

City of Rohnert Park Final Urban Water Management Plan 2015

June 2016

1 CONTENTS

1.	Introduction & Overview	1
1.1	Background and Purpose	1
1.2	Urban Water Management Planning and the California Water Code	1
1.3	Urban Water Management Plans in Relation to Other Planning Efforts	2
1.3.1	Relationship to the City’s General Plan	2
1.3.2	Relationship to the North Coast Integrated Regional Water Management Plan	2
1.3.3	Relationship to the Santa Rosa Plain Groundwater Management Plan.....	2
1.3.4	Relationship to the Groundwater Sustainability Act of 2014.....	2
1.4	UWMP Organization.....	3
2	Plan Preparation	4
2.1	Basis for Preparing a Plan	4
2.2	Regional Planning	4
2.3	Individual or Regional Planning and Compliance	5
2.4	Fiscal or Calendar Year and Unit of Measure	5
2.5	Coordination and Outreach.....	6
3	System Description	7
3.1	General Description.....	7
3.1.1	Political Characteristics and Governance	9
3.2	Service Area.....	10
3.3	Service Area Climate.....	13
3.3.1	Climate Change.....	13
3.4	Service Area Population and Demographics	14
4	System Water Use	16
4.1	Recycled versus Potable and Raw Water Demand	16
4.2	Water Uses by Sector	16
4.3	Distribution System Water Losses.....	18
4.4	Estimating Future Water Savings	19
4.5	Water Use for Lower Income Households	19
5	Baselines and Targets	21
5.1	Updating Calculations from the 2010 UWMP	21

5.2	Baseline Periods	21
5.3	Service Area Population	21
5.4	Gross Water Use.....	21
5.5	2015 and 2020 Targets	22
5.6	2015 Compliance Daily Per Capita Water Use	22
5.7	Regional Alliance	23
6	System Supplies	24
6.1	Sonoma County Water Agency Supply (Purchased Water)	24
6.1.1	Agency’s Water Rights.....	24
6.1.2	The Restructured Agreement for Water Supply	25
6.1.3	Drought Considerations	25
6.2	Groundwater	25
6.2.1	Basin Description.....	26
6.2.2	Groundwater Quality.....	27
6.2.3	Adjudicated Basins	27
6.2.4	Sufficiency of Groundwater.....	27
6.2.5	Groundwater Management	28
6.2.6	Limitations to Groundwater Pumping and Overdraft Conditions.....	28
6.2.7	Historical Groundwater Pumping (2010-2015)	28
6.3	Surface Water.....	29
6.4	Stormwater.....	29
6.5	Wastewater and Recycled Water.....	29
6.5.1	Recycled Water Coordination	29
6.5.2	Wastewater Collection, Treatment, and Disposal.....	30
6.5.3	Recycled Water System.....	31
6.5.4	Recycled Water Beneficial Uses	32
6.5.5	Actions to Encourage and Optimize Future Recycled Water Use	33
6.6	Desalinated Water Opportunities	34
6.7	Exchanges or Transfers.....	34
6.8	Future Water Projects	34
6.9	Summary of Existing and Planned Sources of Water	35
6.10	Climate Change Impacts to Supply.....	36

7	Water System Reliability.....	37
7.1	Constraints on Water Sources.....	37
7.1.1	Water Quality Constraints.....	37
7.2	Constraints on the Agency Supply.....	37
7.2.1	Hydrologic Constraints	37
7.2.2	Legal & Environmental Constraints	39
7.3	Constraints on Groundwater Supply	39
7.4	Recycled Water Supply.....	40
7.5	Supply and Demand Assessment	41
8	Water Shortage Contingency Plan.....	43
8.1	Stages of Action.....	43
8.2	Prohibition on End Uses	44
8.3	Penalties, Charges, Other Enforcement of Prohibitions	45
8.4	Consumption Reduction Methods	45
8.5	Determining Water Shortage Reductions	45
8.6	Revenue and Expenditure Impacts.....	46
8.7	Resolution or Ordinance.....	46
8.8	Catastrophic Supply Interruption	46
8.9	Minimum Supply Next Three Years.....	47
9	Demand Management Measures	48
10	Plan Adoption Submittal and Implementation.....	49
11	References	51

List of Tables

Table 1-1 Plan Organization.....	3
Table 2-1 Public Water System Information.....	4
Table 2-2 Plan Identification	5
Table 2-3 Agency Identification	6
Table 2-4 Water Supplier Information Exchange.....	6
Table 3-1 Summary of Planned Development.....	8
Table 3-2 Climate Data.....	13
Table 3-3 Population Projections from the 2010 UWMP	14
Table 3-4 Population PROJECTIONS - Current and Projected.....	15

Table 4-1- Retail Demands for Potable and Raw Water – Actual	17
Table 4-2 Demands for Potable and Raw Water – Projected	18
Table 4-3 Total Water Demands	18
Table 4-4 12 Month Audit Loss Reporting	19
Table 4-5 Inclusion in Water Use Projection.....	19
Table 5-1 Baselines and Targets Summary	22
Table 5-2 2015 Compliance.....	23
Table 6-1 Groundwater Volume Pumped	29
Table 6-2 Wastewater Collected within the Service Area in 2015	30
Table 6-3 Wastewater Treatment and Discharge within the Service Area 2015.....	31
Table 6-4 Current and Projected Recycled Water Direct Beneficial Uses Within Service Area.....	32
Table 6-5 2010 UWMP Recycled Water Use Projections Compared to 2015 Actual	33
Table 6-6 Methods to Expand Recycled Water Use.....	33
Table 6-7 Expected Future Water Supply Projects or Programs.....	34
Table 6-8 Water Supplied- Actual	35
Table 6-9 Water Supplies- Projected	36
Table 7-1 (Agency) Basis of Water Year Data	38
Table 7-2 Normal Year Water Supply and Demand Comparison.....	41
Table 7-3 Single Dry Year Supply and Demand Comparison	41
Table 7-4 Multiple Dry Year Supply and Demand Comparison.....	42
Table 8-1 Stages of Water Shortage Contingency Plan	43
Table 8-2 Restrictions and Prohibitions on End Uses	44
Table 8-3 Stages of Water Shortage Contingency Plan – Consumption Reduction Methods	45
Table 8-4 Minimum Supply Next Three Years	47
Table 10-1 Notification to Cities and Counties	49

List of Figures

Figure 3-1 Water Service Area Map.....	10
Figure 3-2 Potable Water System Map.....	11
Figure 3-3 Recycled Water System Map.....	12

Appendices

1. Climate Vulnerability Assessment
2. 2015 Urban Water Management Plan Demand Analysis and Conservation Measures Update
3. AWWA Water Audit Model Output
4. City SB X7-7 Compliance Tables
5. Regional Alliance SB X7-7 Compliance Tables

6. Water Policy Resolution
7. Water Shortage Contingency Plan
8. California Urban Water Conservation Council Reports
9. Public Notices, Adoption Resolution
10. DWR Checklist

1. INTRODUCTION & OVERVIEW

The City of Rohnert Park (City) is located in central Sonoma County, approximately 50 miles north of San Francisco. The City provides water service to approximately 9,000 service connections in the North Coast Hydrologic Region and meets the definition of an “urban water supplier” as outlined in California Water Code Section 10610 et. seq.. The City receives its wholesale potable water from the Sonoma County Water Agency (Agency), its wholesale recycled water from the Santa Rosa Subregional System (Subregional System) and also uses groundwater from the Santa Rosa Plain Sub-basin of the Santa Rosa Valley Groundwater Basin as part of its potable supply. This 2015 Urban Water Management Plan (UWMP) was prepared by the City in order to comply with the requirements of the California Water Code. In addition to meeting the requirements of state law, the City will use this UWMP to support the preparation of Water Supply Assessments and Water Supply Verifications for new development.

1.1 BACKGROUND AND PURPOSE

The purpose of the UWMP is to demonstrate that a water supplier can meet the water demands of its water customers over a 25-year planning horizon and under a range of hydrologic conditions. This UWMP analyzes current and projected water supply and demand for normal, single-dry and multiple-dry water year conditions. This UWMP also provides an update on the City’s progress towards meeting the water use targets it adopted in 2010 as required by the Water Conservation Act of 2009. Specifically this UWMP describes, reports, and evaluates the City’s:

- Water deliveries and uses;
- Water supply sources;
- Water use efficiency practices;
- Demand Management Measures; and
- Water Shortage Contingency Plan.

The evaluations and projections in this document are based on the City’s current water supply contracts with the Agency and the Subregional System and planned water supply projects. This document is a “living” document and will be updated every five years or as changes to the City’s water supply and demand pattern require.

1.2 URBAN WATER MANAGEMENT PLANNING AND THE CALIFORNIA WATER CODE

The Urban Water Management Planning Act (Act) is codified in California Water Code Sections 10610 through 10656 and requires each urban water supplier with 3,000 or more connections, or which supplies at least 3,000 acre-feet per year (AFY) of water, to submit a UWMP to the California Department of Water Resources (DWR) every five years. The City has approximately 9,000 connections and meets the definition of an “urban water supplier”.

The Act specifies the required content of each UWMP and allows for the level of detail provided in each UWMP to reflect the size and complexity of the water supplier. The Act requires projections in five-year increments for a minimum of 20 years. This UWMP considers a 25-year planning horizon through year 2040.

The Act does not require that a UWMP contain the level of system-specific detail that would be included in a water system master plan. The Act specifically exempts UWMPs from review under the California

Environmental Quality Act (CEQA)¹. Additionally, Water Supply Assessments (Water Code Section 10631) and Water Supply Verifications (Water Code Section 66473.7) may rely on the UWMP as a foundational document for findings required in these documents.

In this 2015 UWMP, the City is also revisiting and reporting on its progress towards achieving the water supply targets it adopted in 2010 in accordance with the Water Conservation Act (SB X7-7). At this point the City's actual 2015 per capital water use is lower than its adopted targets for both 2015 and 2020. The regional alliance, in which the City participates, is also reporting actual 2015 per capita water use that is lower than the regional alliance's adopted targets. More detail on the water conservation targets is provided Chapter 5.

1.3 URBAN WATER MANAGEMENT PLANS IN RELATION TO OTHER PLANNING EFFORTS

1.3.1 RELATIONSHIP TO THE CITY'S GENERAL PLAN

The City is currently working under its General Plan 2020, originally adopted in July 2000 and updated as recently as March 2016 to approve the Central Rohnert Park Priority Development Area. This UWMP considers all land uses described in the General Plan for areas within the City's corporate limits and its adopted Sphere of Influence. The City anticipates significant new growth in its defined Specific Plan Areas and Priority and Planned Development Areas. This growth had been stalled as a result of economic conditions.

1.3.2 RELATIONSHIP TO THE NORTH COAST INTEGRATED REGIONAL WATER MANAGEMENT PLAN

The City is signatory to the Memorandum of Mutual Understanding that governs the North Coast Resource Partnership (Resource Partnership). The Resource Partnership prepares and updates the North Coast Integrated Regional Water Management Plan (IRWMP). While a strong focus of the North Coast IRWMP is the recovery of salmonid species, through the IRWMP, the City has secured grant funding for water conservation and for the planning and design of a multi-purpose detention and groundwater recharge basin on Copeland Creek, just east of the City limits.

1.3.3 RELATIONSHIP TO THE SANTA ROSA PLAIN GROUNDWATER MANAGEMENT PLAN

In October 2014, the Sonoma County Board of Supervisors adopted the *Santa Rosa Plain Watershed Groundwater Management Plan* (Groundwater Management Plan). This voluntary groundwater management plan was developed in accordance with the requirements of Water Code 10750 et. seq. (the Groundwater Management Act) and includes a series of implementation strategies to better monitor, model and manage groundwater in the Santa Rosa Plain. The City funds and participates in the Santa Rosa Plain Basin Advisory Panel, which is implementing the Groundwater Management Plan. While the Groundwater Management Plan concludes that there is a possibility that future groundwater demands could exceed the budget for the basin, recent monitoring efforts demonstrate generally stable or rising groundwater levels throughout the basin.

1.3.4 RELATIONSHIP TO THE GROUNDWATER SUSTAINABILITY ACT OF 2014

As a result of the requirements of the Groundwater Sustainability Act of 2014, the City is working with County of Sonoma, the Sonoma County Water Agency and other cities and districts that are eligible to form a

¹ Water Code Section 10652

Groundwater Sustainability Agency to develop a single Groundwater Sustainability Agency for the Santa Rosa Plain Groundwater Basin. This work will be completed by June 2017 and builds on the solid foundation of the adopted Groundwater Management Plan.

1.4 UWMP ORGANIZATION

The outline of this UWMP generally follows the *2015 Urban Water Management Plans Guidebook for Urban Water Suppliers*. This document is organized into the 10 chapters outlined on Table 1-1. The table also includes a description of the key elements in the sections.

