

**Attachment A**

**Report on the Status of the  
Reclaimed Water Work Program  
of the Wastewater Treatment Division,  
King County Department of Natural Resources and Parks**

Report submitted by the  
Wastewater Treatment Division of the Department of Natural Resources and Parks,  
pursuant to Section 105 of King County Ordinance 16312

June 1, 2009



**King County**

Department of  
Natural Resources and Parks  
**Wastewater Treatment Division**



# Table of Contents

<b>Introduction.....</b>	<b>1</b>
<b>Section I. Status of the Work Program Related to Reclaimed Water .....</b>	<b>1</b>
(1) Existing Reclaimed Water Program.....	1
(2) Studies and Planning Efforts Related to Reclaimed Water.....	12
(3) Reclaimed Water Research Efforts .....	13
(4) Reclaimed Water Permitting and Regulatory Compliance .....	15
<b>Section II. Status Report on the Wastewater Treatment Division’s Efforts to Market and Establish Contracts for the Sale of Reclaimed Water .....</b>	<b>15</b>
(1) Public Education and Outreach.....	15
(2) Marketing.....	16
<b>Section III. Preliminary Rate Structures and Policies for the Sale of Reclaimed Water from King County Facilities.....</b>	<b>19</b>
(1) The County’s Current Approach to Pricing .....	20
(2) General Approaches to Pricing Used Throughout the Country .....	21
(3) Financing and Policy Development in the Reclaimed Water Comprehensive Plan .....	23
 <b>Exhibit 1. Regional Wastewater Services Plan Water Reuse Policies (King County Code 28.86.100).....</b>	 <b>E-1</b>

## Figures

Figure 1. South Plant Sand Filter .....	2
Figure 2. Foster Golf Links and Fort Dent Park in Relation to South Plant .....	4
Figure 3. King Conservation District Wetland Nursery at South Plant .....	5
Figure 4. South Treatment Plant Reclaimed Water Use Areas .....	6
Figure 5. West Point Sand Filter .....	7
Figure 6. Carnation Treatment Plant.....	8
Figure 7. Chinook Bend Natural Area Wetland Enhancement .....	9
Figure 8. Brightwater Reclaimed Water System.....	11
Figure 9. Construction of Brightwater South Transmission Line .....	12
Figure 10. Greenhouse at South Plant with Demonstration Beds in the Distance .....	14

## Tables

Table 1. Prevalence of General Rate Approaches.....	22
---	----



## Introduction

This document provides information from King County's Wastewater Treatment Division (WTD) in response to a proviso in WTD's 2009 operating budget (contained in Section 105 of Ordinance 16312), which reads as follows:

*Of this appropriation, \$100,000 shall not be expended or encumbered until the wastewater treatment division of the department of natural resources and parks transmits to the Council for review and approval by motion a report on: 1) the status of the work program related to reclaimed water and progress on the reclaimed water backbone project; 2) a status report on the division's efforts to market and establish contracts for the sale of reclaimed water produced at King County wastewater treatment facilities; and 3) analysis and development of preliminary rate structures and policies for the sale of reclaimed water from King County facilities. The report should be submitted by June 1, 2009.*

Separate sections of this report address each of the three elements of the proviso in the order requested:

- Section I describes WTD's reclaimed water work program and progress on construction of the Brightwater reclaimed water pipeline (backbone).
- Section II reports on the status of WTD's efforts to market and establish contracts for the sale of reclaimed water produced at King County's wastewater treatment facilities.
- Section III discusses preliminary rate structures and policies relating to the county's sale of reclaimed water from its wastewater facilities.

Exhibit 1 of this report lists the existing policies relating to reclaimed water contained in the Regional Wastewater Services Plan (RWSP) (King County Code 28.86.100). These policies provide current guidance for WTD's reclaimed water activities.

## Section I. Status of the Work Program Related to Reclaimed Water

This section describes WTD's work program related to reclaimed water. The section is divided into four parts: (1) existing reclaimed water program; (2) planning efforts related to reclaimed water (including a status update on construction of transmission lines from the Brightwater Treatment Plant, commonly termed the Brightwater backbone); (3) reclaimed water research efforts; and (4) permitting and regulatory compliance.

### **(1) Existing Reclaimed Water Program**

In its role as a regional wastewater management utility, King County has been producing and distributing reclaimed water for more than a decade. The existing reclaimed water program focuses on the permitting, construction, customer support, planning, and operation of reclaimed water facilities that exist today and a portion of facilities currently under construction, including the following:

- South Treatment Plant (producing reclaimed water for use at the plant and by the City of Tukwila)
- West Point Treatment Plant (producing reclaimed water for use at the plant)
- Carnation Treatment Plant (producing reclaimed water for wetlands enhancement purposes at the nearby Chinook Bend Natural Area)
- Brightwater Treatment Plant (the southern transmission line, commonly termed the south leg of the Brightwater backbone, to bring reclaimed water to the Sammamish Valley)

All reclaimed water produced at WTD’s existing facilities for off-site distribution—and those anticipated at future facilities—meets or will meet “Class A” reclaimed water standards, as defined by the Washington State Departments of Ecology and Health. Reclaimed water standards vary from Class A to Class D, based on water quality parameters and allowable uses. Class A reclaimed water is the highest quality water and is allowed for all permitted uses of reclaimed water, which include non-potable uses such as irrigation, groundwater recharge, wetland enhancement, streamflow augmentation, and street cleaning.

The future program could include expansion of WTD’s reclaimed water facilities, such as adding distribution pipelines from the west transmission line from the Brightwater Treatment Plant. However, future expansions are not part of the existing program described here. WTD is not marketing or otherwise seeking customers for water from prospective future facilities. Future uses will be addressed through the Reclaimed Water Comprehensive Plan, an extensive planning process discussed later in this report.

Details on the reclaimed water facilities in the county’s existing reclaimed water program follow.

***South Treatment Plant Reclaimed Water Facility***

The South Treatment Plant in Renton currently has the capacity to produce about 1 million gallons per day (mgd) of reclaimed water through the use of a sand filter (Figure 1) that further treats secondary effluent. Initially constructed in 1997 as a pilot project to produce water for on-site use, the reclaimed water facility has been producing approximately 90–100 million gallons of reclaimed water per year. Of this total, 80–95 million gallons (about 95 percent) are used annually at the plant for process water and irrigation, saving the county approximately \$80,000–\$90,000 per year in potable water costs.<sup>1</sup>



**Figure 1. South Plant Sand Filter**

---

<sup>1</sup> Net savings are avoided costs less reclaimed water system operating costs.

Approximately 5–6 million gallons per year of the reclaimed water from South plant are used off-site. It is sold to the City of Tukwila for irrigation of Fort Dent Park (including newly constructed soccer fields where the Seattle Sounders Football Club practices) and city public works uses such as street sweeping and sewer flushing. The City of Tukwila anticipates increasing its reclaimed water usage for additional irrigation at Foster Golf Links. A 500-foot reclaimed water pipe is being built from the Interurban reclaimed water transmission line to Foster Golf Links. Irrigation with reclaimed water is expected to start in 2009. Anticipated maximum usage from this line could reach 3–5 million gallons per year, which will supplement or replace Foster Golf Links' surface water withdrawals from Green River. Figure 2 shows the locations of Foster Golf Links and Fort Dent Park in relation to South plant.

Other off-site uses include a small truck and haul program for irrigating newly planted vegetation on King County–managed stream restoration sites and a wetland/native plant nursery adjacent to the treatment plant operated by the King Conservation District. The nursery has been operating for over 10 years, successfully producing native plants grown using reclaimed water (Figure 3). In the mid 1990s, WTD (formerly Metro) identified the need for a wetland plant nursery to propagate stock for Duwamish restoration projects. These planned projects were part of the outcome of a legal settlement with the National Oceanic and Atmospheric Administration (NOAA) that required Metro and the City of Seattle to compensate for alleged damage to marine resources caused by combined sewer overflows and storm drains. A King County Water Quality Block Grant funds operation of the nursery. In order to help promote the goals of the nursery and create a partnership with the King Conservation District, the King County Department of Natural Resources and Parks (DNRP) offered to provide space, reclaimed water, plastic lumber for the plant beds and, initially, GroCo compost (dewatered biosolids mixed with sawdust). The nursery continues to serve as a demonstration and youth education site.

