

City of Grants Pass, Oregon



Water Management and Conservation Plan Update

June 2014



**BEFORE THE WATER RESOURCES DEPARTMENT
OF THE
STATE OF OREGON**

In the Matter of the Proposed Water) FINAL ORDER APPROVING A
Management and Conservation Plan for) WATER MANAGEMENT AND
City of Grants Pass, Josephine County) CONSERVATION PLAN

Authority

OAR Chapter 690, Division 086, establishes the process and criteria for approving water management and conservation plans required under the conditions of permits, permit extensions and other orders of the Department. An approved water management plan may authorize the diversion and use of water under a permit extended pursuant to OAR Chapter 690, Division 315.

Findings of Fact

1. The City of Grants Pass submitted a Water Management and Conservation Plan (plan) to the Water Resources Department (Department) on December 10, 2012. The plan was required by a condition set forth under the City's previously approved plan (*Sp. Or. Vol. 57, Pg. 166 issued on March 11, 2003*) and by conditions set forth in the final orders approving Extensions of Time for Permits S-26901, S-45827, and S-47346.
2. The Department published notice of receipt of the plan on December 18, 2012, as required under OAR Chapter 690, Division 086. No comments were received.
3. The Department provided written comments on the plan to the City on March 1, 2013. In response, the City submitted a revised plan on June 12, 2013.
4. The Department reviewed the revised plan and finds that it contains all of the elements required under OAR 690-086-0125.
5. The projections of future water needs in the revised plan demonstrate a need for 21.15 cfs of water available under Permit S-26901 to help meet overall projected 20-year demands. These projections are reasonable and consistent with the City's land use plan.
6. The City's system is fully metered and their rate structure includes a base rate and volumetric charge. The City's unaccounted-for water is estimated at 8.8% percent.
7. The revised plan includes 5-year benchmarks for the City's continuation, evaluation, development, and/or implementation of programs to: perform annual water audits; maintain a fully metered system and the current meter testing and maintenance program; continue its leak detection program; maintain an annual budget for water main replacement, water meter

This is a final order in other than a contested case. This order is subject to judicial review under ORS 183.484. Any petition for judicial review must be filed within the 60-day time period specified by ORS 183.484(2). Pursuant to ORS 536.075 and OAR 137-004-0080, you may petition for judicial review or petition the Director for reconsideration of this order. A petition for reconsideration may be granted or denied by the Director, and if no action is taken within 60 days following the date the petition was filed, the petition shall be deemed denied.

replacement, and leak repair; maintain a rate structure based upon the amount of water metered at the service connection; provide education on water conservation via newsletters included with billing statements; maintain/expand the water conservation demonstration garden and feature it in mailings to highlight available low-water landscaping options; provide shower kits and faucet aerator kits; operation of the remaining bulk water dispensing station and temporary metered fire hydrant dispensing practices; and evaluate the feasibility and appropriateness of identifying, developing and implementing other programs including irrigation distribution system improvements, additional website content, supplier-financed incentive programs, and a 0.25 FTE staff person dedicated to the Business, Industry & Government (B.I.G.) program.

8. The revised plan identifies the Rogue River as the sole source of the City's water rights and accurately and completely describes the listed streamflow-dependent species that occur in the Rogue River in the vicinity of the City's diversion point. Those listed species are as follows: Chinook Salmon, Steelhead, Western Brook Lamprey, Pacific Lamprey (*all state-listed as sensitive-vulnerable*), and Coho Salmon (*federally-listed as threatened and state-listed as sensitive-vulnerable*). The revised plan also accurately and completely describes the water quality parameters for which this portion of the Rogue River has been identified by the Oregon Department of Environmental Quality as being water quality impaired. Those identified impairment parameters are: fecal coliform (*summer*); flow modification; temperature (*year around, non-spawning*); and dissolved oxygen (*October 15 through May 15 of each year*).
9. The water curtailment element included in the revised plan satisfactorily promotes water curtailment practices and includes a list of three stages of alert with concurrent curtailment actions.
10. The diversion of water under extended Permit S-26901 will be increased during the next 20 years and is consistent with OAR 690-086-0130(7), as follows:
 - a. As evidenced by the 5-year benchmarks described in Finding of Fact #7 above, the revised plan includes a schedule for the continuation, evaluation, development and/or implementation of conservation measures that would provide water at a cost that is equal to or lower than the cost of other identified sources;
 - b. The City anticipates the conservation measures described in the revised plan could result in reducing peak demand by up to 10 percent; however, this savings would not eliminate the City's need to divert more water under extended Permit S-26901 to meet projected peak water demands in 20 years. Additionally, the closest significant water supplier is Medford Water Commission, which does not have significant excess supply capacity and would require costly transmission facilities and treatment plant expansion to meet the City's 20-year supply needs. Considering these factors, increased diversion of water under the City's extended Permit S-26901 is the most feasible and appropriate water supply alternative available to the supplier at this time; and
 - c. The revised plan identifies that the City is subject to conditions that establish flows (identified by the Oregon Department of Fish and Wildlife) necessary to maintain the persistence of listed fish species, as set forth in the final orders approving Extensions of Time for Permits S-26901, S-45827, and S-47346.

Conclusion of Law

The Water Management and Conservation Plan submitted by the City of Grants Pass is consistent with the criteria in OAR Chapter 690, Division 086.

Now, therefore, it is ORDERED:

1. The City of Grants Pass Water Management and Conservation Plan is approved and shall remain in effect until **June 24, 2024**, unless this approval is rescinded pursuant to OAR 690-086-0920.
2. The limitation of the diversion of water under Permit S-26901 established in the final order approving an Extension of Time for Permit S-26901 (*issued on June 13, 2014*) is removed. **Subject to other limitations or conditions of the permit, the City of Grants Pass is now authorized to divert up to 21.15 cfs under Permit S-26901.**
3. The limitation of the diversion of water under Permit S-45827 established in the final order approving an Extension of Time for Permit S-45827 (*issued on January 24, 2014*) remains unchanged. **Subject to other limitations or conditions of the permit, therefore, the City of Grants Pass is not currently authorized to divert any water under Permit S-45827.**
4. The limitation of the diversion of water under Permit S-47346 established in the final order approving an Extension of Time for Permit S-47346 (*issued on June 13, 2014*) remains unchanged. **Subject to other limitations or conditions of the permit, therefore, the City of Grants Pass is authorized to divert up to 1.3 cfs of water under Permit S-47346.**
5. The City of Grants Pass shall submit an updated plan meeting the requirements of OAR Chapter 690, Division 086 within 10 years and no later than **December 24, 2023**.
6. The City of Grants Pass shall submit a progress report containing the information required under OAR 690-086-0120(4) by **June 24, 2019**.
7. The deadline established herein for the submittal of an updated Water Management and Conservation Plan (consistent with OAR Chapter 690, Division 086) shall not relieve the City of Grants Pass from any existing or future requirement(s) for submittal of a Water Management and Conservation Plan at an earlier date as established through other final orders of the Department.

Dated at Salem, Oregon this 30 day of June, 2014.



Dwight French
Water Right Services Administrator, for
Director
Oregon Water Resources Department

Mailing date: JUL 02 2014

**WATER MANAGEMENT AND
CONSERVATION PLAN UPDATE
FOR
CITY OF GRANTS PASS**

June 2014

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- B. Water Rights Documentation
- C. References
- D. Local Government Comments
- E. Sample Conservation Program Materials
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SECTION 1 INTRODUCTION

Authorization

In July 2012, the consulting engineering firm of Murray, Smith & Associates, Inc. (MSA) was authorized by the City of Grants Pass (City) to prepare this Water Management and Conservation Plan (WMCP) Update.

Purpose

The purpose of this WMCP Update is to aid the City in documenting current and proposed water conservation programs, updating the Water Curtailment Plan, evaluating the ability of the City's water supply to meet future demands, and meeting State of Oregon requirements.

Compliance

This plan complies with water management and conservation planning requirements established under the Oregon Administrative Rules (OAR) for Public Water Systems, Chapter 690, Division 86 and applicable elements of Division 315. Table 1-1 at the end of this section presents a summarized list of the information required under OAR 690-86 for the completion of this WMCP and the location of that information in this plan document. The City's Water Distribution System Master Plan (West Yost, 2001) complying with OAR 333-61, the memorandum, "Long-Term Water Demand Projections" prepared by MSA (October, 2012), and the previous WMCP prepared by West Yost (2002) were used to prepare this WMCP Update.

The City anticipates submitting an update of this WMCP 10 years from now in 2022. As required under OAR 690-86, a progress report will be submitted in five (5) years from plan approval.

Review by Affected Local Governments

The draft WMCP was provided to the following local governments for review and comment relating to consistency with comprehensive land use planning:

- Josephine County

Comments from these local governments are included in Appendix D.

Scope of Work

The scope of work for this plan includes the following tasks:

- ***Water Supplier Description Element Update:*** Under this task the water supplier description was completed in conformance with OAR Division 86 requirements, which includes a description of the City’s existing water facilities. Work under this task also included the documentation of the City’s customer descriptions, water use summaries, and unaccounted-for water evaluation and reporting.

- ***Water Conservation Element Completion:*** Work under this task includes documentation of existing water conservation programs, a review of existing program effectiveness through an analysis of historical per capita usage, a progress report on current benchmarks, and the development of additional water conservation recommendations to meet Division 86 requirements. This effort will consider the following water conservation activities:
 - Source and customer metering
 - Water system audits
 - Leak detection and repair
 - On-going water main replacement
 - Water rate and billing practices
 - Public education
 - Technical and financial assistance with retrofitting and replacements
 - Reuse and recycling of water

- ***Water Curtailment Element Completion:*** Work under this task included documenting, reviewing and updating the water curtailment plan. Development of an updated water curtailment plan that included stages, triggers, curtailment goals and implementation measures meeting the Division 86 requirements was performed. Curtailment triggers were modified to reflect water rights conditions related to Rogue River flow rates to provide for persistence of endangered fish species imposed as part of the current permit extension process.

- ***Water Supply Element Completion:*** Work under this task included delineation of current and future water service areas, reporting a schedule for water rights implementation, incorporation and presentation of population and water demand forecasts, a comparison of projected water supply needs with capacity, evaluating long-range water supply sources, discussion of State and Federal mitigation actions related to source development and water rights, and discussion of potential conservation efforts to mitigate source development.

**Table 1-1
Oregon Administrative Rule Requirements for WMCPs**

Item	OAR Reference	Section/Page
<i>Water Supplier Description</i>		
Description of Supplier's Source(s)	690-086-0140 (1)	2-11
Delineation of Current Service Area	690-086-0140 (2)	2-1
Assessment of Adequacy and Reliability of Existing Supplies	690-086-0140 (3)	2-11
Quantifications of Present and Historic Use	690-086-0140 (4)	2-8
Summary of Water Rights Held	690-086-0140 (5)	2-12
Description of Customers Served and Water Use Summary	690-086-0140 (6)	2-10
Identification of Interconnections with Other Suppliers	690-086-0140 (7)	2-11
System Schematic	690-086-0140 (8)	App. A
Quantification of System Leakage	690-086-0140 (9)	2-13
<i>Water Conservation Element</i>		
Progress Report on Previous WMCP	690-086-0150 (1)	3-3
Documentation of Water Use Measurement and Reporting	690-086-0150 (2)	3-5, 2-7
Measures Already Implemented or Required Under Contract	690-086-0150 (3)	3-3
Annual Water Audit	690-086-0150 (4)(a)	3-1
Full Metering of Systems	690-086-0150 (4)(b)	3-1
Meter Testing and Maintenance Program	690-086-0150 (4)(c)	3-1
Rate Structure Based on Quantity of Water Metered	690-086-0150 (4)(d)	3-2
Leak Detection Program	690-086-0150 (4)(e)	3-1
Public Education Program	690-086-0150 (4)(f)	3-3
Leak Repair or Line Replacement Program	690-086-0150 (6)(a)	3-2
Technical and Financial Assistance Programs	690-086-0150 (6)(b)	3-3
Retrofit/Replacement of Inefficient Fixtures	690-086-0150 (6)(c)	3-3
Rate Structure/Billing Practices that Encourage Conservation	690-086-0150 (6)(d)	3-2
Reuse, Recycling, Non-potable Opportunities	690-086-0150 (6)(e)	3-2
Other Measures, If Identified by Supplier (bulk water stations)	690-086-0150 (6)(f)	3-3
<i>Water Curtailment Element</i>		
Historical Curtailment Efforts	690-086-0160 (1)	4-1
Stages of Alert	690-086-0160 (2)	4-2
Triggers for Each Stage of Alert	690-086-0160 (3)	4-2
Curtailment Actions	690-086-0160 (4)	4-2
<i>Water Supply Element</i>		
Delineation of Current and Future Service Areas	690-086-0170 (1)	5-1
Population Projections for Service Area	690-086-0170 (1)	5-1
Prepare Schedule to Fully Exercise Each Permit	690-086-0170 (2)	5-5
Prepare Demand Forecast	690-086-0170 (3)	5-3
Comparison of Projected Need and Available Sources	690-086-0170 (4)	5-4
Analysis of Alternative Sources	690-086-0170 (5)(8)	5-4
Quantification of Maximum Rate and Monthly Volume	690-086-0170 (6)	5-5
Mitigation Actions Under State and Federal Laws	690-086-0170 (7)	5-7
<i>Other Items</i>		
List of Affected Local Governments and Their Comments	690-086-0125 (5)	App. D
Date for Submittal of Next Update	690-086-0125 (6)	1-1
Additional Time Requested to Meet Previous Benchmarks	690-086-0125 (7)	n/a

SECTION 2

WATER SUPPLIER DESCRIPTION

General

This section describes the City of Grants Pass's (City) service area, water system, historical population, water demand estimates and water use records, population projections and water demand forecasts. This section also includes an assessment of the City's supply sources, a review of existing distribution system water losses and a water rights summary.

Service Area and Background

The City currently provides water service to a population of approximately 34,756 people primarily within the existing City limits and the North Valley area to the northwest of the city. The service area encompasses approximately 8,500 acres within the Urban Growth Boundary (UGB) and City limits, and is entirely within Josephine County. Figure 2-1 at the end of this Section illustrates the City's water service area.

The Rogue River is the City's sole source of water supply. The City's water treatment facility has a nominal capacity of 20 million gallons per day (mgd). Other water system infrastructure include 8 water supply reservoirs with a total storage of 19 million gallons and 13 booster pump stations serving 16 discrete service areas. A schematic of the City's water system is included in Appendix A.

