



LEAGUE OF OREGON CITIES

Water, Wastewater and Stormwater Rate Survey

MARCH 2015



Published by the League of
Oregon Cities and the
Community Planning Workshop at
the University of Oregon

SPECIAL THANKS & ACKNOWLEDGEMENTS

The Community Planning Workshop (CPW) and League of Oregon Cities (LOC) would like to thank the individuals and organizations that supported the development of the 2014 Water, Wastewater, and Stormwater Survey.

Project Focus Group

Alicia Blalock – City of Salem
Brian Stahl – City of Gresham
John Goodrich & Ron Blecker – City of Tigard
Timothy Gross – City of Newport
Paul Eckley – City of Silverton

CPW Staff

Project Director

Bob Parker AICP, Director of the Community Service Center and Community Planning Workshop, University of Oregon

Project Manager

Casey Hanson, Community Planning Workshop Project Coordinator/Research Assistant

Research Team

Leigh Anne Hogue
Emily Kettell

About the Community Planning Workshop

Community Planning Workshop (CPW) is one of the core programs of the University of Oregon's Community Service Center (CSC) (csc.uoregon.edu). Established in 1977, CPW provides students the opportunity to address planning and public policy problems for clients throughout Oregon. Students work in teams under the direction of faculty and Graduate Teaching Fellows to develop proposals, conduct research, analyze and evaluate alternatives, and make recommendations for possible solutions to planning problems in rural Oregon communities.



UNIVERSITY OF OREGON



Community
Planning
Workshop

Table of Contents

Chapter 1: Introduction 1

Chapter 2: Utility Billing 4

Chapter 3: System Characteristics 11

Chapter 4: System Rates and Infrastructure Highlights..... 16

Chapter 5: Asset Management 31

Appendix A: Survey Design and Administration 34

Appendix B: Overall Rate Characteristics 36

Appendix C: Drinking Water Rate Structure, Pricing and
System Characteristics 47

Appendix D: Wastewater Rate Structure, Pricing and
System Characteristics 88

Appendix E: Stormwater Fees, Pricing and Characteristics 129

CHAPTER I: INTRODUCTION

In the summer of 2014, the League of Oregon Cities (LOC) surveyed its member cities to obtain information about utility rates and other system characteristics for water, wastewater and stormwater. The League contracted with the Community Service Center (CSC) at the University of Oregon to help design and conduct the survey.

This is the third LOC water, wastewater and stormwater survey. The League contracted with Oregon State University to conduct the first survey in 2004. With assistance from the Environment Finance Center at Boise State University, the survey was expanded in 2009 to include additional topics relative to utility operations. The 2014 survey includes many topics from the 2009 survey and covers areas beyond just rates and charges. Survey topics include:

- Asset management;
- Service population and connections;
- Facility age and capacity;
- Water source;
- System characteristics (e.g., miles of lines, pump/lift stations);
- Level of treatment;
- Water loss and metering; and
- Water and wastewater programs.

Previous survey results have proven to be a valuable resource enabling cities to compare their current policies and practices to other cities throughout the state. The League only conducts the survey every five years, so it is vital to obtain information on the current state of Oregon's water utility rates and system characteristics. The survey results are also used by the League to advocate for cities at the state level. The League gives cities access to the results so they can use it as a reference and for comparison to other cities' rates and data.

Since not all cities provide water, wastewater and stormwater services, CSC sent out a preliminary survey to identify what services cities provide and appropriate city staff contacts for the different sections of the full survey. All 242 cities received the preliminary survey, and 168 responded (a 70 percent response rate). Table 1.1 depicts the number of cities that provide water, wastewater and stormwater services. Only two cities do not provide any: King City and Rivergrove.

Table 1.1: Number of Cities That Provide Services

Service	# of Respondents	Do Provide	Do Not Provide	No Response
Water	168	157	11	0
Wastewater	162	138	24	6
Stormwater	163	110	53	5

To develop the survey, the League assembled a focus group of public works staff to provide input and recommendations on the survey content and methodologies. CSC incorporated those recommendations into a revised survey that was distributed to all 242 Oregon cities. Cities received follow-up emails as reminders to complete the survey if they had not submitted a response.

Full Survey Respondent Characteristics

Every county had at least one responding city except for Crook County, which only has one incorporated city. Overall, city response rate per county was strong. Exactly half of the 36 counties had a 50 percent response rate or higher, and five counties had a response rate of 75 percent or higher. Only two responding cities indicated that they did not have any systems.

Smallest City to Complete Survey

Lonerock Population: 34

Largest City to Complete Survey

Portland Population: 592,120

Response Rate

For the full 2014 Water, Wastewater and Stormwater Survey, 55 percent (133) of Oregon's 242 incorporated cities responded to the survey. Of the cities that responded, nearly 89 percent of the cities fully completed the surveys. Details of the response rate:

- Cities with a population of <10,000 account for about 80 percent of cities in Oregon and represented 76 percent of survey respondents.
- In general, as city size increased so did the response rate.
- Cities of 50,000 or more had the highest response rate of 73 percent.
- Cities of <1,000 had the lowest response rate of 49 percent.

Table 1.2: Response Rate by City Size

City Size	# of Cities Responded	# of Oregon Cities	Response Rate
<1,000	40	82	49%
1,000-4,999	47	84	56%
5,000-9,999	15	30	50%
10,000-24,999	17	26	65%
25,000-49,999	6	9	67%
50,000 or more	8	11	73%
All cities	133	242	55%

Organization of this Report

The remainder of this report is organized into five chapters and several appendices:

Chapter 2 discusses cities' utility billing in general. It includes topics related to the frequency of billing, how payments are accepted, overall fee structure, how fees are enforced, rate revenue data, and information related to billing credits and adjustments.

Chapter 3 presents key characteristics of the water, wastewater and stormwater systems. It covers the services that cities provide, service population, and number of connections for the different systems.

Chapter 4 contains survey rate and infrastructure highlights for drinking water, wastewater and stormwater. The rates discussed in this chapter review: how each system's rate structure is set up; when rates have changed; why they have changed; and the average bill for a resident based on a predetermined volume of water/wastewater. Since this section only highlights results for each system, more data is presented in the appendices.

Chapter 5 reviews survey responses regarding asset management. It summarizes how many cities have asset management plans for water, wastewater and stormwater utilities, and whether those plans are adequately funded.

The report also includes five appendices:

Appendix A elaborates on the methodology, the survey design, and data editing and analysis.

Appendix B shows the year in which cities conducted their most recent water rate study and a methodology update.

Appendix C contains cities' responses about the water rate structure, pricing and system characteristics.

Appendix D contains cities' responses about the wastewater rate structure, pricing and system characteristics.

Appendix E contains cities' responses about stormwater fees, pricing and system characteristics.

CHAPTER 2: UTILITY BILLING

The survey asked cities about the characteristics of how they bill their customers. Questions addressed the frequency of billing, how payments are accepted, overall rate structure, how fees are enforced, rate revenue data, and information related to billing credits and adjustments. Since the 2009 survey did not include these topics, there is no comparison between the 2009 and 2014 survey results.

Billing

Most cities bill customers monthly, while only a few use bi-monthly, quarterly or another timeframe. Most of the cities that did not bill monthly are less than 25,000 in population (Table 2.1).

Table 2.1: Number of Cities per Billing Frequency

City Size	Monthly	Bi-monthly	Quarterly	Other
<1,000	34	4	0	2
1,000-4,999	37	2	0	1
5,000-9,999	13	1	0	0
10,000-24,999	13	2	0	0
25,000-49,999	6	0	0	0
50,000 or more	4	0	1	0
All cities	107	9	1	3

Not surprisingly, all cities accept cash and check as a form of payment. Smaller cities predominately accept cash, check and money orders while larger cities have higher percentage rates of accepting all forms of payment (Table 2.2). The survey results show that as the population size increases, the payment methods accepted diversified. It is consistent, regardless of city size, that e-checks are the least likely accepted form of payment.

Table 2.2: Percentage of Cities that Accept Methods of Payment

City Size	Cash	Check	Credit/Debit	Money Order	Direct Deposit	e-check
<1,000	100	100	16	84	13	11
1,000-4,999	100	100	50	95	38	33
5,000-9,999	100	100	86	93	79	71
10,000-24,999	100	100	93	93	73	53
25,000-49,999	100	100	100	83	100	67
50,000 or more	100	100	100	100	80	60
All cities	100	100	53	91	44	36

Many service providers are starting to offer their customers paperless billing as a convenient way for customers to receive, view and pay bills while also “going green.” The survey results indicate that more cities than not, with a population of 5,000 or more, provide paperless billing (Table 2.3).

In addition to paperless billing, the survey also asked cities if they contract out billing. Results show that while relatively few cities contract out billing in Oregon, many of the cities that do are less than 25,000 in population. A majority of cities that don’t contract out billing and do their own billing use proprietary software, the most popular being QuickBooks, Springbrook and Asyst.

Table 2.3: Characteristics of Billing Services (# of Cities Using)

City Size	Paperless Billing	Contract Out Billing	Proprietary Software	# of Responses
<1,000	3	2	31	38
1,000-4,999	4	1	26	40
5,000-9,999	12	4	8	14
10,000-24,999	11	4	10	15
25,000-49,999	5	0	6	6
50,000 or more	4	0	5	5
All cities	39	11	86	118

Account Features & Fees

A majority of cities do not require the account to be in the property owner’s name. However, cities with a population of 25,000 or more frequently had this requirement compared to smaller cities. When a property is unoccupied, most cities will close the account associated with that property until the next occupant opens an account. However, some cities allow the owner to request a vacant rate instead of closing the account. The latter option occurs more in cities with populations of less than 5,000. This is conceivable since many cities with a population of less than 5,000 experience an increase in residents during certain times of the year (Table 3.2). Many of these seasonal residents may occupy another home during other parts of the year. Most cities have an “other” way of handling billing for vacant properties as shown in Table 2.5.

Table 2.4: Percentage of Cities that Require Account to be in Property Owner's Name

City Size	Account Must be Property Owner
<1,000	26
1,000-4,999	17
5,000-9,999	8
10,000-24,999	7
25,000-49,999	33
50,000 or more	50
All cities	19

Table 2.5: Number of Cities Billing for Vacant Properties

City Size	Close Account, No Charges	Vacant Rate, Request of Owner	Does Not Handle	Other
<1,000	14	4	1	16
1,000-4,999	21	8	0	9
5,000-9,999	5	0	0	8
10,000-24,999	6	2	1	6
25,000-49,999	3	0	0	3
50,000 or more	2	0	0	1
All cities	51	14	2	43

The survey asked what additional types of account fees are included in water bills. Based on the responses, the most common type of account fee included in the bill was shutoff followed by “other” fees. “Other” examples include, but are not limited to, system improvement, stormwater and emergency fund. A handful of cities with a population of less than 5,000 do not have any fees, which is not the case for other city sizes.

Table 2.6: Number of Cities with Types of Account Fees

City Size	Backflow	New Account	Shutoff	Tampering	None	Other
<1,000	6	12	16	4	11	7
1,000-4,999	4	8	14	7	10	15
5,000-9,999	0	2	12	6	1	7
10,000-24,999	1	6	7	7	1	7
25,000-49,999	2	1	6	4	0	0
50,000 or more	2	2	3	3	1	1
All cities	15	31	58	31	24	37

The survey also asked what types of governmental fees are included in water bills, such as streetlights, parks, police and library fees. As Table 2.7 shows, the number of cities that include other government service fees in their utility bills is very small. If cities do include such fees, most are for “other” types of fees, followed by streetlights, parks and police. “Other” examples include, but are not limited to, Emergency Medical Services (EMS), fire protection and street maintenance. The latter was the most frequently listed example.

Table 2.7: Number of Cities with Types of Governmental Fees

City Size	Streetlights	Parks	Police	Library	None	Other
<1,000	0	1	1	0	33	0
1,000-4,999	4	2	0	0	26	7
5,000-9,999	1	2	2	1	6	5
10,000-24,999	4	0	1	0	6	6
25,000-49,999	0	1	1	0	2	4
50,000 or more	0	1	1	0	2	2
All cities	9	7	6	1	75	24

When an account holder has a late payment or nonpayment, cities use several methods of enforcement to address the issue. Table 2.8 indicates the most popular method of enforcement is to disconnect the water service, followed by administering a late fee. Although not as highly used, liens on property and collections are other commonly used methods.

Table 2.8: Number of Cities that Use Methods of Enforcement for Late or Nonpayment

City Size	Penalties and Interest	Collections	Lien on Property	Other	Late Fee	Disconnect Water Service
<1,000	10	17	25	3	31	37
1,000-4,999	10	19	32	2	36	37
5,000-9,999	5	9	10	2	13	14
10,000-24,999	4	13	7	4	11	15
25,000-49,999	4	6	3	0	6	6
50,000 or more	3	5	1	1	4	5
All cities	36	69	78	12	101	114

While disconnecting the water service is a common method of enforcement, most cities wait four to six weeks before disconnecting a customer's service (Table 2.9). Cities of 50,000 in population allowed for the longest elapsed time for disconnect at an average of 49 days. On average, cities with a population of less than 25,000 will assess a late fee less than a month from the due date, while cities with a population of 25,000 or more allow for more than a month. The average number of days before triggering collections for responding cities varied from less than two months to almost four months.

Table 2.9: Average Days Elapsed Before Method of Enforcement Triggered

City Size	Late Fee Assessed	Disconnect	Collections
<1,000	17	44	83
1,000-4,999	19	31	74
5,000-9,999	23	35	58
10,000-24,999	22	32	78
25,000-49,999	38	45	113
50,000 or more	39	49	69
All cities	20	37	79

Rate Characteristics

The survey results show that a majority of cities (81 percent for water, 81 percent for wastewater, 86 percent for stormwater) do not have an automatic CPI/Income adjustment. Cities with a population range of 1,000-4,999 and 10,000-49,999 represent the highest percentage of cities that automatically adjust rates for inflation. None of the cities with a population of 50,000 or more automatically adjust rates for inflation. Cities had the option to select “not applicable” (N/A) in order to indicate that they do not provide this service.

Table 2.10: Percentage of Cities with Automatic CPI/Income Adjustment

City Size	Water		Wastewater		Stormwater	
	%	N/A	%	N/A	%	N/A
<1,000	6	5	10	13	0	24
1,000-4,999	33	5	27	8	25	21
5,000-9,999	8	0	9	2	0	2
10,000-24,999	23	1	23	1	25	2
25,000-49,999	33	0	33	0	20	1
50,000 or more	0	0	0	1	0	2
All cities	19	11	19	25	14	52

Cities often require a percentage of their rate revenue to be used for debt service, which is a way to cover the payment of interest and principle on existing debt for water infrastructure projects. As Table 2.11 shows, it is more common for cities to have a higher percentage of their rate revenue for water and wastewater obligated to debt service than it is for stormwater, except for larger cities, where all three are common. In general, wastewater has a slightly higher percentage of rate revenue obligated to debt service than water.

Table 2.11 Average Percent of Rate Revenue Obligated to Debt Service

City Size	Water	Wastewater	Stormwater
<1,000	26	33	0
1,000-4,999	15	20	0
5,000-9,999	31	25	11
10,000-24,999	20	18	4
25,000-49,999	11	24	5
50,000 or more	22	28	30
All cities	21	24	4

Generally speaking, as city size increases so does the percentage of cities that offer waivers. Cities had the opportunity to elaborate on what types of customers received waivers, and the spectrum of customers is rather large. Responses included churches, veterans, low income families, senior citizens, active duty military personnel, and hardship-approved customers. Low income and senior citizens were by far the

most frequent type of customer to receive a waiver, while some cities had unique customers. For example, one city offered its city employees free water and another city provided waivers for active duty military personnel.

When it comes to credits and adjustments for billing errors and leaks, a majority of cities provide adjustments for both. Cities are more likely to make adjustments for water leaks than for wastewater leaks as shown in Table 2.12.

Table 2.12 Percentage of Cities That Provide Waiver, Credits and Adjustments

City Size	Waivers for Certain Customers	Credit & Billing Adjustments				
		Only Billing Errors	Only Leaks	Both Billing Errors & Leaks	Water Leaks	Wastewater Leaks
<1,000	18	18	3	72	100	7
1,000-4,999	26	10	0	85	97	24
5,000-9,999	21	0	7	93	93	71
10,000-24,999	53	0	7	93	93	60
25,000-49,999	83	0	0	100	100	33
50,000 or more	80	0	0	100	100	80
All cities	31	9	3	84	97	34

CHAPTER 3: SYSTEM CHARACTERISTICS

This chapter summarizes key characteristics of the responding municipalities' systems such as: service provision; service populations both inside and outside city limits for permanent and seasonal residents; and the number of connections both inside and outside the city limits.

Services Provided

Of the 133 cities that responded to the survey:

- 121 provide water;
- 106 provide wastewater; and
- 61 provide stormwater.

Table 3.1 shows that water is the most predominant service offered, followed by wastewater, then stormwater. This is consistent with results from the preliminary survey (Table 1.1). Cities with a population of 5,000 or more are more likely to provide stormwater services than cities with a population less than 5,000.

Table 3.1: Number of Cities Providing Services

City Size	Water		Wastewater		Stormwater	
	Yes	No	Yes	No	Yes	No
<1,000	37	2	25	14	5	34
1,000-4,999	41	3	39	6	17	27
5,000-9,999	15	0	13	2	13	1
10,000-24,999	16	1	16	1	15	2
25,000-49,999	7	0	7	0	5	2
50,000 or more	5	1	6	0	6	0
All cities	121	7	106	23	61	66

Water

Oregon's statewide planning Goal 11 (Public Facilities and Services) limits types of services and facilities cities can provide outside of urban growth boundaries (UGBs). However, cities commonly provide services to unincorporated areas that are within the UGB. Common examples include providing water to residents within the UGB, wholesale agreements with a neighboring community, and providing water to unincorporated properties such as airports and schools.

The survey asked cities to list their permanent service population inside and outside the city limits. Additionally, cities were also given the option to indicate their peak population if it changes throughout the year. As Table 3.2 illustrates, it is common for Oregon cities to provide water services to customers outside of the city limits. Generally, the service population residing outside city limits is larger for bigger cities. Usually, the larger utilities in Oregon provide water to other cities or subdivisions under special agreements. Only one of the cities with a population range of 25,000-49,999 listed an outside population.

Of the cities that have service populations inside and outside city limits, many had the same population count for permanent and peak populations. However, some cities did experience an increase in population for a peak population. Cities with a smaller population (less than 5,000) accounted for 87 percent of cities (12 of 14) that experienced a peak inside population increase and 71 percent of cities (5 of 7) that experienced a peak outside population.

Table 3.2: Average Water Service Population Inside and Outside City Limits

City Size	Permanent Residents	
	Inside Population	Outside Population
<1,000	470	52
1,000-4,999	1,905	225
5,000-9,999	7,581	216
10,000-24,999	18,066	4,973
25,000-49,999	35,634	17
50,000 or more	82,986	17,680
All cities	10,419	1,907

On average, more outside connections exist for Single Family Residential (SFR) than commercial (Table 3.3). In other words, 11 percent of SFR connections are located outside city limits compared to 7 percent for commercial. “Other” connections surpass both SFR and commercial for cities with a population of 25,000 or more in having a larger percentage of connections located outside city limits. Although several outside connections exist for both SFR, commercial and other for all city sizes, Table 3.4 demonstrates SFRs are the most prevalent type of outside connection.

Table 3.3: Average Number of Inside and Outside Water Connections (relative to city limits)

City Size	Single Family Residential		Commercial		Other	
	Inside	Outside	Inside	Outside	Inside	Outside
<1,000	270	75	18	3	4	0
1,000-4,999	800	53	126	5	45	1
5,000-9,999	2,629	212	249	5	86	2
10,000-24,999	5,150	972	590	87	305	2
25,000-49,999	9,492	984	705	16	797	124
50,000 or more	22,339	2,297	2,323	154	1,673	729
All cities	3,136	396	307	24	235	82

Table 3.4: Percent Composition of Outside Water Connections

City Size	% Single Family Residential	% Commercial	% Other
<1,000	97	3	0
1,000-4,999	90	9	1
5,000-9,999	97	2	1
10,000-24,999	92	8	0
25,000-49,999	88	1	11
50,000 or more	72	5	23
All cities	79	5	16

Wastewater

For each city size, roughly one-third of cities provide wastewater services outside of their city limits. The average outside population receiving wastewater services is lower than the outside population receiving water service by 375 residents. The difference in outside populations receiving water versus wastewater increases significantly to about 4,100 residents for cities with a population between 10,000 and 24,999. The larger average for water is due to one city that has a significantly high outside service population for water. If that city were not included in the average, the outside water service population is more comparable at 1,270 residents. The number of cities that experienced a peak inside/outside service population for wastewater services is relatively low. Only eight cities experienced an increase in peak inside population and five of those cities were less than 5,000 in population. Only two cities experienced a peak outside population.

Table 3.5: Average Wastewater Service Population Inside and Outside City Limits

City Size	Permanent Residents	
	Inside Population	Outside Population
<1,000	521	19
1,000-4,999	2,028	84
5,000-9,999	8,427	71
10,000-24,999	17,414	870
25,000-49,999	30,101	-
50,000 or more	66,115	18,872
All cities	11,054	1,532

When compared to water, wastewater has a lower average number of connections per connection type. This is expected given that water is the most commonly provided service among the cities that responded to the survey. Interestingly, cities with a population of 50,000 or more have a higher percentage of SFR

(16 percent) and commercial (11 percent) connections located outside the city limits compared to water which is 9 percent and 6 percent, respectively. As shown in Table 3.7 SFR remains the predominate type of outside connection for all city sizes.

Table 3.6: Average Number of Inside and Outside Wastewater Connections (relative to city limits)

City Size	Single Family Residential		Commercial		Other	
	Inside	Outside	Inside	Outside	Inside	Outside
<1,000	250	7	19	1	3	-
1,000-4,999	768	26	83	4	47	-
5,000-9,999	2,841	12	297	2	43	0
10,000-24,999	5,256	200	473	28	323	0
25,000-49,999	8,348	266	776	6	598	55
50,000 or more	22,449	4,424	1,873	224	7,752	587
All cities	3,273	363	299	20	876	51

Table 3.7: Percent Composition of Outside Wastewater Connections

City Size	% Single Family Residential	% Commercial	% Other
<1,000	93	7	0
1,000-4,999	87	13	0
5,000-9,999	85	13	2
10,000-24,999	88	12	0
25,000-49,999	81	2	17
50,000 or more	85	4	11
All cities	84	5	12

Stormwater

Stormwater is the least common service provided when compared to water and wastewater. If a city does provide it, it is predominately offered inside city limits (Table 3.8). In this survey, for the cities that do provide stormwater services outside of city limits, most of the connections are SFR. However, only six cities listed an outside population for SFR. Two cities listed an outside population for commercial, and none of the cities reported outside connections of “other.”

Table 3.8: Average Number of Inside and Outside Stormwater Connections (relative to city limits)

City Size	Single Family Residential		Commercial		Other	
	Inside	Outside	Inside	Outside	Inside	Outside
<1,000	132	1	14	0	0	0
1,000-4,999	811	7	82	0	22	0
5,000-9,999	2,258	0	242	0	22	0
10,000-24,999	4,972	76	533	16	173	0
25,000-49,999	11,300	0	586	0	2,490	0
50,000 or more	24,826	0	2,157	0	2,292	0
All cities	4,241	20	385	4	2,218	0

CHAPTER 4: SYSTEM RATES AND INFRASTRUCTURE HIGHLIGHTS

This chapter highlights survey responses for the water, wastewater and stormwater rates changes and system characteristics. Survey responses are presented in two main subsections for each system. The first section, “Rate Changes,” summarizes: when cities have updated rates; how rates have changed; why they have changed; and pricing structures. The second section describes system characteristics or facilities, including: the age of the facilities; miles of lines; average cost of water; and types of programs among other topics. Comparisons of how the current state of Oregon’s water utility rates and system characteristics has changed since the 2009 survey are also discussed when data is available.

Drinking Water Systems

Rate Changes

Most cities have changed their rates within the last two years. In fact, 2014 was the most common year for rate changes for all city sizes. Only six cities have not adjusted their rates within the last 10 years, and almost all cities increased their rates, with the exception of three. It appears that within the rate change, most of the cities experienced an overall increase in rates; only a handful experienced both increases and decreases. The results illustrate that customers can continue to expect water rates to increase over time.

Table 4.1: Average Year of Water System Rate Changes & Number of Cities That Experienced Increases and Decreases in Rate Change

City Size	Last Rate Change		Overall		Some of the Rates Both Increased and Decreased	
	Avg. Year	Mode	Increase	Decrease	Yes	No
<1,000	2012	2014	33	0	8	25
1,000-4,999	2013	2014	35	2	7	30
5,000-9,999	2013	2014	13	1	0	14
10,000-24,999	2014	2014	14	0	2	14
25,000-49,999	2014	2014	6	0	0	6
50,000 or more	2014	2014	6	0	0	6
All cities	2013	2014	107	3	17	95

The survey asked respondents to elaborate on why their rates increased and provided the option to select multiple reasons. Overall, inflation and capital improvement were the top reasons for rate changes, unchanged from the 2009 survey results. This is expected given that the nation’s water system has entered the “rehabilitation and replacement era” as documented in the Environmental Protection Agency’s

(EPA) 2011 Drinking Water Infrastructure Needs Survey and Assessment.¹ Treatment costs and labor costs also were significant reasons for rate changes, but the number of cities that listed those as a catalyst has dropped slightly from the 2009 survey. “State and federal mandate” has also dropped significantly compared to the 2009 survey. Table 4.2 further depicts the breakdown of the catalysts for change.