TABLE 1-1 PLAN ORGANIZATION

Table 1-1: Plan Organization		
Chapter	Title	Key Elements
1	Introduction & Overview	Water Code Requirements for the Plan and Description of Regional Water Management Efforts
2	Plan Preparation	Basis for Preparing the Plan, Regional Planning and Compliance, Calendar Year and Acre-Foot Basis, Coordination and Outreach
3	System Description	General Description, Boundaries, Maps, Climate and Demographics
4	System Water Use	Potable and Recycled Water Demands, Water Use by Sector, Losses, Estimated Future Savings, Lower Income Households, Climate Change
5	SBx7-7 Baseline and Targets	Updated Calculations, Baselines, Targets, Compliance, Regional Alliance
6	System Supplies	Imported Water, Groundwater, Recycled Water, Future Water Projects, Summary of Supplies, Climate Change Impact to Supply
7	Water Supply Reliability Assessment	Constraints, Reliability by Type of Year, Supply and Demand Assessment, Regional Reliability
8	Water Shortage Contingency Planning	Stages, Prohibitions, Enforcement, Consumption Reduction Methods, Determining Reductions, Revenue and Expenditure Impacts, Authority, Catastrophic Interruption, Minimum Supply for Next Three Years
9	Demand Management Measures	Planned Implementation to Achieve Targets, California Urban Water Conservation Council Reports
10	Plan Adoption, Submittal and Implementation	Summary of Adoption Process

2 PLAN PREPARATION

2.1 BASIS FOR PREPARING A PLAN

As described in Chapter 1, the City is a municipal water supplier providing service to approximately 9,000 water connections including single and multi-family residences, commercial, industrial and institutional customers and irrigation connections. Under normal hydrologic conditions, the City’s potable water deliveries vary between 4,500 and 6,000 acre feet annually (AFA). The City meets the definition of an “urban water supplier” under the California Water Code and prepared Urban Water Management Plans in 2005 and 2010. Prior to that time, the City adopted the regional Urban Water Management Plans prepared by the Agency. Table 2-1 below provides the City’s Public Water System information.

TABLE 2-1 PUBLIC WATER SYSTEM INFORMATION

Table 2-1 Retail Only: Public Water Systems			
Public Water System Number	Public Water System Name	Number of Municipal Connections 2015	Volume of Water Supplied 2015
4910014	City of Rohnert Park	9,060	4,277
TOTAL		9,060	4,277
NOTES:			

2.2 REGIONAL PLANNING

The cities of Santa Rosa, Rohnert Park, Sonoma, Cotati, and Petaluma, the Town of Windsor, North Marin and Valley of the Moon Water Districts, California-American Water Company and the Agency formed the Sonoma-Marín Saving Water Partnership (Partnership) in 2010. The purpose of the Partnership is to establish financial obligations for conservation activities, to identify and recommend implementation of water conservation projects and to maximize implementation of cost-effective projects for the Partnership members. The Partnership coordinates all water use efficiency focused media buys in the region and provides support to members that need additional assistance with implementing local programs and/or meeting conservation targets. The Partnership also serves as a “regional alliance” for the purpose of reporting baseline and targets under the Water Conservation Act of 2009.

The Partnership has received notable recognition for effective collaboration and program implementation including:

- EPA Water Sense Partner of the Year 2015
- EPA Water Sense Partner of the Year 2014
- EPA Water Sense Excellence Award 2013

2.3 INDIVIDUAL OR REGIONAL PLANNING AND COMPLIANCE

While the City participates in regional water planning efforts and is part of regional alliance for reporting under the Water Conservation Act of 2009, the City is preparing an individual UWMP in order to better support its land use goals and the review of development proposals within its sphere of influence. Table 2-2 summarizes the City's approach to regional planning and compliance.

TABLE 2-2 PLAN IDENTIFICATION

Table 2-2: Plan Identification		
Select Only One	Type of Plan	Name of RUWMP or Regional Alliance <i>if applicable</i> <i>drop down list</i>
<input checked="" type="checkbox"/>	Individual UWMP	
	<input type="checkbox"/> Water Supplier is also a member of a RUWMP	
	<input checked="" type="checkbox"/> Water Supplier is also a member of a Regional Alliance	North Marin-Sonoma Alliance
<input type="checkbox"/>	Regional Urban Water Management Plan (RUWMP)	
NOTES:		

2.4 FISCAL OR CALENDAR YEAR AND UNIT OF MEASURE

In this 2015 UWMP, the City is reporting water use by calendar year and in acre feet (AF). Table 2-3 summarizes this reporting standard.

TABLE 2-3 AGENCY IDENTIFICATION

Table 2-3: Agency Identification	
Type of Agency (select one or both)	
<input type="checkbox"/>	Agency is a wholesaler
<input checked="" type="checkbox"/>	Agency is a retailer
Fiscal or Calendar Year (select one)	
<input checked="" type="checkbox"/>	UWMP Tables Are in Calendar Years
<input type="checkbox"/>	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 Drop down)	
Unit	AF
NOTES:	

2.5 COORDINATION AND OUTREACH

In accordance with California Water Code Section 10631(j), the City has provided water use projections to both its wholesale potable water supplier, the Agency, and its wholesale recycled water supplier, the Subregional System. Table 2-4 summarizes this coordination.

TABLE 2-4 WATER SUPPLIER INFORMATION EXCHANGE

Table 2-4 Retail: Water Supplier Information Exchange
The retail supplier has informed the following wholesale supplier(s) of projected water use in accordance with CWC 10631.
Wholesale Water Supplier Name <i>(Add additional rows as needed)</i>
Sonoma County Water Agency
Santa Rosa Subregional System
NOTES:

The City meets at least monthly with its water wholesaler, the Agency, and with other water contractors who purchase water from the Agency. This monthly coordination has been instrumental in coordinating water supply and demand analyses for the preparation of this document. The City and the other water contractors have worked together to prepare a regional water demand and conservation analysis (see Chapter 4) as well as the regional alliance work around water use targets (see Chapter 5).

Chapter 10 provides more description of the public notification and outreach efforts that took place during the development and adoption of this 2015 UWMP.

3 SYSTEM DESCRIPTION

3.1 GENERAL DESCRIPTION

The water service area under consideration in this 2015 UWMP is bounded by the City's Sphere of Influence as outlined in its General Plan 2020. The City's General Plan identified six major Specific Plan Areas (SPAs):

- Northeast SPA
- University District SPA
- Southeast SPA
- Canon Manor SPA
- Wilfred Dowdell SPA
- Northwest SPA

The City's General Plan anticipated annexation and development of all of the SPAs except Canon Manor. To date the University District, Southeast and Wilfred Dowdell and Northwest SPAs have been approved and annexed. The Northeast SPA currently has no active development proposal. The Canon Manor Specific Plan Area has contracted with the Penngrove Water Company for water supply, so its demands are not considered demands on the City supply. Additionally, the City's Sphere of Influence includes Sonoma State University, which has its own water system and is not served by the City.

This UWMP also takes into account three major infill planned development (PD or PDA) projects: the Stadium Lands PD, the Sonoma Mountain Village PD and the Central Rohnert Park PDA. The City has approved Master Plans and Environmental Documents for each of these planned developments.

The City does not have outside service area connections.

Figure 3-1 (included in Section 3.2) illustrates the City's water service area which is the current City Limit and also illustrates the Specific and Planned Development Areas. Table 3-1 provides a summary of the planned growth within each of the SPAs and PDs. This 2015 UWMP includes build out of these areas and will be used to support Water Supply Assessments (WSAs) and Water Supply Verifications (WSVs) for this planned growth.

TABLE 3-1 SUMMARY OF PLANNED DEVELOPMENT

Table 3-1: Summary of Planned Development								
	Northeast	Northwest	Southeast	University District	Wilfred Dowdell	Stadium Area	Sonoma Mountain Village	Central Rohnert Park
Total Acres	215.7	90.0	80.0	297.0	24.8	30.0	175.0	330.0
Residential Units								
Single Family	890		394	1,277		338	700	835
High Density	200			218			994	
Mixed Use		398	81	150				
Second Units							198	
Total	1,090	398	475	1,645	-	338	1,892	835
Total Affordable	163		72	218	-	13	248	125
Commercial Sq Ft		458,700	10,000	100,000	302,114	140,000	290,000	429,936
Office Sq Ft							234,000	268,039
Industrial Sq Ft		218,200						129,315
Mixed Use Sq Ft		58,400						
Status	no active planning	annexed 2015	annexed 2011 - 107 lots under construction	annexed 2007 - 399 lots under construction	annexed 2009	approved 2008 - 338 residences completing construction	approved 2010	approved 2016

The City's water service area is approximately 6.4 square miles and serves residential, commercial, industrial, institutional and irrigation needs. The City is at elevation 106 feet above mean sea level. The distribution system consists of approximately 115 miles of water distribution system mains and two pressure zones. Most of the distribution system mains are 6- to 8-inch diameter pipes with a small number in the 10- to 16-inch diameter range. The City's water system includes seven water storage tanks ranging in size from 300,000 gallons to 1.3 million gallons. The total storage available to the City's system is 4.2 million gallons. Figure 3-2 (included in Section 3.2) illustrates the potable water distribution system

The City also delivers tertiary treated recycled water to customers. The recycled water is produced by the Subregional System and delivered through a low-pressure and a high-pressure distribution system operated and maintained by the City. The low-pressure system includes an 18-inch diameter pipeline that runs along Wilfred Avenue and Golf Course Drive and ends at Foxtail Golf Course near the northern city limits. This low-pressure system delivers approximately 500 acre-feet per year (AFY) to 5 customers. The high-pressure system begins at the Rohnert Park Pump Station, located at the intersection of Stony Point Road and Rohnert Park Expressway. The high-pressure system delivers 500 AFY to 27 customers. Figure 3-3 (included in Section 3.2) illustrates the recycled water system.

3.1.1 POLITICAL CHARACTERISTICS AND GOVERNANCE

The City's retail water systems, including the potable and recycled water system, are governed by a 5-member City Council which includes a mayor. The water and recycled water systems, including the City's groundwater wells, are managed and operated by the Public Works Department.

The Agency system is governed by a Board of Directors, which is composed of the members of the Sonoma County Board of Supervisors. The Agency and its Board of Directors are also the lead agency for the Santa Rosa Plain Watershed Groundwater Management Plan. The relationship between the Agency and its water contractors, including the City, is outlined in the *Restructured Agreement for Water Supply* (Restructured Agreement). The agreement provides for a Water Advisory Committee (WAC) to advise the Agency's Board of Directors on policy issues. The WAC representatives for the City are one Council member and one alternate Council member selected by the Council. The WAC is limited to an advisory role.

The Subregional System, which is the City's wholesale supplier of recycled water, is managed and operated by the City of Santa Rosa. The Subregional System treats, recycles and disposes of wastewater generated in by the cities of Santa Rosa, Cotati, Rohnert Park and Sebastopol and the South Park County Sanitation District. The relationship between the City of Santa Rosa and the other Subregional partners is defined by the *Agreement between the City of Santa Rosa and the City of Rohnert Park, City of Sebastopol, City of Cotati and South Park County Sanitation District for the Use of Santa Rosa Subregional Sewage System* dated April 3, 1975 and subsequently amended on September 1, 1987, October 20, 1987, December 1, 1994, July 1, 2002 and November 19, 2008. The Subregional System governance includes a Technical Advisory Committee (TAC) to the Subregional System. The City Engineer participates in the TAC.