Land Use

Existing land use designations within the City are primarily residential and commercial with some areas designated for manufacturing and industrial purposes. Table 2-1 summarizes land use, zoning classifications and associated acreage for the City's water service area within the UGB. Acreage values were obtained from the City's GIS data, updated in 2010. The areas reported include some areas that are within the city limits that are not served by the City, namely around the Rogue Community College area. The North Valley area, which is outside of the city limits, is supplied by the City, but is not included in Table 2-1. The North Valley includes water service to approximately 105 acres which include 15.6 residential and 89.4 commercial acres.

**Table 2-1
Land Use Summary within the UGB**

Zone	Description	Acres	Percent
Commercial		1,721.9	20.3%
BP	Business Park	397.4	4.7%
CBD	Central Business District	79.1	0.9%
GC	General Commercial	1,204.8	14.2%
NC	Neighborhood Commercial	7.6	0.1%
RTC	Riverfront Tourist commercial	33.1	0.4%
Industrial		362.3	4.3%
I	Industrial	300.3	3.5%
IP	Industrial Park	62.0	0.7%
Residential		6,417.0	75.5%
HR	Residential, High Density	955.6	11.2%
HRR	Residential, High-Rise Density	185.8	2.2%
LR	Residential, Low Density	3,766.6	44.3%
MR	Residential, Moderate Density	1,509.0	17.8%
Total		8,501.3¹	100.0%

Note: 1. Plus 105 acres in the North Valley area

Historical Population

General

Estimates of the current and anticipated population within the water service area were developed through a review of existing City of Grants Pass planning data, previous water supply planning efforts, census data and Josephine County population forecasts. For planning purposes, the existing population within the City limits and the population of the water service area are assumed to be equal.

Historical and Existing Population

Historical City population data was obtained from the Portland State University's Population Research Center certified population estimates. The Population Research Center produces the annual population estimates for the State of Oregon and its counties and cities. These estimates, made July 1 of each year, are widely used for planning purposes. Table 2-2 summarizes historical and current populations within the City and for all of Josephine County. Figure 2-2 graphically illustrates this historical population data. From the year 2000 through 2010, the population in the City grew at an average annual rate of 4.0 percent. For the same period, the County grew at a lower annual average rate of 0.85 percent. The City grew from 23,170 to 34,533 people and the County (including the City) grew from 76,050 to 82,775 people. As the entire County added fewer people than the City added during the 10-

year period, the overall demographic trend within the County indicates a net shift in population into the City from the rural areas of the County.

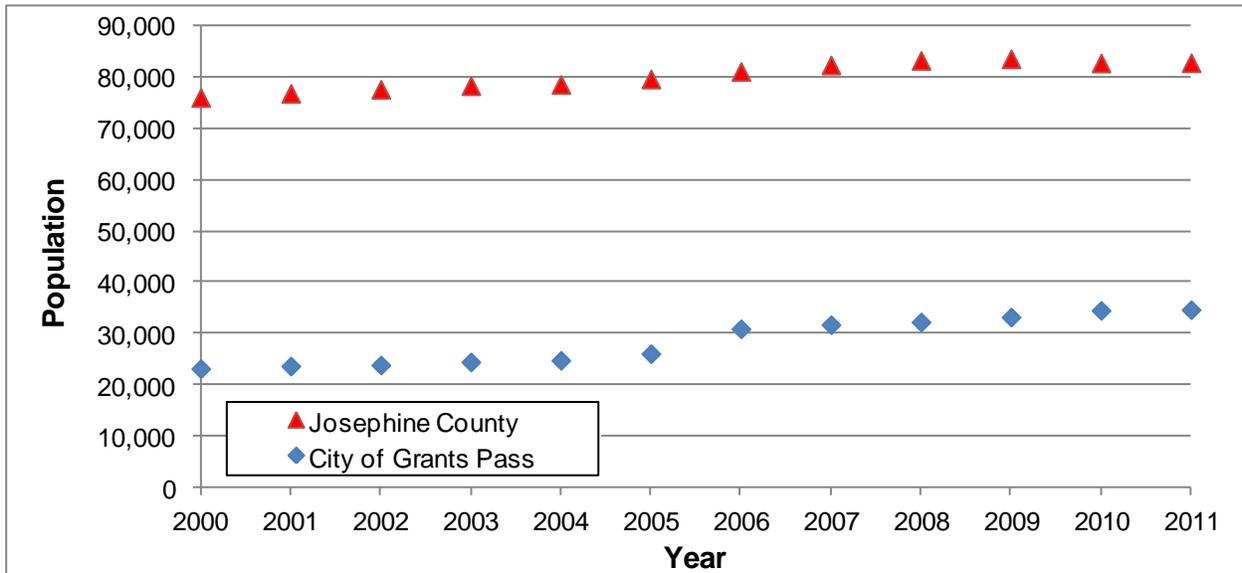
The City provided water to 36 residential properties in the North Valley area in 2011. At the City’s residential density of 2.68 people per dwelling unit, the North Valley area is estimated to contribute a population of 96 to the City’s service area.

**Table 2-2
Historical City and County Population Summary¹**

Year	City of Grants Pass		Josephine County		Percent of County Population
	Population	Percent Annual Growth	Population	Percent Annual Growth	
2000	23,170		76,050		30%
2001	23,670	2.2%	76,850	1.1%	31%
2002	23,870	0.8%	77,650	1.0%	31%
2003	24,470	2.5%	78,350	0.9%	31%
2004	24,790	1.3%	78,600	0.3%	32%
2005	26,085	5.2%	79,645	1.3%	33%
2006	30,930	19%	81,125	1.9%	38%
2007	31,740	2.6%	82,390	1.6%	39%
2008	32,260	1.6%	83,290	1.1%	39%
2009	33,225	3.0%	83,600	0.4%	40%
2010 ²	34,533	3.9%	82,775	-1.0%	42%
2011	34,660	0.4%	82,820	0.1%	42%

Notes: 1. Does not include the estimated population of 96 in 2011 served in the North Valley area.
 2. 2010 population estimates are adjusted to reflect 2010 Census data.

**Figure 2-2
Historical City and County Population Summary**



Water Demand

General

Existing and future water demand estimates were developed following a review of historical water demand data provided by the City and population forecasts. The term “water demand” refers to all the water requirements of the system including domestic, commercial, municipal, institutional as well as unaccounted-for water. A given water demand at any one time includes the sum of production from the City’s Water Filtration Plant (WFP) plus the outflow from storage reservoirs. Demands are discussed in terms of gallons per unit of time such as million gallons per day (mgd) or gallons per minute (gpm). Demands are also related to per capita use as gallons per capita per day (gpcd). Terminology used in this section to describe water usage characteristics are defined below:

Average Daily Demand (ADD): The Average Daily Demand is the total volume of water produced in a given year divided by 365 days. ADD is often used to forecast water volumes on an annual basis for estimating power costs, water revenue, and other considerations.

Peak Season Demand (PSD): Peak Season Demand is the average daily demand for the 122 days of the peak water use season; defined as June 1st to September 30th. The PSD reflects summer season outdoor water use patterns.

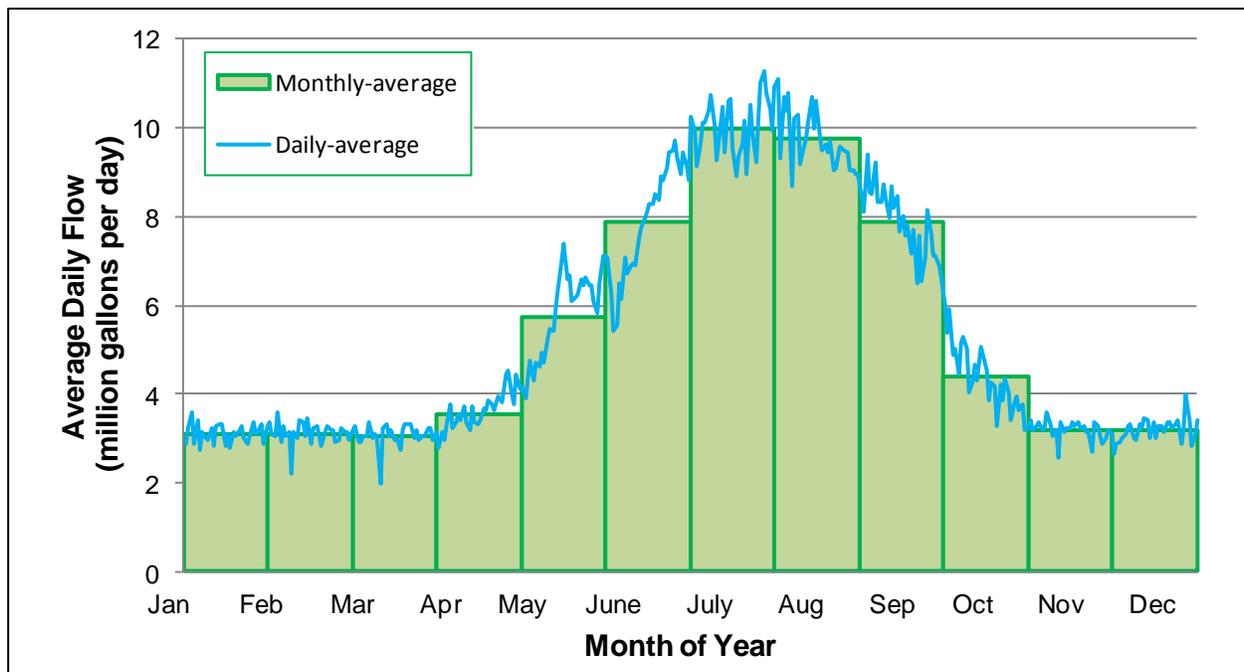
Maximum Day Demand (MDD): The Maximum Day Demand is the largest volume of water used, through production and changes in reservoir storage, in any single day of the calendar year. MDD is typically used to size the capacity of

supply sources, treatment facilities, transmission piping, pumping facilities and finished water storage facilities. MDD usually occurs in the July to August months in the Pacific Northwest and is associated with increased outdoor water use on the hottest days of the year.

Peaking Factor: The ratio of the MDD to the ADD is commonly described as the peaking factor.

Figure 2-3 graphically presents both daily demand records and average monthly demands based on 5 years of production records. This figure illustrates the daily and seasonal variations in water demand for the water system.

**Figure 2-3
Historical Average Demand**



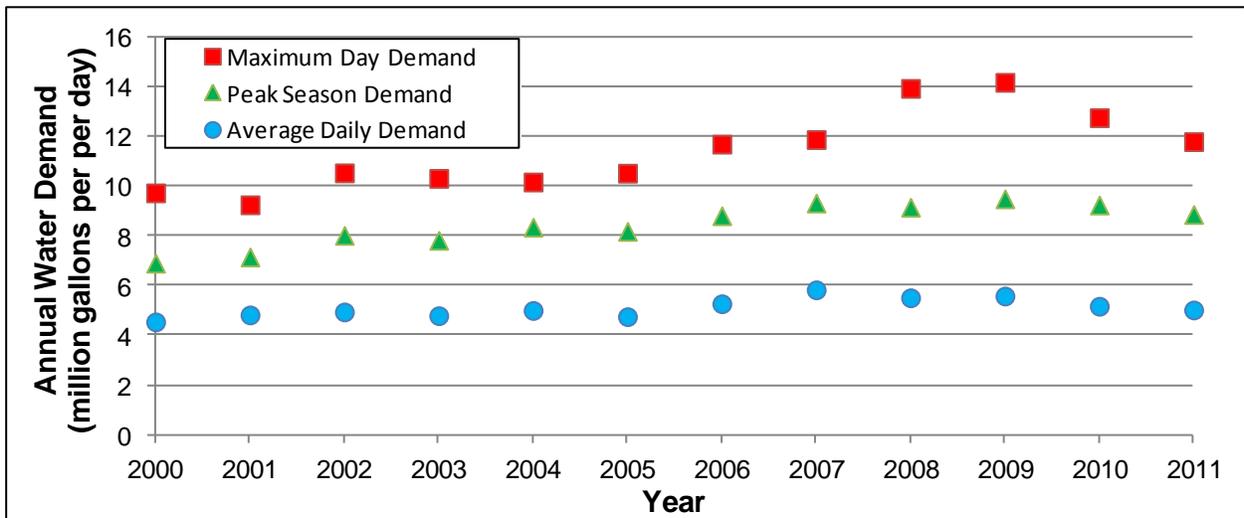
Historical Water Demand

The City records daily production rates at the WFP which are used to generate historical water demand statistics. Based on the historical average population and water usage patterns, the water service area’s average daily demand over the last five years has been between 5.0 and 5.8 mgd with an average day per capita consumption ranging between 145 gpcd and 184 gpcd. This is a typical range of average per capita daily demands for the region, when considering all system demands including non-residential uses.

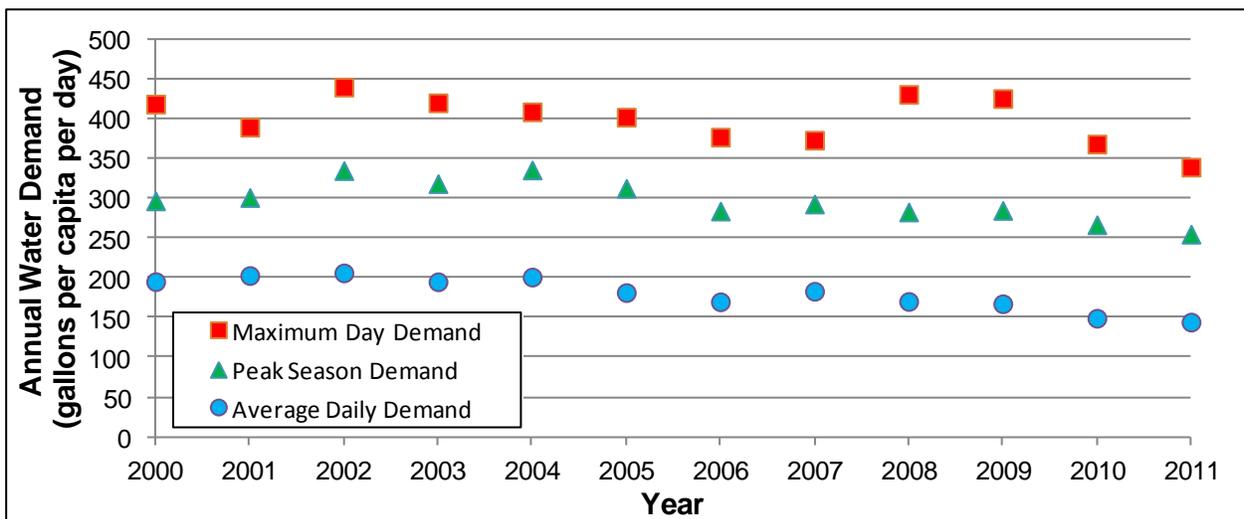
The historical MDD has been between 9.3 and 14.2 mgd with a maximum day per capita

consumption ranging between 266 gpcd and 447 gpcd. The large range in maximum demand is due to the large number of variables that can influence summer season demand which include air temperature, precipitation, weekday versus weekend weather patterns, and other factors. Maximum day demands typically range from 250 to 450 gpcd using similar aggregate forecasting methods for similar sized communities in western Oregon and Washington. Table 2-3 summarizes historical water demand data for the years 2000 through 2011 by total production, per capita rates and peaking factor. The water demand characteristics for 2011 are anomalous in that the MDD is much smaller than the previous years. Figures 2-4 and 2-5 illustrate the historical water demand characteristic as both daily and per capita demands.

