creekview to Curry Creek North	24 in.	4,600 ft	192 $/LF	1.625	$ 1,435,200
	Curry Creek North to Regional University	24 in.	2,100 ft	192 $/LF	1.625	$ 655,200
	Regional Univ. to Curry Creek S. & Sierra Vista	24 in.	8,100 ft	192 $/LF	1.625	$ 2,527,200
5 Total			**14,800 ft**			**$ 4,618,000**
6	Placer Vineyards Pipeline	24 in.	4,900 ft	192 $/LF	1.625	$ 1,528,800
6 Total			**4,900 ft**			**$ 1,529,000**
7	North from PGWWTP to "Tee"	30 in.	1,400 ft	240 $/LF	1.625	$ 546,000
	Pipeline from "Tee" to Placer Ranch PS	16 in.	5,800 ft	128 $/LF	1.625	$ 1,206,400
	From Placer Ranch Pipeline to 30” RW Stub	16 in.	1,500 ft	128 $/LF	1.625	$ 312,000
7 Total			**8,700 ft**			**$ 2,065,000**
8	DCWWTP Pump Station Improvements (1-50 HP pump)	1,900 gpm	n/a	$60,000	1.625	$ 97,500
8 Total						**$ 98,000**
9	North Zone Pump Station Improvements (1-50 HP pump)	950 gpm	n/a	$35,000	1.625	$ 56,900
9 Total						**$ 57,000**
10	PGWWTP Pump Station Improvement (3-250 HP pumps)	15,360 gpm	n/a	$375,000	1.625	$ 609,400
10 Total						**$ 610,000**
11	Addition of 30" Pipe at PGWWTP for Maximum Flow Conveyance	30 in.	1,700 ft	360 $/LF	1.625	$ 994,500
11 Total			**1,700 ft**			**$ 995,000**
Grand Total			**71,600 ft**			**$ 11,002,000**

Notes:

1 Unit costs based upon a $8/LF-in diameter for rural areas (Urban Growth Areas) and $12/LF-in diameter for urban areas (existing roadway or paving)

2 An overhead markup of 62.5% was applied based on a 25% engineering and administration factor plus a 30% construction cost contingency to calculate the capital cost. Hence, for budgeting purposes, it is assumed that the contingency and project implementation multiplier is 1.625 (1.00 x 1.25 x 1.30 = 1.625)

Preliminary Construction Cost Estimate for
Recycled Water System Evaluation Improvements
Alternative B

Project No.	Capital Construction Item	Size	Length	Unit Cost[1]	OH Factor[2]	Total Amount
1	18" FM Converted for RW Use from PGWWTP	18 in.	9,700 ft			n/a
1 Total			**9,700 ft**			
2	8" FM Converted for RW Use	8 in.	8,900 ft			n/a
2 Total			**8,900 ft**			
3	30" FM Converted for RW Use South of NZPS	30 in.	19,600 ft			n/a
3 Total			**19,600 ft**			
4	Creekview Pipeline	24 in.	3,300 ft	192 $/LF	1.625	$ 1,029,600
4 Total			**3,300 ft**			**$ 1,030,000**
5	Creekview to Curry Creek North	24 in.	4,600 ft	192 $/LF	1.625	$ 1,435,200
	Curry Creek North to Regional University	24 in.	2,100 ft	192 $/LF	1.625	$ 655,200
	Regional Univ. to Curry Creek S. & Sierra Vista	24 in.	8,100 ft	192 $/LF	1.625	$ 2,527,200
5 Total			**14,800 ft**			**$ 4,618,000**
6	Placer Vineyards to 24" Gravity Line	24 in.	19,200 ft	192 $/LF	1.625	$ 5,990,400
6 Total			**19,200 ft**			**$ 5,991,000**
7	North from PGWWTP to "Tee"	30 in.	1,400 ft	240 $/LF	1.625	$ 546,000
	Pipeline from "Tee" to Placer Ranch PS	16 in.	5,800 ft	128 $/LF	1.625	$ 1,206,400
	From Placer Ranch Pipeline to 30” RW Stub	16 in.	1,500 ft	128 $/LF	1.625	$ 312,000
7 Total			**8,700 ft**			**$ 2,065,000**
8	DCWWTP Pump Station Improvements (1-50 HP pump)	1,900 gpm	n/a	$60,000	1.625	$ 97,500
8 Total						**$ 98,000**
9	North Zone Pump Station Improvements (1-50 HP pump)	950 gpm	n/a	$35,000	1.625	$ 56,900
9 Total						**$ 57,000**
10	PGWWTP Pump Station Improvement (2-250 HP pumps)	10,240 gpm	n/a	$250,000	1.625	$ 406,300
10 Total						**$ 407,000**
11	Addition of 30" Pipe at PGWWTP for Maximum Flow Conveyance	30 in.	1,700 ft	360 $/LF	1.625	$ 994,500
11 Total			**1,700 ft**			**$ 995,000**
Grand Total			**85,900 ft**			**$ 15,261,000**

Notes:

1 Unit costs based upon a $8/LF-in diameter for rural areas (Urban Growth Areas) and $12/LF-in diameter for urban areas (existing roadway or paving)

2 An overhead markup of 62.5% was applied based on a 25% engineering and administration factor plus a 30% construction cost contingency to calculate the capital cost. Hence, for budgeting purposes, it is assumed that the contingency and project implementation multiplier is 1.625 (1.00 x 1.25 x 1.30 = 1.625)

Preliminary Construction Cost Estimate for
Recycled Water System Evaluation Improvements
Alternative C

Project No.	Capital Construction Item	Size	Length	Unit Cost[1]	OH Factor[2]	Total Amount
1	18" FM Converted for RW Use from PGWWTP	18 in.	9,700 ft			n/a
1 Total			**9,700 ft**			
2	8" FM Converted for RW Use	8 in.	8,900 ft			n/a
2 Total			**8,900 ft**			
3	30" FM Converted for RW Use South of NZPS	30 in.	19,600 ft			n/a
3 Total			**19,600 ft**			
4	Creekview Pipeline	24 in.	3,300 ft	192 $/LF	1.625	$ 1,029,600
4 Total			**3,300 ft**			**$ 1,030,000**
5	Creekview to Curry Creek North	24 in.	4,600 ft	192 $/LF	1.625	$ 1,435,200
	Curry Creek North to Regional University	24 in.	2,100 ft	192 $/LF	1.625	$ 655,200
	Regional Univ. to Curry Creek S. & Sierra Vista	24 in.	2,300 ft	192 $/LF	1.625	$ 717,600
5 Total			**9,000 ft**			**$ 2,808,000**
6	Placer Vineyards Pipeline	24 in.	9,100 ft	192 $/LF	1.625	$ 2,839,200
6 Total			**9,100 ft**			**$ 2,840,000**
7	North from PGWWTP to "Tee"	30 in.	1,400 ft	240 $/LF	1.625	$ 546,000
	Pipeline from "Tee" to Placer Ranch PS	16 in.	5,800 ft	128 $/LF	1.625	$ 1,206,400
7 Total			**7,200 ft**			**$ 1,753,000**
8	DCWWTP Pump Station Improvements (1-50 HP pump)	1,900 gpm	n/a	$60,000	1.625	$ 97,500
8 Total						**$ 98,000**
9	North Zone Pump Station Improvements (1-50 HP pump)	950 gpm	n/a	$35,000	1.625	$ 56,900
9 Total						**$ 57,000**
10	PGWWTP Pump Station Improvement (3-250 HP pumps)	15,360 gpm	n/a	$375,000	1.625	$ 609,400
10 Total						**$ 610,000**
11	Sun City Pipeline from 18" Converted Force Main	12 in.	2,700 ft	144 $/LF	1.625	$ 631,800
11 Total			**2,700 ft**			**$ 632,000**
12	Addition of 30" Pipe at PGWWTP for Maximum Flow Conveyance	30 in.	1,700 ft	360 $/LF	1.625	$ 994,500
12 Total			**1,700 ft**			**$ 995,000**
Grand Total			**71,200 ft**			**$ 10,823,000**

Notes:

1 Unit costs based upon a $8/LF-in diameter for rural areas (Urban Growth Areas) and $12/LF-in diameter for urban areas (existing roadway or paving)

2 An overhead markup of 62.5% was applied based on a 25% engineering and administration factor plus a 30% construction cost contingency to calculate the capital cost. Hence, for budgeting purposes, it is assumed that the contingency and project implementation multiplier is 1.625 (1.00 x 1.25 x 1.30 = 1.625)

Attachment D

Urban Growth Area Cost Details

Urban Growth Area Individual Recycled Water Pipeline Costs

Urban Growth Areas July Peak Day Demands and Pipeline Requirements

Segment	Location	Length (ft)	Diameter (in)	Upsize Diameter	Total Downstream Demand (mgd)	Placer Ranch Demand (mgd)	Creekview & Panhandle Demand (mgd)	Curry Creek North Demand (mgd)	Regional University Demand (mgd)	Curry Creek South Demand (mgd)	Sierra Vista Demand (mgd)	Placer Vineyards Pipe Demand (mgd)
1	PGWWTP to "Tee"	1,389	8	30	12.881	3.340	1.250	0.778	1.720	3.333	2.460	0
2	"Tee" to Creekview	3,292	8	24	9.541	0	1.250	0.778	1.720	3.333	2.460	0
3	Creekview to Curry Creek North	4,582	8	24	8.291	0	0	0.778	1.720	3.333	2.460	0
4	Curry Creek North to Regional Univ.	2,097	12	24	7.513	0	0	0	1.720	3.333	2.460	0
5	Regional Univ to Curry Creek South and Sierra Vista	4,708	24	n/a	5.793	0	0	0	0	3.333	2.460	0
6	"Tee" to Placer Ranch	5,789	16	n/a	3.340	3.340	0	0	0	0	0	0
7	Placer Vineyards Pipeline	9,100	24	n/a	3.443	0	0	0	0	0	0	3.500

UGAs Individual Costs to Install Recycled Water Pipeline *

						July Peak Day Recycled Water Demand in mgd							
						3.340	1.250	0.778	1.720	3.333	2.460		
Segment	Location	Length (ft)	Diameter (in)	Segment Cost	Cost to Upsize to Necessary Diameter	Placer Ranch Pipe Cost	Creekview Pipe Cost	Curry Creek North Pipe Cost	Regional University Pipe Cost	Curry Creek South Pipe Cost	Sierra Vista Pipe Cost	Placer Vineyards Pipe Cost	**Total Cost of Pipe Segment from UGAs**
1	PGWWTP to "Tee"	1,389	8	$88,896	$244,464	$86,442	$32,351	$20,125	$44,515	$86,261	$63,667	$0	**$333,360**
2	"Tee" to Creekview	3,292	8	$210,688	$421,376	$0	$210,688	$39,522	$87,420	$169,402	$125,031	$0	**$632,064**
3	Creekview to Curry Creek North	4,582	8	$293,248	$586,496	$0	$0	$293,248	$134,270	$260,188	$192,038	$0	**$879,744**
4	Curry Creek North to Regional Univ.	2,097	12	$201,312	$201,312	$0	$0	$0	$201,312	$115,825	$85,487	$0	**$402,624**
5	Regional Univ to Curry Creek South and Sierra Vista	4,708	16	$903,936	$0	$0	$0	$0	$0	$520,079	$383,857	$0	**$903,936**
6	"Tee" to Placer Ranch	5,789	16	$740,992	$0	$740,992	$0	$0	$0	$0	$0	$0	**$740,992**
7	Placer Vineyards Pipeline	9,100	24	$1,747,200	$0	$0	$0	$0	$0	$0	$0	$1,747,200	**$1,747,200**
	Total	**30,957**		**$4,186,272**	**$1,453,648**	**$827,434**	**$243,039**	**$352,895**	**$467,518**	**$1,151,755**	**$850,080**	**$1,747,200**	**$5,639,920**

* Costs do not include contingencies

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Appendix K – Regional Wastewater 2020 Systems Evaluation Report

The South Placer Regional Wastewater 2020 Systems Evaluation Report can be accessed at the link below.

https://cdnsm5-hosted.civiclive.com/UserFiles/Servers/Server_7964838/File/Government/Departments/Environmental%20Utilities/SPWA/Systems%20Evaluation%20Report%20Dec2020%20Final_web.pdf

Appendix L – 2015 USBR Record of Decision

RECLAMATION

Managing Water in the West

Record of Decision

Central Valley Project Municipal and Industrial Water Shortage Policy

Prepared by
United States Department of the Interior
Bureau of Reclamation
Mid Pacific Region

U.S. Department of the Interior
Bureau of Reclamation
Sacramento, California

November 2015

Mission Statements

The mission of the Department of the Interior is to protect and provide access to our Nation's natural and cultural heritage and honor our trust responsibilities to Indian Tribes and our commitments to island communities.

The mission of the Bureau of Reclamation is to manage, develop, and protect water and related resources in an environmentally and economically sound manner in the interest of the American public.

Record of Decision

Central Valley Project Municipal and Industrial Water Shortage Policy

Recommended:

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Regional Resources Manager
Mid-Pacific Region

Date Nov. 4, 2015

Concur:

Anastasia T. Leigh
Regional Environmental Officer
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Date 11/9/2015

Approved:

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Date 11/13/15

Summary of Action

The Bureau of Reclamation (Reclamation) prepared the Central Valley Project (CVP) Municipal and Industrial (M&I) Water Shortage Policy (WSP) Environmental Impact Statement (EIS) to evaluate the potential impacts of CVP M&I WSP alternatives. The M&I WSP would be used by Reclamation to: 1) define water shortage terms and conditions for applicable CVP water service contractors, as appropriate; 2) determine the quantity of water made available to CVP water service contractors from the CVP that, together with the M&I water service contractors' drought water conservation measures and other non-CVP water supplies, would assist the M&I water service contractors in their efforts to protect public health and safety (PHS) during severe or continuing droughts; and 3) provide information to CVP water service contractors for their use in water supply planning and development of drought contingency plans. The alternatives evaluated in this EIS utilize different methodologies for allocating available CVP water supplies to CVP water service contractors during a Condition of Shortage[1]. This EIS evaluates potential impacts of the M&I WSP over a 20-year period, 2010 through 2030. Reclamation's decision is the adoption of an updated M&I WSP.

Background

In January 1993, following the adoption of the Central Valley Project Improvement Act (CVPIA), many CVP M&I water service contractors expressed concerns regarding future allocations of water supplies provided by the CVP. Reclamation subsequently initiated an effort to develop an M&I WSP that would be incorporated into long-term water service contracts during the contract renewal process implemented under the CVPIA. Involved stakeholders submitted language for the M&I WSP as part of several proposed policies. In September 2001, Reclamation released a Draft M&I WSP. Reclamation initiated the preparation of an Environmental Assessment (EA) which included stakeholder input and consideration and evaluation of alternative policies developed in 1993, 1996-1997, and 2000-2001. The M&I WSP EA was released in October 2005 and a Finding of No Significant Impact was signed in December 2005. The M&I WSP currently being implemented by Reclamation is the 2001 Draft M&I WSP, as amended by Alternative 1B from the 2005 EA. Because the assumptions supporting the 2005 EA became outdated and due to significant changes in the Sacramento-San Joaquin River Delta (Delta) and CVP/State Water Project (SWP) operations, Reclamation decided in 2009 to

[1] "Condition of Shortage" is defined in Reclamation water service contracts as "...a condition respecting the Project during any Year *(March 1 through February of the following year)* such that the Contracting Officer is unable to deliver sufficient water to meet the Contract Total".

undertake the M&I WSP EIS to provide an updated M&I WSP that best recognizes the needs of various segments of the water user community and how those needs could be addressed under Conditions of Shortage.

Decision

Reclamation's decision is to implement Alternative 4, Updated M&I WSP (Preferred Alternative). This alternative comprises the updated M&I WSP developed by Reclamation with stakeholder input received during the M&I WSP stakeholder workshops held between May 2010 and January 2011, with clarifying revisions made to address comments from stakeholders received after Stakeholder Workshop 4 (November 2010) and to address public comments received on the Draft EIS (March 2015). The Updated M&I WSP will apply to the CVP water service contractors noted in Table 1. These water service contractors generally comprise those whose contracts currently reference the M&I WSP and those with a water service contract that is expected to reference the updated policy. These water users are located throughout the Sacramento River Valley, San Joaquin River Valley, Tulare Lake Region, and San Francisco Bay/Central Coast area.

Table 1. Water Service Contractors Subject to the Updated M&I WSP

General Geographical Region	CVP Division	Water Service Contractors	M&I	Ag[1]
North of Delta	Shasta and Trinity River	Bella Vista Water District	X	X
		Centerville Community Services District	X	-
		City of Redding	X	-
		City of Shasta Lake	X	-
		Clear Creek Community Services District	X	X
		Mountain Gate Community Services District	X	-
		Shasta Community Services District	X	-
		Shasta County Water Agency	X	-
		United States (U.S.) Forest Service (Shasta)	X	-
	Sacramento River	4-M Water District	X	X
		Colusa County Water District	X	X
		Corning Water District	X	X
		Cortina Water District	X	X
		County of Colusa	X	X
		County of Colusa (Stonyford)	X	-
		Davis Water District	X	X
		Dunnigan Water District	X	X
		Elk Creek Community Services District	X	-
		Glenn Valley Water District	X	X
		Glide Water District	X	X
		Holthouse Water District	X	X

General Geographical Region	CVP Division	Water Service Contractors	M&I	Ag[1]
North of Delta	Sacramento River	Kanawha Water District	X	X
		Kirkwood Water District	X	X
		La Grande Water District	X	X
		Myers-Marsh Mutual Water Company	X	X
		Orland-Artois Water District	X	X
		Proberta Water District	X	X
		Stony Creek Water District	X	X
		Thomes Creek Water District	X	X
		U.S. Forest Service (Salt Creek)	X	-
		Westside Water District	X	X
		Whitney Construction, Incorporated	X	-
	American River	City of Roseville	X	-
		East Bay Municipal Utility District	X	-
		El Dorado Irrigation District	X	-
		Placer County Water Agency	X	-
		Sacramento County Water Agency	X	-
		Sacramento Municipal Utility District	X	-
		San Juan Water District	X	-
	Delta	Banta-Carbona Irrigation District	X	X
		Byron-Bethany Irrigation District	X	X
		City of Tracy	X	X
		Coelho Family Trust	X	X
		Contra Costa Water District	X	-
		Del Puerto Water District	X	X
		Eagle Field Water District	X	X
		Fresno Slough Water District	X	X
		James Irrigation District	X	X
		Laguna Water District	X	X
		Mercy Springs Water District	X	X
		Oro Loma Water District	X	X
		Pajaro Valley Water Management Agency, Westlands Water District	X	X
		Patterson Irrigation District	X	X
		Reclamation District No. 1606	X	X
		Tranquillity Irrigation District	X	X
		Tranquillity Public Utility District	X	X
		U.S. Department of Veteran Affairs	X	-
		West Side Irrigation District	X	X
		West Stanislaus Irrigation District	X	X
		Westlands Water District Distribution Districts	X	X
South of Delta	West San Joaquin	City of Avenal	X	-
		City of Coalinga	X	-
		City of Huron	X	-
		Pacheco Water District	X	X
		Panoche Water District	X	X
		San Luis Water District	X	X
		State of California	X	-

General Geographical Region	CVP Division	Water Service Contractors	M&I	Ag[1]
South of Delta	West San Joaquin	Westlands Water District	X	X
	San Felipe	San Benito County Water District	X	X
		Santa Clara Valley Water District	X	X
	Cross Valley Canal	County of Fresno	X	X
		County of Tulare	X	X
		Hills Valley Irrigation District (includes Rag Gulch Water District)	X	X
		Kern-Tulare Water District	X	X
		Lower Tule River Irrigation District	-	X
		Pixley Irrigation District	X	X
		Tri-Valley Water District	X	X

Note:
[1] Ag = Agricultural water service contractor

Alternatives Considered

No Action Alternative

The No Action Alternative represents continued implementation of the current Draft M&I WSP. This existing draft policy is currently guiding Reclamation's allocation of CVP water to agricultural and M&I water service contractors during Conditions of Shortage and would continue if none of the action alternatives were selected.

During Conditions of Shortage when the CVP is unable to deliver sufficient water to meet the CVP water service contractors' Contract Total, M&I water service contractors allocations are maintained at 100 percent of their Contract Total as the agricultural water service contractor allocations are reduced to 75 percent of their Contract Total in incremental steps. Then, M&I water service contractor allocations are reduced to 75 percent of their historical use in incremental steps as agricultural water service contractor allocations are reduced to 50 percent of their Contract Total. The M&I water service contractor allocations are maintained at 75 percent of historical use until agricultural water service contractor allocations are reduced in incremental steps to 25 percent of Contract Total. M&I water service contractor allocations are then reduced in incremental steps to 50 percent of historical use until agricultural water service contract allocations are reduced in incremental steps from 25 percent to zero.

In years when the M&I water service contractor allocations are less than 75 percent of historical use, Reclamation would attempt to provide the amount of PHS need unmet by contractors' CVP allocation and other available non-CVP

supplies, up to 75 percent of the historical use, subject to the availability of CVP water supplies. There are some years in which allocations to agricultural water service contractors are at or near zero. In those years, CVP water deliveries for unmet PHS need to M&I water service contractors may not be fully realized. Water made available to M&I water service contractors may be reduced below 75 percent of historical use and below the unmet PHS needs when CVP water is not available.

Action Alternatives

The alternatives that moved forward for more detailed analysis in the EIS were those that responded to the National Environmental Policy Act (NEPA) purpose and need, minimized negative effects, were potentially feasible, and represented a range of reasonable alternatives. As a result of initial alternatives screening, four action alternatives were selected to move forward for analysis in the EIS (in addition to the No Action Alternative). Table 2 presents the alternatives analyzed in the EIS. Analysis of these alternatives will provide the information needed for Reclamation to make a decision.

Table 2. Alternatives Analyzed in the EIS

Alternative Number	Alternative Name	Description
Alternative 1	No Action Alternative	Represents a projection of current conditions to the most reasonable future conditions that could occur during the life of the proposed action without any action alternative being implemented. The No Action Alternative represents continued allocation of water in the same way that Reclamation currently allocates CVP water to agricultural and M&I water service contractors during Conditions of Shortage, consistent with the 2001 Draft M&I WSP, as modified by Alternative 1B of the 2005 EA.
Alternative 2	Equal Agricultural and M&I Allocation	Provides no preference for either agricultural or M&I contractors. M&I and agricultural water service contractors receive equal allocation percentages during a Condition of Shortage.
Alternative 3	Full M&I Allocation Preference	M&I water service contractors receive 100% of their Contract Total until CVP supplies are not available to meet those demands. Agricultural allocations are reduced as needed to maintain 100% allocations to M&I contractors.
Alternative 4	Updated M&I WSP (Preferred Alternative)	Similar to Alternative 1 but modified to update the definition of unconstrained years used in calculating historical use. Attempts to provide unmet PHS need, but without a guarantee. Provides implementation guidelines and procedures.
Alternative 5	M&I Contractor Suggested WSP	Similar to Alternative 4 except attempts to provide a greater quantity of unmet PHS need.

Under Alternative 2, Equal Agricultural and M&I Allocation, M&I water service contractors would receive the same allocation, as a percentage of Contract Total, as the agricultural water service contractors. This means that in years when the CVP water supplies are not adequate to provide water to all water service contractors, agricultural and M&I water service contractor allocations would be reduced by the same percentage. This allocation methodology would provide a larger volume of CVP water to agricultural water service contractors than the No Action Alternative, as there would be no reductions to agricultural contractors to provide a larger volume of CVP water to M&I water service contractors. Deliveries to both north of the Delta and south of Delta M&I contractors would be lower than under the No Action Alternative in order to provide an equal allocation to agricultural water service contractors.

Under Alternative 3, Full M&I Allocation Preference, M&I water service contractors would receive a higher allocation as compared to the No Action Alternative and other action alternatives. Under this alternative, Reclamation would attempt to provide a 100 percent allocation to M&I water service contractors during a Condition of Shortage, to the extent that adequate CVP water supplies are available. This would be achieved by reducing allocations to agricultural water service contractors as needed to maximize the frequency of 100 percent allocations to the M&I water service contractors. This allocation methodology would provide the lowest volume of CVP water to agricultural water service contractors compared to the No Action and other action alternatives. Alternative 3 would have no provisions for unmet PHS needs that would be made available by Reclamation from CVP water supplies.

Alternative 4, Updated M&I WSP, is similar to the No Action Alternative. This alternative comprises the M&I WSP developed by Reclamation with stakeholder input received during the M&I WSP stakeholder workshops held between May 2010 and January 2011, with clarifying revisions made to address comments from stakeholders received after Stakeholder Workshop 4 and to address public comments received on the Draft EIS. Reclamation used this feedback to identify elements of the 2001 Draft M&I WSP (represented in the No Action Alternative) that could be improved. The major modifications made to the 2001 Draft M&I WSP that are reflected in the Updated M&I WSP include the following:

- Reclamation deleted the reference to 1996 M&I Water Rate book.
- At the M&I water service contractors' request, Reclamation modified the method that would be used to adjust an M&I water service contractor's historical use.
- Reclamation expanded the definitions of the key terms and also defined terms not previously defined, to provide greater clarity on the intent and requirements of the M&I WSP's key terms and conditions.

- Term and Condition 1 was revised to remove the sentence stating that Reclamation intended contractors to use their non-CVP supplies first and rely on CVP water as a supplemental supply. Instead, Reclamation expects water service contractors, at their discretion, to use CVP water in conjunction with their other non-CVP supplies to meet demand during all years, including years where a Condition of Shortage exists.

- Clarified M&I allocation for contracts with both irrigation and M&I use which do not set forth individual Contract Totals for each use.

Alternative 5, M&I Contractor Suggested WSP, is similar to Alternative 4, Updated M&I WSP. This alternative was developed and recommended by several M&I water service contractors who participated in the M&I WSP workshops held between May 2010 and January 2011. Alternative 5 attempts to provide an increased quantity of CVP water allocated to M&I water service contractors to supply the unmet portion of the PHS needs during a Condition of Shortage. This would be achieved by increasing the upper limit for consideration of additional allocations to assist in meeting unmet PHS need from an initial allocation of 75 percent of historical use (under Alternative 4) to an initial allocation of 95 percent of historical use (under Alternative 5).

Environmentally Preferable Alternative

Section 1505.2(b) of NEPA requires that, in cases where an EIS has been prepared, the Record of Decision must identify all alternatives that were considered, specifying the alternative or alternatives which were considered to be environmentally preferable. The environmentally preferable alternative is the alternative that will promote the national environmental policy as expressed in NEPA's Section 101. Ordinarily, this means the alternative that causes the least damage to the biological and physical environment; it also means the alternative which best protects, preserves, and enhances historic, cultural, and natural resources (Council on Environmental Quality 40 Most Asked Questions number 6(a)). It is implicit in NEPA that the environmentally preferable alternative must be reasonable and feasible to implement.

In choosing the environmentally preferable alternative, Reclamation considered impacts to all resources. On balance, Alternative 1, No Action Alternative, and Alternative 4, Updated M&I WSP, would have the least environmental effects associated with implementing a CVP M&I WSP during a Condition of Shortage. Alternative 4 would have no environmental impacts compared to the No Action Alternative. Alternatives 2 and 3 have greater environmental effects to water quality, groundwater resources, air quality, geology and soils, and agricultural resources than Alternative 4. Alternative 5 would have small but greater effects to groundwater resources and air quality compared to Alternative 4.

Basis of Decision

Reclamation's decision to move forward is based on how the alternatives meet the project's purpose and need and the magnitude of environmental effects. While the alternatives would affect different resources in different ways, Alternative 4 provides Reclamation with the greatest degree of flexibility to address CVP water service contractors' needs during Conditions of Shortage while recognizing that CVP deliveries are subject to the amount of CVP water available and cannot be guaranteed, and provides clarity to the terms, conditions, and procedures of the CVP M&I WSP. Additionally, Alternative 4 has no environmental effects compared to the No Action Alternative; therefore, no mitigation measures are necessary.

Purpose and Need

The purpose of updating the 2001 Draft M&I WSP, as amended, is to provide detailed, clear, and objective guidelines for the allocation of available CVP water supplies to CVP water service contractors during a Condition of Shortage. The update to the M&I WSP is needed by water managers and CVP water service contractors to help them better plan for and manage available CVP water supplies, and to better integrate the use of CVP water with the use of other available non-CVP water supplies. The update to the M&I WSP is also needed to clarify certain terms and conditions with regard to the applicability and implementation process of the M&I WSP.

The updated M&I WSP would be used by Reclamation to:

- Define water shortage terms and conditions for applicable CVP water service contracts, as appropriate;
- Determine the quantity of water made available to CVP water service contractors from the CVP, that together with the M&I water service contractors' drought water conservation measures and other non-CVP water supplies, would assist the M&I water service contractors in their efforts to protect PHS during severe or continuing droughts; and
- Provide information to CVP water service contractors for their use in water supply planning and development of drought contingency plans.

All action alternatives meet the purpose and need, but the No Action Alternative does not meet the purpose and need.

Environmental Issues Evaluated

During March 2011, public scoping sessions on the development of the CVP M&I WSP EIS were held in Sacramento, Willows, Fresno, and Oakland, California. Key issues raised during the public scoping process that are applicable for inclusion in the EIS are listed below.