3.2 SERVICE AREA

FIGURE 3-1 WATER SERVICE AREA MAP

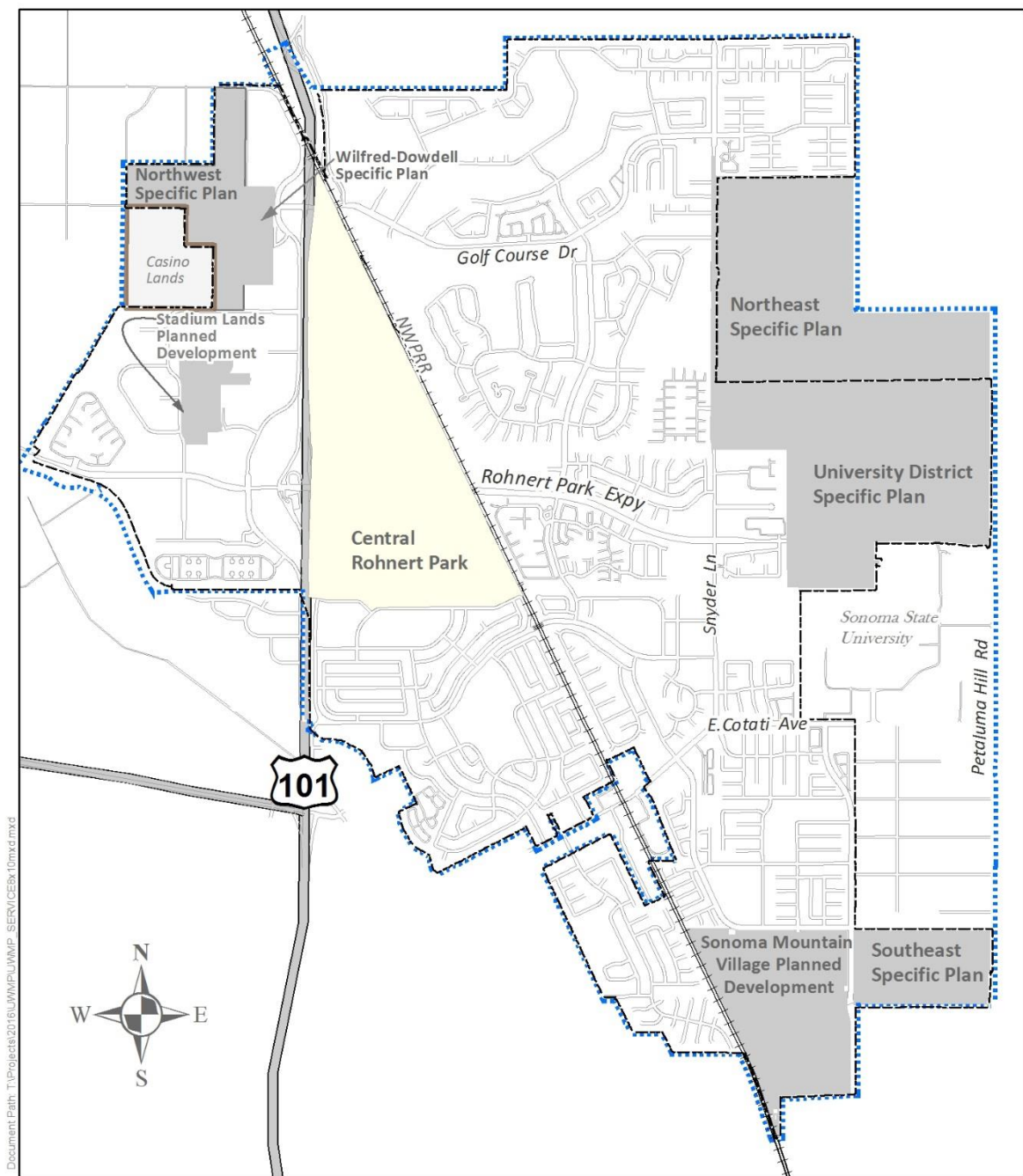


FIGURE 3-2 POTABLE WATER SYSTEM MAP

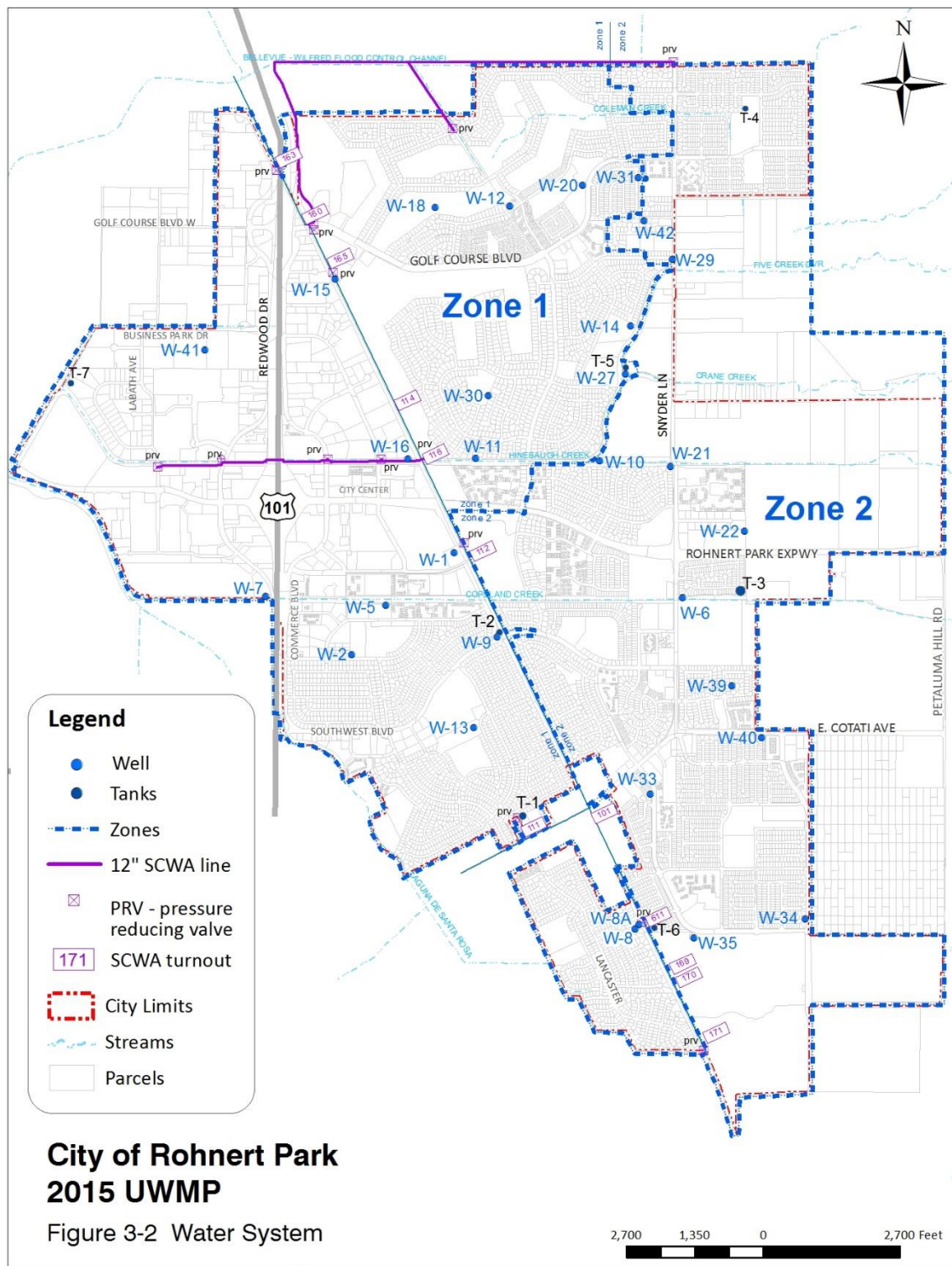
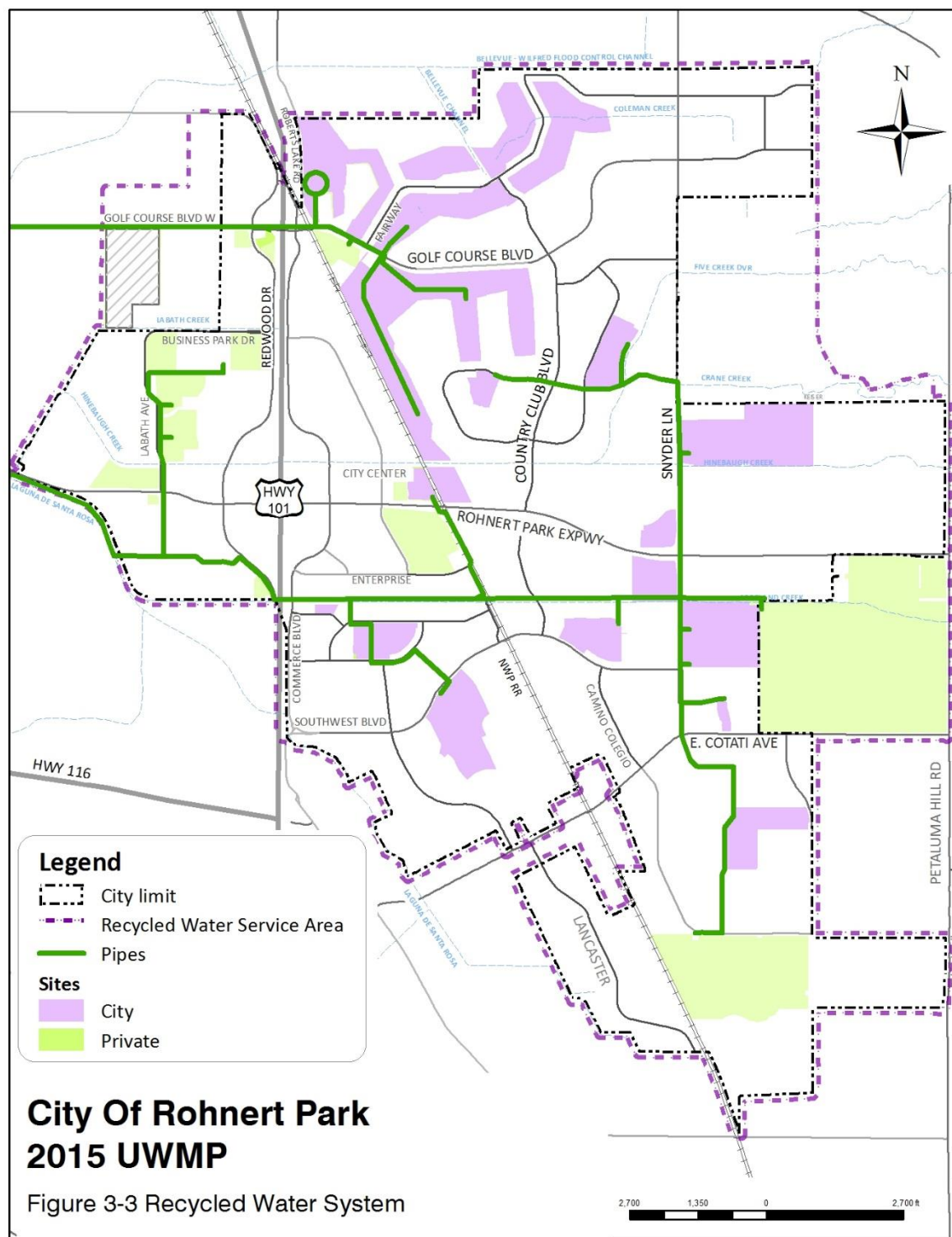


FIGURE 3-3 RECYCLED WATER SYSTEM MAP



3.3 SERVICE AREA CLIMATE

The City is located in the Russian River watershed. The climate and hydrology of the Russian River watershed directly affect the City because its wholesale supply from the Sonoma County Water Agency is drawn from the Russian River. The climate of the Russian River watershed is tempered by its proximity to the Pacific Ocean and is characterized by seasonal rainfall patterns. Over 90 percent of the total annual precipitation falls between October and April, with a large percentage of the rainfall typically occurring during three or four major winter storms. The regional averages for rainfall, temperature and the rate of evapotranspiration of common turf grass (ET_o) are summarized in Table 3-2.

TABLE 3-2 CLIMATE DATA

Table 3-2: Climate Data			
	Average Eto, in	Average Rainfall, in	Average Temp, F
January	1.2	6.25	47.0
February	1.7	5.32	50.5
March	2.8	4.09	52.8
April	3.7	2.06	55.8
May	5.0	0.97	59.8
June	6.0	0.26	64.6
July	6.1	0.03	66.5
August	5.9	0.08	66.6
September	4.5	0.38	65.9
October	2.9	1.60	61.2
November	1.5	3.64	53.4
December	0.7	5.50	47.6
Totals	42.0	30.18	

Notes: data from Western Regional Climate Center wrcc@dri.edu for Santa Rosa Station 1902-2010

3.3.1 CLIMATE CHANGE

Through its cooperative work with the Agency, particularly the recently adopted Santa Rosa Plain Groundwater Management Plan, the City benefits from ongoing work to understand and mitigate the impacts of climate change on the water supply. Specifically the Groundwater Management Plan notes:

“The San Francisco Bay Area climates have warmed over the 20th century, as monthly maximum temperatures increased approximately 1°C between 1900 and 2000 (Flint and Flint, 2012). A long-term variability in precipitation is demonstrated by droughts in the 1920s, the 1970s, and the late 1990s. The USGS conducted a regional study of how climate change affects water resources and habitats in the San Francisco Bay area. The study relied on historical climate data and future climate projections, which were downscaled to fine spatial scales for application to a regional water-balance model (Flint and Flint, 2012). Changes in climate, potential evapotranspiration, recharge, runoff, and climatic water deficit modeled for the San Francisco Bay area included detailed studies in the Russian River Valley.

Results indicated large spatial variability in climate change and the hydrologic response across the region. Although the model results indicate warming under all projections, the potential precipitation changes by the end of the 21st century differed depending on the model details. Hydrologic models predicted reduced amounts of early and late wet season runoff at the end of the century under both wetter and drier future climate projections, suggesting extended dry seasons. Summers are projected to be longer and drier in the future than in the past regardless of precipitation trends. The greater variations in precipitation could directly affect water supplies and result in reduced reliability. The study also found that water demands are likely to steadily increase because of increased evapotranspiration rates and climatic water deficit during the extended summers. The study concluded that extended dry season conditions and greater potential for drought, combined with increases in precipitation over shorter periods of time, could serve as additional stressors on water quality and habitat. “²

The City has completed the Climate Change Vulnerability Assessment included as Appendix I to DWR’s guidebook. The completed checklist is included as Appendix 1. Of the forty questions posed, the City answered eight affirmatively. The City’s reliance on rainfall-based water supplies that are not connected to the Sacramento Bay Delta supply or Colorado River supply gives it some insulation from large scale climate risks to its water supply. One of the largest areas of vulnerability to the region is habitat and ecosystem impacts on the Russian River system which hosts several endangered salmonid species. The Agency has been working actively with resources agencies for over a decade to mitigate the impacts of water supply activities on the ecosystem and is actively implementing a number of habitat improvement projects.

3.4 SERVICE AREA POPULATION AND DEMOGRAPHICS

In its 2010 UWMP, the City elected to use population and employment projections based on the 2009 Association of Bay Area Governments (ABAG) data. ABAG published the projections report in 2009, which included population and employment estimates for each city in the Bay Area. Table 3-3 illustrates the population projections used in the 2010 UWMP, which included the anticipated development in the SPAs and PDs described above.

TABLE 3-3 POPULATION PROJECTIONS FROM THE 2010 UWMP

Table 3-3: 2010 UWMP Population Projections						
Population Served	2010	2015	2020	2025	2030	2035
	43,398	46,440	47,900	49,300	51,000	53,000
NOTES: source is 2009 Association of Bay Area Governments						

As part of preparing this 2015 UWMP, the City developed its population and employment projections based on ABAG’s 2013 population report which anticipates the development of the Central Rohnert Park PDA. Table 3-4 illustrates these population projections. The 2013 ABAG projections take into account the slow growth experienced during the recession period. The projections indicate that the City will recover from this slow growth trend by approximately 2030.

² Santa Rosa Plain Watershed Groundwater Management Plan, page 2-5

TABLE 3-4 POPULATION PROJECTIONS - CURRENT AND PROJECTED

Table 3-4 (DWR 3-1 Retail): Population - Current and Projected						
Population Served	2015	2020	2025	2030	2035	2040(opt)
	45,465	47,232	49,045	51,060	53,232	55,524
NOTES: source is 2013 Association of Bay Area Governments -Subregional						

In general the City's development pattern is suburban in nature, with relatively low densities. However, approximately 40 percent of the City's housing stock consists of multi-family units (condominiums and apartments). This land use pattern contributes to the City's relatively low per capita water use.

