ATTACHMENT 7

Regional Wastewater Services Plan

Operational Master Plan

King County
Department of Natural Resources

December 1999

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Introduction

In November 1999, the Metropolitan King County council adopted the Regional Wastewater Services Plan (RWSP), a supplement to the King County Comprehensive Water Pollution Abatement Plan (Ordinance 13680). The RWSP is policy basis for a $1.2 billion capital improvement program that will provide wastewater services to this region for the next 30 years. This Operational Master Plan, as required by King County Code 4.04.200 C.1, explains how King County will implement the RWSP.

Background

By the year 2030, King County must provide 56 million gallons of additional wastewater treatment capacity to meet the needs of this region's growing population. Since the early 1990s, King County has been planning how best to provide this added capacity beginning with the Wastewater 2020 Plus process, which characterized the existing system and identified more than 60 alternatives for expanding the system. This number was eventually narrowed to four during a series of workshops attended by King County staff, stakeholders, and an expert panel.

King County summarized these four alternatives, termed service strategies, in the May 1997 *Draft Regional Wastewater Services Plan* (RWSP) and subsequently conducted a public involvement process to explain wastewater issues and solicit feedback from citizens. Based on this public opinion and other considerations, the King County Executive recommended an approach to managing this region's wastewater for the next 30 years or more. This approach was outlined in the April 1998 *Regional Wastewater Services Plan Executive's Preferred Plan.* The King County council's Regional Water Quality Committee (RWQC) then conducted its review of the *Executive's Preferred Plan* (officially, Proposed Ordinance 98-290) from May through December of 1998, cumulating on December 10 with a set of policy amendments related primarily to financing and implementation. The King County council subsequently reviewed the plan, adopted several amendments, and referred the ordinance back to the RWQC in June 1999. In November 1999, the RWQC adopted amendments to the plan referred by the council and transmitted it back to the council. The council adopted the RWSP by Ordinance 13680 on November 29, 1999. The ordinance was signed by the executive and was effective December 13, 1999**.**

Goals and objectives

The goal of the Regional Wastewater Services Plan is to protect public health and the environment. The RWSP will accomplish this by conveying, treating, and reclaiming wastewater by-products for existing and future residents living within the King County wastewater service area, which includes portions of King, Pierce, and Snohomish Counties. The objectives of the RWSP, developed based on guidance from citizens, stakeholders, and the RWQC, include the following:

- remain consistent with the King County Comprehensive Plan and State Growth Management Act
- maximize the public's existing investment in the wastewater system
- reduce wastewater flow and solids through demand management programs, conservation, and coordination of services with other regional utilities
- locate wastewater facilities designed to serve new growth where growth is occurring
- design and construct the wastewater system to meet regulatory requirements
- preserve and enhance water quality and protect public health
- provide maximum flexibility to respond to population growth and regulations
- provide opportunities to recycle treated wastewater and help meet water supply needs for people and for fish
- minimize impacts on rate payers and provide reasonable equity

Using this document

This document is organized in four sections including this introduction. The second section describes how King County will implement the Regional Wastewater Services Plan and outlines specific performance measures for each element of the plan. The third section describes how King County will finance the plan, including a discussion of monthly rates, capacity charges, and how costs are allocated between new and existing customers. The last section provides a general overview of the material and manpower resources needed to implement the plan and estimates the projected workload for the plan.

Appendices

A more detailed description of how the RWSP was developed is presented in Appendix A. The major planning documents developed as part of the RWSP are listed in Appendix B.

Implementing the RWSP

This section explains how King County will implement the council-approved Regional Wastewater Services Plan, beginning with the plan's six major program elements: (1) treatment, (2) conveyance, (3) inflow and infiltration, (4) combined sewer overflows, (5) biosolids, and (6) water reuse. For each element, this section identifies specific milestones and a schedule for completing each milestone. This section also describes King County's approach for implementing the supporting elements of the RWSP, including wastewater services, water quality protection, planning, environmental mitigation, public involvement, siting new facilities, and developing a habitat conservation plan.

Treatment Improvements

King County will provide secondary treatment to all base sanitary flow delivered to its treatment plants. We may provide treatment beyond the secondary level to meet water quality standards or achieve other goals such as benefiting species listed under the Endangered Species Act (ESA).