- The final M&I WSP should be a single document that clearly states how Reclamation interprets and implements the M&I WSP.
- Any additional water provided to M&I water service contractors is viewed as water "taken" from agricultural contractors.
- M&I water service contractors would like a guaranteed quantity of CVP water to meet PHS needs and do not want their use of non-CVP supplies to count against their deliveries of CVP water in Conditions of Shortage.
- The analysis should use an appropriate baseline given ongoing regulatory issues regarding CVP/SWP operations.
- The effects analysis should include a cumulative impact discussion in the context of other reasonably foreseeable past, present, and future actions potentially affecting the allocation of CVP water, including the Bay Delta Conservation Plan.
- The EIS should analyze the impacts to water service contractors who have limited access to alternative water supplies and to "mixed use" contractors.
- The M&I WSP EIS should specifically state the agencies that are and are not affected by the policy, and state that the M&I WSP will apply equally to all M&I contractors, including the American River Division contractors.
- Certain American River Division contractors (City of Roseville, Placer County Water Agency, Sacramento Municipal Utility District, and San Juan Water District) disagree with Reclamation's interpretation of Term 14 of State Water Resources Control Board Decision 893 and believe it should provide them with additional supply reliability beyond what the M&I WSP provides in their water service contracts.

The alternatives were evaluated to address issues raised and potential impacts to the range of environmental and socioeconomic resources relevant to NEPA. The action alternatives have the potential to result in impacts to several resources, including surface water, water quality, groundwater, geology and soils, air quality, greenhouse gases (GHGs) and climate change, agricultural

resources, socioeconomics, and power[2]. The differences between the action alternatives for these impacts include:

- *Surface Water*: Alternative 2 would increase CVP deliveries to agricultural water service contractors and decrease CVP deliveries to M&I water service contractors, compared to the No Action Alternative. Alternative 3 would decrease CVP deliveries to agricultural water service contractors and increase CVP deliveries to M&I water service contractors, compared to the No Action Alternative. Alternatives 4 and 5 would have no change in CVP deliveries compared to the No Action Alternative. PHS needs would be met for the Sacramento River Division under all alternatives. The American River, Delta, and San Felipe Divisions would have unmet PHS needs under Alternative 2. There would be unmet PHS needs for the Shasta/Trinity River and West San Joaquin Divisions under Alternatives 2, 3, and 4. The Cross Valley Canal Unit would have unmet PHS needs under all alternatives.

  There are only relatively small to no changes to Shasta and Trinity lakes storages, upper Sacramento River flows, and Lake Oroville storage as a result of action alternatives, which do not result in substantial impacts. The effects of changes to other reservoirs' storage and rivers' flows are addressed under other appropriate resource areas (e.g., water quality, recreation, flood hydrology, water quality, etc.).

- *Water Quality:* Changes in CVP deliveries could affect the salinity and bromide concentrations in the Delta Division. Alternative 5 would have only very minimal changes in reservoir or river flows compared to the No Action Alternative that would not affect salinity and bromide concentrations. Alternatives 2 and 3 would cause an increase in electrical conductivity which could affect water quality in the Delta Division.

- *Groundwater*: A reduction in CVP deliveries to agricultural water service contractors could cause these contractors to supplement their surface water supplies through increased groundwater pumping. Alternative 2 would reduce agricultural groundwater pumping in all regions due to increases in CVP deliveries to agricultural water service contractors, while Alternative 3 would increase agricultural groundwater pumping in all regions due to decreases in CVP deliveries to agricultural contractors. M&I water service contractors may need to make use of all their available groundwater supplies under Alternative 2 in order to meet PHS needs in certain years. Alternatives 4 and 5 would have little to no change in groundwater pumping by CVP water service contractors compared to the No Action Alternative.

[2] It was determined that no impacts or only minor impacts would occur to aquatic resources, terrestrial resources, environmental justice, cultural resources, Indian sacred sites, recreation, flood hydrology, and visual resources.

Increased pumping caused by change in deliveries to supplement supply shortages may cause groundwater level declines that could lead to land subsidence. Alternative 2 would cause a net increase in pumping that could potentially increase land subsidence in the San Francisco Bay/Central Coast region. Alternative 3 would cause a net increase in pumping that could potentially increase land subsidence in the Sacramento Valley, San Joaquin Valley, and Tulare Lake regions.

- *Geology and Soils:* Under Alternative 3, reduced CVP deliveries to agricultural water service contractors could indirectly lead to wind erosion if agricultural water service contractors implement crop idling to manage their water supplies.

- *Air Quality*: Increases in CVP deliveries to agricultural water service contractors under Alternative 2 would result in decreased pollutant emissions from reduced groundwater pumping. Decreases in CVP deliveries to agricultural water service contractors under Alternative 3 would result in increased pollutant emissions due to increased groundwater pumping. Under Alternative 3, the general conformity *de minimis* threshold would be exceeded in the San Joaquin Valley Air Basin. Alternatives 4 and 5 would have little to no changes compared to the No Action Alternative.

- *GHGs and Climate Change:* Changes in CVP deliveries to agricultural water service contractors would decrease GHG emissions under Alternative 2 and increase GHG emissions under Alternatives 3 and 5. Alternative 4 would have no change compared to the No Action Alternative.

- *Agricultural Resources*: Alternative 3 would reduce agricultural acreage primarily in the Tulare Lake Region, but minimally to other regions in the study area.

- *Socioeconomics*: Changes in CVP deliveries for CVP water service contractors would have differing effects for agricultural and M&I water service contractors in Alternatives 2 and 3. Generally, effects would be positive for agricultural water service contractors under Alternative 2 and negative under Alternative 3, while the opposite would be true for M&I water service contractors. Alternatives 4 and 5 would have no change compared to the No Action Alternative.

- Power: Changes in CVP deliveries may cause changes in power generation from hydroelectric power generation facilities by changing reservoir releases or by changing reservoir storage, as represented by changes in reservoir elevations. Alternative 2 and 3 would experience minimal reductions to the amount of power generated at the Folsom and Nimbus power plants and slight fluctuations in the amount of

power generated at San Luis Reservoir. Alternatives 4 and 5 would have no change compared to the No Action Alternative.

- *Indian Trust Assets*: Under Alternatives 2 and 3, the magnitudes of groundwater level fluctuations are very small compared to overall groundwater supplies and would not be substantial enough to create a noticeable change to water supply at existing wells near Indian Trust Asset sites. Therefore, Alternatives 2 and 3 would not interfere with the exercise of federally-reserved water rights and/or reduce the health of tribal members by decreasing water supplies. Alternatives 4 and 5 would have no change compared to the No Action Alternative, and would not result in impacts to Indian Trust Assets.

Section 7 of the Federal Endangered Species Act (ESA)

Reclamation coordinated with the U.S. Fish & Wildlife Service during development of the Draft EIS regarding the impact analysis on special status species and environmental commitments. Reclamation further coordinated with National Oceanic and Atmospheric Administration National Marine Fisheries Service in preparing the Final EIS. A full consultation under Section 7 of the ESA with U.S. Fish & Wildlife Service or National Oceanic and Atmospheric Administration National Marine Fisheries Service was determined not to be needed for this action because the potential impacts are within the range of impacts already observed under current operations of the CVP and are covered by the Biological Opinions on the Coordinated Long-Term Operations of the CVP and SWP.

Section 106 Compliance

Reclamation is responsible for complying with Section 106 of the National Historic Preservation Act. Alternative 4 would not result in the disturbance of land or require any construction activities; therefore, there are no impacts to cultural resources. Under Section 106 of the National Historic Preservation Act, Alternative 4 is the type of activity that does not have the potential to affect historic properties and there are no further obligations under Section 106 [36 Code of Federal Regulations Sec. 800.3(a)(1)].

Comments Received on the Final EIS

Reclamation's Notice of Availability of the Final EIS was published in the Federal Register on September 10, 2015, and the Environmental Protection Agency's Notice of Availability was published on September 18, 2015. The EIS was posted on Reclamation's website, and copies were distributed to those who requested a copy. A press release was released on September 10, 2015, and was sent to participants in public meetings and commenters on the Draft EIS.

Reclamation received comments from three entities after release of Final EIS. The commenters were: Somach Simmons & Dunn for Glenn-Colusa Irrigation District (Kelley Taber); East Bay Municipal Utility District (Michael Tognolini); and Santa Clara Valley Water District (Cindy Kao). These comments either reiterated comments previously provided during the public comment period, or supported Reclamation's choice of the Preferred Alternative. Reclamation had adequately addressed the previous comments in the Final EIS. The comments consisted of the following:

- Glenn-Colusa Irrigation District (GCID) did not agree that their comments on the Draft EIS were adequately addressed in Appendix I of the Final EIS. GCID was concerned that the M&I WSP's definition of PHS is too broad and would allow a greater amount of water than necessary for domestic use and essential public services to be included in the calculation, thereby overestimating system demands during Conditions of Shortage and influencing the allocation of water within the CVP system. Additionally, GCID was concerned that implementation of the M&I WSP could affect water supply reliability under their Settlement Contract. As described in the Final EIS, the determination of any additional CVP water supplied to M&I water service contractors during a Condition of Shortage to assist in meeting PHS needs would take into account a contractor's estimated PHS demand, as well as their non-CVP supplies available in that year, and, most importantly, the availability of CVP water in that year. Reclamation would closely review the data provided by an M&I water service contractor so that CVP water provided for PHS needs is estimated in accordance with California criteria and used appropriately during a Condition of Shortage. The Final EIS also states in Appendix B that Reclamation does not have discretion to determine water supply allocations to Sacramento River Settlement Contractors, San Joaquin River Exchange Contractors, certain named State Wildlife Areas and National Wildlife Refuges, and the privately owned/managed wetlands comprising the Grassland Resources Conservation District as identified under the CVPIA Section 3406(d). Water supply allocations for these water service contractors are determined annually based on the forecasted full natural inflow to Shasta Lake. CalSim II simulates

water supply allocations to these water service contractors based on inflow to Shasta Lake.

- East Bay Municipal Utility District (EBMUD) supports Reclamation's selection of Alternative 4 as the Preferred Alternative for the M&I WSP. However, EBMUD requested that their contractual historic use of 133,000 acre-feet (AF), per their Long Term Renewal Contract, be noted in the M&I WSP as an exception to the methodology used for calculating historical use. Reclamation, when applying the M&I WSP to EBMUD, would use EBMUD's contractual historic use of 133,000 AF as the basis for making adjustments for population growth, extraordinary water conservation measures, and use of non-CVP water supplies. But, Reclamation believes it inappropriate to specifically state or call out such an exception in the M&I WSP.

- Santa Clara Valley Water District (SCVWD) supports Reclamation's selection of Alternative 4 as the Preferred Alternative for the M&I WSP. SCVWD believes an adopted M&I WSP is critically important for water supply reliability in support of the communities and businesses in its service area.

Appendix M – Water Shortage Contingency Plan



WATER SHORTAGE CONTINGENCY PLAN

CITY OF ROSEVILLE CALIFORNIA

City of Roseville Water Shortage Contingency Plan

June 2026

Prepared by Water Works Engineers, LLC
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Table of Contents

Water Shortage Contingency Plan 1
1.1 Water Supply Reliability Analysis 1
1.1.1 Constraints on Water Supply 1
1.1.2 Drought Risk Assessment 3
1.1.3 Seismic Risk Analysis 4
1.2 Legal Authorities 4
1.3 Standard Water Shortage Levels 5
1.4 Annual Water Supply and Demand Assessment Procedures 5
1.5 Supply Augmentation and Operational Changes 14
1.6 Compliance and Enforcement 14
1.7 Financial Consequences 15
1.8 Plan Adoption, Submittal, and Availability 16

Tables

WSCP Table 1 Available Surface Water Supply Under Differing Hydrologic Conditions 2
WSCP Table 2 Near-Term Five-Year Drought Risk Assessment 3
WSCP Table 3 Long-Term Single and Five-Year Drought Risk Assessment 3
WSCP Table 4 Relation Between Standard Water Shortage Levels and Existing Stages 5
WSCP Table 5 Water Supply and Demand Assessment Procedure 5
WSCP Table 6 Demand Reduction Actions to be Implemented at Each Shortage Level 9
WSCP Table 7 Supply Augmentation During Stage 3 Droughts and Higher 14

Exhibits

Exhibit A – City of Roseville 2023 Multi-Hazard Mitigation Plan
Exhibit B – City of Roseville Municipal Code 14.09
Exhibit C – Adoption Resolutions

Water Shortage Contingency Plan

Following the severe drought of 2012-2016, the State of California Legislature sought to expand the water shortage contingency analysis under former law and mandated that a water shortage contingency plan (WSCP) be adopted by suppliers. The California Water Code (CWC) recognizes WSCPs as a critical tool during a drought emergency and grants that the State defer to locally adopted WSCPs, to the extent practicable.

> *California Water Code Section 10632.3*
>
> *It is the intent of the Legislature that, upon proclamation by the Governor of a state of emergency under the California Emergency Services Act (Chapter 7 (commencing with Section 8550) of Division 1 of Title 2 of the Government Code) based on drought conditions, the board defer to implementation of locally adopted water shortage contingency plans to the extent practicable.*

The WSCP is the City of Roseville Water Utility's (City's) operational plan in the event of a water shortage. Water shortage would occur when available water supplies are insufficient to meet normal customer water demands. Various causes can bring about a water shortage including population growth, climate change, drought, natural disasters, and catastrophic events.

The WSCP shall address the ten following elements:

1. Water supply reliability assessment analysis
2. Annual assessment procedures
3. Six standard shortage stages
4. Shortage response actions
5. Communication protocols
6. Compliance and enforcement
7. Legal authorities
8. Financial consequences of WSCP
9. Monitoring and reporting
10. WSCP refinement procedures

1.1 Water Supply Reliability Analysis

Pursuant to 10632(a)(1) of the CWC, a near-term (5years) and long-term (20 years) water supply reliability analysis is provided herein. The water supply reliability analysis consists of a water service reliability assessment and drought risk assessment (DRA).

1.1.1 Constraints on Water Supply

Most of the City's water is surface water received from Folsom Lake. The City's existing surface water contracts with the U.S. Bureau of Reclamation (USBR) and Placer County Water Agency (PCWA) are received through the Folsom Dam Diversion, making this a critical facility for the reliability of Roseville's surface water supply. Under normal conditions, the capacities of the Folsom Dam Diversion, Roseville Water Treatment Plant, and distribution network are sufficient to meet the City's water demands. However, the water that the City receives is subject to reductions during dry years pursuant to the Water Forum Agreement (WFA), the USBR Operations Criteria and Plan (OCAP), and the Central Valley Project Municipal and Industrial Water Shortage Policy (CVP M&I WSP).

Although Roseville's annual water contract entitlements total 66,000-acre feet (AF), the City along with other Sacramento-area water suppliers are signatory to the January 2000 Water Forum Agreement which includes Purveyor Specific Agreements. The WFA provides the framework for how water resources, including surface water and groundwater supplies, would be used in the region through the year 2030. These agreements were most recently updated in 2015, and the City is currently engaged in further updates to the WFA where the assumption in this WSCP is that the final WFA supply limitations will be applied to the City's increased available contract supplies in the same way with no additional supply limitation imposed. The City's Purveyor Specific Agreement includes limitations on City surface water diversions from the American River under different hydrologic conditions. The hydrologic conditions are characterized by three categories of year type and the corresponding limitations for the City are given in WSCP Table 1.

WSCP Table 1 Available Surface Water Supply Under Differing Hydrologic Conditions

Year Type	Unimpaired Flow into Folsom Reservoir	Roseville Available Supply
Normal/ Average or Wet Year	Greater or equal to 950,000 AF	Maximum of 58,900 AF
Drier Year	Between 400,000 and 950,000 AF	Between 43,800 and 58,900 AF
Driest/ Critically Dry Year	Less than 400,000 AF	Maximum of 43,800 AF
NOTES: The City is currently in the process of updating their Purveyor Specific Agreement. While the City's supply contract with PCWA will increase over the coming 10 years by an additional 10,000 AF, the amount of water foregone by the WFA is not expected to increase, resulting in an overall increase to the above outlined maximums.		

In addition to the impacts of the contractual agreements, the reliability of surface water is also subject to physical constraints. In the event that the water level at Folsom Lake drops close to or below the intake elevation, without additional infrastructure, the City would be unable to divert water. The severe drought of 2015, which was preceded by multiple consecutive dry years, demonstrated the vulnerability of the City's surface water as the water elevation did come close to the intake elevation.

Though the City has made significant progress in expanding its groundwater infrastructure, under current operations the groundwater is not a considered a source of water supply for the City outside of emergency conditions. The City has 7 existing wells, 6 of which have aquifer storage recovery (ASR) injection capability. The City's strategy in normal years is to not pump groundwater from the wells, except for well maintenance activities, during which any volume pumped is returned to the aquifer, and only inject what is in excess, thus creating a bank of water for future use. If a significant drought stage is reached the City can pump groundwater to augment its water supply and make up for deficits of the surface water supply. The City continues to invest in development of groundwater infrastructure to increase supply reliability in times of drought, however in any given year type, the City must make determinations of drought stage without consideration of groundwater supplies, per the terms of the municipal code. This is further discussed in Section 1.5. For the purpose of this WSCP, only the resources available to the City in determination of a drought stage are included in calculations of the surplus or shortfall for the DRA shown in WSCP Table 2 and WSCP Table 3.

1.1.2 Drought Risk Assessment

The near-term and long-term drought risk assessment was performed by comparing the unconstrained potable water demands to the water supply availability for a single dry year and 5 consecutive dry years. The near-term DRA for a five-year drought is provided in WSCP Table 2. The long-term single and five-year DRA is provided in WSCP Table 3. Note that while typical groundwater supplies are not considered in the calculations of Total Supplies shown in WSCP Table 2 and WSCP Table 3, the volume of groundwater that the City intends to use for each year type is listed separately.

WSCP Table 2 Near-Term Five-Year Drought Risk Assessment

Category	2026	2027	2028	2029	2030
Total Supplies	61,882	54,006	42,131	42,255	15,579
Total Gross Water Use	40,186	44,526	48,867	53,207	57,198
Surplus/ Shortfall absent of WSCP Action	21,696	9,480	-6,736	-10,952	-41,619
Total Right/ Safe Yield Groundwater Supplies	0	0	6,736	10,952	29,000
NOTES: All values are in AF. Groundwater supplies are not included in calculation of surplus/ shortfall.					

WSCP Table 3 Long-Term Single and Five-Year Drought Risk Assessment

Drought Type/ Year	Category	2030	2035	2040	2045
Single Year	Total Supplies	37,919	38,493	39,067	39,641
	Total Gross Water Use	57,548	60,157	62,577	64,620
	Surplus/ Shortfall absent of WSCP Action	-19,629	-21,664	-23,511	-24,979
	Total Right/ Safe Yield Groundwater Supplies	19,629	21,664	23,511	24,979
Year 1	Total Supplies	67,379	72,953	73,527	74,101
	Total Gross Water Use	57,548	60,157	62,577	64,620
	Surplus/ Shortfall absent of WSCP Action	9,831	12,796	10,949	9,481
	Reasonably Available Groundwater Supplies	0	0	0	0
Year 2	Total Supplies	59,379	64,953	65,527	66,101
	Total Gross Water Use	57,548	60,157	62,577	64,620
	Surplus/ Shortfall absent of WSCP Action	1,831	4,796	2,949	1,481
	Reasonably Available Groundwater Supplies	0	0	0	0
Year 3	Total Supplies	42,379	42,953	43,527	44,101
	Total Gross Water Use	57,548	60,157	62,577	64,620
	Surplus/ Shortfall absent of WSCP Action	-15,169	-17,204	-19,051	-20,519
	Reasonably Available Groundwater Supplies	15,169	17,204	19,051	20,519
Year 4	Total Supplies	42,379	42,953	43,527	44,101
	Total Gross Water Use	57,548	60,157	62,577	64,620
	Surplus/ Shortfall absent of WSCP Action	-15,169	-17,204	-19,051	-20,519
	Reasonably Available Groundwater Supplies	15,169	17,204	19,051	20,519
Year 5	Total Supplies	15,579	16,153	16,727	17,301
	Total Gross Water Use	57,198	59,807	62,227	64,270

Drought Type/ Year	Category	2030	2035	2040	2045
	Surplus/ Shortfall absent of WSCP Action	-41,619	-43,654	-45,501	-46,969
	Total Right/ Safe Yield Groundwater Supplies	29,000	29,000	29,000	29,000
NOTES: All values are in AF. Groundwater supplies are not included in calculation of surplus/ shortfall.					

1.1.3 Seismic Risk Analysis

Seismic risk in California can pose a significant threat to facilities and infrastructure. The City of Roseville 2023 Multi-Hazard Mitigation Plan addresses the seismic risk at critical facilities including those dedicated to water supply and is provided in Exhibit A.

1.2 Legal Authorities

Chapter 14.09 Water Conservation of the Roseville Municipal Code (Municipal Code) also cited as Water Conservation and Drought Mitigation Ordinance (Ordinance 5311 § 2, 2014; Ordinance 2413 § 2, 1991), grants the City the authority to declare a water shortage in the City. Chapter 14.09 of the Municipal Code is provided in Exhibit B.

The purpose and scope of the Water Conservation and Drought Mitigation Ordinance as stated in the Municipal Code is provided below:

14.09.020 General provisions

A. Purpose. The purpose of this chapter is to ensure compliance with all federal, state and local requirements relating to water conservation and drought mitigation for the protection of public health, safety and welfare by:

1. Reducing the per capita water consumption throughout the City of Roseville (the "city") during years of normal precipitation and during years of drought;

2. Protecting and conserving the city's supply of water during specified times of emergency and/or crisis;

3. Minimizing and/or eliminating the waste of water through voluntary compliance or punitive action, if necessary;

4. Promoting the use of drip irrigation and other low volume irrigation methods that reduce outdoor water use by applying water more efficiently than traditional irrigation methods;

5. No person shall use, or cause to be used any city water for landscape irrigation between the hours of 10:00 a.m. and 8:00 p.m., unless the city manager, or designee provides prior written consent to a different time limitation. A waiver may be granted for turf areas if the landscape contains too many irrigation valves to complete an irrigation event within the watering window.

6. Upon city declaration of a water shortage, the city manager, or designee, may impose revised and/or additional limitations on outdoor water use, as specified in Section 14.09.040, and no person shall use, or cause to be used, city water in violation of such limitations while the water shortage remains in effect.

B. Scope. The provisions of this chapter shall apply to all customers, users and/or recipients (hereinafter "users") of the city's potable and recycled water service within the city's territorial limits.

The City's development and adoption of the WSCP upholds 14.09.020 General Provisions of the Municipal Code by ensuring compliance with state requirements.

All components of the WSCP comply with Chapter 14.09 of the Municipal Code. Any actions to be taken under the WSCP not explicitly stated in Chapter 14.09 of the Municipal Code are a further refinement of the existing ordinance.

1.3 Standard Water Shortage Levels

The California Water Code Section 10632(a)(3) defines six standard water shortage levels. Standardization of water shortage levels provides a consistent regional and statewide approach to characterizing and conveying the severity of a water shortage. However, Chapter 14.09 of the City's Municipal Code defines water shortage stages that are different from those listed in CWC. Pursuant to 10632(a)(3)(B), the six standard water shortage levels are correlated to the existing shortage stages in the Municipal Code in WSCP Table 4.

WSCP Table 4 Relation Between Standard Water Shortage Levels and Existing Stages

CWC Shortage Level Description	CWC Shortage Level	Municipal Code Shortage Stage	Municipal Code Water Conservation and Drought Stage Description
Up to 10%	1	Basic Stage	City's water supply is adequate to meet all projected demands
		Stage One Drought	City's water supply is adequate to meet 90% of projected demands
Up to 20%	2	Stage Two Drought	City's water supply is adequate to meet 80% of projected demands
Up to 30%	3	Stage Three Drought	City's water supply is adequate to meet 70% of projected demands
Up to 40%	4	Stage Four Drought	City's water supply is adequate to meet 60% of projected demands
Up to 50%	5	Stage Five Drought	City's water supply is adequate to meet 50% or less of projected demands
Greater than 50%	6		

1.4 Annual Water Supply and Demand Assessment Procedures

Pursuant to CWC 10632.1, all water suppliers are required to conduct an annual water supply and demand assessment on or before July 1 of each year beginning in 2022. If the supplier receives imported water from the State Water Project or the U.S. Bureau of Reclamation (USBR) they shall submit the report within 14 days of receiving final allocations or by July 1 of each year, whichever is later. The steps for conducting the Annual Water Supply and Demands Assessment are outlined in WSCP Table 5.

WSCP Table 5 Water Supply and Demand Assessment Procedure

Step	Description	Timeframe	Participants
Step 1	Request water utility data from all departments.	Jan 1 - Jan 31	Water Conservation Administrator

Step	Description	Timeframe	Participants
Step 2	Coordinate with Planning Division for any significant planned developments and project those water demands.	Jan 15 - Jan 31	Water Conservation Administrator Planning Division
Step 3	Compile water utility data into Water Utility Reporting Master spreadsheet.	Feb 1 - Feb 14	Water Conservation Administrator
Step 4	Calculate total projected unconstrained water demands for current year.	Feb 15-Feb 28	Senior Engineer – Water Utility
Step 5	Identify any constraints on facilities or infrastructure that could impact the supply of water such as planned maintenance that would take facilities offline or known damage to facilities/ infrastructure.	Feb 15-Feb 28	Hydrogeologist Senior Engineer – Water Utility Water Distribution Superintendent Water Treatment Plant Chief Operator
Step 6	Commence preparation of Annual Water Shortage Assessment Report.	March-April	Water Conservation Administrator Senior Engineer – Water Utility
Step 7	Receive final allotments from USBR for current year.	April	EU Assistant Director-Water Utility
Step 8	Subtract current year projected water demand from final allotment volume to determine shortage percentage and volume.	2 Days after notification from USBR	Senior Engineer – Water Utility
Step 9	If a shortage is identified Environmental Utilities (EU) Department is to hold an internal meeting to inform participants that a water shortage for the current year is anticipated and the extent of that shortage. Review the WSCP and Chapter 14.09 of the Roseville Municipal Code. Identify any concerns from the group regarding the ability to carry out the actions described in the WSCP and Chapter 14.09 of the Municipal Code. Assign an individual or group, among the participants, the responsibility of resolving the concern.	Within 7 days of notification from USBR	EU Director EU Assistant Director – Water Utility Hydrogeologist Water Distribution Super Intendent Water Treatment Plant Chief Operator Senior Engineer – Water Utility Water Conservation Administrator Additional participants as needed
Step 10	Inform City Manager of water shortage emergency condition.	Within 14 days of notification from USBR	City Manager EU Director EU Assistant Director – Water Utility Additional participants as needed
Step 11	Finalize and submit Annual Water Shortage Assessment Report to DWR.	By July 1 or 14 days after receiving final allocations	EU Assistant Director – Water Utility Water Conservation Administrator Senior Engineer – Water Utility

Step	Description	Timeframe	Participants
Step 11	The City Manager shall inform City Council of the water shortage emergency condition and the "Drought stage," under which the emergency falls. City Council shall declare a water shortage emergency condition to prevail within the area served by the City of Roseville Water Utility.	Within 28 days of notification from USBR	City Manager City Council Public Information Officer
Step 12	The City of Roseville shall coordinate with any city or county within which it provides water supply services for the possible proclamation of a local emergency.	Within 28 days of notification from USBR	City Manager City Council Public Information Officer
Step 13	The public, interested parties, and local, regional, and state governments shall be noticed of the water shortage emergency condition and of all water shortage response actions triggered by the emergency declaration. Pursuant to Municipal Code Section 14.09.020(E), the City Manager, or assigned designee, shall be responsible for determining the means by which water users shall be notified. Possible means for notification include mass media, newspaper, public notice, mailings, utility billings, or by any combination of such notice.	Beginning 2 business days after declaration of emergency condition and continuing for as long as the emergency condition persists.	Water Conservation Administrator Senior Engineer – Water Utility Public Information Officer
Step 14	The appropriate Water Shortage Response Actions for the drought stage, outlined in WSCP Table 6 and 7, will be carried out by the public and water utility. The City will enforce compliance in accordance with Roseville Municipal Code 14.09.	Duration of emergency condition	EU – Water Utility Water Users City Manager or designee
Step 15	Track customer water use at a minimum on a monthly basis. Ensure that total gross water use for that month, or more frequent tracking period, is reduced by the necessary percentage when compared to that same tracking period of the last normal supply year.	Duration of emergency condition	Water Conservation Administrator Senior Engineer – Water Utility
Step 16	If the needed water use reduction percentage is not met for any month determine which additional strategies or actions would result in the needed reduction.	Upon determination of insufficient water use reduction	EU Director EU Assistant Director – Water Utility Hydrogeologist Senior Engineer – Water Utility Water Conservation Administrator Additional participants as needed

Step	Description	Timeframe	Participants
Step 17	The EU Department management shall propose to the City Manager additional shortage response actions and whether or not those actions would require the WSCP and Chapter 14.09 of the Roseville Municipal Code to be changed.	Upon determination of insufficient water use reduction	City Manager EU Director EU Assistant Director – Water Utility Additional participants as needed
Step 18	If deemed necessary, the City Manager and City Council will revise the WSCP and Chapter 14.09 of the Roseville Municipal Code, observing all required procedures with such adoption.	Upon determination of insufficient water use reduction	City Manager City Council Additional participants as needed
NOTES: It is the intent of the WSCP that the Water Conservation Administrator and Water Utility Senior Engineer shall jointly be responsible for ensuring that the steps of this plan are carried out by noticing the necessary parties for data requests and facilitating meetings.			