4 SYSTEM WATER USE

This section provides an overview of the City's projected water demands, including the demands associated with the Central Rohnert Park PDA. The City has recently completed its 2015 Urban Water Management Plan Water Demand and Water Conservation Measures Update (2015 Demand Update), which is included as Appendix 2. The 2015 Demand Update is based on the Association of Bay Area Governments population and job projections and includes the recently adopted Central Rohnert Park PDA. The 2015 Demand Update projects that the City's potable water demands through 2040 will range between 5,600 and 6,100 AFY, depending on the level of water conservation undertaken by the City. The 2015 Demand Update indicates that the City has the potential to secure approximately 500 AFY of water supply (the difference between 5,600 and 6,100 AFY) by undertaking more aggressive water conservation activities.

4.1 RECYCLED VERSUS POTABLE AND RAW WATER DEMAND

Chapter 6 provides detail on the City's water supplies which include two potable water sources (Sonoma County Water Agency and local groundwater) and recycled water. The City does not have a raw water supply. The City's tertiary-treated recycled water supply is produced by the Subregional System. The City and the Subregional System have recently entered into a Producer Distributor Agreement that provides the City with access to 1,350 AFY of recycled water. The City uses recycled water primarily for irrigation purposes and recycled water demand has varied between 800 and 1,100 AFY over the past 10 years. Recycled water demand is accounted for separately from irrigation demands served by potable water. Recycled water serves approximately 70% of the irrigation demand served through dedicated irrigation meters.

4.2 WATER USES BY SECTOR

To prepare for the submission of its 2015 UWMP, the City contracted with Maddaus Water Management, Inc. (MWM) to prepare the 2015 Demand Update in order to:

1. Update its potable water demand forecast for the years 2015 to 2040; and
2. Update the range of potable water conservation savings that could be achieved and the costs of those savings under three water conservation programs that could be implemented between the years 2015 to 2040.

The 2015 Demand Update focuses specifically on potable water demand and conservation projections. Table 4-1 presents the City's current water use pattern and Table 4-2 presents the projected growth in potable water demand based on full implementation of CalGreen building and plumbing requirements. Table 4-3 presents the City's total water demand, including recycled water demands. As discussed in more detail in Chapter 5, the projected demand pattern will allow the City to continue to meet its adopted water use targets.

TABLE 4-1- RETAIL DEMANDS FOR POTABLE AND RAW WATER – ACTUAL

Table 4-1 Retail: Demands for Potable and Raw Water - Actual			
Use Type (Add additional rows as needed)	2015 Actual		
<i>Drop down list</i> <i>May select each use multiple times</i> <i>These are the only Use Types that will be recognized by the WUEdata online submittal tool</i>	Additional Description	Level of Treatment When Delivered <i>Drop down list</i>	Volume
Single Family		Drinking Water	1,852
Multi-Family		Drinking Water	1,676
Commercial		Drinking Water	428
Industrial	Includes Institutional/Governmental	Drinking Water	3
Landscape		Drinking Water	397
Groundwater recharge			0
Saline water intrusion barrier			0
Agricultural irrigation			0
Wetlands or wildlife habitat			0
Sales/Transfers/Exchanges to other agencies			0
Losses		Drinking Water	601
Other		Drinking Water	
TOTAL			4,957
NOTES: "Water Losses" included unmetered water that the City delivers to parks, schools and landscape areas. To comply with the requirements of Proposition 218 (California Constitution Articles XIII C and D) the City estimates the water used by these customers and pays for it. The City's Public Works Department is currently undertaking a project to install meters on these unmetered connections and reduce the volume of "unaccounted-for" water in the system.			

TABLE 4-2 DEMANDS FOR POTABLE AND RAW WATER – PROJECTED

Table 4-2 Retail: Demands for Potable and Raw Water - Projected						
Use Type <i>(Add additional rows as needed)</i>	Additional Description <i>(as needed)</i>	Projected Water Use <i>Report To the Extent that Records are Available</i>				
<u>Drop down list</u> <i>May select each use multiple times</i> <i>These are the only Use Types that will be recognized by the WUEdata online submittal tool</i>		2020	2025	2030	2035	2040-opt
Single Family		1,903	1,958	1,990	2,039	2,097
Multi-Family		1,711	1,731	1,745	1,779	1,822
Commercial		458	467	477	492	507
Industrial	Includes Institutional/Governmental	501	528	547	574	606
Landscape		432	445	459	477	497
Losses		600	600	600	600	600
TOTAL		5,605	5,729	5,818	5,961	6,129
NOTES: Totals include projected conservation savings associated with implementation of the plumbing and building codes. The 2015 Demand and Conservation Update, included as Appendix 2, provides significant additional detail on the calculation of these savings. The City has adjusted "losses" projected in the 2015 Demand & Conservation Update to reflect unmetered but billed water sold to parks and schools. This volume counted as "losses" in Appendix 3 is included as Institutional/Governmental use in this report.						

TABLE 4-3 TOTAL WATER DEMANDS

Table 4-3 Retail: Total Water Demands						
	2015	2020	2025	2030	2035	2040 (opt)
Potable and Raw Water <i>From Tables 4-1 and 4-2</i>	4,957	5,605	5,729	5,818	5,961	6,129
Recycled Water Demand* <i>From Table 6-4</i>	1,100	1,150	1,200	1,250	1,300	1,350
TOTAL WATER DEMAND	6,057	6,755	6,929	7,068	7,261	7,479
<i>*Recycled water demand fields will be blank until Table 6-4 is complete.</i>						
NOTES:						

4.3 DISTRIBUTION SYSTEM WATER LOSSES

As required by DWR's guidelines, the City has reviewed its water use profile using the American Water Works Association's (AWWA's) Water Audit Model version 5. This audit model indicated that City's water losses are approximately 600 AFA or approximately 12% of its production, which is slightly above industry average. The areas for improvements noted by the model are improving the accuracy of data from the City's production records on its well field and improving on billed but unmetered water used at City parks and by the school

district. The City is undertaking projects both to improve its SCADA system and the data secured from City wells and to install meters at unmetered public sites. Table 4-4 below presents the results of the AWWA model run. The complete model is included as Appendix 3.

TABLE 4-4 12 MONTH AUDIT LOSS REPORTING

Table 4-4 Retail: 12 Month Water Loss Audit Reporting	
Reporting Period Start Date (mm/yyyy)	Volume of Water Loss*
01/2014	600.618
* Taken from the field "Water Losses" (a combination of apparent losses and real losses) from the AWWA worksheet.	
NOTES:	

4.4 ESTIMATING FUTURE WATER SAVINGS

The 2015 Demand Update also modeled additional conservation activities that the City could undertake which would further reduce demands by 384 to 556 AFY. As demonstrated in Chapter 5, the City does not need these additional savings to meet its water use targets. As demonstrated in Chapter 7, the City's supplies are adequate to meet projected demands without these additional conservation savings. However, because the City has identified additional, feasible conservation savings, it has the flexibility to use increased water conservation activity as a strategy for managing planned growth. Appendix 2 provides the detail on this additional modeling effort. Table 4-5 summarizes this in tabular format.

TABLE 4-5 INCLUSION IN WATER USE PROJECTION

Table 4-5 Retail Only: Inclusion in Water Use Projections	
Are Future Water Savings Included in Projections? (Refer to Appendix K of UWMP Guidebook) <i>Drop down list (y/n)</i>	Yes
If "Yes" to above, state the section or page number, in the cell to the right, where citations of the codes, ordinances, etc... utilized in demand projections are found.	Chapter 3 of Appendix 2
Are Lower Income Residential Demands Included In Projections? <i>Drop down list (y/n)</i>	Yes
NOTES:	

4.5 WATER USE FOR LOWER INCOME HOUSEHOLDS

The 2015 Demand Update is based on Association of Bay Area Government's (ABAG's) projection of General Plan build out in Rohnert Park. General Plan build out will be consistent with the City's inclusionary housing ordinance which requires a set aside of 15% of new, for-sale units to serve the needs of low and very low

income residents. Because water projections are based on the City's land use projections and the City's land use projections, by definition, take into account the City's inclusionary housing requirements, the water use projects in this 2015 UWMP include water use by low income households. Table 4-5 (presented above) summarizes this in tabular format.

5 BASELINES AND TARGETS

The Water Conservation Act of 2009 required that all urban water suppliers calculate and adopt 2015 and 2020 water use targets as part of their 2010 Urban Water Management Plans. In 2010, the City calculated and adopted a local 2015 target of 140 gallons per capita per day (gpcpd) and a local 2020 target of 119 gpcpd. The City also participated in a “regional alliance” which has adopted a 2015 water use target of 142 gpcpd and a 2020 target of 129 gpcpd. Under the requirements of the Water Conservation Act of 2009, if all members of the regional alliance meet the regional target, the group is in compliance; otherwise the City will need to meet its locally adopted targets.

5.1 UPDATING CALCULATIONS FROM THE 2010 UWMP

As part of this 2015 Urban Water Management Plan, the City updated its calculations using the 2010 census data and participated in the update of the targets for its regional alliance. This section summarizes the update effort. The City’s detailed updated calculations are included in Appendix 4.

5.2 BASELINE PERIODS

As discussed in Chapter 4, there is extensive use of recycled water in the City’s service area. In its 2010 UWMP, the City documented that recycled water use exceeded 10% of its total water use in 2008 and used 13-year baseline period.

On SB X7-7 Table 1, included in Appendix 4, the City repeated this calculation and again verified its ability to use a longer baseline period. For the purposes of both the 2010 UWMP and this 2015 UWMP, the City is using a baseline period that begins in 1992 and ends in 2004. It is using a 5-year, target confirmation baseline period that begins in 2003 and ends 2007.

5.3 SERVICE AREA POPULATION

The City’s water service area is conterminous with its City limits allowing it to use Department of Finance (DOF) data to establish its service area population. This data is presented on SB X7-7 Table 3, included in Appendix 4.

It is important to note that the conformed DOF census used in this 2015 UWMP presents lower population numbers from the year 2000 forward than were used in the 2010 calculations. The City used these lower population numbers to perform the baseline and target calculations in 2015.

5.4 GROSS WATER USE

The City has used the gross potable water entering its system to establish its gross water use. Recycled water entering its separate, purple-pipe system has not been included in the calculation. The City does not place water into long term storage or serve other water suppliers or agricultural users so these exclusions have not been applied. SBX7-7 Table 4 and 4A, included in Appendix 4 present the detail of this water use from the City’s Sonoma County Water Agency and local groundwater supplies.

In 2010, the City reported its gross water use in million gallons per day (mgd) based on average water use over the course of the year. In this 2015 UWMP, the City is reporting gross water use in acre feet per year, based on actual monthly deliveries from its Agency and groundwater sources. The 2015 reporting standard is more accurate and better conforms to the standard used by its regional alliance partners.

In 2010, the City reported a baseline water use of 162 gpcpd and a 5-year target compliance check of 125 gpcpd.

For this 2015 UWMP, the City recalculated both of these baselines using the 2010 DOF population data and its conformed gross water use data. With these refinements, in 2015, the City is reporting a baseline water use of 161 gpcpd and a 5 year target compliance check of 129 gpcpd. The change in the 5-year target compliance check is a result of the fact that the DOF population data used in this reporting cycle showed lower population totals, beginning in 2000, than the City had estimated in 2010. Because the reported gross water use has not changed but reported population has declined, the per capita water use has increased.

SB X7-7 Table 5, included in Appendix 4, contains the detailed calculations that support these baseline water use numbers. Table 5-1 below summarizes these calculations.

5.5 2015 AND 2020 TARGETS

In 2010, the City used Method 1 (80% of baseline use) to establish its 2015 and 2020 targets. At that time, the City adopted a 2020 Water Use Target of 119 gpcpd and a 2015 Interim Target of 140 gpcpd.

In 2015, the City is again electing to use Method 1 but has revised its targets to reflect, primarily, the decreased population reflected in the DOF data. As was the case in 2010, the City's 2020 target is actually established by its 5-year compliance check value of 129 gpcpd. The target is calculated as 95% of 129 gpcpd or 123 gpcpd, slightly higher than when adopted in 2010. The 2015 target is calculated as the midpoint between the baseline of 161 gpcpd and the 2020 target or 142 gpcpd. This is also slightly higher than the interim target adopted in 2010 and this difference is, again, a result of the updated population data.

TABLE 5-1 BASELINES AND TARGETS SUMMARY

Table 5-1 Baselines and Targets Summary					
<i>Retail Agency or Regional Alliance Only</i>					
Baseline Period	Start Year	End Year	Average Baseline GPCD*	2015 Interim Target *	Confirmed 2020 Target*
10-15 year	1992	2004	161.11	142	123
5 Year	2003	2007	129.48		
*All values are in Gallons per Capita per Day (GPCD)					
NOTES: Reported 5-year baseline GPCD has been affected by the change in population included in DOF data					

5.6 2015 COMPLIANCE DAILY PER CAPITA WATER USE

The Water Code allows the City increase its 2015 Interim Target because of certain extraordinary factors. The City will not be taking advantage of this option. The City has been diligent in reducing its 2015 water use by 16% from 2013 levels, in accordance with the Emergency Drought Regulations adopted by the State Water Resources Control Board. The City's 2015 per capita water use is just over 90 gpcpd, well below its interim target. Appendix 4 provides additional detail on these calculations, which are summarized in Table 5-2 below. The table illustrates that the City has meet its local 2015 interim target. In fact, the City's actual 2015 per capita water use is lower than the adopted 2020 target.