Table 4.2: Catalysts for Rate Changes (# of Cities)

City Size	State/ Federal Mandate	Inflation/CPI	Treatment Costs	Labor Costs	Capital Improvement	Reason Unknown	Other
<1,000	1	15	7	7	17	1	10
1,000-4,999	2	19	9	10	12	1	6
5,000-9,999	1	7	5	5	9	0	2
10,000-24,999	1	11	4	5	9	0	5
25,000-49,999	1	4	2	2	5	0	0
50,000 or more	2	5	4	4	4	0	0
All cities	8	61	31	33	56	2	23

The pricing structure a city uses to bill its customers can influence how customers use water. For example, an inclining block rate is going to be more expensive for a customer as the amount of water usage increases. “Other” was the most common type of pricing structure, followed by a flat rate and inclining block rate. Only two cities offer a declining block rate. The most common identified pricing structure in the “other” category is a base rate with usage rates added on. Based on this information, with the high incidence of cities using inclining block rates, it is clear that many cities charge customers more as their water usage increases.

¹EPA. Drinking Water Infrastructure Needs Survey and Assessment: Fifth Report to Congress. http://water.epa.gov/grants_funding/dwsrf/upload/epa816r13006.pdf

Table 4.3: Number of Cities Using Types of Pricing Structures for Water System

City Size	Flat Rate	Inclining Block Rate	Declining Block Rate	Other
<1,000	15	10	0	10
1,000-4,999	11	11	1	17
5,000-9,999	5	3	0	7
10,000-24,999	3	6	0	7
25,000-49,999	1	2	0	3
50,000 or more	2	1	1	2
All cities	37	33	2	46

Many cities do not charge for elevation pumping or provide discounts for lower elevations. As highlighted in Table 4.4, more than one-half of the cities that do charge or provide discounts are cities with populations greater than 10,000.

Table 4.4: Number of Cities Charging for Elevation/ Pumping or Providing Discounts for Lower Elevation

City Size	Do	Do Not	# of Responses
<1,000	1	34	35
1,000-4,999	1	39	40
5,000-9,999	0	15	15
10,000-24,999	1	15	16
25,000-49,999	2	4	6
50,000 or more	1	5	6
All cities	6	112	118

Average Water Bill

The survey asked cities what a residential customer would be charged for using 5,000 gallons of water as measured by a $\frac{3}{4}$ " meter. Even though cities may offer different pricing structures that do not fit this scenario, this amount was chosen as a way to provide a best possible comparison among cities. If cities did not have a pricing structure that would allow them to bill for exactly 5,000 gallons, they listed the lowest billing amount that would include the 5,000 gallons. The following results are presented by city size and by region. The regional analysis consists of six regions: Coastal, Valley, Southern, Portland/Mt. Hood, Central and Eastern.

It's important to note that the values reported below are just that, values. Assumptions cannot be made that a utility is in the black or red. In other words, a lower value does not necessarily suggest a utility is

meeting its maintenance and operating costs and generating enough revenue to fund capital investments. Similarly, a higher value does not necessarily suggest a city is generating more revenue than it needs.

City Size

The average water bill for a residential customer was highest for smaller cities, at about \$40, while bills were lowest for cities with populations of 50,000 or more at about \$26. This makes sense as the economy of scale is more favorable for larger utility operations.

When adjusted for inflation, the average 2009 water bill for all city sizes is lower than the 2014 average (Table 4.5). Overall, the average increase from 2009 to 2014 is \$2.22, but for the varying city sizes, the increase ranges from -\$1.23 to \$5.27. While cities with a population of 1,000-4,999 seemed to experience a decrease, this city size has reported increasing their rates as presented in Table 4.1. Furthermore, every city of this size that participated in both the 2009 and 2014 survey reported a higher bill in 2014 than in 2009 for this scenario. One explanation is that cities that did not participate in the 2014 survey but did so in 2009 had higher bills, increasing the 2009 average. Table 4.5 also shows the lowest and highest 2014 average bill for each city size. The city with the lowest bill has not increased its rates since 1998. The city with the highest bill raised rates in 2013 to invest in capital improvements to address a 60 percent water loss rate, cover operation and maintenance costs, and ensure an ability to repay bonds.

Table 4.5: Average Water Bill for 5,000 gallons with a ¾" meter for a Residential Customer (Dollars)

City Size	2009 Adjusted*	2014	2014 Low	2014 High
<1,000	37.36	39.95	10.00	69.75
1,000-4,999	35.27	34.04	15.00	60.75
5,000-9,999	30.08	33.40	20.10	51.38
10,000-24,999	26.41	31.68	14.26	57.94
25,000-49,999	27.47	32.65	18.55	57.32
50,000 or more	22.02	26.21	10.57	43.09
All cities	32.66	34.88	10.00	69.75

*Portland-Salem CPI-U used

Regional

As illustrated in Table 4.6, each region's average, highest and lowest bill is reported along with the range. Additionally, Appendix C provides charts of cities' reported water bills for each region. The Southern region had the lowest average water bill at \$30.12, while the Valley had the highest average bill at \$40.26 (34 percent more expensive). When compared to city size averages, the average regional bill is similar but tends to be slightly higher. The Eastern region houses the city with the lowest reported bill, and the city with the highest bill resides in the Valley. Regardless of region, the lowest water bills are comparable, falling roughly within a \$10 window. This is not the case when comparing the six regions' highest bills—the biggest difference is almost \$30.

While every region had a broad distribution of reported values, some notable differences exist. For this scenario, the Valley did not have any cities reporting a water bill less than \$20. Only five cities had a reported bill of \$60 or more. Four out of five of those cities are located within the Valley. While the Southern region has the lowest average bill and range, the Central region would have the lowest average water bill at around \$29 with the exception of one city.

Table 4.6 Average Water Bill for 5,000 gallons with a ¾" meter for a Residential Customer by Region (Dollars)

City Size	2014	Low	High	Range
Coastal	38.01	17.40	60.75	43.35
Valley	40.26	20.10	69.75	49.65
Southern	30.12	10.57	41.97	31.40
Portland/Mt. Hood	33.19	14.85	57.32	42.47
Central	31.96	14.26	57.94	43.68
Eastern	31.73	10.00	45.92	35.92
All cities	34.88	10.00	69.75	59.75

Facilities and Infrastructure

A positive correlation exists between city size and the average age of water facilities, based on original construction date; age increases with city size. For example, the average years plants were built for cities with populations less than 10,000 were in the 1960s. For cities with a population of 10,000 or more, the average years of original construction of facilities took place in the 1930s to 1940s (Table 4.7). For facility upgrades, most of the city sizes had an average upgrade year that occurred within the last decade, except for cities with a population of less than 1,000 and 25,000-49,999.

Overall, the average age of facilities is older in the 2014 survey (54 years) when compared to the 2009 survey, which was 25 years old (adjusted for age in 2014). This holds true even when broken down by city size. This may be due to an increase in respondents that provided a year of original construction for the 2014 survey which would have increased the average age of facilities.

Table 4.7: Average Age of Facility and Facility Upgrades

City Size	Avg. Year Built	Avg. Year Upgraded
<1,000	1966	2000
1,000-4,999	1964	2004
5,000-9,999	1969	2005
10,000-24,999	1938	2005
25,000-49,999	1943	2000
50,000 or more	1953	2005
All cities	1960	2003

Not surprisingly, a positive correlation also exists for city size and the total mileage of water lines as indicated in Table 4.8. These numbers are similar to the 2009 survey results. However, the average miles of water line for communities of 50,000 or more is less than in 2009.

Table 4.8: Average Total Miles of Water Lines, Not Including Service/Laterals

City Size	Miles
<1,000	8
1,000-4,999	19
5,000-9,999	46
10,000-24,999	107
25,000-49,999	185
50,000 or more	427
All cities	76

Wastewater System Highlights

Rate Changes

Most cities have updated their wastewater rates within the last three years. The most common year in which cities last updated rates was 2014, and only three cities have not updated their rates in the last 10 years. The overall rate increased for 96 percent of cities, which is higher than the 2009 survey. These responses indicate that cities are providing up-to-date pricing, which shows customers that wastewater bills will increase over time. Only four cities decreased their rates. Within the rate change, more often than not, most of the rates increased. Smaller cities were more likely to experience increases and decreases within the rate change itself.

Table 4.9: Average Year of Wastewater System Rate Changes & Number of Cities That Experienced Increases and Decreases in Rate Change

City Size	Last Rate Change		Overall Rate		Some of the Rates Both Increased and Decreased	
	Avg. Year	Mode	Increase	Decrease	Yes	No
<1,000	2013	2014	23	0	6	17
1,000-4,999	2013	2014	32	2	4	30
5,000-9,999	2012	2014	12	1	0	13
10,000-24,999	2014	2014	15	1	2	14
25,000-49,999	2014	2014	6	0	0	6
50,000 or more	2014	2014	5	0	2	4
All cities	2013	2014	93	4	14	84

The survey asked respondents to elaborate on why their rates increased and provided the option to select multiple reasons. Many catalysts are responsible for increased rates, with inflation/CPI and capital improvements being the highest. However, treatment and labor costs are also significant catalysts. Table 4.10 provides a further breakdown of the different reasons rates changed.

Table 4.10: Number of Cities' Catalysts for Wastewater Rate Change

City Size	State/ Federal Mandate	Inflation/CPI	Treatment Costs	Labor Costs	Capital Improvement	Reason Unknown	Other
<1,000	2	9	11	8	15	0	5
1,000-4,999	2	16	7	8	11	1	6
5,000-9,999	1	5	5	5	6	0	3
10,000-24,999	1	11	5	4	9	0	3
25,000-49,999	3	6	3	3	5	0	0
50,000 or more	3	5	4	4	4	0	2
All cities	12	52	35	32	50	1	19

Cities of less than 5,000 population are more likely to use a flat rate for wastewater or an “other” method, while cities between 5,000 and 49,999 population are likely to use a winter average of water consumption or a flat rate. Using a winter average of water consumption in summer months is more common than using all year round, except for cities of 50,000 population or more where all year is more common.

Table 4.11: Number of Cities Using Types of Pricing Structures for Wastewater System

City Size	Flat Rate	Winter average water consumption used		Other
		Summer Months	All Year	
<1,000	18	1	0	4
1,000-4,999	23	3	2	10
5,000-9,999	4	5	2	2
10,000-24,999	6	7	2	1
25,000-49,999	3	1	1	1
50,000 or more	1	1	3	1
All cities	55	18	10	19

Average Wastewater Bill

The survey asked cities to indicate what a residential customer would be charged for using 5,000 gallons of water as measured by a three-fourths inch meter. Even though cities may offer different pricing structures that do not fit this scenario, this amount was chosen as a way to provide a best possible comparison among cities. If cities did not have a pricing structure that would allow them to bill for exactly 5,000 gallons, cities listed the lowest billing amount that would include the 5,000 gallons. The following results are presented both by city size and by region. The analysis consists of six regions: Coastal, Valley, Southern, Portland/Mt. Hood, Central, and Eastern.

It should be noted that the values reported below are just that, values. Assumptions cannot be made that a utility is in the black or red. In other words, a lower value does not necessarily suggest a utility is meeting its maintenance and operating costs and generating enough revenue to fund capital investments. Similarly, a higher value does not necessarily suggest a city is generating more revenue than it needs.

City Size

The average wastewater bill stays somewhat consistent for all city sizes. By contrast, drinking water rates tend to decrease as city size increases. When adjusted for inflation, the average 2009 wastewater bill for all city sizes is less than the 2014 average wastewater bill (see Table 4.12). The amount the bill increased ranged from \$1.20 to \$10.93 depending on city size, and the average overall increase was \$4.25. An analysis of the data specific to cities with a population between 10,000 and 24,999 was unable to identify a common causal factor in the almost \$11 rate increase over the last five-year period. However, cities with a population of 25,000-49,999 represent some of the largest percentages of cities that have adjusted rates for inflation, treatment, labor costs and capital improvement compared to other city sizes. This may explain why that city size has an average increase of \$7.12 over the last five years.

Table 4.12 also shows the lowest and highest bill for each city size. The lowest bill was a city with a population less than 1,000, and the highest bill was a city with a population between 1,000 and 5,000. The information available for this survey limits an explanation for the lowest and highest cost. One possible explanation for the higher bill is that the city recently completed a facility upgrade in 2014. It appears that flat rate billing is a common pricing structure for both lower and higher wastewater bills. Eight out of 13 cities (62 percent) use flat rate billing when the wastewater bill is \$30 or less. Six out of 11 (55 percent) offer flat rate billing when a wastewater bill is \$60 or more. Three out of four cities (75 percent) with bills \$70 or more use flat rate billing.

Table 4.12: Average Wastewater Bill for 5,000 gallons with a ¾" meter for a Residential Customer (Dollars)

City Size	2009 Adjusted*	2014	2014 Low	2014 High
<1,000	38.49	42.86	15.00	70.00
1,000-4,999	43.50	44.70	21.25	90.00
5,000-9,999	40.21	43.94	23.05	63.85
10,000-24,999	34.76	45.69	27.79	67.08
25,000-49,999	32.50	39.62	27.04	61.99
50,000 or more	34.64	40.46	15.85	51.88
All cities	39.59	43.84	15.00	90.00

*Portland-Salem CPI-U used

Region

As illustrated in Table 4.13, each region's average, highest and lowest bill is reported along with the range. Additionally, Appendix D provides charts of cities' reported water bills for each region. The Eastern region has the lowest average wastewater bill (\$40.25), and the Coastal region has the highest (\$51.18), making it almost 27 percent more expensive than the Eastern region. Similar to the results for city size, wastewater rates are pretty consistent among regions, except for the Coastal region, which has a significantly higher average cost per 5,000 gallons. The Central region houses the lowest wastewater bill (\$15) and the Southern region has the city with the highest bill (\$90).

While every region had a broad distribution of reported values, some notable differences exist. The Southern and Central regions are the only regions to have at least one city with a bill less than \$20. As depicted in Table 4.13, the Southern region has the largest range among all six regions, but it has the city with the highest wastewater bill in the state. When excluded, the range decreases to about \$40 and becomes comparable. Around \$55 is a point where many regions have a jump in price for their wastewater bill (see Appendix D). This is most obvious when viewing the distribution for the Coastal region. It has five cities with a wastewater bill over \$60, which is 36 percent of responding cities in that region. Almost all other regions only have about 10-13 percent of cities with bills greater than \$60.

Table 4.13: Average Wastewater Bill for 5,000 gallons with a ¾" meter for a Residential Customer by Region (Dollars)

City Size	2014	Low	High	Range
Coastal	51.18	28.00	79.18	51.18
Valley	45.44	30.00	70.00	40.00
Southern	41.54	15.85	90.00	74.15
Portland/Mt. Hood	42.00	23.05	61.99	38.94
Central	41.44	15.00	63.00	48.00
Eastern	40.25	21.25	59.89	38.64
All cities	43.84	15.00	90.00	75.00

Programs and Treatment

With increases in population, the percentage of cities that have industrial wastewater pretreatment/program increases (Table 4.14). Cities of less than 1,000 had the lowest percentage at 6 percent and cities with a population of 10,000-24,999 and 50,000 or more had the highest percentage at 83 percent. No clear trend exists between city size and the percentage of cities that provide reclaimed water services. For biosolids, it appears that as city size increases the percentage of cities that apply biosolids also increases, with the exception of cities with a population of 25,000-49,999.

Table 4.14: Percentage of Cities That Provide Additional Wastewater Services

City Size	Industrial Wastewater Pretreatment/Program	Reclaimed Water	Biosolids
<1,000	6	37	20
1,000-4,999	20	26	36
5,000-9,999	11	78	38
10,000-24,999	83	18	42
25,000-49,999	80	20	20
50,000 or more	83	33	50
All cities	33	33	33

Primary treatment is predominantly the highest level of treatment for responding cities with a population of less than 1,000. However, as city size increases, more cities provide secondary treatment as their highest level of treatment increases. Advanced or tertiary treatment varies depending on the city size. Cities with populations ranging from 5,000 to 9,999 represent the largest percentage of cities using advanced/tertiary treatment (44.5 percent). Overall, nitrogen removal is more common than phosphorous removal shown in Table 4.15.

Table 4.15: Percentage of Cities that Provide Highest Level of Treatment and Nitrogen & Phosphorous Removal

City Size	Primary	Secondary	Advanced/Tertiary	Nitrogen Removal	Phosphorous Removal
<1,000	54	38	8	0	8
1,000-4,999	27	52	21	24	17
5,000-9,999	11	44.5	44.5	33	22
10,000-24,999	22	67	11	11	11
25,000-49,999	0	67	33	67	33
50,000 or more	0	67	33	17	0
All cities	26	52	22	20	14

Facilities and Infrastructure

The average year of the original construction of the facilities varies by city size and ranges from the mid-1960s to early 1980s. The 2014 survey results show that the smallest and largest city sizes have facilities that are relatively the same in age (34 and 33 years old), while cities with a population between 5,000 and 24,999 have facilities a decade older (46 and 49 years old). In contrast, the 2009 survey indicated the average age of treatment facilities for cities with a population of less than 1,000 was 19.5 years, and 40 years for cities with a population of 25,001 or more. This discrepancy could be attributed to the fact that different cities responded to the 2014 survey, which adjusted the average age. All city sizes, except those with populations between 1,000 and 9,999 had an upgrade in the last decade.

Table 4.16: Average Age of Facility and Facility Upgrades

City Size	Avg. Year Built	Avg. Year of Upgrade
<1,000	1980	2006
1,000-4,999	1979	2001
5,000-9,999	1968	1996
10,000-24,999	1965	2005
25,000-49,999	1977	2008
50,000 or more	1981	2010
All cities	1976	2003

Like water systems, wastewater systems typically have more total miles of lines as city size increases. The average total miles of lines is greater for water than wastewater. Averages are similar to the 2009 survey except for cities with a population of 50,000 or more, where the 2014 average is lower by 200 miles. The lower 2014 average is because Portland, a city with more than 1,800 miles in sewer lines, was included in the 2009 average and not in 2014. If the 2009 average did not include Portland, it would be 349 miles, which is comparable to the 2014 average.

Table 4.17: Average Total Miles of Sewer Lines, Not Including Laterals

City Size	Miles
<1,000	6
1,000-4,999	16
5,000-9,999	33
10,000-24,999	71
25,000-49,999	163
50,000 or more	375
All cities	68

Every two years the Oregon Department of Environmental Quality (DEQ) determines the condition of Oregon's waterbodies. Some waters have poor or concerning water quality conditions, and the term often used for these waters is water quality limited. When this is the case, a Total Maximum Daily Load (TMDL) is established, which is a calculated pollutant a waterbody can receive to still meet water quality standards. The DEQ requires cities discharging to these waters to take measures to improve water quality. In general, 45 percent of cities are discharging wastewater to a waterbody that is water quality limited or under special regulations. This is about the same percentage of communities as the 2009 survey. Cities with populations ranging from 10,000 to 24,999 have the highest percentage at 73 percent and cities 1,000-4,999 have the lowest at 31 percent (Table 4.18). Cities provide a short commentary on what they are doing to address their discharge into water quality limited waters in Table D.5 in Appendix D.

Table 4.18: Percentage of Cities Releasing Into Waters Identified as Water Quality Limited or That Have Special Regulation

City Size	TMDL*
<1,000	33
1,000-4,999	31
5,000-9,999	56
10,000-24,999	73
25,000-49,999	50
50,000 or more	67
All cities	45

*TMDL: Total Maximum Daily Load

Stormwater Systems

Rate Changes

Most cities changed their stormwater rates in the last four years. Similar to water and wastewater rate updates, 2014 was the most common year for the last rate change for all city sizes, except cities with a population of less than 1,000 which did not have a mode. All cities except for one experienced an overall rate increase.

Table 4.19: Average Year of Stormwater System Rate Changes and Number of Cities That Experienced Increases and Decreases in Rate Change

City Size	Last Rate Change		Overall Rate Change	
	Avg. Year	Mode	Increase	Decrease
<1,000	2012	-	1	1
1,000-4,999	2013	2014	7	0
5,000-9,999	2011	2014	7	0
10,000-24,999	2013	2014	13	0
25,000-49,999	2014	2014	3	0
50,000 or more	2012	2014	3	0
All cities	2013	2014	34	1

The survey asked respondents to elaborate on why their rates increased and provided the option to select multiple reasons. Several factors are catalysts for change, with inflation/CPI and capital improvement being the most predominant catalysts. No cities indicated state/federal mandates as a reason for increasing rates.

Table 4.20: Number of Cities Catalysts for Stormwater Rate Change

City Size	State/Federal Mandate	Inflation/CPI	Treatment Costs	Labor Costs	Capital Improvement	Reason Unknown	Other	N/A
<1,000	0	1	0	0	1	0	1	1
1,000-4,999	0	5	1	0	0	0	1	6
5,000-9,999	0	3	1	3	4	0	3	1
10,000-24,999	0	8	3	3	7	0	3	1
25,000-49,999	0	3	1	3	2	0	1	2
50,000 or more	0	3	1	1	2	0	3	0
All cities	0	23	7	10	16	0	12	11

Many cities have stormwater rates as a separate utility fee. Only two cities include it in wastewater fees.

Table 4.21: Stormwater Rates

City Size	Separate Utility Fee	No fee	Included in Wastewater	Other
<1,000	2	2	0	1
1,000-4,999	7	5	0	4
5,000-9,999	11	2	0	0
10,000-24,999	9	1	2	1
25,000-49,999	5	0	0	0
50,000 or more	4	0	0	1
All cities	38	10	2	7

As shown in Table 4.22, as city size increases, cities are more likely to offer stormwater reductions/credits. Similarly, as city size increases, the monthly payment amount increases.

Table 4.22: Percentage of Cities That Offer Stormwater Rate Reductions/Credits and Average Monthly Payment

City Size	Reduction/Credits Offered	Avg. EDU Monthly Payment
<1,000	0	\$2.75
1,000-4,999	0	\$2.30
5,000-9,999	15	\$3.50
10,000-24,999	40	\$7.25
25,000-49,999	60	\$7.84
50,000 or more	60	\$8.20
All cities	25	\$4.78

System Characteristics

Cities with larger populations have more miles of piped system, open channel, ditches and swales. This is expected given that the area of a city generally increases as the city population increases. Cities with a population of 50,000 or more have the largest miles of open channel, ditches and swales at 257 miles.

The average square feet of residential established dwelling units (EDU) ranges from 940 square feet to 2,974 square feet. Cities with the lowest square footage of residential EDUs are those less than 1,000 population. Cities with a population of 5,000-9,999 had the highest average square feet at 3,207.

Table 4.23: Average Miles of Stormwater System and Square Footage of Dwelling Units

City Size	Miles of Piped System	Miles of Open Channel, Ditches, & Swales	Square Feet of Residential EDU
<1,000	4	4	940
1,000-4,999	8	3	1,250
5,000-9,999	34	14	3,207
10,000-24,999	52	13	2,777
25,000-49,999	123	53	2,407
50,000 or more	257	84	2,974
All cities	56	19	2,382

CHAPTER 5: ASSET MANAGEMENT

Many cities are starting to use asset management, defined by the Environmental Protection Agency (EPA) as, “the practice of managing infrastructure capital assets to minimize the total cost of owning and operating them while delivering the desired service levels.”² Many agencies, like the EPA, devote programmatic and funding resources to aide communities in developing asset management programs. Part of the survey examines how many Oregon cities are utilizing asset management for water, wastewater and stormwater. The following results do not include cities who responded “not applicable” (N/A).

Water

In general, as the city size increases, the percentage of cities with a water asset management plan also increases. All cities that responded with populations of 25,000 or more have a water asset management plan. Cities of 1,000-4,999 population have the lowest percentage at 31 percent. Cities with a population of less than 1,000 have the second lowest percentage at 39 percent, but surprisingly have the highest percentage of adequately funded plans (67percent) along with cities with a population of 10,000-24,999.

Compared to the 2009 survey results:

- The percentage of responding cities that have an asset management plan for water has decreased for cities with less than 5,000 in population, and has increased in cities greater than 5,000 in population, with the exception of cities within 10,000-25,000 population which experience a slight decline.
- The percentage of responding cities that have adequately funded plans has decreased for those with population ranging from 1,000-4,999, and for those with populations of 25,000 or more.
- The percentage of responding cities with adequately funded plans with populations of <1,000, 5,000-9,999, and 10,000-24,999 has significantly increased.

Table 5.1: Percentage of Cities with Water Asset Management Plans

City Size	% Have Plans	% Adequately Funded	Total Responses
<1,000	39	67	23
1,000-4,999	31	22	29
5,000-9,999	73	38	11
10,000-24,999	82	67	11
25,000-49,999	100	40	5
50,000 or more	100	50	4
All cities	53	48	83

² http://water.epa.gov/infrastructure/sustain/asset_management.cfm

Wastewater

Once a city grows to a population of 5,000 or more, there is a drastic increase in the percentage of cities that have a wastewater asset management plan. Cities with a population ranging from 25,000 to 49,000 had the highest percentage at 100 percent, while cities with a population less than 1,000 had the lowest at 31 percent. Surprisingly, 80 percent of the small cities that have wastewater asset management plans have adequate funding for them as illustrated in Table 5.2. Cities with a population range of 1,000 to 4,999 have the lowest percentage of cities with funding at 11 percent, followed by cities of 50,000 or more at 33 percent.