**Figure 2-4
Historical Daily Water Demand Characteristics**



**Figure 2-5
Historical Per Capita Water Demand Characteristics**



**Table 2-3
Historical Water Demand Summary**

Year	Water Service Area Population	Water Demand (million gallons per day)			Per Capita Water Demand (gallons per capita per day)			Peaking Factor	
		ADD	PSD	MDD	ADD	PSD	MDD	PSD	MDD
2000	23,249	4.5	6.9	9.7	195	296	419	1.52	2.14
2001	23,750	4.8	7.1	9.2	203	300	389	1.48	1.92
2002	23,951	4.9	7.9	10.5	206	328	440	1.59	2.13
2003	24,552	4.8	7.9	10.3	195	322	420	1.65	2.15
2004	24,873	5.0	8.1	10.2	201	327	409	1.63	2.03
2005	26,169	4.8	7.6	10.5	182	291	402	1.60	2.22
2006	31,015	5.3	8.4	11.7	170	272	377	1.60	2.22
2007	31,826	5.8	9.4	11.9	183	296	373	1.61	2.04
2008	32,346	5.5	9.0	13.9	170	277	431	1.63	2.53
2009	33,318	5.6	9.1	14.2	167	273	425	1.63	2.54
2010	34,632	5.2	8.6	12.8	149	248	368	1.66	2.47
2011	34,756	5.0	8.3	11.8	144	240	339	1.66	2.35
<i>5-year average ('06-'10)</i>		<i>5.5</i>	<i>8.9</i>	<i>12.9</i>	<i>168</i>	<i>273</i>	<i>395</i>	<i>1.63</i>	<i>2.36</i>
<i>10-year average ('00-'10)</i>		<i>5.1</i>	<i>8.2</i>	<i>11.4</i>	<i>184</i>	<i>294</i>	<i>405</i>	<i>1.60</i>	<i>2.22</i>

- Notes:
1. Abbreviations: Average Daily Demand (ADD); Peak Season Demand (PSD); Maximum Daily Demand (MDD).
 2. The water demand characteristics for 2011 are anomalous, and are not used to calculate historical averages.
 3. Water service area population includes the North Valley area component.

Estimate of Water Use by Water Right

The City of Grants Pass reports monthly water use by water right at two points of diversion. All water rights have a point of diversion for the water treatment plant intake and are reported combined. A separate diversion for irrigation water is reported under water right permit S26901. An estimate of monthly diversion by water right by year and annual diversion by water right are presented in Table 2-4.

**Table 2-4
Water Diversion by Water Right**

D15839													Average Daily Diversion
Year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	
2012	124.5	93.4	91.4	88.5	80.8	87.9	86.4	180.3	213.6	270.6	284.3	238.0	5.04
2011	143.0	89.5	84.4	83.9	74.1	81.3	80.6	124.2	193.0	257.7	269.9	233.4	4.70
2010	132.6	91.4	95.2	88.8	79.6	88.0	91.9	126.1	186.4	315.2	297.6	196.1	4.90
2009	136.7	90.6	86.0	86.4	73.5	85.2	119.6	190.8	229.0	315.5	291.8	248.9	5.35
2008	116.2	92.9	85.6	84.7	78.3	85.3	98.1	184.3	245.3	293.0	292.4	242.7	5.20
2007	152.5	89.7	90.7	90.7	86.7	95.4	113.8	203.9	270.9	290.1	282.8	218.1	5.44
S26901													
Year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	
2012	14.6	11.0	10.7	10.4	9.5	10.3	10.1	21.2	25.1	31.7	33.4	27.9	0.59
2011	16.8	10.5	9.9	9.8	8.7	9.5	9.5	14.6	22.6	30.2	31.7	27.4	0.55
2010	15.6	10.7	11.2	10.4	9.3	10.3	10.8	14.8	21.9	37.0	34.9	23.0	0.57
2009	16.0	10.6	10.1	10.1	8.6	10.0	14.0	22.4	26.9	37.0	34.2	29.2	0.63
2008	13.6	10.9	10.0	9.9	9.2	10.0	11.5	21.6	28.8	34.4	34.3	28.5	0.61
2007	17.9	10.5	10.6	10.6	10.2	11.2	13.4	23.9	31.8	34.0	33.2	25.6	0.64
S47346													
Year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	
2012	7.3	5.5	5.4	5.2	4.8	5.2	5.1	10.6	12.6	15.9	16.7	14.0	0.30
2011	8.4	5.3	5.0	4.9	4.4	4.8	4.7	7.3	11.4	15.2	15.9	13.7	0.28
2010	7.8	5.4	5.6	5.2	4.7	5.2	5.4	7.4	11.0	18.5	17.5	11.5	0.29
2009	8.0	5.3	5.1	5.1	4.3	5.0	7.0	11.2	13.5	18.6	17.2	14.6	0.31
2008	6.8	5.5	5.0	5.0	4.6	5.0	5.8	10.8	14.4	17.2	17.2	14.3	0.31
2007	9.0	5.3	5.3	5.3	5.1	5.6	6.7	12.0	15.9	17.1	16.6	12.8	0.32

Notes: 1. Permit S45827 does not have any allowable diversion capacity.
2. Diversions are measured at WTP influent meter. Water demands are measures at WTP effluent meter.

Customer Water Use Characteristics

The City’s billing system keeps track of the number of meters by customer class in the City. Table 2-5 reports the quantity of water used annually per customer class and Table 2-6 shows an approximate number of accounts by customer class. Approximately 87 percent of the accounts are residential in character and account for 45 to 60 percent of the annual water use depending upon the year. Table 2-7 reports the number of water service accounts for the North Valley service area by customer class by year. Tables 2-5 and 2-6 include water services in the North Valley area. Starting in 2006, the Reinhart Volunteer Park began diverting water under Permit S26901 for use as irrigation. After 2007, the large municipal water service previously used for irrigation was discontinued. The annual diversion for irrigation use by the golf course is reported in Table 2-5.

**Table 2-5
Historical Water Consumption by Customer Class Summary**

Customer Class	Annual Consumption (million gallons)				
	2007	2008	2009	2010	2011
Commercial	510.2	424.8	436.1	468.3	398.2
Golf Course	2.3	-	-	-	-
Multi-Family	280.5	255.4	285.1	268.8	255.2
Public	176.6	172.5	183	149.2	142
Residential	952.3	943.1	965.7	904.9	876.3
Total	1,922.0	1,795.9	1,869.9	1,791.3	1,671.7
Untreated Water Diversion for Irrigation Use (million gallons)					
Golf Course	46.8	47.9	54.0	49.6	37.6

**Table 2-6
Number of Water Service Accounts by Customer Class**

Customer Class	Number of Services				
	2007	2008	2009	2010	2011
Commercial	1,252	1,274	1,299	1,304	1,309
Golf Course	1	1	-	-	-
Multi-Family	950	967	986	990	989
Public	181	182	178	181	175
Residential	7,871	7,994	8,021	8,049	8,048
Total	10,255	10,418	10,484	10,524	10,521

**Table 2-7
Number of Water Service Accounts by Customer Class, North Valley**

Customer Class	Number of Services				
	2007	2008	2009	2010	2011
Commercial	19	20	19	19	21
Multi-Family	1	1	1	1	1
Public	1	1	1	1	1
Residential	33	33	35	36	35
Total	54	55	56	57	58

Supply Sources

The Rogue River is the City's sole water supply source. The water treatment plant was constructed in 1930 and has been upgraded several times. Significant upgrades were conducted in 1983 and increased the nominal plant capacity to 18 mgd. Further improvements to expand the capacity of the water system, including river intake capacity expansion and high service pump station capacity expansion, have been completed since these upgrades yielding a current nominal plant capacity of 20 mgd.

System Interties

The City of Grants Pass does not maintain any emergency interties with nearby water systems. The distance to nearby water provider systems and the limited available capacity to supply even winter time demands makes development of interties impractical.

Water Rights Summary

The City holds one water right certificate and three permits for a total allotted water supply of 87.5 cfs (56.6 mgd) from the Rogue River. The developed rate is 31.0 cfs (20 mgd). An Extension of Time is currently under review by the State of Oregon Water Resources Department (OWRD) which requested a modification to the completion date for the three permits. Table 2-8 summarizes the existing water rights held by the City. Copies of the City's water rights permits and certificates are included in Appendix B.

Assessment of Adequacy and Reliability of Existing Supplies

The City has a current MDD of 15 mgd with a future 2035 MDD of 23 mgd. The existing surface water source rights have a total capacity of 56.6 mgd. The City does have adequate existing water rights to meet the existing and future water system demands.

**Table 2-8
City of Grants Pass Rogue River Water Rights Summary**

Application Number	Permit Number	Certificate Number	Priority Date	Beneficial Use	Permit Rate (cfs)	Developed Rate (cfs)	Undeveloped Rate (cfs)	Status²	Current Completion Date
--	--	D15839	1888	Municipal and domestic use, irrigation	12.5	12.5	0.0	NC	--
S34141	S26901	--	7/19/1960	Municipal use	25	17.2	7.8	NC	10/1/1999 ¹
S41672	S45827	--	12/2/1965	Municipal use	25	0.0	25.0	NC	10/1/1999 ¹
S64732	S47346	--	1/13/1983	Municipal use	25	1.3	23.7	NC	10/1/1999 ¹
Total, cfs (mgd)					87.5 (56.5)	31.0 (20.0)	56.5 (36.5)		

Note:

1. Application for Extension of Time beyond 1999 currently under review by OWRD.
2. "NC" = "not cancelled"

Water rights on the Rogue River are over allocated resulting in potential periods when not all of the existing water rights can be fully exercised simultaneously. The Water Resources Department holds two certificates (59847 & 59848) with a combined right of 935 cfs “for the purpose of supporting aquatic life and minimizing pollution.” Other major water rights are held by the Medford Water Commission (100 cfs) and Grants Pass Irrigation District (~150 cfs). Historically, the lowest river flows, after the construction of the Lost Creek Reservoir, are most likely to occur in the month of July. To date, no allocation of water under existing water rights has been curtailed due to low river flows at Grants Pass; however, historical flows show periods when available flows exceeded the sum of the major instantaneous water rights. In addition to the availability of water to meet the water rights held, the minimum flows for the persistence of fish as recommended by the Oregon Department of Fish and Wildlife (ODFW) cannot always be met downstream of the Lost Creek Reservoir. In considering ODFW’s Fish Persistence minimum flow recommendations, the Oregon Water Resources Department is anticipated to require curtailment of currently undeveloped portion of the three water rights permits listed in Table 2-8 when issuing those permit’s Final Orders authorizing Extension of Time to put the city’s undeveloped water rights permits to beneficial use. However, curtailment triggers for fish persistence under these permits are not anticipated to occur within the 20-year planning window.

Source Water Sensitive Species and Water Quality Impairments

The Rogue River is listed by the Oregon Department of Environmental Quality (DEQ) as being water quality limited in the 2010 Integrated Report near the vicinity of the surface water diversion point. The identified impairment parameters listed are

- Fecal Coliform (Summer)
- Flow Modification
- Temperature (Year Around, Non-spawning)
- Dissolved Oxygen (Oct. 15 through May 15)

A review of NOAA Fisheries and ODFW listed fish species identified the following species in the Rogue River, which were listed State listed with a status of Sensitive-Vulnerable:

- Chinook Salmon (*Oncorhynchus tshawytscha*)
- Coho Salmon (*Oncorhynchus kisutch*)
- Steelhead (*Oncorhynchus mykiss*)
- Western Brook Lamprey (*Lampetra richardsoni*)
- Pacific Lamprey (*Lampetra tridentate*)

Coho Salmon (*Oncorhynchus kisutch*) are also federally listed as Threatened.

Quantification of System Leakage

Customer water meter records and production records were reviewed for the City’s water system for 2007 through 2011. Table 2-9 summarizes water production, consumption and unaccounted-for water for this period. The City performs routine unmetered distribution system flushing and other authorized unmetered uses, including water for fire fighting and limited contractor use for construction. Estimates of authorized unmetered water use are made annually and are included in the annual consumption reported in Table 2-9 and are listed under “Public” water use in Table 2-5. For 2011, unmetered authorized consumption was estimated to be approximately 8 percent of total consumption.