King County will provide additional wastewater capacity to serve a growing population in the Puget Sound area by constructing a new North Treatment Plant in the north service area and expanding the South Treatment Plant to handle additional flow from south and east King County. The county will maintain the West Treatment Plant at its rated capacity of 133 million gallons per day (mgd). The county will reserve room for expanding capacity at the West and South Treatment Plants to allow for unexpected circumstances such as higher-than-anticipated population growth or new regulatory requirements. The county will also explore opportunities to construct one or more satellite plants to produce high-quality reclaimed water, as explained in more detail under the Water Reuse Element described later in this section.

North Treatment Plant

King County will construct a 36 million-gallon per day (mgd) treatment plant in the North Service Area by 2010 or as soon as possible thereafter. This plant will provide secondary treatment and discharge treated effluent to Puget Sound. During implementation of the RWSP, the county will periodically evaluate assumptions used to estimate population growth and development patterns to ensure that the North Treatment Plant is properly sized and has capacity available when needed. The county will also investigate potential opportunities to partner with other utilities in south Snohomish County which could also lead to a larger ultimate treatment plant size.

The exact location for the North Treatment Plant and the outfall is unknown at this time. King County has begun a cooperative siting process, including a comprehensive public involvement program so that the public has the opportunity to provide input on the siting process.[1] The county executive will make the final decision on the location for the North Treatment Plant based on council-approved criteria and after consulting with the RWQC

[1] See the section titled "Siting new facilities" for a detailed discussion of the facility siting process.

and the council. The North Treatment Plant will provide secondary treatment and discharge effluent through a marine outfall, but King County will investigate possible tertiary treatment with a freshwater outfall to systems such as the Lake Washington or Sammamish watersheds, including the Ballard Locks. Environmental impacts will be evaluated as part of the project level environmental impact statement.

South Treatment Plant

King County will expand the South Treatment Plant to handle increased wastewater flow from the southern and eastern portions of the service area. The South Treatment Plant will also accommodate flow from the North Creek diversion and from planned North End storage until the North Treatment Plant is constructed. The South Treatment Plant expansion, scheduled for the year 2029, will increase the plant's capacity by 20 mgd (from 115 to 135 mgd). Using available land reserves at the plant site, some or all of the South Treatment Plant's capacity could also be upgraded to tertiary treatment as part of future expansions or in addition to its current level of treatment. King County will retain land area for expansion at the South Treatment Plant to handle unexpected circumstances such as higher-than-anticipated population growth or new regulations.

West Treatment Plant

King County will maintain the West Treatment Plant at its rated capacity of 133 mgd. The West Treatment Plant will primarily serve the City of Seattle and will handle flow from the combined sewers in the area. Additional facilities at the West Treatment Plant are planned in the year 2018 to accommodate the extended peak CSO flow that will occur after storms once the CSO control projects are constructed. King County will evaluate the impacts of CSO flow every five years as part of the CSO Update as required by permits. King County will also retain land area for expansion at the West Treatment Plant to handle unexpected circumstances such as higher-than-anticipated population growth, increased CSO flow, or new regulations.

All activities at the plant will comply with the terms of the West Point Settlement Agreement, such as evaluating technologies that reduce plant impacts (for example, truck trips and odor), keeping the plant within the 32-acre limit of the plant footprint, and researching ways to reduce the number of digesters at the plant.

Odor control

King County will reevaluate its goals for odor control at all treatment plants. To review these goals, the executive will investigate potential technologies and costs for odor control and recommend a policy to the council for inclusion in the RWSP. This investigation will be completed and a policy adopted in a timely manner so that odors are controlled at existing plants and at any new plant. Odor control facilities and equipment will be designed and operated to meet these goals. In the case of the South Treatment Plant, the county's goal will be to significantly reduce odor below baseline levels established in the development of the 1993 South Treatment Plant air model.

Performance measures for treatment

The performance measures and the expected time of completion are shown in Table 1.

Table 1
Treatment performance measures

PERFORMANCE MEASURE	COMPLETED BY
Select and set-up Siting Advisory Committee	June 2000
Develop and approve site selection criteria	Dec. 2000
Narrow site selections for North Treatment Plant and outfall (3 – 5 sites)	Dec. 2001
Reevaluate odor goals and recommend policies	Dec. 2001
Complete project level EIS for North Treatment Plant and outfall	June 2003
Recommend preferred package (site, conveyance and outfall) for North Treatment Plant to county executive	June 2003
Site and acquire property for the North Treatment Plant and outfall	Dec. 2003
SEPA process and predesign for the North Treatment Plant and outfall	2004
Complete permits and final design for the North Treatment Plant and outfall	2005
Commission a 36-mgd North Treatment Plant and outfall	2010
Improve the West Treatment Plant's ability to treat combined sewer overflows while maintaining the Plant's existing capacity	2018
SEPA process and predesign for South Treatment Plant expansion	2023
Complete permits and final design for South Treatment Plant expansion	2025
Expand the South Treatment Plant to 135 mgd	2029

Conveyance system improvements

King County will construct the conveyance system to transport wastewater from the component agencies to the treatment plants for treatment and discharge to receiving waters. To protect the quality of those waters and public health, the conveyance system will be built using a 20-year storm design standard to avoid sanitary sewer overflows. Conveyance facilities will be constructed to ensure the maximum use of the conveyance system.