Compared to the 2009 survey results:

- The percentage of responding cities that have a wastewater asset management plan has decreased for cities with a population of less than 5,000.
- The percentage of responding cities that have a wastewater asset management plan has stayed the same roughly or has increased for cities with populations of 5,000 or more (note: 10,000-24,999 had a 4 percent decrease).
- The percentage of responding cities with adequate funding has increased for all population categories except 1,000-4,999 and 50,000 or more.

Table 5.2: Percentage of Cities with Wastewater Asset Management Plans

City Size	% Have Plans	% Adequately Funded	Total Responses
<1,000	31	80	16
1,000-4,999	33	11	27
5,000-9,999	75	50	8
10,000-24,999	80	75	10
25,000-49,999	100	60	5
50,000 or more	75	33	4
All cities	51	50	70

Stormwater

As indicated earlier, many small cities did not provide stormwater services, so it is not surprising to see that relatively few cities with population sizes less than 5,000 have stormwater asset management plans. All cities that responded with a population between 25,000 and 49,999 had a stormwater asset management plan as shown in Table 5.3. Cities with a population range of 10,000 to 24,999 have the highest percentage of adequately funded plans at 71 percent.

Compared to the 2009 survey results:

- The percentage of responding cities that have a stormwater asset management plan decreased for cities with a population of less than 5,000 and 10,000 to 24,999.
- With the exception of cities with a population of less than 5,000, the percentage of responding cities with adequately funded plans has increased.

Table 5.3: Percentage of Cities with Stormwater Asset Management Plans

City Size	% Have Plans	% Adequately Funded	Total Responses
<1,000	0	0	8
1,000-4,999	20	0	20
5,000-9,999	67	33	9
10,000-24,999	64	71	22
25,000-49,999	100	60	5
50,000 or more	67	50	3
All cities	43	46	56

Asset Management Conclusions

Based on the survey results, water asset management plans are the most common (53 percent of respondents reported having a water asset management plan), followed by wastewater (51 percent) and then stormwater (43 percent). Compared to 2009, for smaller cities that do have plans, the percentage reporting adequate funding has increased. There was a slight decrease in the percentage of cities with a population between 10,000 and 24,999 that have asset management plans. Note that these differences could be related to different cities responding to the survey in 2009 and 2014.

APPENDIX A: SURVEY DESIGN & ADMINISTRATION

The Community Service Center (CSC) worked with the League and a focus group to revise the 2009 survey in preparation for the 2014 version. Through the survey design process, the CSC and the League hosted three phone conferences with the focus group to develop new questions, review and revise questions from previous surveys, and discuss survey administration strategies.

After gathering feedback, the CSC transferred the survey questions into Qualtrics, an online survey vendor that the University of Oregon uses. The CSC gave the survey link for review and comment to League staff and focus group members. After initial review of the online format, the CSC asked the focus group to take a pilot survey to test for organization, question order and content. The pilot consisted of two rounds of review. The goal of these reviews, once the survey was in online format, was to improve focus and clarity of the questions.

To administer the actual survey, League staff provided a list of city managers/administrators or appropriate counterparts for all Oregon cities. The CSC used these contacts to send the survey link to 240 Oregon cities. The survey invitation described the survey, its significance, and how to complete it. The city manager/administrator or appropriate counterpart was asked to forward the survey to appropriate city staff. To help facilitate that process, the CSC included previously identified city staff contacts for water, wastewater, and stormwater from a preliminary survey. Anticipating that some cities had multiple contacts, the CSC designed the survey so multiple people from the same city could work in the same survey response. Thus, each city only had one submission.

Limitations of the Survey Data

As communicated in the 2009 survey, limitations exist due to the informational and voluntary nature of the survey. The responses are not representative of a statistically significant or scientifically valid data set. Because the responses are voluntary, one cannot draw conclusions about similar cities that did not participate. Even for the cities that did respond, it is not accurate to make comparisons for similarly sized systems due to differences in population served, physical design, economic climate, rates and charges, among other unique characteristics.

Data Editing and Analysis

Data editing involved review and adjustment of the data collected from survey respondents. The purpose of the editing was to control the quality of the data and foster accurate city representation. This included converting values into appropriate units or rates and interpreting vague data. Editing was a two-step process. The first step involved unit conversions for all values that were not submitted in the desired unit. Sometimes, assumptions were necessary to convert the data into the desired format. The second step involved flagging all data that was unclear or anomalous. If a city had flagged values, they had the opportunity to review the data and correct or confirm the value.

Data analysis involved calculating averages, percentages, and counts among other methods for various survey questions. Results were categorized into five city populations:

- Less than 1,000;
- 1,000-4,999;
- 5,000-9,999;
- 10,000-24,999;

- 25,000-49,999; and
- 50,000 or more.

Given the length of the survey, not all questions are discussed in the main report. However, the appendices present additional survey data that include some data analysis.

The survey included one question for water and wastewater asking cities how much a residential customer would pay for 5,000 gallons of water or wastewater using a three-quarter inch meter. A handful of cities noted that they used bi-monthly billing. Often this led to a significantly higher value reported than cities that use monthly billing. To make the best comparisons among cities and minimize unfair speculation, the cities using bi-monthly values were adjusted if the city did not adjust them already. Flat rate bi-monthly cities were halved to reflect a monthly flat rate. For bi-monthly cities that had a service fee in addition to usage fees, adjustments were only made to the basic service charge for these cities. The usage fee was maintained.

APPENDIX B: OVERALL RATE CHARACTERISTICS

The average year does not take into account cities that listed more than 10 years since their last update.

Water

- Only 16 cities conducted a rate study more than 10 years ago, 10 of those cities are less than 5,000 in population. Twenty cities conducted a methodology study more than 10 years ago. Seventeen of those cities are less than 10,000 in population.

Wastewater

- Only 14 cities conducted a rate study more than 10 years ago, 12 of those cities are less than 10,000 in population. Nineteen cities conducted a methodology study more than 10 years ago, 13 are less than 10,000 in population.

Stormwater

- Only nine cities conducted a rate study more than 10 years ago, seven of these cities are less than 5,000 in population. Eight cities conducted a methodology study more than 10 years ago; six of these cities are less than 10,000 in population.

Table B.1: Latest Water Rate Study & Methodology Update

City Size	Water			Wastewater			Stormwater		
	Avg. Year Rate Study	Avg. Year Methodology	N/A	Rate Study	Methodology	N/A	Rate Study	Methodology	N/A
<1,000	2011	2010	7	2011	2011	13	> 10 yrs. ago	>10 yrs. ago	24
1,000-4,999	2011	2011	3	2010	2010	6	2009	2010	25
5,000-9,999	2010	2011	0	2011	2011	2	2008	2009	2
10,000-24,999	2012	2012	1	2012	2011	2	2011	2011	0
25,000-49,999	2011	2012	0	2011	2011	0	2010	2011	1
50,000 or more	2010	2009	0	2014	2013	1	2012	2011	2
All cities	2011	2011	11	2011	2011	24	2010	2010	54

CityPopulation		Water			Wastewater			Stormwater		
		Rate Study	Methodology	N/A	Rate Study	Methodology	N/A	Rate Study	Methodology	N/A
City Sizes <1,000										
Lonerock	34	>10 yrs. ago			N/A			N/A		
Monument	130	2014	>10 yrs. ago		2014	>10 yrs. ago		N/A		
Idanha	135									
Detroit	205	2009	2006							
Sumpter	205									
Waterloo	230	N/A			N/A			N/A		
Ukiah	235	2005	N/A		2011	N/A		N/A		
Lexington	255	N/A			N/A			N/A		
Westfir	255									
Nehalem	280	2010	2010		N/A			N/A		
Sodaville	310	2014	2014		N/A			N/A		
Moro	325	2010			2010					
Ione	330									
Adams	350	2012	N/A		N/A			N/A		
Scotts Mills	364	2011			N/A			N/A		
Haines	415	N/A			N/A			N/A		
St. Paul	416	2011			2010			>10 yrs. ago		
Mosier	433	2006	2006		2014	2014		N/A		
Rivergrove	445	N/A			N/A			N/A		
Huntington	445	2012	N/A		2013	N/A		N/A		
Fossil	475									
Gates	485									
Mount Vernon	525	2010			2010			N/A		

City	Population	Water			Wastewater			Stormwater		
		Rate Study	Methodology	N/A	Rate Study	Methodology	N/A	Rate Study	Methodology	N/A
Cove	550	2010			2014					
Manzanita	615	2014	2014				N/A			N/A
Arlington	619	2014			2014					N/A
Weston	675	2013	2014							N/A
Condon	685	>10 yrs. ago	>10 yrs. ago		>10 yrs. ago	>10 yrs. ago				N/A
Powers	695	2011	2011		2012	2012				N/A
Echo	705									N/A
Yachats	800	>10 yrs. ago	>10 yrs. ago		2008	2008		>10 yrs. ago	>10 yrs. ago	
Malin	815	>10 yrs. ago	>10 yrs. ago							N/A
Merrill	845	2010			2010					
Adair Village	850	2012					N/A			N/A
Glendale	874	2012			2012					N/A
Prairie City	910									
Halsey	917	2014								
Falls City	950	>10 yrs. ago	>10 yrs. ago		>10 yrs. ago	>10 yrs. ago		>10 yrs. ago	>10 yrs. ago	
Oakland	980	2005	2005		2008	2008				N/A
Donald	980									
City Sizes 1,000 - 4,999										
Island City	1,015	2014	2013		>10 yrs. ago					N/A
Yamhill	1,020									N/A
Yoncalla	1,060	>10 yrs. ago	2014		>10 yrs. ago	2014				N/A
Joseph	1,090	>10 yrs. ago			>10 yrs. ago					
Athena	1,125	>10 yrs. ago	>10 yrs. ago		2010	2010				N/A
Port Orford	1,135	2012			2012					

City	Population	Water			Wastewater			Stormwater		
		Rate Study	Methodology	N/A	Rate Study	Methodology	N/A	Rate Study	Methodology	N/A
Riddle	1,185	2010	2011		2011	2012		>10 yrs. ago		N/A
Cascade Locks	1,200	2014	2014		2006	2006				N/A
Gold Hill	1,220	2009			>10 yrs. ago			>10 yrs. ago		
Siletz	1,290	2014			2014					N/A
Heppner	1,290	2011	2011		2014	2014		2006		N/A
Dunes City	1,310			N/A			N/A			N/A
Bay City	1,310									
Rockaway Beach	1,325									
Culver	1,370			N/A			N/A			N/A
Depoe Bay	1,405	2010	2009		2010	2009			2009	N/A
Gearhart	1,465	2010					N/A			N/A
Hines	1,565			N/A			N/A			N/A
La Pine	1,670									
Brownsville	1,670									
Lakeside	1,705									
Clatskanie	1,729	2012	>10 yrs. ago		2012	>10 yrs. ago		2008	>10 yrs. ago	
John Day	1,745	2009	2009		2009	2009				N/A
Banks	1,785	2009	2009				N/A			N/A
Irrigon	1,835	2006	2006		2006	2006				N/A
Columbia City	1,945	2013	>10 yrs. ago		2013	>10 yrs. ago				N/A
Vale	1,976	2014			2007			>10 yrs. ago		
Waldport	2,080									
Rogue River	2,145									
Union	2,240	2006	2012		>10 yrs. ago	2014				N/A

City	Population	Water			Wastewater			Stormwater		
		Rate Study	Methodology	N/A	Rate Study	Methodology	N/A	Rate Study	Methodology	N/A
Vernonia	2,450	2013			2013					N/A
Lakeview	2,490	>10 yrs. ago	>10 yrs. ago		>10 yrs. ago	>10 yrs. ago				N/A
Gervais	2,520									
Myrtle Point	2,525		2014			2014				N/A
Jacksonville	2,840									
Estacada	2,880		2010			>10 yrs. ago			2010	
Bandon	3,100	>10 yrs. ago	>10 yrs. ago		>10 yrs. ago	>10 yrs. ago		>10 yrs. ago	>10 yrs. ago	
Nyssa	3,200									
Mt. Angel	3,300	2008	2008		2008	2008		2008	2008	
Boardman	3,405									
Toledo	3,465	2012	2012		>10 yrs. ago	>10 yrs. ago		2010		N/A
Aumsville	3,750	2009			2005					N/A
Coquille	3,865	2011	2011		2006	2006				N/A
Wood Village	3,875	2014	>10 yrs. ago		2014	2010		2014	2013	
Phoenix	4,585	2013					N/A			N/A
Philomath	4,625									
Veneta	4,635									
City Sizes 5,000 - 9,999										
Creswell	5,031	2006	2006		>10 yrs. ago	>10 yrs. ago				N/A
Warrenton	5,050	2007								
Sheridan	6,170	2013	>10 yrs. ago		2013	>10 yrs. ago		2006	>10 yrs. ago	
Talent	6,170	>10 yrs. ago	>10 yrs. ago				N/A			N/A
Madras	6,255									
Sutherlin	7,930									

City	Population	Water			Wastewater			Stormwater		
		Rate Study	Methodology	N/A	Rate Study	Methodology	N/A	Rate Study	Methodology	N/A
Molalla	8,200	>10 yrs. ago	>10 yrs. ago		2007	2007		>10 yrs. ago	>10 yrs. ago	
Florence	8,466	2009			2009					
Eagle Point	8,575	2009	>10 yrs. ago				N/A	2009	2009	
Independence	8,585	2011	2013		2011	2013		2005		
Sweet Home	9,065	>10 yrs. ago	>10 yrs. ago		>10 yrs. ago	>10 yrs. ago		2006	2006	
Silverton	9,330		2013			2013			2013	
Astoria	9,500									
Cottage Grove	9,785	2010	2010		2010	2010		2010	2010	
Sandy	9,980	2014	>10 yrs. ago		2014	>10 yrs. ago		2009	2005	
City Sizes 10,000 - 24,999										
Gladstone	11,495									
Cornelius	12,161	2013	2013		2013	2013		2013	2013	
St. Helens	12,895	2011	2008		2011	2008		2011	2008	
The Dalles	14,400	2012	2012		2013	2013		2007	2007	
Dallas	14,800	2013	2013		2013	2013	N/A			
Lebanon	15,660	2010			2010			2012		
Troutdale	16,015									
Coos Bay	16,160			N/A	2014	>10 yrs. ago				
Pendleton	16,600	2014	2014		2014	2014		2014	2014	
Sherwood	18,771	2013	2014		2006	2006		2006	2006	
Ashland	20,295	>10 yrs. ago	>10 yrs. ago		2012	>10 yrs. ago		>10 yrs. ago	>10 yrs. ago	
Milwaukie	20,500									
Klamath Falls	21,200									
Wilsonville	21,550	2014	2014		2011	>10 yrs. ago		2012	>10 yrs. ago	

City	Population	Water			Wastewater			Stormwater		
		Rate Study	Methodology	N/A	Rate Study	Methodology	N/A	Rate Study	Methodology	N/A
Forest Grove	22,000	2010	2010		2010	2010		2010	2010	
Roseburg	22,275	>10 yrs. ago	>10 yrs. ago				N/A	2013	2013	
Newberg	22,396	2014	2014		2014	2014		2014	2014	
City Sizes 25,000 - 49,999										
West Linn	25,425	2011	2011		2008	2008		2008	2008	
Redmond	26,590	>10 yrs. ago	>10 yrs. ago		>10 yrs. ago	>10 yrs. ago		2012	2012	
Oregon City	33,390	2009			2014			2012		
Grants Pass	35,000	2007	2013		2007	2012				N/A
Lake Oswego	36,990	2013	2010		2011	>10 yrs. ago		2007	>10 yrs. ago	
Tigard	49,135	2013	2014		2013	2014		2013	2014	
City Sizes 50,000 or more										
Albany	50,720	2005	2005		>10 yrs. ago	>10 yrs. ago				N/A
Springfield	59,990									
Medford	76,300	2011	2009		2014	2014		2010	2010	
Bend	81,000									
Hillsboro	81,310									
Beaverton	93,000						N/A			N/A
Salem	157,888	2014	2012		2014	2012		2014	2012	
Portland	592,120									

Table B.2: Percent of Rate Revenue Obligated to Debt Service

City Size	Average Percent of Rate Revenue Obligated		
	Water	Wastewater	Stormwater
<1,000	26	33	0.4
1,000-4,999	15	20	0.0
5,000-9,999	31	25	11
10,000-24,999	20	18	4
25,000-49,999	11	24	5
50,000 or more	22	28	30
All cities	21	24	4

City	Population	Water		Wastewater		Stormwater	
		(percent)	N/A	(percent)	N/A	(percent)	N/A
City Sizes <1,000							
Lonerock	34	100			N/A		N/A
Monument	130	0		60			N/A
Idanha	135		N/A				
Detroit	205	25			N/A		N/A
Sumpter	205						
Waterloo	230		N/A		N/A		N/A
Ukiah	235	45		50			N/A
Lexington	255	26			N/A		N/A
Westfir	255						
Nehalem	280	26			N/A		N/A
Sodaville	310	5			N/A		N/A
Moro	325	5.25		15			N/A
Ione	330						
Adams	350	20			N/A		N/A
Scotts Mills	364				N/A		N/A
Haines	415	4		35		0	N/A
St. Paul	416						
Mosier	433						
Rivergrove	445		N/A		N/A		N/A
Huntington	445		N/A		N/A		N/A
Fossil	475						
Gates	485				N/A		N/A
Mount Vernon	525	10			N/A		N/A

City	Population	Water		Wastewater		Stormwater	
		(percent)	N/A	(percent)	N/A	(percent)	N/A
Cove	550	25		15		0	
Manzanita	615	23.5			N/A		N/A
Arlington	619	75		50			
Weston	675						
Condon	685	0	N/A	19		0	N/A
Powers	695		N/A		N/A		N/A
Echo	705		N/A		N/A		N/A
Yachats	800		N/A		N/A		N/A
Malin	815		N/A		N/A		N/A
Merrill	845			15			
Adair Village	850	7.7		24			N/A
Glendale	874	38		62		0	
Prairie City	910						
Halsey	917		N/A		N/A		N/A
Falls City	950				N/A		N/A
Oakland	980	55		45		2	
Donald	980	0		0			N/A
City Sizes 1,000 - 4,999							
Island City	1,015		N/A	15			N/A
Yamhill	1,020	15		15			N/A
Yoncalla	1,060	4		15.75			N/A
Joseph	1,090						
Athena	1,125	0	N/A	29.21		0	N/A
Port Orford	1,135	11.56		35.54			
Riddle	1,185						N/A
Cascade Locks	1,200	0		24			N/A
Gold Hill	1,220	10		0		0	
Siletz	1,290						N/A
Heppner	1,290	24			N/A		N/A
Dunes City	1,310		N/A		N/A		N/A
Bay City	1,310						
Rockaway Beach	1,325						
Culver	1,370	0	N/A	0	N/A	0	N/A
Depoe Bay	1,405		N/A		N/A		N/A
Gearhart	1,465		N/A		N/A		N/A
Hines	1,565		N/A	25			N/A
La Pine	1,670						

City	Population	Water		Wastewater		Stormwater	
		(percent)	N/A	(percent)	N/A	(percent)	N/A
Brownsville	1,670						
Lakeside	1705						
Clatskanie	1,729		N/A		N/A		N/A
John Day	1,745	31		16			N/A
Banks	1,785	30			N/A		N/A
Irrigon	1,835	40		31			N/A
Columbia City	1,945	34		0		0	
Vale	1,976						
Waldport	2,080						
Rogue River	2,145						
Union	2,240		N/A	25			N/A
Vernonia	2,450		N/A	55			N/A
Lakeview	2,490						N/A
Gervais	2,520						
Myrtle Point	2,525	24		35			N/A
Jacksonville	2,840						
Estacada	2,880	0		2.85		0	
Bandon	3,100	9.4		8.7			
Nyssa	3,200						
Mt. Angel	3,300	0		0		0	
Boardman	3,405						
Toledo	3,465	26		17			N/A
Aumsville	3,750	6		22			N/A
Coquille	3,865	17		54			N/A
Wood Village	3,875		N/A		N/A		N/A
Phoenix	4,585	11			N/A		N/A
Philomath	4,625						
Veneta	4,635						
City Sizes 5,000 - 9,999							
Creswell	5,031	44		37			N/A
Warrenton	5,050						
Sheridan	6,170	49		5			N/A
Talent	6,170	25.25			N/A		N/A
Madras	6,255						
Sutherlin	7,930						
Molalla	8,200						
Florence	8,466						

City	Population	Water		Wastewater		Stormwater	
		(percent)	N/A	(percent)	N/A	(percent)	N/A
Eagle Point	8,575				N/A	0	
Independence	8,585		N/A	10			N/A
Sweet Home	9,065	26		35			N/A
Silverton	9,330	12.4		28.6			N/A
Astoria	9,500						
Cottage Grove	9,785	28.1		38.9		16	
Sandy	9,980	30		21		16	
City Sizes 10,000 - 24,999							
Gladstone	11,495						
Cornelius	12,161		N/A		N/A		N/A
St. Helens	12,895	17		14		14	
The Dalles	14,400	16.6		12.4			N/A
Dallas	14,800	29		15			N/A
Lebanon	15,660	2.7		1.4			N/A
Troutdale	16,015						
Coos Bay	16,160		N/A	6.8			N/A
Pendleton	16,600	15		32		0	
Sherwood	18,771	41		No debt		No debt	
Ashland	20,295	39		15			N/A
Milwaukie	20,500						
Klamath Falls	21,200						
Wilsonville	21,550	23		41			N/A
Forest Grove	22,000		N/A		N/A		N/A
Roseburg	22,275	0			N/A	0	
Newberg	22,396	20		25		0	
City Sizes 25,000 - 49,999							
West Linn	25,425	2			N/A		N/A
Redmond	26,590	7		31		2	
Oregon City	33,390	3.5		14			N/A
Grants Pass	35,000	9		16.1			N/A
Lake Oswego	36,990	33		52		10	
Tigard	49,135	11		6		2	
City Sizes 50,000 or more							
Albany	50,720	13		26			N/A
Springfield	59,990						
Medford	76,300		N/A		N/A		N/A
Bend	81,000						

City	Population	Water		Wastewater		Stormwater	
		(percent)	N/A	(percent)	N/A	(percent)	N/A
Hillsboro	81,310						
Beaverton	93,000	23.3			N/A		N/A
Salem	157,888	30		30		30	
Portland	592,120						

APPENDIX C: DRINKING WATER RATE STRUCTURE, PRICING AND SYSTEM CHARACTERISTICS

Table C.1: Drinking Water Rate Structure & Cost per 5,000 gallons

The average year does not take into account cities that listed over 10 years since their last update.