An engineering assessment is under way to determine how to increase the operational reliability and efficiency of the sand filter facility at South plant. Figure 4 illustrates the use areas served by the reclaimed water produced at South plant.





**Figure 3. King Conservation District Wetland Nursery at South Plant**

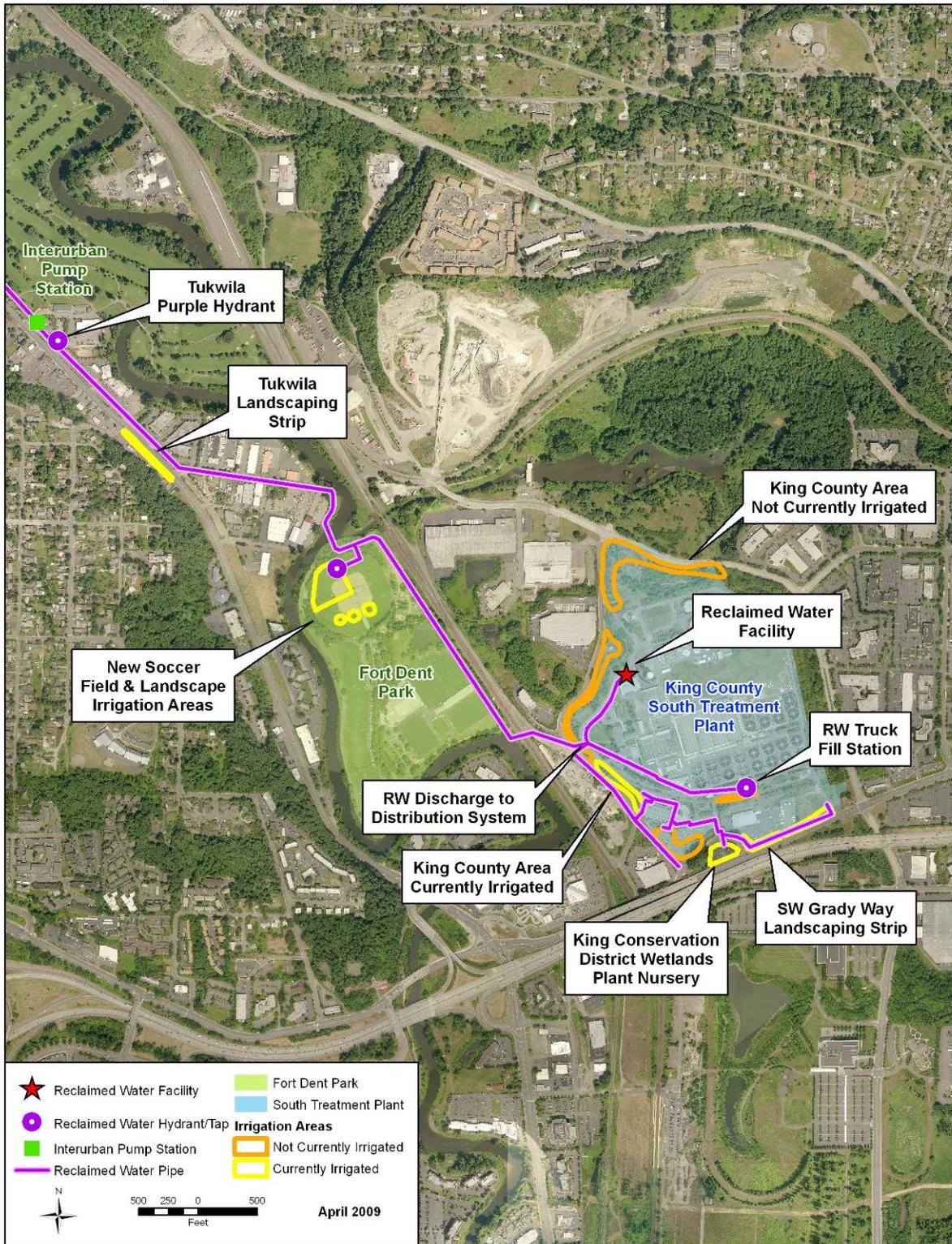
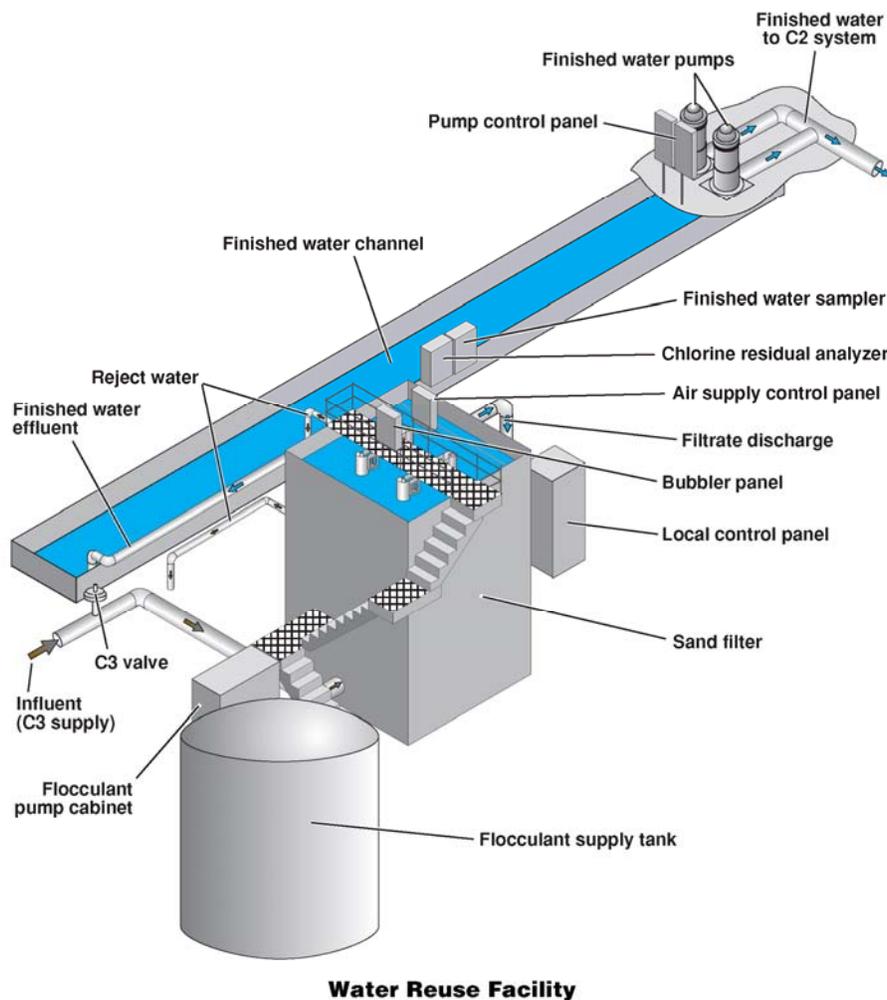


Figure 4. South Treatment Plant Reclaimed Water Use Areas

### **West Point Treatment Plant Reclaimed Water Facility**

The West Point Treatment Plant has also been producing reclaimed water since 1997. The plant has the capacity to produce 0.7 mgd of reclaimed water (700,000 gallons per day). It currently produces approximately 170–195 million gallons each year from a sand filter that treats secondary effluent, similar to South plant (Figure 5). All of the reclaimed water produced at West Point is used at the plant site in place of potable water for process water and irrigation, saving an estimated \$450,000–\$575,000 per year.<sup>2</sup> While reclaimed water currently is not distributed or trucked off-site, WTD occasionally receives inquiries for off-site distribution and use and will continue to evaluate potential uses as part of the Reclaimed Water Comprehensive Plan.



**Figure 5. West Point Sand Filter**

<sup>2</sup> West Point has a larger cost savings in potable water costs than South plant because West Point uses more than twice the potable water and pays a higher rate for the water. The West Point plant uses more process water than South plant both because it is a larger plant and because it employs different treatment processes and chemicals that require more water. Net cost savings are avoided costs less reclaimed water system operating costs.