During implementation of the RWSP, the county will periodically evaluate assumptions used to estimate population growth and development patterns to ensure that conveyance

facilities are properly sized. The county will also integrate other factors into the conveyance planning process, including water reuse planning, water conservation, demand management, and the results of the inflow and infiltration (I/I) assessment.[2]

The executive will recommend policies to the council for achieving uniform financing, construction, operation, maintenance, and replacement of all conveyance facilities in the service area including Snohomish County.

The RWSP includes three major near-term improvements to the conveyance system. The first is to build and upgrade the pipes and pump stations needed to convey wastewater to the North Treatment Plant. The second improvement is to build an effluent transfer system and outfall for the North Treatment Plant. The third improvement is the North Lake Interceptor, which will convey flow from the McAleer/Lyon Trunk to the north treatment plant and provide 10 MG of storage in the north service area. The county will also implement other conveyance projects such as flow transfers and minor improvements as described below.

Pipes and pump stations

After the North Treatment Plant is sited, King County will modify the York Pump Station (which now pumps wastewater to the South Treatment Plant) to pump wastewater north to the North Treatment Plant. This wastewater will travel through the newly constructed North Creek Force Main to the North Creek Pump Station. The county will also construct a conveyance line to bring flow from the North Creek Pump Station to the Kenmore Pump Station. The Kenmore Pump Station will be upgraded and conveyance lines will be constructed between the Kenmore Pump Station and the North Treatment Plant. King County will parallel sections of the Auburn Interceptor and provide storage for the Auburn Interceptor.

North End safeguards

In the past, King County has experienced wastewater overflows from pipes and pump stations at the north end of Lake Washington in the Kenmore area—mostly during large storm events. King County expects that building the North Treatment Plant will control future overflow. Facilities recently constructed in the fall of 1999 will restore the North End system to a 20-year design standard. Additional storage (6 MG) to be on line in the year 2002 will maintain a 20-year design storm capacity in the North End through the year 2010. The North Lake Interceptor will provide an additional 10-MG of storage which will maintain the 20 year design storm capacity through 2015. The county will also take actions to prevent improper discharges from the sanitary system in the North End.

- developing an emergency response plan for the north end system
- installing, whenever feasible, alarms and flow meters on the flap valve manholes in the Kenmore Lakeline
- increasing pump station capacities to handle 20-year peak storm flow

[2] See the section titled "Reducing inflow and infiltration" for a description of this assessment.

- ensuring that emergency power to pump stations is sufficient to power all pumps at both ends of the Kenmore Lakeline in storm events

Effluent transfer system for the North Treatment Plant

If an inland site is selected for the North Treatment Plant, the county will construct a tunnel to convey treated effluent from the North Treatment Plant to an outfall in Puget Sound. The specific alignment and characteristics of the tunnel and outfall will be based on factors such as the location of the North Treatment Plant and the results of environmental and oceanographic studies. The effluent transfer system for the North Treatment Plant will be designed to accommodate the ultimate build out population and to accommodate any increase in service area that may result from new partnerships or service agreements. King County may modify its plans for additional outfalls to Puget Sound depending on future developments in water reuse and legal requirements such as the federal Endangered Species Act. Studies conducted by the county during the siting and pre-design phases will provide information to assist in key decisions about locating the North Treatment Plant and outfall.

Effluent transfer system for the South Treatment Plant

As part of an expansion already underway at the South Treatment Plant, the pumps for the Effluent Transfer System will be upgraded by the year 2000 to maximize the amount of flow that can be conveyed through the existing pipe and outfalls in Puget Sound. Eventually, with increases in treated effluent, an additional 3 - 5 million gallons of storage will be needed to keep Effluent Transfer System flow within the 5-year design standard. For flow in excess of the 5-year standard, the county proposes to discharge secondary-treated effluent through an existing outfall to the Duwamish River in lieu of constructing another outfall.