City Size	# of Responses	Avg. Last Year of Rate Change	Rate Structure				Average Cost per 5,000 gal.
			Flat Rate	Inclining Block Rate	Declining Block Rate	Other	
<1,000	35	2012	15	10	0	10	\$39.95
1,000-4,999	40	2013	11	11	1	17	\$34.04
5,000-9,999	15	2013	5	3	0	7	\$33.40
10,000-24,999	16	2014	3	6	0	7	\$31.68
25,000-49,999	6	2014	1	2	0	3	\$32.65
50,000 or more	6	2014	2	1	1	2	\$26.21
All cities	117	2013	37	33	2	46	\$34.88

City	Population	Last Year of Rate Change	Rate structure				Average Cost per 5,000 gal.
			Flat Rate	Inclining Block Rate	Declining Block Rate	Other	
City Sizes <1,000							
Lonerock	34	> 10 yrs. ago				✓	\$10.00
Monument	130	2014	✓				\$22.75
Idanha	135	2014		✓			\$41.81
Detroit	205	2011				✓	\$45.00
Sumpter	205						
Waterloo	230						

City	Population	Last Year of Rate Change	Rate structure				Average Cost per 5,000 gal.
			Flat Rate	Inclining Block Rate	Declining Block Rate	Other	
Ukiah	235	2006	✓				\$41.25
Lexington	255	2014		✓			\$33.00
Westfir	255	2012		✓			\$40.00
Nehalem	280	2010	✓				\$40.80
Sodaville	310	2014				✓	\$60.00
Moro	325	2014	✓				
Ione	330	2014	✓				\$40.00
Adams	350	2013		✓			\$42.50
Scotts Mills	364	2011				✓	\$63.87†
Haines	415	2014	✓				\$32.00
St. Paul	416	2014	✓				\$61.20
Mosier	433	2006		✓			\$40.71
Rivergrove	445						
Huntington	445	2014	✓				\$32.00
Fossil	475						
Gates	485	2014				✓	\$52.10
Mount Vernon	525			✓			\$38.00
Cove	550	2010		✓			\$32.90
Manzanita	615	2014	✓				\$42.00
Arlington	619	2005	✓				\$32.00
Weston	675	2013	✓				\$45.92
Condon	685	2012				✓	\$27.30
Powers	695	2014				✓	\$52.20
Echo	705	2012				✓	\$30.30
Yachats	800	2006		✓			\$50.00
Malin	815	> 10 yrs. ago				✓	\$28.00
Merrill	845	2010	✓				\$38.50
Adair Village	850	2012	✓				\$69.75
Glendale	874	2013	✓				\$37.00
Prairie City	910						
Halsey	917	2014		✓			\$37.50
Falls City	950	2014		✓			\$41.96

City	Population	Last Year of Rate Change	Rate structure				Average Cost per 5,000 gal.
			Flat Rate	Inclining Block Rate	Declining Block Rate	Other	
Oakland	980	2014	✓				\$10.89
Donald	980	2014				✓	\$45.00
City Sizes 1,000 - 4,999							
Island City	1,015	2014	✓				\$40.00
Yamhill	1,020	> 10 yrs. ago				✓	\$37.56
Yoncalla	1,060	2014		✓			\$37.00
Joseph	1,090	2014				✓	\$27.87
Athena	1,125	> 10 yrs. ago				✓	\$29.00
Port Orford	1,135	2014		✓			\$53.96
Riddle	1,185	2008	✓				\$40.00
Cascade Locks	1,200	2013	✓				\$28.72
Gold Hill	1,220	2014		✓			
Siletz	1,290	2014				✓	\$59.00
Heppner	1,290	2013		✓			\$37.40
Dunes City	1,310						
Bay City	1,310	2014		✓			\$26.93
Rockaway Beach	1,325	2011	✓				\$31.70‡
Culver	1,370						
Depoe Bay	1,405	2014				✓	\$36.00‡
Gearhart	1,465	2014	✓				\$20.00
Hines	1,565	2008	✓				\$36.00‡
La Pine	1,670	> 10 yrs. ago		✓			\$30.14
Brownsville	1,670						
Lakeside	1,705						
Clatskanie	1,729	2011				✓	\$33.02
John Day	1,745	2014		✓			\$34.00
Banks	1,785	2014	✓				\$37.00
Irrigon	1,835	2014		✓			\$40.05
Columbia City	1,945	2014		✓			\$48.73
Vale	1,976	2014			✓		\$30.68
Waldport	2,080						
Rogue River	2,145						

City	Population	Last Year of Rate Change	Rate structure				Average Cost per 5,000 gal.
			Flat Rate	Inclining Block Rate	Declining Block Rate	Other	
Union	2,240	2014	✓				\$27.69
Vernonia	2,450	2013	✓				\$48.75
Lakeview	2,490	2011	✓				\$15.00
Gervais	2,520	2014				✓	\$26.38
Myrtle Point	2,525	2013		✓			\$32.43
Jacksonville	2,840	2014				✓	\$30.79
Estacada	2,880	2014				✓	\$35.84
Bandon	3,100	2007				✓	\$17.40
Nyssa	3,200	2013				✓	\$29.25
Mt. Angel	3,300	2009	✓				\$23.51
Boardman	3,405						
Toledo	3,465	2014				✓	\$60.75
Aumsville	3,750	2013				✓	\$31.82
Coquille	3,865	2007				✓	\$28.80
Wood Village	3,875	2014				✓	\$28.02
Phoenix	4,585	2014				✓	\$34.51
Philomath	4,625	2014		✓			\$30.05
Veneta	4,635	2014				✓	\$31.65
City Sizes 5,000 – 9,999							
Creswell	5,031	2006				✓	\$44.29
Warrenton	5,050	2014				✓	\$30.26
Sheridan	6,170	2007		✓			\$20.10
Talent	6,170	2014	✓				\$41.97
Madras	6,255	2014	✓				\$27.74
Sutherlin	7,930	2014				✓	\$38.46
Molalla	8,200	> 10 yrs. ago				✓	\$27.44
Florence	8,466	2014		✓			\$29.90
Eagle Point	8,575	2014				✓	\$24.88
Independence	8,585	2014				✓	\$51.38
Sweet Home	9,065	2014	✓				\$32.86
Silverton	9,330	2014				✓	\$29.16

City	Population	Last Year of Rate Change	Rate structure				Average Cost per 5,000 gal.
			Flat Rate	Inclining Block Rate	Declining Block Rate	Other	
Astoria	9,500	2013	✓				\$33.98‡
Cottage Grove	9,785	2014		✓			\$46.50
Sandy	9,980	2013	✓				\$22.10
City Sizes 10,000 – 24,999							
Gladstone	11,495	2014	✓				\$16.80
Cornelius	12,161	2014				✓	\$42.02
St. Helens	12,895	2013				✓	\$43.00‡
The Dalles	14,400	2014				✓	\$57.94
Dallas	14,800	2014				✓	\$23.58
Lebanon	15,660	2014		✓			\$51.10
Troutdale	16,015	2014	✓				\$14.85
Coos Bay	16,160						
Pendleton	16,600	2014		✓			\$32.55
Sherwood	18,771	2012		✓			\$44.24
Ashland	20,295	2014		✓			\$38.01
Milwaukie	20,500	2014				✓	\$27.46
Klamath Falls	21,200	2014				✓	\$14.26
Wilsonville	21,550	2014		✓			\$32.01
Forest Grove	22,000	2013		✓			\$23.00
Roseburg	22,275	2012				✓	\$24.51
Newberg	22,396	2014	✓				\$21.54
City Sizes 25,000 – 49,999							
West Linn	25,425	2014		✓			\$18.55
Redmond	26,590	2014				✓	\$26.14
Oregon City	33,390	2014	✓				\$30.27
Grants Pass	35,000	2014				✓	\$22.98
Lake Oswego	36,990	2014		✓			\$40.66
Tigard	49,135	2014				✓	\$57.32
City Sizes 50,000 or more							
Albany	50,720	2014			✓		\$43.09
Springfield	59,990						

City	Population	Last Year of Rate Change	Rate structure				Average Cost per 5,000 gal.
			Flat Rate	Inclining Block Rate	Declining Block Rate	Other	
Medford	76,300	2012				✓	\$10.57
Bend	81,000	2014				✓	\$27.40
Hillsboro	81,310	2014		✓			\$22.16
Beaverton	93,000	2014	✓				\$31.18
Salem	157,888	2014	✓				\$22.84
Portland	592,120						

‡Bi-monthly billing city where values adjusted for comparable comparison. See Data Editing and Analysis in Appendix A for explanation.

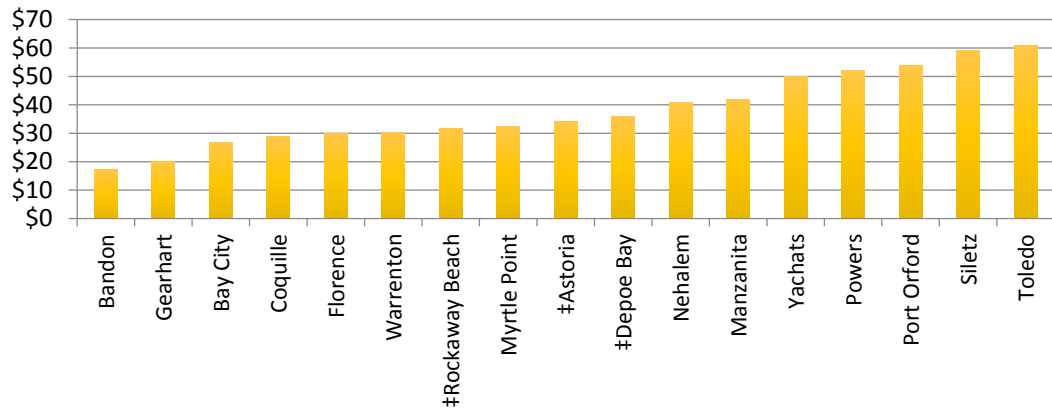
Charts C.2A-C.2F: Water Bill a Residential Customer Would Pay for 5,000 Gallons Using a ¾" Meter

As mentioned in the report, please keep in mind that the values reported below are just values. Assumptions cannot be made that a utility is in the black or red. In other words, a lower value does not necessarily suggest a utility is meeting its maintenance and operating costs and generating enough revenue to fund capital investments. Similarly, a higher value does not necessarily suggest a city is generating more revenue than it needs.

Although the survey asked cities to report the minimum value a customer would pay if the city could not bill for exactly 5,000 gallons, the bi-monthly billing cities have values adjusted to reflect a monthly rate for a more representative comparison. See Appendix A Data Editing and Analysis for more information on the adjustments. See footnotes to determine which cities were adjusted.

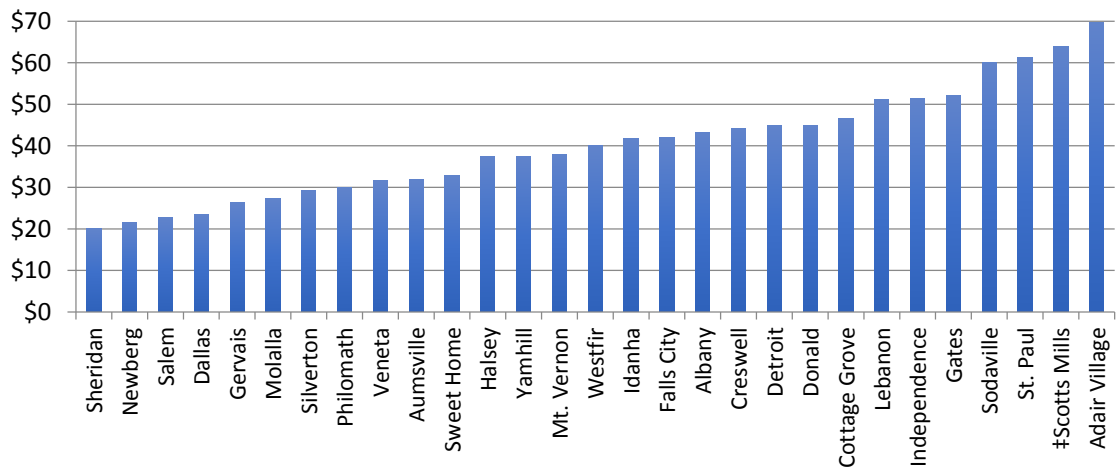
‡Indicates a city with bi-monthly billing and an adjusted bi-monthly reported value.

Chart C.2A: Coastal Region Cities' Water Bill for 5,000 gallons



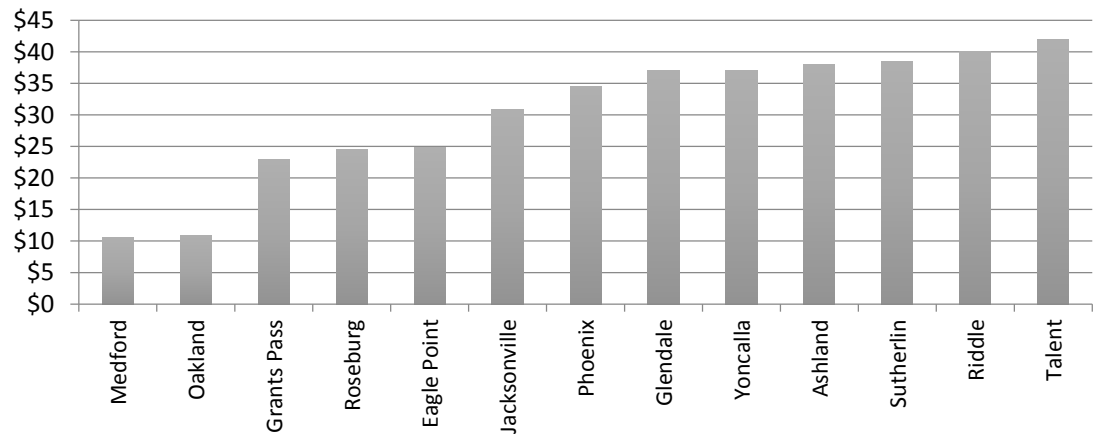
Bandon is a city with a significantly lower rate in the Coastal region. Its last effective rate change occurred in 2007, and its city charter only allows voters to approve rate increases. The city is considering infrastructure improvements should rates increase in the future.

Chart C.2B: Valley Region Cities' Water Bill for 5,000 gallons



Adair Village raised rates in 2013 to invest in capital improvements to address a 60percent water loss rate. Covering operation and maintenance costs and ensuring the ability to pay bonds are also other components of the rate increase.

Chart C.2C: Southern Region Cities' Water Bill for 5,000 gallons



The Medford Water Commission (MWC) provides the City of Medford's drinking water and is an autonomous agency of the City. Phoenix, and Talent receives its water from the MWC as well, and Ashland uses MWC as a supplemental source. Talent maintains its own distribution and storage system.

Chart C.2D: Portland/Mt. Hood Region Cities' Water Bill for 5,000 gallons

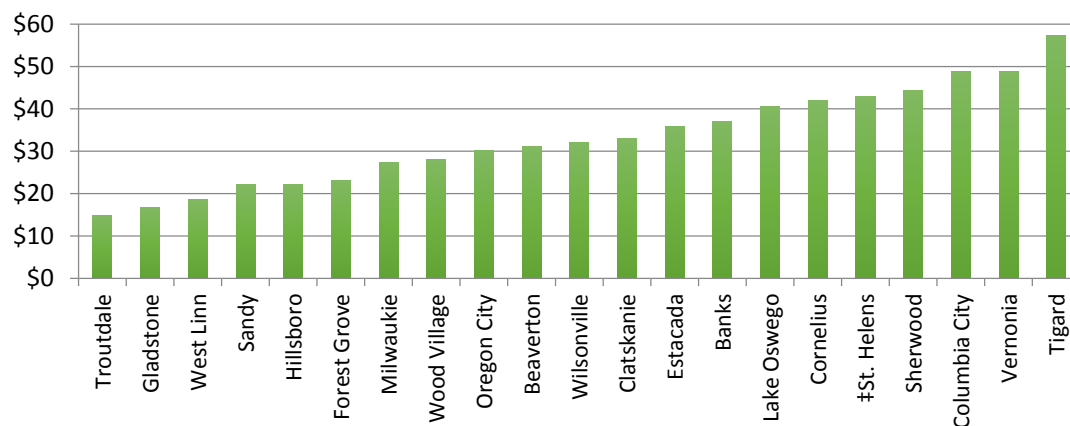
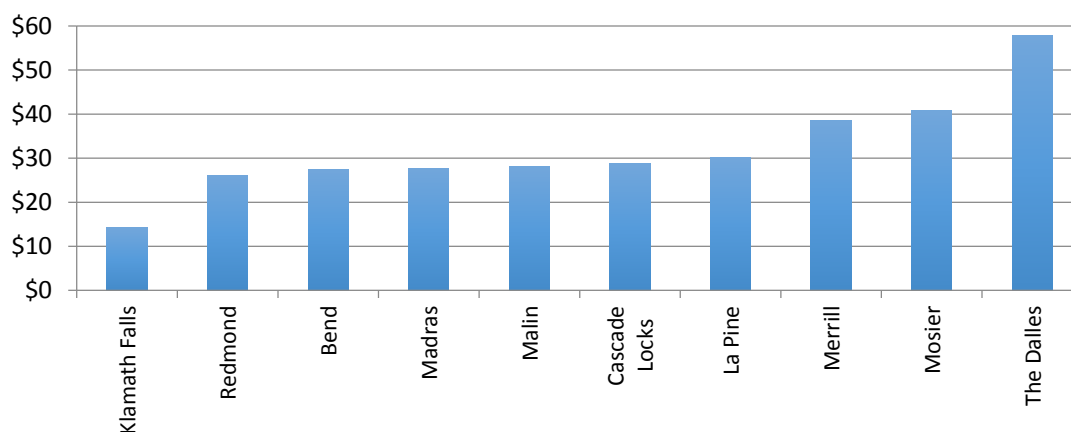
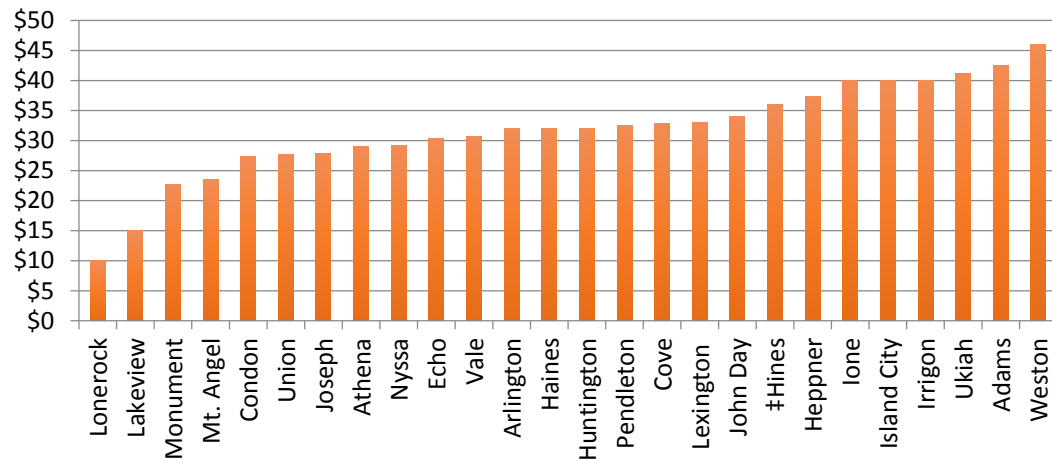


Chart C.2E: Central Region Cities' Water Bill for 5,000 gallons



While the Dalles have a higher bill compared to other cities in the Central region historically, they have not raised rates. Only recently in 2014 they increased rates to addressing rising infrastructure needs.

Chart C.2F: Eastern Region Cities' Water Bill for 5,000 gallons



Lonerock has not experienced a rate increase since 1998.

Table C.3: Drinking Water Production Characteristics

City	Avg. Daily Production in 2013 (MG)	Amount of Avg. Daily Production Sold (not including city use)	Peak Flow of Water Treated in a 24-hr. Period in 2013 (MG)	Year Avg. Daily Production Exceeds Design Capacity	Water Conservation & Management Plan	Approval Date
<1,000	7.7	84	0.4	2032	12	2007
1,000-4,999	0.4	78	13	2034	25	2009
5,000-9,999	1.4	88	2.2	2028	5	2010
10,000-24,999	3.3	88	7	2046	9	2011
25,000-49,999	4.6	90	11	2017	6	2012
50,000 or more	15.5	96	31	2033	6	2010
All cities	4.0	83	10	2033	63	2009

City	Population	Avg. Daily Production in 2013 (MG)	Amount of Avg. Daily Production Sold (not including city use)	Peak Flow of Water Treated in a 24-hr. Period in 2013 (MG)	Year Avg. Daily Production Exceeds Design Capacity	Water Conservation & Management Plan	Approval Date
City Sizes <1,000							
Lonerock	34					Yes	
Monument	130					No	
Idanha	135					No	
Detroit	205						
Sumpter	205						
Waterloo	230	N/A	N/A		N/A	No	
Ukiah	235	Unknown	None	Don't use additives	Unknown	Yes	2005

City	Population	Avg. Daily Production in 2013 (MG)	Amount of Avg. Daily Production Sold (not including city use)	Peak Flow of Water Treated in a 24-hr. Period in 2013 (MG)	Year Avg. Daily Production Exceeds Design Capacity	Water Conservation & Management Plan	Approval Date
Lexington	255						
Westfir	255						
Nehalem	280	0.11	98	0.20	2045	Yes	2005
Sodaville	310	0.02	100	No Treatment	Unknown	Yes	2004
Moro	325					No	
Ione	330						
Adams	350	0.06	94		Beyond 2025	Yes	2005
Scotts Mills	364						
Haines	415	0.12	100	0.12	Unknown	No	
St. Paul	416	0.06	100	0.50	2014	No	
Mosier	433	0.07	95	0.17	Unknown	No	
Rivergrove	445						
Huntington	445						
Fossil	475						
Gates	485	0.06		0.13	20 + years	Yes	2014
Mount Vernon	525					No	
Cove	550						
Manzanita	615	0.31	84	0.65	2030	Yes	2010
Arlington	619	120.6*	0*			No	
Weston	675						
Condon	685						
Powers	695						
Echo	705	0.21	88	0.55	Unknown	Yes	2012

City	Population	Avg. Daily Production in 2013 (MG)	Amount of Avg. Daily Production Sold (not including city use)	Peak Flow of Water Treated in a 24-hr. Period in 2013 (MG)	Year Avg. Daily Production Exceeds Design Capacity	Water Conservation & Management Plan	Approval Date
Yachats	800	0.13	75	0.50	2043	Yes	2006
Malin	815	0.06	95	0.16	unknown	No	
Merrill	845	0.15		Do not treat		No	
Adair Village	850	0.25	60	0.75	Unknown	No	
Glendale	874	0.12	97	0.36	Unknown	Yes	2003
Prairie City	910						
Halsey	917	0.09		0.20	2028	Yes	
Falls City	950					No	
Oakland	980				Never	Yes	
Donald	980						
City Sizes 1,000 - 4,999							
Island City	1,015	0.53	90		2030	Yes	2011
Yamhill	1,020						
Yoncalla	1,060	0.35	97	250	2050	No	
Joseph	1,090						
Athena	1,125	0.2	95	N/A	1993	Yes	
Port Orford	1,135						
Riddle	1,185						
Cascade Locks	1,200	0.26	50	0.50		No	
Gold Hill	1,220					No	
Siletz	1,290	<0.05	90	0.23		Yes	
Heppner	1,290	0.38	76	Do not treat	Undetermined	Yes	2011
Dunes City	1,310	N/A	N/A	N/A	N/A	No	

City	Population	Avg. Daily Production in 2013 (MG)	Amount of Avg. Daily Production Sold (not including city use)	Peak Flow of Water Treated in a 24-hr. Period in 2013 (MG)	Year Avg. Daily Production Exceeds Design Capacity	Water Conservation & Management Plan	Approval Date
Bay City	1,310	0.6		1.3		Yes	
Rockaway Beach	1,325						
Culver	1,370						
Depoe Bay	1,405	0.21	77	0.55		Yes	
Gearhart	1,465				2032	Yes	
Hines	1,565	0.59	0*	N/A	Not foreseen	Yes	2004
La Pine	1,670	0.24	91		2025	Yes	2013
Brownsville	1,670						
Lakeside	1,705						
Clatskanie	1,729	0.23	100	0.48	Unknown	Yes	2008
John Day	1,745		85-90	0.60	Unlikely	No	
Banks	1,785	0.25		0.25	2020	Yes	2010
Irrigon	1,835	0.45	85	0.38	2025	Yes	2010
Columbia City	1,945	0.14	78	N/A	2033 or later	Yes	2013
Vale	1,976	0.21	94	0.38		No	
Waldport	2,080	0.24	23*				
Rogue River	2,145	0.37	81	0.64	2039	Yes	2014
Union	2,240	1.0	0*	1.5		Yes	
Vernonia	2,450					Yes	
Lakeview	2,490		98	2.7	Unknown	No	
Gervais	2,520			1.0		No	
Myrtle Point	2,525	0.35	73	1.7	Not foreseen	Yes	2001
Jacksonville	2,840	0.84	90	Do not treat		Yes	2014

City	Population	Avg. Daily Production in 2013 (MG)	Amount of Avg. Daily Production Sold (not including city use)	Peak Flow of Water Treated in a 24-hr. Period in 2013 (MG)	Year Avg. Daily Production Exceeds Design Capacity	Water Conservation & Management Plan	Approval Date
Estacada	2,880	0.5	100	0.8	Unknown	Yes	2002
Bandon	3,100	0.54	67		2029	Yes	2003
Nyssa	3,200			1.1		Yes	
Mt. Angel	3,300	0.31	100	N/A	Unknown	Yes	2010
Boardman	3,405						
Toledo	3,465	0.9	75	1.5	2090	No	
Aumsville	3,750		99				
Coquille	3,865	0.52	98		never	No	
Wood Village	3,875	0.4	91	0.89	2044	Yes	2013
Phoenix	4,585					Yes	
Philomath	4,625						
Veneta	4,635	0.55	82	1.2	~2055	Yes	2012
City Sizes 5,000 - 9,999							
Creswell	5,031	0.63	76		2020	Yes	
Warrenton	5,050	1.3	25percent (Jun-Sep) 60percent (Oct-May)	2.3	2026	No	
Sheridan	6,170	2.5			2020	No	
Talent	6,170						
Madras	6,255						
Sutherlin	7,930						
Molalla	8,200	1.0		2.0	Unknown	No	
Florence	8,466	0.93	95	1.7	Not foreseen	Yes	2010
Eagle Point	8,575				2017	Yes	

City	Population	Avg. Daily Production in 2013 (MG)	Amount of Avg. Daily Production Sold (not including city use)	Peak Flow of Water Treated in a 24-hr. Period in 2013 (MG)	Year Avg. Daily Production Exceeds Design Capacity	Water Conservation & Management Plan	Approval Date
Independence	8,585						
Sweet Home	9,065	2	88	2.0	2050	Yes	2009
Silverton	9,330	1.3	92	2.5	2035	No	
Astoria	9,500	1.9		2.7			
Cottage Grove	9,785	1.2	85-90	2.6	2019	No	
Sandy	9,980	0.81	89	2.1	2040	Yes	2010
City Sizes 10,000 - 24,999							
Gladstone	11,495						
Cornelius	12,161	N/A	N/A		N/A	Yes	
St. Helens	12,895	1.5	99.5	2.5	Beyond 2030	Yes	2013
The Dalles	14,400	3.2	86	8.5	Unforeseen	No	
Dallas	14,800	2.3	90	4.9	2040	No	
Lebanon	15,660	1.9		4.0	>20 years	No	
Troutdale	16,015						
Coos Bay	16,160						
Pendleton	16,600	5.3	100	10.1	WFP: Unforeseen. Wells: ~2024	Yes	2003
Sherwood	18,771	1.9		3.7	2063	Yes	2009
Ashland	20,295	2.9	95	6.0	2053	Yes	2014
Milwaukie	20,500	2.5	85	4.4	Unforeseen	No	
Klamath Falls	21,200	6.7	100	15.1	2070	Yes	2012
Wilsonville	21,550	4.8	36	6.6	2023	Yes	2012
Forest Grove	22,000					Yes	

City	Population	Avg. Daily Production in 2013 (MG)	Amount of Avg. Daily Production Sold (not including city use)	Peak Flow of Water Treated in a 24-hr. Period in 2013 (MG)	Year Avg. Daily Production Exceeds Design Capacity	Water Conservation & Management Plan	Approval Date
Roseburg	22,275	4.6	100	8.4		No	
Newberg	22,396	2.5	92	4.5	2025	Yes	2014
City Sizes 25,000 - 49,999							
West Linn	25,425	2.6	100	6.8	2014	Yes	2010
Redmond	26,590	5.6	85	13.2	2020	Yes	2013
Oregon City	33,390					Yes	
Grants Pass	35,000	5.5	96.9	13.0	~2025-2030	Yes	2014
Lake Oswego	36,990	4.9	80	11.3		Yes	
Tigard	49,135			10.3		Yes	

City Sizes 50,000 or more							
Albany	50,720	7.3	94.5	23.8	2051	Yes	2007
Springfield	59,990						
Medford	76,300	27	~92	56	2030	Yes	2009
Bend	81,000	11.8	N/A	25	Updating	Yes	2011
Hillsboro	81,310	14.7	94	28	2019	Yes	2010
Beaverton	93,000	6.9	94	12.1	Unforeseen	Yes	
Salem	157,888	25.4	100	43.7	Unforeseen	Yes	2014
Portland	592,120						

*Values flagged for review, but city unable to confirm value.