WSCP Table 6 Demand Reduction Actions to be Implemented at Each Shortage Level

Standard Shortage Level	Roseville Municipal Code Stage	Demand Reduction Actions	Estimated Percent Reduction	Section of Water Conservation and Drought Mitigation Ordinance corresponding to Demand Reduction Action *Explanations provided as needed*	Penalty, Charge, or Other Enforcement?
1	Basic	Landscape - Restrict or prohibit runoff from landscape irrigation	0%	14.09.030(A)	Yes
1	Basic	Landscape - Limit landscape irrigation to specific times	0%	14.09.020(A)(1); No person shall use, or cause to be used, any city water for landscape irrigation between the hours of 10:00 a.m. and 8:00 p.m., unless the city manager, or designee provides prior written consent to a different time limitation. A waiver may be granted for turf areas if the landscape contains too many irrigation valves to complete an irrigation event within the watering window.	Yes
1	Basic	Landscape - Limit landscape irrigation to specific days	0%	14.09.060(E)(2); Irrigation of new landscaping shall be allowed on any day of the week for a period of 30 days after the new landscaping is planted, unless the city manager, or designee, provides prior written consent to extend this time period based on plant type and the season when the new landscaping is planted. After the 30 days, irrigation days and run times should be decreased to settings appropriate for an established landscape.	Yes
1	Basic	Landscape - Prohibit certain types of landscape irrigation	0%	14.09.030(E); Prohibit operation of an irrigation system that applies water to an impervious surface or that is in disrepair.	Yes
1	Basic	Landscape - Other landscape restriction or prohibition	0%	14.09.030(G); Prohibit irrigation of landscaping during rainfall or 48 hours after a measurable rain event.	Yes
1	Basic	Landscape - Other landscape restriction or prohibition	0%	14.090.060(E)(1); All landscaping installed in the City of Roseville shall comply with the water efficient landscape requirements adopted by resolution of the city council.	Yes
1	Basic	Other water feature or swimming pool restriction	0%	14.09.030(C); Prohibit maintaining ponds, waterways, decorative basins, or swimming pools without water recirculation devices.	Yes
1	Basic	Other water feature or swimming pool restriction	0%	14.09.030(D); Prohibit backwashing so as to discharge to waste swimming pools, decorative basins or ponds in excess of the frequency necessary to ensure the healthful condition of the water or in excess of that required by standards for professionally administered maintenance or to address structural considerations, as determined by the city manager, or designee.	Yes
1	Basic	Other water feature or swimming pool restriction	0%	14.09.030(H); Prohibit overfilling of any pond, pool or fountain which results in water discharging to waste.	Yes

Standard Shortage Level	Roseville Municipal Code Stage	Demand Reduction Actions	Estimated Percent Reduction	Section of Water Conservation and Drought Mitigation Ordinance corresponding to Demand Reduction Action *Explanations provided as needed*	Penalty, Charge, or Other Enforcement?
1	Basic	Other - Customers must repair leaks, breaks, and malfunctions in a timely manner	0%	14.09.060(C)	Yes
1	Basic	Other - Require automatic shut off hoses	0%	14.09.060(B); Free-flowing hoses for all uses are prohibited. Automatic shut-off devices shall be attached on any hose or filling apparatus in use.	Yes
1	Basic	Other	0%	14.09.030(B); Prohibit water fixtures (including, but not limited to, toilets, faucets, shower heads) or heating or cooling devices to leak or run to waste.	Yes
1	Basic	Other	0%	14.09.030(A); Prohibit water use for washing in excess of that necessary to wash, wet or clean the dirty or dusty object, such as an automobile, sidewalk, or parking area, flows to waste.	Yes
1	Basic	Other	0%	14.09.060(A); Water shall be confined to the user's property and shall not be allowed to run off to adjoining properties, or to the roadside or to the gutter. Care shall be taken not to water past the point of saturation.	Yes
1	Basic	Other	0%	14.09.060(F); All site reviews shall include an evaluation of using recycled water. Recycled water shall be required if economically feasible.	Yes
1	Stage 1	Landscape - Limit landscape irrigation to specific days	1%	14.09.070(C) and 14.09.070(D); Residential and non-residential water users shall be permitted to irrigate with city water according to the schedule provided in 14.09.070(C) and 14.09.070(D), respectively.	Yes
1	Stage 1	Landscape - Other landscape restriction or prohibition	1%	14.09.070(G); City park sites shall, as an aggregate, reduce usage up to 10 percent.	Yes
1	Stage 1	CII - Restaurants may only serve water upon request	1%	14.09.070(I)	Yes
1	Stage 1	Other - Prohibit use of potable water for washing hard surfaces	1%	14.09.070(H); Washing streets, parking lots, driveways, sidewalks or buildings, except as necessary for health or sanitary purposes or pursuant to a term or condition in a permit issued by a state or federal agency, is prohibited.	Yes
1	Stage 1	Other	10%	14.09.070(B); Residential users and non-residential users shall reduce water usage up to 10 percent.	Yes
2	Stage 2	Landscape - Other landscape restriction or prohibition	1%	14.09.070(C); City park sites shall, as an aggregate, reduce usage up to 20 percent.	Yes
2	Stage 2	Other - Prohibit vehicle washing except at facilities using recycled or recirculating water	1%	14.09.080(H)	Yes

Standard Shortage Level	Roseville Municipal Code Stage	Demand Reduction Actions	Estimated Percent Reduction	Section of Water Conservation and Drought Mitigation Ordinance corresponding to Demand Reduction Action *Explanations provided as needed*	Penalty, Charge, or Other Enforcement?
2	Stage 2	Other	10-18%	14.09.080(B); Residential users and non-residential landscapes shall reduce water usage up to 20 percent.	Yes
3	Stage 3	Landscape - Limit landscape irrigation to specific days	1%	14.09.090(D) and 14.09.090(E); Residential and non-residential water users shall be permitted to irrigate with city water according to the schedule provided in 14.09.090(D) and 14.09.090(E), respectively.	Yes
3	Stage 3	Landscape - Other landscape restriction or prohibition	1%	14.09.090(C); City park sites shall, as an aggregate, reduce usage up to 30 percent.	Yes
3	Stage 3	Landscape - Other landscape restriction or prohibition	1%	14.09.090(H); New or expanded landscaping is limited to drought-tolerant trees, shrubs, and groundcover and be irrigated using a low volume irrigation system. No new turf shall be planted, hydroseeded, or laid, unless prior written consent is received from the city manager. Low volume irrigation means the application of irrigation water at low pressure through a system of tubing or lateral lines and low-volume emitters such as drip or drip lines irrigating at less than two gallons per hour. These systems are specifically designed to apply small volumes of water slowly at or near the root zone of plants.	Yes
3	Stage 3	Water Features - Restrict water use for decorative water features, such as fountains	1%	14.09.090(I)	Yes
3	Stage 3	Pools - Allow filling of swimming pools only when an appropriate cover is in place.	1%	14.09.090(L)	Yes
3	Stage 3	Other - Prohibit use of potable water for construction and dust control	1%	14.09.090(K)	Yes
3	Stage 3	Other	1%	14.09.090(I); Except where recycled water is used, golf courses shall reduce irrigation up to 30 percent.	Yes
3	Stage 3	Other	18-27%	14.09.090(B). Residential users and non-residential landscapes are to reduce water usage up to 30 percent.	Yes
4	Stage 4	Landscape - Limit landscape irrigation to specific days	2%	14.09.100(D) and 14.09.100(E); Residential and non-residential water users shall be permitted to irrigate with city water according to the schedule provided in 14.09.100(D) and 14.09.100(E), respectively.	Yes
4	Stage 4	Landscape - Other landscape restriction or prohibition	1%	14.09.100(C); City park sites shall, as an aggregate, reduce usage up to 40 percent.	Yes

Standard Shortage Level	Roseville Municipal Code Stage	Demand Reduction Actions	Estimated Percent Reduction	Section of Water Conservation and Drought Mitigation Ordinance corresponding to Demand Reduction Action *Explanations provided as needed*	Penalty, Charge, or Other Enforcement?
4	Stage 4	Landscape - Other landscape restriction or prohibition	1%	14.09.100(H); Installation of any new landscaping is prohibited unless irrigation is provided through connection to an active recycled water system. In the case of new construction, the city's building official will issue a temporary final upon completion of the structural development of the property. When the city has returned to a stage two drought restriction, landscaping installation can be completed, and a building final will become available upon inspection by the city.	Yes
4	Stage 4	Other water feature or swimming pool restriction	1%	14.09.100(K); Existing pools shall not be emptied and refilled using city water unless required for health or safety reasons until the city has returned to a stage two drought restriction. Pools may be re-filled only to the extent necessary to replace evaporative losses.	Yes
4	Stage 4	Other - Prohibit vehicle washing except at facilities using recycled or recirculating water	1%	14.09.100(J); Automobiles or equipment shall be washed only at commercial establishments that recycle their water or by equipment and means that separates debris and recycles wash water for continual use.	Yes
4	Stage 4	Other	1%	14.09.100(I); Except where recycled water is used, golf courses shall reduce irrigation up to 40 percent.	Yes
4	Stage 4	Other	0%	14.09.100(L); No commitments shall be made to provide water service as part of any new land use entitlement (general plan, specific plan or amendments requesting new water allocations) until the city has returned to a stage two drought restriction. Currently approved specific plans with accompanying development agreements and projects or properties that have received water allocations in advance of full entitlements may be issued building permits so long as they comply with the remainder of this chapter.	Yes
4	Stage 4	Other	27-35%	14.09.100(B); Residential users and non-residential landscapes are to reduce water usage up to 40 percent.	Yes
5 & 6	Stage 5	Landscape - Other landscape restriction or prohibition	5%	14.09.110(C); Except where recycled water is used, water users shall reduce landscape irrigation as follows: 1. Turf shall not be irrigated. 2. Trees and shrubs may be irrigated with a properly functioning low volume landscape irrigation system or by use of a handheld hose equipped with a nozzle capable of completely shutting off the flow of water except when positive action or pressure to maintain the flow of water is applied. Low volume irrigation means the application of irrigation water at low pressure through a system of tubing or lateral	Yes

Standard Shortage Level	Roseville Municipal Code Stage	Demand Reduction Actions	Estimated Percent Reduction	Section of Water Conservation and Drought Mitigation Ordinance corresponding to Demand Reduction Action *Explanations provided as needed*	Penalty, Charge, or Other Enforcement?
				lines and low-volume emitters such as drip or drip lines irrigating at less than two gallons per hour. These systems are specifically designed to apply small volumes of water slowly at or near the root zone of plants.	
5 & 6	Stage 5	Other water feature or swimming pool restriction	1%	14.09.110(D); Filling new or existing swimming pools and spas with city water is prohibited.	Yes
5 & 6	Stage 5	Other	33%	14.09.110(B); Residential users are to reduce water usage up to 50 percent.	Yes
NOTES: For each successive drought level all preceding restrictions shall continue in place, except to the extent they are replaced by more restrictive conditions.					

1.5 Supply Augmentation and Operational Changes

Under normal operational conditions the City's groundwater strategy is to not pump well water and only use it as an emergency supply. At this time, the City's injection volume of groundwater is planned to exceed extraction volume over time, as the groundwater program is still in development. The positive difference between the injection and extraction volume is the net volume of water that the City places into long-term storage or makes available for other users. Per Section 14.09.050 of the Municipal Code, when determining drought staging, the City cannot consider the effect of well water reducing the need for conservation until a stage three drought level is reached. Specifically, the code mentions that well water cannot be considered as an alternative to declaration of a stage one or stage two drought level. The City may choose to operationalize groundwater infrastructure in any year type based on water supply conditions and/or operations and maintenance strategies for infrastructure, however this shall not be determined to reduce or alleviate the appropriate drought stage given hydrologic conditions and surface water allocations for that year. The percent reduction that could result from this supply augmentation action for the different stages is provided in WSCP Table 7. Note that there are no supply augmentation actions for drought stages 1 and 2 in accordance with the provisions of the Municipal code.

WSCP Table 7 Supply Augmentation During Stage 3 Droughts and Higher

Standard Shortage Level	Roseville Municipal Code Stage	Supply Augmentation Methods and Other Actions by Water Supplier	Percent Reduction	Additional Explanation
3	3	Stored Emergency Supply	0-10%	Groundwater Pumped
4	4	Stored Emergency Supply	0-20%	Groundwater Pumped
5 & 6	5	Stored Emergency Supply	0-30%	Groundwater Pumped

The water utility would need to adjust its operations to support a drought stage that would prompt increased reliance on well water. Tasks for operations may include more frequent maintenance of well pumps and chemical injection pumps, monitoring of ground water level, and filter backwashing. Hence, for the sake of planning, the wells will be considered capable of only 80% of their rated extraction capacity.

1.6 Compliance and Enforcement

The Water Conservation and Drought Mitigation ordinance grants the City the authority to enforce compliance with the water use limitations outlined in WSCP Table 6. The sections of the Water Conservation and Drought Mitigation Ordinance, detailing compliance and enforcement authority and measures are provided below.

14.09.020 General provisions

C. Administration and Enforcement. The city manager, or designee, including, but not limited to, an enforcement officer as defined herein, shall administer, implement, and enforce the provisions of this chapter. For purposes of this chapter an "enforcement officer" means any city employee or agent of the city with the authority to enforce any provision of this chapter and the authority to make any decision on behalf of the city manager required or called for by this chapter.

D. Compliance. All provisions of this chapter are subject to the compliance procedures set forth in this chapter unless otherwise expressly stated herein.

14.09.140 Violations

It is Unlawful for any user and/or person to violate any provision or fail to comply with any of the requirements of this chapter. Causing, permitting, aiding, abetting or concealing a violation of any provision of this chapter shall constitute a violation of this chapter. A violation of the provisions of this chapter shall occur irrespective of the negligence or intent of the violator and a violation of or failure to comply with any of the requirements of this chapter may be charged as either an infraction or a misdemeanor in the discretion of the city attorney. (Ord. 5311 § 2, 2014; Ord. 4629 § 1, 2008; Ord. 3834 § 3, 2002; Ord. 2413 § 2, 1991.)

14.09.150 Enforcement authority

A. Whenever the city manager, or designee (including, but not limited to, an enforcement officer), determines that a user and/or person has violated any provision of, or failed to meet a requirement of, this chapter, an administrative citation pursuant to Chapter 2.50 or a written compliance order pursuant to Chapter 2.52 may be issued to any user and/or person responsible for the violation.

B. Any compliance order issued may require without limitation any or all of the following:

1. The allocation of a particular amount of water to a given user and/or person responsible for the violation;
2. The issuance of a fine;
3. The installation of a flow restriction device;
4. The performance of monitoring, analyses, and reporting;
5. That violations shall cease and desist; and/or
6. The discontinuance of water service

The compliance order shall set forth a deadline within which the requirements of the compliance order must be completed. Said compliance order shall further advise that, should the violator fail to comply with the compliance order within the established deadline, a hearing on the compliance order shall be set. (Ord. 5491 § 11, 2015; Ord. 5311 § 2, 2014; Ord. 4629 § 1, 2008; Ord. 3034 § 3, 2002; Ord. 2817 § 1, 1994; Ord. 2413 § 2, 1991.)

14.090.180 Separate offense for each day.

Any user and/or person that violates any provision of this chapter shall be guilty of a separate offense for each and every day during any portion of which any user and/or person commits, continues, permits, or causes a violation thereof, and shall be punished accordingly. (Ord. 5311 § 2, 2014; Ord. 4629 § 1, 2008; Ord. 2413 § 2, 1991.)

1.7 Financial Consequences

During times of an emergency condition, the City is expected to see significant revenue reduction as a result of demand reduction actions lowering total gross water use. Additionally, enforcement of demand reduction actions, which could include investigating water waste complaints, follow ups to check for compliance, administering warnings or fines, and installation of flow restriction devices, would incur additional expenses that would not be present during non-emergency conditions.

Revenue loss percentage for each drought stage is anticipated to be approximately equal to the demand reduction percentage for each respective shortage level. Enforcement expenses will vary based on customer compliance and drought stage. For instance, at the onset of demand reduction action implementation, resources needed for enforcement may be high as customers adjust to altering their use or compliance from customers could vary seasonally with customers finding it more difficult to comply during warmer months.

The City plans to mitigate the financial consequences associated with water shortage response actions primarily through their recently adopted water rate structure, which allows for adequate reserves to accommodate reductions in revenue and increases in cost due to drought. If the water shortage rate charges are insufficient to make up for the loss in revenue, the City will use financial reserves to mitigate remaining financial consequences.

1.8 Plan Adoption, Submittal, and Availability

The Water Shortage Contingency Plan, which is included as an appendix in the 2025 Urban Water Management Plan (UWMP), was introduced and discussed with the public and City Council in the same meetings but as separate agenda items. The WSCP is intended to be a stand-alone document and as such has been adopted by the City independently of the UWMP. The WSCP may be updated as needed between the regular 5-year updates of the UWMP and no required WSCP update shall necessitate an update of the UWMP.

The City has encouraged community and public interest involvement in the WSCP using public meetings and web-based communication. A public meeting held on June 17, 2026, allowed the general public to ask questions and raise concerns regarding the WSCP. Prior to the public hearing the draft WSCP was made available for public inspection on the City's website.

The WSCP was adopted by the City Council on June 17, 2026. A copy of the adoption resolution is provided in Exhibit C. A copy of this WSCP was submitted to DWR within 30 days of adoption and by July 1, 2026. The adopted WSCP was submitted electronically to DWR. An electronic or hardcopy of the adopted WSCP will also be submitted to the California State Library. No later than 30 days after submittal to DWR, copies of the WSCP will be available for public review at the City's public offices. An electronic copy of this plan will also be available for review and download on the City's website: www.roseville.ca.gov/WSCP/.

Exhibit A – City of Roseville 2023 Multi-Hazard Mitigation Plan

The most recent City of Roseville Multi-Hazard Mitigation Plan can be accessed at the link below.

https://builder1.revize.com/revize/rosevilleca/Documents/Fire/Emergency%20Preparedness/Multi%20Hazard%20Mitigation%20Plan/Roseville%20HMP%20Public%20Review%20Draft%20May%2019,%202023.pdf?t=20260306055313O

Exhibit B – City of Roseville Municipal Code 14.09



Roseville Municipal Code

Title 14 PUBLIC UTILITIES

Chapter 14.09 WATER CONSERVATION

§ 14.09.010. Short title.

This chapter may be cited as the Water Conservation and Drought Mitigation Ordinance. (Ord. 2413 § 2, 1991; Ord. 5311 § 2, 2014)

§ 14.09.020. General provisions.

A. Purpose. The purpose of this chapter is to ensure compliance with all federal, state and local requirements relating to water conservation and drought mitigation for the protection of public health, safety and welfare by:

1. Reducing the per capita water consumption throughout the City of Roseville (the "city") during years of normal precipitation and during years of drought;

2. Protecting and conserving the city's supply of water during specified times of emergency and/or crisis;

3. Minimizing and/or eliminating the waste of water through voluntary compliance or punitive action, if necessary;

4. Promoting the use of drip irrigation and other low volume irrigation methods that reduce outdoor water use by applying water more efficiently than traditional irrigation methods;

5. No person shall use, or cause to be used, any city water for landscape irrigation between the hours of 10:00 a.m. and 8:00 p.m., unless the city manager, or designee provides prior written consent to a different time limitation. A waiver may be granted for turf areas if the landscape contains too many irrigation valves to complete an irrigation event within the watering window.

6. Upon city declaration of a water shortage, the city manager, or designee, may impose revised and/or additional limitations on outdoor water use, as specified in Section 14.09.040, and no person shall use, or cause to be used, city water in violation of such limitations while the water shortage remains in effect.

B. Scope. The provisions of this chapter shall apply to all customers, users and/or recipients (hereinafter "users") of the city's potable and recycled water service within the city's territorial limits.

C. Administration and Enforcement. The city manager, or designee, including, but not limited to, an enforcement officer as defined herein, shall administer, implement, and enforce the provisions of this chapter. For purposes of this chapter an "enforcement officer" means any city employee or agent of the city with the authority to enforce any provision of this chapter and the authority to make any decision on behalf of the city manager required or called for by this chapter.

D. Compliance. All provisions of this chapter are subject to the compliance procedures set forth in this chapter unless otherwise expressly stated herein.

E. Notification. The city manager, or designee, shall determine the means by which the city shall notify its water users of drought stage determinations and any

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applicable upgrade or downgrade of such determinations or restrictions. Notification may be achieved through mass media, newspaper, public notice, mailings, utility billings or by any combination of such notice, or by other means as determined by the city manager, or designee.

(Ord. 2413 § 2, 1991; Ord. 4629 § 1, 2008; Ord. 5311 § 2, 2014; Ord. 5491 § 1, 2015)

§ 14.09.030. Definition of water waste.

Any of the following acts or omissions, whether willful or negligent, shall constitute the waste of water:

A. Causing or permitting water to leak, discharge, flow or run to waste into any gutter, sanitary sewer, watercourse or public or private storm drain, or to any adjacent property, from any tap, hose, faucet, pipe, sprinkler, pond, pool, waterway, fountain or nozzle. In the case of irrigation, "discharge," "flow" or "run to waste" means that the earth intended to be irrigated has been saturated with water to the point that excess water flows over or through the earth to waste. In the case of washing, "discharge," "flow" or "run to waste" means that water in excess of that necessary to wash, wet or clean the dirty or dusty object, such as an automobile, sidewalk, or parking area, flows to waste.

B. Allowing water fixtures (including, but not limited to, toilets, faucets, shower heads) or heating or cooling devices to leak or run to waste.

C. Maintaining ponds, waterways, decorative basins or swimming pools without water recirculation devices.

D. Backwashing so as to discharge to waste swimming pools, decorative basins or ponds in excess of the frequency necessary to ensure the healthful condition of the water or in excess of that required by standards for professionally administered maintenance or to address structural considerations, as determined by the city manager, or designee.

E. Operation of an irrigation system that applies water to an impervious surface or that is in disrepair.

F. Use of a water hose not equipped with a control nozzle capable of completely shutting off the flow of water except when positive pressure is applied.

G. Irrigation of landscaping during rainfall or 48 hours after a measurable rain event. A measurable rain event is the equivalent of ¼ inch of rain in an hour.

H. Overfilling of any pond, pool or fountain which results in water discharging to waste.

(Ord. 2413 § 2, 1991; Ord. 3834 § 3, 2002; Ord. 4629 § 1, 2008; Ord. 5311 § 2, 2014; Ord. 5491 § 2, 2015; Ord. 6500 § 3, 2022)

§ 14.09.040. Water conservation and drought stages.

The following water conservation and drought stages are hereby established:

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A. Basic Water Conservation Stage ("Basic Stage"). The basic stage shall exist when the city's water supply is adequate to meet all projected demands as determined by the city manager, or designee.

B. Stage One Drought. A stage one drought shall exist when the city's water supply is adequate to meet 90 percent of projected demands as determined by the city manager, or designee. An objective of a stage one drought condition is to reduce water usage up to 10 percent. Water shortage surcharges shall be implemented as set forth in Section 14.08.095.

C. Stage Two Drought. A stage two drought shall exist when the city's water supply is adequate to meet 80 percent of projected demands as determined by the city manager, or designee. An objective of a stage two drought condition is to reduce water usage up to 20 percent. Water shortage surcharges and excess water use charges shall be implemented as set forth in Section 14.08.095.

D. Stage Three Drought. A stage three drought shall exist when the city's water supply is adequate to meet 70 percent of projected demands as determined by the city manager or designee. An objective of a stage three drought condition is to reduce water usage up to 30 percent. Water shortage surcharges and excess water use charges shall be implemented as set forth in Section 14.08.095.

E. Stage Four Drought. A stage four drought shall exist when the city's water supply is adequate to meet 60 percent of projected demands as determined by the city manager or designee. An objective of a stage four drought condition is to reduce water usage up to 40 percent. Water shortage surcharges and excess water use charges shall be implemented as set forth in Section 14.08.095.

F. Stage Five Drought. A stage five drought shall exist when the city's water supply is adequate to meet 50 percent or less of projected demands as determined by the city manager, or designee. An objective of a stage five drought condition is to reduce water usage up to 50 percent. Water shortage surcharges and excess water use charges shall be implemented as set forth in Section 14.08.095.

(Ord. 2413 § 2, 1991; Ord. 4629 § 1, 2008; Ord. 4724 § 3, 2009; Ord. 5311 § 2, 2014; Ord. 5491 § 3, 2015)

§ 14.09.050. Groundwater use as an alternate supply.

While the city routinely pumps relatively small volumes of groundwater during all water year types for maintenance purposes, the city may use groundwater as an alternate source of water supply to aid in meeting demands associated with dry periods, peak demands, or due to surface water supply curtailments. The city may also use groundwater as an alternate source of water supply to achieve obligations associated with the Sacramento Water Forum, American River flow standards, or when participating in groundwater banking to achieve California Water Code obligations under the Sustainable Groundwater Management Act or to be consistent with other regional or statewide objectives.

(Ord. 2413 § 2, 1991; Ord. 4629 § 1, 2008; Ord. 5311 § 2, 2014; Ord. 6500 § 4, 2022)

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§ 14.09.060. Basic stage restrictions.

During the basic water conservation stage, the following restrictions shall be in force:

Water shall be used for beneficial purposes only; all unnecessary and wasteful uses (as defined in Section 14.09.030) of water are prohibited.

A. Water shall be confined to the user's property and shall not be allowed to run off to adjoining properties, or to the roadside or to the gutter. Care shall be taken not to water past the point of saturation.

B. Free-flowing hoses for all uses are prohibited. Automatic shut-off devices shall be attached on any hose or filling apparatus in use.

C. All leaks (including irrigation systems, pipes, fixtures, pools, ponds, fountains and waterways) shall be repaired within five calendar days or less if warranted by the severity of the problem as determined in the discretion of the city manager, or designee.

D. All pools, spas, and ornamental fountains/ponds shall be equipped with a recirculation pump and shall be constructed to be leak-proof. Pool draining and refilling shall be allowed only to the extent required for health, maintenance, or structural considerations, and must otherwise comply with all applicable federal, state and local stormwater management program requirements, including, but not limited to, the urban stormwater quality management and discharge control ordinance set forth in Chapter 14.20 of Title 14 of the City of Roseville Municipal Code.

E. Landscaping.

1. All landscaping installed in the City of Roseville shall comply with the water efficient landscape requirements adopted by resolution of the city council.

2. Irrigation of new landscaping shall be allowed on any day of the week for a period of 30 days after the new landscaping is planted, unless the city manager, or designee, provides prior written consent to extend this time period based on plant type and the season when the new landscaping is planted. After the 30 days, irrigation days and run times should be decreased to settings appropriate for an established landscape.

3. Upon city declaration of a water shortage, the city manager or designee may impose revised and/or additional limitations on the irrigation of new landscaping, as specified in Sections 14.09.060 through 14.09.100, and no person shall use, or cause to be used, city water in violation of such limitations while the water shortage remains in effect. A waiver may be granted to irrigate during an establishment period for actively used turf areas and/or sports fields or as approved by the city manager or designee. Allowance shall also be made for irrigation testing and repairs.

F. All site reviews shall include an evaluation of using recycled water. Recycled water

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shall be required if economically feasible.
(Ord. 2413 § 2, 1991; Ord. 2762 § 1, 1993; Ord. 4629 § 1, 2008; Ord. 5311 § 2, 2014; Ord. 5491 § 4, 2015; Ord. 6500 § 5, 2022)

§ 14.09.070. Stage one drought restrictions.

During a stage one drought, the following restrictions may be required, as determined by the city manager and upon notification pursuant to Section 14.09.020(E):

A. All basic stage restrictions required by Sections 14.09.030 and 14.09.060 shall continue in place, except to the extent they are replaced by more restrictive conditions imposed by this section.

B. Residential users and nonresidential users shall reduce water usage up to 10 percent.

C. Residential water users shall be permitted to irrigate with city water on the following schedule, unless the city manager, or designee, provides prior written consent to a different irrigation pattern:

1. 1st day of November – last day of February: up to one day per week irrigation on Monday of each week, if needed.

2. 1st day of March – last day of April and 1st day of September – last day of October: up to two days per week irrigation on Monday and Friday of each week, if needed.

3. 1st day of May – last day of August: up to three days per week irrigation on Monday, Wednesday and Friday of each week, if needed.

D. Nonresidential water users (including, without limitation, commercial, industrial, church, cemeteries, and publicly owned users) shall be permitted to irrigate with city water on the following schedule, unless the city manager, or designee, provides prior written consent to a different irrigation pattern:

1. 1st day of November – last day of February: up to one day per week irrigation on Tuesday of each week, if needed.

2. 1st day of March – last day of April and 1st day of September – last day of October: up to two days per week irrigation on Tuesday and Thursday of each week, if needed.

3. 1st day of May – last day of August: up to three days per week irrigation on Tuesday, Thursday and Saturday of each week, if needed.