### ***Carnation Treatment Plant***

Historically, the City of Carnation relied on a system of individual septic tanks and drain fields for its wastewater treatment. In 1987, Public Health–Seattle & King County declared the city a public health hazard area based on the number of inadequate septic systems and the likely contamination of the unprotected aquifer from which the city’s drinking water is drawn. Public Health–Seattle & King County repeated the declaration in 2003 and elevated the declaration to “severe public health hazard” in 2005. In addition, the city’s ability to grow (in compliance with the Growth Management Act) was constrained by the lack of sewer capacity. At the city’s request, King County signed a contract with the city in 2002 to build and operate a new local membrane bioreactor (MBR) wastewater treatment facility to address the public health and wastewater capacity issues (Figure 6). Concurrently, the city built and now operates the local collection system that sends wastewater to the plant for treatment. The average annual design flow for the plant is 0.37 mgd (anticipated to be reached in the year 2030) with a maximum daily flow of 0.77 mgd. Flow was 0.1 mgd at startup in 2008.



**Figure 6. Carnation Treatment Plant**

A key component of the Carnation Treatment Plant design is that all effluent is treated to Class A reclaimed water standards. Reclaimed water from the Carnation plant is used to enhance a wetland at the Chinook Bend Natural Area (Figure 7). The plant has a dual discharge system: one outfall to the Snoqualmie River and the outfall to the Chinook Bend wetland enhancement project. The wetland is the primary discharge location for the plant. The river outfall will be used only when required by a regulatory agency (such as when necessary to augment in-river flows in the Snoqualmie River), in case of plant upset or failure of ultraviolet disinfection system, or during periods of scheduled maintenance.

The plant began treating wastewater on May 5, 2008, initially discharging to the Snoqualmie River. On January 1, 2009, the reclaimed water permit took effect, allowing discharge to the Chinook Bend wetland. WTD began discharging reclaimed water to the wetland in March 2009.

The Chinook Bend Wetland Enhancement project site was donated to King County by the Nestle Company. It is being restored by the King County Parks and Recreation Division to a forested wetland ecosystem, which benefits from the addition of reclaimed water. The goals of the project are to conserve and enhance ecological value and to accommodate appropriate public uses that do not harm ecological resources. In developing the project, King County partnered with Ducks Unlimited, a nonprofit group dedicated to wetland conservation, to help design and build the wetland, and also worked with other stakeholders, such as the Snoqualmie Tribe. The wetland design increased the size and shape of the existing farm pond from less than 1 acre to nearly 4 acres, benefiting wildlife and enhancing opportunities for passive recreation, such as hiking and bird watching. Reclaimed water is a small portion of the water flow into the wetland. In addition to reclaimed water, the wetland is fed by groundwater seeps, rainfall, and stormwater runoff from adjacent lands. The wetland has an overflow that discharges to a day-lighted stream that eventually reaches the Snoqualmie River.