Table C.4: Water Loss Measurements & Meter Characteristics

City Size	Water Loss					Meters Used		
	Measured	Method to Determine Amount Lost				# of Cities Using Radio	# of Cities Using Touch	# of Cities Using Manual
		Comparison of Production & Customer Meter Volumes	Estimate	Recently Adopted IWA/AWWA Water Loss Methodology	Other			
<1,000	16	13	0	0	1	1	9	15
1,000-4,999	29	22	5	0	0	12	9	28
5,000-9,999	9	8	0	0	1	8	4	8
10,000-24,999	14	12	1	0	1	8	5	10
25,000-49,999	6	6	0	0	0	2	1	5
50,000 or more	6	2	0	3	1	4	5	4
All cities	80	63	6	3	4	35	33	70

City	Population	Water Loss					Meters Used		
		Measured	Method to Determine Amount Lost				Radio (%)	Touch (%)	Manual (%)
			Comparison of Production & Customer Meter Volumes	Estimate	Recently Adopted IWA/AWWA Water Loss Methodology	Other			
City Size <1,000									
Lonerock	34								
Monument	130	No					0	0	100
Idanha	135	Yes	✓				0	0	100
Detroit	205	Yes							
Sumpter	205								
Waterloo	230	No					0	0	0
Ukiah	235	No					0	100	0
Lexington	255								
Westfir	255								
Nehalem	280	No					0	0	100
Sodaville	310	Yes	✓				0	0	100
Moro	325	No					0	100	0
Ione	330								
Adams	350	Yes	✓				0	0	100
Scotts Mills	364	Yes	✓				0	0	100
Haines	415	No					0	0	0
St. Paul	416	Yes	✓				0	0	100
Mosier	433	Yes	✓				99	0	0
Rivergrove	445								
Huntington	445								

City	Population	Water Loss					Meters Used		
		Measured	Method to Determine Amount Lost				Radio (%)	Touch (%)	Manual (%)
			Comparison of Production & Customer Meter Volumes	Estimate	Recently Adopted IWA/AWWA Water Loss Methodology	Other			
Fossil	475								
Gates	485	Yes	✓				0	100	0
Mount Vernon	525	No					0	0	100
Cove	550								
Manzanita	615	Yes	✓				0	50	50
Arlington	619	No					0	100	0
Weston	675								
Condon	685						0	0	100
Powers	695	Yes							
Echo	705	Yes	✓				0	0	100
Yachats	800	Yes	✓				0	100	0
Malin	815	Yes				✓	0	95	5
Merrill	845	No					0	0	100
Adair Village	850	Yes	✓				0	0	100
Glendale	874	Yes	✓				0	0	100
Prairie City	910								
Halsey	917	Yes	✓				0	100	0
Falls City	950	No					0	100	0
Oakland	980	No							
Donald	980								
City Sizes 1,000 - 4,999									

City	Population	Water Loss					Meters Used		
		Measured	Method to Determine Amount Lost				Radio (%)	Touch (%)	Manual (%)
			Comparison of Production & Customer Meter Volumes	Estimate	Recently Adopted IWA/AWWA Water Loss Methodology	Other			
Island City	1,015	No					0	75	25
Yamhill	1,020	Yes							
Yoncalla	1,060	Yes	✓				0	0	100
Joseph	1,090								
Athena	1,125	Yes	✓				0	0	100
Port Orford	1,135	Yes	✓				0	0	100
Riddle	1,185	Yes	✓				0	0	100
Cascade Locks	1,200	Yes	✓				10	80	10
Gold Hill	1,220	No					0	0	100
Siletz	1,290	Yes	✓				0	0	100
Heppner	1,290	Yes	✓				40	40	20
Dunes City	1,310	No					N/A	N/A	N/A
Bay City	1,310	Yes	✓				37	0	63
Rockaway Beach	1,325								
Culver	1,370								
Depoe Bay	1,405	Yes	✓				0	0	100
Gearhart	1,465	Yes		✓			25	0	75
Hines	1,565	No					635	0	35
La Pine	1,670	Yes	✓				100	0	0
Brownsville	1,670								
Lakeside	1,705								

City	Population	Water Loss					Meters Used		
		Measured	Method to Determine Amount Lost				Radio (%)	Touch (%)	Manual (%)
			Comparison of Production & Customer Meter Volumes	Estimate	Recently Adopted IWA/AWWA Water Loss Methodology	Other			
Clatskanie	1,729	Yes	✓				0	0	100
John Day	1,745	Yes	✓				100	0	0
Banks	1,785	No					0	0	100
Irrigon	1,835	Yes	✓				0	0	100
Columbia City	1,945	Yes	✓				100	0	0
Vale	1,976	No					100	0	0
Waldport	2,080								
Rogue River	2,145	Yes	✓				0	0	100
Union	2,240	Yes		✓					
Vernonia	2,450	Yes		✓					100
Lakeview	2,490	No					0	0	100
Gervais	2,520	No					99	0	1
Myrtle Point	2,525	Yes	✓				0	0	100
Jacksonville	2,840	Yes	✓				0	99	1
Estacada	2,880	Yes	✓				0	0	100
Bandon	3,100	Yes	✓				0	60	40
Nyssa	3,200	Yes					0	99	1
Mt. Angel	3,300	Yes		✓			0	0	100
Boardman	3,405								
Toledo	3,465	No					0	96	4
Aumsville	3,750	No							

City	Population	Water Loss					Meters Used		
		Measured	Method to Determine Amount Lost				Radio (%)	Touch (%)	Manual (%)
			Comparison of Production & Customer Meter Volumes	Estimate	Recently Adopted IWA/AWWA Water Loss Methodology	Other			
Coquille	3,865	Yes		✓			100	0	0
Wood Village	3,875	Yes	✓				0	100	0
Phoenix	4,585	Yes	✓				0	80	20
Philomath	4,625								
Veneta	4,635	Yes	✓				100	0	0

City Sizes 5,000 - 9,999									
Creswell	5,031	Yes	✓				40	0	60
Warrenton	5,050	Yes	✓				6.4	45	48
Sheridan	6,170	No					5	95	0
Talent	6,170								
Madras	6,255								
Sutherlin	7,930								
Molalla	8,200	Yes	✓				80	0	20
Florence	8,466	Yes	✓				35	20	45
Eagle Point	8,575	Yes	✓				100	0	0
Independence	8,585	Yes	✓						
Sweet Home	9,065	Yes	✓				0	25	75
Silverton	9,330	Yes				✓	56.45	0	43.55
Astoria	9,500								
Cottage Grove	9,785	No					0	0	100
Sandy	9,980	Yes	✓				8	0	92
City Sizes 10,000 - 24,999									
Gladstone	11,495								
Cornelius	12,161	Yes	✓				5	95	0
St. Helens	12,895	Yes	✓				43	0	57
The Dalles	14,400	Yes	✓				100	0	0
Dallas	14,800	Yes		✓			50	0	50
Lebanon	15,660	Yes	✓				0	25	75
Troutdale	16,015								
Coos Bay	16,160								
Pendleton	16,600	Yes	✓				0	85	15
Sherwood	18,771	Yes	✓				0	0	100

Ashland	20,295	Yes	✓				15	0	85
Milwaukie	20,500	Yes	✓				0	0	100
Klamath Falls	21,200	Yes	✓				50	30	20
Wilsonville	21,550	Yes	✓			✓	20	55	25
Forest Grove	22,000	Yes							
Roseburg	22,275	Yes	✓				0	0	100
Newberg	22,396	Yes	✓				100	0	0
City Sizes 25,000 - 49,999									
West Linn	25,425	Yes	✓				0	0	100
Redmond	26,590	Yes	✓				100	0	0
Oregon City	33,390	Yes	✓				0	0	100
Grants Pass	35,000	Yes	✓				0	0	100
Lake Oswego	36,990	Yes	✓				0	0	100
Tigard	49,135	Yes	✓				1	24	75
City Sizes 50,000 or more									
Albany	50,720	Yes			✓		0	10	90
Springfield	59,990								
Medford	76,300	Yes	✓			✓	33	11.5	55.5
Bend	81,000	Yes			✓		100	0	0
Hillsboro	81,310	Yes			✓		65	0.4	34.6
Beaverton	93,000	Yes	✓				0	2	98
Salem	157,888	Yes					15	85	0
Portland	592,120								

Table C.5: Water System Characteristics

City Size	Annual Avg. Water Consumption for Residential Customers (gallons)	Total Miles of Lines (not laterals)	# of Pump/Lift Stations	# of Service Levels or Zones	Avg. Distance of Water Source From City (Miles)	Avg. Year of Original Construction	Date of Last Major Upgrade	Design Capacity Water Plant(s) (MGD)	Average Capacity Water Source (GPD)
<1,000	25,988,626	8	2	1	1	1966	2000	1	1,087,391
1,000-4,999	80,087,547	19	2	2	2	1964	2004	1	1,867,815
5,000-9,999	277,638,458	46	2	3	5	1969	2005	4	7,510,300
10,000-24,999	810,565,871	107	6	5	2	1938	2005	11	19,064,818
25,000-49,999	1,109,071,261	185	12	8	4	1943	2000	16	32,588,480
50,000 or more	2,442,314,780	427	9	6	13	1953	2005	46	539,806,677
All cities	437,562,291	76	4	3	3	1960	2003	9	54,853,942

City	Population	Annual Avg. Water Consumption for Residential Customers (gallons)	Total Miles of Lines (not laterals)	# of Pump/Lift Stations	# of Service Levels or Zones	Avg. Distance of Water Source From City (Miles)	Avg. Year of Original Construction	Date of Last Major Upgrade	Design Capacity Water Plant(s) (MGD)	Average Capacity Water Source (GPD)
City Size <1,000										
Lonerock	34	954,830	1.0	2	1	0	2004	2008		29,000
Monument	130			1		0				
Idanha	135	7,838,640								252,000
Detroit	205									
Sumpter	205									
Waterloo	230		0	0	0	0	N/A	N/A	N/A	N/A

City	Population	Annual Avg. Water Consumption for Residential Customers (gallons)	Total Miles of Lines (not laterals)	# of Pump/Lift Stations	# of Service Levels or Zones	Avg. Distance of Water Source From City (Miles)	Avg. Year of Original Construction	Date of Last Major Upgrade	Design Capacity Water Plant(s) (MGD)	Average Capacity Water Source (GPD)
Ukiah	235		Unknown	1	1	0	1978	2005	Unknown	Unlimited
Lexington	255	18,180,000								300,000
Westfir	255									
Nehalem	280		27	0	0	2.0	1927	2009	1	300,000
Sodaville	310	16,102,020	4.5	6	3	0	1980	2002	N/A	Unknown
Moro	325			0	0	0		2007		
Ione	330									
Adams	350		5.0	1	1	0	1989	2000	N/A	540,000
Scotts Mills	364				1	0		2011		
Haines	415	44,000,000	5.0	0	0	0	1910	1981	0.035	1,152,000
St. Paul	416	13,050,000	1.0	1	0	0	1950	1979	0.432	432,000
Mosier	433	23,160,000	Unknown	4	5	1.0	2006	2014		864,000
Rivergrove	445									
Huntington	445									
Fossil	475									
Gates	485	14,773,248	7.0	1	2	0	1950	2009		
Mount Vernon	525	23,927,000			1	1.0				
Cove	550									
Manzanita	615	25,704,000	20	3	2	7.0	Unknown	2003		2,345,760
Arlington	619	73,733,100	9.0	4	4	0	1964	2004	0	4,000,000*
Weston	675									
Condon	685					5.0		Underway		

City	Population	Annual Avg. Water Consumption for Residential Customers (gallons)	Total Miles of Lines (not laterals)	# of Pump/Lift Stations	# of Service Levels or Zones	Avg. Distance of Water Source From City (Miles)	Avg. Year of Original Construction	Date of Last Major Upgrade	Design Capacity Water Plant(s) (MGD)	Average Capacity Water Source (GPD)
Powers	695	25,350,000								
Echo	705	40,000,000	6.0	1	2	0	1980	1980	2.3	1,000,000
Yachats	800	37,030,000	14	3	6	<1	No	1998	1.0	864,000
Malin	815	25,350,000	6.0	1	1	0	1930	1999	0.125	
Merrill	845	28,543,680	5.0	2			1962	None	0.05	500,000
Adair Village	850	27,360,000	14	2	1	6.0	1942	1957	1.2	1,938,951
Glendale	874	17,980,000	6.8	2	1	0	1971	2013	0.504	1,564,000
Prairie City	910									
Halsey	917	23,112,000	6.0	2	0	N/A	1969	1998	0.75	1,316,547
Falls City	950									
Oakland	980						2003	2014		
Donald	980	33,624,000		0	0	0	1970s	2015		
City Sizes 1,000 - 4,999										
Island City	1,015	63,856,856	10	1	1	0	1994	2014	0.27	750,000
Yamhill	1,020	29,160,000				5.0				
Yoncalla	1,060	38,868,396	35	1	0	8.0	Unknown	1996	Unknown	
Joseph	1,090			0	0	1.0	1992	1992		1,000,000
Athena	1,125	39,525,000	10	0	1	0		1993	N/A	1,296,000
Port Orford	1,135		17			2.0				
Riddle	1,185									
Cascade Locks	1,200	58,176,000	15	4	1	0	1888	1978	0	9,694,080
Gold Hill	1,220			0	1	0	1981	1981		

City	Population	Annual Avg. Water Consumption for Residential Customers (gallons)	Total Miles of Lines (not laterals)	# of Pump/Lift Stations	# of Service Levels or Zones	Avg. Distance of Water Source From City (Miles)	Avg. Year of Original Construction	Date of Last Major Upgrade	Design Capacity Water Plant(s) (MGD)	Average Capacity Water Source (GPD)
Siletz	1,290	40,500,000	10	2	0	0	1973	2013	0.4	335,520
Heppner	1,290	42,768,000	15	1	1	18	1930s	2006	1.5	1,800,000
Dunes City	1,310	123,943,376	0	0	0	0	N/A	N/A	N/A	N/A
Bay City	1,310		11	1	2	5.0	1980	2013	N/A	
Rockaway Beach	1,325									
Culver	1,370									
Depoe Bay	1,405			5	0	1.0	1950s	2007	0.72	720,000
Gearhart	1,465			0	0	0	2011	2011		
Hines	1,565	37,500,000	15	4	1	0	1928	2001	N/A	Unknown
La Pine	1,670		24	2		2.0	2002	2009		1,441,440
Brownsville	1,670	35,113,220								
Lakeside	1,705									
Clatskanie	1,729	89,668,300	48	3	14	1.6	1985	2004	1.0	1,200,000
John Day	1,745	103,320,000	20	4	3	0	late 1960's	2004	N/A	816,480
Banks	1,785							2012	0.288	576,000
Irrigon	1,835	92,160,000	22	9	0	1.5	1964	2009	1.5	
Columbia City	1,945	45,604,350	16	2	4	0	2007	2014	0.31	
Vale	1,976	46,866,000		3	1	0.5	1950	2005	0.765	1,152,000
Waldport	2,080	91,196,160	23	2		6.0	1927	2013	0.75	
Rogue River	2,145	54,613,440	15	N/A	1	0	1974	2010	1.0	1,500,000
Union	2,240					0	1968	1989	0.75	
Vernonia	2,450	22,152,000	Unknown	3	3	20				

City	Population	Annual Avg. Water Consumption for Residential Customers (gallons)	Total Miles of Lines (not laterals)	# of Pump/Lift Stations	# of Service Levels or Zones	Avg. Distance of Water Source From City (Miles)	Avg. Year of Original Construction	Date of Last Major Upgrade	Design Capacity Water Plant(s) (MGD)	Average Capacity Water Source (GPD)
Lakeview	2,490			1	1	1.0		Underway	4	
Gervais	2,520	59,306,650	5.5	2	0	0		1997-98		Unlimited
Myrtle Point	2,525	63,961,200	16	1	2	0.75	1933	2001	1.73	1,870,000
Jacksonville	2,840	173,607,267	29	3		2.0	1955	1997	2	2,000,000
Estacada	2,880	84,000,000	16	0	0	0	1970	2006	2	2,000,000
Bandon	3,100	90,300,600	30	3	N/A	1.0	1953	2000	2	
Nyssa	3,200		20	5	0	0		1995	N/A	1,440,000
Mt. Angel	3,300	123,734,160	20	0	1	0.5	Unknown	2014	N/A	2,541,600
Boardman	3,405									
Toledo	3,465	147,475,680	35	4	3	6.5	1960	2014	3	1,700,000
Aumsville	3,750	114,791,000	11	1	1	0	1960	1985		
Coquille	3,865	193,680,000	25	4	4	1.15	1930	2009	2.75	1,762,000
Wood Village	3,875	33,655,440	12	3	2	0	1951	2011		2,300,000
Phoenix	4,585	115,170,300	20	4		6.5		2000		
Philomath	4,625									
Veneta	4,635	147,953,000	32	2	2	0	1967	2013	0.72	3,196,800
City Sizes 5,000 - 9,999										
Creswell	5,031	172,652,018	30	1	1		1990	2009	3.8	3,800,000
Warrenton	5,050	314,870,372	85	2	2	10	1978	2006	6	6,500,000 – 20,000,000*
Sheridan	6,170		20	0	0	11	1927	2008	4	Unknown
Talent	6,170	87,055,750								

City	Population	Annual Avg. Water Consumption for Residential Customers (gallons)	Total Miles of Lines (not laterals)	# of Pump/Lift Stations	# of Service Levels or Zones	Avg. Distance of Water Source From City (Miles)	Avg. Year of Original Construction	Date of Last Major Upgrade	Design Capacity Water Plant(s) (MGD)	Average Capacity Water Source (GPD)
Madras	6,255									
Sutherlin	7,930									
Molalla	8,200	365,900,000	37	1	0	2.0	1977	1998	4	2,000,000
Florence	8,466	188,299,344	45	3	3	0	1968	2004	3	3,000,000
Eagle Point	8,575		38	3	3	5.0	1960s	2011		7,400,000
Independence	8,585									
Sweet Home	9,065	426,732,780	65	0	3	0	2009	2009	6	21,182,400
Silverton	9,330	264,095,000	58	3	7	7.0	1911	1982	5.6	9,700,000
Astoria	9,500									
Cottage Grove	9,785	401,502,400	49	4	3	0	1992	2008	4	7,000,000
Sandy	9,980		29	4	3	5.7	1972	2013	2	6,000,000
City Sizes 10,000 - 24,999										
Gladstone	11,495									
Cornelius	12,161		32	0	1	0	1940	2014	N/A	Unlimited
St. Helens	12,895	218,521,800	76	1	2	0.45	1910's	2006	6	41,000,000
The Dalles	14,400	449,600,000	104	3	13	7.0	1949	2007	6.05	10,400,00
Dallas	14,800	830,922,500	46	3	3	4.0	1920	2007	8.5	13,000,000
Lebanon	15,660	702,820,800	56	1	1	3.0	1946	1996	4	24,000,000
Troutdale	16,015									
Coos Bay	16,160									
Pendleton	16,600	610,000,000	108	14	8	0.2	1900-1910	2003	15	23,400,000
Sherwood	18,771	383,040,000	70	2	4	6.0	Unknown	2009	15	15,000,000

City	Population	Annual Avg. Water Consumption for Residential Customers (gallons)	Total Miles of Lines (not laterals)	# of Pump/Lift Stations	# of Service Levels or Zones	Avg. Distance of Water Source From City (Miles)	Avg. Year of Original Construction	Date of Last Major Upgrade	Design Capacity Water Plant(s) (MGD)	Average Capacity Water Source (GPD)
Ashland	20,295	503,180,340	126	4	16	1.48	1949	1995	10	13,513,000
Milwaukie	20,500	871,250,000	112	4	4	0	1903	2013	7.3	7,300,000
Klamath Falls	21,200	2,456,450,000	260	23	8	0	1895	2014	26.5	26,500,000
Wilsonville	21,550	255,000,000	106	2	3	0	2002	None	15	20,000,000
Forest Grove	22,000	421,800,000								
Roseburg	22,275	2,073,970,880	192	21	4	5.0	1935	1992	12	20,000,000
Newberg	22,396	760,800,000	110	1	4	0.5	1900s	2008	9	6,000,000
City Sizes 25,000 - 49,999										
West Linn	25,425	900,000,000	118	25	6	10	1920	1990	5	2,000,000
Redmond	26,590	1,105,634,000	164	10	3	0	1940	2014	17.9	17,942,400
Oregon City	33,390		167	5	14	<1	~1940	2012	22	52,000,000
Grants Pass	35,000	927,722,304	187	13	5	0	1930s	1984	18	75,000,000
Lake Oswego	36,990	1,092,000,000	250	13	11	4.9	1968	2001	16	16,000,000
Tigard	49,135	1,520,000,000	225	6	6					
City Sizes 50,000 or more										
Albany	50,720	1,354,492,540	285	5	1	11.5	1920	2005	40	32,000,000
Springfield	59,990									
Medford	76,300	2,982,200,000	475	12	9	16.4	1948	1997	45	91,000,000
Bend	81,000	3,066,000,000	466	4	7	10		2014	12	32,000,000
Hillsboro	81,310	1,915,363,956	302	3	2	7.0	1983		34	36,840,062
Beaverton	93,000	2,628,000,000	284	4	10	20	1977		19	2,900,000,000
Salem	157,888	2,707,832,182	749	23	5	15	1936	2006	126	147,000,000

City	Population	Annual Avg. Water Consumption for Residential Customers (gallons)	Total Miles of Lines (not laterals)	# of Pump/Lift Stations	# of Service Levels or Zones	Avg. Distance of Water Source From City (Miles)	Avg. Year of Original Construction	Date of Last Major Upgrade	Design Capacity Water Plant(s) (MGD)	Average Capacity Water Source (GPD)
Portland	592,120									

*Values flagged for review, but city unable to confirm value.