E. The limitations specified in subsections C and D shall not apply to a properly functioning low volume landscape irrigation system, the irrigation on container plants, or to the irrigation of new landscaping that is subject to the provisions of Section 14.09.060(E). Low volume irrigation means the application of irrigation water at low pressure through a system of tubing or lateral lines and low-volume emitters such as point source drip and in-line drip lines or soaker hose. These systems are specifically designed to apply small volumes of water slowly at or near

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the root zone of plants.

F. References in this section to any day of the week shall mean the period beginning at 12:00 a.m. on that day and ending 24 hours later.

G. City park sites shall, as an aggregate, reduce usage up to 10 percent.

H. Washing streets, parking lots, driveways, sidewalks or buildings, except as necessary for health or sanitary purposes or pursuant to a term or condition in a permit issued by a state or federal agency, is prohibited.

I. Water shall not be served at restaurants except by request.

J. Water shortage surcharges shall be implemented as set forth in Section 14.08.095.
(Ord. 2413 § 2, 1991; Ord. 2636 § 1, 1992; Ord. 2817 § 1, 1994; Ord. 4629 § 1, 2008; Ord. 4724 § 3, 2009; Ord. 5311 § 2, 2014; Ord. 5491 § 5, 2015; Ord. 6500 § 6, 2022)

§ 14.09.080. Stage two drought restrictions.

During a stage two drought, the following restrictions may be required, as determined by the city manager and upon notification pursuant to Section 14.09.020(E):

A. All basic stage and stage one restrictions required by Sections 14.09.060 and 14.09.070 shall continue in place, except to the extent they are replaced by more restrictive conditions imposed by this section.

B. Residential users and nonresidential landscapes shall reduce water usage up to 20 percent.

C. City park sites shall, as an aggregate, reduce usage up to 20 percent.

D. Residential water users shall be permitted to irrigate with city water on the following schedule, unless the city manager, or designee, provides prior written consent to a different irrigation pattern:

1. 1st day of November – last day of February: up to one day per week irrigation on Monday of each week, if needed.

2. 1st day of March – last day of April and 1st day of September – last day of October: up to two days per week irrigation on Monday and Friday of each week, if needed.

3. 1st day of May – last day of August: up to three days per week irrigation on Monday, Wednesday and Friday of each week, if needed.

E. Nonresidential water users (including, without limitation, commercial, industrial, church, cemeteries, and publicly owned users) shall be permitted to irrigate with city water on the following schedule, unless the city manager, or designee, provides prior written consent to the Environmental Utilities-Water Efficiency Section for a different irrigation pattern:

1. 1st day of November – last day of February: up to one day per week irrigation

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on Tuesday of each week, if needed.

2. 1st day of March – last day of April and 1st day of September – last day of October: up to two days per week irrigation on Tuesday and Thursday of each week, if needed.

3. 1st day of May – last day of August: up to three days per week irrigation on Tuesday, Thursday and Saturday of each week, if needed.

F. The limitations specified in subsections D and E shall not apply to a properly functioning low volume landscape irrigation system, the irrigation on container plants, or to the irrigation of new landscaping that is subject to the provisions of Section 14.09.060(E). Low volume irrigation means the application of irrigation water at low pressure through a system of tubing or lateral lines and low-volume emitters such as point source drip and in-line drip lines or soaker hose. These systems are specifically designed to apply small volumes of water slowly at or near the root zone of plants.

G. References in this section to any day of the week shall mean the period beginning at 12:00 a.m. on that day and ending 24 hours later.

H. Washing of vehicles or boats is prohibited except:

1. When using a hose that is equipped with a control nozzle capable of completely shutting off the flow of water except when positive action or pressure to maintain the flow of water is applied; or

2. When washed in either an automatic or manual commercial car wash that recirculates its water and uses high pressure/low volume wash systems.

3. Temporary car washes, held for fundraising purposes, are encouraged to partner with an automatic commercial car wash that recirculates its water and uses high pressure/low volume wash systems. If run independently, the participants must use a hose nozzle that completely shuts off the flow of water when not in use and must comply with all applicable federal, state and local stormwater management program requirements, including, but not limited to, the urban stormwater quality management and discharge control ordinance set forth in Chapter 14.20 of Title 14 of the City of Roseville Municipal Code.

I. Water shortage surcharges and excess water use charges shall be implemented as set forth in Section 14.08.095.

(Ord. 2611 § 1, 1992; Ord. 4629 § 1, 2008; Ord. 4724 § 3, 2009; Ord. 5311 § 2, 2014; Ord. 5491 § 6, 2015; Ord. 6500 § 7, 2022)

§ 14.09.090. Stage three drought restrictions.

During a stage three drought, the following restrictions may be required, as determined by the city manager and upon notification pursuant to Section 14.09.020(E):

A. All basic stage, stage one, and stage two restrictions required by Sections

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14.09.060, 14.09.070 and 14.09.080 shall continue in place, except to the extent they are replaced by more restrictive conditions imposed by this section.

B. Residential users and nonresidential landscapes are to reduce water usage up to 30 percent.

C. City park sites shall, as an aggregate, reduce usage up to 30 percent.

D. Residential water users shall be permitted to irrigate with city water on the following schedule, unless the city manager, or designee, provides prior written consent to a different irrigation pattern:

1. 1st day of September – last day of April: up to one day per week irrigation on Monday of each week, if needed.

2. 1st day of May – last day of August: up to two days per week irrigation on Monday and Friday of each week, if needed.

E. Nonresidential water users (including, without limitation, commercial, industrial, church, cemeteries, and publicly owned users) shall be permitted to irrigate with city water on the following schedule, unless the city manager, or designee, provides prior written consent to a different irrigation pattern:

1. 1st day of September – last day of April: up to one day per week irrigation on Tuesday of each week, if needed.

2. 1st day of May – last day of August: up to two days per week irrigation on Tuesday and Thursday of each week, if needed.

F. The limitations specified in subsections D and E shall not apply to a properly functioning low volume landscape irrigation system, the irrigation on container plants, or to the irrigation of new landscaping that is subject to the provisions of Section 14.09.060(E). Low volume irrigation means the application of irrigation water at low pressure through a system of tubing or lateral lines and low-volume emitters such as point source drip and in-line drip lines or soaker hose. These systems are specifically designed to apply small volumes of water slowly at or near the root zone of plants.

G. References in this section to any day of the week shall mean the period beginning at 12:00 a.m. on that day and ending 24 hours later.

H. New or expanded landscaping is limited to drought-tolerant trees, shrubs, and ground-cover and be irrigated using a low volume irrigation system. No new turf shall be planted, hydroseeded, or laid, unless prior written consent is received from the city manager or designee. Low volume irrigation means the application of irrigation water at low pressure through a system of tubing or lateral lines and low-volume emitters such as point source drip and in-line drip lines or soaker hose. These systems are specifically designed to apply small volumes of water slowly at or near the root zone of plants.

I. Except where recycled water is used, golf courses shall reduce irrigation up to 30

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percent.

J. All decorative fountains, decorative (i.e., nonswimming) pools, and decorative waterways shall be shut off. Such fountains, pools, and waterways shall not be refilled until the city has returned to the basic water conservation stage unless for preventative maintenance. Fountains, ponds or pools that are filled with recycled water are not subject to this provision. Decorative ponds that contain fish as a feature shall be exempt from this restriction as long as the system is maintained in good working order with measures taken to reduce the volume of makeup water required for evaporative losses.

K. Except where recycled or other non-potable water is used or as otherwise provided in this subsection, use of water for dust control is prohibited. Dust control shall be augmented by hardened, temporary travel routes with materials that are accepted by the city manager, city engineer, or designee. Potable water is allowed for construction water only where and to the extent required for public health and safety reasons.

L. New swimming pools and spas may be filled after construction using customer's metered water at then existing water rates. All new pools must include a means for minimizing evaporative loss, such as a pool cover, at time of final inspection by the city. After being filled with water for the first time, all pools and spas shall be subject to the requirements of Section 14.09.060(D).

M. Water shortage surcharges and excess water use charges shall be implemented as set forth in Section 14.08.095.

N. Automobiles or equipment shall be washed only at commercial establishments that recycle their water or by equipment and means that separates debris and revives wash water for continual use.

(Ord. 2413 § 2, 1991; Ord. 4629 § 1, 2008; Ord. 4724 § 3, 2009; Ord. 5311 § 2, 2014; Ord. 5491 § 7, 2015; Ord. 6500 § 8, 2022)

§ 14.09.100. Stage four drought restrictions.

During a stage four drought, the following restrictions may be required, as determined by the city manager and upon notification pursuant to Section 14.09.020(E):

A. All basic stage, stage one, stage two, and stage three restrictions required by Sections 14.09.060, 14.09.070, 14.09.080 and 14.09.090 shall continue in place, except to the extent they are replaced by more restrictive conditions imposed by this section.

B. Residential customers and nonresidential landscapes are to reduce water usage up to 40 percent.

C. City park sites shall, as an aggregate, reduce usage up to 40 percent.

D. Residential water users shall be permitted to irrigate with city water on the following schedule, unless the city manager, or designee, provides prior written

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consent to a different irrigation pattern:

1. 1st day of September – last day of April: No irrigation allowed.

2. 1st day of May – last day of August: up to one day per week irrigation on Monday, if needed.

E. Nonresidential water users (including, without limitation, commercial, industrial, church, cemeteries, and publicly owned users) shall be permitted to irrigate with city water on the following schedule, unless the city manager, or designee, provides prior written consent to a different irrigation pattern:

1. 1st day of September – last day of April: No irrigation allowed.

2. 1st day of May – last day of August: up to one day per week irrigation on Tuesday of each week, if needed.

F. The limitations specified in subsections D and E shall not apply to a properly functioning low volume landscape irrigation system, the irrigation on container plants, trees or to the irrigation of new landscaping that is subject to the provisions of Section 14.09.060(E). Low volume irrigation means the application of irrigation water at low pressure through a system of tubing or lateral lines and low-volume emitters such as point source drip and in-line drip lines or soaker hose. These systems are specifically designed to apply small volumes of water slowly at or near the root zone of plants.

G. References in this section to any day of the week shall mean the period beginning at 12:00 a.m. on that day and ending 24 hours later.

H. Installation of any new landscaping is prohibited unless irrigation is provided through connection to an active recycled water system. In the case of new construction, the city's building official will issue a temporary final upon completion of the structural development of the property. When the city has returned to a stage two drought restriction, landscaping installation can be completed and a building final will become available upon inspection by the city.

I. Except where recycled water is used, golf courses shall reduce irrigation up to 40 percent.

J. Automobiles or equipment shall be washed only at commercial establishments that recycle their water or by equipment and means that separates debris and recycles wash water for continual use.

K. Existing pools shall not be emptied and refilled using city water unless required for health or safety reasons until the city has returned to a stage two drought restriction. Pools may be refilled only to the extent necessary to replace evaporative losses.

L. No commitments shall be made to provide water service as part of any new land use entitlement (general plan, specific plan or amendments requesting new water allocations) until the city has returned to a stage two drought restriction. Currently approved specific plans with accompanying development agreements and projects

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or properties that have received water allocations in advance of full entitlements may be issued building permits so long as they comply with the remainder of this chapter.

M. Water shortage surcharges and excess water use charges shall be implemented as set forth in Section 14.08.095.

(Ord. 2413 § 2, 1991; Ord. 4629 § 1, 2008; Ord. 4724 § 3, 2009; Ord. 5311 § 2, 2014; Ord. 5491 § 8, 2015; Ord. 6500 § 9, 2022)

§ 14.09.110. Stage five drought restrictions.

During a stage five drought, the following restrictions may be required, as determined by the city manager and upon notification pursuant to Section 14.09.020(E):

A. All basic stage, or stage one, stage two, stage three and stage four restrictions required by Sections 14.09.060, 14.09.070, 14.09.080, 14.09.090 and 14.09.100 shall continue in place, except to the extent they are replaced by more restrictive conditions imposed by this section.

B. Residential customers and nonresidential landscapes are to reduce water usage up to 50 percent.

C. Except where recycled water is used, water users shall reduce landscape irrigation as follows:

1. Turf shall not be irrigated.

2. Trees and shrubs may be irrigated with a properly functioning low volume landscape irrigation system or by use of a handheld hose equipped with a nozzle capable of completely shutting off the flow of water except when positive action or pressure to maintain the flow of water is applied. Low volume irrigation means the application of irrigation water at low pressure through a system of tubing or lateral lines and low-volume emitters such as point source drip and in-line drip lines or soaker hose. These systems are specifically designed to apply small volumes of water slowly at or near the root zone of plants.

D. Filling new or existing swimming pools and spas with city water is prohibited.

E. Water shortage surcharges and excess water use charges shall be implemented as set forth in Section 14.08.095.

(Ord. 2413 § 2, 1991; Ord. 4629 § 1, 2008; Ord. 4724 § 3, 2009; Ord. 5311 § 2, 2014; Ord. 5491 § 9, 2015; Ord. 6500 § 10, 2022)

§ 14.09.120. Determination of drought tolerance.

Where this chapter permits or prohibits acts based upon whether or not a planting, tree, shrub, or groundcover is "drought tolerant" the determination shall be made based upon Sunset's *Western Garden Book* (most recent edition), or UC Davis Arboretum's "All Stars" plant database (www.arboretum.ucdavis.edu). Where this chapter permits or

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prohibits acts based upon whether a form of irrigation is "low volume drip irrigation" the determination shall be made by the director, or designee, whose determination shall be final.
(Ord. 2413 § 2, 1991; Ord. 4629 § 1, 2008; Ord. 5311 § 2, 2014; Ord. 6500 § 11, 2022)

§ 14.09.130. Determination of landscape water consumption reductions.

Whenever this chapter requires a reduction in consumption of water for irrigation purposes, the base year for measurement shall be the last year that the basic water conservation stage was in effect or a date specified by the Governor or state agency. If that data is not available for a property, allocations will be based on water use for similar properties. The city manager or designee may elect to base a reduction on the base year or on a landscape water consumption calculation if use was, in the city manager's or designee's, sole opinion, either excessive or extraordinarily low. For landscaping installed subsequent to the base year, the calculations shall be based on landscape water consumption calculations submitted with the landscape plan, or water consumption the previous year, whichever is less.
(Ord. 2413 § 2, 1991; Ord. 2817 § 1, 1994; Ord. 4629 § 1, 2008; Ord. 5311 § 2, 2014; Ord. 5491 § 10, 2015)

§ 14.09.140. Violations.

It is unlawful for any user and/or person to violate any provision or fail to comply with any of the requirements of this chapter. Causing, permitting, aiding, abetting or concealing a violation of any provision of this chapter shall constitute a violation of this chapter. A violation of the provisions of this chapter shall occur irrespective of the negligence or intent of the violator and a violation of or failure to comply with any of the requirements of this chapter may be charged as either an infraction or a misdemeanor in the discretion of the city attorney.
(Ord. 2413 § 2, 1991; Ord. 3834 § 3, 2002; Ord. 4629 § 1, 2008; Ord. 5311 § 2, 2014)

§ 14.09.150. Enforcement authority.

A. Whenever the city manager, or designee (including, but not limited to, an enforcement officer), determines that a user and/or person has violated any provision of, or failed to meet a requirement of, this chapter, an administrative citation pursuant to Chapter 2.50 or a written compliance order pursuant to Chapter 2.52 may be issued to any user and/or person responsible for the violation.

B. Any compliance order issued may require without limitation any or all of the following:

   1. The allocation of a particular amount of water to a given user and/or person responsible for the violation;

   2. The issuance of a fine;

   3. The installation of a flow restriction device;

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4. The performance of monitoring, analyses, and reporting;

5. That violations shall cease and desist; and/or

6. The discontinuation of water service.

The compliance order shall set forth a deadline within which the requirements of the compliance order must be completed. Said compliance order shall further advise that, should the violator fail to comply with the compliance order within the established deadline, a hearing on the compliance order shall be set.

(Ord. 2413 § 2, 1991; Ord. 2817 § 1, 1994; Ord. 3034 § 3, 2002; Ord. 4629 § 1, 2008; Ord. 5311 § 2, 2014; Ord. 5491 § 11, 2015)

§ 14.09.160. Hearing.

If full compliance is not achieved within the time specified in the compliance order, a hearing on the compliance order shall be set pursuant to Chapter 2.52. All penalties and remedies authorized by Chapter 2.52 shall apply to violations of this chapter.
(Ord. 2413 § 2, 1991; Ord. 4629 § 1, 2008; Ord. 5311 § 2, 2014)

§ 14.09.170. Appeal.

Any user and/or person receiving a compliance order under Section 14.09.150 may appeal the determination of the director, or designee, to a hearing panel drawn from the membership of the board of appeals. The notice of appeal must be received by the city's environmental utilities department within 10 days from the date of the compliance order. Notice of hearing and hearing on the appeal will be conducted pursuant to the requirements of Chapter 2.52.
(Ord. 2413 § 2, 1991; Ord. 4629 § 1, 2008; Ord. 5311 § 2, 2014)

§ 14.09.180. Separate offense for each day.

Any user and/or person that violates any provision of this chapter shall be guilty of a separate offense for each and every day during any portion of which any such user and/or person commits, continues, permits, or causes a violation thereof, and shall be punished accordingly.
(Ord. 2413 § 2, 1991; Ord. 4629 § 1, 2008; Ord. 5311 § 2, 2014)

§ 14.09.190. Public nuisance.

In addition to the enforcement processes and penalties hereinbefore provided, any condition caused or permitted to exist in violation of any of the provisions of this chapter is a threat to public health, safety, and welfare, and is declared and deemed a nuisance, and may be summarily abated or restored by the city at the violator's expense, and/or a civil action to abate, enjoin, or otherwise compel the cessation of such nuisance may be initiated and/or taken by the city.
(Ord. 2413 § 2, 1991; Ord. 4629 § 1, 2008; Ord. 5311 § 2, 2014)

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§ 14.09.200. Remedies not exclusive.

Remedies under this chapter are in addition to and do not supersede or limit any and all other remedies, civil or criminal. The remedies provided for herein shall be cumulative and not exclusive.
(Ord. 4629 § 2, 2008; Ord. 5311 § 2, 2014)

§ 14.09.210. Judicial review.

Any decision of the hearing panel shall be final. Any user and/or person aggrieved by an order of the hearing panel may obtain review of the order in the Superior Court by filing with the Court a petition for writ of mandate within 90 days pursuant to California Code of Civil Procedure Section 1094.6.
(Ord. 4629 § 2, 2008; Ord. 5311 § 2, 2014)

§ 14.09.220. Chapter severable.

The provisions of this chapter are severable. The city council declares that it would have adopted the remainder of this chapter even if any of its provisions are declared unlawful or unenforceable.
(Ord. 4629 § 2, 2008.; Ord. 5311 § 2, 2014)

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Exhibit C – Adoption Resolution

CITY OF ROSEVILLE CALIFORNIA

City Council Communication

Meeting Date: 6/17/2026
Item #: IX.6
File #: 0800-02
Item ID: 2026-446

Title:	2025 Urban Water Management Plan and Water Shortage Contingency Plan – Public Hearings and Consideration of Adoption
Contact:	Janice Gainey 916-774-5535 jrgainey@roseville.ca.us

SUMMARY

Staff recommends City Council hold two public hearings to receive comments on the Draft 2025 Urban Water Management Plan (UWMP) and the Draft Water Shortage Contingency Plan (WSCP). If found acceptable, staff is requesting that the City Council consider the adoption of the Draft 2025 UWMP and the draft WSCP upon close of the public hearing. Approving the plans has no impact on the City's General Fund.

RECOMMENDATION

Staff recommends that the City Council:

1. Hold a Public Hearing to:
   a) review and receive comments on the Draft 2025 Urban Water Management Plan (UWMP) and,

   b) review and receive comments on the Draft Water Shortage Contingency Plan (WSCP); and

2. After the Public Hearing:

   a) Adopt a resolution to adopt the 2025 Urban Water Management Plan and provide authorization to staff to submit it to the California Department of Water Resources (DWR) as final; and

   b) Adopt a resolution to adopt the Water Shortage Contingency Plan and provide authorization to staff to submit it to the California Department of Water Resources (DWR) as final.

BACKGROUND

Urban Water Management Plans (UWMPs) are prepared by urban water suppliers every five years. These plans support the suppliers' long-term resource planning to ensure that adequate water supplies are available to meet existing and future water needs. The information collected from UWMPs is useful for local, regional, and statewide water planning.

The requirements for UWMPs are found in two sections of California Water Code, §10610-10656 and §10608. Every urban water supplier that either provides over 3,000 acre-feet of water annually or serves more than 3,000 urban connections is required to submit an UWMP.

Within UWMPs, urban water suppliers must include the following:

- An assessment of the reliability of water sources over a 20-year planning time frame
- A description of demand management measures
- A water shortage contingency plan
- A discussion of the use and planned use of recycled water

The Water Shortage Contingency Plan (WSCP) is an action plan for addressing water shortages, including drought. The WSCP describes water demand reduction and supply augmentation actions to be taken in the event of a water shortage pertaining to six standard levels of water shortage: 0 to 10%, 10-20%, 20-30%, 30-40%, 40-50%, and greater than 50%. The WSCP also includes an analysis of water supply reliability, procedures for conducting its annual water supply and demand assessment, and procedures for customer compliance of shortage response actions as appropriate, and other elements. The WSCP must be adopted according to a defined public process.

WSCP must be submitted every five years as part of the UWMP. The City's last plan was developed and approved for 2020 and included a WSCP.

On September 3, 2025, after a competitive proposal process, Waterworks Engineers, Inc., was awarded a Professional Services Agreement to support the City in the development of the 2025 UWMP update as well as an update to the Water Management Plan (WMP).

Urban water suppliers are required to hold public hearings before adopting an UWMP to allow for community input, review, and comment. The 2025 UWMP updates are due to the California Department of Water Resources (DWR) by July 1, 2026.

FISCAL IMPACT

Conservation programs are a condition of City water contracts, regional agreements, and a matter of State law with the passage of SB X7-7 in 2009. Planning continues to be done on an annual basis and is included in all rate analysis and proposed budgets. Approving the plans has no impact on the City's General Fund.

ENVIRONMENTAL REVIEW

The proposed activity is statutorily exempt from the California Environmental Quality Act (CEQA). CEQA does not apply to the preparation and adoption of Urban Water Management plans (California Water Code §10652). The proposed plan would not affect water supplies for fish and wildlife, or expand or add water supplies, and therefore no further environmental review is required.

CITY COUNCIL STRATEGIC PLAN/OVERARCHING GOALS

4. Invest in well-planned infrastructure and growth
6. Deliver exceptional City services

Respectfully Submitted,
Janice Gainey, Principal Engineer

Sean Bigley, Environmental Utilities Director

ATTACHMENTS:

1. Resolution 26-238
2. Draft UWMP
3. UWMP Appendices
4. Resolution 26-239
5. Draft WSCP

REVIEWERS:

Janice Gainey, Environmental Utilities Department - Water	Created/Initiated - 5/14/2026
George Hanson, Environmental Utilities Department - Water	Approved - 5/20/2026
Devin Whittington, Environmental Utilities Department	Approved - 5/20/2026
Sean Bigley, Environmental Utilities Department - All	Approved - 5/21/2026
Kelly Aye, City Attorney Department	Approved - 6/4/2026
Katrina Six, City Clerk Department	Approved - 6/4/2026
Ryan DeVore, City Manager Department - Assistant City Manager	Approved - 6/5/2026
Dennis Kauffman, City Manager Department - Assistant City Manager	Approved - 6/5/2026
Michelle Sheidenberger, City Attorney Department	Approved - 6/5/2026
Dominick Casey, City Manager Department - City Manager	Approved - 6/5/2026
Katrina Six, City Clerk Department	Final Approval - 6/5/2026

RESOLUTION NO. 26-238

ADOPTING THE URBAN WATER MANAGEMENT PLAN AND AUTHORIZING STAFF TO SUBMIT TO THE CALIFORNIA DEPARTMENT OF WATER RESOURCES

WHEREAS, the Urban Water Management Plan Act requires every urban water supplier providing water for municipal purposes to more than 3,000 customers to develop and submit an Urban Water Management Plan (UWMP) every five years to the California Department of Water Resources (DWR); and

WHEREAS, with ongoing and recent updates to the DWR Guidebook for Urban Water Suppliers, staff collaborated with a consultant on the development of the 2025 UWMP update; and

WHEREAS, the City has prepared and circulated for public review the UWMP, and a properly noticed public hearing regarding said Plan was held by the City Council on June 17, 2026.

NOW, THEREFORE, BE IT RESOLVED by the City Council of the City of Roseville that the UWMP is hereby adopted and ordered filed with the City Clerk; and

BE IT FURTHER RESOLVED that the Mayor is hereby authorized and directed to file the UWMP with the California Department of Water Resources within 30 days after this date.

PASSED AND ADOPTED by the Council of the City of Roseville this 17th day of June 2026, by the following vote on roll call:

AYES COUNCILMEMBERS: Alvord, Bernasconi, Houdesheldt, Mendonsa, Roccucci

NOES COUNCILMEMBERS: None

ABSENT COUNCILMEMBERS: None

MAYOR

ATTEST:

City Clerk

Appendix N – Roseville Municipal Code 14.09



Roseville Municipal Code

Title 14 PUBLIC UTILITIES

Chapter 14.09 WATER CONSERVATION

§ 14.09.010. Short title.

This chapter may be cited as the Water Conservation and Drought Mitigation Ordinance. (Ord. 2413 § 2, 1991; Ord. 5311 § 2, 2014)

§ 14.09.020. General provisions.

A. Purpose. The purpose of this chapter is to ensure compliance with all federal, state and local requirements relating to water conservation and drought mitigation for the protection of public health, safety and welfare by:

1. Reducing the per capita water consumption throughout the City of Roseville (the "city") during years of normal precipitation and during years of drought;

2. Protecting and conserving the city's supply of water during specified times of emergency and/or crisis;

3. Minimizing and/or eliminating the waste of water through voluntary compliance or punitive action, if necessary;

4. Promoting the use of drip irrigation and other low volume irrigation methods that reduce outdoor water use by applying water more efficiently than traditional irrigation methods;

5. No person shall use, or cause to be used, any city water for landscape irrigation between the hours of 10:00 a.m. and 8:00 p.m., unless the city manager, or designee provides prior written consent to a different time limitation. A waiver may be granted for turf areas if the landscape contains too many irrigation valves to complete an irrigation event within the watering window.

6. Upon city declaration of a water shortage, the city manager, or designee, may impose revised and/or additional limitations on outdoor water use, as specified in Section 14.09.040, and no person shall use, or cause to be used, city water in violation of such limitations while the water shortage remains in effect.

B. Scope. The provisions of this chapter shall apply to all customers, users and/or recipients (hereinafter "users") of the city's potable and recycled water service within the city's territorial limits.

C. Administration and Enforcement. The city manager, or designee, including, but not limited to, an enforcement officer as defined herein, shall administer, implement, and enforce the provisions of this chapter. For purposes of this chapter an "enforcement officer" means any city employee or agent of the city with the authority to enforce any provision of this chapter and the authority to make any decision on behalf of the city manager required or called for by this chapter.

D. Compliance. All provisions of this chapter are subject to the compliance procedures set forth in this chapter unless otherwise expressly stated herein.

E. Notification. The city manager, or designee, shall determine the means by which the city shall notify its water users of drought stage determinations and any

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applicable upgrade or downgrade of such determinations or restrictions. Notification may be achieved through mass media, newspaper, public notice, mailings, utility billings or by any combination of such notice, or by other means as determined by the city manager, or designee.

(Ord. 2413 § 2, 1991; Ord. 4629 § 1, 2008; Ord. 5311 § 2, 2014; Ord. 5491 § 1, 2015)

§ 14.09.030. Definition of water waste.

Any of the following acts or omissions, whether willful or negligent, shall constitute the waste of water:

A. Causing or permitting water to leak, discharge, flow or run to waste into any gutter, sanitary sewer, watercourse or public or private storm drain, or to any adjacent property, from any tap, hose, faucet, pipe, sprinkler, pond, pool, waterway, fountain or nozzle. In the case of irrigation, "discharge," "flow" or "run to waste" means that the earth intended to be irrigated has been saturated with water to the point that excess water flows over or through the earth to waste. In the case of washing, "discharge," "flow" or "run to waste" means that water in excess of that necessary to wash, wet or clean the dirty or dusty object, such as an automobile, sidewalk, or parking area, flows to waste.

B. Allowing water fixtures (including, but not limited to, toilets, faucets, shower heads) or heating or cooling devices to leak or run to waste.

C. Maintaining ponds, waterways, decorative basins or swimming pools without water recirculation devices.

D. Backwashing so as to discharge to waste swimming pools, decorative basins or ponds in excess of the frequency necessary to ensure the healthful condition of the water or in excess of that required by standards for professionally administered maintenance or to address structural considerations, as determined by the city manager, or designee.

E. Operation of an irrigation system that applies water to an impervious surface or that is in disrepair.

F. Use of a water hose not equipped with a control nozzle capable of completely shutting off the flow of water except when positive pressure is applied.

G. Irrigation of landscaping during rainfall or 48 hours after a measurable rain event. A measurable rain event is the equivalent of ¼ inch of rain in an hour.