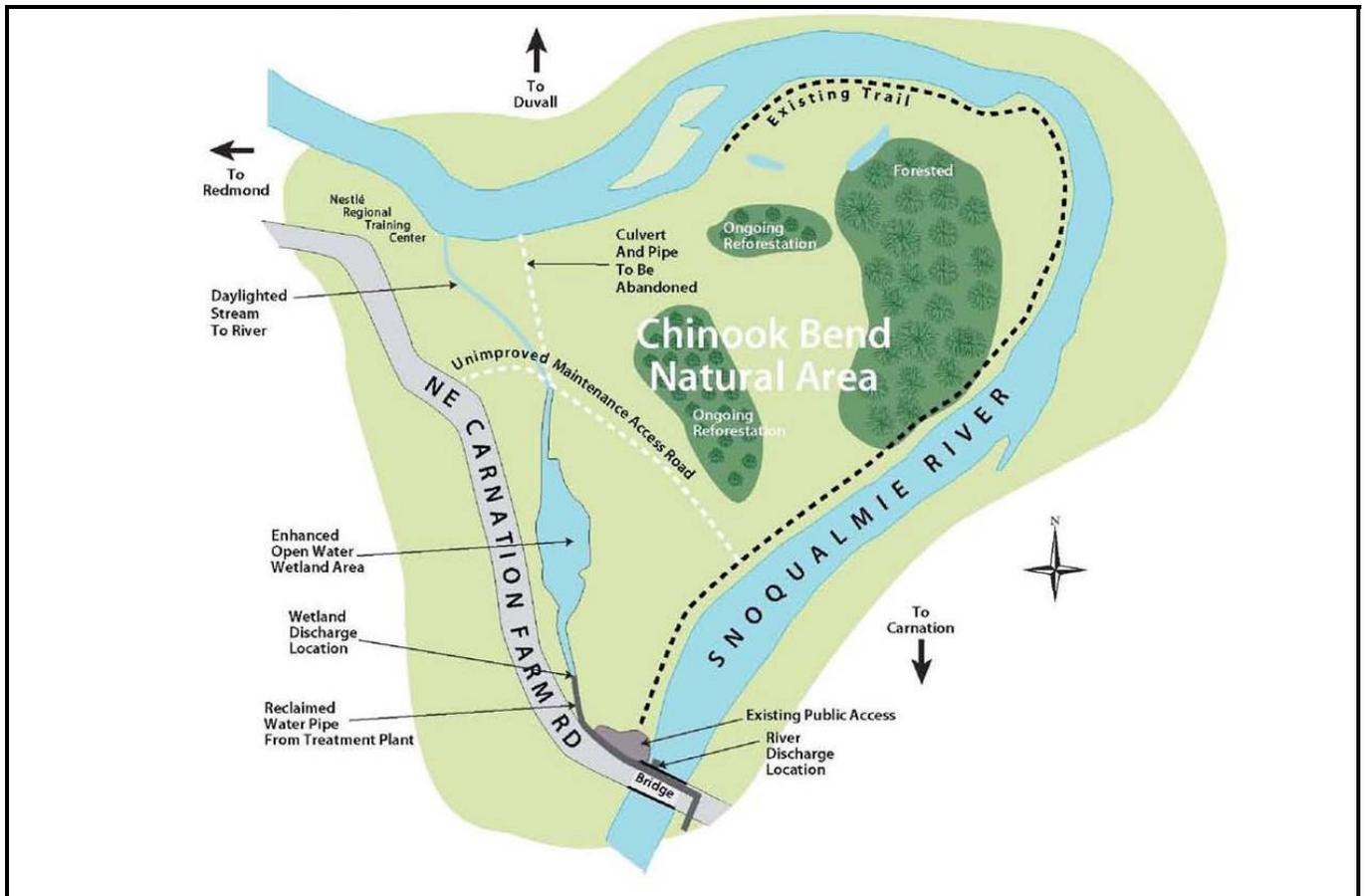


Figure 7. Chinook Bend Natural Area Wetland Enhancement

### ***Brightwater Reclaimed Water System***

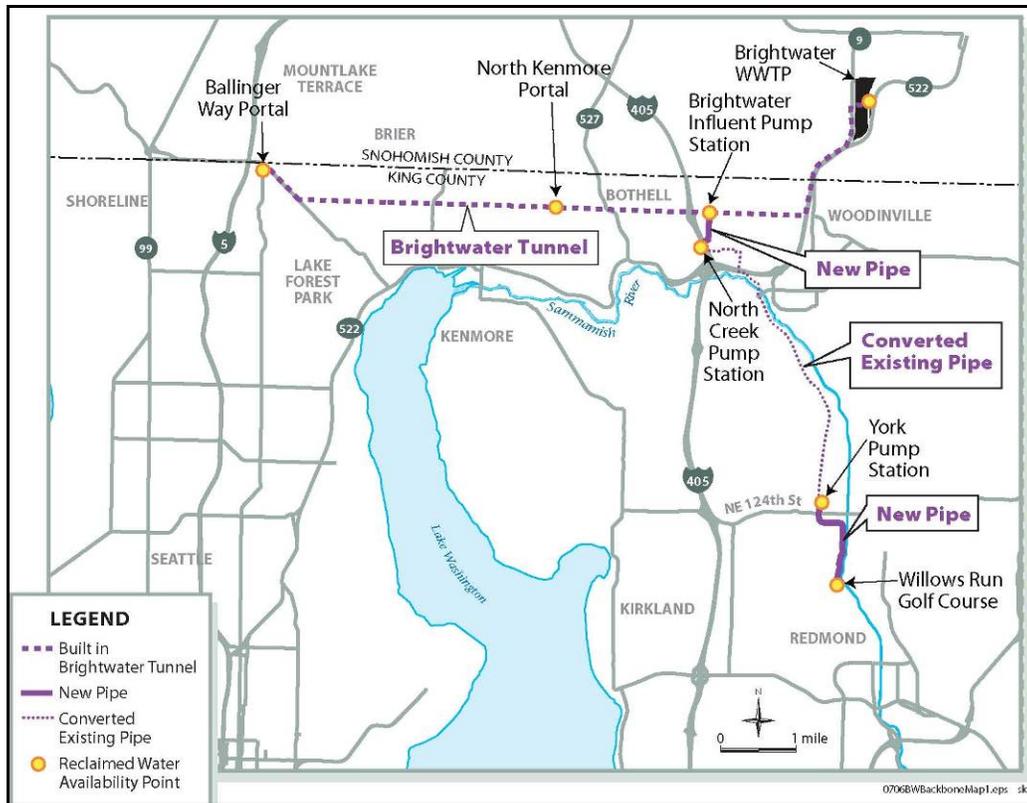
This section describes the Brightwater reclaimed water systems and gives an update on progress made in constructing the system.

*Description of the Brightwater reclaimed water system.* The Brightwater reclaimed water pipelines consist of west and south reclaimed water transmission lines that are commonly referred to as the Brightwater backbone. The backbone is under construction and will be completed as part of the larger Brightwater Treatment System project. Initially, only the south transmission line will be operational. It will be able to transport up to 7 mgd of reclaimed water from the Brightwater Treatment Plant south through the Sammamish Valley. Reclaimed water is anticipated to be available through this line once the plant comes on line in 2011. The plant will have the ability to produce 21 mgd of reclaimed water when it reaches its initial treatment capacity of 36 mgd.

The county is pursuing potential uses of reclaimed water from the south transmission line as part of the existing program. (See Section II of this report.) This transmission line will run from the North Creek Pump Station south through the Sammamish Valley to Willows Run Golf Course. It will have an initial capacity of 7 mgd when Brightwater comes on line, but could increase to 9 mgd with additional pumping capacity. This additional pumping capacity could be provided in several ways; the timing for adding capacity will be driven by demand along the pipeline.

The west transmission line is a dedicated reclaimed water pipeline placed inside the larger effluent tunnel that goes from the Brightwater Treatment Plant to the Ballinger Way Portal in the City of Shoreline. It is designed to allow distribution from the access portals along the effluent tunnel route. Additional infrastructure investments will be needed to use the additional 14 mgd of reclaimed water that will be available from the entire system. Development of this infrastructure will not occur until demand for the water exists. Since this is a future investment, potential uses associated with these facilities are being evaluated in the Reclaimed Water Comprehensive Plan.

Figure 8 depicts the locations of the Brightwater reclaimed water system. The Brightwater System will need two permits before it begins operation: (1) the National Pollutant Discharge Elimination System (NPDES) permit application will be submitted to the Washington State Department of Ecology in late 2009, and (2) the reclaimed water permit will be submitted to the Washington State Departments of Ecology and Health in 2010.



**Figure 8. Brightwater Reclaimed Water System**

*Progress on construction of the Brightwater reclaimed water system.* Work continues on the reclaimed water transmission lines that will transport reclaimed water from the Brightwater Treatment Plant to potential use areas. Construction is substantially complete on the section that connects the Brightwater Influent Pump Station with the North Creek Pump Station. This work is a part of the North Creek Facilities Contract. Construction is under way on the south transmission line section that connects the North Creek Pump Station to the existing York Pump Station and then extends further south to the Willows Run Golf Course (Figure 9). Construction on this section is expected to be substantially complete in late 2009. Landscape mitigation work associated with the backbone project began at the end of January 2009 and is expected to be complete in June of this year. The west transmission line of the Brightwater reclaimed water system will be installed within the Brightwater conveyance tunnels; tunneling is under way.

Overall, the work on the reclaimed water backbone project has been progressing as planned since 2006. In the summer of 2008, the county and contractors had to conduct unanticipated archaeological work in the south transmission line work area. WTD worked with the U.S. Army Corps of Engineers, the Washington State Office of Historical Preservation, and affected tribal governments to address the issue. While this work initially delayed installation of pipeline, the overall project schedule was not affected. In addition to construction, WTD is currently developing engineering and construction standards for connection to the county's reclaimed water systems to protect infrastructure integrity and ensure compliance with state standards for using reclaimed water.



**Figure 9. Construction of Brightwater South Transmission Line**

## **(2) Studies and Planning Efforts Related to Reclaimed Water**

This portion of the report summarizes recent and current reclaimed water studies and planning efforts, including completion of the Reclaimed Water Feasibility Study and beginning the development of a Reclaimed Water Comprehensive Plan.

As directed by the King County Council and in accordance with RWSP water reuse policies, the county issued the Reclaimed Water Feasibility Study in March 2008. The feasibility study provided a framework for discussions with stakeholders, water and wastewater utilities, and tribal interests on reclaimed water use and water resource management. It was apparent from these discussions that reclaimed water is an important regional matter with a range of interests, concerns, and potential uses that warranted further discussion and comprehensive planning.

In July 2008, WTD began a planning process to develop a Reclaimed Water Comprehensive Plan (the plan), which will help answer if, how, where, and when the county's reclaimed water program should expand over the next 30 years. WTD is in the early stages of this multiyear planning effort, which will include numerous opportunities for input from water purveyors, wastewater utilities, regulatory agencies, environmental groups, business interests, tribal governments, and the public.

The planning process will explore potential uses for reclaimed water and analyze the costs and benefits of serving those uses. The process will include examination of RWSP water reuse policies, development of financial policies to provide long-term guidance on pricing and cost allocation for the county's reclaimed water program, and development of a financial plan to cover the capital and operating costs of any new reclaimed water facilities recommended in the plan. Existing rates and contractual relationships between the county and wholesale and retail reclaimed water customers would be revised over time to comply with any new or amended RWSP water reuse and related financing policies.

In coordination with development of the plan, WTD is working with water purveyors, when requested, on local planning efforts related to reclaimed water. For example, WTD is working with the Covington Water District (CWD), which has been interested for years in developing reclaimed water as a potential water supply. CWD's long-term water supply plan includes use of imported surface water from the City of Tacoma's system and existing in-basin groundwater sources, as well as water reclamation and reuse, to meet the area's municipal and environmental needs.

King County is the regional wastewater services provider in CWD's water supply service area. The county and CWD signed a three-year Memorandum of Agreement in 2007 to jointly fund and pursue a phased approach to explore opportunities for reclaimed water development in CWD's service area. The first phase of the study identifies potential demands, uses, and costs for conceptual treatment and distribution systems identified by CWD. Work completed to date includes a spreadsheet-based tool to explore the primary relationships between competing instream and out-of-stream water needs in the Soos Creek Basin. The tool is a type of "water balance" calculator that models water extractions from the basin, inflows to the basin, and their interrelationships. It provides water resource managers with information on how various development and management scenarios will affect water resources in the basin. The county and CWD will review the results of the first phase and determine the appropriate next steps, which will include meeting with other jurisdictions and affected parties to share results. WTD is closely coordinating this work with development of the Reclaimed Water Comprehensive Plan.

Seattle Public Utilities (SPU) is conducting a feasibility study of potential reclaimed water uses south of the Brightwater Ballinger Portal on the west transmission line (generally north of the Lake Washington Ship Canal up to the King County boundary). SPU will use the results of the study to help evaluate its level of interest in being a reclaimed water purveyor in Seattle. King County will incorporate the results into development of the Reclaimed Water Comprehensive Plan.