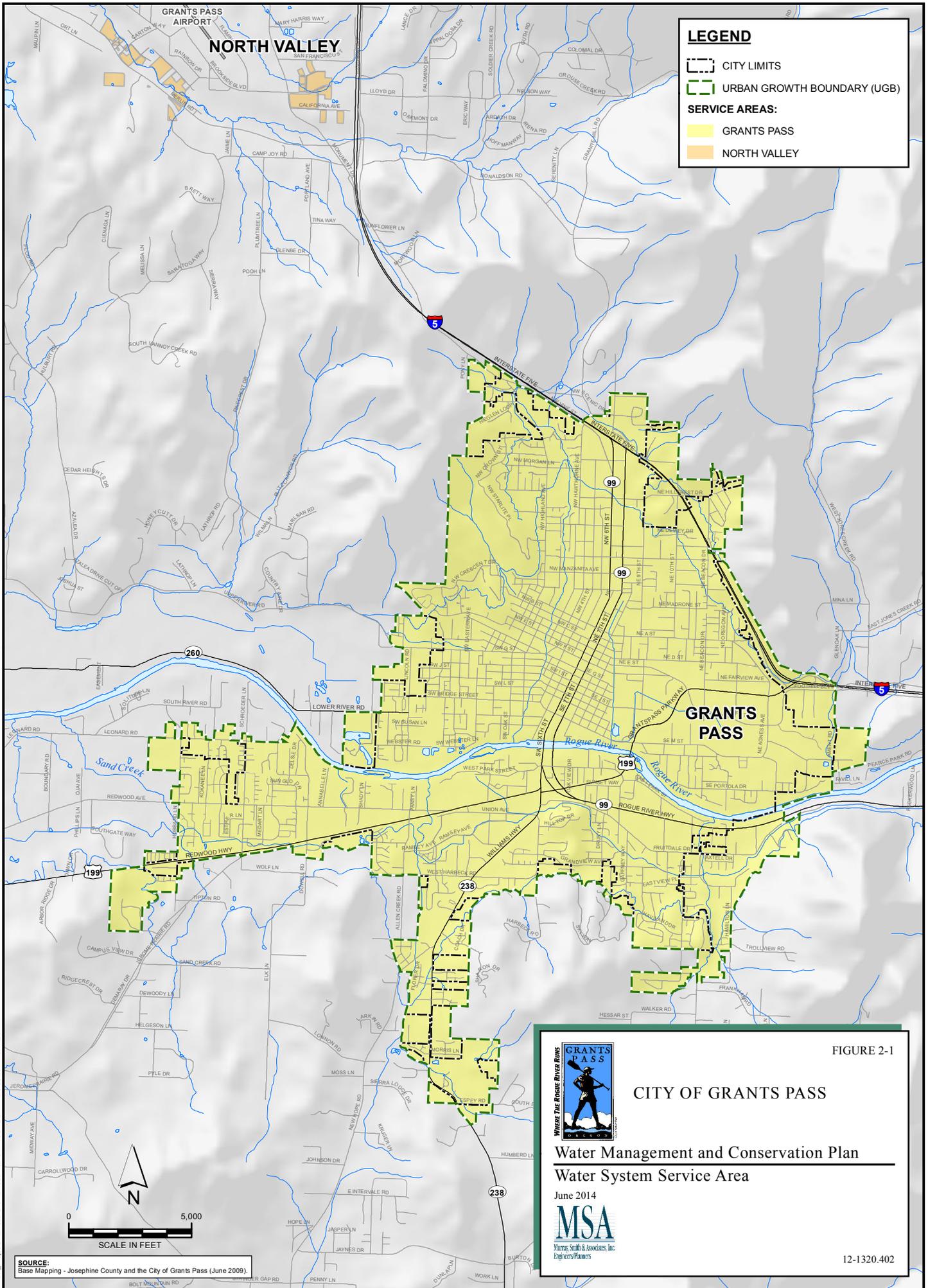
OAR 690-086-0150(4)(e) requires that a leak detection and repair program be implemented when system leakage exceeds 10 percent. Since the City’s present average and most recent annual water loss is below this limit, a leak detection and repair program is not required. The City does not operate a formal leak detection program. Potential leaks reported by customers and flagged by the billing department are investigated by City staff.

**Table 2-9
Annual Unaccounted-for Water Summary**

Year	Production		Consumption	
	ADD (mgd)	Annual Volume (MG)	Annual Volume (MG)	Annual Unaccounted-for Water
2007	5.83	2,126	1,922	9.6%
2008	5.51	2,011	1,796	10.7%
2009	5.58	2,035	1,870	8.1%
2010	5.17	1,885	1,791	5.0%
2011	5.02	1,833	1,672	8.8%

Summary

This section presented a summary of the City’s existing water system, including the City’s supply source and water rights. Also included was a discussion of existing land use estimates, existing population and water demands within the water system service area, an evaluation of the adequacy and reliability of the City’s supply source and an evaluation of unaccounted-for water.



LEGEND

- CITY LIMITS
- URBAN GROWTH BOUNDARY (UGB)

SERVICE AREAS:

- GRANTS PASS
- NORTH VALLEY

SOURCE:
Base Mapping - Josephine County and the City of Grants Pass (June 2009).



FIGURE 2-1
CITY OF GRANTS PASS

Water Management and Conservation Plan
Water System Service Area

June 2014



12-1320.402

G:\PDX_Projects\12\1320\GIS\12-1320-402-OR-FIGURE 2-1.mxd 6/25/2014 10:14:23 AM mmm

SECTION 3

WATER CONSERVATION ELEMENT

General

This section describes the City of Grants Pass's (City's) existing conservation programs and evaluates several potential additional conservation programs. Included is a progress report for the benchmarks established in the previous (2002) Water Management and Conservation Plan (WMCP) submitted to the Oregon Water Resources Department (OWRD).

Current and Proposed Water Conservation Program

The City is currently engaged in several different water conservation programs in order to decrease the City's per capita water usage.

Annual Water Audit

In compliance with annual water use reporting requirements defined in OAR Chapter 690, Division 85, the City conducts a basic annual water audit which is based on the available data. The results of this audit are presented in Table 2-8 found in Section 2. The recent City water audits report an unaccounted-for water loss of less than 10 percent.

In addition to monitoring water treatment plant influent and effluent, and fully metering all customers, the City maintains records of other metered water uses such as from the bulk water stations and construction water meters. In addition, the City maintains records and estimates of unmetered uses such as major fire suppression events and water system hydrant and line flushing. When illegal connections are found, an estimate of the annual water use is made based on service meter size and customer characteristics and included in the annual water audit.

Full Metering of System

The City operates a fully metered system. All customer service connections within the service area are metered. Also, the distribution system pumps and reservoir water levels are monitored and recorded using the City's Supervisory Control and Data Acquisition (SCADA) System.

Meter Testing and Maintenance Program

The City has standardized on Neptune and Badger meters for residential and small meters and Metron single jet meters for larger commercial and industrial compound meters. The City routinely tests meters when they reach the end of their warranty periods and has found that less than 1 percent were faulty. Additionally, the City's finance system automatically

generates work orders for meter testing when the water usage substantially increases or decreases.

At the water treatment plant, the City operates meters on the raw water influent and finished water effluent. A comparison of average influent and effluent is used to monitor the quality of the flow data between meter calibrations every 6 months. A process calibrator and pressure cell are used to calibrate the plant flow meters and are in turn calibrated and certified by the manufacturer (Fluke) annually.

Leak Detection Program

The City does not operate a formal leak detection program. Potential leaks reported by customers and flagged by the billing department are investigated by City staff. If the reported annual water loss were to exceed 10 percent, then the City would develop and implement a leak detection and repair program to reduce the water loss to below 10 percent within a 5 year period.

Leak Repair or Line Replacement Program

The City budgets approximately \$30,000 annually for water line and meter leak repairs.

Rate Structure

The City's customers receive a monthly water bill, which includes a base rate service charge and a commodity charge. The base rate service charge is a fixed charge which increases with the size of the water meter. The commodity charge is based on the customer's water usage. For single-family residential customers, the commodity charge uses an increasing three-tiered block rate structure. All other customer classes use a fixed rate commodity charge. In addition, customers at higher elevation service levels receive an additional fixed rate service charge associated with the increased electrical cost associated with pumping water to the higher elevations. This surcharge is allocated by the service level. The City's water rates are included as Appendix F.

Reuse, Recycling, Non-potable Opportunities

The wastewater treatment plant uses treated effluent where possible, including irrigation, for all applications at the plant facility site. Development of a city-wide water reuse ("purple pipe") system has not been pursued due to the high costs associated with development of the extensive needed infrastructure. The Grants Pass Irrigation District provides non-potable irrigation water to many parcels within the City which limits the opportunity for economical implementation of water reuse or other non-potable water supply development within the City. The Grants Pass County Club's primary source for irrigation water is the Grants Pass Irrigation District.

Technical Assistance and Efficiency Measures and Programs

The City does not offer any supplier financed technical or financial conservation assistance programs, supplier financed fixture replacement programs, or other conservation measures referenced by OAR 690-086-0150 (6) (b, c and f). The city will evaluate the feasibility of implementing city financed rebates for customer investments in water conservation for the next progress report. If the program is found to be feasible, it will be implemented.

The City has conducted a limited plumbing kit distribution program resulting from the previous WMCP. The City distributed plumbing kits at the County Fair in 2001 and from the City offices since 2001 on a per request basis. 41 shower head kits and 46 faucet aerator kits have been distributed to date. The limited participation has not encouraged expansion of the program.

The City will review the feasibility and appropriateness of identifying, developing and implementing other programs as part of the subsequent plan update based on continued data gathering from the plumbing kit program. Specific programs to be reviewed include the following:

1. Irrigation system improvements: The City will explore the feasibility of improving the Grants Pass Irrigation District's irrigation delivery system to reduce system losses. These improvements may provide a more cost effective reduction in withdrawals from the Rogue River.
2. Adding a water conservation page to the City's website that would include links to educational and technical sources as well as identifying existing financial assistance and rebate programs administered by others.
3. There is some potential for a B.I.G. (Business, Industry, and Government) program. However, the City does not currently have the budget to accommodate the approximate 0.25 FTE (Full-time equivalent) staff position needed to administer this program. The City will evaluate the feasibility of adding staffing.

Public Education and Outreach

Made available at the City offices, water conservation pamphlets available to customers include information about the City's water use and how customers can conserve water. Examples are included in Appendix E.

The City finished installing a low water use demonstration garden in 2010 at the Water Treatment Plant site. The garden, illustrated below, showcases drought resistant plant species. The City's website includes information and useful links pertaining to xeriscaping.



Bulk Water Dispensing Stations

Bulk water dispensing stations can be used to meter authorized water use such as that used for construction purposes. Water is sold at a nominal cost to cover water production costs. The City has not found these stations to be cost effective due to the payback costs of the card reader systems. The station located at the Hillcrest Fire Station was decommissioned due to operational and maintenance issues associated with the outdated facility and the location immediately adjacent to the fire fighting training tower. A station at Hwy 238 and New Hope Road currently serves the entire community. Temporary bulk water service, such as for construction activities, can be accommodated through the use of the City's nine 3-inch fire hydrant meters.

Water Use Measurement and Reporting

The City is in compliance with the annual reporting requirements of OAR Chapter 690, Division 85. The City completes and submits an annual report for the current year to the OWRD.

Conservation Measures Already Implemented or Required Under Contracts

The City is not required under contract to provide further water conservation measures other than those already described above, therefore this requirement does not apply.

Progress Report on Previous WMCP

The City's Final Order approving the previous WMCP was issued on March 11, 2003. The Final Order references several items in the work plan. The status of the work plan benchmarks is presented in Table 3-1.

The previous WMCP had identified a water waste prohibition for implementation. The City of Grants Pass Municipal Code (8.32.030 Water Waste), citing City Ordinance 4481 §14(3), 1983, states: "Where water is wastefully or negligently used on a customer's premises, affecting the general service, the City may discontinue service if such conditions are not corrected after notice by the City." After review by City staff, it was determined that no further prohibition was to be implemented.

**Table 3-1
Progress Report Summary**

Work Plan Item	Actual or Anticipated Implementation Date	Status	Description
Additional bulk water dispensing stations	Varied, but by 2004	Not implemented	No new bulk water stations have been constructed. Existing stations were found to have operational problems and were not found to be cost effective. The aging bulk water station at the Hillcrest Fire Station was decommissioned. 9 3-inch diameter fire hydrant meters can be used to provide temporary bulk water service via fire hydrants.
Adoption of inverted block rates	June 2004	Implemented	Water rates are fixed base plus inverted three-tiered block rates for single family residential services.
Low Water Use Demonstration Garden	Spring 2010	Implemented	A low water use garden was constructed at the water treatment plant facilities in 2010.
Distribution of Plumbing Kits	2001	Implemented	Approximately 87 shower head and aerator kits were distributed to residential customers at the Josephine County Fair in 2001. The City continues to provide kits upon request.
Water Waste Prohibition	1983	Previously implemented	City Ordinance 4481 established a prohibition on negligent water use.

Summary

This section documented the City’s current water conservation programs and evaluated various other water conservation measures that must be considered in the WMCP Update. As identified in this section, the City’s current water conservation program addresses all of the required measures. A progress report was summarized in Table 3-1. A summary of benchmark is presented in Table 3-2.

Table 3-2
Summary of Benchmarks for Conservation Measures

Component	Benchmark and Schedule
Annual Water Audit	The City conducts annual water audits and currently has less than 10 percent annual water loss. The City will continue conducting annual water audits.
Full metering of system	The system is fully metered.
Meter testing and maintenance	The City will continue the current meter testing and maintenance program.
Leak detection	The City will continue to respond to potential leaks identified by customers and billing software.
Leak repair or line replacement program	The City will continue to budget \$30,000 annually for water main and \$60,000 annually for water meter replacement and leak repair.
Rate Structure	The City will continue to base the rate structure as previously described.
Public Education and Outreach	The City will continue to provide conservation education via newsletters included with billing statements. The current water conservation garden will be maintained and expanded as future funding allows. The garden will be featured in mailings to draw attention to the low water landscaping options available.
Water reuse, recycling, and non-potable opportunities	No further opportunities identified at this time.
Water Use Assistance and Efficiency Measures and Programs	The City will continue to provide shower kits and faucet aerator kits upon customer request until their current inventory is exhausted. The City will review the feasibility and appropriateness of identifying, developing and implementing other programs as part of the subsequent plan update; these programs include irrigation distribution system improvements, additional website content, and evaluation of a 0.25 FTE B.I.G. staff . Water supplier financed incentive programs will be evaluated. <i>Update Status with Progress Report – 2019.</i>
Other Programs	-The City anticipates continued operation of the remaining bulk water dispensing station and temporary metered fire hydrant dispensing practices. -The low water use demonstration garden at the WTP will be maintained and expanded as funds allow.

SECTION 4

WATER CURTAILMENT ELEMENT

General

This section describes the program adopted by the City of Grants Pass (City) to accomplish a reduction in water use during a water shortage. This section also presents an assessment of the general vulnerability of the City's water supply.

Many scenarios are possible wherein the City's water supply would be reduced. A water supply shortage could be long or short-term in duration. Infrastructure failures tend to be immediate emergencies with little or no warning, and can result from system failures (pump outage, pipe break, etc.) or can be induced by the forces of nature (earthquakes, storms, floods, landslides, etc.).