Discharge from the existing outfall in the Duwamish River would occur during rainy periods when flow is already high in the river and no more frequently than once every five years on average. The impacts of this option were assessed as part of a larger study called the CSO Water Quality Assessment. The results of the CSO Water Quality Assessment found that there would be no significant adverse impacts to aquatic life from this discharge. In addition, by using the existing outfall there will be significant cost savings as well as decreased disruption to aquatic habitat in Puget Sound as another outfall would not need to be constructed.

North Lake Interceptor

The proposed North Lake Interceptor is a tunnel that extends between McAleer/Lyon Trunk and the Kenmore Pump Station. A diversion structure installed in the McAleer/Lyon Trunk will be able to divert all or a portion of their flow into the North Lake Interceptor. A pump station will lift the flow from the interceptor to either the Kenmore Pump Station or the Logboom Regulator. Flow from upstream of the Kenmore Pump Station can also be routed into the North Lake Interceptor during peak flow conditions. The interceptor and pumping facilities would serve multiple purposes in the system including providing 10 million gallons of storage.

In the short term, the interceptor could be used to store and convey flow to the West Plant. Peak flow above the capacity of the Lakeline would be stored in the North Lake Interceptor and pumped into the Logboom Regulator and into the Lakeline after flow subside. In the long term, the North Lake Interceptor would be used to convey flow northward from the McAleer/Lyon Trunk to the Kenmore Pump Station from where it would be pumped to the North Plant when capacity is available.

King County will incorporate the following features in the design of the North Lake Interceptor: (1) the ability to convey all flow away from the Lakeline (also known as the Kenmore Interceptor Section 2 extending from Matthews Beach Pump Station to Kenmore Pump Station), except for flow from the local system along the lake in the case of a catastrophic failure of the Lakeline; (2) establish a hydraulic gradient for the North Lake Interceptor that will be substantially lower than the gradient of the Lakeline to prevent sewer backups in local sewer lines, and will be compatible with a future conveyance system in the event the Lakeline must be replaced after substantial progress has been made on the North Treatment Plant; (3) the ability to insert a smaller pipeline within the North Lake interceptor to either convey reclaimed water or local sewage flow in the future; (4) emergency relief to prevent sewer back-ups in the north service area in the event of a severe storm that overwhelms the entire sewer system; and (5) the ability to direct flow in either a north or south direction as needed for wastewater management.

Flow transfers

King County will evaluate opportunities to transfer flow between King County's treatment facilities and treatment facilities owned and operated by other wastewater utilities in the region. These evaluations will include cost, environmental and community impacts, liability, engineering feasibility, flexibility, impacts to contractual and regulatory obligations, and consistency with the level of service provided at the county-owned and -operated facilities.

Minor conveyance improvements

King County will implement a number of minor trunk improvements during the next 30 years. These improvements, constructed as part of the county’s Conveyance System Improvement (CSI) Program, provide the additional capacity needed to serve population growth in the smaller basins served by King County. The CSI Program will begin in 1999 and move forward over the next several years with design and construction on a number of facilities. For example, the county has begun planning for the Shoreline/Hidden Lake basins and the Mill Creek/South-End basins. Planning, design, and construction detailing for improvements to the Juanita Bay and Kirkland Pump Stations began in January 1999.

Performance measures for conveyance

The performance measures and the expected time of completion for the conveyance system are shown in Table 2.

Table 2
Conveyance performance measures

PERFORMANCE MEASURE	COMPLETED BY
Increase York Pump Station to 68 mgd	2000
Parallel East Side Interceptor Section 1	2000
Construct 6-MG storage at North Creek	2002
Construct 6-MG off-line Storage in the North End	2002
Parallel Auburn Interceptor Sections 1, 2, and 3	2004
Construct North Lake Interceptor and pump station	2006
Construct 120-mgd Kenmore Pump Station to pump flow to North Treatment Plant	2010
Construct force main from new Kenmore Pump Station to North Treatment Plant	2010
Construct Tunnel from North Treatment Plant to outfall	2010
Construct North Treatment Plant Outfall	2010
Increase North Creek Pump Station to 50 mgd	2016
Modify York Pump Station to pump 35 mgd to North Treatment Plant	2016
Construct forcemain to convey North Creek flow to Kenmore Pump Station	2016
Construct Auburn Interceptor Storage	2020
Expand existing conveyance pipes system-wide to meet developing needs	2000 – 2030
Construct 3 – 5 MG storage for South Treatment Plant Effluent Transfer System	2030

Reducing inflow and infiltration

King County is committed to controlling inflow and infiltration (I/I) within its regional conveyance system and to rehabilitating facilities to control I/I when it costs less than conveying and treating this flow or when rehabilitation provides significant environmental benefits to water quality, water quantity, stream flow, wetlands, or habitat for species listed under the ESA. King County will also work cooperatively with component agencies[3] to assess and reduce I/I in the local system. The overall goal of this program is to reduce peak inflow and infiltration in the service area by 30 percent for a peak 20-year storm event.