### **(3) Reclaimed Water Research Efforts**

While many parts of the country already use reclaimed water in significant amounts, King County recognizes the need in this region to fully understand the state of the science relating to the quality and any impacts of various uses of the resource. WTD continually monitors national research on uses of reclaimed water. Rather than relying exclusively on national studies, WTD has been contracting with researchers at the University of Washington (UW) to develop local, independent, best-available science about the public health and environmental impacts of using reclaimed water. These research activities are modeled after a similar WTD-sponsored research program on the use of biosolids. Research results to date have demonstrated that reclaimed water uses are safe for people and the environment. This section summarizes these results.

#### ***Turf Grass Irrigation Study***

The county initiated a study on health and safety issues associated with using reclaimed water to irrigate turf grass for local golf courses, business parks, and sports fields. The study was completed in 2008. Key research issues were the impact of reclaimed water on salt buildup/tolerance, fate and transport of pharmaceutical and personal care products, and grass growth response. The results indicated that irrigation of turf grass with reclaimed water from the South plant sand filter results in healthy growth without salt buildup, significantly less need for fertilizer use (and therefore cost savings to the golf course), and no risk of exposure to pharmaceuticals and chemicals found in personal care products. The results of this research effort have helped a wide variety of customers realize that the benefits of converting to reclaimed water irrigation are high and the risks to the environment, turf grass, and humans are minimal.

### ***Study of Ornamental Plant and Food Crop Irrigation***

In 2008, the county initiated a two-year study to look at plant growth response and human health safety associated with irrigating commercially grown ornamental plants and food crops with reclaimed water. This study was designed to address horticultural issues of potential customers, such as commercial nurseries, local food producers, and flower truck farmers in the Sammamish Valley, who have been concerned about flower/leaf ratios, salt sensitivities, and aesthetic qualities. Local nursery and truck farmers assisted in the selection of ornamentals tested. Raw vegetables and root crops (lettuce, strawberries, and carrots) were chosen as food crops because of a higher risk of exposure than with cooked vegetables.

Initial results from greenhouse trials demonstrate that commercially marketable and aesthetically pleasing crops can be grown with reclaimed water. Washed and unwashed raw vegetables irrigated with reclaimed water were tested and met food safety standards for human consumption. The second year of research will replicate the study under field conditions. The field site will be raised beds in South plant's demonstration garden. Beds of ornamentals and food crops will be grown with reclaimed water, potable water with fertilizer, and GroCo compost (produced from composted biosolids and sawdust).

UW will produce a final report in early 2010. Also in 2010, the garden beds will be developed as a permanent part of the demonstration garden to showcase the benefits of reclaimed water irrigation and biosolids compost. King County's Master Gardener Program has provided volunteer labor for the garden beds and greenhouse at South plant (Figure 10), and local horticultural college programs have expressed an interest in partnering on the new demonstration gardens.



**Figure 10. Greenhouse at South Plant with Demonstration Beds in the Distance**

#### **(4) Reclaimed Water Permitting and Regulatory Compliance**

An important component of the existing reclaimed water program is obtaining and maintaining the permits required by the Washington State Departments of Ecology and Health (Ecology and Health) for each facility that sells and/or distributes reclaimed water off-site. The reclaimed water permits have a five-year cycle, similar to the NPDES operating permits for wastewater discharge.

The reclaimed water permit for the Carnation Treatment Plant was issued in December 2008 and became effective on January 1, 2009. The South Treatment Plant reclaimed water permit expires in September 2009; the county submitted a renewal application in March 2009. WTD has begun preparing the application for the Brightwater reclaimed water permit, with submittal anticipated in 2010. The West Point plant does not need a permit because reclaimed water is used only on-site.

The reclaimed water permits vary by uses identified for the water from each plant. At a minimum, all permits require daily monitoring of reclaimed water quality and monthly reporting of monitoring results to Ecology and Health. The permits also require annual training of all users and posting of proper signage at use locations.

DNRP and WTD staff has participated in Ecology's Rule Advisory Committee. In 2006, the state legislature directed Ecology to develop and promulgate rules on all aspects of reclaimed water use by December 31, 2010. The current standards, which are not in formal rules and were last revised in 1997, will be superseded by any regulations adopted by Ecology and Health as part of this effort. The new standards will apply to county facilities and to both new and renewing reclaimed water permits, beginning in 2011.

## **Section II. Status Report on the Wastewater Treatment Division's Efforts to Market and Establish Contracts for the Sale of Reclaimed Water**

This section describes the efforts under way to develop markets and establish contracts for the distribution, use, and sale of reclaimed water. It is divided into two parts: (1) public education and outreach and (2) marketing. Pricing considerations are discussed separately in Section III of this report, consistent with the organization of the proviso information request.

### **(1) Public Education and Outreach**

Although reclaimed water is increasingly used in many areas of the country, its use is still relatively new in parts of the Pacific Northwest. There can be some reluctance to use reclaimed water. Not everyone is accustomed to thinking of treated wastewater as a resource. RWSP Water Reuse Policy (WRP)-7 specifically calls for the county to develop an active water reuse public education and involvement program. (See Exhibit 1 for a list of RWSP reclaimed water policies).

WTD's reclaimed water program, therefore, includes efforts to educate the region and potential users about the practicality and safety of reclaimed water.

The goals of public education outreach efforts are (1) to inform and educate the general public about reclaimed water uses and benefits and (2) to provide education or assistance to specific existing or future customers and user groups. The major objectives are as follows:

- Establish a foundation of support for reclaimed water.
- Raise awareness that reclaimed water is safe and effective.
- Involve the general public and specific user groups in shaping programs and implementation.
- Earn trust and confidence from wastewater ratepayers, regulators, and customers.
- Promote a cooperative regional approach.
- Ensure there are “no surprises” by keeping the public informed of plans and changes.

WTD uses best available science and case studies to meet these objectives. Some of the public involvement tools employed to accomplish these objectives include project signage, tours of facilities, water quality surveys, focus groups, news releases, question-and-answer sheets, brochures, fliers, postcards, Web pages, notices, informational booths and displays at public meetings and events, information hotlines, and organizing and participating in conferences and seminars. In addition, WTD participates in efforts to advance the use of reclaimed water. Staff keeps informed about activities of relevant professional organizations and occasionally attends technical conferences for peer and professional sharing.

During the development of the Reclaimed Water Feasibility Study and the ongoing development of a Reclaimed Water Comprehensive Plan, WTD staff has met with a wide range of parties to collect and share information on issues, concerns, uses, challenges, and benefits of reclaimed water use. In addition to receiving input on WTD’s reclaimed water program and planning efforts, these discussions have helped shape the public involvement program materials, research topics, and technical studies. The discussions have included a wide range of potential users, affected parties, and interest groups (industrial and business groups, professional organizations, potential user groups from the agricultural, horticultural, recreational [golf and parks], and construction industries), specific potential customers, utilities, local governments, tribal interests, and environmental groups.

## **(2) Marketing**

In contrast with areas around the country that have successful statewide reclaimed water programs, the State of Washington does not have a strong or clear legislative mandate that reclaimed water be used when it is available and/or accessible. Because customers voluntarily choose to use reclaimed water, marketing plays an important role in promoting demand for the water.

WTD’s ultimate goal in marketing its reclaimed water program is to secure contracts and agreements with reclaimed water users. Given the county’s strong preference to act as a wholesale supplier of reclaimed water to local cities or water suppliers, WTD attempts to establish a wholesale-retail relationship with local water purveyors that traditionally retail water to end users. When WTD receives calls from potentially interested reclaimed water users, staff coordinates with the local water purveyor to work together with the interested end users. This

approach is guided by and consistent with RWSP reclaimed water policies that call for the county to actively pursue the use of reclaimed water (WRP-1) and work with water purveyors (WRP-6). However, if the local water purveyor chooses not to be the retail reclaimed water purveyor, the county will work directly with interested end users and will consider becoming the retailer of last resort.

The following sections describe specific marketing activities that WTD is undertaking or will be undertaking in the next few years.