TABLE 5-2 2015 COMPLIANCE

Table 5-2: 2015 Compliance								
Retail Agency or Regional Alliance Only								
Actual 2015 GPCD*	2015 Interim Target GPCD*	Optional Adjustments to 2015 GPCD <i>From Methodology 8</i>					2015 GPCD* <i>(Adjusted if applicable)</i>	Did Supplier Achieve Targeted Reduction for 2015? Y/N
		Extraordinary Events*	Economic Adjustment*	Weather Normalization*	TOTAL Adjustments*	Adjusted 2015 GPCD*		
91	142	0	0	0	0	90.5778112	90.57781124	Yes
*All values are in Gallons per Capita per Day (GPCD)								
NOTES:								

5.7 REGIONAL ALLIANCE

The Water Conservation Act provides that urban water retail suppliers may plan, comply and report on the 2020 water use target on a regional basis, an individual basis, or both. The City is one of nine water contractors to the Agency for purchase of Russian River water supply. The water contractors are eligible to form a regional alliance, under the provisions of the Water Conservation Act because the water contractors are recipients of water from a common wholesale water supplier. The City Council approved becoming a member of the regional alliance and using regional targets on April 12, 2011. The region reports under the name of the Sonoma-Marín Saving Water Partnership and includes the cities of Rohnert Park, Santa Rosa, Sonoma, Cotati and Petaluma, the Town of Windsor, Valley of the Moon Water District, North Marin Water District and Marin Municipal Water District.

In 2010, the regional alliance, selected Option 1 for establishing the regional alliance target. Option 1 consists of each member of the regional alliance calculating their individual targets and then weighting the individual targets by each member's population. In 2010, the Alliance established a 2020 Water Use Target of 129 gpcpd and a 2015 Interim Water Use Target of 142 gpcpd. The Alliance updated its calculations for 2015 and again calculated a 2020 target of 129 gpcpd. Its calculated 2015 Interim Target is 143 gpcpd, with the slightly higher number reflecting the adjustments made to population to conform to the 2010 census. Together the Alliance members achieved at 2015 weighted water use of 100 GPCD, exceeding the established target. Appendix 5 includes the detailed calculation tables for the Regional Alliance.

6 SYSTEM SUPPLIES

The City of Rohnert Park has three sources of water: Sonoma County Water Agency supply, local groundwater and recycled water. The City manages these supplies using a “conjunctive use” strategy, drawing on the Agency and recycled water supplies first and utilizing its local groundwater to manage peak demands and in times of water shortages. The total reliable supply available to the City through these three sources is 10,299 AFY, including 8,949 AFY of potable water and 1,350 AFY of recycled water. As discussed in this section, there is some minor hydrologic variability to this supply profile.

6.1 SONOMA COUNTY WATER AGENCY SUPPLY (PURCHASED WATER)

This section describes the Agency supply, its hydrologic availability and the various contracts that affect this supply. This information is brought forward from the City’s previous WSAs and its 2005 and 2010 UWMPs and is used to project the Agency supply that is reasonably available to the City under all hydrologic conditions. The City expects it will receive up to 6,372 AFY under normal hydrologic conditions from the Agency supply.

The City’s contract for water supply with Sonoma County Water Agency is the Restructured Agreement for Water Supply. Under this contract the City has access to as much as 7,500 AFY. The City’s water supply allocation in the Restructured Agreement, presumes the Agency is able to secure modifications to its water rights permits that will allow it to increase its diversions from 75,000 AFY to 101,000 AFY. (See Sections 6.1.1 and 6.1.2 for additional discussion of the Agency’s water rights and contracts). The Agency can also pump 2,300 AFY of groundwater to meet demand. Over the past 10 years, the City has used between 2,500 and 5,000 AFY of Agency supply, which is significantly less than its maximum allocation.

The water supply available to the City from the Agency is measured in two ways, hydrologic availability, and legal availability. Hydrologic availability is a measure of how much water is available because of rainfall, runoff, and storage in the Russian River watershed. Normal Year, Single Dry Year and Multiple Dry Year are ways to describe the hydrologic availability of water supply under a variety of rainfall conditions. The Agency’s hydrologic models, (Sonoma County Water Agency 2015 Urban Water Management Plan) indicate that its water supply is most constrained under the Single Dry Year condition when approximately 60,000 AFY is available.

Legal availability is a measure of how much water the Agency is allowed to divert under the water rights permits it receives from the State Water Resources Control Board (SWRCB). The Agency currently has permits to divert and re-divert 75,000 AFY. The Agency has a pending water rights application to increase its diversion and re-diversion rights to 101,000 AFY but this application has not been acted upon. At the present time, legal availability is a large constraint on the Agency supply because it cannot currently diver the full volume of water allocated under the Restructured Agreement.

6.1.1 AGENCY’S WATER RIGHTS

The Agency currently diverts and re-diverts water from the Russian River System under four permits issued by the SWRCB. These permits (Numbers 12947A, 12949, 12950 and 16596) provide the Agency with the rights to divert and re-divert up to 75,000 AFY, and to store water in Lake Mendocino and Lake Sonoma.

These permits also set minimum in-stream flow requirements to protect fish and wildlife and maintain recreation in the Russian River. The SWRCB's Decision 1610 provides for varying minimum in-stream flow requirements under different hydrologic cycles (i.e., in-stream flow requirements are lower in dry water years than in normal water years). The Agency works with the SWRCB on a regular basis to implement the various in-stream flow requirements of its permits based on hydrologic conditions at the time.

6.1.2 THE RESTRUCTURED AGREEMENT FOR WATER SUPPLY

The Restructured Agreement for Water Supply (the Restructured Agreement) is the contractual document that outlines how the Agency's proposed 101,000 AFY water right is allocated among the Agency's Contractors and other customers. The Restructured Agreement was executed on June 20, 2006 and has a term of at least forty years. The Restructured Agreement allocates 7,500 AFY to the City, with an average day maximum month pumping rate of 15.0 million gallons per day (mgd) under Normal Year conditions.

Section 3.5 of the Restructured Agreement (the Water Shortage Provisions) defines how the water supply and transmission system capacity would be allocated in case of shortage. On April 18, 2006, the Agency's Board of Directors adopted a Water Shortage Allocation Methodology that provides a mathematical quantification of the Water Shortage Provisions. This allows the Contractors to calculate their reasonably expected Agency allocation under a range of supply scenarios. Based on the Water Shortage Allocation Methodology, the City expects it can receive up to 6,372 AFY as long as the Agency's water rights are limited to 75,000 AFY.

6.1.3 DROUGHT CONSIDERATIONS

The State of California has been experiencing a serious drought with rainfall and especially snowpack being recorded as the lowest on record in 120 years. On January 17, 2014, Governor Brown declared a statewide drought emergency, which has been followed up with several subsequent Executive Orders and two rounds of emergency drought regulations issued by the State Water Resources Control Board. The City has responded to these requirements with its own emergency drought ordinances and is currently exceeding its required conservation savings of 16% over 2013 demands.

While the State Water Project, administered by the Department of Water Resources, is extremely stressed by the lack of snowpack, the Sonoma County Water Agency's rainfall based water system is experiencing significantly less stress. Currently the Agency's primary storage reservoir, Lake Sonoma, is at 97.3% of capacity (www.scwa.ca.gov/currentwatesupplylevels) The Agency and its contractors are currently finalizing self-verification calculations under the State's emergency drought regulations. These calculations illustrate that a minimum of 3 years of supply is currently available.

6.2 Groundwater

This section describes the City's groundwater supply, its hydrologic availability and the policies that affect its use. This 2015 UWMP projects that 2,577 AFY of groundwater will be available to the City.

The City's local groundwater supply is from the Santa Rosa Plain (SRP) Subbasin of the Santa Rosa Valley (SRV) Groundwater Basin. The City has developed 42 groundwater wells, 29 of which are currently active. The active wells have a total rated production capacity of 6.3 mgd. The City's 2010 Urban Water

Management Plan, which is incorporated by reference, provides additional detail on the individual wells and their production capability.

The City manages its groundwater supply in accordance with its 2004 Water Policy Resolution which limits groundwater pumping to 2,577 AFY. A Water Supply Assessment developed by the City in 2004 (the 2004 WSA) provided the technical support for this maximum pumping rate, which can be sustained over all hydrologic conditions. The 2004 WSA is incorporated by reference in this 2015 UWMP. Over the past 10 years the City has used between 350 and 1,600 AFY of groundwater, which is significantly less than the technical and policy limitations on groundwater use.

6.2.1 BASIN DESCRIPTION

The City is located in the southern portion of the Santa Rosa Valley (SRV) Groundwater Basin, which drains to the northwest, toward the Russian River and then to the Pacific Ocean. All of the City's water supply wells are located in the SRV Groundwater Basin and no City wells are planned to be constructed outside the SRV Basin. Figure 3-2 included in Section 3.2 illustrates the City's well locations. This section contains a summary of the geology and hydrogeologic conditions in the SRV Groundwater Basin (DWR, 2004).

Santa Rosa Valley Groundwater Basin

The SRV Groundwater Basin encompasses an area of 158 square miles. There are three subbasins within this basin: the SRP Subbasin, the Healdsburg Area Subbasin, and the Rincon Valley Subbasin (DWR, 2004). The City pumps groundwater from the SRP Subbasin, which has an area of 125 square miles; this is the largest of the three subbasins. The Healdsburg Area Subbasin has an area of 24 square miles, and the Rincon Valley Subbasin contains 9 square miles. The Russian River valley forms the boundary between the Healdsburg Area Subbasin and the SRP Subbasin. The Rincon Valley Subbasin is separated from the SRP Subbasin by a narrow constriction in the bedrock of the Sonoma Volcanics east of Santa Rosa. The southern boundary of the basin is formed by a groundwater divide located just south of the cities of Rohnert Park and Cotati. This divide separates the basin from the Petaluma Valley Groundwater Basin to the south.

Santa Rosa Plain Subbasin

The SRP Subbasin extends from the City, going north to the Russian River, and to just south of Healdsburg, in the northwest. The subbasin is approximately 22 miles long and up to nine miles wide. It is drained by the Laguna de Santa Rosa, which flows north to the Russian River. The subbasin contains three primary water-bearing units: the Wilson Grove Formation, Quaternary alluvial fan deposits, and Quaternary alluvium. Groundwater quality in these formations is generally good (DWR, 2004).

DWR (1982) described groundwater levels in the SRP Subbasin as "about in balance, with increased ground water levels in the northeast contrasting with decreased ground water levels in the south." During the period from 1990 to 2003, groundwater levels in the northern part of the subbasin continued to increase, and groundwater levels in the south showed marked increases between 2004-2007, primarily in response to decreased pumping in the subbasin. During the last ten years, the water levels have continued to increase. Even with the drought conditions, monitoring conducted as part of the implementation of the Santa Rosa Plain Groundwater Management Plan demonstrated generally stable groundwater levels. Hydrographs in the SRV Groundwater Basin from the DWR Water data library were reviewed to update the groundwater

conditions reported by DWR in 1982, and these show no indication of overdraft conditions near Rohnert Park.

Storage capacity for the SRP Subbasin was estimated at 948,000 AF based on an average specific yield of 7.8 percent at depths of 10 to 200 feet (DWR, 2004; Cardwell, 1958). Average annual natural recharge from 1960 to 1975 for the entire subbasin was estimated to be 29,300 AF and average annual pumping during the same time was estimated at 29,700 AF (DWR, 1982a).

6.2.2 GROUNDWATER QUALITY

Groundwater produced by the City is tested for a total of 139 constituents, including bacteria, pesticides, herbicides, fungicides, organic chemicals, inorganic chemicals, nitrates, radioactivity, corrosivity, trihalomethanes, iron, and manganese.

Groundwater produced from the City's wells meets primary state drinking water standards. Overall mineral content for all zones in 2009, as indicated by specific conductance (electrical conductance; EC), ranges from 280 to 610 $\mu\text{mhos/cm}$. EC values are below the recommended secondary Maximum Contaminant Level (MCL) of 900 $\mu\text{mhos/cm}$. Other water quality concerns in the Rohnert Park area include elevated nitrate, arsenic, iron, and manganese concentrations in some wells. Nitrate concentrations in City wells perforated in the intermediate zone or in multiple zones range from non-detect to 35 mg/L, which is less than the primary MCL of 45 mg/L. Samples collected from five wells in 1997 exceeded secondary MCLs for iron and manganese, which do not pose health hazards but are considered nuisance pollutants. However, treatment can be used to reduce iron and manganese to levels that meet the secondary MCLs (Dyett & Bhatia, 2000).

Arsenic is naturally occurring in the area, and concentrations in City wells range from 2 to 12 $\mu\text{g/L}$. Arsenic concentrations at the upper end of the range of detected concentrations occur in City wells completed in the northwestern area in the deep and lower zones (well depths greater than 600 feet). Arsenic concentrations in these deeper wells are at levels near or above the federal MCL of 10 $\mu\text{g/L}$.

Organic chemicals introduced through known point sources could influence groundwater quality conditions in the future. No serious or widespread issues that affect community water supplies due to organic chemical sources are known to be present in the City.

6.2.3 ADJUDICATED BASINS

Neither the SRV Basin nor the SRP Subbasin has been adjudicated.

6.2.4 SUFFICIENCY OF GROUNDWATER

A full analysis of the water level hydrographs and their relationship to pumpage and sufficiency was evaluated in the 2004 WSA for a time period between 1977 and 2003, where there were several periods of wet, normal, single dry and multiple-dry years. Groundwater recharge was estimated to be about 8,300 acre-feet per year and showed a positive change in groundwater storage through 2003. The observed groundwater level trends indicate stable to continued increasing levels during 2012-2013 and a slight lowering in groundwater levels during the drought period of 2014 and 2015. The City's groundwater supply has not historically been subject to hydrologic variability.

Reliability and Vulnerability of the Groundwater Supply

While the City has imposed policy restraints on its groundwater pumping, there are no physical constraints to groundwater pumping. The City has more than adequate capacity from its well field to pump what it anticipates utilizing.

Maintaining sustainable groundwater supplies is one of the primary goals of groundwater management. Groundwater level trends within the basin indicate that pumpage over the last five years has been sustainable. The 2004 WSA included an analysis of the historical groundwater level and pumpage data and presented an estimated range of pumpage within which the City and other pumpers in the southern portion of the SRP Subbasin could operate without causing persistent groundwater level declines. On the whole, groundwater levels within the SRP Subbasin have remained in balance and significantly increased in the southern portion of the SRP Subbasin since DWR's 1982 study (DWR, 1982a). As described in earlier sections, the City's pumpage for the 25-year horizon falls within a range that is historically demonstrated to be sustainable. Thus, groundwater supplies from the basin are sufficient to meet the City's projected groundwater demands.