King County recognizes that the development of a successful long-term program will depend on the meaningful involvement of all component agencies. The Wastewater Treatment Division will structure the assessments and the development of the long-term control program to include early involvement and input from all key stakeholders.

[3] Component agencies are agencies that have signed sewage treatment agreements with King County

Reducing inflow and infiltration in the local system

The first phase of the program to control I/I in local systems, beginning in 1999 and continuing through 2004, will: (1) define current levels of I/I for each component agency tributary to the regional system and establish what portion of this I/I is cost effective to remove; (2) construct pilot projects to demonstrate the cost effectiveness of collection system rehabilitation projects; (3) develop model design and enforcement standards for use by component agencies to reduce I/I in their systems; and (4) develop a long term regional I/I control proposal for approval by the council.

Define current levels of I/I. King County will coordinate with component agencies to assess I/I in each local collection system. King County will perform these assessments at no cost to the component agency.

Construct pilot projects. The executive will implement pilot rehabilitation projects dealing with the most serious and readily identified I/I problem areas in the local sewer systems. These pilot projects will demonstrate the effectiveness of I/I controls in the local sewer systems tributary to the regional system. King County will fund the design and construction of these projects through 2004.

Develop design standards for local systems. King County will coordinate with component agencies to develop model design standards for local conveyance systems, including inspection and enforcement standards.

Incentives

By December 31, 2004, the executive will identify long term measures to assure component agencies meet established target I/I levels. These measures will include local conveyance system design standards, enforcement programs, incentive based cost sharing programs and establishing a surcharge program. King County will consider implementing the I/I surcharge on component agencies by no later than June 30, 2005. King County may pursue changes to the contracts it holds with the component agencies or it may implement other strategies as necessary to implement the surcharge.

Reporting

By July 1, 2001 the executive will submit for council review and approval an initial list of proposed pilot rehabilitation projects dealing with the most serious and readily identified I/I problem areas in the local sewer systems. An additional list of proposed pilot projects will be submitted for council review and approval by July 1, 2002. Based on the assessments and pilot projects, the executive will submit a report by December 31, 2003 that defines the I/I levels in each of the local sewer systems and identifies options and associated costs of removing I/I and preventing future increases. This report will also include analysis of the cost effectiveness and environmental costs and benefits of the identified options, as well as provide information on public opinion relating to the various options of removing I/I. By December 31, 2004 the executive will recommend target levels of I/I reduction in local collection systems and long term measures to meet these targets.

Performance measures for inflow and infiltration

The performance measures and the expected time of completion are shown in Table 3.

Table 3
I/I performance measures

PERFORMANCE MEASURE	COMPLETED BY
Executive submits initial list of proposed pilot rehabilitation projects for council review and approval	July 1, 2001
Executive submits additional list of proposed pilot rehabilitation projects to council	July 1, 2002
King County, in coordination with component agencies, develops design, inspection and enforcement standards for use by component agencies	December 31, 2002
Executive submits report to council defining I/I levels in local systems, options for controlling I/I, and the associated costs	December 31, 2003
Executive recommends target I/I levels for local collection systems and long-term measures to meet these targets	December 31, 2004
King County shall consider an I/I surcharge on component agencies which do not meet the the adopted target levels of I/I reduction	June 30, 2005

Reducing combined sewer overflows (CSOs)

Under the RWSP, King County will control CSO discharges to one event per year at each CSO location by the year 2030. The CSO program will meet state and federal regulations and agreements, and King County will coordinate with state and federal agencies to develop cost-effective regulations that protect water quality.

As its highest priority for controlling CSO discharges, King County will target discharges that have the greatest potential to impact human health, bathing beaches, and species listed under the Endangered Species Act. CSO Projects along Puget Sound beaches and the East End of the Lake Washington Ship Canal will be constructed first, followed by projects along the Duwamish River and the West End of the Ship Canal. See Table 5 for a schedule of the CSO projects.

Stormwater responsibilities

King County's wastewater conveyance and treatment facilities will not be designed for collecting or treating stormwater; however, where King County is responsible for managing stormwater as a result of a CSO control project, the county will coordinate with the city of Seattle to ensure compliance with their municipal stormwater National Pollutant Discharge Elimination System (NPDES) permit and avoid duplication or conflicting programs. In addition, King County will require authorization from industrial sources that

discharge stormwater into the county system and will establish a fee to capture the cost of transporting and treating this stormwater.