Table C.5: Water Storage

City Size	# of Cities per Raw Storage Type					# of Cities per Treated Storage Type				
	Closed Tank	Covered Urban Reservoir	ASR	Other	Reservoir	Closed Tank	Covered Urban Reservoir	ASR	Other	Reservoir
<1,000	6	2	0	1	0	10	2	0	0	5
1,000-4,999	5	1	0	0	7	20	1	0	0	6
5,000-9,999	0	0	0	0	2	7	1	0	0	3
10,000-24,999	1	0	0	1	3	12	2	2	0	1
25,000-49,999	1	1	0	0	1	4	1	1	0	0
50,000 or more	0	0	0	0	2	5	2	2	0	1
All cities	13	4	0	2	15	58	9	5	0	16

City	Population	Raw					Treated				
		Closed Tank (MG)	Covered Urban Reservoir (MG)	ASR (MG)	Other (MG)	Reservoir (MG)	Closed Tank (MG)	Covered Urban Reservoir (MG)	ASR (MG)	Other (MG)	Reservoir (MG)
City Sizes <1,000											
Lonerock	34										
Monument	130										
Idanha	135										
Detroit	205										
Sumpter	205										
Waterloo	230										
Ukiah	235		0.40								

City	Population	Raw					Treated				
		Closed Tank (MG)	Covered Urban Reservoir (MG)	ASR (MG)	Other (MG)	Reservoir (MG)	Closed Tank (MG)	Covered Urban Reservoir (MG)	ASR (MG)	Other (MG)	Reservoir (MG)
Lexington	255										
Westfir	255										
Nehalem	280		1.25				1.5				
Sodaville	310	0.15									
Moro	325										
Ione	330										
Adams	350	0.25									
Scotts Mills	364										
Haines	415						0.04				
St. Paul	416						0.1	0.1			
Mosier	433										
Rivergrove	445										
Huntington	445										
Fossil	475										
Gates	485						0.50				
Mount Vernon	525						1				1
Cove	550										
Manzanita	615	0.03					0.08				2.35
Arlington	619										
Weston	675										
Condon	685										
Powers	695										

City	Population	Raw					Treated				
		Closed Tank (MG)	Covered Urban Reservoir (MG)	ASR (MG)	Other (MG)	Reservoir (MG)	Closed Tank (MG)	Covered Urban Reservoir (MG)	ASR (MG)	Other (MG)	Reservoir (MG)
Echo	705										0.35
Yachats	800	0.5					1.25				
Malin	815	2									
Merrill	845	0.05									
Adair Village	850						1.1				
Glendale	874				1.563		1				
Prairie City	910										
Halsey	917										0.075
Falls City	950										
Oakland	980						2	2			2
Donald	980										
City Sizes 1,000 - 4,999											
Island City	1,015		1								
Yamhill	1,020										
Yoncalla	1,060					3	0.75				
Joseph	1,090										
Athena	1,125	0.75									
Port Orford	1,135										
Riddle	1,185										
Cascade Locks	1,200	0.4									
Gold Hill	1,220	1									
Siletz	1,290					1.5	1				

City	Population	Raw					Treated				
		Closed Tank (MG)	Covered Urban Reservoir (MG)	ASR (MG)	Other (MG)	Reservoir (MG)	Closed Tank (MG)	Covered Urban Reservoir (MG)	ASR (MG)	Other (MG)	Reservoir (MG)
Heppner	1,290	3									
Dunes City	1,310	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Bay City	1,310						1.3				
Rockaway Beach	1,325										
Culver	1,370										
Depoe Bay	1,405					2.8	2				
Gearhart	1,465						0.25				1
Hines	1,565					0.85					
La Pine	1,670										
Brownsville	1,670										
Lakeside	1,705										
Clatskanie	1,729						1				1
John Day	1,745										2.4
Banks	1,785						1.7				
Irrigon	1,835						1				
Columbia City	1,945						0.4				1
Vale	1,976						0.375				0
Waldport	2,080										
Rogue River	2,145										2
Union	2,240										
Vernonia	2,450										
Lakeview	2,490						4.5				

City	Population	Raw					Treated				
		Closed Tank (MG)	Covered Urban Reservoir (MG)	ASR (MG)	Other (MG)	Reservoir (MG)	Closed Tank (MG)	Covered Urban Reservoir (MG)	ASR (MG)	Other (MG)	Reservoir (MG)
Gervais	2,520						2				
Myrtle Point	2525						3				
Jacksonville	2,840							3.45			
Estacada	2,880										1.5
Bandon	3,100					1.1	3				
Nyssa	3,200						3.1				
Mt. Angel	3,300	1.3					N/A				
Boardman	3,405										
Toledo	3,465					81	2.3				
Aumsville	3,750										
Coquille	3,865					215	2.9				
Wood Village	3,875						1.43				
Phoenix	4,585						1.85				
Philomath	4,625										
Veneta	4,635						3.5				
City Sizes 5,000 - 9,999											
Creswell	5,031						4.2				
Warrenton	5,050						17	7.3			
Sheridan	6170					60	4				
Talent	6,170										
Madras	6,255										
Sutherlin	7,930										

City	Population	Raw					Treated				
		Closed Tank (MG)	Covered Urban Reservoir (MG)	ASR (MG)	Other (MG)	Reservoir (MG)	Closed Tank (MG)	Covered Urban Reservoir (MG)	ASR (MG)	Other (MG)	Reservoir (MG)
Molalla	8,200										3.2
Florence	8,466						4.5				
Eagle Point	8,575						7.4				
Independence	8,585										
Sweet Home	9,065										3
Silverton	9,330					420	4.45				
Astoria	9,500										
Cottage Grove	9,785										4.3
Sandy	9,980						4.75				
City Sizes 10,000 - 24,999											
Gladstone	11,495										
Cornelius	12,161						1.5				
St. Helens	12,895	0.3					5.7				
The Dalles	14,400					167	20				
Dallas	14,800					430	4	4	50		
Lebanon	15,660						6				
Troutdale	16,015										
Coos Bay	16,160										
Pendleton	16,600						1.8	5.43	900		
Sherwood	18,771										3
Ashland	20,295					1,047	7.1				

City	Population	Raw					Treated				
		Closed Tank (MG)	Covered Urban Reservoir (MG)	ASR (MG)	Other (MG)	Reservoir (MG)	Closed Tank (MG)	Covered Urban Reservoir (MG)	ASR (MG)	Other (MG)	Reservoir (MG)
Milwaukie	20,500						6				
Klamath Falls	21,200						21				
Wilsonville	21,550						8.67				
Forest Grove	22,000										
Roseburg	22,275				0.7		11.4				
Newberg	22,396						12				
City Sizes 25,000 - 49,999											
West Linn	25,425	1	2			2					
Redmond	26,590						10				
Oregon City	33,390						18.3				
Grants Pass	35,000						20.5				
Lake Oswego	36,990							26			
Tigard	49,135						27		500		
City Sizes 50,000 or more											
Albany	50,720										20.6
Springfield	59,990										
Medford	76,300						36.2				
Bend	81,000						30.35				
Hillsboro	81,310					3,300	18	31.9			
Beaverton	93,000					2,700	38.3		450		
Salem	157,888						47	98	500		
Portland	592,120										

APPENDIX D: WASTEWATER RATE STRUCTURE, PRICING, AND SYSTEM CHARACTERISTICS

Table D.1: Wastewater Rate Structure & Pricing

City Size	# of Responses	Last Year of Rate Change	Rate structure				Average Cost per 5,000 gal.
			Flat Rate	Winter average water consumption used in summer months	Winter average water consumption used all year	Other	
<1,000	23	2013	18	1	0	4	\$42.86
1,000-4,999	37	2013	23	3	2	10	\$44.70
5,000-9,999	13	2012	4	5	2	2	\$43.94
10,000-24,999	16	2014	6	7	2	1	\$45.69
25,000-49,999	6	2014	3	1	1	1	\$39.62
50,000 or more	6	2014	1	1	3	1	\$40.46
All cities	101	2013	55	18	10	19	\$43.84

City	Population	Last Year of Rate Change	Rate structure				Average Cost per 5,000 gal.
			Flat Rate	Winter average water consumption used in summer months	Winter average water consumption used all year	Other	
City size <1,000							
Lonerock	34						
Monument	130	2014	✓				\$49.95
Idanha	135						
Detroit	205						
Sumpter	205						
Waterloo	230						
Ukiah	235	2011	✓				\$27.00
Lexington	255	2014	✓				
Westfir	255						\$41.00

City	Population	Last Year of Rate Change	Rate structure				Average Cost per 5,000 gal.
			Flat Rate	Winter average water consumption used in summer months	Winter average water consumption used all year	Other	
Nehalem	280						
Sodaville	310						
Moro	325	2014	✓				
Ione	330						
Adams	350						
Scotts Mills	364						
Haines	415						
St. Paul	416	2014	✓				\$70.00
Mosier	433	2014	✓				\$63.00
Rivergrove	445						
Huntington	445	2014	✓				\$35.50
Fossil	475						
Gates	485						
Mount Vernon	525	2014	✓				\$35.00
Cove	550	2014	✓				\$45.00
Manzanita	615						
Arlington	619	2007	✓				\$38.00
Weston	675	2013	✓				\$57.50
Condon	685	2012	✓				\$44.00
Powers	695	2013				✓	\$47.00
Echo	705	2012				✓	\$45.00
Yachats	800	2008				✓	\$50.00
Malin	815	2013	✓				\$15.00
Merrill	845	2010	✓				\$35.00
Adair Village	850	2014	✓				\$46.06
Glendale	874	2013	✓				\$48.00
Prairie City	910						
Halsey	917	2014				✓	\$32.00
Falls City	950	2013	✓				\$46.00
Oakland	980	2014	✓				N/A
Donald	980	2014		✓			\$30.00

City	Population	Last Year of Rate Change	Rate structure				Average Cost per 5,000 gal.
			Flat Rate	Winter average water consumption used in summer months	Winter average water consumption used all year	Other	
City Sizes 1,000 - 4,999							
Island City	1,015						
Yamhill	1,020	> 10 yrs. ago	✓				\$51.68
Yoncalla	1,060	2014	✓				\$47.00
Joseph	1,090	2014	✓				\$21.25
Athena	1,125	2010	✓				\$42.00
Port Orford	1,135	2014	✓				\$79.18
Riddle	1,185	2012	✓				\$90.00
Cascade Locks	1,200	> 10 yrs. ago				✓	\$42.50
Gold Hill	1,220	2014	✓				
Siletz	1,290	2014				✓	\$63.00
Heppner	1,290	2013	✓				\$29.10
Dunes City	1,310						
Bay City	1,310	2014	✓				\$33.95
Rockaway Beach	1,325	2011	✓				\$50.80‡
Culver	1,370	2010	✓				\$36.00
Depoe Bay	1,405	2014				✓	\$28.00‡
Gearhart	1,465						
Hines	1,565	2014				✓	\$48.00‡
La Pine	1,670	2010	✓				
Brownsville	1,670						
Lakeside	1,705						
Clatskanie	1,729	2011				✓	\$41.50
John Day	1,745	2014		✓			\$39.50
Banks	1,785						
Irrigon	1,835	2014	✓				\$59.89
Columbia City	1,945	2014				✓	\$41.21
Vale	1,976	2014			✓		\$40.60
Waldport	2,080						
Rogue River	2,145	2014				✓	\$30.60
Union	2,240	2014	✓				\$41.63

City	Population	Last Year of Rate Change	Rate structure				Average Cost per 5,000 gal.
			Flat Rate	Winter average water consumption used in summer months	Winter average water consumption used all year	Other	
Vernonia	2,450	2013	✓				N/A
Lakeview	2,490	2011	✓				\$27.16
Gervais	2,520	> 10 yrs. ago	✓				\$37.00
Myrtle Point	2,525	2013		✓			\$38.24
Jacksonville	2,840						
Estacada	2,880	2014	✓				\$34.15
Bandon	3,100	2011				✓	\$32.36
Nyssa	3,200	2010	✓				\$48.00
Mt. Angel	3,300	2009	✓				\$37.50
Boardman	3,405		✓				
Toledo	3,465	2014			✓		\$71.45
Aumsville	3,750	2013	✓				\$38.62
Coquille	3,865	2013		✓			\$61.00
Wood Village	3,875	2014				✓	\$49.80
Phoenix	4,585						
Philomath	4,625	2013				✓	\$41.00
Veneta	4,635	2013	✓				\$46.26
City Sizes 5,000 - 9,999							
Creswell	5,031	2006		✓			\$43.03
Warrenton	5,050	2014				✓	\$48.66
Sheridan	6,170						
Talent	6,170	2014	✓				\$34.25
Madras	6,255	2014			✓		\$53.00
Sutherlin	7,930	2014				✓	\$34.10
Molalla	8,200	2006		✓			\$40.99
Florence	8,466	2014	✓				\$50.71
Eagle Point	8,575						
Independence	8,585	2014	✓				\$42.93
Sweet Home	9,065	2014		✓			\$49.60
Silverton	9,330	2014			✓		\$63.85
Astoria	9,500	2013	✓				

City	Population	Last Year of Rate Change	Rate structure				Average Cost per 5,000 gal.
			Flat Rate	Winter average water consumption used in summer months	Winter average water consumption used all year	Other	
Cottage Grove	9,785	2014		✓			\$43.09
Sandy	9,980	2008		✓			\$23.05
City Sizes 10,000 - 24,999							
Gladstone	11,495	2014	✓				\$27.79
Cornelius	12,161	2014			✓		\$44.08
St. Helens	12,895	2013		✓			\$51.92†
The Dalles	14,400	2014	✓				\$44.78
Dallas	14,800	2014	✓				\$42.90
Lebanon	15,660	2014			✓		\$67.08
Troutdale	16,015	2014	✓				
Coos Bay	16,160	2014		✓			\$62.16
Pendleton	16,600	2014	✓				\$28.35
Sherwood	18,771	2014		✓			\$37.99
Ashland	20,295	2014		✓			\$49.76
Milwaukie	20,500	2013		✓			\$51.21
Klamath Falls	21,200	2014		✓			\$46.92
Wilsonville	21,550	2014				✓	\$55.24
Forest Grove	22,000	2013	✓				\$30.80
Roseburg	22,275						
Newberg	22,396	2014		✓			\$44.40
City Sizes 25,000 - 49,999							
West Linn	25,425	2014	✓				\$33.62
Redmond	26,590	2014	✓				\$29.81
Oregon City	33,390	2013	✓				\$45.66
Grants Pass	35,000	2014			✓		\$27.04
Lake Oswego	36,990	2014		✓			\$61.99
Tigard	49,135	2014				✓	
City Sizes 50,000 or more							
Albany	50,720	2014			✓		\$51.88
Springfield	59,990	2014		✓			\$45.36
Medford	76,300	2013				✓	\$15.85

City	Population	Last Year of Rate Change	Rate structure				Average Cost per 5,000 gal.
			Flat Rate	Winter average water consumption used in summer months	Winter average water consumption used all year	Other	
Bend	81,000	2014	✓				\$48.36
Hillsboro	81,310						
Beaverton	93,000	2014			✓		
Salem	157,888	2014			✓		\$40.85
Portland	592,120						

‡Bi-monthly billing city where values adjusted for comparable comparison. See Data Editing and Analysis in Appendix A for explanation.

Charts D.2A-C.2F: Wastewater Bill a Residential Customer Would Pay for 5,000 Gallons Using A ¾" Meter

As mentioned in the report, please keep in mind that the values reported below are just values. Assumptions cannot be made that a utility is in the black or red. In other words, a lower value does not necessarily suggest a utility is meeting its maintenance and operating costs and generating enough revenue to fund capital investments. Similarly, a higher value does not necessarily suggest a city is generating more revenue than it needs.

Although the survey asked cities to report the minimum value a customer would pay if the city could not bill for exactly 5,000 gallons, the bi-monthly billing cities have values adjusted to reflect a monthly rate for a more representative comparison. See Appendix A Data Editing and Analysis for more information on the adjustments. See footnotes to determine which cities were adjusted.

‡Indicates a city with bi-monthly billing and an adjusted bi-monthly reported value.

Chart D.2A: Coastal Region Cities' Wastewater Bill for 5,000 gallons

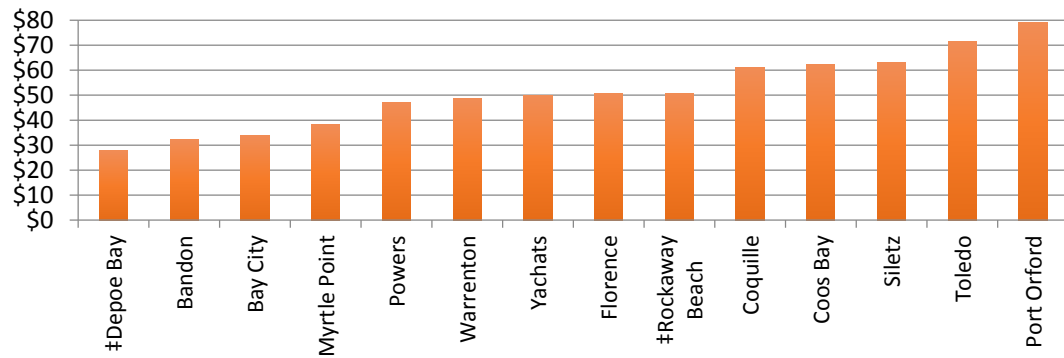


Chart D.2B: Valley Region Cities' Wastewater Bill for 5,000 gallons

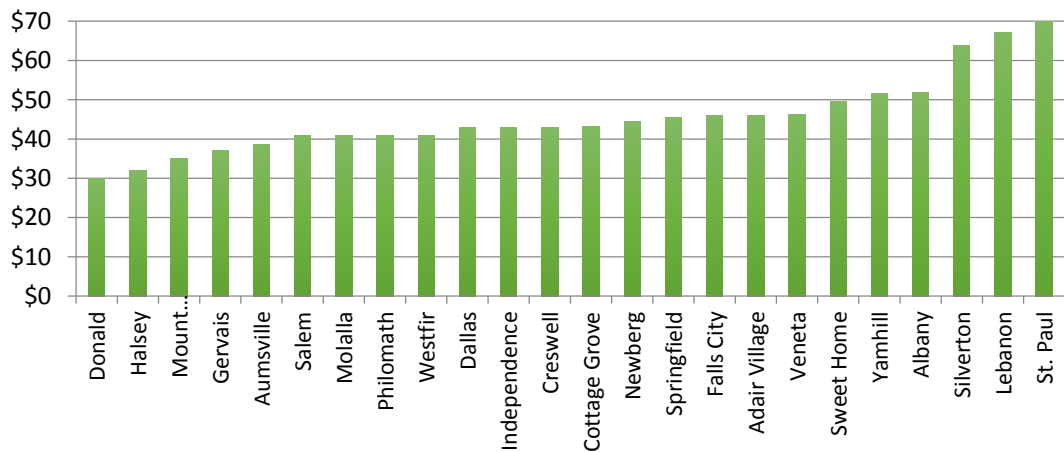
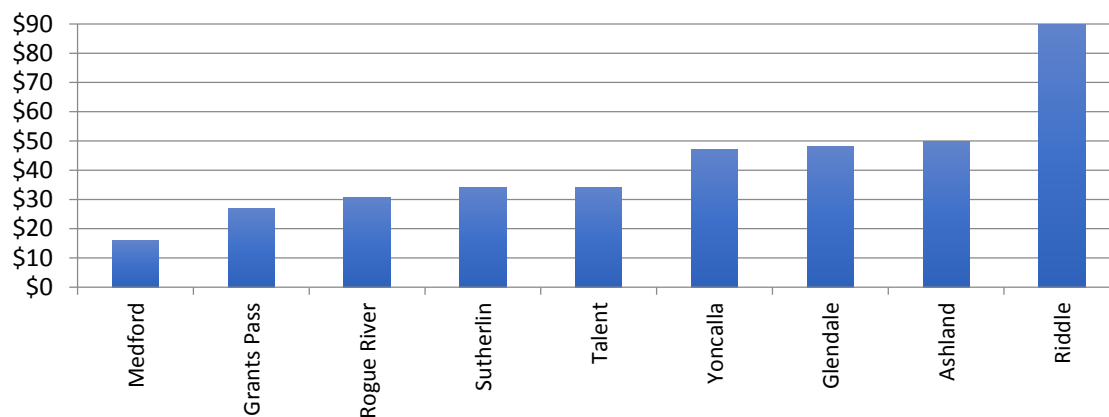


Chart D.2C: Southern Region Cities' Wastewater Bill for 5,000 gallons



One potential reason for Riddle's higher rates is that it recently increased its rates in 2012 for its completed 2014 upgrade to its facilities.

Chart D.2D: Portland/Mt. Hood Region Cities' Wastewater Bill for 5,000 gallons

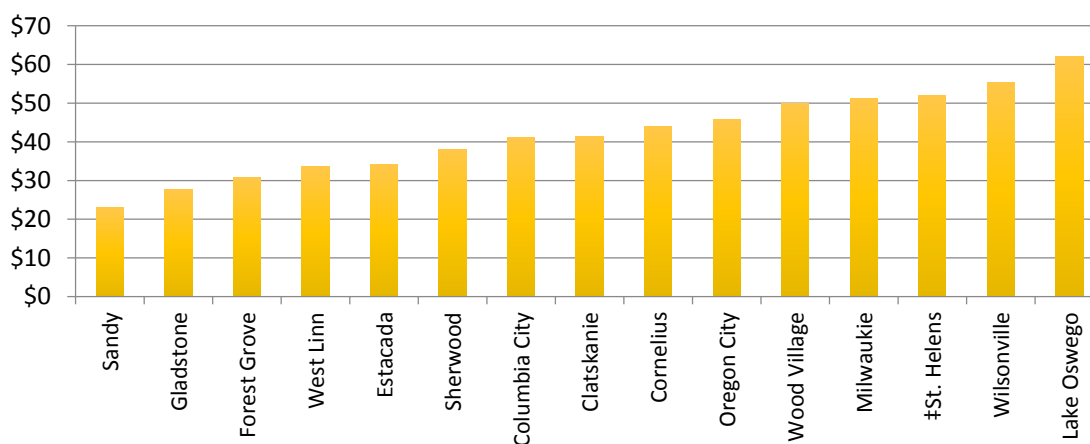


Chart D.2E: Central Region Cities' Wastewater Bill for 5,000 gallons

The information available at this time limits an explanation for Malin's lower water bill.

Chart D.2F: Eastern Region Cities' Wastewater Bill for 5,000 gallons

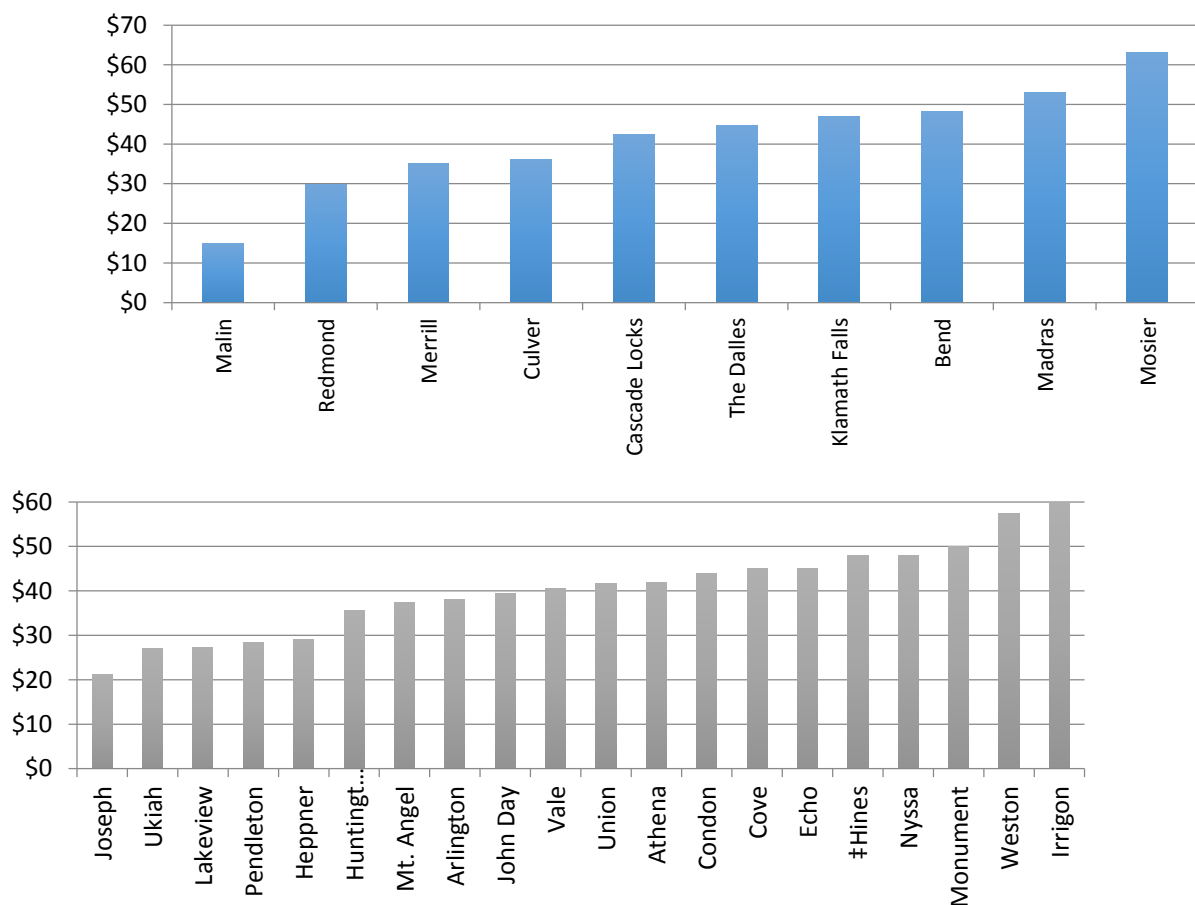


Table D.3: Wastewater System Characteristics

City Size	Total Miles of Sewer Lines (not laterals)	# of Pump/Lift Stations	# of Treatment Plants	Percent "combined sewer"
<1,000	6	2	1	21
1,000-4,999	16	3	1	4
5,000-9,999	33	8	1	0
10,000-24,999	71	7	1	1
25,000-49,999	163	10	1	0
50,000 or more	375	79	1	0
All cities	68	10	1	6

City	Population	Total Miles of Sewer Lines (not laterals)	# of Pump/Lift Stations	# of Treatment Plants	Percent "combined sewer"
City size <1,000					
Lonerock	34				
Monument	130		5		
Idanha	135	N/A	N/A	N/A	N/A
Detroit	205				
Sumpter	205				
Waterloo	230	0	0	0	0
Ukiah	235	Unknown	1	1	100
Lexington	255	N/A	N/A	N/A	N/A
Westfir	255				
Nehalem	280				
Sodaville	310				
Moro	325				
Ione	330				
Adams	350				
Scotts Mills	364				
Haines	415	5	1	1	0
St. Paul	416	2	2	1	0
Mosier	433	3	0	1	0
Rivergrove	445				
Huntington	445				
Fossil	475				