### ***Identify Markets and Potential Demand for Reclaimed Water***

WTD identifies potential markets and demand for reclaimed water through a variety of means, including the following:

- Using Geographic Information System (GIS) tools to identify land areas that could be served by the existing reclaimed water system.
- Reviewing existing reports, such as local water and sewer comprehensive plans and other information, to identify self-suppliers and potential environmental enhancement opportunities.
- Assessing, with potential reclaimed water purveyors, their level of interest in reclaimed water and potential uses for reclaimed area in their service areas.
- Working with other divisions in King County to identify potential reclaimed water uses associated with their programs, such as the Water and Land Resources Division's Agricultural Program.

The Brightwater south transmission line runs through the Sammamish Valley, where agriculture flourishes and water for irrigation in the summer months is in high demand. WTD's marketing and research efforts have focused on potential uses, such as nurseries, turf grass, and food crops, for reclaimed water in this area. Use of reclaimed water in this area has the potential to replace reliance on the Sammamish River as a water source and the potential to provide the environmental benefits of enhanced flows in this stressed stream. It also may provide a legally more secure source of water than some existing sources used for irrigation or may provide new sources for land that is not currently irrigated.

### ***Fully Understand the Products Being Marketed***

WTD has conducted several pilot studies to understand the operational aspects of using reclaimed water and the quality of the product. The division also tracks research on the use of reclaimed water worldwide. As discussed earlier in this report, WTD has funded applied research through the University of Washington on emerging areas of interest. In addition, WTD continues to monitor reclaimed water produced from the South and Carnation Treatment Plants, assess how well reclaimed water works for various irrigation methods, and review engineering reliability studies of reclaimed water systems.

### ***Product Promotion***

WTD uses various communication channels to promote the use of reclaimed water, including the tools described in the public education and outreach portion of this report. Staff conducts tours of

research and demonstration gardens for potential users and interested parties. In addition, WTD shares research findings and information gathered from other reclaimed water agencies and users from around the country with potential users and interested parties.

### ***Technical Assistance and Customer Support***

WTD conducts a variety of activities to facilitate the use of reclaimed water. These activities include assisting with engineering design, cost estimates, and operational discussions of potential reclaimed water opportunities. In addition, WTD provides construction specifications for safely connecting to reclaimed water transmission lines and provides user-specific manuals for uses such as turf grass production, golf course irrigation, and farm irrigation. WTD also provides customer outreach and education materials, including regular updates on technical information that affects or informs use.

### ***Partnering with Jurisdictions and Potential Reclaimed Water Users***

WTD has worked and will continue to work with sewer and water utilities and local jurisdictions in establishing contracts for the use of reclaimed water. The following are examples of these activities:

*City of Tukwila.* The City of Tukwila has been purchasing and using reclaimed water from South plant for over a decade. The water is used for irrigation, street sweeping, and sewer flushing. In 2008, the county and the city renewed a sale and distribution agreement for reclaimed water, under which the city will continue to act as a reclaimed water purveyor in its service area.

*Sammamish Valley.* The Sammamish Valley contains one of the county's five designated Agricultural Protection Districts (APD).<sup>3</sup> It also provides a large amount of land for recreational purposes. Much of the water that is used to irrigate these lands comes from direct withdrawals from the Sammamish River or from wells that are in direct connection with river flows. Some farmers depend solely on rainwater, which limits their ability to maximize use of their farmland. The Washington State Department of Ecology and the Muckleshoot Indian Tribe have expressed interest in the use of reclaimed water for irrigation purposes in the Sammamish Valley as a way to help reduce the amount of withdrawals from the Sammamish River. Concern about the amount of direct withdrawals from the river was an important factor in the development of the agreement between King County and the Willows Run Golf Course regarding the sale of reclaimed water from the Brightwater south transmission line for irrigation of the golf course. The agreement with Willows Run was the first agreement for reclaimed water use in the Sammamish Valley.

King County is pursuing other potential uses for reclaimed water in the Sammamish Valley:

- The county is holding discussions with the City of Redmond to determine the city's interest in being the reclaimed water purveyor in its water service area. There are a number of potential uses for reclaimed water in Redmond, including agriculture, parks and athletic fields, and some industrial uses. The City of Redmond Parks and Recreation Department has expressed interest in reclaimed water hookups for irrigation of city-

---

<sup>3</sup> APDs are blocks of contiguous farmlands where agriculture is supported through the protection of agricultural soils and related support services and activities.

owned or managed vegetation along the south transmission line of the Brightwater backbone.

- The county owns a park, Sixty Acres North and South, that it leases to the Lake Washington Youth Soccer Association (LWYSA). In 2009, the county Parks and Recreation Division entered into a 30-year use agreement with LWYSA for development, operation, maintenance, and use of the park for a first-class soccer complex. LWYSA has agreed in the lease to pursue the use of reclaimed water when it becomes available from Brightwater. Over the past year, the county Parks and Recreation Division and WTD have been working with LWYSA to develop an engineering design and other technical information necessary to connect the park to the south transmission line of the Brightwater backbone. Next steps could include agreements to define roles, responsibilities, rates, and conditions necessary for project construction and operation.
- The county Parks and Recreation Division has also expressed a desire to irrigate Marymoor Park, which is in the City of Redmond, with reclaimed water. As with Sixty Acres Park, the City of Redmond could potentially be the reclaimed water purveyor. To serve Marymoor, Brightwater's south transmission line would need to be extended further south; this analysis will be included in the Reclaimed Water Comprehensive Plan.

*City of Bothell.* The county and the City of Bothell have been discussing the development of a Memorandum of Agreement to explore reclaimed water opportunities in the city, particularly for irrigation and industrial water processes in the Bothell Business Park. The city and county are currently drafting a joint scope of work to study potential demands, potential uses, and engineering options to serve these uses. In an effort to understand potential demands, the city and WTD staff met with *The Seattle Times* and the University of Washington–Bothell, both potential customers. *The Seattle Times* may be interested in using reclaimed water for irrigation and cooling water at its publishing presses. The university is planning an expansion and is exploring using reclaimed water for irrigation, toilet flushing, and other purposes in new buildings. These potential uses and others would be explored further in the proposed joint study.

### **Section III. Preliminary Rate Structures and Policies for the Sale of Reclaimed Water from King County Facilities**

This section discusses preliminary rate structures and policies for the sale of reclaimed water from King County facilities. Options for rate setting and financing policies for the sale of reclaimed water will be fully developed as part of the Reclaimed Water Comprehensive Plan. WTD is pursuing a systematic approach to pricing, and changes in current approaches should be expected following final adoption of the plan. WTD understands that there are many perspectives on pricing and will seek opportunities for substantial stakeholder input in the comprehensive planning process. This report introduces some of the issues that will need to be addressed.

The subsections below describe the following: (1) the county's current approach to pricing reclaimed water; (2) general approaches to pricing used throughout the country; and (3) existing reclaimed water policies and some of the key financing and policy decisions that will need to be made in the next few years through the Reclaimed Water Comprehensive Plan.

## **(1) The County's Current Approach to Pricing**

As indicated earlier in this report, WTD's existing reclaimed water program includes five existing and expected reclaimed water users: West Point Treatment Plant, South Treatment Plant, Chinook Bend wetland (through the Carnation Treatment Plant), the City of Tukwila, and Willows Run Golf Course.

The largest users are the West Point plant, South plant, and Chinook Bend wetland. At the South and West Point plants, reclaimed water produced at the plants is used for in-plant and on-site purposes in place of potable water. The use of reclaimed water at these plants results in cost savings in the range of \$530,000 to \$665,000 each year. In the case of Chinook Bend, reclaimed water is used as the primary means of wastewater discharge from the Carnation plant, while simultaneously enhancing the wetland.

The county's external customers currently include the City of Tukwila and Willows Run Golf Course. The county has agreements with the City of Tukwila and the Willows Run Golf Course for the provision of Class A reclaimed water from the South and Brightwater plants, respectively. The City of Tukwila uses this reclaimed water for irrigation, street cleaning, and dust control purposes. Willows Run Golf Course will use reclaimed water from the Brightwater south transmission line for irrigation purposes in place of withdrawing water directly from the Sammamish River.