Some specific scenarios that could result in a water supply shortage resulting in water use curtailment include the following general scenarios:

1. Rogue River contamination resulting in the loss of raw water availability. Contaminations could include spills or high turbidity events on the river from landslides, for example.
2. Severe drought wherein available diversions from the Rogue River are reduced for extended periods.
3. Infrastructure failure such as critical raw water supply or finished water transmission pipe breaks, raw water pump failure, or treatment plant failures.
4. Raw water quality conditions reduce the water treatment efficacy. For example, warm raw water temperatures increase the required disinfection time ("C-T") and require that the treatment facilities be operated at a rate less than the peak rate.

It is not practical to develop a plan that would cover any and all potential emergency scenarios. Rather, the goal is to project a series of probable emergencies that cover a range of water use curtailment measures and develop the protocols for City action, leaving the details flexible. This document is being developed for "system-wide" emergencies and water shortages. It may be appropriate to activate the City's Emergency Response Plan if the type and duration of the shortage deem it necessary.

Historical Curtailment Efforts

In October 2001, the City Council adopted Ordinance No. 5079 which updated the Municipal Code 8.04.070, Water Curtailment Procedures. For over 20 years, the City has not experienced a water supply shortage which required the implementation of water rationing or curtailment measures. Even so, the City acknowledges that water shortages are a real

possibility, and therefore has developed the following Water Curtailment Plan to ensure that customer water needs are met with the least amount of disruption should a water shortage event occur.

Water Supply Vulnerability Assessment

The City's current water supply is provided by a single surface water intake on the Rogue River. This Water Curtailment Plan will address response actions to water shortages due to source water availability limitations and treatment plant failures.

The initial task in any water system emergency is to determine the current demand and supply so the level and type of emergency can be determined, and the staff and public can be instructed in the appropriate response. The City has two tools available to minimize the impact of a water shortage and ensure adequate supply for its customers.

1. Existing storage within the City's distribution system amounts to approximately 19 million gallon (MG) of available total storage capacity if the reservoirs were full when the emergency occurred. 10.1 MG is dedicated emergency storage. With the current average daily demand of approximately 5.9 million gallons per day (mgd), the City has approximately two days of storage under average day conditions.
2. A Water Curtailment Plan.

Proposed Water Curtailment Plan

The adopted curtailment plan consists of three levels, or stages, of alert. Curtailment triggers are established to both meet demands relative to the treatment supply capacity and to meet demands relative to the City's allowable diversion rate. A description of each level of alert, triggers for each stage and possible actions are presented below.

For all stages of alert, public notification will include postings on the city's website and a public media outreach which may include public notices in local newspapers, radio stations, and TV news channels. In addition, large water users, such as golf courses and certain industries, and key municipal agencies, such as the parks and fire departments, will be contacted directly by phone or in person. At the City Manager's discretion, public mailings may be used.

Level One Alert – Potential Water Supply Shortage

A moderate water supply shortage may be caused by some temporary service interruption associated with the City's finished water production capacity. It is anticipated that this stage will be triggered by a planned supply disruption where the duration and timing of the outage is controlled by the City or where peak demands approach the City's supply capacity over separate consecutive days. This stage of alert may also be triggered as an intermediate stage

of an ongoing water supply shortage. The goal of this stage of alert is to achieve a measurable reduction in City-wide daily water usage of 10 percent.

Level One Alert – Triggers

The following are triggers for Level One Curtailment:

- In general, when the current water demand exceeds 95 percent of the current supply capacity, whether limited or not. The current supply capacity is 20 mgd (31 cfs) resulting in a curtailment trigger when demand approaches 19.0 mgd (29.5 cfs).
- Non-emergency planned or partial shutdown of critical infrastructure would reduce the supply capacity to 105 percent of the anticipated demand during the shutdown.

In the future, it is anticipated that the currently undeveloped portions of the City's water rights will be subject to curtailment for the Persistence of Fish Flows. It is anticipated that the following Level One Trigger will apply:

- Flows in the Rogue River near Agness are reduced below 105 percent of the seasonally varied flows for Fish Persistence and the current demand exceeds 90 percent of the available water rights after curtailment for Fish Persistence.

Level One Alert – Possible Actions

Upon declaration of the alert, all irrigation services covered by an "Interruptible Water Supply Agreement" shall be disconnected until the water shortage alert is rescinded. In addition, the City Manager has the authority to activate some or all of the following voluntary curtailment measures listed below until the reasons for a Level One Alert have passed:

- a) Restrict watering based on odd/even address numbers for residential and business customers, and governmental agencies.
- b) No watering will be allowed on Wednesdays. The schedule will apply to all lawn watering and all nonessential water uses with exceptions as specified by the Manager. Watering hours will be restricted to before 6:00 a.m. and after 9:00 p.m.
- c) Distribute brochures regarding conservation measures.
- d) Implement a media outreach program.
- e) Notify major water users asking for reductions in use or moving nonessential use to off-peak hours.
- f) Cease operation of non-re-circulating fountains.
- g) Restrict hydrant and water line flushing.
- h) Public notification and request for voluntary actions to reduce water use.

Level Two Alert – Water Supply Shortage

A severe water supply shortage may be triggered by a multi-day disruption of service across the City's water supply system, most likely caused by mechanical failure of a major transmission main, etc. The goal of this stage of alert is to achieve an overall decrease in daily water demand of 25 percent.

Level Two Alert – Triggers

The following are triggers for Level Two Curtailment:

- In general, when the current water demand is greater than the total current supply capacity, whether limited or not. The current total supply capacity is 20 mgd (31 cfs) resulting in a curtailment trigger when demand exceeds 20 mgd.
- The City's ability to deliver water is not adequate to meet demand due to supply, treatment, storage, or pumping restrictions.

In the future, it is anticipated that the currently undeveloped portions of the City's water rights will be subject to curtailment for the Persistence of Fish Flows. It is anticipated that the following Level Two Trigger will apply:

- Flows in the Rogue River near Agness are reduced below 100 percent of the seasonally varied flows for Fish Persistence and the current demand exceeds 95 percent of the water rights not subject to the fish persistence flows (i.e., 95 percent of 31.0 cfs or 29.5 cfs (19 mgd)).

Level Two Alert – Possible Actions

The City Manager has the authority to mandate any or all of the following measures until the reasons for the Level Two Alert have passed:

- a) Any Level One Alert measures.
- b) No watering or lawn irrigation will occur unless the following specific uses are approved by the City Manager:
 - 1) New lawn, grass, or turf that has been seeded or sodded after March 1 of the current calendar year.
 - 2) Athletic fields frequently used for organized play.
 - 3) Golf course tees and greens.
 - 4) Parks and recreation areas of particular value to the community.
- c) City water will not be used to clean, fill, or maintain levels in decorative fountains.
- d) City water will not be used to clean sidewalks, walkways, streets, driveways, parking lots, or other hard surfaces except where necessary for public health and safety.
- e) City water will not be used to wash vehicles including automobiles, trucks, trailers, trailer houses, motorcycles, boats, or other types of mobile equipment.
- f) Limitations may be placed on non-essential industrial and commercial water consumption.
- g) Hydrant and water main flushing will be done in emergencies only.

Level Three Alert – Critical Water Supply Shortage

A critical water supply shortage includes emergency conditions under which little or no water is flowing to customers. This can occur as a result of a catastrophic event that results in the loss of both of the City's water supplies or can occur after an extended period of time in which demands exceed supply. The goal of this stage of alert is to achieve an overall decrease in daily water demand of 50 percent or more.

Level Three Alert – Triggers

The following are triggers for Level Three Curtailment:

- The water supply is interrupted.
- Flows in the Rogue River near Agness are reduced to approximately 1200 cfs resulting in potential curtailment of diversion from the Rogue River by the watermaster. Note that a Level Two curtailment would be in effect prior to reaching this point.

Level Three Alert – Possible Actions

The City Manager has the authority to mandate any or all of the following measures until the reasons for the Level Three Alert have passed.

- a) Any Level One Alert measures.
- b) Any Level Two Alert measures.
- c) No City water will be used for watering of landscaping or irrigating of lawns, grass, turf, athletic fields, golf course tees and greens, or parks and recreation areas.
- d) No City water will be used to fill or maintain levels in scenic or recreational ponds and lakes, or other structures making similar use of water.
- e) No City water will be used to fill, refill, or add to any swimming pools.
- f) No City water will be used to wash the outside of buildings.
- g) No City water will be used on construction projects.
- h) No City water will be served to restaurant customers unless requested.
- i) Limitations will be placed on industrial and commercial users.

Summary

This section presented a water curtailment plan for the City, including its stages, triggers and actions. In the event of a short-term water supply emergency, the City will be able to systematically suggest, require and enforce compliance with the curtailment plan.

SECTION 5

WATER SUPPLY ELEMENT

General

This section delineates the current and future City of Grants Pass (City) service area and includes a comparison of the City's supply source capacity and water demands, an analysis of supply source alternatives and a timeline for the City to fully exercise each water right permit.

Current and Future Service Area

As described in Section 2, the City currently provides water service to a population of approximately 34,756 people primarily within the existing City limits and the North Valley area to the northwest of the city. The service area encompasses approximately 8,500 acres within the current Urban Growth Boundary (UGB) and City limits, and is entirely within Josephine County.

For planning purposes, the existing and near term service areas include the areas illustrated in Figure 2-1 which include significant undeveloped land within the current UGB. While the City is currently completing an update to the UGB, these areas are not clearly identified. The specific future service area will be identified in the next plan update.

Future Population Estimates

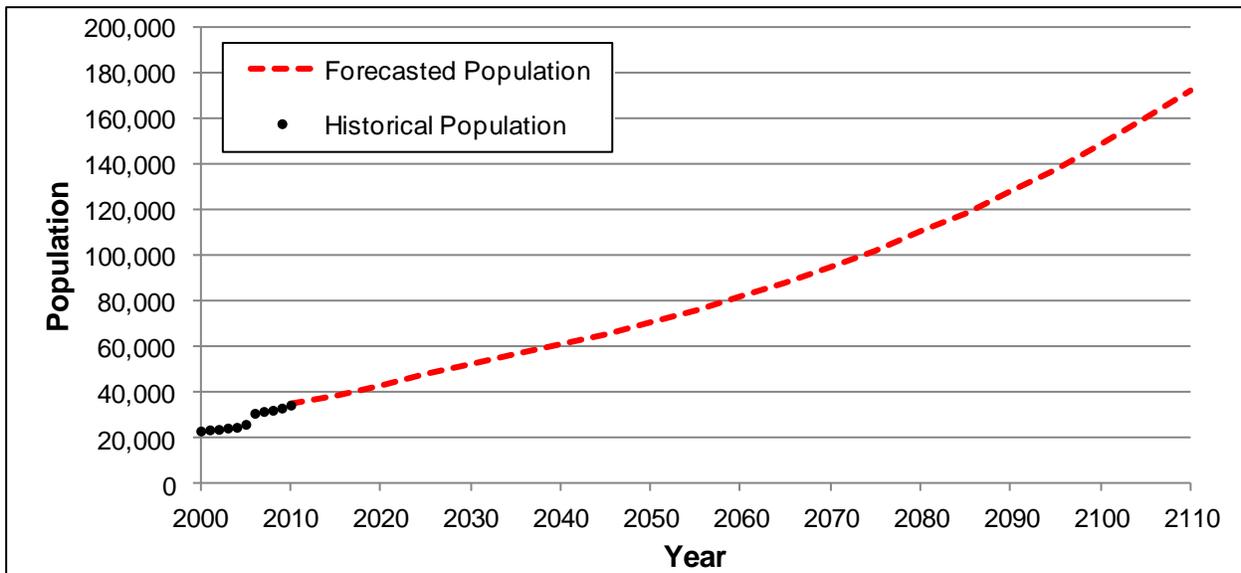
Planning studies have been prepared that forecast long-term population growth rates for Josephine County and the City of Grants Pass. The Office of Economic Analysis reported a forecasted annual average growth rate for Josephine County from 2010 to 2040 of 1.1 percent. The relative historical growth rates of the City and county suggest that the 1.1 percent rate projected for the whole County is much lower than the recent and historical population growth rate of the City. The City's current Comprehensive Plan contains forecasted annual average population growth rates of 2.2 percent for the period 2007 through 2027 and 1.51 percent for the period 2007 through 2057. These rates are below the 2000 through 2010 historical annual average growth rate of 4.0 percent.

Given the historically high recent growth rates of the City, a 2.2 percent annual growth rate is assumed through 2014. Thereafter, the annual growth rate is assumed to decline at a rate of 0.1 percent every 5 years until it reaches an annual rate of 1.5 percent in 40 years. This results in a 20-year average annual growth rate of approximately 2.05 percent and a 50-year average annual growth rate of approximately 1.78 percent. The population projections using this approach are generally consistent with those in the City's Comprehensive Plan which projects a population of 54,540 in 2029 and 79,275 in 2057. The population forecast through a 100-year planning horizon to 2110 is reported in Table 5-1 and illustrated in Figure 5-1.

**Table 5-1
Population Forecast Summary**

Year	Service Area Population	Average Annual Growth Rate
2010 (Census Estimate plus North Valley Estimate)	34,649	2.2%
2015	38,632	2.1%
2020	42,862	2.0%
2025	47,323	1.9%
2030	51,993	1.8%
2035	56,844	1.7%
2040	61,843	1.6%
2050	72,125	1.5%
2060	83,704	1.5%
2070	97,142	1.5%
2080	112,738	1.5%
2090	130,837	1.5%
2100	151,841	1.5%
2110	176,218	1.5%

**Figure 5-1
Historical and Forecasted City Population**



The population forecasts presented in this memorandum are based on a review of historical population trends within the City and County and an extrapolation of population projections developed by the City for the purposes of land use and economic forecasting. The long-range forecasts presented do not consider potential future external influences on growth rates such as limitations on developable land, changing economic conditions, large shifts in demographic characteristics, and other factors. The projections provide an appropriate basis for long-term water system planning. It is expected that the accuracy of this forecast will decline significantly beyond a 20-year planning horizon as external influences not considered impact growth patterns.

Projected Water Demands

Projections of future water demands are determined based upon present and historical per capita water use characteristics and forecasted future population. Based on current planning over the 20-year planning horizon, the expansion areas are anticipated to maintain the general balance of residential, commercial and industrial lands. For water system planning purposes, a system-wide per capita water demand methodology is used. No large water use industries are known to be considering the Grants Pass service area for new facilities.