5-year CSO updates

Every five years, the Wastewater Treatment Division must submit a CSO program update to the Department of Ecology that coincides with the wastewater NPDES permit renewal for the West Treatment Plant. This update describes the Division's progress on its CSO program to date, identifies its program for the next five years, and provides a vehicle for requesting changes in the overall CSO program. For example, the county's Year 2000 or 2005 Update may propose refinements to the CSO program's project priorities, timing, and associated mitigation options in response to the Endangered Species Act.

The county recently completed a CSO Water Quality Assessment (WQA) and sediment analysis in the Duwamish River and Elliott Bay in preparation for the year 2000 CSO Update. This study provided useful information for optimizing the CSO program. As a result of the CSO WQA findings, King County has developed a draft long-range sediment management strategy to prioritize clean up of contaminated sediments at specific CSO locations. This study will provide information for the Year 2000 and 2005 CSO Updates.

An additional analysis, referred to as the CSO program review, is required prior to completing the Year 2005 Update. This review will consider such elements as:

- maximizing the use of existing CSO control facilities
- identifying the public and environmental health benefits of continuing the CSO control program
- ensuring that projects are in compliance with new regulatory requirements and objectives such as the Endangered Species Act and the Wastewater Habitat Conservation Plan
- analyzing rate impacts
- ensuring that the program review will honor and be consistent with long-standing commitments
- assessing public opinion
- integrating the CSO control program with other water and sediment quality improvement programs for the region

The Wastewater Treatment Division will submit the CSO program review to the executive, who will review the benefits of CSO control program along with other pollution control projects developed by King County and other agencies. This information, along with an executive recommendation, will be presented to the Regional Water Quality Committee before the Year 2005 CSO Update is issued. Based on its review, the RWQC may make recommendations to the county council to modify or amend the CSO program.

The county will not begin any new CSO projects prior to the CSO program review unless approved by the council. Approval of CSO projects before 2005 may be granted based on factors such as the availability of grant funding, opportunities for increased cost-effectiveness through joint projects with other agencies, complying with new regulatory requirements, or responding to emergency public health situations. However, King

County will continue to implement CSO control projects currently underway, including Denny Way, Henderson/Martin Luther King Way/Norfolk, Harbor, and the Alki CSO Treatment Plant.

Performance measures for combined sewer overflows

The performance measures and the expected time of completion are shown in Table 4.

Table 4
CSO performance measures

PERFORMANCE MEASURE	COMPLETED BY
Draft Sediment Management Plan	1999
Year 2000 CSO Update*	2000
CSO Program Review	2004
Year 2005 CSO Update*	2005
Projects along Puget Sound beaches	
Norfolk 0.8 MG storage tank	2009
South Magnolia 1.3 MG storage tank	2010
SW Alaska 0.7 MG storage tank	2010
Murray 0.8 MG storage tank	2010
Barton Pump Station Expansion & Upgrade	2011
North Beach storage tank & Pump Station upgrade	2011
Projects along Lake Washington Ship Canal, east side	
University/Montlake 7.5 MG storage tank	2015
Projects along Duwamish River and Elliott Bay	
Hanford #2 3.3 MG storage/treatment tank	2017
Lander 1.5 MG storage/treatment tank	2019
Michigan 2.2 MG storage/treatment tank	2022
Brandon 0.8 MG storage/treatment tank	2022
Chelan 4.0 MG storage tank	2024
Connecticut 2.1 MG storage/treatment tank	2026
King Street conveyance to Connecticut	2026
Hanford at Rainier 0.6 MG storage tank	2026
8th Ave. S 1.0 MG storage tank	2027
W Michigan conveyance expansion	2027
Terminal 115 0.5 MG storage tank	2027
Lake Washington Ship Canal, west side	
Ballard 1.0 MG storage tank	2029
3rd Ave W 5.0 MG storage tank	2029
11th Ave NW 2.0 MG storage tank	2030

* A 5-year CSO Update is due every five years beginning in the year 2000

Recycling biosolids

King County will process biosolids according to federal, state, and local regulations and will strive to achieve beneficial use of wastewater solids. The county will continue to produce high-quality and economical Class B biosolids using anaerobic digestion at the South and West Treatment Plants and plan to implement the same process at the North Treatment Plant. The county will use the methane produced from digestion for energy and other beneficial uses where appropriate.