There is no single policy or other document that describes the county's approach to rates and pricing. Past approaches to pricing reclaimed water have been based on several considerations. Existing reclaimed water policies call for promoting the use of reclaimed water, pursuing pilot projects, considering projects on a case-by-case basis, and working with local purveyors. A regional stakeholder process held in 2000 as part of the reclaimed water program developed pricing and financing recommendations, which the county has considered in its agreement negotiations with reclaimed water users.<sup>3</sup> These recommendations included using the SPU wholesale rate as the "regional benchmark" for a potable rate and using a discounted rate to promote the use of reclaimed water. The SPU rate was chosen because SPU is the largest wholesale water supplier in the region.

It is important to note that the county's preference and intent has consistently been to be a wholesaler of reclaimed water. However, there may be situations where the county would act as a retailer of last resort when there is no water utility willing to provide retail delivery of the reclaimed water.

The pricing approaches for the two current external customers reflect this history. The price in the City of Tukwila's contract is 80 percent of the SPU wholesale potable rate. The contract allows for the reclaimed water rate to increase as the potable water rate increases during the 30-year term of the contract. The 80-percent rate has covered the county's operating and maintenance costs for Tukwila's reclaimed water uses.

---

<sup>3</sup> King County. December 2000. Identification of Potential Satellite Projects for Direct Non-Potable Uses: Report of the Reclaimed Water Task Force

The contract with the Willows Run Golf Course specifies a phased rate for reclaimed water, starting with 50 percent of SPU’s wholesale potable water rate from 2012–2019, becoming 80 percent of SPU’s wholesale potable water rate after 2019. The agreement also includes a re-opener clause so that a new rate can be established when a pricing and financing plan is developed through the reclaimed water comprehensive planning process.

In establishing pricing in these contracts, the county recognized that these are pilot projects—part of starting up an external reclaimed water system—and that pricing may be different for an established program.

Surveys of reclaimed water prices in other jurisdictions continue to suggest an industry standard of using 75–90 percent of the potable rate as an appropriate rate. The county’s current approach continues to be the general direction that WTD intends to follow in pricing reclaimed water for its existing program until the comprehensive plan is completed. WTD will use the following approach:

- In situations where the county is a wholesaler (preferred case), the county will first look at charging a reclaimed water rate that is 80 percent of SPU’s wholesale rate for potable water.
- If the county is acting as a retailer, then the county will first look at charging a reclaimed water rate that is 80 percent of the prevailing retail rate for potable water in the area the user is located.

WTD will continue to be flexible in pricing arrangements for new contracts for reclaimed water in the existing program, consistent with RWSP water reuse policies WRP-5 and WRP-6. These policies call for WTD to work with water purveyors and evaluate reclaimed water projects on a case-by-case basis. Some flexibility is warranted for several reasons, particularly in the event the county acts as a retailer of last resort. Because the cost of providing retail service (distribution lines and other infrastructure to access reclaimed water) may differ greatly for each user, SPU’s retail rate may not reflect the costs of providing retail service. In addition, some potential users self-supply to meet their water needs, so the prevailing retail rate may not be an appropriate benchmark. Moreover, a single retail rate is difficult to benchmark given the great deal of variability in prevailing retail water rates in the region. In any event, WTD intends to include re-opener clauses in all future contracts for the existing reclaimed water program (wholesale or retail) that allow for conformance with financial and rate policies identified in the Reclaimed Water Comprehensive Plan.

The Reclaimed Water Comprehensive Plan will thoroughly examine existing reclaimed water policies and recommend new policies to provide long-term guidance on financing, pricing, and cost allocation for the county’s reclaimed water program.

## **(2) General Approaches to Pricing Used Throughout the Country**

Table 1, taken from the Reclaimed Water Feasibility Study, shows the results of a survey of other reclaimed water programs in the country that illustrates the prevalence of alternative rate approaches. These approaches are described in the subsections that follow the table. WTD is not advocating any of these approaches for the long-term. However, they illustrate why it will take

time to establish a long-term approach and policies for reclaimed water rates and financing. (The “other” category in the table refers to a variety of approaches, including not charging for reclaimed water at all and negotiating with individual users.)

**Table 1. Prevalence of General Rate Approaches**

<b>Rate Approach</b>	<b>Percent of Respondents (2000)</b>
Cost of Service	14%
Percentage of Potable Water Use	19%
Promote Use	24%
Market Analysis	9%
Other	34%

***Pricing Reclaimed Water at Cost Of Service***

One approach is to charge rates sufficient to recover costs associated with supplying reclaimed water to the entity purchasing it. This approach would theoretically be “sewer rate neutral.” Once the rate is determined, the approach could be fairly easy to understand and administer, equitable, and consistent. Setting rates based on cost recovery is common practice among utilities. However, there are several challenges with this approach. It can be difficult to differentiate the costs for distributing and producing reclaimed water from costs associated with wastewater treatment, particularly if effluent water quality requirements change over time. Many factors complicate the calculation of this rate, such as assumptions regarding production and use volumes and the time period over which cost recovery should occur.

Basing rates on cost recovery is common among some utilities because the utilities are often the only supplier of a given service, such as garbage disposal, electricity, or wastewater treatment. The utilities make no profit from the sales, and rates are reviewed and adopted by publicly elected officials or are regulated by a government entity. However, reclaimed water is different in several respects. For some uses, reclaimed water might compete with potable water supplied by purveyors. For other users, reclaimed water might replace their individual sources of supply. Further, many uses for environmental enhancement—like Chinook Bend wetland restoration—may have no paying users. If cost-of-service approaches produce reclaimed water rates that are higher than potable water rates, there would likely be little to no demand for the resource. In that case, WTD and its ratepayers would not recoup any of the capital costs of producing reclaimed water and the region would not receive any environmental benefits from using reclaimed water as a resource.

Other jurisdictions have considered these questions and have employed other approaches discussed below. All of the approaches involve some degree of subsidy for reclaimed water. These jurisdictions have identified benefits that warrant consideration in the pricing methods. The Reclaimed Water Comprehensive Plan will include identification of benefits, quantification approaches for these benefits, and consideration in an economic (benefit-cost) analysis.

***Pricing Reclaimed Water as a Percent of the Potable Water Rate***

This approach sets the price of reclaimed water at a specified percentage of the prevailing potable water rate. Advantages of this approach are that it is relatively clear, it is consistent with

the perception that reclaimed water is less valuable than potable water, and it serves to promote use of the resource. However, it may be difficult to select the appropriate benchmark rate, given that potable water rates and local markets are complex and vary across the region. As indicated above, this has been the county's general approach with the existing program for external customers.

### ***Pricing Reclaimed Water to Promote Use***

Another approach is to price reclaimed water at a very low level to aggressively attract customers. An extreme example of this would be to not charge anything for the reclaimed water produced, perhaps for an initial time period. However, this approach maximizes the subsidy for reclaimed water use. And, a rate that aggressively encourages reclaimed water use could be potentially disruptive to potable water purveyors' markets.

### ***Pricing Reclaimed Water Based on What the Market Will Bear***

Another approach is to base rates on an assessment of what the market will bear, in order to maximize revenue. It may be difficult to determine a single market rate because different users will have different degrees of willingness to pay. However, this approach could be used to justify rates for different types of customers (markets for irrigation, for city public works departments, etc.) or could even be used in case-by-case negotiations with individual users. However, such an approach would provide a less predictable revenue stream to WTD's ratepayers and may generate concerns about equity among customers.

## **(3) Financing and Policy Development in the Reclaimed Water Comprehensive Plan**

Development of the Reclaimed Water Comprehensive Plan will include examination of RWSP water reuse policies, development of financial policies to provide long-term guidance on pricing/rate development and cost allocation for the county's reclaimed water program, and development of a financial plan to cover the capital and operating costs of recommended reclaimed water facility configurations, if any. The ultimate outcome of this planning process will be King County Council legislative action to adopt the plan and make any modifications to existing county code. The following activities are included in the overall scope of work for the Reclaimed Water Comprehensive Plan:

- Identify the population(s) that benefit from the range of potential consumptive and environmental enhancement uses for reclaimed water identified during the planning process.
- Calculate the value of the benefit to each population to provide a basis for allocating the portion of the reclaimed water production and distribution cost.
- Identify proposed new options for recovering reclaimed water costs for environmental enhancement benefits where no direct customers exist.
- Develop a means for establishing the extent to which cost recovery responsibility can be balanced among various populations that benefit from reclaimed water production and use equitably within the region.