Water demand forecasts are used to ensure adequate supply and transmission capacity under a maximum day demand scenario. Major water infrastructure projects often take 5 to 10 years to complete as the City proceeds from identification of a deficiency through project planning, funding, design, bidding, award and construction. Based on a review of historical and current water use characteristics within the City's water service area, observation of regional and national water use trends, and anticipated future advances in water saving technology, the following water demand projection criteria are used:

20-Year Planning Horizon (~2035)

- Per capita average day demand assumed to be 170 gpcd through 2035 based on the average rate over the 5 years from 2006 through 2010.
- Per capita maximum day demand assumed to be approximately 400 gpcd through 2035 based on the average peaking factor of 2.35 over the 2006 through 2010 period.

Beyond the 20-Year Planning Horizon

- Beyond the 20-year planning period, it is more probable that water demand growth will not increase at the same rate as assumed for the near term planning purposes.
- The per capita water demand rate was assumed to decrease from 170 gpcd by 5 gpcd after each 5-year block such that a demand of 140 gpcd is achieved by 2065.

Table 5-2 presents a summary of population and water demand forecasts in five year increments through 2040 and in 10-year increments to the year 2110. The purpose of the forecasts presented in this memorandum is to provide a basis for planning of water supply and treatment needs. It is recommended that these projections be updated every 5 to 10 years to reflect current conditions and to support updates of capital infrastructure prioritization, funding and implementation.

**Table 5-2
Population and Water Demand Forecasts Summary**

Year	Population	ADD (mgd)	MDD (mgd)
2015	34,649	6.6	15.5
2020	42,862	7.3	17.1
2025	47,323	8.0	18.9
2030	51,993	8.8	20.8
2035	56,844	9.7	22.7
2040	61,843	10.2	24.0
2050	72,125	11.2	26.3
2060	83,704	12.1	28.5
2070	97,142	13.6	32.0
2080	112,738	15.8	37.1
2090	130,837	18.3	43.0
2100	151,841	21.3	50.0
2110	176,218	24.7	58.0

Note: 1. Abbreviations: Average Annual Population Growth Rate (AAGR); Average Daily Demand (ADD); Maximum Daily Demand (MDD); million gallons per day (mgd); gallons per capita per day (gpcd)

Source Alternatives/Water Needs Assessment

The City has a current maximum day demand of 15 mgd with a future 2035 MDD of 22.7 mgd. The existing surface water source rights have a total capacity of 56.6 mgd; however, the developed rate is 20.0 mgd. The City does not have adequate green lighted water rights to meet the future water system demands. Consequently, the City requests that additional capacity under Permit S26901 be green lighted to meet the 20-year planning horizon water demands. The City does not have any connections to other water system providers.

The hydrogeology near the City is not suitable for large scale municipal groundwater source development. The closest significant water system provider is the Medford Water Commission, which does not have significant excess capacity and would require costly transmission facilities and treatment plant expansion to meet the City's future water supply

needs deficit. To meet future needs, the City must consider a combination of surface water source expansion and conservation measures.

The Rogue River is the only practical supply source for the City of Grants Pass. Groundwater development potential is limited in the region due to poor water quality and limited anticipated yield. Other surface water sources do not have unallocated water rights and/or are too far away to develop financially. Fortunately, the Rogue River is a high quality water source with good reliability. The only historical disruptions to water supply are associated with winter and spring time high turbidity events. As these events occur during low demand periods, the treatment plant is able to process the high turbidity water at a derated plant capacity sufficient to meet water demands. Within the planning period, limitations on water rights diversion capacities pertaining to the persistence of fish will not present a supply capacity concern.

Potential Conservation Measures to Reduce Water Supply Expansion Needs

Conservation measures such as efficiency programs, public education, and development of private facility water reuse (such as car wash facilities), could be anticipated to reduce peak demand by up to 10 percent. This would not eliminate the need for diversion rate expansion within the next 20 years.

The City believes that additional conservation measures will not reduce water supply demands at a cost that is equal to or lower than the cost of developing long-term water supplies. The cost of developing, implementing and administering the necessary conservation programs to delay supply capacity expansion will not offset the cost of the expansion. This assumption will be further evaluated and updated in ten years with the completion of the updated Water Management and Conservation Plan.

Water Rights Implementation Schedule/Quantification of Additional Supply Required

The City holds three unperfected surface water permits. The required capacity in 2035 is 35.1 cfs (22.7 mgd), which is greater than the existing 31.0 cfs (20.0 mgd) in authorized diversion. The City is requesting 4.2 cfs (2.7 mgd) of additional capacity be green lighted to meet the future demands. No new water rights will be needed within the planning period. The green lighted water request is summarized and quantified in Table 5-3.

**Table 5-3
Quantification of Requested Green Lighted Water Use**

20-year Supply Deficit Summary	
Needed Rate (2035) (cfs)	35.14
Current Total Permitted Rate (cfs)	30.96
Deficit Rate (2035) (cfs)	4.18
Greenlighted Permit Rate Summary	
Application Number	S34141
Permit Number	S26901
Permit Rate (cfs)	25.0
Authorized Rate (cfs)	17.2
Additional Capacity Requested (cfs)	4.2
Maximum Rate (cfs)	21.4
Maximum Monthly Volume (mg) ¹	311

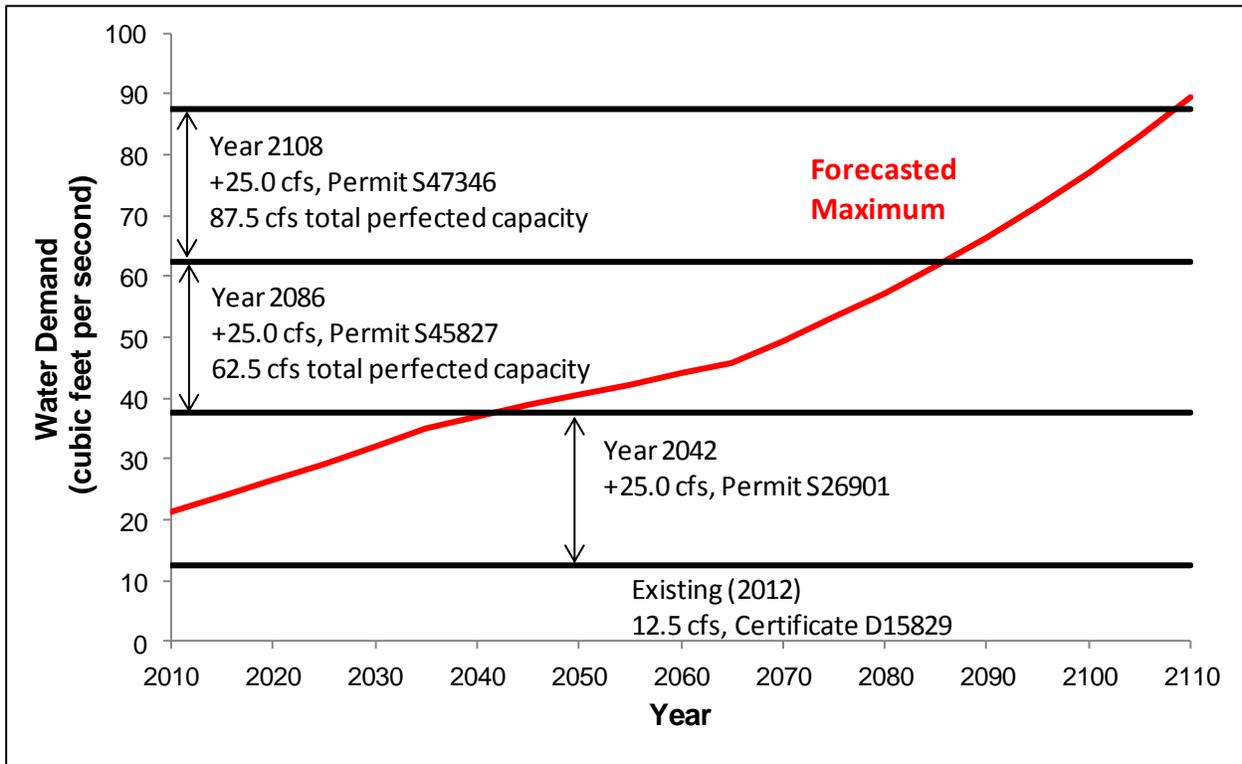
Note: 1. Maximum monthly volume estimated as 75 percent of maximum rate based on historical water production.

Beyond the 20-year planning period, the City anticipates continued expansion of water demands. A schedule for full implementation of all the City's water rights is presented in Table 5-4 and illustrated in Figure 5-2.

**Table 5-4
Water Rights Implementation Schedule**

Application Number	Permit Number	Completion Date	Permit Developed Capacity, cfs (mgd)	Total Developed Capacity, cfs (mgd)
S34141	S26901	10/1/2042	25.0 (16.1)	37.5 (24.2)
S41672	S45827	10/1/2086	25.0 (16.1)	62.5 (40.4)
S64732	S47346	10/1/2108	25.0 (16.1)	87.5 (56.5)

**Figure 5-2
Water Rights Implementation**



Mitigation Issues

Division 86 rules require water suppliers to provide a description of mitigation actions being taken to comply with legal requirements, such as the Federal Endangered Species Act, Clean Water Act and the Safe Drinking Water Act. The City is not currently required to complete any mitigation actions and does not anticipate mitigation issues with the current supply expansion project.

Key fish and wildlife identified by Oregon Department of Fish and Wildlife (ODFW) in the waterway near the intake screens include Fall Chinook Salmon (CHF), Coho Salmon (CO), Steelhead (STW), and Cutthroat trout (CT). Permit conditions for S-26901, S-45827 and S-47346 include Persistence of Fish Conditions which provide for a minimum fish flow on the Rogue River and may reduce the water available for diversion on the river during periods of low river flows. ODFW is completing their review at this time. From the draft findings, it is anticipated that there will be some curtailment applied to the undeveloped portion of these rights. Curtailment conditions will most likely apply during the summer months (June, July, August); however, preliminary understanding is that the level of curtailment will not impact the City’s ability to meet peak day demands within the 20-year planning horizon.

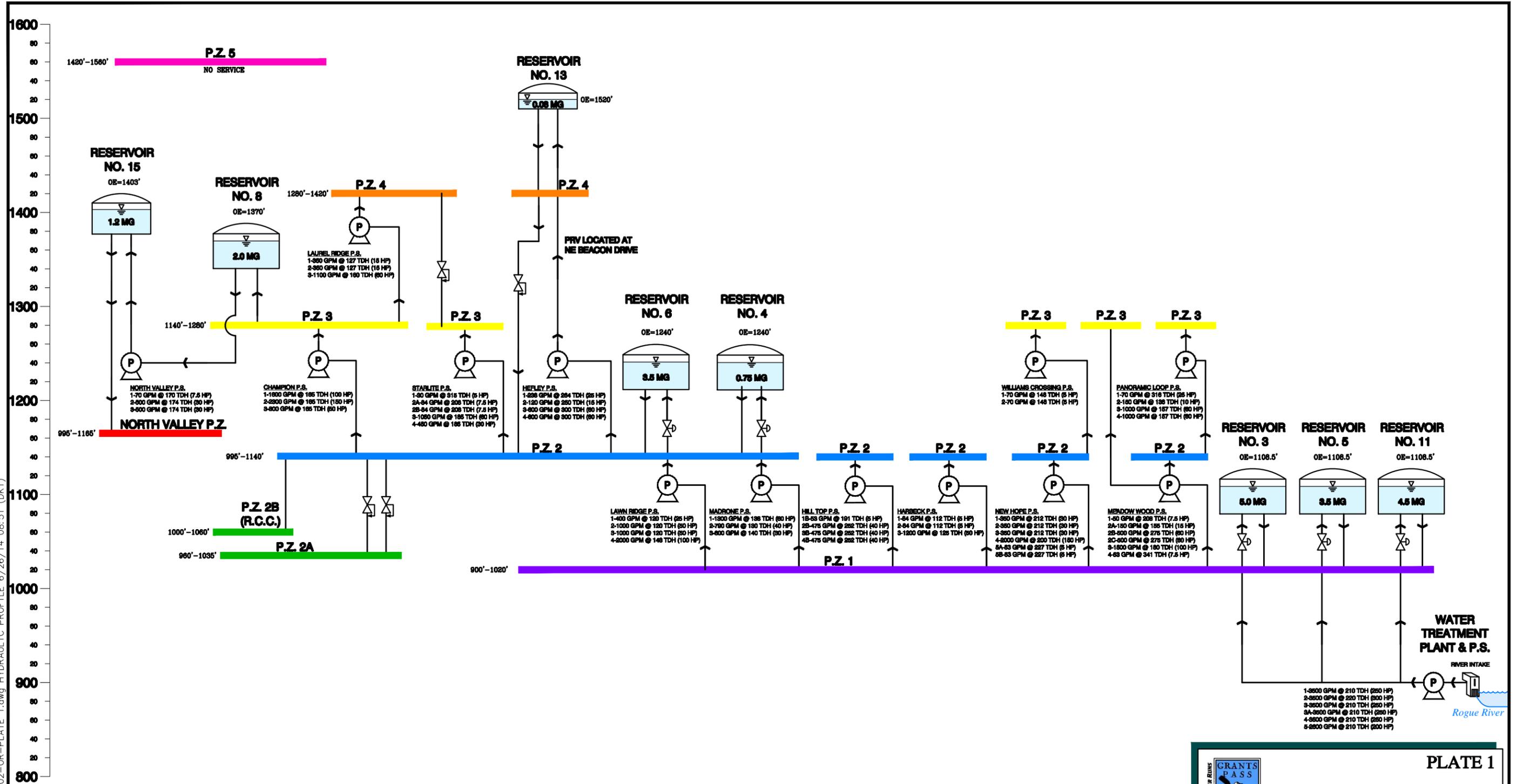
Summary

This section presented future population and water demand forecasts for the City's service area. The City's existing supply sources were compared with future water demands, and a discussion of the City's schedule for full use of its existing water rights was included.