6.2.5 GROUNDWATER MANAGEMENT

The City supported the development the Santa Rosa Plain Watershed Groundwater Management Plan, which was adopted in the fall of 2014, and participates actively in the implementation of this Plan. Modeling and monitoring data collected by the City and others indicate that groundwater levels are generally rising around the City's well field, an indication of stable supply (Hydrologic and Geochemical characteristic of the Santa Rosa Plain Watershed). Under the auspices of the Groundwater Management Plan, groundwater levels in selected wells are regularly monitored and reported upon.

The California Department of Water Resources defines the Santa Rosa Valley Groundwater Basin as a "medium priority basin". As a result, and in accordance with the requirements of the Groundwater Sustainability Act of 2014, the City is working with the County of Sonoma, the Sonoma County Water Agency, the cities of Cotati, Santa Rosa and Sebastopol and the Town of Windsor to form a Groundwater Sustainability Agency and develop a Groundwater Sustainability Plan. These agencies all expect that the Groundwater Sustainability Plan will build upon the adopted Groundwater Management Plan and continue to provide a strong framework for managing the groundwater supply.

6.2.6 LIMITATIONS TO GROUNDWATER PUMPING AND OVERDRAFT CONDITIONS

The City has adopted local policies related to groundwater management. Resolution No. 2004-95 (the Water Policy Resolution, see Appendix 6), was adopted on April 27, 2004, and specifies that new development outside of the current City limits will not be approved if it would contribute to the City exceeding an average annual pumping rate of approximately 2,577 AFY. The Water Policy Resolution is the only local policy determination related to groundwater management in Sonoma County. The City also has a policy of not allowing private wells within the City Limits. The City has operated under the framework of the Water Policy Resolution since 2004 and groundwater pumpage is consistently below 2,577 AFY.

6.2.7 HISTORICAL GROUNDWATER PUMPING (2010-2015)

Table 6-1 illustrates the City's groundwater use for the five-year period from 2011-2015. The City pumped as little as 766 AF in 2012. The City's pumpage increased in 2014 and 2015, to as much as 1,583 AF in 2014. This increase reflects the City's conjunctive use management strategy, which involves maximizing the use of

Agency water during normal years and relying more on groundwater in drought conditions. The amount pumped in 2014 is still well below the 2,577 AFY threshold specified in the City's 2004 Water Policy Resolution. The groundwater pumped was sufficient to meet the City's needs and the City did not encounter any major challenges with regards to obtaining groundwater.

TABLE 6-1 GROUNDWATER VOLUME PUMPED

Table 6-1 Retail: Groundwater Volume Pumped						
<input type="checkbox"/>	Supplier does not pump groundwater. The supplier will not complete the table below.					
Groundwater Type <i>Drop Down List</i> <i>May use each category multiple times</i>	Location or Basin Name	2011	2012	2013	2014	2015
Add additional rows as needed						
Alluvial Basin	Santa Rosa Plain Subbasin of the Santa Rosa Valley Groundwater Basin	821	766	1343	1583	1455
TOTAL		821	766	1,343	1,583	1,455
NOTES:						

6.3 SURFACE WATER

The City does not utilize an independent surface water supply.

6.4 STORMWATER

The City does not utilize an independent storm water supply.

6.5 WASTEWATER AND RECYCLED WATER

The City's tertiary-treated recycled water supply is produced by the Subregional System. In July of 2015, the City and the Subregional System entered into a Producer Distributor Agreement that made the City the retail recycled water purveyor within its limits and to Sonoma State University and provided the City with access to 1,350 AFY of recycled water. The City and Sonoma State University use recycled water primarily for irrigation purposes and recycled water demand has varied between 800 and 1,100 AFY over the past 10 years. This section provides additional information on the wastewater collection, treatment and recycled water systems.

6.5.1 RECYCLED WATER COORDINATION

As described above the Subregional System is the City's wholesale supplier of recycled water. This UWMP has been coordinated with the Subregional System.

6.5.2 WASTEWATER COLLECTION, TREATMENT, AND DISPOSAL

The City owns and operates the collection system within its corporate limits and also collects and transports wastewater generated by Sonoma State University and within the Canon Manor SPA. The City's collection system consists of 77 miles of gravity sewers, 7.5 miles of force mains, 16 inverted siphons, and three pump stations that convey sewage to the treatment facility. Most facilities were installed between 1956 and 1980 and the average age is estimated to be 30 years. Wastewater is transported to the Subregional System's Laguna Treatment Plant through the City's terminal pump station. Table 6-2 presents the volume of wastewater generated within the City's sewer service area in 2015.

TABLE 6-2 WASTEWATER COLLECTED WITHIN THE SERVICE AREA IN 2015

Table 6-2 Retail: Wastewater Collected Within Service Area in 2015						
<input type="checkbox"/>	There is no wastewater collection system. The supplier will not complete the table below.					
100%	Percentage of 2015 service area covered by wastewater collection system <i>(optional)</i>					
100%	Percentage of 2015 service area population covered by wastewater collection system <i>(optional)</i>					
Wastewater Collection			Recipient of Collected Wastewater			
Name of Wastewater Collection Agency	Wastewater Volume Metered or Estimated? <i>Drop Down List</i>	Volume of Wastewater Collected from UWMP Service Area 2015	Name of Wastewater Treatment Agency Receiving Collected Wastewater	Treatment Plant Name	Is WWTP Located Within UWMP Area? <i>Drop Down List</i>	Is WWTP Operation Contracted to a Third Party? <i>(optional)</i> <i>Drop Down List</i>
Add additional rows as needed						
City of Rohnert Park	Metered	3,330	City of Santa Rosa	Laguna Wastewater Treatment Plant	No	No
Total Wastewater Collected from Service Area in 2015:		3,330				
NOTES:						

Wastewater treatment and disposal is provided by the Subregional System, which also serves the cities of Santa Rosa, Sebastopol, and Cotati. Wastewater from the Subregional System is treated at the Laguna Water Reclamation Plant, located about 2 miles northwest of Rohnert Park. The City owns capacity rights to 3.43 million gallons per day (MGD) at the Laguna Water Reclamation Plant and has an agreement with the City of Santa Rosa to use up to 4.46 MGD of capacity rights. Under the Subregional System's approved Incremental Recycled Water Program, Rohnert Park can acquire up to 5.15 MGD of capacity. Rohnert Park's current capacity needs are approximately 3.0 MGD.

The Subregional System treats wastewater to Title 22 tertiary recycled water standards as discussed in Section 6.5.2. While a great deal of the Subregional System's recycled water is used for urban, agricultural or industrial purposes, the Subregional System maintains a permitted discharge to the Russian River. The Subregional System is committed to supplying recycled water users first and its permitted discharge is used primarily to manage variations in hydrologic conditions (for example, in a cool wet year when rainfall is high

and irrigation demand is low, the Subregional System will discharge more water than in a warm dry year when irrigation demand is high). Although the City is part of the Subregional System no wastewater is treated or disposed of within city limits.

While the Laguna Treatment Plant is not the City’s service area, the City has coordinated with the Subregional System and completed Table 6-3 in order to provide a clear picture of the recycled water used in its service area.

TABLE 6-3 WASTEWATER TREATMENT AND DISCHARGE WITHIN THE SERVICE AREA 2015

Table 6-3 Retail: Wastewater Treatment and Discharge Within Service Area in 2015										
<input checked="" type="checkbox"/>	No wastewater is treated or disposed of within the UWMP service area. The supplier will not complete the table below.									
Wastewater Treatment Plant Name	Discharge Location Name or Identifier	Discharge Location Description	Wastewater Discharge ID Number (optional)	Method of Disposal <i>Drop down list</i>	Does This Plant Treat Wastewater Generated Outside the Service Area?	Treatment Level <i>Drop down list</i>	2015 volumes			
							Wastewater Treated	Discharged Treated Wastewater	Recycled Within Service Area	Recycled Outside of Service Area
Add additional rows as needed										
Laguna Wastewater Treatment Plant	Laguna de Santa Rosa	Flows to Russian River		River or creek outfall	Yes	Tertiary	17,493	0	798	16,695
Total							17,493	0	798	16,695
NOTES: The City is part of the Subregional System that maintains a dishcrage permit to the Russian River but takes place outside the city service area.										

6.5.3 RECYCLED WATER SYSTEM

As described earlier in this report, the City owns and operates a purple-pipe recycled water system. The City’s wholesale supplier of recycled water is the Subregional System. The recycled water system is illustrated in Figure 3-3 (Section 3.2). The City’s recycled water system was installed in the 1990s and recycled water is used for irrigation of large landscapes in the City including parks and school grounds, various commercial and industrial sites, and the Foxtail Golf Course. Recycled water use offsets historic demands on the City’s potable water system and demands on irrigation wells. Recycled water use averages between 800 and 1,100 AFY. The use is relatively constant, however because recycled water is used almost exclusively for irrigation purposes the demand can fluctuate with local rainfall patterns and attendant irrigation demands.

The Subregional System has prepared and adopted its Incremental Recycled Water Master Plan (IRWP Master Plan located at <http://ci.santa-rosa.ca.us/departments/utilities/irwp/Pages/default.aspx>). The IRWP Master Plan outlines the long term strategy for expansions to the recycled water system.

6.5.4 RECYCLED WATER BENEFICIAL USES

Recycled water is currently used to irrigate 450 acres of land within the City. This includes two City-owned 18-hole golf courses, Roberts Lake Park, Roberts Lake Road and the Park 'n Ride lot landscaped area, City parks, school grounds, and many sites with significant lawn and landscaped areas. Consistent with IRWP Master Plan, its General Plan and the environmental documents for proposed new development, the City is working with the Subregional System to incrementally expand the recycled water system within its service area in order to provide recycled water for irrigation and other non-potable uses. This expansion will provide up to 1,350 AFY of additional supply. All environmental clearances are complete for this expansion. The City will be constructing recycled water main extensions with developers over the next 10 years. The actual timing of the expansion is dependent on the timing of new development. The projected recycled water directs beneficial uses within the service area is shown in Table 6-4 below. Table 6-5 compares actual use in 2015 to the estimates made in the City's 2010 Urban Water Management Plan.

TABLE 6-4 CURRENT AND PROJECTED RECYCLED WATER DIRECT BENEFICIAL USES WITHIN SERVICE AREA

Table 6-4 Retail: Current and Projected Recycled Water Direct Beneficial Uses Within Service Area								
<input type="checkbox"/>	Recycled water is not used and is not planned for use within the service area of the supplier. The supplier will not complete the table below.							
Name of Agency Producing (Treating) the Recycled Water:			City of Santa Rosa Subregional System					
Name of Agency Operating the Recycled Water Distribution System:			City of Rohnert Park					
Supplemental Water Added in 2015			0					
Source of 2015 Supplemental Water			0					
Beneficial Use Type	General Description of 2015 Uses	Level of Treatment <i>Drop down list</i>	2015	2020	2025	2030	2035	2040 (opt)
Agricultural irrigation								
Landscape irrigation (excludes golf courses)	Commercial landscapes and SSU	Tertiary	462					
Golf course irrigation	FoxTail Golf Course	Tertiary	336					
Commercial use								
Industrial use								
Geothermal and other energy production								
Seawater intrusion barrier								
Recreational impoundment								
Wetlands or wildlife habitat								
Groundwater recharge (IPR)*								
Surface water augmentation (IPR)*								
Direct potable reuse								
Other (Provide General Description)								
Total:			798	1,150	1,200	1,250	1,300	1,350
<i>*IPR - Indirect Potable Reuse</i>								
NOTES:								

TABLE 6-5 2010 UWMP RECYCLED WATER USE PROJECTIONS COMPARED TO 2015 ACTUAL

Table 6-5 Retail: 2010 UWMP Recycled Water Use Projection Compared to 2015 Actual			
<input type="checkbox"/>		Recycled water was not used in 2010 nor projected for use in 2015. The supplier will not complete the table below.	
Use Type		2010 Projection for 2015	2015 Actual Use
Agricultural irrigation			
Landscape irrigation (excludes golf courses)		1,300	462
Golf course irrigation			336
Commercial use			
Industrial use			
Geothermal and other energy production			
Seawater intrusion barrier			
Recreational impoundment			
Wetlands or wildlife habitat			
Groundwater recharge (IPR)			
Surface water augmentation (IPR)			
Direct potable reuse		0	
Other	Type of Use		
Total		1,300	798
NOTES: City's 2010 projections did not differentiate Golf Course Use from other Landscape Use			

6.5.5 ACTIONS TO ENCOURAGE AND OPTIMIZE FUTURE RECYCLED WATER USE

The City has an adopted recycled water use ordinance (Section 13.62.040 of the Rohnert Park Municipal Code). The City uses its regulatory authority under this ordinance to require extension of recycled water mains and connection of new landscapes to recycled water, when feasible. Since the adoption of its 2010 Urban Water Management Plan, the City has connected one new commercial customer, and one new multi-family residential customer and has extended approximately one-half mile of recycled water main to serve a planned new park. The City estimates that, over time, its recycled water use will grow by 300 AFY as its General Plan build out continues and new customers are added. Table 6-6 summarizes this information.

TABLE 6-6 METHODS TO EXPAND RECYCLED WATER USE

Table 6-6 Retail: Methods to Expand Future Recycled Water Use			
<input type="checkbox"/>		Supplier does not plan to expand recycled water use in the future. Supplier will not complete the table below but will provide narrative explanation.	
		Provide page location of narrative in UWMP	
Name of Action	Description	Planned Implementation Year	Expected Increase in Recycled Water Use
<i>Add additional rows as needed</i>			
Mandatory Use Ordinance and System Expansion to Serve Development	Extend recycled water mains as necessary to provide supply to new development	Varies	300
Total			300
NOTES:			

6.6 DESALINATED WATER OPPORTUNITIES

The City does not have any current or future desalination water supply plans due to the City's locations in relation to sea water, as well as the water quality of the Santa Rosa Plain Subbasin.