H. Overfilling of any pond, pool or fountain which results in water discharging to waste.

(Ord. 2413 § 2, 1991; Ord. 3834 § 3, 2002; Ord. 4629 § 1, 2008; Ord. 5311 § 2, 2014; Ord. 5491 § 2, 2015; Ord. 6500 § 3, 2022)

§ 14.09.040. Water conservation and drought stages.

The following water conservation and drought stages are hereby established:

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A. Basic Water Conservation Stage ("Basic Stage"). The basic stage shall exist when the city's water supply is adequate to meet all projected demands as determined by the city manager, or designee.

B. Stage One Drought. A stage one drought shall exist when the city's water supply is adequate to meet 90 percent of projected demands as determined by the city manager, or designee. An objective of a stage one drought condition is to reduce water usage up to 10 percent. Water shortage surcharges shall be implemented as set forth in Section 14.08.095.

C. Stage Two Drought. A stage two drought shall exist when the city's water supply is adequate to meet 80 percent of projected demands as determined by the city manager, or designee. An objective of a stage two drought condition is to reduce water usage up to 20 percent. Water shortage surcharges and excess water use charges shall be implemented as set forth in Section 14.08.095.

D. Stage Three Drought. A stage three drought shall exist when the city's water supply is adequate to meet 70 percent of projected demands as determined by the city manager or designee. An objective of a stage three drought condition is to reduce water usage up to 30 percent. Water shortage surcharges and excess water use charges shall be implemented as set forth in Section 14.08.095.

E. Stage Four Drought. A stage four drought shall exist when the city's water supply is adequate to meet 60 percent of projected demands as determined by the city manager or designee. An objective of a stage four drought condition is to reduce water usage up to 40 percent. Water shortage surcharges and excess water use charges shall be implemented as set forth in Section 14.08.095.

F. Stage Five Drought. A stage five drought shall exist when the city's water supply is adequate to meet 50 percent or less of projected demands as determined by the city manager, or designee. An objective of a stage five drought condition is to reduce water usage up to 50 percent. Water shortage surcharges and excess water use charges shall be implemented as set forth in Section 14.08.095.

(Ord. 2413 § 2, 1991; Ord. 4629 § 1, 2008; Ord. 4724 § 3, 2009; Ord. 5311 § 2, 2014; Ord. 5491 § 3, 2015)

§ 14.09.050. Groundwater use as an alternate supply.

While the city routinely pumps relatively small volumes of groundwater during all water year types for maintenance purposes, the city may use groundwater as an alternate source of water supply to aid in meeting demands associated with dry periods, peak demands, or due to surface water supply curtailments. The city may also use groundwater as an alternate source of water supply to achieve obligations associated with the Sacramento Water Forum, American River flow standards, or when participating in groundwater banking to achieve California Water Code obligations under the Sustainable Groundwater Management Act or to be consistent with other regional or statewide objectives.

(Ord. 2413 § 2, 1991; Ord. 4629 § 1, 2008; Ord. 5311 § 2, 2014; Ord. 6500 § 4, 2022)

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§ 14.09.060. Basic stage restrictions.

During the basic water conservation stage, the following restrictions shall be in force:

Water shall be used for beneficial purposes only; all unnecessary and wasteful uses (as defined in Section 14.09.030) of water are prohibited.

A. Water shall be confined to the user's property and shall not be allowed to run off to adjoining properties, or to the roadside or to the gutter. Care shall be taken not to water past the point of saturation.

B. Free-flowing hoses for all uses are prohibited. Automatic shut-off devices shall be attached on any hose or filling apparatus in use.

C. All leaks (including irrigation systems, pipes, fixtures, pools, ponds, fountains and waterways) shall be repaired within five calendar days or less if warranted by the severity of the problem as determined in the discretion of the city manager, or designee.

D. All pools, spas, and ornamental fountains/ponds shall be equipped with a recirculation pump and shall be constructed to be leak-proof. Pool draining and refilling shall be allowed only to the extent required for health, maintenance, or structural considerations, and must otherwise comply with all applicable federal, state and local stormwater management program requirements, including, but not limited to, the urban stormwater quality management and discharge control ordinance set forth in Chapter 14.20 of Title 14 of the City of Roseville Municipal Code.

E. Landscaping.

1. All landscaping installed in the City of Roseville shall comply with the water efficient landscape requirements adopted by resolution of the city council.

2. Irrigation of new landscaping shall be allowed on any day of the week for a period of 30 days after the new landscaping is planted, unless the city manager, or designee, provides prior written consent to extend this time period based on plant type and the season when the new landscaping is planted. After the 30 days, irrigation days and run times should be decreased to settings appropriate for an established landscape.

3. Upon city declaration of a water shortage, the city manager or designee may impose revised and/or additional limitations on the irrigation of new landscaping, as specified in Sections 14.09.060 through 14.09.100, and no person shall use, or cause to be used, city water in violation of such limitations while the water shortage remains in effect. A waiver may be granted to irrigate during an establishment period for actively used turf areas and/or sports fields or as approved by the city manager or designee. Allowance shall also be made for irrigation testing and repairs.

F. All site reviews shall include an evaluation of using recycled water. Recycled water

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shall be required if economically feasible.
(Ord. 2413 § 2, 1991; Ord. 2762 § 1, 1993; Ord. 4629 § 1, 2008; Ord. 5311 § 2, 2014; Ord. 5491 § 4, 2015; Ord. 6500 § 5, 2022)

§ 14.09.070. Stage one drought restrictions.

During a stage one drought, the following restrictions may be required, as determined by the city manager and upon notification pursuant to Section 14.09.020(E):

A. All basic stage restrictions required by Sections 14.09.030 and 14.09.060 shall continue in place, except to the extent they are replaced by more restrictive conditions imposed by this section.

B. Residential users and nonresidential users shall reduce water usage up to 10 percent.

C. Residential water users shall be permitted to irrigate with city water on the following schedule, unless the city manager, or designee, provides prior written consent to a different irrigation pattern:

1. 1st day of November – last day of February: up to one day per week irrigation on Monday of each week, if needed.

2. 1st day of March – last day of April and 1st day of September – last day of October: up to two days per week irrigation on Monday and Friday of each week, if needed.

3. 1st day of May – last day of August: up to three days per week irrigation on Monday, Wednesday and Friday of each week, if needed.

D. Nonresidential water users (including, without limitation, commercial, industrial, church, cemeteries, and publicly owned users) shall be permitted to irrigate with city water on the following schedule, unless the city manager, or designee, provides prior written consent to a different irrigation pattern:

1. 1st day of November – last day of February: up to one day per week irrigation on Tuesday of each week, if needed.

2. 1st day of March – last day of April and 1st day of September – last day of October: up to two days per week irrigation on Tuesday and Thursday of each week, if needed.

3. 1st day of May – last day of August: up to three days per week irrigation on Tuesday, Thursday and Saturday of each week, if needed.

E. The limitations specified in subsections C and D shall not apply to a properly functioning low volume landscape irrigation system, the irrigation on container plants, or to the irrigation of new landscaping that is subject to the provisions of Section 14.09.060(E). Low volume irrigation means the application of irrigation water at low pressure through a system of tubing or lateral lines and low-volume emitters such as point source drip and in-line drip lines or soaker hose. These systems are specifically designed to apply small volumes of water slowly at or near

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the root zone of plants.

F. References in this section to any day of the week shall mean the period beginning at 12:00 a.m. on that day and ending 24 hours later.

G. City park sites shall, as an aggregate, reduce usage up to 10 percent.

H. Washing streets, parking lots, driveways, sidewalks or buildings, except as necessary for health or sanitary purposes or pursuant to a term or condition in a permit issued by a state or federal agency, is prohibited.

I. Water shall not be served at restaurants except by request.

J. Water shortage surcharges shall be implemented as set forth in Section 14.08.095.
(Ord. 2413 § 2, 1991; Ord. 2636 § 1, 1992; Ord. 2817 § 1, 1994; Ord. 4629 § 1, 2008; Ord. 4724 § 3, 2009; Ord. 5311 § 2, 2014; Ord. 5491 § 5, 2015; Ord. 6500 § 6, 2022)

§ 14.09.080. Stage two drought restrictions.

During a stage two drought, the following restrictions may be required, as determined by the city manager and upon notification pursuant to Section 14.09.020(E):

A. All basic stage and stage one restrictions required by Sections 14.09.060 and 14.09.070 shall continue in place, except to the extent they are replaced by more restrictive conditions imposed by this section.

B. Residential users and nonresidential landscapes shall reduce water usage up to 20 percent.

C. City park sites shall, as an aggregate, reduce usage up to 20 percent.

D. Residential water users shall be permitted to irrigate with city water on the following schedule, unless the city manager, or designee, provides prior written consent to a different irrigation pattern:

1. 1st day of November – last day of February: up to one day per week irrigation on Monday of each week, if needed.

2. 1st day of March – last day of April and 1st day of September – last day of October: up to two days per week irrigation on Monday and Friday of each week, if needed.

3. 1st day of May – last day of August: up to three days per week irrigation on Monday, Wednesday and Friday of each week, if needed.

E. Nonresidential water users (including, without limitation, commercial, industrial, church, cemeteries, and publicly owned users) shall be permitted to irrigate with city water on the following schedule, unless the city manager, or designee, provides prior written consent to the Environmental Utilities-Water Efficiency Section for a different irrigation pattern:

1. 1st day of November – last day of February: up to one day per week irrigation

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on Tuesday of each week, if needed.

2. 1st day of March – last day of April and 1st day of September – last day of October: up to two days per week irrigation on Tuesday and Thursday of each week, if needed.

3. 1st day of May – last day of August: up to three days per week irrigation on Tuesday, Thursday and Saturday of each week, if needed.

F. The limitations specified in subsections D and E shall not apply to a properly functioning low volume landscape irrigation system, the irrigation on container plants, or to the irrigation of new landscaping that is subject to the provisions of Section 14.09.060(E). Low volume irrigation means the application of irrigation water at low pressure through a system of tubing or lateral lines and low-volume emitters such as point source drip and in-line drip lines or soaker hose. These systems are specifically designed to apply small volumes of water slowly at or near the root zone of plants.

G. References in this section to any day of the week shall mean the period beginning at 12:00 a.m. on that day and ending 24 hours later.

H. Washing of vehicles or boats is prohibited except:

1. When using a hose that is equipped with a control nozzle capable of completely shutting off the flow of water except when positive action or pressure to maintain the flow of water is applied; or

2. When washed in either an automatic or manual commercial car wash that recirculates its water and uses high pressure/low volume wash systems.

3. Temporary car washes, held for fundraising purposes, are encouraged to partner with an automatic commercial car wash that recirculates its water and uses high pressure/low volume wash systems. If run independently, the participants must use a hose nozzle that completely shuts off the flow of water when not in use and must comply with all applicable federal, state and local stormwater management program requirements, including, but not limited to, the urban stormwater quality management and discharge control ordinance set forth in Chapter 14.20 of Title 14 of the City of Roseville Municipal Code.

I. Water shortage surcharges and excess water use charges shall be implemented as set forth in Section 14.08.095.

(Ord. 2611 § 1, 1992; Ord. 4629 § 1, 2008; Ord. 4724 § 3, 2009; Ord. 5311 § 2, 2014; Ord. 5491 § 6, 2015; Ord. 6500 § 7, 2022)

§ 14.09.090. Stage three drought restrictions.

During a stage three drought, the following restrictions may be required, as determined by the city manager and upon notification pursuant to Section 14.09.020(E):

A. All basic stage, stage one, and stage two restrictions required by Sections

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14.09.060, 14.09.070 and 14.09.080 shall continue in place, except to the extent they are replaced by more restrictive conditions imposed by this section.

B. Residential users and nonresidential landscapes are to reduce water usage up to 30 percent.

C. City park sites shall, as an aggregate, reduce usage up to 30 percent.

D. Residential water users shall be permitted to irrigate with city water on the following schedule, unless the city manager, or designee, provides prior written consent to a different irrigation pattern:

1. 1st day of September – last day of April: up to one day per week irrigation on Monday of each week, if needed.

2. 1st day of May – last day of August: up to two days per week irrigation on Monday and Friday of each week, if needed.

E. Nonresidential water users (including, without limitation, commercial, industrial, church, cemeteries, and publicly owned users) shall be permitted to irrigate with city water on the following schedule, unless the city manager, or designee, provides prior written consent to a different irrigation pattern:

1. 1st day of September – last day of April: up to one day per week irrigation on Tuesday of each week, if needed.

2. 1st day of May – last day of August: up to two days per week irrigation on Tuesday and Thursday of each week, if needed.

F. The limitations specified in subsections D and E shall not apply to a properly functioning low volume landscape irrigation system, the irrigation on container plants, or to the irrigation of new landscaping that is subject to the provisions of Section 14.09.060(E). Low volume irrigation means the application of irrigation water at low pressure through a system of tubing or lateral lines and low-volume emitters such as point source drip and in-line drip lines or soaker hose. These systems are specifically designed to apply small volumes of water slowly at or near the root zone of plants.

G. References in this section to any day of the week shall mean the period beginning at 12:00 a.m. on that day and ending 24 hours later.

H. New or expanded landscaping is limited to drought-tolerant trees, shrubs, and ground-cover and be irrigated using a low volume irrigation system. No new turf shall be planted, hydroseeded, or laid, unless prior written consent is received from the city manager or designee. Low volume irrigation means the application of irrigation water at low pressure through a system of tubing or lateral lines and low-volume emitters such as point source drip and in-line drip lines or soaker hose. These systems are specifically designed to apply small volumes of water slowly at or near the root zone of plants.

I. Except where recycled water is used, golf courses shall reduce irrigation up to 30

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percent.

J. All decorative fountains, decorative (i.e., nonswimming) pools, and decorative waterways shall be shut off. Such fountains, pools, and waterways shall not be refilled until the city has returned to the basic water conservation stage unless for preventative maintenance. Fountains, ponds or pools that are filled with recycled water are not subject to this provision. Decorative ponds that contain fish as a feature shall be exempt from this restriction as long as the system is maintained in good working order with measures taken to reduce the volume of makeup water required for evaporative losses.

K. Except where recycled or other non-potable water is used or as otherwise provided in this subsection, use of water for dust control is prohibited. Dust control shall be augmented by hardened, temporary travel routes with materials that are accepted by the city manager, city engineer, or designee. Potable water is allowed for construction water only where and to the extent required for public health and safety reasons.

L. New swimming pools and spas may be filled after construction using customer's metered water at then existing water rates. All new pools must include a means for minimizing evaporative loss, such as a pool cover, at time of final inspection by the city. After being filled with water for the first time, all pools and spas shall be subject to the requirements of Section 14.09.060(D).

M. Water shortage surcharges and excess water use charges shall be implemented as set forth in Section 14.08.095.

N. Automobiles or equipment shall be washed only at commercial establishments that recycle their water or by equipment and means that separates debris and revives wash water for continual use.

(Ord. 2413 § 2, 1991; Ord. 4629 § 1, 2008; Ord. 4724 § 3, 2009; Ord. 5311 § 2, 2014; Ord. 5491 § 7, 2015; Ord. 6500 § 8, 2022)

§ 14.09.100. Stage four drought restrictions.

During a stage four drought, the following restrictions may be required, as determined by the city manager and upon notification pursuant to Section 14.09.020(E):

A. All basic stage, stage one, stage two, and stage three restrictions required by Sections 14.09.060, 14.09.070, 14.09.080 and 14.09.090 shall continue in place, except to the extent they are replaced by more restrictive conditions imposed by this section.

B. Residential customers and nonresidential landscapes are to reduce water usage up to 40 percent.

C. City park sites shall, as an aggregate, reduce usage up to 40 percent.

D. Residential water users shall be permitted to irrigate with city water on the following schedule, unless the city manager, or designee, provides prior written

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consent to a different irrigation pattern:

1. 1st day of September – last day of April: No irrigation allowed.

2. 1st day of May – last day of August: up to one day per week irrigation on Monday, if needed.

E. Nonresidential water users (including, without limitation, commercial, industrial, church, cemeteries, and publicly owned users) shall be permitted to irrigate with city water on the following schedule, unless the city manager, or designee, provides prior written consent to a different irrigation pattern:

1. 1st day of September – last day of April: No irrigation allowed.

2. 1st day of May – last day of August: up to one day per week irrigation on Tuesday of each week, if needed.

F. The limitations specified in subsections D and E shall not apply to a properly functioning low volume landscape irrigation system, the irrigation on container plants, trees or to the irrigation of new landscaping that is subject to the provisions of Section 14.09.060(E). Low volume irrigation means the application of irrigation water at low pressure through a system of tubing or lateral lines and low-volume emitters such as point source drip and in-line drip lines or soaker hose. These systems are specifically designed to apply small volumes of water slowly at or near the root zone of plants.

G. References in this section to any day of the week shall mean the period beginning at 12:00 a.m. on that day and ending 24 hours later.

H. Installation of any new landscaping is prohibited unless irrigation is provided through connection to an active recycled water system. In the case of new construction, the city's building official will issue a temporary final upon completion of the structural development of the property. When the city has returned to a stage two drought restriction, landscaping installation can be completed and a building final will become available upon inspection by the city.

I. Except where recycled water is used, golf courses shall reduce irrigation up to 40 percent.

J. Automobiles or equipment shall be washed only at commercial establishments that recycle their water or by equipment and means that separates debris and recycles wash water for continual use.

K. Existing pools shall not be emptied and refilled using city water unless required for health or safety reasons until the city has returned to a stage two drought restriction. Pools may be refilled only to the extent necessary to replace evaporative losses.

L. No commitments shall be made to provide water service as part of any new land use entitlement (general plan, specific plan or amendments requesting new water allocations) until the city has returned to a stage two drought restriction. Currently approved specific plans with accompanying development agreements and projects

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or properties that have received water allocations in advance of full entitlements may be issued building permits so long as they comply with the remainder of this chapter.

M. Water shortage surcharges and excess water use charges shall be implemented as set forth in Section 14.08.095.

(Ord. 2413 § 2, 1991; Ord. 4629 § 1, 2008; Ord. 4724 § 3, 2009; Ord. 5311 § 2, 2014; Ord. 5491 § 8, 2015; Ord. 6500 § 9, 2022)

§ 14.09.110. Stage five drought restrictions.

During a stage five drought, the following restrictions may be required, as determined by the city manager and upon notification pursuant to Section 14.09.020(E):

A. All basic stage, or stage one, stage two, stage three and stage four restrictions required by Sections 14.09.060, 14.09.070, 14.09.080, 14.09.090 and 14.09.100 shall continue in place, except to the extent they are replaced by more restrictive conditions imposed by this section.

B. Residential customers and nonresidential landscapes are to reduce water usage up to 50 percent.

C. Except where recycled water is used, water users shall reduce landscape irrigation as follows:

1. Turf shall not be irrigated.

2. Trees and shrubs may be irrigated with a properly functioning low volume landscape irrigation system or by use of a handheld hose equipped with a nozzle capable of completely shutting off the flow of water except when positive action or pressure to maintain the flow of water is applied. Low volume irrigation means the application of irrigation water at low pressure through a system of tubing or lateral lines and low-volume emitters such as point source drip and in-line drip lines or soaker hose. These systems are specifically designed to apply small volumes of water slowly at or near the root zone of plants.

D. Filling new or existing swimming pools and spas with city water is prohibited.

E. Water shortage surcharges and excess water use charges shall be implemented as set forth in Section 14.08.095.

(Ord. 2413 § 2, 1991; Ord. 4629 § 1, 2008; Ord. 4724 § 3, 2009; Ord. 5311 § 2, 2014; Ord. 5491 § 9, 2015; Ord. 6500 § 10, 2022)

§ 14.09.120. Determination of drought tolerance.

Where this chapter permits or prohibits acts based upon whether or not a planting, tree, shrub, or groundcover is "drought tolerant" the determination shall be made based upon Sunset's *Western Garden Book* (most recent edition), or UC Davis Arboretum's "All Stars" plant database (www.arboretum.ucdavis.edu). Where this chapter permits or

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prohibits acts based upon whether a form of irrigation is "low volume drip irrigation" the determination shall be made by the director, or designee, whose determination shall be final.
(Ord. 2413 § 2, 1991; Ord. 4629 § 1, 2008; Ord. 5311 § 2, 2014; Ord. 6500 § 11, 2022)

§ 14.09.130. Determination of landscape water consumption reductions.

Whenever this chapter requires a reduction in consumption of water for irrigation purposes, the base year for measurement shall be the last year that the basic water conservation stage was in effect or a date specified by the Governor or state agency. If that data is not available for a property, allocations will be based on water use for similar properties. The city manager or designee may elect to base a reduction on the base year or on a landscape water consumption calculation if use was, in the city manager's or designee's, sole opinion, either excessive or extraordinarily low. For landscaping installed subsequent to the base year, the calculations shall be based on landscape water consumption calculations submitted with the landscape plan, or water consumption the previous year, whichever is less.
(Ord. 2413 § 2, 1991; Ord. 2817 § 1, 1994; Ord. 4629 § 1, 2008; Ord. 5311 § 2, 2014; Ord. 5491 § 10, 2015)

§ 14.09.140. Violations.

It is unlawful for any user and/or person to violate any provision or fail to comply with any of the requirements of this chapter. Causing, permitting, aiding, abetting or concealing a violation of any provision of this chapter shall constitute a violation of this chapter. A violation of the provisions of this chapter shall occur irrespective of the negligence or intent of the violator and a violation of or failure to comply with any of the requirements of this chapter may be charged as either an infraction or a misdemeanor in the discretion of the city attorney.
(Ord. 2413 § 2, 1991; Ord. 3834 § 3, 2002; Ord. 4629 § 1, 2008; Ord. 5311 § 2, 2014)

§ 14.09.150. Enforcement authority.

A. Whenever the city manager, or designee (including, but not limited to, an enforcement officer), determines that a user and/or person has violated any provision of, or failed to meet a requirement of, this chapter, an administrative citation pursuant to Chapter 2.50 or a written compliance order pursuant to Chapter 2.52 may be issued to any user and/or person responsible for the violation.

B. Any compliance order issued may require without limitation any or all of the following:

   1. The allocation of a particular amount of water to a given user and/or person responsible for the violation;

   2. The issuance of a fine;

   3. The installation of a flow restriction device;

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4. The performance of monitoring, analyses, and reporting;

5. That violations shall cease and desist; and/or

6. The discontinuation of water service.

The compliance order shall set forth a deadline within which the requirements of the compliance order must be completed. Said compliance order shall further advise that, should the violator fail to comply with the compliance order within the established deadline, a hearing on the compliance order shall be set.

(Ord. 2413 § 2, 1991; Ord. 2817 § 1, 1994; Ord. 3034 § 3, 2002; Ord. 4629 § 1, 2008; Ord. 5311 § 2, 2014; Ord. 5491 § 11, 2015)

§ 14.09.160. Hearing.

If full compliance is not achieved within the time specified in the compliance order, a hearing on the compliance order shall be set pursuant to Chapter 2.52. All penalties and remedies authorized by Chapter 2.52 shall apply to violations of this chapter.
(Ord. 2413 § 2, 1991; Ord. 4629 § 1, 2008; Ord. 5311 § 2, 2014)

§ 14.09.170. Appeal.

Any user and/or person receiving a compliance order under Section 14.09.150 may appeal the determination of the director, or designee, to a hearing panel drawn from the membership of the board of appeals. The notice of appeal must be received by the city's environmental utilities department within 10 days from the date of the compliance order. Notice of hearing and hearing on the appeal will be conducted pursuant to the requirements of Chapter 2.52.
(Ord. 2413 § 2, 1991; Ord. 4629 § 1, 2008; Ord. 5311 § 2, 2014)

§ 14.09.180. Separate offense for each day.

Any user and/or person that violates any provision of this chapter shall be guilty of a separate offense for each and every day during any portion of which any such user and/or person commits, continues, permits, or causes a violation thereof, and shall be punished accordingly.
(Ord. 2413 § 2, 1991; Ord. 4629 § 1, 2008; Ord. 5311 § 2, 2014)

§ 14.09.190. Public nuisance.

In addition to the enforcement processes and penalties hereinbefore provided, any condition caused or permitted to exist in violation of any of the provisions of this chapter is a threat to public health, safety, and welfare, and is declared and deemed a nuisance, and may be summarily abated or restored by the city at the violator's expense, and/or a civil action to abate, enjoin, or otherwise compel the cessation of such nuisance may be initiated and/or taken by the city.
(Ord. 2413 § 2, 1991; Ord. 4629 § 1, 2008; Ord. 5311 § 2, 2014)

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§ 14.09.200. Remedies not exclusive.

Remedies under this chapter are in addition to and do not supersede or limit any and all other remedies, civil or criminal. The remedies provided for herein shall be cumulative and not exclusive.
(Ord. 4629 § 2, 2008; Ord. 5311 § 2, 2014)

§ 14.09.210. Judicial review.

Any decision of the hearing panel shall be final. Any user and/or person aggrieved by an order of the hearing panel may obtain review of the order in the Superior Court by filing with the Court a petition for writ of mandate within 90 days pursuant to California Code of Civil Procedure Section 1094.6.
(Ord. 4629 § 2, 2008; Ord. 5311 § 2, 2014)

§ 14.09.220. Chapter severable.

The provisions of this chapter are severable. The city council declares that it would have adopted the remainder of this chapter even if any of its provisions are declared unlawful or unenforceable.
(Ord. 4629 § 2, 2008.; Ord. 5311 § 2, 2014)

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Appendix O – Roseville Municipal Code 14.08.090, 14.08.095, 14.08.100



Roseville Municipal Code

Title 14 PUBLIC UTILITIES

Chapter 14.08 WATER

§ 14.08.090. Service charges for metered service.

There shall be due and payable the following monthly charges, upon submission of the bill by the city to the owner of the property supplied with service, for all treated water measured by meters for residential, commercial, industrial and manufacturing or other purposes:

A. □onthly □uantity Rates. Effective July 4, 2025 and July 1, 2026, the monthly quantity rates on billings shall be as follows:

	Effective 7/4/2025	Effective 7/1/2026
Potable water usage (per cubic foot)	$0.0174	$0.0181
Recycled water usage (per cubic foot)	$0.0112	$0.0117

□. □onthly Service Charges. Effective July 4, 2025 and July 1, 2026, the monthly service charges on billings shall be as follows:

□eter Si□e (inches)	Peak Flow Rate (gallons per minute)	Effective 7/4/2025	Effective 7/1/2026
□p to 3/4	30	$31.63	$32.90
1	50	$49.47	$51.45
1-1/2	100	$94.07	$97.83
2	160	$147.59	$153.49
3	350	$317.07	329.75
4	630	$566.83	$589.50
6	1300	$1,164.47	$1,211.05
8	2800	$2,502.47	$2,602.57
10	4200	$3,751.27	$3,901.32

C. The total amount due and payable shall be the sum of the monthly service charge plus the quantity rate. The monthly service charge is due and payable regardless of whether water has been consumed. The service charge shall be the greater of the charge based on the meter si□e or flow rate, with the following exceptions:

1. No service charge shall be made for fire service that has backflow prevention with detector check devices approved by the environmental utilities director.

D. No service charge shall be made for recycled water utility back-up systems that are required for reliability only and have backflow prevention and metering approved by the environmental utilities director. This exclusion does not extend to systems that are regularly required as part of normal operation. The recycled water operation shall be responsible for water volumetric charges for these services and any costs

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associated with meter maintenance. For purposes of charging for treated water measured by meters:

1. A residential account is defined as a single metered water service which serves three or less dwelling units.

2. A nonresidential account is defined as a single metered water service which serves more than three dwelling units, or serves commercial, industrial, manufacturing, irrigation or other nonresidential land uses.

E. For single-family residential services that require automatic fire protection systems pursuant to Section 16.16.110, the increased meter size will not be assessed an additional charge associated with the fire protection system requirement. Service charges shall be based on the required service size as determined by the Uniform Plumbing Code without consideration for any fire protection system required by Section 16.16.110.

(Prior code § 27.14; Ord. 1239 § 1, 1974; Ord. 1418 § 8, 1978; Ord. 1918 § 1, 1985; Ord. 1953 § 1, 1986; Ord. 2708 § 1, 1993; Ord. 3101 § 1, 1997; Ord. 3687 § 1, 2001; Ord. 3756 § 1, 2001; Ord. 3964 § 1, 2003; Ord. 4001 § 3, 2003; Ord. 4263 § 2, 2005; Ord. 4473 § 1, 2006; Ord. 4508 § 1, 2007; Ord. 4639 § 1, 2008; Ord. 4680 § 1, 2008; Ord. 4724 § 2, 2009; Ord. 4957 § 1, 2011; Ord. 5174 § 2, 2013; Ord. 5610 § 2, 2016; Ord. 5837 § 2, 2017; Ord. 6100 § 3, 2019; Ord. 6367 § 2. 2021; Ord. 6660 § 1, 2023; Ord. 6953, 6/4/2025)

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§ 14.08.095. Water rate surcharge and excess water use charge.

Effective on billings as of □ ay 1, 2009, all quantity rates identified in Section 14.08.090, but not recycled water, will be sub□ect to the water shortage surcharges and excess water use charges identified as follows when the drought stages identified and set forth in Sections 14.09.070 through 14.09.110 are declared, provided that the city manager determines that imposition of such charges is required under the identified drought stage.