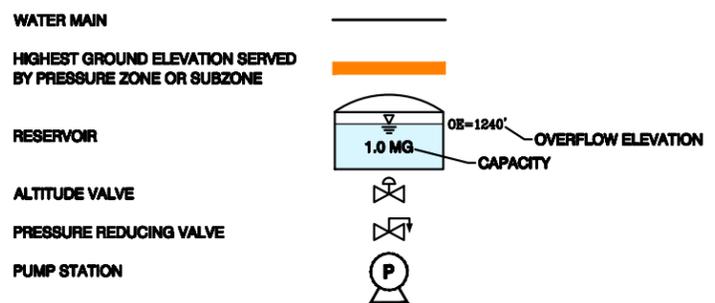


APPENDIX A
Water System Schematic

C:\PDX_Projects\12\1320\402-OR-PLATE 1.dwg HYDRAULIC PROFILE 6/26/14 08:51 (DKT)



LEGEND



ABBREVIATIONS

EL	ELEVATION
GPM	GALLONS PER MINUTE
HP	HORSE POWER
MG	MILLION GALLONS
OE	OVERFLOW ELEVATION
PRV	PRESSURE REDUCING VALVE
P.S.	PUMP STATION
P.Z.	PRESSURE ZONE
TDH	TOTAL DYNAMIC HEAD
R.C.C.	ROGUE COMMUNITY COLLEGE

* PUMPS 1, 2A AND 3 SERVICE ZONE 2 EXCLUSIVELY. PUMP 4 SERVICES ZONE 3 EXCLUSIVELY. PUMPS 2B AND 2C SERVICE BOTH ZONES 2 AND 3. DATA SOURCE: JASON CANADY - CITY OF GRANTS PASS WATER TREATMENT PLANT SUPERVISOR, JUNE 2014.

PLATE 1

CITY OF GRANTS PASS

Water Management & Conservation Plan

WATER SYSTEM HYDRAULIC PROFILE

JUNE 2014

MSA Murray Smith & Associates, Inc.
Engineers/Planners

121 S.W. Salmon, Suite 900 PHONE 503-255-9010
Portland, Oregon 97204 FAX 503-255-9022

12-1320.402



APPENDIX B
Water Rights Documentation

STATE OF OREGON

COUNTY OF JOSEPHINE

CERTIFICATE OF WATER RIGHT

This Is to Certify, That Rogue River Water Company

of Grants Pass, State of Oregon, has a right to the use of the waters of Rogue River

for the purpose of municipal and domestic use, and irrigation

and that said right has been confirmed by decree of the Circuit Court of the State of Oregon for Jackson County, and the said decree entered of record at Salem, in the Order Record of the STATE ENGINEER, in Volume 4, at page 1; that the priority of the right thereby confirmed dates from 1888;

that the amount of water to which such right is entitled, for the purposes aforesaid, is limited to an amount actually beneficially used for said purposes, and shall not exceed 12.5 cubic feet per second.

A description of the lands irrigated under such right, and to which the water is appurtenant (or, if for other purposes, the place where such water is put to beneficial use), is as follows:

Within the corporate limits of the city of Grants Pass, Oregon

And said right shall be subject to all other conditions and limitations contained in said decree. The right to the use of the water for the purposes aforesaid is restricted to the lands or place of use herein described.

WITNESS the signature of the State Engineer, affixed

this 30 day of September, 19 49.

CHAS. E. STRICKLIN

State Engineer

Recorded in State Record of Water Right Certificates, Volume 13, page 15839

*APPLICATION FOR PERMIT

To Appropriate the Public Waters of the State of Oregon

I, City of Grants Pass Water Department (Name of applicant) of City Hall, 4th and "H" Streets, Grants Pass, Oregon (Mailing address) State of Oregon, do hereby make application for a permit to appropriate the following described public waters of the State of Oregon, SUBJECT TO EXISTING RIGHTS:

If the applicant is a corporation, give date and place of incorporation Municipal Corporation chartered by the legislative assembly of the State of Oregon on February 16, 1901

1. The source of the proposed appropriation is Rogue River (Name of stream) a tributary of

2. The amount of water which the applicant intends to apply to beneficial use is 25 cubic feet per second. (If water is to be used from more than one source, give quantity from each)

**3. The use to which the water is to be applied is domestic and all other municipal purposes. (Irrigation, power, mining, manufacturing, domestic supplies, etc.)

4. The point of diversion is located 1133 ft. South and 2870 ft. West from the NE corner of Section 20 (N. or S.) (E. or W.) (Section or subdivision)

(If preferable, give distance and bearing to section corner)

being within the NE 1/4 NW 1/4 Section 20, T. 36 S., R. 5 W. (If there is more than one point of diversion, each must be described. Use separate sheet if necessary) being within the City of Grants Pass of Sec. 7, 8, 17, 18, Tp. 19 & 20 36 S. (Give smallest legal subdivision) (N. or S.) R. 5 W., W. M., in the county of Josephine (E. or W.)

5. The (Main ditch, canal or pipe line) to be (Miles or feet) in length, terminating in the City of Grants Pass of Sec. 7, 8, 17, 18, Tp. 19 & 20 36 S. (Smallest legal subdivision) (N. or S.) R. 5 West, W. M., the proposed location being shown throughout on the accompanying map. (E. or W.)

DESCRIPTION OF WORKS

Diversion Works—

6. (a) Height of dam None feet, length on top feet, length at bottom feet; material to be used and character of construction (Loose rock, concrete, masonry, rock and brush, timber crib, etc., wasteway over or around dam)

(b) Description of headgate None (Timber, concrete, etc., number and size of openings)

(c) If water is to be pumped give general description Present (2160 gpm 2500 gpm 1250 gpm 850 gpm head 42') Future (four pumps of 4,000 gpm) All Electric. (Size and type of pump) (Size and type of engine or motor to be used, total head water is to be lifted, etc.)

*A different form of application is provided where storage works are contemplated.

**Application for permits to appropriate water for the generation of electricity, with the exception of municipalities, must be made to the Hydroelectric Commission. Either of the above forms may be secured, without cost, together with instructions by addressing the State Engineer, Salem, Oregon.

Canal System or Pipe Line—

7. (a) Give dimensions at each point of canal where materially changed in size, stating miles from headgate. At headgate: width on top (at water line) feet; width on bottom feet; depth of water feet; grade feet fall per one thousand feet.

(b) At miles from headgate: width on top (at water line) feet; width on bottom feet; depth of water feet; grade feet fall per one thousand feet.

(c) Length of pipe, ft.; size at intake, in.; size at ft. from intake in.; size at place of use in.; difference in elevation between intake and place of use, ft. Is grade uniform? Estimated capacity, sec. ft.

8. Location of area to be irrigated, or place of use

Township North or South	Range E. or W. of Willamette Meridian	Section	Forty-acre Tract	Number Acres To Be Irrigated
36 S	5 W	7	S½ & E½ NE¼	Municipal
		8	All	
		9	W½	
		16	W½	
		17	All	
		18	All	
		19	All	
		20	All	
		21	NW¼ & N½ SW¼	

(If more space required, attach separate sheet)

(a) Character of soil

(b) Kind of crops raised

Power or Mining Purposes—

9. (a) Total amount of power to be developed theoretical horsepower.

(b) Quantity of water to be used for power sec. ft.

(c) Total fall to be utilized feet.
(Head)

(d) The nature of the works by means of which the power is to be developed

(e) Such works to be located in of Sec.
(Legal subdivision)

Tp., R., W. M.
(No. N. or S.) (No. E. or W.)

(f) Is water to be returned to any stream?
(Yes or No)

(g) If so, name stream and locate point of return

....., Sec., Tp., R., W. M.
(No. N. or S.) (No. E. or W.)

(h) The use to which power is to be applied is

(i) The nature of the mines to be served

PERMIT

STATE OF OREGON, }
County of Marion, } ss.

This is to certify that I have examined the foregoing application and do hereby grant the same, SUBJECT TO EXISTING RIGHTS and the following limitations and conditions:

The right herein granted is limited to the amount of water which can be applied to beneficial use and shall not exceed 25.0 cubic feet per second measured at the point of diversion from the stream, or its equivalent in case of rotation with other water users, from Rogue River.

The use to which this water is to be applied is municipal; provided further that the right to the use of water is limited to the period when the flow of the Rogue River at its mouth is more than 735 c.f.s.

If for irrigation, this appropriation shall be limited to of one cubic foot per second or its equivalent for each acre irrigated

and shall be subject to such reasonable rotation system as may be ordered by the proper state officer.

The priority date of this permit is July 19, 1960

Actual construction work shall begin on or before September 20, 1964 and shall thereafter be prosecuted with reasonable diligence and be completed on or before October 1, 1964

Complete application of the water to the proposed use shall be made on or before October 1, 1964

WITNESS my hand this 20th day of September, 1960

Lewis A. Stanley
STATE ENGINEER

Application No. 34141
Permit No. 26901

PERMIT
TO APPROPRIATE THE PUBLIC
WATERS OF THE STATE
OF OREGON

This instrument was first received in the office of the State Engineer at Salem, Oregon, on the 19th day of September, 1960, at 10 o'clock A.M.

Returned to applicant:

Approved:

September 20, 1960 of 73
Recorded in book No. 26901
Permits on page

LEWIS A. STANLEY
STATE ENGINEER

Drainage Basin No. 15 page 60F
Fees

Application No. 41672 (Revised)

Permit No. 45827

STATE OF OREGON WATER RESOURCES DEPARTMENT RECEIVED FEB 9 1981 WATER RESOURCES DEPT SALEM, OREGON Application for Permit to Appropriate Surface Water

I, City of Grants Pass (Name of Applicant)

of 101 N.W. "A" Street (Mailing Address) Grants Pass (City)

State of Oregon, 97526 (Zip Code) Phone No. 476-8801 do hereby

make application for a permit to appropriate the following described waters of the State of Oregon:

1. The source of the proposed appropriation is Rogue River, a tributary of

2. The point of diversion is to be located 1,133 ft. south and 2,870 ft. west from the northeast corner of Section 20 (Public Land Survey Corner)

(If there is more than one point of diversion, each must be described)

being within the northeast 1/4 of the northwest 1/4 of Sec. 20 Tp. 36 south R. 5 west, W. M., in the county of Josephine

3. Location of area to be irrigated, or place of use if other than irrigation.

Table with 5 columns: Township, Range, Section, List 1/4 1/4 of Section, List use and/or number of acres to be irrigated. Row 2 contains text: SEE ATTACHED EXHIBIT "A" AND ACCOMPANYING MAP MARKED EXHIBIT "C".

4. The amount of water which the applicant intends to apply to beneficial use is
cubic feet per second.....
(If water is to be used from more than one source, give quantity from each)

5. The use to which the water is to be applied is municipal use.....

6. DESCRIPTION OF WORKS

Include dimensions and type of construction of diversion dam and headgate, length and dimensions of supply ditch or pipeline, size and type of pump and motor, type of irrigation system to adequately describe the proposed distribution system.

The city works do not include diversion dams, headgates, supply ditches or pipelines. The city draws raw water from the Rogue River using four (4) vertical turbine pumps. Those four pumps are powered by and have capacities as follows:

Pump #1 - 75hp - 4050 gpm

Pump #2 - 50hp - 2500 gpm

Pump #3 - 40hp - 1800 gpm

Pump #4 - 15hp - 850 gpm

If for domestic use state number of families to be supplied See attached Exhibit "B" for discussion.

7. Construction work will begin on or before None

8. Construction work will be completed on or before None

9. The water will be completely applied to the proposed use on or before 2040 (best estimate).

RECEIVED

APR 20 1981

WATER RESOURCES DEPT
SALEM, OREGON

EXHIBIT "A"

CITY OF GRANTS PASS
PROPERTY DESCRIPTION
WATER PERMIT APPLICATION

RECEIVED

FEB 9 1981

WATER RESOURCES DEPT
SALEM, OREGON

Township	35S	Range	5W	Section	32	S $\frac{1}{2}$ SW $\frac{1}{4}$
	36S		5W		6	All
	36S		5W		5	NW $\frac{1}{4}$
						SW $\frac{1}{4}$
						W $\frac{1}{2}$ SE $\frac{1}{4}$
	36S		5W		7	All
	36S		5W		8	All
	36S		5W		9	W $\frac{1}{2}$ NW $\frac{1}{4}$
						W $\frac{1}{2}$ SW $\frac{1}{4}$
	36S		5W		18	All
	36S		5W		17	All
	36S		5W		16	NW $\frac{1}{4}$
						SW $\frac{1}{4}$
						SE $\frac{1}{4}$
	36S		5W		15	SW $\frac{1}{4}$
	36S		5W		19	All
	36S		5W		20	All
	36S		5W		21	All
	36S		5W		22	NW $\frac{1}{4}$ Only that portion no. of Rogue River
	36S		5W		30	NW $\frac{1}{4}$
						NE $\frac{1}{4}$
						W $\frac{1}{2}$ SW $\frac{1}{4}$
						NE $\frac{1}{4}$ SW $\frac{1}{4}$
						N $\frac{1}{2}$ SE $\frac{1}{4}$
	36S		5W		29	All, excepting SW $\frac{1}{4}$ SW $\frac{1}{4}$
	36S		5W		28	NW $\frac{1}{4}$
						SW $\frac{1}{4}$
	36S		5W		31	W $\frac{1}{2}$ NW $\frac{1}{4}$
						SW $\frac{1}{4}$
	36S		5W		32	E $\frac{1}{2}$ NW $\frac{1}{4}$
						NE $\frac{1}{4}$
						NE $\frac{1}{4}$ SW $\frac{1}{4}$
						N $\frac{1}{2}$ SE $\frac{1}{4}$
	36S		5W		33	NW $\frac{1}{4}$
						N $\frac{1}{2}$ SW $\frac{1}{4}$
	37S		5W		6	N $\frac{1}{2}$ NW $\frac{1}{4}$
	36S		6W		13	NE $\frac{1}{4}$
						SE $\frac{1}{4}$
	36S		6W		14	S $\frac{1}{2}$ SE $\frac{1}{4}$
						SW $\frac{1}{4}$ excepting that por- tion north of Rogue River
	36S		6W		15	SE $\frac{1}{4}$ and SW $\frac{1}{4}$ excepting that por- tion north of the Rogue River
	36S		6W		21	All
	36S		6W		22	All
	36S		6W		23	All
	36S		6W		24	All
	36S		6W		25	All, excepting S $\frac{1}{2}$ SW $\frac{1}{4}$
	36S		6W		26	All
	36S		6W		27	All
	36S		6W		28	All
	36S		6W		36	All
	37S		6W		1	N $\frac{1}{2}$ NW $\frac{1}{4}$
						N $\frac{1}{2}$ NE $\frac{1}{4}$

Application No. 41672
Permit No. 45827

Remarks: None

This permit, when issued, is for the beneficial use of water. By law, the land use associated with this water use must be in compliance with statewide land-use goals and any local acknowledged land-use plan. It is possible that the land use you propose may not be allowed if it is not in keeping with the goals and the acknowledged plan. Your city or county planning agency can advise you about the land-use plan in your area.