Evaluating new technologies

King County will also continue to evaluate technologies for generating Class A biosolids to enhance product marketability, as well as alternative technologies for wastewater solids processing, energy recovery, and beneficial uses brought forward by public or private interests. The alternative technology evaluations will continue to address the objectives of the 1991 West Point Settlement Agreement.

An additional objective of this testing is to ensure that the county's solids handling technologies best meet the criteria of product quality (Class A or B), marketability, noise, odor, rate impacts, reliability of the treatment process, amount of land needed for the treatment facility, and the number of truck trips needed to transport the biosolids. Based on the results of this testing and public comment, the county will implement one of three biosolids handling scenarios at the treatment plants:

- Continue using anaerobic digestion
- Supplement anaerobic digestion with another technology
- Replace anaerobic digestion with another treatment technology

King County will maximize biosolids program reliability and minimize risk by maintaining reserve capacity to manage approximately 150 percent of projected volume, considering diverse technologies, end products, and beneficial uses, and pursuing interlocal agreements. King County will work cooperatively with statewide organizations on biosolids. When biosolids products are distributed to locations outside the service area, the county will require local sponsors using the biosolids to secure any permits required by the local government. King County will continue using a public-private partnership approach to recycling biosolids. One example of this is the 1995 Biosolids Forestry Agreement with the Mountains to Sound Greenway, the Washington State Department of Natural Resources, Weyerhaeuser, and the University of Washington. This 50-year agreement provides for use of biosolids on working forests in King County to enhance wildlife habitat and generate long-term income from selective timber harvests.

Performance measures for biosolids

The performance measures and the expected time of completion are shown in Table 5.

Table 5
Biosolids performance measures

PERFORMANCE MEASURE	COMPLETED BY
Continue producing Class B biosolids at all treatment plants	ongoing
Evaluate new technologies for biosolids processing	ongoing
Determine feasibility to replace or reduce digestors at the West Treatment Plant	2004
Evaluate solids processing technology and design for the North Treatment plant and select technology	2004

Exploring and increasing water reuse

The RWSP encourages the safe and environmentally responsible use of reclaimed water. The county considers reclaimed water to be a possible significant new source of water that may allow the region to defer developing additional water supplies from already strained surface and ground water sources. Reclaimed water could potentially:

- enhance or maintain fish runs consistent with the region's Endangered Species Act response
- supply additional water for the region's non-potable and indirect potable uses
- preserve environmental and aesthetic values

Continue producing reclaimed water

King County will accelerate its development of reclaimed water for irrigation, industrial processes, and potentially for indirect potable uses at its existing treatment facilities. The county will also explore water reuse opportunities at all new treatment facilities.

The county will ensure that reclaimed water is used responsibly based on environmental and technological studies such as water quality modeling for Lakes Washington and Sammamish and fisheries studies under the ESA. In addition, public outreach and stakeholder involvement projects will gauge attitudes toward the expanded use of reclaimed water.

Coordinate with water suppliers, regulators, and interested parties

King County will coordinate with regional water suppliers to plan and implement water reuse projects. Reclaimed water should be developed consistent with regional water supply plans. Within 12 months of adopting the RWSP, the county executive will prepare a work plan for council review. This plan will outline the tasks and schedule for developing a water reuse program, list potential pilot projects and their associated costs, and identify a process for coordinating with affected tribal and local governments, the state, and area residents. The county will also coordinate with other interested parties on required technical and environmental studies, public involvement, baseline monitoring,

technology assessments, and to resolve legal and institutional issues related to reclaimed water. These parties include:

- Washington State Departments of Health and Ecology
- Army Corps of Engineers
- Washington State Department of Fish and Wildlife
- National Marine Fisheries Service
- United States Fish and Wildlife Service
- tribal governments
- local water and wastewater districts
- cities
- local health departments
- watershed forums and Water Resource Inventory Area committees
- environmental and community groups

Evaluate and explore future opportunities

King County will aggressively develop a reclaimed water program. The county will develop criteria to evaluate non-potable reuse projects, such as increasing industrial uses and irrigation. Criteria should include economic feasibility, environmental benefits, potential for maintaining and enhancing fish habitat, community and social benefits and impacts, public education opportunities, risk, liability, and economic development. The county will also continue to fund pilot-scale and water reuse demonstration projects, in whole or in part, from the wastewater utility rate base.

The county will also conduct studies to determine whether it is economically and environmentally feasible to discharge reclaimed water to systems such as the Lake Washington and Lake Sammamish watersheds, including the Ballard Locks.