Summary of Water Shortage Rate Charges			
Stage	Water □se Restriction	Water Shortage Surcharge (□1)	Excess Water □se Charge (□2)
First Year of a Water Shortage			
Stage 1	10□	None	None
Stage 2	20□	15□	None
Stage 3	30□	33□	25□
Stage 4	40□	45□	50□
Stage 5	50□	60□	100□
Subsequent Year(s) of a Water Shortage			
Stage 1	10□	15□	None
Stage 2	20□	20□	25□
Stage 3	30□	40□	50□
Stage 4	40□	50□	100□
Stage 5	50□	75□	200□

Notes:

(□1) The water shortage surcharge (identified hereafter) shall be added to all quantity rates identified in Section 14.08.090 as applicable, according to drought stage.

(□2) □n addition to the applicable water shortage surcharge, an excess water use charge shall be added to water rates identified in Section 14.08.090, according to drought stage.

(Ord. 2414 § 1, 1991; Ord. 3101 § 1, 1997; Ord. 4724 § 2, 2009; Ord. 5311 § 1, 2014; Ord. 5837 § 3, 2017)

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§ 14.08.100. Flat water rates.

The following service charges shall apply to flat rate consumers that the environmental utilities director determines are not cost effective to assign metered rates. The environmental utilities director shall conduct a water use study for consumers whom he or she determines may not be reasonably metered, and the director shall assign such consumers to an appropriate service rate level as set forth in this section. Water service rates for flat rate residential consumers shall be due and payable on a monthly basis according to the appropriate grouping set out in this section.

Effective July 4, 2025, and July 1, 2026, the flat rates on billings shall be as follows:

Nonmetered or Flat Service Charges	Effective 7/4/2025	Effective 7/1/2026
Single-family lots under 4,900 square feet; each mobile home unit not within a park maintaining its own distribution system and service; each dwelling unit of duplexes, triplexes, fourplexes, unmetered apartments and other multiple living units; other detached living units; and offices and stores with less than peak use of 250 gallons per day	$52.95	$55.07
Single-family lots 4,901 to 8,900 square feet	$56.79	$59.06
Single-family lots 8,901 to 12,000 square feet	$66.39	$69.05
Single-family lots 12,001 to 15,000 square feet	$73.59	$76.53

(Prior code § 27.15; Ord. 1239 § 2, 1974; Ord. 1418 § 9, 1978; Ord. 1918 § 1, 1985; Ord. 2708 § 1, 1993; Ord. 3101 § 1, 1997; Ord. 3687 § 1, 2001; Ord. 3756, § 2, 2001; Ord. 3964 § 1, 2003; Ord. 4263 § 2, 2005; Ord. 4508 § 1, 2007; Ord. 4724 § 2, 2009; Ord. 4957 § 1, 2011; Ord. 5174 § 2, 2013; Ord. 5610 § 3, 2016; Ord. 5837 § 4, 2017; Ord. 6100 § 5, 2019; Ord. 6367 § 3, 2021; Ord. 6660 § 2, 2023; Ord. 6953, 6/4/2025)

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Appendix P – CalWEP BMP Compliance Reports

The CalWEP BMP compliance reports for 2020, 2022, 2023, 2024, and 2025 are provided below. A compliance report for 2021 was not required by USBR and therefore is not provided.

Submit Form

RECLAMATION
Managing Water in the West

Contact Information Update

Date	04/27/26
Water District	City of Roseville
District Address	2005 Hilltop Circle, Roseville, CA 95747
District Website	www.roseville.ca.us

Conservation Coordinator

First Name	Bobby
Last Name	Alvarez
Title	Water Conservation Administrator
Phone	(916) 746-1710
Email	balvarez@roseville.ca.us

General Manager

First Name	George
Last Name	Hanson
Title	Water Utility Manager
Phone	(916) 746-1764
Email	ghanson@roseville.ca.us

Other Contact

First Name	Sara
Last Name	Feusi
Title	Administrative Technician - Water Efficiency
Phone	(916) 746-1739
Email	sfeusi@roseville.ca.us

Gallons Per Capita Water Reduction

Reporting Year	2026
Data Year	2025

What was your GPCD the last 5 years?

Year	GPCD
2025	161.31
2024	176.38
2023	173.29
2022	183.64
2021	195.97

If not using programmatic method of water efficiency, what is your district implementing to reduce water use? Provide a brief narrative.

City of Roseville does use a programmatic method of water efficiency.

If your district's GPCD is not declining, please provide a narrative of why and what your district will be doing to accomplish water usage savings.

The City of Roseville's GPCD is generally declining.

Metering With Commodity Rates

Are all connections metered? ○ Yes ◉ No ○ NA

If not 100% metered, please provide a narrative of why and when your district will be fully metered.

The City of Roseville implemented a Meter Retrofit Program beginning in 2001 and concluding in 2011, whereby 99%+ of the City's service connections were retrofitted with meters, either individually or with master meters. In general, accounts were left unmetered where site plumbing issues make it challenging, if not practically impossible, to provide an individual meter to the account location at that time.

Currently, the remaining <1% of unmetered services are retrofitted as part of an ongoing

Are all metered connections billed by water usage? ◉ Yes ○ No ○ NA

If no, please provide a brief narrative of why and when your district will be billing by water usage?

Retail Conservation Pricing

Is your district billing utilizing conserving rate structure? ○ Yes ◉ No ○ NA

Website to billing rate structure	https://ecode360.com/RO4998

If no, please provide a brief narrative of why or when your district will be implementing a conserving rate structure.

As a component of its meter retrofit program, the City adopted conservation pricing for water on all metered accounts from 2011 through 2015. To comply with Proposition 218 requirements, a law passed in California, the City transitioned to a per-use, uniform rate billing structure in February 2016 which remains in place.

Water Waste Prohibition

Water Waste Ordinance ◉ Yes ○ No ○ NA

Ordinance Website Address	https://ecode360.com/RO4998

Other Pertinent Links

	Title	Website
1	City of Roseville Water Efficiency Website	https://www.roseville.ca.gov/environmental_utilities/programs/water_efficiency/index.php
2	City of Roseville Water Efficiency - Report Water Waste	https://survey123.arcgis.com/share/c272fa5f05264b5682c21dcdfb0c1ffc
3		
4		
5		

Brief Comments/Narrative

The City currently restricts water waste within its service area. Roseville Municipal Code Chapter 14.09, Water Conservation Ordinance, defines water waste and associated penalties of continued infractions. Per the ordinance, customers in violation are provided a series of notifications at one week intervals: first a courtesy notice, second an administrative warning, and finally a formal citation. If the situation is not remedied by the time specified in the formal citation, additional measures can be taken to force compliance. These measures include fines, water restrictions, low flow devices, or discontinued service.

Water Loss Control

Water Loss Program? ◉ Yes ○ No ○ NA

If not using AWWA Water Audit Software, brief description of program and/or link to website.

City of Roseville uses the latest version of AWWA Water Audit Software (V6).

AWWA Water Audit Software? ◉ Yes ○ No ○ NA

Water Audit Data Validity Score	74/100
Data Validity Level	IV (71-90)
Date of Last Analysis	2024

Brief Comments/Narrative

In 2009 the City began using AWWA Water Loss software to develop an annual water loss audit. Results from the audit have helped the City identify where in the distribution process leaks are occurring. When coupled with detailed pipeline information stored in the City's asset management system, audit information helps identify leak-prone areas of the City's distribution system.

These areas are then targeted for annual visual and auditory leak detection surveys to isolate individual areas of leakage. Once isolated, the City's responses include corrosion monitoring programs, service cathodic protection and/or replacement. The City's asset management software is then updated with identified leaks, which in turn provides more information useful for prioritization of future rehabilitation programs.

Public Outreach

Briefly list/describe your Public Outreach Programs:

	Title	Website
1	News stories on main page	http://roseville.ca.gov/
2	Mulch Mayhem	tps://www.roseville.ca.gov/calendar/index.php?view=month&month=05&day=01&year=2026&event=5
3	Water Efficiency Rebates	https://www.roseville.ca.gov/environmental_utilities/utility_rebates.php
4	Regional Water Authority's Water Efficiency Program	www.bewatersmart.info
5	EPA Water Sense Partner, Fix-a-Leak Week	www.epa.gov
6		
7		
8		
9		
10		

Brief Comments/Narrative

See website links for additional information.

School Education Programs

Briefly list/describe your School Education Programs:

	Title	Website
1	Be Water Smart News	www.bewatersmart.info
2	Elementary School Programs	https://www.roseville.ca.gov/utility_exploration_center/school_programs/index.php
3	Middle School Programs	https://www.roseville.ca.gov/utility_exploration_center/school_programs/index.php
4	High School Programs	https://www.roseville.ca.gov/utility_exploration_center/school_programs/index.php
5	Utility Exploration Center Exhibits	https://www.roseville.ca.gov/utility_exploration_center/school_programs/index.php
6		
7		
8		
9		
10		

Brief Comments/Narrative

Utility Exploration Center interactive exhibits teaching about water efficiency; website resources and links; teacher training workshops; other educational initiatives for various school-age groups.

The websites listed above detail individual programs for each different school age group including Elementary, Middle School, and High School students.

Residential Programs

Briefly list/describe your Residential Programs:

	Title	Website
1	Cash for Grass Rebate	https://www.roseville.ca.gov/environmental_utilities/utility_rebates.php
2	Showerhead Replacement	https://www.roseville.ca.gov/environmental_utilities/utility_rebates.php
3	Water Waste Patrols	https://www.roseville.ca.gov/environmental_utilities/utility_rebates.php
4	Toilet Flapper Replacement	https://www.roseville.ca.gov/environmental_utilities/utility_rebates.php
5	Water Wise Housecalls	https://www.roseville.ca.gov/environmental_utilities/utility_rebates.php
6	Door Hangers	https://www.roseville.ca.gov/environmental_utilities/utility_rebates.php
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Are your programs effective? (●) Yes ( ) No ( ) NA

Has your district reached program participation saturation? ( ) Yes (●) No ( ) NA

Brief Comments/Narrative

The City's Water Efficiency programs reach approximately 1,500 residences per year, with continued efforts to engage the community and residents in rebate programs, water efficiency education, as well as best practices of water resource management.

The City continues its effort to reach residents via water efficiency rebate programs, free water wise house call services, water waste patrol and outreach.

Commercial, Institutional, and Industrial Programs

Briefly list/describe your CII Programs:

	Title	Website
1	Landscape Conversion and Irrigation Upgrade Rebate	https://www.roseville.ca.gov/environmental_utilities/utility_rebates.php
2	Food Service One Stop Water Efficiency Rebate	https://www.roseville.ca.gov/environmental_utilities/utility_rebates.php
3	Customized Rebate Program	https://www.roseville.ca.gov/environmental_utilities/utility_rebates.php
4	Water Wise Evaluation Interior	https://www.roseville.ca.gov/environmental_utilities/utility_rebates.php
5	Water Wise Evaluation Exterior	https://www.roseville.ca.gov/environmental_utilities/utility_rebates.php
6	Water Budget Evaluation	https://www.roseville.ca.gov/environmental_utilities/utility_rebates.php
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Are your programs effective? (●) Yes ( ) No ( ) NA

Has your district reached program participation saturation? ( ) Yes (●) No ( ) NA

Brief Comments/Narrative

The City continues its water efficiency efforts by engaging the commercial community with multiple programs and outreach. Our water wise evaluations are one of our most valuable water saving services.

Landscape Programs

Briefly list/describe your Landscape Programs:

	Title	Website
1	Cash for Grass Rebate	https://www.roseville.ca.gov/environmental_utilities/utility_rebates.php
2	Green Gardening Events	https://www.roseville.ca.gov/environmental_utilities/utility_rebates.php
3	Water Wise Evaluation Exterior	https://www.roseville.ca.gov/environmental_utilities/utility_rebates.php
4	DIY Landscape Workshops	https://www.roseville.ca.gov/environmental_utilities/utility_rebates.php
5	Landscape Conversion and Irrigation Upgrade Rebate	https://www.roseville.ca.gov/environmental_utilities/utility_rebates.php
6	Water Efficient Landscape Ordinance (WELO)	https://www.roseville.ca.gov/environmental_utilities/utility_rebates.php
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Are your programs effective? (●) Yes ( ) No ( ) NA

Has your district reached program participation saturation? ( ) Yes (●) No ( ) NA

Brief Comments/Narrative

The City's Water Efficiency programs reach approximately 1,500 residences and approximately 900 commercial sites for landscape-related visits per year, with continued efforts to engage the community and residents in rebate programs, water efficiency education, as well as best practices of water resource management. The City continues its effort to reach residents and commercial customers via water efficiency rebate programs, free water wise house call services, commercial site evaluations, water waste patrol and outreach.

Submit Form

RECLAMATION
Managing Water in the West

Contact Information Update

Date	05/07/25
Water District	City of Roseville
District Address	2005 Hilltop Circle, Roseville, CA 95747
District Website	www.roseville.ca.us

Conservation Coordinator

First Name	Bobby
Last Name	Alvarez
Title	Water Conservation Administrator
Phone	(916) 746-1710
Email	balvarez@roseville.ca.us

General Manager

First Name	George
Last Name	Hanson
Title	Water Utility Manager
Phone	(916) 746-1764
Email	ghanson@roseville.ca.us

Other Contact

First Name	Sara
Last Name	Feusi
Title	Administrative Technician - Water Efficiency
Phone	(916) 746-1739
Email	sfeusi@roseville.ca.us

Gallons Per Capita Water Reduction

Reporting Year	2025
Data Year	2024

What was your GPCD the last 5 years?

Year	GPCD
2024	176.38
2023	173.29
2022	183.64
2021	195.97
2020	206.77

If not using programmatic method of water efficiency, what is your district implementing to reduce water use? Provide a brief narrative.

City of Roseville does use a programmatic method of water efficiency.

If your district's GPCD is not declining, please provide a narrative of why and what your district will be doing to accomplish water usage savings.

The City of Roseville's GPCD is generally declining or staying steady; however, in 2020 due to quarantine measures resulting from the COVID-19 pandemic, there was a noted increase in indoor usage. This period of greater presence within residential homes caused an overall increase in GPCD for the year. This increase resulting from a change in customer behavior has not been observed to persist beyond the point that quarantine requirements were fully removed.

Metering With Commodity Rates

Are all connections metered? ○ Yes ◉ No ○ NA

If not 100% metered, please provide a narrative of why and when your district will be fully metered.

The City of Roseville implemented a Meter Retrofit Program beginning in 2001 and concluding in 2011, whereby 99%+ of the City's service connections were retrofitted with meters, either individually or with master meters. In general, accounts were left unmetered where site plumbing issues make it challenging, if not practically impossible, to provide an individual meter to the account location at that time.

Currently, the remaining <1% of unmetered services are retrofitted as part of an ongoing

Are all metered connections billed by water usage? ◉ Yes ○ No ○ NA

If no, please provide a brief narrative of why and when your district will be billing by water usage?

Retail Conservation Pricing

Is your district billing utilizing conserving rate structure? ○ Yes ◉ No ○ NA

Website to billing rate structure	https://ecode360.com/RO4998

If no, please provide a brief narrative of why or when your district will be implementing a conserving rate structure.

As a component of its meter retrofit program, the City adopted conservation pricing for water on all metered accounts from 2011 through 2015. To comply with Proposition 218 requirements, a law passed in California, the City transitioned to a per-use, uniform rate billing structure in February 2016.

Water Waste Prohibition

Water Waste Ordinance ◉ Yes ○ No ○ NA

Ordinance Website Address	https://ecode360.com/RO4998

Other Pertinent Links

	Title	Website
1	City of Roseville Water Efficiency Website	https://www.roseville.ca.us/cms/One.aspx?portalId=7964922&pageId=8905954
2	City of Roseville Water Efficiency - Report Water Waste	https://survey123.arcgis.com/share/c272fa5f05264b5682c21dcdfb0c1ffc
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Brief Comments/Narrative

The City currently restricts water waste within its service area. Roseville Municipal Code Chapter 14.09, Water Conservation Ordinance, defines water waste and associated penalties of continued infractions. Per the ordinance, customers in violation are provided a series of notifications at one week intervals: first a courtesy notice, second an administrative warning, and finally a formal citation. If the situation is not remedied by the time specified in the formal citation, additional measures can be taken to force compliance. These measures include fines, water restrictions, low flow devices, or discontinued service.

Water Loss Control

Water Loss Program? ◉ Yes ○ No ○ NA

If not using AWWA Water Audit Software, brief description of program and/or link to website.

City of Roseville uses the latest version of AWWA Water Audit Software (V6).

AWWA Water Audit Software? ◉ Yes ○ No ○ NA

Water Audit Data Validity Score	74/100
Data Validity Level	IV (71-90)
Date of Last Analysis	2023

Brief Comments/Narrative

In 2009 the City began using AWWA Water Loss software to develop an annual water loss audit. Results from the audit have helped the City identify where in the distribution process leaks are occurring. When coupled with detailed pipeline information stored in the City's asset management system, audit information helps identify leak-prone areas of the City's distribution system.

These areas are then targeted for annual visual and auditory leak detection surveys to isolate individual areas of leakage. Once isolated, the City's responses include corrosion monitoring programs, service cathodic protection and/or replacement. The City's asset management software is then updated with identified leaks, which in turn provides more information useful for prioritization of future rehabilitation programs.

Public Outreach

Briefly list/describe your Public Outreach Programs:

	Title	Website
1	News stories on main page	http://roseville.ca.us/
2	Mulch Mayhem	ces/One.aspx?contextId=9754960&parentId=9754960&returnTo=9754960&objectId=20743848&curr
3	Water Efficiency Rebates	https://www.roseville.ca.us/cms/One.aspx?portalId=7964922&pageId=10126299
4	Regional Water Authority's Water Efficiency Program	www.bewatersmart.info
5	EPA Water Sense Partner, Fix-a-Leak Week	www.epa.gov
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Brief Comments/Narrative

See website links for additional information.

School Education Programs

Briefly list/describe your School Education Programs:

	Title	Website
1	Be Water Smart News	www.bewatersmart.info
2	Elementary School Programs	https://www.roseville.ca.us/cms/One.aspx?portalId=7964922&pageId=19407447
3	Middle School Programs	https://www.roseville.ca.us/cms/One.aspx?portalId=7964922&pageId=19407471
4	High School Programs	https://www.roseville.ca.us/cms/One.aspx?portalId=7964922&pageId=19407474
5	Utility Exploration Center Exhibits	https://www.roseville.ca.us/cms/One.aspx?portalId=7964922&pageId=8715907
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Brief Comments/Narrative

Utility Exploration Center interactive exhibits teaching about water efficiency; website resources and links; teacher training workshops; other educational initiatives for various school-age groups.

The websites listed above detail individual programs for each different school age group including Elementary, Middle School, and High School students.

Residential Programs

Briefly list/describe your Residential Programs:

	Title	Website
1	Cash for Grass Rebate	https://www.roseville.ca.us/cms/One.aspx?portalId=7964922&pageId=8905954
2	Showerhead Replacement	https://www.roseville.ca.us/cms/One.aspx?portalId=7964922&pageId=8905954
3	Water Waste Patrols	https://www.roseville.ca.us/cms/One.aspx?portalId=7964922&pageId=8905954
4	Toilet Flapper Replacement	https://www.roseville.ca.us/cms/One.aspx?portalId=7964922&pageId=8905954
5	Water Wise Housecalls	https://www.roseville.ca.us/cms/One.aspx?portalId=7964922&pageId=8905954
6	Door Hangers	https://www.roseville.ca.us/cms/One.aspx?portalId=7964922&pageId=8905954
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Are your programs effective? (●) Yes ( ) No ( ) NA

Has your district reached program participation saturation? ( ) Yes (●) No ( ) NA

Brief Comments/Narrative

The City's Water Efficiency programs reach approximately 1,100 residences per year, with continued efforts to engage the community and residents in rebate programs, water efficiency education, as well as best practices of water resource management.

The City continues its effort to reach residents via water efficiency rebate programs, free water wise house call services, water waste patrol and outreach.

Commercial, Institutional, and Industrial Programs

Briefly list/describe your CII Programs:

	Title	Website
1	Landscape Conversion and Irrigation Upgrade Rebate	https://www.roseville.ca.us/cms/One.aspx?portalId=7964922&pageId=10126299
2	Food Service One Stop Water Efficiency Rebate	https://www.roseville.ca.us/cms/One.aspx?portalId=7964922&pageId=10126299
3	Customized Rebate Program	https://www.roseville.ca.us/cms/One.aspx?portalId=7964922&pageId=10126299
4	Water Wise Evaluation Interior	https://www.roseville.ca.us/cms/One.aspx?portalId=7964922&pageId=10126299
5	Water Wise Evaluation Exterior	https://www.roseville.ca.us/cms/One.aspx?portalId=7964922&pageId=10126299
6	Water Budget Evaluation	https://www.roseville.ca.us/cms/One.aspx?portalId=7964922&pageId=10126299
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Are your programs effective? (●) Yes ( ) No ( ) NA

Has your district reached program participation saturation? ( ) Yes (●) No ( ) NA

Brief Comments/Narrative

The City continues its water efficiency efforts by engaging the commercial community with multiple programs and outreach. Our water wise evaluations are one of our most valuable water saving services.

Landscape Programs

Briefly list/describe your Landscape Programs:

	Title	Website
1	Cash for Grass Rebate	https://www.roseville.ca.us/cms/One.aspx?portalId=7964922&pageId=8905954
2	Green Gardening Events	https://www.roseville.ca.us/cms/One.aspx?portalId=7964922&pageId=8905954
3	Water Wise Evaluation Exterior	https://www.roseville.ca.us/cms/One.aspx?portalId=7964922&pageId=8905954
4	DIY Landscape Workshops	https://www.roseville.ca.us/cms/One.aspx?portalId=7964922&pageId=8905954
5	Landscape Conversion and Irrigation Upgrade Rebate	https://www.roseville.ca.us/cms/One.aspx?portalId=7964922&pageId=8905954
6	Water Efficient Landscape Ordinance (WELO)	https://www.roseville.ca.us/cms/One.aspx?portalId=7964922&pageId=8905954
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Are your programs effective? (●) Yes ( ) No ( ) NA

Has your district reached program participation saturation? ( ) Yes (●) No ( ) NA

Brief Comments/Narrative

The City's Water Efficiency programs reach approximately 1,100 residences and approximately 900 commercial sites for landscape-related visits per year, with continued efforts to engage the community and residents in rebate programs, water efficiency education, as well as best practices of water resource management. The City continues its effort to reach residents and commercial customers via water efficiency rebate programs, free water wise house call services, commercial site evaluations, water waste patrol and outreach.

Contact Information Update

Date	04/30/24
Water District	City of Roseville
District Address	2005 Hilltop Circle, Roseville, CA 95747
District Website	www.roseville.ca.us

Conservation Coordinator

First Name	Bobby
Last Name	Alvarez
Title	Water Conservation Administrator
Phone	(916) 746-1710
Email	balvarez@roseville.ca.us

General Manager

First Name	George
Last Name	Hanson
Title	Water Utility Manager
Phone	(916) 746-1764
Email	ghanson@roseville.ca.us

Other Contact

First Name	Sara
Last Name	Feusi
Title	Administrative Technician - Water Efficiency
Phone	(916) 746-1739
Email	sfeusi@roseville.ca.us

Gallons Per Capita Water Reduction

Reporting Year	2024
Data Year	2023

What was your GPCD the last 5 years?

Year	GPCD
2023	173.29
2022	183.64
2021	195.97
2020	206.77
2019	190.50

If not using programmatic method of water efficiency, what is your district implementing to reduce water use? Provide a brief narrative.

City of Roseville does use a programmatic method of water efficiency.

If your district's GPCD is not declining, please provide a narrative of why and what your district will be doing to accomplish water usage savings.

The City of Roseville's GPCD is generally declining; however, in 2020 due to quarantine measures resulting from the COVID-19 pandemic, there was a noted increase in indoor usage. This period of greater presence within residential homes caused an overall increase in GPCD for the year. It is not expected that this increase will remain beyond the point that quarantine requirements are fully removed.

Metering With Commodity Rates

Are all connections metered? ○ Yes ◉ No ○ NA

If not 100% metered, please provide a narrative of why and when your district will be fully metered.

The City of Roseville implemented a Meter Retrofit Program beginning in 2001 and concluding in 2011, whereby 99%+ of the City's service connections were retrofitted with meters, either individually or with master meters. In general, accounts were left unmetered where site plumbing issues make it challenging, if not practically impossible, to provide an individual meter to the account location at that time.

Currently, the remaining <1% of unmetered services are retrofitted as part of an ongoing

Are all metered connections billed by water usage? ◉ Yes ○ No ○ NA

If no, please provide a brief narrative of why and when your district will be billing by water usage?

Retail Conservation Pricing

Is your district billing utilizing conserving rate structure? ○ Yes ◉ No ○ NA

Website to billing rate structure	https://ecode360.com/RO4998

If no, please provide a brief narrative of why or when your district will be implementing a conserving rate structure.

As a component of its meter retrofit program, the City adopted conservation pricing for water on all metered accounts from 2011 through 2015. To comply with Proposition 218 requirements, a law passed in California, the City transitioned to a per-use, uniform rate billing structure in February 2016.

Water Waste Prohibition

Water Waste Ordinance ◉ Yes ○ No ○ NA

Ordinance Website Address	https://ecode360.com/RO4998

Other Pertinent Links

	Title	Website
1	City of Roseville Water Efficiency Website	https://www.roseville.ca.us/cms/One.aspx?portalId=7964922&pageId=8905954
2	City of Roseville Water Efficiency - Report Water Waste	https://survey123.arcgis.com/share/c272fa5f05264b5682c21dcdfb0c1ffc
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Brief Comments/Narrative

The City currently restricts water waste within its service area. Roseville Municipal Code Chapter 14.09, Water Conservation Ordinance, defines water waste and associated penalties of continued infractions. Per the ordinance, customers in violation are provided a series of notifications at one week intervals: first a courtesy notice, second an administrative warning, and finally a formal citation. If the situation is not remedied by the time specified in the formal citation, additional measures can be taken to force compliance. These measures include fines, water restrictions, low flow devices, or discontinued service.

Water Loss Control

Water Loss Program? ◉ Yes ○ No ○ NA

If not using AWWA Water Audit Software, brief description of program and/or link to website.

City of Roseville uses the latest version of AWWA Water Audit Software (V6).

AWWA Water Audit Software? ◉ Yes ○ No ○ NA

Water Audit Data Validity Score	74/100
Data Validity Level	IV (71-90)
Date of Last Analysis	2022

Brief Comments/Narrative

In 2009 the City began using AWWA Water Loss software to develop an annual water loss audit. Results from the audit have helped the City identify where in the distribution process leaks are occurring. When coupled with detailed pipeline information stored in the City's asset management system, audit information helps identify leak-prone areas of the City's distribution system.

These areas are then targeted for annual visual and auditory leak detection surveys to isolate individual areas of leakage. Once isolated, the City's responses include corrosion monitoring programs, service cathodic protection and/or replacement. The City's asset management software is then updated with identified leaks, which in turn provides more information useful for prioritization of future rehabilitation programs.

Public Outreach

Briefly list/describe your Public Outreach Programs:

	Title	Website
1	News stories on main page	http://roseville.ca.us/
2	Mulch Mayhem	http://roseville.ca.us/workspaces/One.aspx?objectId=12537136&contextId=9754960
3	Water Efficiency Rebates	https://www.roseville.ca.us/cms/One.aspx?portalId=7964922&pageId=10126299
4	Regional Water Authority's Water Efficiency Program	www.bewatersmart.info
5	EPA Water Sense Partner, Fix-a-Leak Week	www.epa.gov
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Brief Comments/Narrative

In 2020, the City's public facility access and interactive programs were amended according to state and local guidance pertaining to the COVID-19 pandemic. As much as was possible, exhibits and programs remained in effect and have been reinstated.

See website links for additional information.

School Education Programs

Briefly list/describe your School Education Programs:

	Title	Website
1	Be Water Smart News	www.bewatersmart.info
2	Water, the Never Ending Cycle (water cycle program)	https://www.roseville.ca.us/cms/One.aspx?portalId=7964922&pageId=19402906
3	Hydro Heroes (1st-3rd grade program)	https://www.roseville.ca.us/cms/One.aspx?portalId=7964922&pageId=19402906
4	Water Warriors (1st-3rd grade program)	https://www.roseville.ca.us/cms/One.aspx?portalId=7964922&pageId=19402906
5	H2Own (4th-6th grade program)	https://www.roseville.ca.us/cms/One.aspx?portalId=7964922&pageId=19402906
6	Keepin' It Clean (4th-6th grade program)	https://www.roseville.ca.us/cms/One.aspx?portalId=7964922&pageId=19402906
7	Planet Protectors comic books and lesson plans for Kindergarten	https://www.roseville.ca.us/cms/One.aspx?portalId=7964922&pageId=19402906
8	Water Spots video contest for high school students	https://www.roseville.ca.us/cms/One.aspx?portalId=7964922&pageId=19402906
9	Living Rivers of the Sacramento Valley Program	https://www.roseville.ca.us/cms/One.aspx?portalId=7964922&pageId=8715907
10	Utility Exploration Center Exhibits	https://www.roseville.ca.us/cms/One.aspx?portalId=7964922&pageId=8715907

Brief Comments/Narrative

In 2020, the City's public facility access and interactive programs were amended according to state and local guidance pertaining to the COVID-19 pandemic. As much as was possible, exhibits and programs remained in effect.