City	Population	Total Miles of Sewer Lines (not laterals)	# of Pump/Lift Stations	# of Treatment Plants	Percent "combined sewer"
Gates	485				
Mount Vernon	525				
Cove	550				
Manzanita	615				
Arlington	619	9	2	1	0
Weston	675				
Condon	685				
Powers	695				
Echo	705	5	1		0
Yachats	800	10	5	1	0
Malin	815	6	1	1	5
Merrill	845	5	3	1	none
Adair Village	850	14	2	1	0
Glendale	874	5	2	1	66
Prairie City	910				
Halsey	917	4	3	1	0
Falls City	950				
Oakland	980	9	2	1	100
Donald	980				
City Sizes 1,000 - 4,999					
Island City	1,015	10	6	0	0
Yamhill	1,020			1	
Yoncalla	1,060	20	1	1	0
Joseph	1,090				
Athena	1,125	7	1	1	0
Port Orford	1,135	13	4	1	
Riddle	1,185			1	
Cascade Locks	1,200				
Gold Hill	1,220		0	1	
Siletz	1,290	8	2	1	0
Heppner	1,290	Unknown	1	1	0
Dunes City	1,310	N/A	N/A	N/A	N/A
Bay City	1,310		2	1	0
Rockaway Beach	1,325				

City	Population	Total Miles of Sewer Lines (not laterals)	# of Pump/Lift Stations	# of Treatment Plants	Percent "combined sewer"
Culver	1,370	7	1	1	0
Depoe Bay	1,405		5	1	0
Gearhart	1,465				
Hines	1,565	13	2	0	0
La Pine	1,670	21	5	1	0
Brownsville	1,670				
Lakeside	1,705				
Clatskanie	1,729	10	5	1	0
John Day	1,745	19	3	1	0
Banks	1,785				
Irrigon	1,835	30	3	1	0
Columbia City	1,945	16	4	0	0
Vale	1,976		2	1	5
Waldport	2,080				
Rogue River	2,145	11	7	1	0
Union	2,240	20	1	1	0
Vernonia	2,450				
Lakeview	2,490		5	1	0
Gervais	2,520	5.5 to 6	2	3	0
Myrtle Point	2,525	14	3	1	0
Jacksonville	2,840				
Estacada	2,880	17	3	1	100
Bandon	3,100	24	7	1	0
Nyssa	3,200	19	4	1	0
Mt. Angel	3,300	12	0	1	0
Boardman	3,405				
Toledo	3,465	30	5	1	1
Aumsville	3,750	9	1	1	0
Coquille	3,865	19	2	1	0
Wood Village	3,875	8.1	3	0	0
Phoenix	4,585				
Philomath	4,625				
Veneta	4,635	23	3	1	0
City Sizes 5,000 - 9,999					

City	Population	Total Miles of Sewer Lines (not laterals)	# of Pump/Lift Stations	# of Treatment Plants	Percent "combined sewer"
Creswell	5,031	22	2	1	0
Warrenton	5,050				
Sheridan	6,170	18	2	1	0
Talent	6,170				
Madras	6,255				
Sutherlin	7,930	27	5	1	0
Molalla	8,200	33	6	1	0
Florence	8,466	48	38	1	0
Eagle Point	8,575				
Independence	8,585				
Sweet Home	9,065	64	0	1	0
Silverton	9,330	25	7	1	0
Astoria	9,500			1	
Cottage Grove	9,785	46	4	1	0
Sandy	9,980	19	6	1	0
City Sizes 10,000 - 24,999					
Gladstone	11,495				
Cornelius	12,161	24	2	0	0
St. Helens	12,895	58	9	1	0
The Dalles	14,400	94	8	1	Unknown
Dallas	14,800	49	2	1	<1
Lebanon	15,660	51	3	1	<1
Troutdale	16,015				
Coos Bay	16,160	90	23	2	0
Pendleton	16,600	82	6	1	0
Sherwood	18,771	63	0		0
Ashland	20,295	110	6	1	0
Milwaukie	20,500	75	5		0
Klamath Falls	21,200				
Wilsonville	21,550	76	8	1	8
Forest Grove	22,000				
Roseburg	22,275				
Newberg	22,396	84	8	1	0
City Sizes 25,000 - 49,999					

City	Population	Total Miles of Sewer Lines (not laterals)	# of Pump/Lift Stations	# of Treatment Plants	Percent "combined sewer"
West Linn	25,425	193	4	0	0
Redmond	26,590	135	13	1	<1
Oregon City	33,390	130	14	1	<1
Grants Pass	35,000	170	3	1	0
Lake Oswego	36,990	189	14	0	0
Tigard	49,135				
City Sizes 50,000 or more					
Albany	50,720	222	16	1	0
Springfield	59,990	240	13	1	0
Medford	76,300	261	5	1	0
Bend	81,000	446	414	1	0
Hillsboro	81,310				
Beaverton	93,000	280	0	2	0
Salem	157,888	800	28	2	0
Portland	592,120				

Table D.4: Wastewater System Production & Capacity

City Size	Avg. Year of Original Plant Construction	Avg. Year of Last Major Upgrade	Total Amount of Wastewater Treated in 2013 (MG)	2013 Peak Flow		Design Capacity of Plants		Current Operating Capacity (percent)	Projected Year of Max. Capacity
				Wet Weather (MGD)	Dry Weather (MGD)	Total Peak Wet Weather (MGD)	Total Dry Weather (MGD)		
<1,000	1980	2006	33	2	1	9	9	58	2029
1,000-4,999	1979	2001	89	1	1	17	15	57	2032
5,000-9,999	1968	1996	387	4	2	6	2	62	2029
10,000-24,999	1965	2005	1,107	11	5	14	5	66	2026
25,000-49,999	1977	2008	909	9	3	12	5	75	2020
50,000 or more	1981	2010	6,366	49	21	145	22	74	2021
All cities	1976	2003	825	7	3	22	11	61	2029

City	Population	Avg. Year of Original Plant Construction	Avg. Year of Last Major Upgrade	Total Amount of Wastewater Treated in 2013 (MG)	2013 Peak Flow		Design Capacity Plants		Current Operating Capacity (percent)	Projected Year of Max. Capacity
					Wet Weather (MGD)	Dry Weather (MGD)	Total Peak Wet Weather (MGD)	Total Dry Weather (MGD)		
City Size <1,000										
Lonerock	34									
Monument	130									
Idanha	135	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Detroit	205									
Sumpter	205									
Waterloo	230	N/A	N/A	0	0	0	0	0	0	N/A
Ukiah	235	1979	2013	Unknown	Unknown	Unknown	Unknown	Unknown	100	2050

City	Population	Avg. Year of Original Plant Construction	Avg. Year of Last Major Upgrade	Total Amount of Wastewater Treated in 2013 (MG)	2013 Peak Flow		Design Capacity Plants		Current Operating Capacity (percent)	Projected Year of Max. Capacity
					Wet Weather (MGD)	Dry Weather (MGD)	Total Peak Wet Weather (MGD)	Total Dry Weather (MGD)		
Lexington	255									
Westfir	255									
Nehalem	280									
Sodaville	310									
Moro	325									
Ione	330									
Adams	350									
Scotts Mills	364									
Haines	415	1980	2012	30	0.12	0.09	17.3	17.3	65	
St. Paul	416	1979	2014	15	0.15	0.08	1.5	0.07	75	2018
Mosier	433	2009	2009	Unknown	Unknown	Unknown	0.09	N/A	50	2031
Rivergrove	445									
Huntington	445									
Fossil	475									
Gates	485									
Mount Vernon	525									
Cove	550									
Manzanita	615									
Arlington	619	1964	2006	75			75*	75*	75	2020
Weston	675									
Condon	685									
Powers	695									
Echo	705	1976	1985	15	0.75	0.20	0.12	0.12	34	Unknown

City	Population	Avg. Year of Original Plant Construction	Avg. Year of Last Major Upgrade	Total Amount of Wastewater Treated in 2013 (MG)	2013 Peak Flow		Design Capacity Plants		Current Operating Capacity (percent)	Projected Year of Max. Capacity
					Wet Weather (MGD)	Dry Weather (MGD)	Total Peak Wet Weather (MGD)	Total Dry Weather (MGD)		
Yachats	800	2009	2009	54	0.50	0.25	1.3	0.25	50	2043
Malin	815	1931	2010	20	0.10	0.07	0.14	0.14	70	Unknown
Merrill	845	2004		22	0.11	0.08	0.12	0.12		
Adair Village	850	1958	1999	35	8.1	1.9	0.34	0.34	90	2014
Glendale	874	1978	Current	45	0.0	0.31	0.45	0.17	33	2044
Prairie City	910									
Halsey	917	1969	2009	23	3.6	0.98	22.9			
Falls City	950									
Oakland	980	2002	2002	60	5.0	2.0	0.72	0.27		Unknown
Donald	980									
City Sizes 1,000 - 4,999										
Island City	1,015									
Yamhill	1,020									
Yoncalla	1,060	1968	1988	4.6	0.81	0.13	0.14	0.28	50	2025
Joseph	1,090									
Athena	1,125	1953	2013	21	0.09	0.05	0.31	0.31	40	
Port Orford	1,135									
Riddle	1,185		2014							
Cascade Locks	1,200									
Gold Hill	1,220				0.09	0.06	0.3	0.30	35	
Siletz	1,290	1973	1991		1.8	0.1	0.5	0.24	75	
Heppner	1,290	1953	1994	6.9	0.31	0.11	0.13	0.13	~75	2020

City	Population	Avg. Year of Original Plant Construction	Avg. Year of Last Major Upgrade	Total Amount of Wastewater Treated in 2013 (MG)	2013 Peak Flow		Design Capacity Plants		Current Operating Capacity (percent)	Projected Year of Max. Capacity
					Wet Weather (MGD)	Dry Weather (MGD)	Total Peak Wet Weather (MGD)	Total Dry Weather (MGD)		
Dunes City	1,310	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Bay City	1,310	1995	2012	104	1.1	1.3	1.4	0.17	90	2078
Rockaway Beach	1,325									
Culver	1,370	1975	2012						30	2032
Depoe Bay	1,405	1974	2003	169	1.1	0.51	1.6	1.6	60	
Gearhart	1,465									
Hines	1,565	N/A	N/A	0.0	Lagoon	Lagoon	N/A	N/A	Lagoon	Lagoon
La Pine	1,670	1989	2006	40	0.14	0.09	0.25	0.25	50	2030
Brownsville	1,670									
Lakeside	1,705									
Clatskanie	1,729	1979	2014	89	1.3	0.12	2.0	0.15	75	2020
John Day	1,745	1949	1979				0.6	0.6	40	Unforeseen
Banks	1,785									
Irrigon	1,835	2004	N/A	32	N/A	0.18	0.45	0.45	40	2025
Columbia City	1,945			39	N/A	N/A			N/A	N/A
Vale	1,976	2005	2005	73			0.425	0.425	35	
Waldport	2,080									
Rogue River	2,145	1997	2000	109	0.48	0.4	0.6	0.48	50	2037
Union	2,240	1977	2000	56	0.24	0.17	365*	365*	50	2040
Vernonia	2,450									
Lakeview	2,490	Unknown	2001				Unknown	Unknown	50	2030
Gervais	2,520		2003	61	7.38	3.79	0.46	0.22		
Myrtle Point	2,525	1953	1971	92	1.31	0.66	1.07	0.36	100	2013

City	Population	Avg. Year of Original Plant Construction	Avg. Year of Last Major Upgrade	Total Amount of Wastewater Treated in 2013 (MG)	2013 Peak Flow		Design Capacity Plants		Current Operating Capacity (percent)	Projected Year of Max. Capacity
					Wet Weather (MGD)	Dry Weather (MGD)	Total Peak Wet Weather (MGD)	Total Dry Weather (MGD)		
Jacksonville	2,840									
Estacada	2,880	1973	2009	140	1.9	1.2	5.0	0.54	50	Unknown
Bandon	3,100	1971	2014	119	0.35	0.35	3.2	0.5	69	2029
Nyssa	3,200	2009	2009	74	0.29	0.15	1.46	0.42	50	2030
Mt. Angel	3,300	1992	2007	93	1.19	0.90	2.69	0.42	44	Unknown
Boardman	3,405									
Toledo	3,465	1954	2000	240	1.3	0.66	6.5	6.5	75	2030
Aumsville	3,750	1960	1985	70.8	1.5	0.33	1.2	0.30	90	2020
Coquille	3,865	2012	N/A	240	5.1	0.44	3.3	0.53	40	2060
Wood Village	3,875			124	2.5	0.36	Unknown	0.50	80	2040
Phoenix	4,585									
Philomath	4,625									
Veneta	4,635	2002	2002	149	1.14	0.40	2.4	1.25	50-60percent	2025
City Sizes 5,000 - 9,999										
Creswell	5,031		2007							
Warrenton	5,050									
Sheridan	6,170	1959	1988							
Talent	6,170									
Madras	6,255									
Sutherlin	7,930	1977	1977	263	2.5	0.20	4.9	1.3	100	2014
Molalla	8,200	1977	2006	434	3.8	2.2	3.0	1.4	54	2025
Florence	8,466	1960	2000	255	1.2	0.9	6.0	1.3	40	2030

City	Population	Avg. Year of Original Plant Construction	Avg. Year of Last Major Upgrade	Total Amount of Wastewater Treated in 2013 (MG)	2013 Peak Flow		Design Capacity Plants		Current Operating Capacity (percent)	Projected Year of Max. Capacity
					Wet Weather (MGD)	Dry Weather (MGD)	Total Peak Wet Weather (MGD)	Total Dry Weather (MGD)		
Eagle Point	8,575									
Independence	8,585									
Sweet Home	9,065	1961	1980	426	7.5	1.5	5.0	1.5	70	2050
Silverton	9,330	1962	1999	356	5.7	1.4	12	2.5	40	2030
Astoria	9,500									
Cottage Grove	9,785	1952	2004	553	4.8	5.2	8.3	1.8	70-80	2025
Sandy	9,980	1998	2003	419	3.6	1.0	4.0	1.9	65	Unknown
City Sizes 10,000 - 24,999										
Gladstone	11,495									
Cornelius	12,161	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
St. Helens	12,895	1959	1991	1,466	11.0	14.6	32	6.4	50	Unknown
The Dalles	14,400	1960	2005	710	3.2	2.5	4.2	4.15	68.5	2014
Dallas	14,800	1978	2000		12	2.0	15	5.0	40	2050
Lebanon	15,660	1977	2012	1,795	17	5.7	21	3.0	70	2024
Troutdale	16,015									
Coos Bay	16,160	1959	1991	1,124	9	3.0	6.4	4.9	95	2021
Pendleton	16,600	1953	2012	850	2.9	2.5	3.3	3.2	65	>2030
Sherwood	18,771	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Ashland	20,295	1936	2002	738	3.5	2.3	8.5	3.3	70	2015
Milwaukie	20,500	1973			18		20	10	70	
Klamath Falls	21,200									
Wilsonville	21,550	1971	2014	770	10.6	6.2	10.6	4.0	50	2034

City	Population	Avg. Year of Original Plant Construction	Avg. Year of Last Major Upgrade	Total Amount of Wastewater Treated in 2013 (MG)	2013 Peak Flow		Design Capacity Plants		Current Operating Capacity (percent)	Projected Year of Max. Capacity
					Wet Weather (MGD)	Dry Weather (MGD)	Total Peak Wet Weather (MGD)	Total Dry Weather (MGD)		
Forest Grove	22,000									
Roseburg	22,275									
Newberg	22,396	1987	2014	1,400	20	5.0	18	8.0	80	2025
City Sizes 25,000 - 49,999										
West Linn	25,425	N/A	N/A	5.0	3.5	1.5	N/A	N/A	80	2025
Redmond	26,590	1976	2008	598	2.2	1.8	3.0	3.0	50	2020
Oregon City	33,390	1982	2010							
Grants Pass	35,000	1974	2007	2,125	21.3	5.6	21.7	6.2	95	2016
Lake Oswego	36,990									
Tigard	49,135									
City Sizes 50,000 or more										
Albany	50,720	2009		2,296	13.5	16.1	63	9.6	50	2030
Springfield	59,990	1984	2008	9,800	80.1	23.5	277	34		
Medford	76,300	1969	2013	5,867	22.8	22.8	85	20	85	2020
Bend	81,000	1980	Underway	2,070				12	~100	2014
Hillsboro	81,310									
Beaverton	93,000	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Salem	157,888	1964	2009	11,800	79.4		155	35	86	Unknown
Portland	592,120									

*Values flagged for review, but city unable to confirm value.

Table D.5: Wastewater Programs

City Size	Industrial Wastewater Pretreatment Program	Reclaimed Water	Percent of Total Reclaimed Water Reused/ Applied	Ownership & Use of Applied Property	Biosolids Application	Percent of Biosolids Applied	Ownership & Use of Applied Property
<1,000	18	19	64	-	20	88	-
1,000-4,999	35	35	65	-	33	82	-
5,000-9,999	9	9	46	-	8	85	-
10,000-24,999	12	11	10	-	12	100	-
25,000-49,999	5	5	50	-	5	100	-
50,000 or more	6	6	100	-	6	100	-
All cities	85	85	57	-	84	89	-

City	Population	Industrial Wastewater Pretreatment Program	Reclaimed Water	Percent of Total Reclaimed Water Reused/ Applied	Ownership & Use of the Applied Property	Biosolids Application	Percent of Biosolids Applied	Ownership & Use of the Applied Property
City Size <1,000								
Lonerock	34							
Monument	130	No	Yes			No		
Idanha	135	No	No			No		
Detroit	205					No		
Sumpter	205							
Waterloo	230	No	No			No		
Ukiah	235	No	Yes	20	City-owned field	No		
Lexington	255							

City	Population	Industrial Wastewater Pretreatment Program	Reclaimed Water	Percent of Total Reclaimed Water Reused/ Applied	Ownership & Use of the Applied Property	Biosolids Application	Percent of Biosolids Applied	Ownership & Use of the Applied Property
Westfir	255							
Nehalem	280							
Sodaville	310							
Moro	325							
Ione	330							
Adams	350							
Scotts Mills	364	No	No			No		
Haines	415	No	Yes	100	City farm	No		
St. Paul	416	No	Yes	100	City-owned property leased to farmer for nursery stock and crop for animals	Yes	100	City-owned property leased for nursery stock and crop productions for animals
Mosier	433	No	No			No		
Rivergrove	445							
Huntington	445							
Fossil	475							
Gates	485							
Mount Vernon	525							
Cove	550							
Manzanita	615							
Arlington	619	No	No			Yes	100	City property
Weston	675							
Condon	685							

City	Population	Industrial Wastewater Pretreatment Program	Reclaimed Water	Percent of Total Reclaimed Water Reused/ Applied	Ownership & Use of the Applied Property	Biosolids Application	Percent of Biosolids Applied	Ownership & Use of the Applied Property
Powers	695	No	No			No		
Echo	705	No	No			No		
Yachats	800	No	No			Yes	50	Private property owner is in the business of accepting solids
Malin	815	No	Yes	100	City-owned farm land	No		
Merrill	845	No	Yes		Private lessee	No		
Adair Village	850	No	No			No		
Glendale	874	Yes	Yes	0.45	Sewer Treatment Plant	Yes	100	Private fenced farm file Number 3373 Permit Number 100742
Prairie City	910							
Halsey	917	No	No			No		
Falls City	950		No			No		
Oakland	980	No	No			No		
Donald	980							
City Sizes 1,000 - 4,999								
Island City	1,015	No	No			No		
Yamhill	1,020							
Yoncalla	1,060	No	No			No		
Joseph	1,090	No	Yes					
Athena	1,125	No	No			Yes	100	Farm ground
Port Orford	1,135	Yes	No			No		
Riddle	1,185	No	No			No		

City	Population	Industrial Wastewater Pretreatment Program	Reclaimed Water	Percent of Total Reclaimed Water Reused/ Applied	Ownership & Use of the Applied Property	Biosolids Application	Percent of Biosolids Applied	Ownership & Use of the Applied Property
Cascade Locks	1,200							
Gold Hill	1,220	No	No			Yes		Farm
Siletz	1,290	No	No			No		
Heppner	1,290	Yes	Yes	85	Private farm land and a private golf course	Yes	100	Private farm land
Dunes City	1,310	No	No			No		
Bay City	1,310	No	No			No		
Rockaway Beach	1,325							
Culver	1,370	No	Yes	100	City-owned farm land	No		
Depoe Bay	1,405	No	No			Yes	100	Private farm land
Gearhart	1,465	No	No			No		
Hines	1,565	No	Yes	100	Neighboring Burns/ Hines jointly owned meadow grass field	No		
La Pine	1,670	No	No			No		
Brownsville	1,670							
Lakeside	1,705							
Clatskanie	1,729	No	No			Yes	100	City-owned property, sheep herd contracted use
John Day	1,745	No	No			Yes	100	Private ranch grazing land
Banks	1,785							
Irrigon	1,835	No	No			No		

City	Population	Industrial Wastewater Pretreatment Program	Reclaimed Water	Percent of Total Reclaimed Water Reused/ Applied	Ownership & Use of the Applied Property	Biosolids Application	Percent of Biosolids Applied	Ownership & Use of the Applied Property
Columbia City	1,945	No	No					
Vale	1,976	No	Yes	20	City farm ground	No		
Waldport	2,080							
Rogue River	2,145	Yes	No			Yes	100	Private farm land
Union	2,240	No	Yes	40	County golf course	Yes	100	Private farm land ownership; Hay production
Vernonia	2,450							
Lakeview	2,490	No	Yes	100	Private farm use; Hay production, grazing	No		
Gervais	2,520	No	No			No		
Myrtle Point	2,525	Yes	No			No		
Jacksonville	2,840							
Estacada	2,880	No	No			Yes	4	Private properties as requested & agreed
Bandon	3,100	Yes	Yes			Yes	100	Agricultural lands
Nyssa	3,200	No	No			No		
Mt. Angel	3,300	Yes	No			No		
Boardman	3,405							
Toledo	3,465	No	No			Yes	3.32	Private agricultural land
Aumsville	3,750	No	Yes	10	75 acres of city-owned farm land	No		
Coquille	3,865	No	No			No		
Wood Village	3,875	Yes	No			No		

City	Population	Industrial Wastewater Pretreatment Program	Reclaimed Water	Percent of Total Reclaimed Water Reused/ Applied	Ownership & Use of the Applied Property	Biosolids Application	Percent of Biosolids Applied	Ownership & Use of the Applied Property
Phoenix	4,585							
Philomath	4,625							
Veneta	4,635	No	No			Yes	100	City-owned grass fields used to harvest hay
City Sizes 5,000 - 9,999								
Creswell	5,031	No	Yes	100	City-owned fields	No		
Warrenton	5,050							
Sheridan	6,170	No	Yes	5	Farm land for hay	No		
Talent	6,170							
Madras	6,255							
Sutherlin	7,930	Yes	Yes	32	Golf Course	Yes	55	Private
Molalla	8,200	No	Yes	25	Pasture land, lawn, nursery, stock irrigation water			
Florence	8,466	No	No			No		
Eagle Point	8,575							
Independence	8,585							
Sweet Home	9,065	No	No			No		
Silverton	9,330	No	Yes	20	The Oregon Gardens	Yes	100	Private agricultural land
Astoria	9,500							
Cottage Grove	9,785	No	Yes	100	City-owned golf course, and a ~10 acres of undeveloped private property	No		

City	Population	Industrial Wastewater Pretreatment Program	Reclaimed Water	Percent of Total Reclaimed Water Reused/ Applied	Ownership & Use of the Applied Property	Biosolids Application	Percent of Biosolids Applied	Ownership & Use of the Applied Property
Sandy	9,980	No	Yes	40	Private wholesale nursery	Yes	100	Private agricultural
City Sizes 10,000 - 24,999								
Gladstone	11,495							
Cornelius	12,161	Yes		N/A	N/A	No		
St. Helens	12,895	Yes	No			No		
The Dalles	14,400	Yes	No			Yes	100	Private agricultural lands
Dallas	14,800	Yes	No			No		
Lebanon	15,660	Yes	No			Yes	100	Private farm land
Troutdale	16,015							
Coos Bay	16,160	No	No			Yes	100	Private grazing land
Pendleton	16,600	Yes	No			Yes	100	City-owned land at Pendleton Airport - 1,000 acres currently available - 350 acres required every year.
Sherwood	18,771	No	No			No		
Ashland	20,295	Yes	No			No		
Milwaukie	20,500	Yes	No			No		
Klamath Falls	21,200							
Wilsonville	21,550	Yes	Yes	18	City's Wastewater Treatment Plant property	Yes	100	Farm land

City	Population	Industrial Wastewater Pretreatment Program	Reclaimed Water	Percent of Total Reclaimed Water Reused/ Applied	Ownership & Use of the Applied Property	Biosolids Application	Percent of Biosolids Applied	Ownership & Use of the Applied Property
Forest Grove	22,000							
Roseburg	22,275							
Newberg	22,396	Yes	Yes	1	Public golf course	No		
City Sizes 25,000 - 49,999								
West Linn	25,425	No	No			No		
Redmond	26,590	Yes	Yes	50	City-owned hay fields	Yes	100	Public and privately owned farm land
Oregon City	33,390	Yes	No			No		
Grants Pass	35,000	Yes	No			No		
Lake Oswego	36,990	Yes	No			No		
Tigard	49,135							
City Sizes 50,000 or more								
Albany	50,720	Yes	No			No		
Springfield	59,990	Yes	Yes	100	Public landscape irrigation	Yes	100	Public-owned poplar tree biocycle farm and other public land 30percent. Off-site private farm land 100percent.
Medford	76,300	Yes	No			No		
Bend	81,000	Yes	Yes	100	Private golf course	Yes	100	Private farm land
Hillsboro	81,310							
Beaverton	93,000	No	No			No		