[Handwritten Signature]
Signature of Applicant
City Manager ~~Pro Tem~~

This is to certify that I have examined the foregoing application, together with the accompanying maps and data, and return the same for correction and completion.

In order to retain its priority, this application must be returned to the Water Resources Director with corrections on or before May 5, 1981.

WITNESS my hand this 5th day of March, 1981.

JAMES E. SEXSON, Water Resources Director

By *[Handwritten Signature]*
Wayne J. Overcash

RECEIVED
APR 20 1981
WATER RESOURCES DEPT
SALEM, OREGON

This instrument was first received in the office of the Water Resources Director at Salem, Oregon, on the 2nd day of December, 1965, at 8:00 o'clock A.M.

Application No. 41672

Permit No. 45827

812305

Application No. 41672 (Revised)

Permit No. 45827

Permit to Appropriate the Public Waters of the State of Oregon

This is to certify that I have examined the foregoing application and do hereby grant the same SUBJECT TO EXISTING RIGHTS INCLUDING THE EXISTING FLOW POLICIES ESTABLISHED BY THE WATER POLICY REVIEW BOARD and the following limitations and conditions:

The right herein granted is limited to the amount of water which can be applied to beneficial use and shall not exceed 25.0 cubic feet per second measured at the point of diversion from the stream, or its equivalent in case of rotation with other water users, from Rogue River

The use to which this water is to be applied is municipal.

If for irrigation, this appropriation shall be limited to ----- of one cubic foot per second or its equivalent for each acre irrigated

and shall be subject to such reasonable rotation system as may be ordered by the proper state officer.

The priority date of this permit is December 2, 1965

Actual construction work shall begin on or before July 21, 1982 and shall

thereafter be prosecuted with reasonable diligence and be completed on or before October 1, 1983

Extended to Oct. 1, 1984, Extended to October 1, 1989, 10-1-94, 10-1-99

Complete application of the water to the proposed use shall be made on or before October 1, 1984

Extended to October 1, 1989, 10-1-94, 10-1-99

WITNESS my hand this 21st day of July, 1981

Handwritten signature of James E. Seaman, Water Resources Director



STATE OF OREGON

County of **JOSEPHINE**

PERMIT TO APPROPRIATE THE PUBLIC WATERS

64732

This is to certify that I have examined APPLICATION and do hereby grant the same SUBJECT TO EXISTING RIGHTS INCLUDING THE APPROPRIATE MINIMUM FLOW POLICIES ESTABLISHED BY THE WATER POLICY REVIEW BOARD and the following limitations and conditions:

This permit is issued to **City of Grants Pass, 101 NW "A" Street, Grants Pass, Oregon 97526, phone 476-8801, for the use of the waters of Rogue River,**

for the PURPOSE of **municipal use,**

that the PRIORITY OF THE RIGHT dates from **January 13, 1983,**

and is limited to the amount of water which can be applied to beneficial use and shall not exceed **25.0 cubic feet per second.**

The POINT OF DIVERSION is to be LOCATED **1,133 feet South and 2,870 feet West from the Northeast Corner of Section 20, being within the NE 1/4 NW 1/4 of Section 20, Township 36 South, Range 5 West, WM, in the County of Josephine.**

A description of the PLACE OF USE under the permit, and to which such right is appurtenant, is as follows:

Township 35 South, Range 5 West, WM	Section 32	S 1/2	SW 1/4	Municipal use
Township 35 South, Range 6 West, WM	Section 22	SE 1/4	SE 1/4	
		NW 1/4	SE 1/4	
		NE 1/4	SE 1/4	
		SW 1/4	NE 1/4	
		SE 1/4	NE 1/4	
	Section 23	SE 1/4	SW 1/4	
		SW 1/4	SW 1/4	
		NW 1/4	SW 1/4	
	Section 25	SW 1/4	SW 1/4	
		NW 1/4	SW 1/4	
		SW 1/4	NW 1/4	
		NW 1/4	NW 1/4	
	Section 26	NW 1/4		
		NE 1/4		
		NE 1/4	SE 1/4	
		NW 1/4	SE 1/4	
		NE 1/4	SW 1/4	
		NW 1/4	SW 1/4	

SEE NEXT PAGE
March 22, 1984

Actual construction work shall begin on or before **March 22, 1984**, and shall thereafter be prosecuted with reasonable diligence and be completed on or before October 1, 19 **84**. Extended to October 1, 1989, **10-1-94, 10-1-99**

Complete application of the water to the proposed use shall be made on or before October 1, 19 **85**. Extended to October 1, 1989, **10-1-94, 10-1-99**

Witness my hand this **22nd** day of **March**, 19 **83**.

/s/ JAMES E. SEXSON

WATER RESOURCES DIRECTOR

This permit, when issued, is for the beneficial use of water. By law, the land use associated with this water use must be in compliance with statewide land-use goals and any local acknowledged land-use plan. It is possible that the land use you propose may not be allowed if it is not in keeping with the goals and the acknowledged plan. Your city or county planning agency can advise you about the land-use plan in your area.

64732

APPLICATION

PERMIT

47346

43318

Township 35 South, Range 6 West, WM

Section 36 SE 1/4
NE 1/4 SW 1/4
SW 1/4 NE 1/4
SW 1/4

Township 36 South, Range 5 West, WM

Section 5 NW 1/4
SW 1/4
W 1/2 SE 1/4

Section 6 All
Section 7 All
Section 8 All
Section 9 W 1/2 NW 1/4
W 1/2 SW 1/4

Section 15 SW 1/4
Section 16 NW 1/4
SW 1/4
SE 1/4

Section 17 All
Section 18 All
Section 19 All
Section 20 All
Section 21 All
Section 22 NW 1/4
Section 28 NW 1/4
SW 1/4

Section 29 All
Section 30 All
Section 31 All
Section 32 All
Section 33 W 1/2

Township 36 South, Range 6 West, WM

Section 1 NE 1/4 NE 1/4
Section 13 NE 1/4
SE 1/4

E 1/2 SW 1/4
Section 14 S 1/2 SE 1/4
SW 1/4

Section 15 S 1/2 SE 1/4
NE 1/4 SE 1/4
SE 1/4 SW 1/4

Section 21 All
Section 22 All
Section 23 All
Section 24 All
Section 25 All
Section 26 All
Section 27 All
Section 28 All
Section 33 All
Section 34 All
Section 35 All
Section 36 All

Township 37 South, Range 5 West, WM

Section 4 N 1/2 NW 1/4
Section 5 N 1/2 NW 1/4
N 1/2 NE 1/4

Section 6 N 1/2 NW 1/4
N 1/2 NE 1/4

Township 37 South, Range 6 West, WM

Section 1 N 1/2 NW 1/4
N 1/2 NE 1/4

Section 2 N 1/2 NW 1/4
N 1/2 NE 1/4

Section 3 N 1/2 NW 1/4
N 1/2 NE 1/4

Section 4 N 1/2 NW 1/4
N 1/2 NE 1/4

APPLICATION 64732

PERMIT

43316

APPENDIX C REFERENCES

1. Memorandum, “Long-Term Water Demand Projections,” prepared by Murray, Smith & Associates, Inc., for the City of Grants Pass, October, 2012.
2. “Water Management Plan, City of Grants Pass, Final Report,” West Yost and Associates, LLC, June 2002.
3. “Grants Pass Water Distribution System Master Plan,” West Yost and Associates, LLC January 2001.



APPENDIX D
Local Government Comments



Josephine County, Oregon

PLANNING

700 NW Dimmick Street, Suite C
Grants Pass, OR 97526
Tel 541-474-5421 • Fax 541-474-5422
E-Mail: planning@co.josephine.or.us

April 15, 2013

Michael McKillip, P.E.
Murray, Smith and Associates, Inc.
121 SW Salmon, Suite 900
Portland OR 97204

Dear Mr. McKillip:

Thank you for sending the Grants Pass Water Management and Conservation Plan date November 2012 for our review. Josephine County Planning and Public Works offer the following comments:

The population forecast relied upon for determining future needs is one produced by Portland State University. The County adopted a forecast in 2008 (EcoNorthwest), and is currently considering a request by Grants Pass to consider adoption of a recent forecast produced by the state Office of Economic Analysis. Grants Pass Senior Planner Tom Schauer can provide more detail on that study's projections of city growth.

The County has no further comments or concerns regarding the Water Management and Conservation Plan; thank you again for the opportunity to review.

Sincerely,


David L. Wechner, M.S. AICP
Director

C: Rob Brandes, Public Works



APPENDIX E
Sample Materials

Typical backflow prevention devices

Pressure Vacuum Breaker has a single check valve with an air inlet valve. PVBs only protect against back-siphonage. PVBs may be used where the substance that could backflow does not pose an unreasonable health risk and where there is no possibility of backpressure.



PVBs may be used only on single-zone landscape irrigation systems.

Double Check Valve Assembly

has two, independently operating spring-loaded or weighted check valves. A DCVA may be used where the substance that could backflow does not pose an unreasonable health risk.



DCVAs are the minimum protection for multi-zone landscape irrigation systems and home and commercial fire sprinkler systems.

Reduced Pressure Backflow Assembly

has two independently acting check valves with a hydraulically operated, mechanically independent pressure differential relief valve.



RPBAs are required when the substance that could backflow is hazardous to health. RPBAs also are used with auxiliary water sources, such as GPID or private wells.

More information

The City Water Department is happy to answer your questions. To contact us, please call 474-6355 between 8 a.m. and 5 p.m. Monday through Friday.

On the internet

Oregon Health Department Drinking Water Program (OAR 333-61-0070)
www.ohd.hr.state.or.us/dwp/crossc.htm

U.S. Centers for Disease Control —
www.cdc.gov/hepatitis
www.cdc.gov/health/default.htm

City of Grants Pass —
www.ci.grants-pass.or.us



SAFE

drinking

water

depends

on ALL

of us to...



Published 06/03 by the
City of Grants Pass
101 NW "A" Street
Grants Pass, OR 97526
541-474-6355

...prevent

BACKFLOW

When our drinking water

leaves the City Water Filtration

Plant, it has been **cleaned**

and purified to meet or exceed

federal and state drinking-

water standards

However, **contaminated water**

and other undesirable liquids

from homes and businesses

can enter the public water

system through **backflow** —

the reverse flow of water or

other liquids into the public

water system

How backflow occurs

There are two types of backflow backsiphonage and backpressure

Backsiphonage occurs when water pressure in the public water system falls enough to create a vacuum. Backsiphonage can occur when a water main is shut down for repairs or maintenance, or when a fire is being fought nearby.

Backpressure occurs when the water pressure at a home or business becomes greater than the pressure in the public water system. Typical sources of backpressure are private wells interconnected to the public water system, pumped irrigation systems, hot water circulation pumps, steam and hot water boilers, and heat exchangers.

Why you should care

Backflow may allow chemical, biological and/or physical hazards to enter the public water system.

Chemical hazards Many fertilizers and other household chemicals are applied with a garden hose, a common source of backflow. Harmful chemicals also are found in boilers, hot tubs, swimming pools, and commercial and industrial equipment.

Biological hazards Untreated water, including GPID water, can be contaminated with

- > hepatitis A,
- > giardiasis, and/or
- > campylobacteriosis



All three diseases can cause diarrhea, abdominal pain, nausea, fever and/or vomiting. These diseases can be very serious for infants, the elderly and people with compromised immune systems.

Physical hazards Backflow doesn't have to be ingested to be harmful. Private cross-connections with the public water system can result in burns from steam lines, exploding plumbing fixtures from compressed air lines, and explosions and fire from flammable liquids.

Preventing backflow

Wherever a cross-connection of public and private water systems is possible, the City of Grants Pass requires a backflow prevention device.

Backflow prevention devices have internal seals, springs and moving parts that can wear out. Therefore, the law requires property owners to have their backflow devices tested every year. The City helps with this task by mailing out a reminder and list of certified testers.

Water Conservation at Home



American Water Works
Association

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Catalog No. 70006

Printed on Recycled Paper



APPENDIX F
Current Water Rates

**APPENDIX F
WATER RATES**

Water Rates Effective January 1, 2012

(From City's website: <http://www.grantspassoregon.gov/Index.aspx?page=607>)

All customer water accounts are metered. Water rates are reviewed and new rates established annually in order to assure adequate revenues for water system support. The monthly customer bill is based on two charges, the size of the meter (service charge) and how much water is used (units = approximately. 748 gallons). Please be aware that those receiving water services who are outside the City limits and do not have a signed service and annexation agreement are subject to a 60% surcharge on all water charges.

Customer Service Charge		
Meter Size	Per Month	Additional Unit charge for multi-family and PUD's
3/4 inch or less	\$ 9.21	\$3.45
1"	\$ 20.52	\$3.45
1.5"	\$ 38.72	\$3.45
2"	\$ 62.12	\$3.45
3"	\$119.81	\$3.45
4"	\$198.57	\$3.45
6"	\$377.17	\$3.45
8"	\$600.15	\$3.45
10"	\$929.63	\$3.45
Customer service charge does not include any water use.		

Water usage costs are based on the following tables. Each unit of water is equivalent to 748 gallons.

Single Family Residential

Water usage for a single family residential will be blocked out as detailed below. The first 10 units will cost \$.85 per unit, 11-25 units will cost \$1.09 per unit and any usage over 25 units will cost an additional \$1.29 per unit.

Single Family Residential		
0-10 unit	11-25 unit	26 or more units
\$0.85	\$1.09	\$1.29

Other Classes

Water usage rates for all classes other than residential are detailed below and will be based upon per unit measure.

Customer Class	Unit Rate
Multi-Family and PUD	\$0.84
Commercial/Public	\$1.01
Interruptible Irrigation for Public Parks & Schools	\$0.85
Irrigation - All Classes	\$1.46
Standby - All Classes	\$1.46

Service Level Charges	
Service Level	Per unit charge
1	-0-
2	\$0.0941
3	\$0.2197
4	\$0.3138
5	\$0.4079

MSA

Murray, Smith & Associates, Inc.
Engineers/Planners