6.7 EXCHANGES OR TRANSFERS

Water transfers are authorized between the Agency's water contractors under the Restructured Agreement. The City does not anticipate any transfers or exchanges.

6.8 FUTURE WATER PROJECTS

The City's water supply is not dependent on future expansions to meet projected demand. The City is planning two future capital improvement projects to extend the life of its groundwater well system and to reduce its "unaccounted for" water by installing meters at school and park properties. These are described below.

- Groundwater Wells Replacement/Upgrade. The City is evaluating its well system and will be assessing the yield and condition of its wells. The project will include replacing and/or supplementing its local groundwater supply well system.
- Water Meter Installation Project. The City is currently paying for irrigating some school properties since one meter is shared between school and park irrigation. The project would separate these shared connections by installing meters on un-metered City properties in order to accurately account for water consumed and reduce apparent water losses.

Because the City is not relying on expansion projects to meet its existing or future water demand, it has not entered data in Table 6-7.

TABLE 6-7 EXPECTED FUTURE WATER SUPPLY PROJECTS OR PROGRAMS

Table 6-7 Retail: Expected Future Water Supply Projects or Programs						
<input checked="" type="checkbox"/>	No expected future water supply projects or programs that provide a quantifiable increase to the agency's water supply. Supplier will not complete the table below.					
<input type="checkbox"/>	Some or all of the supplier's future water supply projects or programs are not compatible with this table and are described in a narrative format.					
	Provide page location of narrative in the UWMP					
Name of Future Projects or Programs	Joint Project with other agencies?		Description (if needed)	Planned Implementation Year	Planned for Use in Year Type <i>Drop Down List</i>	Expected Increase in Water Supply to Agency <i>This may be a range</i>
	<i>Drop Down List (y/n)</i>	<i>If Yes, Agency Name</i>				
<i>Add additional rows as needed</i>						
NOTES:						

6.9 SUMMARY OF EXISTING AND PLANNED SOURCES OF WATER

The water supply for the City consists of three components: purchased water from the Agency, pumped groundwater from City owned wells, and recycled water produced by the Subregional System. Table 6-8 presents the City's utilization of each supply source in 2015, Table 6-9 presents the City's projected supply from each source for the planning period from 2015 through 2040.

TABLE 6-8 WATER SUPPLIED- ACTUAL

Table 6-8 Retail: Water Supplies — Actual				
Water Supply	Additional Detail on Water Supply	2015		
<i>Drop down list</i> <i>May use each category multiple times.</i> <i>These are the only water supply categories that will be recognized by the WUEdata online submittal tool</i>		Actual Volume	Water Quality <i>Drop Down List</i>	Total Right or Safe Yield <i>(optional)</i>
Add additional rows as needed				
Purchased or Imported Water	Sonoma County Water Agency	2,774	Drinking Water	6,372
Groundwater	City Owned Wells	1,455	Drinking Water	2,577
Recycled Water	Santa Rosa Subregional System	798	Recycled Water	1,350
Total		5,026		10,299
NOTES: Agency Supply volume is the City's estimated safe yield. The Restructured Agreement provides the City with contractual rights to 7,500 AFY				

TABLE 6-9 WATER SUPPLIES- PROJECTED

Table 6-9 Retail: Water Supplies — Projected											
Water Supply	Additional Detail on Water Supply	Projected Water Supply <i>Report To the Extent Practicable</i>									
<i>Drop down list</i> <i>May use each category multiple times. These are the only water supply categories that will be recognized by the WUEdata online submittal tool</i>		2020		2025		2030		2035		2040 (opt)	
		Reasonably Available Volume	Total Right or Safe Yield (optional)	Reasonably Available Volume	Total Right or Safe Yield (optional)	Reasonably Available Volume	Total Right or Safe Yield (optional)	Reasonably Available Volume	Total Right or Safe Yield (optional)	Reasonably Available Volume	Total Right or Safe Yield (optional)
		<i>Add additional rows as needed</i>									
Purchased or Imported Water		6,372	6,372	6,372	6,372	6,372	6,372	6,372	6,372	6,372	6,372
Groundwater		2,577	2,577	2,577	2,577	2,577	2,577	2,577	2,577	2,577	2,577
Recycled Water		1,350	1,350	1,350	1,350	1,350	1,350	1,350	1,350	1,350	1,350
Total		10,299	10,299	10,299	10,299	10,299	10,299	10,299	10,299	10,299	10,299
NOTES:											

6.10 CLIMATE CHANGE IMPACTS TO SUPPLY

Impacts to the City's water supplies due to climate change are as follows:

- **Agency Supply:** At this time climate change impacts to the Water Agency's water supply is unknown, although the Agency is working with the US Geological Survey to analyze potential long-term impacts. However, because the Water Agency's water supply is rainfall-driven climate change is expected to affect supply in that timing of runoff is expected to shift to earlier in the year. This will affect reservoir storage, especially in spring and summer months. Annual precipitation is expected to vary with vulnerability to droughts and dry periods.
- **Groundwater:** Climate change can affect the availability and yield from groundwater aquifers. Groundwater levels in the area fluctuate depending on precipitation, aquifer recharge, and pumping. As is the case with the Agency supply, long-term studies and adopted management plan are focused on minimizing this impact.
- **Recycled Water:** Recycled water is relatively resistant to climate change. However, long-term conservation efforts, which reduce discharge to the Laguna Treatment Plant, may ultimately impact the City's recycled water supply.

As discussed earlier in this UWMP, the City has completed the Climate Change Vulnerability Assessment and its rainfall-based supply system is less vulnerable to the impacts of climate change than other types of supply. The City is among the nine cities and County of Sonoma's collaborative effort to develop a Community Climate Action Plan to reduce greenhouse gas (GHG) emissions and respond to the impacts of climate change.

7 WATER SYSTEM RELIABILITY

7.1 CONSTRAINTS ON WATER SOURCES

The City has three sources of water supply: Agency supply, groundwater, and recycled water. The City's supply projections indicate that its long term water supply portfolio is composed of the following:

- Sixty-two percent Agency water;
- Twenty-five percent local groundwater;
- Thirteen percent recycled water.

The City balances these supplies using a conjunctive use strategy. The City's current Agency supply, groundwater supply and recycled water supply are all reasonably stable and supported by contracts, policy and a court judgment.

The Agency's proposed supply increase is not predictable, particularly with respect to the schedule upon which it can be delivered. The City's supply planning strategy is to rely only upon the Agency's currently permitted supply, its own sustainable groundwater production and a modest increase in recycled water deliveries. The anticipated increase in recycled water deliveries is highly predictable because major distribution infrastructure already exists; the Subregional System has completed the planning and environmental studies; and the City has adopted development impact fee programs to fund the construction of the expanded system. Since 2010, the recycled water system has been extended to serve the Stadium Lands PDA and the University District SPA. An extension to serve the Southeast SPA is currently entering the construction phase.

7.1.1 WATER QUALITY CONSTRAINTS

The quality of the City's water deliveries is regulated by the California Department of Health Services (DHS), which requires regular collection and testing of water samples to ensure that the quality meets regulatory standards and does not exceed MCLs. The City, the SCWA and the Subregional System perform water quality testing, which has consistently yielded results within the acceptable regulatory.

The quality of existing surface water, groundwater, and recycled water supply sources over the next 25 years is expected to be adequate. Surface and groundwater water will continue to be treated to drinking water standards, and no surface water, groundwater, or recycled water quality deficiencies are foreseen to occur in the next 25 years.

7.2 CONSTRAINTS ON THE AGENCY SUPPLY

7.2.1 HYDROLOGIC CONSTRAINTS

The Agency has developed a model of its water system, including storage available in Lake Mendocino and Lake Sonoma, in order to project hydrologic reliability. This model, which is described in detail in the Agency's Urban Water Management Plan, is based on the water year types presented in Table 7-1, below.

The Agency's model indicates that its system is not impaired by hydrology in normal and multiple dry years. However, in single dry years the system's reliability is reduced slightly. Based on the Agency's analysis for the single-dry year, it can deliver the following percentages of its supply to its customers (see Agency 2010 UWMP Tables 6-2 and 6-3):

- 2020: 100 percent
- 2025: 90 percent
- 2030: 92 percent
- 2035: 94 percent

Section 3.5 of the Restructured Agreement for Water Supply includes an allocation methodology that is used in the case of water supply shortages. This allocation methodology takes into account each water contractors' basic health and safety needs and current conservation practices. As a result of this, shortages are not uniformly shared by all contractors (i.e. if 80 percent of the Agency's water supply is available, all contractors will not automatically experience a 20 percent cutback). Contractors with lower baseline demands, reflecting more mature water conservation programs, receive somewhat smaller water shortage reductions than contractors with higher baseline demands and less mature conservation programs.

The Agency and its contractors developed a spreadsheet-based allocation model that reflected the commitments of Section 3.5 of the Restructured Agreement. The City has reviewed the Water Shortage Allocation Model and it indicates that the City could generally expect to receive more water than a straight-line percentage reduction would predict. However, in an effort to be conservative in estimating potential single-dry year reductions, the City has used a straight-line percentage allocation to arrive at an estimated single-dry year supply. This assumption is reflected in Table 7-1 (Agency), below. While the City is utilizing conservative assumptions to estimate its supply in dry years, should a dry year even occur, the City will work with the Agency and other contractors to appropriately implement the provisions of Section 3.5 of the Restructured Agreement.

TABLE 7-1 (AGENCY) BASIS OF WATER YEAR DATA

Table 7-1 Retail: Basis of Water Year Data			
Year Type	Base Year <i>If not using a calendar year, type in the last year of the fiscal, water year, or range of years, for example, water year 1999-2000, use 2000</i>	Available Supplies if Year Type Repeats	
		<input type="checkbox"/>	Quantification of available supplies is not compatible with this table and is provided elsewhere in the UWMP. Location _____
		<input checked="" type="checkbox"/>	Quantification of available supplies is provided in this table as either volume only, percent only, or both.
		Volume Available	% of Average Supply
Average Year	1962	6,372	100%
Single-Dry Year	1977	5,735	90%
Multiple-Dry Years 1st Year	1988	6,372	100%
Multiple-Dry Years 2nd Year	1989	6,372	100%
Multiple-Dry Years 3rd Year	1990	6,372	100%
Multiple-Dry Years 4th Year <i>Optional</i>	1991	6,372	100%
NOTES: Because the City's supplies are all from the same Russian River watershed and subject to the same hydrologic events, the base year used is the same for all supplies.			

7.2.2 LEGAL & ENVIRONMENTAL CONSTRAINTS

There are also legal and environmental factors that have the potential to constrain the Agency water supply. As described in Section 6, while the City's contract with the Agency is premised on Agency supply rights of 101,000 AFY, four State Water Resources Control Board (SWRCB) permits currently govern the Agency's system and limit diversions to 75,000 AFY.

In addition, a final Biological Opinion (BO) from the National Marine Fisheries Service (NMFS) constrains the Agency's Russian River operations in order to protect state and federal endangered species (steelhead trout, and coho and Chinook salmon). The BO calls for the elimination or reduction of impacts to salmonids due to water supply and flood control activities in the Russian River watershed through measures deemed "reasonable and prudent alternatives," including:

- Extensive monitoring of both habitat and fish in Dry Creek, the Russian River and its estuary;
- Eliminating impediments to fish migration and improving habitat on several streams;
- Restoring up to six miles of habitat in Dry Creek and studying a bypass project;
- Requesting the State Water Resources control Board to reduce summertime flows in the Russian River;
- Creating a freshwater lagoon in the estuary at the mouth of the Russian River during the summer months.

The Agency is currently completing an environmental impact report that documents both operational modifications and habitat restoration project that it will undertake to comply with the BO. These activities are expected to mitigate impacts to salmonids from the current water supply operations and minimize legal and environmental constraints on the Agency's currently permitted supply.

7.3 CONSTRAINTS ON GROUNDWATER SUPPLY

As described in Section 6 and its 2004 WSA, the City analyzed groundwater trends in order to develop a groundwater pumping rate of 2,577 AFY that is sustainable under all hydrologic conditions. While the City meets all water quality standards with its groundwater supply. It has taken some of its wells off line because of arsenic levels that exceed standards.

7.4 RECYCLED WATER SUPPLY

The City has a contract for a recycled water supply of 1,350 AFA. This supply is reliable under all hydrologic conditions. While the City's recycled water supply meets all water quality standards for unrestricted nonpotable use, it cannot be used to meet potable demands.

7.5 SUPPLY AND DEMAND ASSESSMENT

In accordance with the California Water Code, the following tables compare the water supply available to the City under normal, single dry and multiple dry year conditions in five year increments from 2020 to 2040.