Utility Exploration Center interactive exhibits teaching about water efficiency; website resources and links; teacher training workshops; other educational initiatives for various school-age groups.

Planet Protectors comic books and lesson plans (pre/post activities) for our Kindergarten Program, Hydro Heroes, Water Warriors, H2Own and Keepin it Clean;

Residential Programs

Briefly list/describe your Residential Programs:

	Title	Website
1	Cash for Grass Rebate	https://www.roseville.ca.us/cms/One.aspx?portalId=7964922&pageId=8905954
2	Showerhead Replacement	https://www.roseville.ca.us/cms/One.aspx?portalId=7964922&pageId=8905954
3	Faucet Aerators Replacement	https://www.roseville.ca.us/cms/One.aspx?portalId=7964922&pageId=8905954
4	Toilet Flapper Replacement	https://www.roseville.ca.us/cms/One.aspx?portalId=7964922&pageId=8905954
5	Water Wise Housecalls	https://www.roseville.ca.us/cms/One.aspx?portalId=7964922&pageId=8905954
6	Door Hangers	https://www.roseville.ca.us/cms/One.aspx?portalId=7964922&pageId=8905954
7	Water Waste Patrols	https://www.roseville.ca.us/cms/One.aspx?portalId=7964922&pageId=8905954
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Are your programs effective? (●) Yes ( ) No ( ) NA

Has your district reached program participation saturation? ( ) Yes (●) No ( ) NA

Brief Comments/Narrative

The City's Water Efficiency programs reach approximately 900 residences per year, with continued efforts to engage the community and residents in rebate programs, water efficiency education, as well as best practices of water resource management.

The City continues its effort to reach residents via water efficiency rebate programs, free water wise house call services, water waste patrol and outreach.

Commercial, Institutional, and Industrial Programs

Briefly list/describe your CII Programs:

	Title	Website
1	Landscape Conversion and Irrigation Upgrade Rebate	https://www.roseville.ca.us/cms/One.aspx?portalId=7964922&pageId=8905954
2	Food Service One Stop Water Efficiency Rebate	https://www.roseville.ca.us/cms/One.aspx?portalId=7964922&pageId=8905954
3	Customized Rebate Program	https://www.roseville.ca.us/cms/One.aspx?portalId=7964922&pageId=8905954
4	Water Wise Evaluation Interior	https://www.roseville.ca.us/cms/One.aspx?portalId=7964922&pageId=8905954
5	Water Wise Evaluation Exterior	https://www.roseville.ca.us/cms/One.aspx?portalId=7964922&pageId=8905954
6	Water Budget Evaluation	https://www.roseville.ca.us/cms/One.aspx?portalId=7964922&pageId=8905954
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Are your programs effective? (●) Yes ( ) No ( ) NA

Has your district reached program participation saturation? ( ) Yes (●) No ( ) NA

Brief Comments/Narrative

The City continues its water efficiency efforts by engaging the commercial community with multiple programs and outreach. Our water wise evaluations are one of our most valuable water saving services.

Landscape Programs

Briefly list/describe your Landscape Programs:

	Title	Website
1	Cash for Grass Rebate	https://www.roseville.ca.us/cms/One.aspx?portalId=7964922&pageId=8905954
2	Green Gardening Events	https://www.roseville.ca.us/cms/One.aspx?portalId=7964922&pageId=8905954
3	Water Wise Evaluation Exterior	https://www.roseville.ca.us/cms/One.aspx?portalId=7964922&pageId=8905954
4	DIY Landscape Workshops	https://www.roseville.ca.us/cms/One.aspx?portalId=7964922&pageId=8905954
5	Landscape Conversion and Irrigation Upgrade Rebate	https://www.roseville.ca.us/cms/One.aspx?portalId=7964922&pageId=8905954
6	Water Efficient Landscape Ordinance (WELO)	https://www.roseville.ca.us/cms/One.aspx?portalId=7964922&pageId=8905954
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Are your programs effective? (●) Yes ( ) No ( ) NA

Has your district reached program participation saturation? ( ) Yes (●) No ( ) NA

Brief Comments/Narrative

The City's Water Efficiency programs reach approximately 900 residences and approximately 800 commercial sites for landscape-related visits per year, with continued efforts to engage the community and residents in rebate programs, water efficiency education, as well as best practices of water resource management. The City continues its effort to reach residents and commercial customers via water efficiency rebate programs, free water wise house call services, commercial site evaluations, water waste patrol and outreach.

RECLAMATION
Managing Water in the West

Contact Information Update

Date	04/13/23
Water District	City of Roseville
District Address	2005 Hilltop Circle, Roseville, CA 95747
District Website	www.roseville.ca.us

Conservation Coordinator

First Name	Bobby
Last Name	Alvarez
Title	Water Conservation Administrator
Phone	(916) 746-1710
Email	balvarez@roseville.ca.us

General Manager

First Name	Sean
Last Name	Bigley
Title	Environmental Utilities Assistant Director
Phone	(916) 774-5513
Email	sbigley@roseville.ca.us

Other Contact

First Name	Justin
Last Name	Black
Title	Water Conservation Specialist
Phone	(916) 746-1763
Email	wblack@roseville.ca.us

Gallons Per Capita Water Reduction

Reporting Year	2023
Data Year	2022

What was your GPCD the last 5 years?

Year	GPCD
2022	183.64
2021	208.01
2020	206.77
2019	190.50
2018	190.90

If not using programmatic method of water efficiency, what is your district implementing to reduce water use? Provide a brief narrative.

City of Roseville does use a programmatic method of water efficiency.

If your district's GPCD is not declining, please provide a narrative of why and what your district will be doing to accomplish water usage savings.

The City of Roseville's GPCD is generally declining. In 2020 and 2021 due to quarantine measures resulting from the COVID-19 pandemic, there was a noted increase in indoor usage. This period of greater presence within residential homes caused an overall increase in GPCD for those years. In 2022 the City of Roseville's GPCD resumed its downward trend.

Metering With Commodity Rates

Are all connections metered? ○ Yes ◉ No ○ NA

If not 100% metered, please provide a narrative of why and when your district will be fully metered.

The City of Roseville implemented a Meter Retrofit Program beginning in 2001 and concluding in 2011, whereby 99%+ of the City's service connections were retrofitted with meters, either individually or with master meters. In general, accounts were left unmetered where site plumbing issues make it challenging, if not practically impossible, to provide an individual meter to the account location at that time.

Currently, the remaining <1% of unmetered services are retrofitted as part of an ongoing

Are all metered connections billed by water usage? ◉ Yes ○ No ○ NA

If no, please provide a brief narrative of why and when your district will be billing by water usage?

Retail Conservation Pricing

Is your district billing utilizing conserving rate structure? ○ Yes ◉ No ○ NA

Website to billing rate structure	http://qcode.us/codes/roseville/

If no, please provide a brief narrative of why or when your district will be implementing a conserving rate structure.

As a component of its meter retrofit program, the City adopted conservation pricing for water on all metered accounts from 2011 through 2015. To comply with Proposition 218 requirements, a law passed in California, the City transitioned to a per-use, uniform rate billing structure in February 2016.

Water Waste Prohibition

Water Waste Ordinance (●) Yes ( ) No ( ) NA

Ordinance Website Address	http://qcode.us/codes/roseville/

Other Pertinent Links

	Title	Website
1	City of Roseville Water Efficiency Website	https://www.roseville.ca.us/cms/One.aspx?portalId=7964922&pageId=8905954
2	City of Roseville Water Efficiency - Report Water Waste	https://www.roseville.ca.us/cms/one.aspx?portalId=7964922&pageId=8916755
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Brief Comments/Narrative

The City currently restricts water waste within its service area. Roseville Municipal Code Chapter 14.09, Water Conservation Ordinance, defines water waste and associated penalties of continued infractions. Per the ordinance, customers in violation are provided a series of notifications at one week intervals: first a courtesy notice, second an administrative warning, and finally a formal citation. If the situation is not remedied by the time specified in the formal citation, additional measures can be taken to force compliance. These measures include fines, water restrictions, low flow devices, or discontinued service.

Water Loss Control

Water Loss Program? (●) Yes ( ) No ( ) NA

If not using AWWA Water Audit Software, brief description of program and/or link to website.

City of Roseville uses the latest version of AWWA Water Audit Software.

AWWA Water Audit Software? (●) Yes ( ) No ( ) NA

Water Audit Data Validity Score	72/100
Data Validity Level	IV (71-90)
Date of Last Analysis	2021

Brief Comments/Narrative

In 2009 the City began using AWWA Water Loss software to develop an annual water loss audit. Results from the audit have helped the City identify where in the distribution process leaks are occurring. When coupled with detailed pipeline information stored in the City's asset management system, audit information helps identify leak-prone areas of the City's distribution system.

These areas are then targeted for annual visual and auditory leak detection surveys to isolate individual areas of leakage. Once isolated, the City's responses include corrosion monitoring programs, service cathodic protection and/or replacement. The City's asset management software is then updated with identified leaks, which in turn provides more information useful for prioritization of future rehabilitation programs.

Public Outreach

Briefly list/describe your Public Outreach Programs:

	Title	Website
1	News stories on main page	http://roseville.ca.us/
2	Green Living Workshops	https://www.roseville.ca.us/cms/one.aspx?portalId=7964922&pageId=15390262
3	Mulch Mayhem	https://www.roseville.ca.us/cms/one.aspx?portalId=7964922&pageId=12562310
4	Water Efficiency Rebates	https://www.roseville.ca.us/cms/One.aspx?portalId=7964922&pageId=8905954
5	Earth Night	https://www.roseville.ca.us/cms/One.aspx?portalId=7964922&pageId=8717422
6	Inspiration Garden	https://www.roseville.ca.us/cms/One.aspx?portalId=7964922&pageId=8905954
7	Regional Water Authority's Water Efficiency Program	www.bewatersmart.info
8	EPA Water Sense Partner, Fix-a-Leak Week	www.epa.gov
9	Water Conservation Challenge	https://www.roseville.ca.us/cms/One.aspx?portalId=7964922&pageId=8717422
10		

Brief Comments/Narrative

In 2020 and 2021, the City's public facility access and interactive programs were amended according to state and local guidance pertaining to the COVID-19 pandemic. As much as was possible, exhibits and programs remained in effect. As of 2022 the normal operations have mostly resumed.

See website links for additional information.

School Education Programs

Briefly list/describe your School Education Programs:

	Title	Website
1	Be Water Smart News	www.bewatersmart.info
2	Water, the Never Ending Cycle (water cycle program)	http://roseville.ca.us/cms/One.aspx?portalId=7964922&pageId=8715907
3	Hydro Heroes (1st-3rd grade program)	http://roseville.ca.us/cms/One.aspx?portalId=7964922&pageId=8715907
4	Water Warriors (1st-3rd grade program)	http://roseville.ca.us/cms/One.aspx?portalId=7964922&pageId=8715907
5	H2Own (4th-6th grade program)	http://roseville.ca.us/cms/One.aspx?portalId=7964922&pageId=8715907
6	Keepin' It Clean (4th-6th grade program)	http://roseville.ca.us/cms/One.aspx?portalId=7964922&pageId=8715907
7	Planet Protectors comic books and lesson plans for Kindergarten	http://roseville.ca.us/cms/One.aspx?portalId=7964922&pageId=8715907
8	Water Spots video contest for high school students	http://roseville.ca.us/cms/One.aspx?portalId=7964922&pageId=8715907
9	Living Rivers of the Sacramento Valley Program	http://roseville.ca.us/cms/One.aspx?portalId=7964922&pageId=8715907
10	Utility Exploration Center Exhibits	http://roseville.ca.us/cms/One.aspx?portalId=7964922&pageId=8715907

Brief Comments/Narrative

In 2020 and 2021, the City's public facility access and interactive programs were amended according to state and local guidance pertaining to the COVID-19 pandemic. As much as was possible, exhibits and programs remained in effect. As of 2022 the normal operations have mostly resumed.

Utility Exploration Center interactive exhibits teaching about water efficiency; website resources and links; teacher training workshops; other educational initiatives for various school-age groups.

Planet Protectors comic books and lesson plans (pre/post activities) for our

Residential Programs

Briefly list/describe your Residential Programs:

	Title	Website
1	Cash for Grass Rebate	https://www.roseville.ca.us/cms/One.aspx?portalId=7964922&pageId=8905954
2	Showerhead Replacement	http://roseville.ca.us/cms/One.aspx?portalId=7964922&pageId=10783212
3	Faucet Aerators Replacement	http://roseville.ca.us/cms/One.aspx?portalId=7964922&pageId=10783212
4	Toilet Flapper Replacement	http://roseville.ca.us/cms/One.aspx?portalId=7964922&pageId=10783212
5	Water Wise Housecalls	https://www.roseville.ca.us/cms/One.aspx?portalId=7964922&pageId=8905954
6	Door Hangers	https://roseville.ca.us/cms/One.aspx?portalId=7964922&pageId=8905954
7	Water Waste Patrols	https://roseville.ca.us/cms/One.aspx?portalId=7964922&pageId=8905954
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Are your programs effective? (●) Yes ( ) No ( ) NA

Has your district reached program participation saturation? ( ) Yes (●) No ( ) NA

Brief Comments/Narrative

The City's Water Efficiency programs reach approximately 1000 residences per year, with continued efforts to engage the community and residents in rebate programs, water efficiency education, as well as best practices of water resource management.

The City continues its effort to reach residents via water efficiency rebate programs, free water wise house call services, water waste patrol and outreach.

Commercial, Institutional, and Industrial Programs

Briefly list/describe your CII Programs:

	Title	Website
1	Landscape Conversion and Irrigation Upgrade Rebate	https://roseville.ca.us/cms/One.aspx?portalId=7964922&pageId=10126299
2	Food Service One Stop Water Efficiency Rebate	https://roseville.ca.us/cms/One.aspx?portalId=7964922&pageId=10126299
3	Customized Rebate Program	https://roseville.ca.us/cms/One.aspx?portalId=7964922&pageId=10126299
4	Water Wise Evaluation Interior	https://roseville.ca.us/cms/One.aspx?portalId=7964922&pageId=10866145
5	Water Wise Evaluation Exterior	https://roseville.ca.us/cms/One.aspx?portalId=7964922&pageId=10866145
6	Water Budget Evaluation	https://roseville.ca.us/cms/One.aspx?portalId=7964922&pageId=10866145
7	Report Water Waste	https://roseville.ca.us/cms/One.aspx?portalId=7964922&pageId=8905954
8		

Are your programs effective? (●) Yes ( ) No ( ) NA

Has your district reached program participation saturation? ( ) Yes (●) No ( ) NA

Brief Comments/Narrative

The City continues its water efficiency efforts by engaging the commercial community with multiple programs and outreach. Our water wise evaluations are one of our most valuable water saving services.

Landscape Programs

Briefly list/describe your Landscape Programs:

	Title	Website
1	Cash for Grass Rebate	https://roseville.ca.us/cms/One.aspx?portalId=7964922&pageId=8905954
2	Green Gardening Events	https://www.roseville.ca.us/cms/One.aspx?portalId=7964922&pageId=8715907
3	Water Wise Evaluation Exterior	https://roseville.ca.us/cms/One.aspx?portalId=7964922&pageId=10866145
4	DIY Landscape Workshops	https://www.roseville.ca.us/cms/One.aspx?portalId=7964922&pageId=8715907
5	Landscape Conversion and Irrigation Upgrade Rebate	https://roseville.ca.us/cms/One.aspx?portalId=7964922&pageId=10866145
6	Water Efficient Landscape Ordinance (WELO)	https://roseville.ca.us/cms/One.aspx?portalId=7964922&pageId=8905954
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Are your programs effective? (●) Yes ( ) No ( ) NA

Has your district reached program participation saturation? ( ) Yes (●) No ( ) NA

Brief Comments/Narrative

The City's Water Efficiency programs reach approximately 1000 residences and approximately 100 commercial sites for landscape-related visits per year, with continued efforts to engage the community and residents in rebate programs, water efficiency education, as well as best practices of water resource management. The City continues its effort to reach residents and commercial customers via water efficiency rebate programs, free water wise house call services, commercial site evaluations, water waste patrol and outreach.

Contact Information Update

Date	04/08/21
Water District	City of Roseville
District Address	2005 Hilltop Circle, Roseville, CA 95747
District Website	www.roseville.ca.us

Conservation Coordinator

First Name	Bobby
Last Name	Alvarez
Title	Water Conservation Administrator
Phone	(916) 746-1710
Email	balvarez@roseville.ca.us

General Manager

First Name	Sean
Last Name	Bigley
Title	Environmental Utilities Assistant Director
Phone	(916) 774-5513
Email	sbigley@roseville.ca.us

Other Contact

First Name	Jennifer
Last Name	Sbaffi
Title	Customer Service Supervisor
Phone	(916) 746-1707
Email	jsbaffi@roseville.ca.us

Gallons Per Capita Water Reduction

Reporting Year	2020
Data Year	2020

What was your GPCD the last 5 years?

Year	GPCD
2020	206.77
2019	190.50
2018	190.90
2017	194.08
2016	177.32

If not using programmatic method of water efficiency, what is your district implementing to reduce water use? Provide a brief narrative.

City of Roseville does use a programmatic method of water efficiency.

If your district's GPCD is not declining, please provide a narrative of why and what your district will be doing to accomplish water usage savings.

The City of Roseville's GPCD is generally declining; however, in 2020 due to quarantine measures resulting from the COVID-19 pandemic, there was a noted increase in indoor usage. This period of greater presence within residential homes caused an overall increase in GPCD for the year. It is not expected that this increase will remain beyond the point that quarantine requirements are fully removed.

Metering With Commodity Rates

Are all connections metered? ○ Yes ◉ No ○ NA

If not 100% metered, please provide a narrative of why and when your district will be fully metered.

The City of Roseville implemented a Meter Retrofit Program beginning in 2001 and concluding in 2011, whereby 99%+ of the City's service connections were retrofitted with meters, either individually or with master meters. In general, accounts were left unmetered where site plumbing issues make it challenging, if not practically impossible, to provide an individual meter to the account location at that time.

Currently, the remaining <1% of unmetered services are retrofitted as part of an ongoing

Are all metered connections billed by water usage? ◉ Yes ○ No ○ NA

If no, please provide a brief narrative of why and when your district will be billing by water usage?

Retail Conservation Pricing

Is your district billing utilizing conserving rate structure? ○ Yes ◉ No ○ NA

Website to billing rate structure	http://qcode.us/codes/roseville/

If no, please provide a brief narrative of why or when your district will be implementing a conserving rate structure.

As a component of its meter retrofit program, the City adopted conservation pricing for water on all metered accounts from 2011 through 2015. To comply with Proposition 218 requirements, a law passed in California, the City transitioned to a per-use, uniform rate billing structure in February 2016.

Water Waste Prohibition

Water Waste Ordinance (●) Yes ( ) No ( ) NA

Ordinance Website Address	http://qcode.us/codes/roseville/

Other Pertinent Links

	Title	Website
1	City of Roseville Water Efficiency Website	https://www.roseville.ca.us/cms/One.aspx?portalId=7964922&pageId=8905954
2	City of Roseville Water Efficiency - Report Water Waste	https://roseville.maps.arcgis.com/apps/GeoForm/index.html?appid=d1a535cf27c845449697c6cf563d0469
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Brief Comments/Narrative

The City currently restricts water waste within its service area. Roseville Municipal Code Chapter 14.09, Water Conservation Ordinance, defines water waste and associated penalties of continued infractions. Per the ordinance, customers in violation are provided a series of notifications at one week intervals: first a courtesy notice, second an administrative warning, and finally a formal citation. If the situation is not remedied by the time specified in the formal citation, additional measures can be taken to force compliance. These measures include fines, water restrictions, low flow devices, or discontinued service.

Water Loss Control

Water Loss Program? (●) Yes ( ) No ( ) NA

If not using AWWA Water Audit Software, brief description of program and/or link to website.

City of Roseville uses the latest version of AWWA Water Audit Software.

AWWA Water Audit Software? (●) Yes ( ) No ( ) NA

Water Audit Data Validity Score	70/100
Data Validity Level	III (51-70)
Date of Last Analysis	2019

Brief Comments/Narrative

In 2009 the City began using AWWA Water Loss software to develop an annual water loss audit. Results from the audit have helped the City identify where in the distribution process leaks are occurring. When coupled with detailed pipeline information stored in the City's asset management system, audit information helps identify leak-prone areas of the City's distribution system.

These areas are then targeted for annual visual and auditory leak detection surveys to isolate individual areas of leakage. Once isolated, the City's responses include corrosion monitoring programs, service cathodic protection and/or replacement. The City's asset management software is then updated with identified leaks, which in turn provides more information useful for prioritization of future rehabilitation programs.

Public Outreach

Briefly list/describe your Public Outreach Programs:

	Title	Website
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2	Green Living Workshops	https://www.roseville.ca.us/cms/one.aspx?portalId=7964922&pageId=15390262
3	Mulch Mayhem	http://roseville.ca.us/workspaces/One.aspx?objectId=12537136&contextId=9754960
4	Water Efficiency Rebates	https://www.roseville.ca.us/cms/one.aspx?portalId=7964922&pageId=11491211
5	EU Today newsletter	http://roseville.ca.us/cms/One.aspx?portalId=7964922&pageId=87 17422
6	Landscape makeover contest	https://www.roseville.ca.us/cms/one.aspx?portalId=7964922&pageId=8944823
7	Regional Water Authority's Water Efficiency Program	www.bewatersmart.info
8	EPA Water Sense Partner, Fix-a-Leak Week	www.epa.gov
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Brief Comments/Narrative

In 2020, the City's public facility access and interactive programs were amended according to state and local guidance pertaining to the COVID-19 pandemic. As much as was possible, exhibits and programs remained in effect.

See website links for additional information.

School Education Programs

Briefly list/describe your School Education Programs:

	Title	Website
1	Be Water Smart News	www.bewatersmart.info
2	Water, the Never Ending Cycle (water cycle program)	http://roseville.ca.us/cms/One.aspx?portalId=7964922&pageId=8715907
3	Hydro Heroes (1st-3rd grade program)	https://www.roseville.ca.us/cms/one.aspx?portalId=7964922&pageId=8968185
4	Water Warriors (1st-3rd grade program)	https://www.roseville.ca.us/cms/one.aspx?portalId=7964922&pageId=8968201
5	H2Own (4th-6th grade program)	https://www.roseville.ca.us/cms/one.aspx?portalId=7964922&pageId=8968181
6	Keepin' It Clean (4th-6th grade program)	https://www.roseville.ca.us/cms/one.aspx?portalId=7964922&pageId=8968188
7	Planet Protectors comic books and lesson plans for Kindergarten	https://www.roseville.ca.us/cms/one.aspx?portalId=7964922&pageId=8940700
8	Water Spots video contest for high school students	http://roseville.ca.us/cms/One.aspx?portalId=7964922&pageId=8715907
9	Living Rivers of the Sacramento Valley Program	http://roseville.ca.us/cms/One.aspx?portalId=7964922&pageId=8715907
10	Utility Exploration Center Exhibits	http://roseville.ca.us/cms/One.aspx?portalId=7964922&pageId=8715907

Brief Comments/Narrative

In 2020, the City's public facility access and interactive programs were amended according to state and local guidance pertaining to the COVID-19 pandemic. As much as was possible, exhibits and programs remained in effect.

Utility Exploration Center interactive exhibits teaching about water efficiency; website resources and links; teacher training workshops; other educational initiatives for various school-age groups.

Planet Protectors comic books and lesson plans (pre/post activities) for our Kindergarten Program, Hydro Heroes, Water Warriors, H2Own and Keepin it Clean;

Residential Programs

Briefly list/describe your Residential Programs:

	Title	Website
1	Cash for Grass Rebate	http://roseville.ca.us/cms/One.aspx?portalId=7964922&pageId=10126299
2	Showerhead Replacement	http://roseville.ca.us/cms/One.aspx?portalId=7964922&pageId=10783212
3	Faucet Aerators Replacement	http://roseville.ca.us/cms/One.aspx?portalId=7964922&pageId=10783212
4	Toilet Flapper Replacement	http://roseville.ca.us/cms/One.aspx?portalId=7964922&pageId=10783212
5	Water Wise Housecalls	http://roseville.ca.us/cms/One.aspx?portalId=7964922&pageId=10783212
6	Door Hangers	https://roseville.ca.us/cms/One.aspx?portalId=7964922&pageId=8905954
7	Water Waste Patrols	https://roseville.ca.us/cms/One.aspx?portalId=7964922&pageId=8905954
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Are your programs effective? (●) Yes ( ) No ( ) NA

Has your district reached program participation saturation? ( ) Yes (●) No ( ) NA

Brief Comments/Narrative

The City's Water Efficiency programs reach approximately 1000 residences per year, with continued efforts to engage the community and residents in rebate programs, water efficiency education, as well as best practices of water resource management.

The City continues its effort to reach residents via water efficiency rebate programs, free water wise house call services, water waste patrol and outreach.

Commercial, Institutional, and Industrial Programs

Briefly list/describe your CII Programs:

	Title	Website
1	Landscape Conversion and Irrigation Upgrade Rebate	https://roseville.ca.us/cms/One.aspx?portalId=7964922&pageId=10126299
2	Food Service One Stop Water Efficiency Rebate	https://roseville.ca.us/cms/One.aspx?portalId=7964922&pageId=10126299
3	Customized Rebate Program	https://roseville.ca.us/cms/One.aspx?portalId=7964922&pageId=10126299
4	Water Wise Evaluation Interior	https://roseville.ca.us/cms/One.aspx?portalId=7964922&pageId=10866145
5	Water Wise Evaluation Exterior	https://roseville.ca.us/cms/One.aspx?portalId=7964922&pageId=10866145
6	Water Budget Evaluation	https://roseville.ca.us/cms/One.aspx?portalId=7964922&pageId=10866145
7	Water Waste Patrols	https://roseville.ca.us/cms/One.aspx?portalId=7964922&pageId=8905954
8		

Are your programs effective? (●) Yes ( ) No ( ) NA

Has your district reached program participation saturation? ( ) Yes (●) No ( ) NA

Brief Comments/Narrative

The City continues its water efficiency efforts by engaging the commercial community with multiple programs and outreach. Our water wise evaluations are one of our most valuable water saving services.

Landscape Programs

Briefly list/describe your Landscape Programs:

	Title	Website
1	Cash for Grass Rebate	https://roseville.ca.us/cms/One.aspx?portalId=7964922&pageId=10126299
2	Green Gardening Events	https://roseville.ca.us/cms/one.aspx?portalId=7964922&pageId=15390262
3	Water Wise Evaluation Exterior	https://roseville.ca.us/cms/One.aspx?portalId=7964922&pageId=10866145
4	DIY Landscape Workshops	https://roseville.ca.us/cms/one.aspx?portalId=7964922&pageId=15390262
5	Landscape Conversion and Irrigation Upgrade Rebate	https://roseville.ca.us/cms/One.aspx?portalId=7964922&pageId=10126299
6	Water Efficient Landscape Ordinance (WELO)	https://roseville.ca.us/cms/One.aspx?portalId=7964922&pageId=8905954
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Are your programs effective? (●) Yes ( ) No ( ) NA

Has your district reached program participation saturation? ( ) Yes (●) No ( ) NA

Brief Comments/Narrative

The City's Water Efficiency programs reach approximately 1000 residences and approximately 1000 commercial sites for landscape-related visits per year, with continued efforts to engage the community and residents in rebate programs, water efficiency education, as well as best practices of water resource management. The City continues its effort to reach residents and commercial customers via water efficiency rebate programs, free water wise house call services, commercial site evaluations, water waste patrol and outreach.

Appendix Q – Adoption Resolutions and Submission

Resolutions and submission documentation will be added following final Council adoption.

CITY OF ROSEVILLE CALIFORNIA

City Council Communication

Meeting Date: 6/17/2026
Item #: IX.6
File #: 0800-02
Item ID: 2026-446

Title:	2025 Urban Water Management Plan and Water Shortage Contingency Plan – Public Hearings and Consideration of Adoption
Contact:	Janice Gainey 916-774-5535 jrgainey@roseville.ca.us

SUMMARY

Staff recommends City Council hold two public hearings to receive comments on the Draft 2025 Urban Water Management Plan (UWMP) and the Draft Water Shortage Contingency Plan (WSCP). If found acceptable, staff is requesting that the City Council consider the adoption of the Draft 2025 UWMP and the draft WSCP upon close of the public hearing. Approving the plans has no impact on the City's General Fund.

RECOMMENDATION

Staff recommends that the City Council:

1. Hold a Public Hearing to:
   a) review and receive comments on the Draft 2025 Urban Water Management Plan (UWMP) and,

   b) review and receive comments on the Draft Water Shortage Contingency Plan (WSCP); and

2. After the Public Hearing:

   a) Adopt a resolution to adopt the 2025 Urban Water Management Plan and provide authorization to staff to submit it to the California Department of Water Resources (DWR) as final; and

   b) Adopt a resolution to adopt the Water Shortage Contingency Plan and provide authorization to staff to submit it to the California Department of Water Resources (DWR) as final.

BACKGROUND

Urban Water Management Plans (UWMPs) are prepared by urban water suppliers every five years. These plans support the suppliers' long-term resource planning to ensure that adequate water supplies are available to meet existing and future water needs. The information collected from UWMPs is useful for local, regional, and statewide water planning.