- Review issues and recommendations that were identified during previous efforts in the region relating to reclaimed water (RWSP Reclaimed Water Task Force; efforts to develop a reclaimed water program that were completed in 2000; Reclaimed Water Feasibility Study, etc.).
- Review reclaimed water policy issues associated with other agencies that produce and distribute reclaimed water.

Multiple RWSP water reuse policies (provided in Exhibit 1) were developed in the late 1990s when the county's reclaimed water program was in its infancy. These policies call for the county to pursue the use of reclaimed water, to explore additional opportunities for reclaimed water, to coordinate with regional water supply planning efforts, to work with local water purveyors to evaluate the opportunities for water reuse, and to investigate uses for reclaimed water to enhance or maintain fish runs and help defer the need to develop new potable water supply projects.

One policy provides direction on how to evaluate reclaimed water projects on a case-by-case basis and includes a list of possible criteria to use in the evaluation. This policy also calls for a detailed financial analysis of the overall costs and benefits and provides direction on the kinds of information to include in the analysis. Other policies focus on coordinating and communicating with other agencies and programs, such as individual water purveyors, the Washington State Departments of Ecology and Health, and water conservation programs.

The policies helped to shape King County's existing reclaimed water program and continue to provide important guidance to the existing program. However, as the reclaimed water program has developed over the past decade, financing, pricing, and other policy-related issues have emerged that are not fully addressed by the existing policies. Here are some of the financing questions that the comprehensive plan intends to address:

- How should costs be distributed among wastewater ratepayers and reclaimed water ratepayers?
- If and how should costs be allocated and revenues recovered when benefits from the use of reclaimed water accrue to a larger group of people than just wastewater or reclaimed water ratepayers?
- What kinds of pricing policies, if any, should the county have in place for reclaimed water purveyors for pricing reclaimed water (e.g., should reclaimed water rates be capped; should there be a consistent rate and price for wholesale and retail users or different rates based on use and benefits associated with the use; should there be incentive rates or staged rates for early customers; should there be peak and off-peak pricing)?
- How should capital costs be financed (e.g., pay-as-you go, or issue long-term bonds)?
- What costs may be attributed to the wholesaler of the reclaimed water versus the retailer of the reclaimed water or the customer?

**Exhibit 1.**  
**Regional Wastewater Services Plan Water Reuse Policies**  
**(King County Code 28.86.100)**

**K.C.C. 28.86.100 Water Reuse Policies (WRP)**

**A. Explanatory material**

The water reuse policies are intended to guide the county in continuing to develop its program to produce reclaimed water. The county will coordinate its program with regional water supply plans and work with state agencies and local jurisdictions on opportunities for water reuse. The county will implement pilot and demonstration projects. Additional projects shall be implemented subject to economic and financial feasibility assessments, including assessing environmental benefits and costs. The water reuse policies, as in the treatment plant policies, intend that the county continue producing reclaimed water at its treatment plants. The treatment plant policies also address the potential construction of one or more satellite plants. These small plants would provide reclaimed water, with the solids being transferred to the regional plants for processing.

**B. Policies**

**WRP-1:** King County shall actively pursue the use of reclaimed water while protecting the public health and safety and the environment. The county shall facilitate the development of a water reuse program to help meet the goals of the county to preserve water supplies within the region and to ensure that any reclaimed water reintroduced into the environment will protect the water quality of the receiving water body and the aquatic environment.

**WRP-2:** By December 2007, the King County executive shall prepare for review by council a reclaimed water feasibility study as part of a regional water supply plan which will include a comprehensive financial business plan including tasks and schedule for the development of a water reuse program and a process to coordinate with affected tribal and local governments, the state and area citizens. The reclaimed water feasibility study shall be reviewed by the RWQC. At a minimum the feasibility study shall comply with chapter 90.46 RCW and include: 1. Review of new technologies for feasibility and cost effectiveness, that may be applicable for future wastewater planning; 2. Review of revenue sources other than the wastewater rate for distribution of reused water; 3. Detailed review and an update of a regional market analysis for reused water; 4. Review of possible environmental benefits of reused water; and 5. Review of regional benefits of reused water.

**WRP-3:** Recycling and reusing reclaimed water shall be investigated as a possible future significant new source of water to enhance or maintain fish runs, supply additional water for the region's nonpotable uses, preserve environmental and aesthetic values and defer the need to develop new potable water supply projects.

## Exhibit 1: Regional Wastewater Services Plan Water Reuse Policies

**WRP-4:** King County's water reuse program and projects shall be coordinated with the regional water supply plans and regional basin plans, in accordance with state and federal standards. The coordination shall be done with the affected water supply purveyors. Water reuse must be coordinated with water supply/resource purveyors to ensure that resources are developed in a manner complementary with each other to allow the most effective management of resources in the county.

**WRP-5:** King County shall implement nonpotable projects on a case-by-case basis. To evaluate nonpotable projects, King County shall develop criteria which will include, but are not limited to: capital, operation and maintenance costs; cost recovery; potential and proposed uses; rate and capacity charge impacts; environmental benefits; fisheries habitat maintenance and enhancement potential; community and social benefits and impacts; public education opportunities; risk and liability; demonstration of new technologies; and enhancing economic development. A detailed financial analysis of the overall costs and benefits of a water reuse project shall include cost estimates for the capital and operations associated with a project, the anticipated or existing contracts for purchases of reused water, including agricultural and other potential uses, anticipated costs for potable water when the project becomes operational; and estimates regarding recovery of capital costs from new reused water customers versus costs to be assumed by existing ratepayers and new customers paying the capacity charge. Water reuse projects that require major capital funding shall be reviewed by RWQC and approved by the council.

**WRP-6:** King County shall work with local water purveyors, including when the local purveyors update their water comprehensive plans, to evaluate the opportunities for water reuse within their local service area.

**WRP-7:** King County shall develop an active water reuse public education and involvement program to correspond with the development of the water reuse program and be coordinated with other water conservation education programs.

**WRP-8:** King County shall utilize a forum or multiple forums to provide opportunities for coordination and communication with the Washington state Departments of Health and Ecology, which have the principal state regulatory roles in the planning, design and construction of reuse facilities. The county shall involve other parties on these forums, including but not limited to, the Corps of Engineers, Washington state Department of Fish and Wildlife, National Marine Fisheries Service, United States Fish and Wildlife Service, regional water suppliers, tribal governments, local water and wastewater districts, cities, local health departments, watershed forums and environmental and community groups.

**WRP-9:** King County shall work, on a case-by-case basis, with the Washington state Departments of Health and Ecology on water reuse projects including, but not limited to, those that are not specifically cited in the 1997 Department of Health and Ecology Water Reclamation and Reuse Standards.

**WRP-10:** King County shall hold and maintain the exclusive right to any reclaimed water generated by the wastewater treatment plants of King County.

## Exhibit 1: Regional Wastewater Services Plan Water Reuse Policies

**WRP-11:** King County's water reuse program projects shall not impair any existing water rights unless compensation or mitigation for such impairment is agreed to by the holder of the affected water rights.

**WRP-12:** King County shall retain the flexibility to produce and distribute reclaimed water at all treatment plants including retaining options to add additional levels of treatment.

**WRP-13:** King County shall continue to evaluate potential funding of pilot-scale and water reuse projects, in whole or in part, from the wastewater utility rate base.

**WRP-14:** King County shall complete an economic and financial feasibility assessment, including environmental benefits, of its water reuse program. The assessment shall include the analysis of marginal costs including stranded costs and benefits to estimate equitable cost splits between participating governmental agencies and utilities. The assessment shall also include a review of existing and planned water and wastewater facilities in an approved plan to ensure that water reuse facilities are justified when any resulting redundant capacity as well as other factors are taken into account.

**WRP-15:** King County should pursue development of a water reuse program to discharge reclaimed water to reduce freshwater consumption used in the operation of the Ballard Locks when environmental benefits and financial conditions merit this investment and new program.