TABLE 7-2 NORMAL YEAR WATER SUPPLY AND DEMAND COMPARISON

Table 7-2 Retail: Normal Year Supply and Demand Comparison					
	2020	2025	2030	2035	2040 (Opt)
Supply totals (autofill from Table 6-9)	10,299	10,299	10,299	10,299	10,299
Demand totals (autofill from Table 4-3)	6,755	6,929	7,068	7,261	7,479
Difference	3,544	3,370	3,231	3,038	2,820
NOTES:					

TABLE 7-3 SINGLE DRY YEAR SUPPLY AND DEMAND COMPARISON

Table 7-3 Retail: Single Dry Year Supply and Demand Comparison					
	2020	2025	2030	2035	2040 (Opt)
Supply totals	9,662	9,662	9,662	9,662	9,662
Demand totals	6,755	6,929	7,068	7,261	7,479
Difference	2,907	2,733	2,594	2,401	2,183
NOTES:					

TABLE 7-4 MULTIPLE DRY YEAR SUPPLY AND DEMAND COMPARISON

Table 7-4 Retail: Multiple Dry Years Supply and Demand Comparison						
		2020	2025	2030	2035	2040 (Opt)
First year	Supply totals	10,299	10,299	10,299	10,299	10,299
	Demand totals	6,755	6,929	7,068	7,261	7,479
	Difference	3,544	3,370	3,231	3,038	2,820
Second year	Supply totals	10,299	10,299	10,299	10,299	10,299
	Demand totals	6,755	6,929	7,068	7,261	7,479
	Difference	3,544	3,370	3,231	3,038	2,820
Third year	Supply totals	10,299	10,299	10,299	10,299	10,299
	Demand totals	6,755	6,929	7,068	7,261	7,479
	Difference	3,544	3,370	3,231	3,038	2,820
Fourth year (optional)	Supply totals	10,299	10,299	10,299	10,299	10,299
	Demand totals	6,755	6,929	7,068	7,261	7,479
	Difference	3,544	3,370	3,231	3,038	2,820
NOTES:						

8 WATER SHORTAGE CONTINGENCY PLAN

This section provides information required by Water Code Section 10632. The City's complete Water Shortage Contingency Plan, as updated for this 2015 UWMP, is included in Appendix 7.

8.1 STAGES OF ACTION

The City's Water Shortage Contingency Plan includes an analysis of the demand reductions required to meet certain levels of supply reductions. Because the City's water supply is robust and reliable, it can expect to manage supply reductions of as much as 30%, without needing to require demand reductions. However, while the City's supply is highly reliable, there have been instances, such as the most recent Statewide Emergency Regulations, where the City was required to achieve certain demand reduction targets, even with water supply available. As such in the Water Contingency Plan, the City has developed rationing stages that allow it to respond to both true supply emergencies and regulatory mandates with a program of increasingly voluntary and mandatory actions. Table 8-1 summarizes the City's stages of action.

TABLE 8-1 STAGES OF WATER SHORTAGE CONTINGENCY PLAN

Table 8-1 Retail Stages of Water Shortage Contingency Plan		
Stage	Complete Both	
	Percent Supply Reduction ¹ <i>Numerical value as a percent</i>	Water Supply Condition <i>(Narrative description)</i>
<i>Add additional rows as needed</i>		
1 - Voluntary	up to 15%	Under this voluntary stage, the City will requesting up to 10% reduction in demand which is sufficient to meet a 15% reduction in supply
1 - Mandatory	15% to 30%	Under this first mandatory stage, the City will require up to 20% reduction in demand which is sufficient to meet a 30% reduction in supply
2- Mandatory	30% to 45%	Under this second mandatory stage, the City will require up to a 25% reduction in demand which is sufficient to meet nearly a 50% reduction in supply
3 - Mandatory	50%	Under this final mandatory stage, the City will require a partial offset of new development demands.
¹ One stage in the Water Shortage Contingency Plan must address a water shortage of 50%.		
NOTES: The City may also use stages of its water shortage contingency plan to respond to regulatory requirements for reduction in demand even in the absense of a locally declared supply shortage		

8.2 PROHIBITION ON END USES

Since 2013, the City has worked through a series of interim urgency ordinances in order to respond to the State's emergency regulations and required prohibitions on end uses. As part of this 2015 UWMP cycle the City is working to update its Municipal Code to better conform to the most recently promulgated state regulations. Table 8-2 includes the prohibitions that are part of the City's Water Shortage Contingency Plan.

TABLE 8-2 RESTRICTIONS AND PROHIBITIONS ON END USES

Table 8-2 Retail Only: Restrictions and Prohibitions on End Uses			
Stage	Restrictions and Prohibitions on End Users <i>Drop down list</i> <i>These are the only categories that will be accepted by the WUEdata online submittal tool</i>	Additional Explanation or Reference <i>(optional)</i>	Penalty, Charge, or Other Enforcement? <i>Drop Down List</i>
Add additional rows as needed			
1 - Voluntary	Landscape - Restrict or prohibit runoff from landscape irrigation		Yes
	Other - Require automatic shut of hoses		Yes
	Other - Prohibit use of potable water for washing hard surfaces		Yes
	Water Features - Restrict water use for decorative water features, such as fountains		Yes
	Landscape - Other landscape restriction or prohibition	Prohibition of watering within 48 hours of measurable rainfall	Yes
	Landscape - Other landscape restriction or prohibition	Compliance with code requirements for new landscapes	Yes
	CII - Lodging establishment must offer opt out of linen service		Yes
	CII - Restaurants may only serve water upon request		Yes
1 - Mandatory	Landscape - Limit landscape irrigation to specific times	Landscape irrigation between 8 pm and 6 am	Yes
	Other	Require nonpotable water use for construction where feasible	Yes
2 - Mandatory	Other water feature or swimming pool restriction	Prohibit filling of new pools and topping off existing pools	Yes
	Landscape - Other landscape restriction or prohibition	Prohibit installation of landscaping in new construction	Yes
NOTES:			

8.3 PENALTIES, CHARGES, OTHER ENFORCEMENT OF PROHIBITIONS

Section 13.66.070 of the Municipal Code outlines the City’s enforcement process when its water waste prohibitions or stages of actions are violated. These actions include

- Personal contact with the customer
- Delivery of written notice
- Installation of a flow-restricting device.

The City also has the authority to abate water waste under the nuisance provisions of its Municipal Code. These provisions include the authority to impose fines ranging from \$100 to \$500 per occurrence.

8.4 CONSUMPTION REDUCTION METHODS

In addition to prohibitions and restrictions, the City initiates actions to help with consumption reduction efforts. The City’s actions are generally accomplished as part of the Sonoma Marin Water Saving Partnership, with a goal of having a well-coordinated and consistent regional conservation message at all times. Table 8-3 summarizes the City’s actions.

TABLE 8-3 STAGES OF WATER SHORTAGE CONTINGENCY PLAN – CONSUMPTION REDUCTION METHODS

Table 8-3 Retail Only: Stages of Water Shortage Contingency Plan - Consumption Reduction Methods		
Stage	Consumption Reduction Methods by Water Supplier <i>Drop down list</i> <i>These are the only categories that will be accepted by the WUEdata online submittal tool</i>	Additional Explanation or Reference (optional)
Add additional rows as needed		
1 - Voluntary	Provide Rebates on Plumbing Fixtures and Devices	
	Offer Water Use Surveys	
1 - Mandatory	Expand Public Information Campaign	
	Increase Water Waste Patrols	
3 - Mandatory	Other	New development required to offset 50% of its demands
NOTES:		

8.5 DETERMINING WATER SHORTAGE REDUCTIONS

The City’s wells and SCWA supply turnouts are all equipped with water meters. Additionally, each potable and recycled water customer is metered. Non-residential landscape irrigation is metered separately from indoor use at most non-residential sites. The City reads meters on a monthly basis and is able to document both demand reductions and atypically high water use. The City contacts individual customers to resolve issues related to atypically high water use.

8.6 REVENUE AND EXPENDITURE IMPACTS

The Water Code requires the City to analyze the impacts on revenue from a 50% reduction in supplies. As outlined above, a 50% reduction in water supply will require a 25% reduction in water use. Therefore, the City's analysis is based on a 25% reduction in demand and the revenue associated with that demand. This reduced revenue would be balanced by some reduction in costs, since the City would be purchasing less water from the Sonoma County Water Agency. In addition the City would have the option of deferring planned capital expenditures and utilizing its utility system reserves. The City manages its Water Enterprise Fund to maintain cash reserves, and these operating reserves are currently approximately 50% of its annual operating costs, or approximately \$3.9 million.

Appendix 7 includes a detailed analysis of the City's costs, rates and reserve balances in order to assess the impacts of water shortages. This analysis concluded that the City would need to use approximately \$400,000 of its reserves to cover revenue shortfalls associated with a 15% reduction in supply. This draw on reserves would increase to nearly \$1 million to cover 50% reduction in supply. The City has adequate reserves to manage these impacts

8.7 RESOLUTION OR ORDINANCE

The City has the authority to declare a water shortage emergency by resolution. A draft of this resolution is included in the Water Shortage Contingency Plan (Appendix 7).

8.8 CATASTROPHIC SUPPLY INTERRUPTION

In accordance with the Emergency Services Act, the City has developed an Emergency Operation Plan (EOP). This EOP guides response to unpredicted catastrophic events that might impact water delivery including regional power outages, earthquakes or other disasters. The EOP outlines standard operating procedures for all levels of emergency, from minor accidents to major disasters. The EOP has been coordinated with the Agency and neighboring water purveyors. The catastrophic events and planned actions included in the City's EOP are listed below and will be used to manage interruptions to the Agency supply, the groundwater supply or both.

- Earthquake
 - Use shutoff valves and spare piping to manage ruptured mains
 - Storage available to provide emergency supply
 - Implement procedures for assessing quality, notifying the public and flushing and disinfecting the system if necessary because of flood water contamination
 - Use portable and emergency generators
- Flooding
 - Storage available to provide emergency supply
 - Implement procedures for assessing quality, notifying the public and flushing and disinfecting the system if necessary because of flood water contamination
 - Use portable and emergency generators
- Toxic Spills (effects Agency Supply)
 - Use local groundwater
 - Implement procedures for assessing quality, notifying the public and flushing and disinfecting the system

- Fire
 - Storage available to provide fire Flows
 - Implement Mutual Aid Plans
 - Use portable and emergency generators
- Power Outage or Grid Failure
 - Use portable and emergency generators
- Severe Winter Storms
 - Use portable and emergency generators
- Hot Weather
 - Use portable and emergency generators

8.9 MINIMUM SUPPLY NEXT THREE YEARS

As discussed in Chapters 6 and 7, the City has three water supply sources that it used conjunctively in order to achieve a robust and reliable supply strategy. Table 8-4 provides the City's estimated water supply available for the next three years based on the driest three-year historic sequence for the Agency's water supply. No water shortages are anticipated.

TABLE 8-4 MINIMUM SUPPLY NEXT THREE YEARS

Table 8-4 Retail: Minimum Supply Next Three Years			
	2016	2017	2018
Available Water Supply	10,299	10,299	10,299
NOTES: As outlined in the Agency's UWMP, its supply is not reduced under a multiple dry year scenario			

While the City's supply is reliable, the City has been required to implement its water contingency plans as a result of regulatory requirements imposed upon the Agency, the City or both.

9 DEMAND MANAGEMENT MEASURES

The City is a member of the California Urban Water Conservation Council and is submitting its annual reports, found in Appendix 8, as documentation of implementation of demand management measures.

10 PLAN ADOPTION SUBMITTAL AND IMPLEMENTATION

This section describes City’s process for adopting this 2015 UWMP including the various agencies and stakeholders with which the City communicated in order to obtain input and information.

Table 10-1 identifies the various agencies that the City is coordinating with during the UWMP preparation process. The City’s 60-day notice is included as Appendix 9.

TABLE 10-1 NOTIFICATION TO CITIES AND COUNTIES

Table 10-1 Retail: Notification to Cities and Counties		
City Name	60 Day Notice	Notice of Public Hearing
<i>Add additional rows as needed</i>		
City of Cotati	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
City of Petaluma	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
City of Santa Rosa	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
City of Sonoma	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
City of Sebastopol	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Town of Windsor	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Interested Entity	60 Day Notice	Notice of Public Hearing
North Marin Water District	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Valley of the Moon Water District	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Penngrove Water Company	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Sonoma State University	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
County Name <i>Drop Down List</i>	60 Day Notice	Notice of Public Hearing
<i>Add additional rows as needed</i>		
Sonoma County	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

The findings of the Draft UWMP were presented to the City Council's Water Issues Subcommittee and at a Public Hearing before the City Council on June 28, 2016. The public hearing was publicly noticed and the public given the opportunity to offer comments to the UWMP and to ask questions regarding the findings. A copy of the hearing notices and City Council resolution of adoption is also included in Appendix 9.

The UWMP was adopted by the City Council on June 28, 2016. The Final UWMP incorporates comments made by the City Council and the public. The Final UWMP is available for public viewing at the following website link: <http://www.rpcity.org/> and at the City's main office during normal business hours. A copy of the Final UWMP will be submitted to DWR, the California State Library, the Sonoma County Water Agency and Sonoma County no later than 30 days after adoption by the City Council. Comments to the Final UWMP made by DWR and the City's responses to the comments will be added to the website for the public's information.

Implementation of the 2015 Final UWMP will be the responsibility of the City Engineer and Director of Public Works.

11 REFERENCES

Brelje & Race, 2004, Water Model Study Summary Report – City of Rohnert Park

Brown & Caldwell, 2005, 2005 Urban Water Management Plan Sonoma County Water Agency

Brown & Caldwell, 2011, 2010 Urban Water Management Plan, Sonoma County Water Agency.

Dyett & Bhatia, 2000, Our Place....Rohnert Park 2020 General Plan, 7th Edition.

Maddaus Water Management, 2015, 2015 Urban Water Management Plan Water Demand Analysis and Water Conservation Measures Update

Nishikawa, Tracy, ed., 2013, Hydrologic and Geochemical Characterization of the Santa Rosa Plain Watershed, Sonoma County California; U. S. Geological Survey Scientific Investigations Report 2013-5118.

Santa Rosa Plain Basin Advisory Panel, 2014, Santa Rosa Plain Watershed Groundwater Management Plan

Winzler & Kelly, 2004, Final Water Supply Assessment - City of Rohnert Park

Winzler & Kelly, 2005, 2005 Urban Water Management Plan – City of Rohnert Park

Winzler & Kelly, 2011, Urban Water Management Plan 2010 – City of Rohnert Park