City	Population	Industrial Wastewater Pretreatment Program	Reclaimed Water	Percent of Total Reclaimed Water Reused/ Applied	Ownership & Use of the Applied Property	Biosolids Application	Percent of Biosolids Applied	Ownership & Use of the Applied Property
Salem	157,888	Yes	No			Yes	100	All privately-owned farm land growing sod, grass seed, and pasture
Portland	592,120							

Table D.6: Wastewater Treatment and Quality Limitations

	Percentage of Cities						Percentage of Cities
City Size	Primary	Secondary	Advanced Treatment/ Tertiary	Nitrogen Removal	Phosphorous Removal	Plants Releasing Water Under Special Regulations? (TMDL)	
<1,000	54	38	8	0	8	33	
1,000-4,999	28	52	21	24	17	31	
5,000-9,999	11	44	44	33	22	56	
10,000-24,999	22	67	11	11	11	73	
25,000-49,999	0	67	33	67	33	50	
50,000 or more	0	67	33	17	0	67	
All cities	26	52	22	20	14	45	

City	Population	Primary	Secondary	Advanced Treatment/ Tertiary	Nitrogen Removal	Phosphorous Removal	Plants Releasing Water Under Special Regulations? (TMDL)	If yes, what are they doing?
City size <1,000								
Lonerock	34							
Monument	130							
Idanha	135						No	
Detroit	205							
Sumpter	205							
Waterloo	230						No	

City	Population	Primary	Secondary	Advanced Treatment/ Tertiary	Nitrogen Removal	Phosphorous Removal	Plants Releasing Water Under Special Regulations? (TMDL)	If yes, what are they doing?
Ukiah	235	✓					No	
Lexington	255							
Westfir	255							
Nehalem	280							
Sodaville	310							
Moro	325							
Ione	330							
Adams	350							
Scotts Mills	364							
Haines	415	✓					No	
St. Paul	416		✓				No	
Mosier	433		✓				Yes	Releasing to the Columbia River which has a temperature TMDL.
Rivergrove	445							
Huntington	445							
Fossil	475							
Gates	485							
Mount Vernon	525							
Cove	550							
Manzanita	615							
Arlington	619	✓					No	
Weston	675							
Condon	685							

City	Population	Primary	Secondary	Advanced Treatment/ Tertiary	Nitrogen Removal	Phosphorous Removal	Plants Releasing Water Under Special Regulations? (TMDL)	If yes, what are they doing?
Powers	695							
Echo	705	✓					Yes	Lagoon system; permit allows discharge to the Umatilla River from Nov. 1 through Apr. 30 with limits on BOD, Ecoli and TSS. Operating under a MAO which allows higher limits than normal. Only discharge from January through March; pumping limit is .120 MGD.
Yachats	800		✓				Yes	
Malin	815	✓					No	
Merrill	845		✓				Yes	Irrigating alfalfa with reclaimed water.
Adair Village	850	✓					No	
Glendale	874			✓		✓	No	
Prairie City	910							
Halsey	917		✓				No	
Falls City	950							
Oakland	980	✓					Yes	
Donald	980							
City Sizes 1,000 - 4,999								
Island City	1,015							
Yamhill	1,020							
Yoncalla	1,060		✓				Yes	

City	Population	Primary	Secondary	Advanced Treatment/ Tertiary	Nitrogen Removal	Phosphorous Removal	Plants Releasing Water Under Special Regulations? (TMDL)	If yes, what are they doing?
Joseph	1,090							
Athena	1,125		✓				No	
Port Orford	1,135	✓						
Riddle	1,185	✓					No	
Cascade Locks	1,200							
Gold Hill	1,220	✓					Yes	
Siletz	1,290		✓				No	
Heppner	1,290		✓				Yes	TBD by DEQ. Currently, BOD(5) 45 mg/L weekly, TSS 45 mg/L weekly, May - Oct 0.15 MGD, Nov-April 0.25 MGD.
Dunes City	1,310							
Bay City	1,310			✓			Yes	Test / CBOD, TSS, Fecal Col Bact, Enterococcus and PH
Rockaway Beach	1,325							
Culver	1,370	✓					No	
Depoe Bay	1,405		✓				No	
Gearhart	1,465							
Hines	1,565						No	
La Pine	1,670		✓				No	
Brownsville	1,670							

City	Population	Primary	Secondary	Advanced Treatment/ Tertiary	Nitrogen Removal	Phosphorous Removal	Plants Releasing Water Under Special Regulations? (TMDL)	If yes, what are they doing?
Lakeside	1,705							
Clatskanie	1,729		✓				No	
John Day	1,745		✓				No	
Banks	1,785							
Irrigon	1,835			✓	✓	✓	No	
Columbia City	1,945							
Vale	1,976	✓					No	
Waldport	2,080							
Rogue River	2,145			✓			Yes	
Union	2,240		✓				No	
Vernonia	2,450							
Lakeview	2,490		✓				No	
Gervais	2,520	✓					No	
Myrtle Point	2,525		✓				Yes	Monitoring BOD and TSS removal. New treatment plant is under construction and will facilitate meeting additional treatment requirements.
Jacksonville	2,840							
Estacada	2,880	✓					Yes	
Bandon	3,100		✓		✓	✓	Yes	In compliance with all discharge permit requirements.
Nyssa	3,200			✓	✓	✓	No	

City	Population	Primary	Secondary	Advanced Treatment/ Tertiary	Nitrogen Removal	Phosphorous Removal	Plants Releasing Water Under Special Regulations? (TMDL)	If yes, what are they doing?
Mt. Angel	3,300		✓				Yes	Release lagoon-filtered water.
Boardman	3,405							
Toledo	3,465			✓	✓		No	
Aumsville	3,750		✓				No	
Coquille	3,865	✓			✓	✓	No	
Wood Village	3,875		✓		✓	✓	No	
Phoenix	4,585							
Philomath	4,625							
Veneta	4,635			✓	✓		No	
City Sizes 5,000 - 9,999								
Creswell	5,031	✓					No	
Warrenton	5,050							
Sheridan	6,170		✓				No	
Talent	6,170							
Madras	6,255							
Sutherlin	7,930		✓				Yes	Operate on a Mutual Agreement and Order (MAO) with DEQ. Within 3-5 years, Sutherlin will construct a new wastewater treatment facility and meet current NPDES permit.
Molalla	8,200			✓			Yes	
Florence	8,466		✓				No	

City	Population	Primary	Secondary	Advanced Treatment/ Tertiary	Nitrogen Removal	Phosphorous Removal	Plants Releasing Water Under Special Regulations? (TMDL)	If yes, what are they doing?
Eagle Point	8,575							
Independence	8,585							
Sweet Home	9,065			✓	✓		Yes	South Santiam River that flows into the Willamette River Basin.
Silverton	9,330		✓		✓		Yes	
Astoria	9,500							
Cottage Grove	9,785			✓		✓	Yes	Meet NPDES permit requirements. In summer months, the City irrigates its golf course with Class 4 reuse water to ensure the City meets its phosphorous limits.
Sandy	9,980			✓	✓	✓	No	
City Sizes 10,000 - 24,999								
Gladstone	11,495							
Cornelius	12,161						No	
St. Helens	12,895		✓				Yes	Limitations on megawatts; WWTP staff perform testing to ensure the TMDL limits are not exceeded.

City	Population	Primary	Secondary	Advanced Treatment/ Tertiary	Nitrogen Removal	Phosphorous Removal	Plants Releasing Water Under Special Regulations? (TMDL)	If yes, what are they doing?
The Dalles	14,400		✓				Yes	Segment of Columbia River is water quality limited for pH. City's permit is currently under review for renewal and a new permit may restrict effluent pH to a narrower range than the historical 6.0-9.0. No treatment for pH adjustment is currently being provided.
Dallas	14,800		✓				Yes	Discharge per NPDES Permit
Lebanon	15,660	✓					Yes	Comply with DEQ's NPDES permit conditions.
Troutdale	16,015							
Coos Bay	16,160						No	
Pendleton	16,600		✓				Yes	Temperature and ammonia are the TMDL limitations.
Sherwood	18,771							
Ashland	20,295		✓			✓	No	
Milwaukie	20,500		✓				Yes	Main stream Willamette TMDLs are in effect.
Klamath Falls	21,200							
Wilsonville	21,550			✓	✓		Yes	Excess thermal Load 39 million Kcals/day.
Forest Grove	22,000							
Roseburg	22,275							

City	Population	Primary	Secondary	Advanced Treatment/ Tertiary	Nitrogen Removal	Phosphorous Removal	Plants Releasing Water Under Special Regulations? (TMDL)	If yes, what are they doing?
Newberg	22,396	✓					Yes	TMDL plan includes treatment for mercury, temperature, TSS, CBOD, and bacteria.
City Sizes 25,000 - 49,999								
West Linn	25,425			✓	✓	✓	Yes	TBD
Redmond	26,590		✓		✓		No	
Oregon City	33,390							
Grants Pass	35,000		✓				Yes	TMDL
Lake Oswego	36,990							
Tigard	49,135							
City Sizes 50,000 or more								
Albany	50,720		✓				Yes	TMDL for temperature, bacteria, and mercury. The City developed and is following a TMDL Implementation Plan.
Springfield	59,990			✓	✓		No	
Medford	76,300		✓				Yes	Temperature trading to reduce thermal loading on the Rogue River.
Bend	81,000			✓			No	
Hillsboro	81,310							
Beaverton	93,000		✓				Yes	

City	Population	Primary	Secondary	Advanced Treatment/ Tertiary	Nitrogen Removal	Phosphorous Removal	Plants Releasing Water Under Special Regulations? (TMDL)	If yes, what are they doing?
Salem	157,888		✓				Yes	The TMDL and water quality limits are on the Willamette River. Don't know limits until new permit is issued; previously monitoring for temperature.
Portland	592,120							

APPENDIX E: STORMWATER FEES, PRICING, AND CHARACTERISTICS

Table E.1: Stormwater Fees & System Characteristics

City Size	Last Year of Rate Change	Stormwater Fees					Avg. Monthly Household Payment (\$)	Total Miles		Avg. EDU for Residential (sq. ft.)
		No charge	Separate Utility fee	Included in wastewater rates	Paid to a join district within the county	Other		Piped System	Open Channel, Ditches, and Swales	
<1,000	2012	2	2	0	0	1	2.75	4	4	940
1,000-4,999	2013	5	7	0	0	4	2.30	8	3	1,250
5,000-9,999	2011	2	11	0	0	0	3.50	34	14	3,207
10,000-24,999	2013	1	9	2	2	1	7.25	52	13	2,777
25,000-49,999	2014	0	5	0	0	0	7.84	123	53	2,407
50,000 or more	2012	0	4	0	0	1	8.20	257	84	2,974
All cities	2013	10	38	2	2	7	4.88	56	19	2,382

City	Population	Last Year of Rate Change	Stormwater Fees					Avg. Monthly Household Payment	Total Miles		Avg. EDU for Residential in (sq. ft.)
			No charge	Separate utility fee	Included in wastewater rates	Paid to a join district within the county	Other		Piped System	Open Channel, Ditches, and Swales	
City Size <1,000											
Lonerock	34										
Monument	130										

City	Population	Last Year of Rate Change	Stormwater Fees					Avg. Monthly Household Payment	Total Miles		Avg. EDU for Residential in (sq. ft.)
			No charge	Separate utility fee	Included in wastewater rates	Paid to a join district within the county	Other		Piped System	Open Channel, Ditches, and Swales	
Idanha	135										
Detroit	205										
Sumpter	205										
Waterloo	230										
Ukiah	235										
Lexington	255										
Westfir	255										
Nehalem	280										
Sodaville	310										
Moro	325										
Ione	330										
Adams	350										
Scotts Mills	364										
Haines	415										
St. Paul	416		✓					\$0.00	0.75	1.25	0
Mosier	433										
Rivergrove	445										
Huntington	445										
Fossil	475										
Gates	485										
Mount Vernon	525										

City	Population	Last Year of Rate Change	Stormwater Fees					Avg. Monthly Household Payment	Total Miles		Avg. EDU for Residential in (sq. ft.)
			No charge	Separate utility fee	Included in wastewater rates	Paid to a join district within the county	Other		Piped System	Open Channel, Ditches, and Swales	
Cove	550										
Manzanita	615										
Arlington	619										
Weston	675										
Condon	685										
Powers	695										
Echo	705										
Yachats	800	>10 yrs. ago	✓					\$0.00	7	7	2,500
Malin	815										
Merrill	845										
Adair Village	850	2009		✓				\$2.50	6	0	2,200
Glendale	874								0	3	0
Prairie City	910										
Halsey	917	2014		✓				\$8.50	3.6		
Falls City	950										
Oakland	980								9	9	1
Donald	980						✓				
City Size 1,000 - 4,999											
Island City	1,015		✓					\$0.00	2	0	
Yamhill	1,020										
Yoncalla	1,060										

City	Population	Last Year of Rate Change	Stormwater Fees					Avg. Monthly Household Payment	Total Miles		Avg. EDU for Residential in (sq. ft.)
			No charge	Separate utility fee	Included in wastewater rates	Paid to a join district within the county	Other		Piped System	Open Channel, Ditches, and Swales	
Joseph	1,090										
Athena	1,125										
Port Orford	1,135										
Riddle	1,185			✓				\$0.75			1,000
Cascade Locks	1,200										
Gold Hill	1,220	2014		✓				\$1.50			
Siletz	1,290										
Heppner	1,290						✓	\$0.00			
Dunes City	1,310						✓	\$0.00	N/A	N/A	N/A
Bay City	1,310										
Rockaway Beach	1,325										
Culver	1,370										
Depoe Bay	1,405	2014					✓	\$0.00			
Gearhart	1,465										
Hines	1,565								13	0	1,500
La Pine	1,670										
Brownsville	1,670										
Lakeside	1,705										
Clatskanie	1,729	2008		✓				\$5.50	4	0.4	0
John Day	1,745										

City	Population	Last Year of Rate Change	Stormwater Fees					Avg. Monthly Household Payment	Total Miles		Avg. EDU for Residential in (sq. ft.)
			No charge	Separate utility fee	Included in wastewater rates	Paid to a join district within the county	Other		Piped System	Open Channel, Ditches, and Swales	
Banks	1,785										
Irrigon	1,835								22	N/A	N/A
Columbia City	1,945		✓								
Vale	1,976	>10 yrs. ago	✓								
Waldport	2,080										
Rogue River	2,145								Unknown	Unknown	
Union	2,240								0	N/A	N/A
Vernonia	2,450										
Lakeview	2,490										
Gervais	2,520	2013		✓				\$5.00		1	
Myrtle Point	2,525								4.2	1	N/A
Jacksonville	2,840										
Estacada	2,880	2014		✓				\$5.95	18	2	2,500
Bandon	3,100		✓					\$0.00	8	23	2,500
Nyssa	3,200										
Mt. Angel	3,300		✓						11	2.5	Unknown
Boardman	3,405							\$0.00			
Toldeo	3,465								7	6	N/A
Aumsville	3,750								6	1	
Coquille	3,865										

City	Population	Last Year of Rate Change	Stormwater Fees					Avg. Monthly Household Payment	Total Miles		Avg. EDU for Residential in (sq. ft.)
			No charge	Separate utility fee	Included in wastewater rates	Paid to a join district within the county	Other		Piped System	Open Channel, Ditches, and Swales	
Wood Village	3,875	2014					✓	\$9.62	3.7	0.6	N/A
Phoenix	4,585										
Philomath	4,625	2012		✓				\$1.50			
Veneta	4,635	2014		✓				\$2.31	13.2	7.8	1,000 - 3,000
City Size 5,000 - 9,999											
Creswell	5,031		✓					\$0.00	15		
Warrenton	5,050	2014		✓				10percent of sewer charge	18	20.3	2,000
Sheridan	6,170	>10 yrs. ago		✓							3,000
Talent	6,170	2006		✓				\$3.50			
Madras	6,255	>10 yrs. ago	✓					\$0.00			
Sutherlin	7,930										
Molalla	8,200	>10 yrs. ago		✓				\$2.00	32.5		2,640
Florence	8,466	2011		✓				\$6.20	20	6	6,500
Eagle Point	8,575	2009		✓				\$5.00	24	4	3,000
Independence	8,585	2014		✓				\$8.00			
Sweet Home	9,065	2006		✓				\$1.00	64	35	3,200
Silverton	9,330	2013		✓				\$1.00	26	18	3,121
Astoria	9,500	2013							80		
Cottage Grove	9,785	2014		✓				\$8.52	30.9	1.6	2,650
Sandy	9,980	2009		✓				\$3.25	Unknown	Unknown	2,750

City	Population	Last Year of Rate Change	Stormwater Fees					Avg. Monthly Household Payment	Total Miles		Avg. EDU for Residential in (sq. ft.)
			No charge	Separate utility fee	Included in wastewater rates	Paid to a join district within the county	Other		Piped System	Open Channel, Ditches, and Swales	
City Size 10,000 - 24,999											
Gladstone	11,495		✓					\$0.00			
Cornelius	12,161	2014		✓				\$12.15	19	0.34	N/A
St. Helens	12,895	2013		✓				\$10.47	40.9	4	2,500
The Dalles	14,400	2007					✓	\$2.00	42.1	43.4	3,000
Dallas	14,800								42	13	N/A
Lebanon	15,660	2014		✓				\$3.09	36	13	2,700
Troutdale	16,015	2014		✓				\$4.27			
Coos Bay	16,160	2014			✓			N/A	48	Unknown	2,820
Pendleton	16,600	2014			✓				28	4	N/A
Sherwood	18,771	2014				✓		\$14.27	63	Unknown	2,640
Ashland	20,295	2014		✓					90	12	
Milwaukie	20,500	2014		✓				\$14.89	40	4	2,706
Klamath Falls	21,200										
Wilsonville	21,550	2014		✓				\$5.25	67.2	N/A	2,750
Forest Grove	22,000	2013				✓		\$7.75			
Roseburg	22,275	2014		✓				\$5.50	94.9	24	3,000
Newberg	22,396	2014		✓				\$7.30	68	16	2,877
City Size 25,000 - 49,999											
West Linn	25,425	2014		✓				\$5.58	180	10	2,080

City	Population	Last Year of Rate Change	Stormwater Fees					Avg. Monthly Household Payment	Total Miles		Avg. EDU for Residential in (sq. ft.)
			No charge	Separate utility fee	Included in wastewater rates	Paid to a join district within the county	Other		Piped System	Open Channel, Ditches, and Swales	
Redmond	26,590	2013		✓				\$7.06	34	14	
Oregon City	33,390	2014		✓				\$8.80	125	40	2,500
Grants Pass	35,000								140	75	
Oswego	36,990	2014		✓				\$11.76	130		2,640
Tigard	49,135	2014		✓				\$6.00	130	128	
City Size 50,000 or more											
Albany	50,720										
Springfield	59,990	2014		✓				\$13.12	170	26	1,700
Medford	76,300	2013		✓				\$7.71	172.8	50.7	3,730
Bend	81,000	2007		✓				\$4.00			3,800
Hillsboro	81,310										
Beaverton	93,000	2014		✓				\$8.75	245	N/A	2,640
Salem	157,888	2014					✓	\$7.43	440	176	3,000
Portland	592,120										

Table E.2: Stormwater Onsite Management Reductions/Credits

City Size	Offers Fee Reductions or Credits	Does Not Offer Fee Reductions or Credits	# of Responses
<1,000	0	4	4
1,000-4,999	0	14	14
5,000-9,999	2	11	13
10,000-24,999	6	9	15
25,000-49,999	3	2	5
50,000 or more	3	2	5
All cities	14	42	56

City	Population	Offers Fee Reductions or Credits	Nature of Reduction/Credit	Amount of Reduction/Credit
City Size <1,000				
Lonerock	34			
Monument	130			
Idanha	135			
Detroit	205			
Sumpter	205			
Waterloo	230			
Ukiah	235			
Lexington	255			
Westfir	255			
Nehalem	280			
Sodaville	310			

City	Population	Offers Fee Reductions or Credits	Nature of Reduction/Credit	Amount of Reduction/Credit
Moro	325			
Ione	330			
Adams	350			
Scotts Mills	364			
Haines	415			
St. Paul	416	No		
Mosier	433			
Rivergrove	445			
Huntington	445			
Fossil	475			
Gates	485			
Mount Vernon	525			
Cove	550			
Manzanita	615			
Arlington	619			
Weston	675			
Condon	685			
Powers	695			
Echo	705			
Yachats	800	No		
Malin	815			
Merrill	845			
Adair Village	850	No		

City	Population	Offers Fee Reductions or Credits	Nature of Reduction/Credit	Amount of Reduction/Credit
Glendale	874			
Prairie City	910			
Halsey	917	No		
Falls City	950			
Oakland	980			
Donald	980			
City Size 1,000 - 4,999				
Island City	1,015	No		
Yamhill	1,020			
Yoncalla	1,060			
Joseph	1,090			
Athena	1,125			
Port Orford	1,135			
Riddle	1,185	No		
Cascade Locks	1,200			
Gold Hill	1,220	No		
Siletz	1,290			
Heppner	1,290	No		
Dunes City	1,310	No		
Bay City	1,310			
Rockaway Beach	1,325			
Culver	1,370			
Depoe Bay	1,405			

City	Population	Offers Fee Reductions or Credits	Nature of Reduction/Credit	Amount of Reduction/Credit
Gearhart	1,465			
Hines	1,565			
La Pine	1,670			
Brownsville	1,670			
Lakeside	1,705			
Clatskanie	1,729	No		
John Day	1,745			
Banks	1,785			
Irrigon	1,835			
Columbia City	1,945			
Vale	1,976	No		
Waldport	2,080			
Rogue River	2,145			
Union	2,240			
Vernonia	2,450			
Lakeview	2,490			
Gervais	2,520	No		
Myrtle Point	2,525			
Jacksonville	2,840			
Estacada	2,880	No		
Bandon	3,100	No		
Nyssa	3,200			
Mt. Angel	3,300	No		

City	Population	Offers Fee Reductions or Credits	Nature of Reduction/Credit	Amount of Reduction/Credit
Boardman	3,405			
Toldeo	3,465			
Aumsville	3,750			
Coquille	3,865			
Wood Village	3,875	No		
Phoenix	4,585			
Philomath	4,625	No		
Veneta	4,635	No		
City Size 5,000 - 9,999				
Creswell	5,031	No		
Warrenton	5,050	No		
Sheridan	6,170	No		
Talent	6,170	No		
Madras	6,255	No		
Sutherlin	7,930			
Molalla	8,200	No		
Florence	8,466	No		
Eagle Point	8,575	No		
Independence	8,585	No		
Sweet Home	9,065	Yes	Any option the applicant can show that stormwater doesn't enter system.	\$0.20
Silverton	9,330	No		
Astoria	9,500			
Cottage Grove	9,785	Yes	Case by case basis	

City	Population	Offers Fee Reductions or Credits	Nature of Reduction/Credit	Amount of Reduction/Credit
Sandy	9,980	No		
City Size 10,000 - 24,999				
Gladstone	11,495	No		
Cornelius	12,161	Yes	SDF Credit	
St. Helens	12,895	Yes	Waived/Case by case basis	varies
The Dalles	14,400	Yes	Developments that construct and operate private stormwater systems which do not now nor are ever intended to discharge to City system receive stormwater fee credits.	100 percent
Dallas	14,800			
Lebanon	15,660	No		
Troutdale	16,015	No		
Coos Bay	16,160	No		
Pendleton	16,600	No		
Sherwood	18,771	Yes	Listed in code	Varies
Ashland	20,295	No		
Milwaukie	20,500	Yes	No runoff, reduced charge	\$7.45
Klamath Falls	21,200			
Wilsonville	21,550	No		
Forest Grove	22,000	No		
Roseburg	22,275	No		
Newberg	22,396	Yes	Adjustment is made for sites that provide water quality/quantity facilities constructed above current design standards	10 percent to 20 percent on storm bill depending on facility design

City	Population	Offers Fee Reductions or Credits	Nature of Reduction/Credit	Amount of Reduction/Credit
City Size 25,000 - 49,999				
West Linn	25,425	Yes	Reduction for onsite stormwater improvements	TBD
Redmond	26,590	No		
Oregon City	33,390	No		
Grants Pass	35,000			
Oswego	36,990	Yes	Self-management of storm system	50percent
Tigard	49,135	Yes	If a customer can show that there is no runoff from his/her property, then there is no charge to the customer	No charge
City Size 50,000 or more				
Albany	50,720			
Springfield	59,990	No		
Medford	76,300	Yes	30percent reduction in amount charged per ERU	\$2.30 reduction per ERU
Bend	81,000	Yes	For commercial customers that contain stormwater onsite, credit is given by reduction in impervious area calculation -- must be documentable	Varies
Hillsboro	81,310			
Beaverton	93,000	No		
Salem	157,888	Yes	Reduction of billed impervious area from 5 to 55percent of total area	5 to 55 percent
Portland	592,120			