The requirements for UWMPs are found in two sections of California Water Code, §10610-10656 and §10608. Every urban water supplier that either provides over 3,000 acre-feet of water annually or serves more than 3,000 urban connections is required to submit an UWMP.

Within UWMPs, urban water suppliers must include the following:

- An assessment of the reliability of water sources over a 20-year planning time frame
- A description of demand management measures
- A water shortage contingency plan
- A discussion of the use and planned use of recycled water

The Water Shortage Contingency Plan (WSCP) is an action plan for addressing water shortages, including drought. The WSCP describes water demand reduction and supply augmentation actions to be taken in the event of a water shortage pertaining to six standard levels of water shortage: 0 to 10%, 10-20%, 20-30%, 30-40%, 40-50%, and greater than 50%. The WSCP also includes an analysis of water supply reliability, procedures for conducting its annual water supply and demand assessment, and procedures for customer compliance of shortage response actions as appropriate, and other elements. The WSCP must be adopted according to a defined public process.

WSCP must be submitted every five years as part of the UWMP. The City's last plan was developed and approved for 2020 and included a WSCP.

On September 3, 2025, after a competitive proposal process, Waterworks Engineers, Inc., was awarded a Professional Services Agreement to support the City in the development of the 2025 UWMP update as well as an update to the Water Management Plan (WMP).

Urban water suppliers are required to hold public hearings before adopting an UWMP to allow for community input, review, and comment. The 2025 UWMP updates are due to the California Department of Water Resources (DWR) by July 1, 2026.

FISCAL IMPACT

Conservation programs are a condition of City water contracts, regional agreements, and a matter of State law with the passage of SB X7-7 in 2009. Planning continues to be done on an annual basis and is included in all rate analysis and proposed budgets. Approving the plans has no impact on the City's General Fund.

ENVIRONMENTAL REVIEW

The proposed activity is statutorily exempt from the California Environmental Quality Act (CEQA). CEQA does not apply to the preparation and adoption of Urban Water Management plans (California Water Code §10652). The proposed plan would not affect water supplies for fish and wildlife, or expand or add water supplies, and therefore no further environmental review is required.

CITY COUNCIL STRATEGIC PLAN/OVERARCHING GOALS

4. Invest in well-planned infrastructure and growth
6. Deliver exceptional City services

Respectfully Submitted,
Janice Gainey, Principal Engineer

Sean Bigley, Environmental Utilities Director

ATTACHMENTS:

1. Resolution 26-238
2. Draft UWMP
3. UWMP Appendices
4. Resolution 26-239
5. Draft WSCP

REVIEWERS:

Janice Gainey, Environmental Utilities Department - Water	Created/Initiated - 5/14/2026
George Hanson, Environmental Utilities Department - Water	Approved - 5/20/2026
Devin Whittington, Environmental Utilities Department	Approved - 5/20/2026
Sean Bigley, Environmental Utilities Department - All	Approved - 5/21/2026
Kelly Aye, City Attorney Department	Approved - 6/4/2026
Katrina Six, City Clerk Department	Approved - 6/4/2026
Ryan DeVore, City Manager Department - Assistant City Manager	Approved - 6/5/2026
Dennis Kauffman, City Manager Department - Assistant City Manager	Approved - 6/5/2026
Michelle Sheidenberger, City Attorney Department	Approved - 6/5/2026
Dominick Casey, City Manager Department - City Manager	Approved - 6/5/2026
Katrina Six, City Clerk Department	Final Approval - 6/5/2026

RESOLUTION NO. 26-238

ADOPTING THE URBAN WATER MANAGEMENT PLAN AND AUTHORIZING STAFF TO SUBMIT TO THE CALIFORNIA DEPARTMENT OF WATER RESOURCES

WHEREAS, the Urban Water Management Plan Act requires every urban water supplier providing water for municipal purposes to more than 3,000 customers to develop and submit an Urban Water Management Plan (UWMP) every five years to the California Department of Water Resources (DWR); and

WHEREAS, with ongoing and recent updates to the DWR Guidebook for Urban Water Suppliers, staff collaborated with a consultant on the development of the 2025 UWMP update; and

WHEREAS, the City has prepared and circulated for public review the UWMP, and a properly noticed public hearing regarding said Plan was held by the City Council on June 17, 2026.

NOW, THEREFORE, BE IT RESOLVED by the City Council of the City of Roseville that the UWMP is hereby adopted and ordered filed with the City Clerk; and

BE IT FURTHER RESOLVED that the Mayor is hereby authorized and directed to file the UWMP with the California Department of Water Resources within 30 days after this date.

PASSED AND ADOPTED by the Council of the City of Roseville this 17th day of June 2026, by the following vote on roll call:

AYES COUNCILMEMBERS: Alvord, Bernasconi, Houdesheldt, Mendonsa, Roccucci

NOES COUNCILMEMBERS: None

ABSENT COUNCILMEMBERS: None

MAYOR

ATTEST:

City Clerk

Appendix R – DWR UWMP Checklist

2025 Guidebook Location	Water Code Section	Summary as Applies to UWMP	Subject	Relevant Submittal Table	2025 UWMP Location
Chapter 1	10615	A plan shall describe and evaluate sources of supply, reasonable and practical efficient uses, reclamation and demand management activities.	Introduction and overview	n/a	Executive Summary
Chapter 1	10630.5	Each plan shall include a simple description of the Supplier's plan including water availability, future requirements, a strategy for meeting needs, and other pertinent information. Additionally, a Supplier may also choose to include a simple description at the beginning of each chapter.	Plan preparation	n/a	Executive Summary
Section 2.1	10620(b)	Every person that becomes a Supplier shall adopt UWMP within one year after it has become a Supplier.	Plan preparation	n/a	Section 2.1
Section 2.5	10644	Supplier shall report the Public Water Systems number, volume of delivered water, and number of connections that are included in this UWMP.	Plan preparation	2-1	Section 2.1
Section 2.5	10644	Supplier shall report if this UWMP is an individual UWMP and whether the Supplier belongs to a regional UWMP or regional alliance.	Plan preparation	2-2	Section 2.2
Section 2.5	10644	Supplier shall report whether the data is in fiscal or calendar years and the units of measure used for reporting water volumes.	Plan preparation	2-3	Section 2.3
Section 2.4	10642	Provide supporting documentation that the Supplier has encouraged active involvement of diverse social, cultural, and economic elements of the population within the service area prior to and during the preparation of the plan and contingency plan.	Plan preparation	n/a	Appendix B
Section 2.4.2	10620(d)(3)	Coordinate the preparation of its plan with other appropriate agencies in the area, including other Suppliers that share a common source, water management agencies, and relevant public agencies, to the extent practicable.	Plan preparation	n/a	Section 2.4
Section 2.4.1	10631(h)	Retail Suppliers will include documentation that they have provided their Wholesale Supplier(s)—if any—with water use projections from that source.	Plan preparation	2-4 R	Appendix A
Section 2.4.1	10631(h)	Wholesale Suppliers will provide their Suppliers with identification and quantification of the existing and planned sources of water available from the Wholesale Supplier to the Supplier during various water year types.	Plan preparation	2-4 W	N/A
Chapter 3	10631(a)	Describe the Supplier service area.	System description	n/a	Section 3.2
Section 3.3	10631(a)	Describe the climate of the Supplier's service area.	System description	n/a	Section 3.3
Section 3.4.1	10631(a)	Provide the current and projected service area populations for 2030, 2035, 2040, 2045 and optionally 2050.	System description	3-1	DWR Table 3-1
Section 3.4.2	10631(a)	Describe other social, economic, and demographic factors affecting the Supplier's water management planning.	System description	n/a	Section 3.4.2
Section 3.5	10631(a)	Describe the land uses within the service area… include the current and projected land uses within the existing or anticipated service area affecting the Supplier's water management planning. Describe the land uses within the service area.	System description and baselines	n/a	Section 3.5

Sections 4.2.3 and 4.2.4	10631(d)(1)	Quantify past, current, and projected water use, identifying the uses among water use sectors.	System water use	4-1 and 4-2	COR Table 4-A DWR Table 4-1 DWR Table 4-2
Section 4.3.1	10631(d)(3)(A)	Report the distribution system water loss for each of the five years preceding the plan update.	System water use	4-5	COR Table 4-D DWR Table 4-5
Section 4.3.2	10631(d)(3)(C)	Retail Suppliers shall provide data to show the distribution loss standards were met.	System water use	4-6	Section 4.2.6
Section 4.2.5.4	10631.1(a)	Include projected water use needed for lower income housing projected in the service area of the Supplier.	System water use	4-3	COR Table 4-G COR Table 4-H
Section 4.2.5.3	10631(d)(4)(A)	In projected water use, include estimates of water savings from adopted codes, plans, and other policies or laws.	System water use	4-3	Section 4.2.7
Section 4.2.5.3	10631(d)(4)(B)	Provide citations of codes, standards, ordinances, or plans used to make water use projections.	System water use	4-3	Section 4.2.7
Section 4.2.5.3	10631(d)(4)(B)(ii)	To the extent that a Supplier reports the information described in subparagraph (A), an urban water Supplier shall… Indicate the extent that the water use projections consider savings from codes, standards, ordinances, or transportation and land use plans. Water use projections that do not account for these water savings shall be noted of that fact.	System water use	4-3	Section 4.2.7
Section 4.2.5.6	10635(b)	Demands under climate change considerations must be included as part of the drought risk assessment.	System water use	n/a	Section 4.4 Section 6.14.2
Section 5.1	10608.36	Wholesale Suppliers shall include an assessment of present and proposed future measures, programs, and policies to help their Retail Suppliers achieve targeted water use reductions.	Baselines and targets	n/a	N/A
Section 5.2	10608.4	Retail Suppliers shall report on their compliance in meeting their water use targets. Reporting requirements will vary depending on whether the Supplier: - Was considered an urban retail water supplier in 2020, - Met its 2020 target in 2020, or - Was part of a merger or consolidation since 2020. Chapter 5 Subsections 5.2.1, 5.2.2, and 5.2.3 address each of these situations.	Baselines and targets	5-1	2025 DWR Table 5-1
Section 6.1	10631(b)(2)	When multiple sources of water supply are identified, describe the management of each supply in relationship to other identified supplies.	System supplies	n/a	Section 6.11
Sections 6.1 and 6.2	10631(b)(1)	Provide a discussion of anticipated supply availability under a normal, single dry year, and a drought lasting five years, as well as more frequent and severe periods of drought, including changes in supply due to climate change.	System supplies	n/a	Section 7.2
Section 6.2.2	10631(b)(4)(C)	Indicate whether groundwater is an existing or planned source of water available to the Supplier. If groundwater is identified as an existing or planned source of water… (include) a detailed description and analysis of the location, amount and sufficiency of groundwater pumped by the Supplier for the past five years.	Water supplies and recycled water	6-1	Section 6.3

Section 6.2.2	10631(b)(4)(A)	Indicate whether a groundwater sustainability plan or groundwater management plan has been adopted by the Supplier or if there is any other specific authorization for groundwater management. Include a copy of the plan or authorization.	System supplies	n/a	Section 6.3.2
Section 6.2.2	10631(b)(4)(B)	Describe the groundwater basin.	System supplies	n/a	Section 6.3.1
Section 6.2.2	10631(b)(4)(B)	Indicate if the basin has been adjudicated and include a copy of the court order or decree and a description of the amount of water the Supplier has the legal right to pump.	System supplies	n/a	Section 6.3.1
Section 6.2.2	10631(b)(4)(B)	For unadjudicated basins… (include) information as to whether DWR has identified the basin as a high- or medium-priority basin in the most current official departmental bulletin…	Water supplies and recycled water	n/a	Section 6.3.1
Section 6.2.2	10631(b)(4)(B)	For unadjudicated basins… describe efforts by the Supplier to coordinate with sustainability or groundwater agencies to achieve sustainable groundwater conditions.	Water supplies and recycled water	n/a	Section 6.3.2
Section 6.2.2	10631(b)(4)(C)	If groundwater is identified as an existing or planned source of water… (include) a detailed description and analysis of the location, amount and sufficiency of groundwater pumped by the Supplier for the past five years.	System supplies	n/a	Section 6.3.3
Section 6.2.2	10631(b)(4)(D)	Provide a detailed description and analysis of the amount and location of groundwater that is projected to be pumped.	System supplies	6-9	Section 6.12.2
Section 6.1	10631(b)	Identify and quantify the existing and planned sources of water available for 2025, 2030, 2035, 2040, 2045 and optionally 2050.	System supplies	6-8 and 6-9	DWR Table 6-8 DWR Table 6-9
Section 6.2.7	10631(c)	Describe the opportunities for exchanges or transfers of water on a short-term or long-term basis.	System supplies	n/a	Section 6.10
Section 6.2.5	10633(a)	Describe the wastewater collection and treatment systems in the Supplier's service area with quantified amount of collection and treatment and the disposal methods.	System supplies (recycled water)	6-2	Section 6.5.1
Section 6.2.5	10633(b)	Describe the quantity of treated wastewater that meets recycled water standards, is being discharged, and is otherwise available for use in a recycled water project.	System supplies (recycled water)	6-3	Section 6.5.1
Section 6.2.5	10633(c)	Describe the recycled water currently being used in the Supplier's service area.	System supplies (recycled water)	6-4	Section 6.7
Section 6.2.5	10633(d)	Describe and quantify the potential uses of recycled water and provide a determination of the technical and economic feasibility of those uses.	System supplies (recycled water)	6-4	Section 6.8
Section 6.2.5	10633(e)	Describe the projected use of recycled water within the Supplier's service area at the end of 5, 10, 15, and 20 years, and describe the actual use of recycled water in comparison to uses previously projected.	System supplies (recycled water)	6-4 and 6-5	Section 6.7
Section 6.2.5	10633(f)	Describe the actions that may be taken to encourage the use of recycled water and the projected results of these actions in terms of acre-feet of recycled water used per year.	System supplies (recycled water)	6-6	Section 6.8
Section 6.2.5	10633(g)	Provide a plan for optimizing the use of recycled water in the Supplier's service area.	System supplies (recycled water)	n/a	Section 6.8
Section 6.2.6	10631(g)	Describe desalinated water project opportunities for long-term supply.	System supplies	6-7	Section 6.9

Section 6.2.10	10631(f)	Describe the expected future water supply projects and programs that may be undertaken by the water Supplier to address water supply reliability in average, single-dry, and for a period of drought lasting five consecutive water years.	System supplies	6-7	Section 6.12
Section 6.3 and Appendix O	10631.2(a)	The UWMP must include energy information, as stated in the code, that a Supplier can readily obtain.	System suppliers, energy intensity	O-1A, O-1B, O-1C, and O-2	Section 6.15
Section 7.1	10634	Provide information on the quality of existing sources of water available to the Supplier and the manner in which water quality affects water management strategies and supply reliability.	Water supply reliability assessment	n/a	Section 7.1.2
Section 7.2	10635(a)	Service Reliability Assessment: Assess the water supply reliability during normal, dry, and a drought lasting five consecutive water years by comparing the total water supply sources available to the Supplier with the total projected water use over the next 20 years.	Water supply reliability assessment	7-2, 7-3, and 7-4	DWR Table 7-2 DWR Table 7-3 DWR Table 7-4
Section 7.2.3	10620(f)	Describe water management tools and options to maximize resources and minimize the need to import water from other regions.	Water supply reliability assessment	n/a	Section 7.2.5
Section 7.3	10635(b)	Provide a drought risk assessment as part of information considered in developing the demand management measures and water supply projects.	Water supply reliability assessment	n/a	DWR Table 7-2 DWR Table 7-3 DWR Table 7-4 DWR Table 7-5
Section 7.3	10635(b)(1)	Include a description of the data, methodology, and basis for one or more supply shortage conditions that are necessary to conduct a drought risk assessment for a drought period that lasts five consecutive years.	Water supply reliability assessment	n/a	Section 7.2.5
Section 7.3	10635(b)(2)	Include a determination of the reliability of each source of supply under a variety of water shortage conditions.	Water supply reliability assessment	n/a	COR Table 7-D
Section 7.3	10635(b)(3)	Include a comparison of the total water supply sources available to the Supplier with the total projected water use for the drought period.	Water supply reliability assessment	7-5	DWR Table 7-4 DWR Table 7-5
Section 7.3	10635(b)(4)	Include considerations of the historical drought hydrology, plausible changes on projected supplies and demands under climate change conditions, anticipated regulatory changes, and other locally applicable criteria.	Water supply reliability assessment	n/a	Section 7.2.1
Chapter 8	10632(a)	Provide a water shortage contingency plan (WSCP) with specified elements below.	Water shortage contingency planning	n/a	Appendix M
Chapter 8	10632(a)(1)	Provide an analysis of water supply reliability (from Guidebook Chapter 7) in the WSCP.	Water shortage contingency planning	n/a	WSCP Section 1.1
Section 8.2	10632(a)(2)(A)	Provide the written decision-making process and other methods that the Supplier will use each year to determine its water reliability.	Water shortage contingency planning	n/a	WSCP Table 5
Section 8.2	10632(a)(2)(B)	Provide data and methodology to evaluate the Supplier's water reliability for the current year and one dry year pursuant to factors in the code.	Water shortage contingency planning	n/a	WSCP Table 5 Steps 1-8
Section 8.3	10632(a)(3)(A)	Define six standard water shortage levels of 10%, 20%, 30%, 40%, 50% shortage, and greater than 50% shortage. These levels shall be based on supply conditions, including percent reductions in supply, changes in groundwater levels, changes in surface elevation, or other conditions. The shortage levels shall also apply to a catastrophic interruption of supply.	Water shortage contingency planning	n/a	WSCP Table 4
Section 8.3	10632(a)(3)(B)	Suppliers with an existing WSCP that uses different water shortage levels must cross reference their categories with the six standard categories.	Water shortage contingency planning	8-1	WSCP Table 4

Section 8.4	10632(a)(4)(A)	Suppliers with WSCPs that align with the defined shortage levels must specify locally appropriate supply augmentation actions.	Water shortage contingency planning	8-2	WSCP Section 1.5
Section 8.4	10632(a)(4)(B)	Specify locally appropriate demand reduction actions to adequately respond to shortages.	Water shortage contingency planning	8-3	WSCP Table 6
Section 8.4	10632(a)(4)(C)	Specify locally appropriate operational changes.	Water shortage contingency planning	8-2	WSCP Section 1.5
Section 8.4	10632(a)(4)(D)	Specify additional mandatory prohibitions against specific water use practices that are in addition to State-mandated prohibitions are appropriate to local conditions.	Water shortage contingency planning	Table 8-3	WSCP Table 6
Section 8.4	10632(a)(4)(E)	Estimate the extent to which the gap between supplies and demand will be reduced by implementation of the action.	Water shortage contingency planning	8-2 and 8-3	WSCP Table 6
Section 8.4.6	10632.5	The UWMP shall include a seismic risk assessment and mitigation plan.	Water shortage contingency planning	n/a	WSCP Section 1.1.3
Section 8.5	10632(a)(5)(A)	Suppliers must describe that they will inform customers, the public and others regarding any current or predicted water shortages.	Water shortage contingency planning	n/a	WSCP Table 5
Section 8.5	10632(a)(5)(B), 10632(a)(5)(C)	Suppliers must describe that they will inform customers, the public and others regarding any shortage response actions triggered or anticipated to be triggered and other relevant communications.	Water shortage contingency planning	n/a	WSCP Table 5
Section 8.6	10632(a)(6)	Retail Supplier must describe how it will ensure compliance with and enforce provisions of the WSCP.	Water shortage contingency planning	n/a	WSCP Section 1.6
Section 8.7	10632(a)(7)(A)	Describe the legal authority that empowers the Supplier to enforce shortage response actions.	Water shortage contingency planning	n/a	WSCP Section 1.2
Section 8.7	10632(a)(7)(B)	Provide a statement that the Supplier will declare a water shortage emergency per Water Code Chapter 3. *Water Shortage Emergencies*.	Water shortage contingency planning	n/a	WSCP Table 5 Step 11
Section 8.7	10632(a)(7)(C)	Provide a statement that the Supplier will coordinate with any city or county within which it provides water for the possible proclamation of a local emergency.	Water shortage contingency planning	n/a	WSCP Table 5 Step 12
Section 8.8	10632(a)(8)(A)	Describe the potential revenue reductions and expense increases associated with activated shortage response actions.	Water shortage contingency planning	n/a	WSCP Section 1.6
Section 8.8	10632(a)(8)(B)	Provide a description of mitigation actions needed to address revenue reductions and expense increases associated with activated shortage response actions.	Water shortage contingency planning	n/a	WSCP Section 1.7
Section 8.8	10632(a)(8)(C)	Retail Suppliers must describe the cost of compliance with Water Code Chapter 3.3, *Excessive Residential Water Use During Drought*.	Water shortage contingency planning	n/a	WSCP Section 1.7
Section 8.9	10632(a)(9)	Retail Suppliers must describe the monitoring and reporting requirements and procedures that ensure appropriate data are collected, tracked, and analyzed for purposes of monitoring customer compliance.	Water shortage contingency planning	n/a	WSCP Table 5 Step 15
Section 8.10	10632(a)(10)	Describe reevaluation and improvement procedures for monitoring and evaluation the WSCP to ensure risk tolerance is adequate and appropriate water shortage mitigation strategies are implemented.	Water shortage contingency planning	n/a	WSCP Table 5 Step 16
Section 8.11	10632(b)	Analyze and define water features that are artificially supplied with water, including ponds, lakes, waterfalls, and fountains, separately from swimming pools and spas.	Water shortage contingency planning	n/a	WSCP Table 6
Section 8.12	10632(c)	Make available the WSCP to customers and any city or county where it provides water within 30 days after adoption of the plan.	Water shortage contingency planning	n/a	WSCP Section 1.8

Sections 9.1	10631(e)(1)	Retail Suppliers shall provide a description of the nature and extent of each demand management measure implemented over the past five years. The description will address specific measures listed in code.	Demand management measures	n/a	Section 9.1
Sections 9.2	10631(e)(2)	Wholesale Suppliers shall describe specific demand management measures listed in code, their distribution system asset management program, and Supplier assistance program.	Demand management measures	n/a	N/A
Chapter 10	10608.26(a)	Retail Suppliers shall conduct a public hearing to discuss adoption, implementation, and economic impact of water use targets (recommended to discuss compliance).	Plan adoption, submittal, and implementation	n/a	Section 10.2 Section10.3
Section 10.2.1	10621(b)	Notify, at least 60 days prior to the public hearing, any city or county within which the Supplier provides water that the Supplier will be reviewing the UWMP and considering amendments or changes to the plan.	Plan adoption, submittal, and implementation	10-1	Appendix B
Section 10.4	10621(f)	Each urban water Supplier shall update and submit its 2025 plan to DWR by July 1, 2026.	Plan adoption, submittal, and implementation	n/a	Appendix Q
Sections 10.2.2, 10.3, and 10.5	10642	Provide supporting documentation that the Supplier made the UWMP and WSCP available for public inspection, published notice of the public hearing, and held a public hearing about the UWMP and WSCP.	Plan adoption, submittal, and implementation	n/a	Appendix B
Section 10.2.2	10642	The Supplier is to provide the time and place of the hearing to any city or county within which the Supplier provides water.	Plan adoption, submittal, and implementation	10-1	Appendix B
Section 10.3.2	10642	Provide supporting documentation that the UWMP and WSCP has been adopted as prepared or modified.	Plan adoption, submittal, and implementation	n/a	Appendix Q
Section 10.4	10644(a)	Provide supporting documentation that the Supplier has submitted their UWMP to the California State Library.	Plan adoption, submittal, and implementation	n/a	Appendix Q
Section 10.4	10644(a)(1)	Provide supporting documentation that the Supplier has submitted their UWMP to any city or county within which the Supplier provides water no later than 30 days after adoption.	Plan adoption, submittal, and implementation	n/a	Appendix Q
Sections 10.4.1 and 10.4.2	10644(a)(2)	The UWMP, or amendments to the UWMP, submitted to DWR shall be submitted electronically.	Plan adoption, submittal, and implementation	n/a	Appendix Q
Section 10.7.2	10644(b)	If revised, submit a copy of the WSCP to DWR within 30 days of adoption.	Plan adoption, submittal, and implementation	n/a	Appendix Q
Section 10.5	10645(a)	Provide supporting documentation that, not later than 30 days after filing a copy of its UWMP with DWR, the Supplier has or will make the plan available for public review during normal business hours.	Plan adoption, submittal, and implementation	n/a	Appendix Q
Section 10.5	10645(b)	Provide supporting documentation that, not later than 30 days after filing a copy of its WSCP with DWR, the Supplier has or will make the plan available for public review during normal business hours.	Plan adoption, submittal, and implementation	n/a	Appendix M: Exhibit C
Section 10.6	10621(c)	If Supplier is regulated by the Public Utilities Commission, include its plan and contingency plan as part of its general rate case filings.	Plan adoption, submittal, and implementation	n/a	N/A

Appendix S – ASR Program Infrastructure and Capacity

ASR PROGRAM INFRASTRUCTURE AND CAPACITY						
Well Name	**Rated Extraction Capacity (gpm)**	**Effective Extraction Capacity (gpm)**	**Rated Injection Capacity (gpm)**	**Effective Injection Capacity (gpm)**	**Condition**	**ASR Capable (Y/N)**
Oakmont, No. 5	1,460	1,168	0	0	Active	N
Diamond Creek, No. 6	2,756	2,205	1,378	1,102	Active	Y
Woodcreek North, No. 7	1,547	1,238	774	619	Active	Y
Hayden Parkway, No. 8	2,160	1,728	1,080	864	Active	Y
Westbrook Boulevard, No. 9	2,235	1,788	1,118	894	Active	Y
Blue Oaks Boulevard, No. 12	2,500	2,000	1,250	1,000	Active	Y
Solaire Drive, No. 18	1,800	1,440	900	720	Active	Y
Campus Oaks, No. 13	2,000	1,600	1,000	800	Inactive	Y
Misty Wood, No. 19	2,400	1,920	1,200	960	Inactive	Y
To Be Determined	1,800	1,440	900	720	Inactive	Y
To Be Determined	1,800	1,440	900	720	Inactive	Y
Active Subtotal (gpm)	14,458	11,566	6,499	5,199	**NOTES:** Campus Oaks, well number 13, and Misty Wood, well number 19, are currently under construction and are scheduled to be completed in the Fall of 2026. The two wells To Be Determined are currently in the planning phase and are anticipated to be completed by the year 2030.	
Active Subtotal (TAF/yr)	23.3	18.7	10.5	8.4		
Inactive Subtotal (gpm)	8,000	6,400	4,000	3,200		
Inactive Subtotal (TAF/yr)	12.9	10.3	6.5	5.2		
Buildout Total (gpm)	**22,458**	**17,966**	**10,499**	**8,399**		
Buildout Total (TAF/yr)	**36.2**	**29.0**	**16.9**	**13.5**		

Appendix T – DWR Table 7-5 Calculations

DWR Table 7-5 Calculations				
Year	**2025 Available Potable Supplies from COR Table 7-D (Without Groundwater)**	**Recycled Water Use from DWR Table 6-4 Linearly Interpolated Between 2025 and 2030**	**Total Supplies (Potable + Recycled)**	**Total Water Use (Years 2026 - 2029) (Total Demand - Groundwater Recharge)**
2026	58,000	3,882	61,882	40,186
2027	50,000	4,006	54,006	44,526
2028	38,000	4,131	42,131	48,867
2029	38,000	4,255	42,255	53207
2030	11,200	4,379	15,579	-
2025 Total Recycled Water Use from DWR Table 6-4		**2025 Total Demand from DWR Table 4-1**	**2025 Groundwater Recharge from DWR Table 4-1**	**2030 Linda Creek Discharge from DWR Table 4-2**
3,758		36,038	193	350
2030 Total Projected Recycled Water Use from DWR Table 6-4		**2030 Total Projected Demand from DWR Table 4-2**	**2030 Total Projected Groundwater Recharge from DWR Table 4-2**	**Total Water Use (2030) (Total Demand - Groundwater Recharge - Linda Creek Discharge)**
4,379		60,908	3,360	57,198
Year	**Linear Interpolation**	**Linear Interpolation**	**Linear Interpolation**	**NOTES**
2026	3,758 + (4,379 - 3,758)/5 = 3,882	36,038 + (60,908 - 36,038)/5 = 41,012	193 + (3,360 - 193)/5 = 826	All volumes are in AF. Recycled water is produced in quantities that match current demand as shown in DWR Table 6-4 and DWR Table 6-9.
2027	3,882 + (4,379 - 3,758)/5 = 4,006	41,012 + (60,908 - 36,038)/5 = 45,986	826 + (3,360 - 193)/5 = 1,460	
2028	4,006 + (4,379 - 3,758)/5 = 4,131	45,986 + (60,908 - 36,038)/5 = 50,960	1,460 + (3,360 - 193)/5 = 2,093	
2029	4,131 + (4,379 - 3,758)/5 = 4,255	50,960 + (60,908 - 36,038)/5 = 55,934	2,093 + (3,360 - 193)/5 = 2,727	
2030	4,255 + (4,379 - 3,758)/5 = 4,379	55,934 + (60,908 - 36,038)/5 = 60,908	2,727 + (3,360 - 193)/5 = 3,360	