Satellite Treatment Plants

In the longer term, King County may explore the possibility of constructing one or more satellite treatment plants in order to produce reclaimed water. The county may build these plants in cooperation with a local community and provide the community with reclaimed water through a regional water supply agency. In order to ensure integrated water resource planning, in the interim period prior to the development of a regional water supply plan, King County will consult and coordinate with regional water suppliers to ensure that water reuse decisions are consistent with regional water supply plans. To ensure costs and benefits are shared equally throughout the region, all reclaimed water used in the community will be distributed through a regional water supply agency consistent with a regional water supply plan.

Performance measures for water reuse

The performance measures and the expected time of completion are shown in Table 6.

Table 6
Water reuse performance measures

PERFORMANCE MEASURE	COMPLETED BY
Continue producing reclaimed water at all treatment plants	ongoing
Fund pilot-scale and demonstration projects including satellite treatment plants	ongoing
Coordinate with water suppliers to implement water reuse projects	ongoing
Develop a water reuse public education and involvement program	ongoing
Submit a water reuse program work plan to council	2000
Evaluate water reuse opportunities and markets during siting and design of the North Treatment Plant	2001-2004
Assess the economic and environmental feasibility of discharging reclaimed water to freshwater systems such as the Lake Washington and Lake Sammamish watersheds.	Phase 1, 2002

Wastewater services

King County provides wholesale wastewater treatment and disposal service by contract agreement to 32 component agencies. The county's wastewater service area boundary generally coincides with the boundaries of these component agencies, including certain areas in Snohomish County and Pierce County. King County will provide wastewater services within the King County Urban Growth Boundary (UGB) and rural areas outside the UGB only where necessary to protect public health and safety.

The county will not accept additional wastewater directly from private facilities within the boundaries of a component agency without the prior written consent of that component agency. The county will accept sewage, septage and biosolids from outside its service area provided that (1) it is consistent with the King County Comprehensive Plan or the comprehensive plan of the source jurisdiction, (2) capacity in the regional system is available, and (3) no operating difficulties are created. Rates will be established to recover costs from accepting sewage, septage, and biosolids from outside the service area.

King County will operate and maintain its facilities to protect public health and the environment, comply with regulations, and improve services in a fiscally responsible manner. The county will plan, design, and construct wastewater facilities in accordance with standards established by regulatory agencies and manuals of practice for engineering. To protect the region's multibillion-dollar investment in wastewater facilities, ongoing

maintenance and repair will be a high priority of King County. The wastewater maintenance budget, staffing levels and priorities will be developed to reflect the long-term useful life of wastewater facilities.

As part of wastewater services, King County will also:

- construct, operate, and maintain facilities to prevent raw sewage overflows and to reduce overflows from the combined system
- initiate a rapid response in the event of a raw sewage overflow coordinating with public health agencies, the media, the public, and the affected jurisdiction
- establish and update annually a wastewater facilities assets management plan to replace worn, inefficient, and depreciated capital assets
- design, construct, operate and maintain its facilities to meet or exceed regulatory requirements for air, water and solids emissions as well as to ensure worker, public and system safety
- continue its long-standing commitment to research and development funding for water quality and new technologies

Performance measures for wastewater services

The performance measures and the expected time of completion are shown in Table 7.

Table 7
Wastewater services performance measures

PERFORMANCE MEASURE	COMPLETED BY
Develop facility plans/ engineering specifications	by project
Review all component agency comprehensive plans	ongoing
Update Facilities Asset Management Plan	annually

Water quality protection

King County is committed to protecting water quality. The Regional Wastewater Services Plan is designed to resolve regional water quality issues, protect public and environmental health, and protect the public's investment in wastewater facilities and water resource management.

As part of implementing the RWSP, King County will participate in identifying and resolving water quality issues pertaining to public health and ecosystem protection in the region to ensure that the public's investment in wastewater facilities and water resource management programs is protected.

King County will also protect water quality by:

- evaluating the impacts and benefits of actions that affect regional water quality and identify measures to meet and maintain water quality standards
- forecasting aquatic resource conditions that may affect wastewater decisions and identify cost-effective alternatives to mitigate water quality problems and enhance water quality
- participating with regional partners to identify methods, plans, and programs to enhance regional water quality and water resources

- monitoring, evaluating, and reporting as required by local, state, and federal permits
- participating in developing water quality laws, standards, and programs to maintain and enhance environmental and public health
- assessing the risk to human health and the environment from wastewater treatment and conveyance activities and use this information in evaluating water pollution abatement options
- Implementing a comprehensive water quality monitoring program of streams and water bodies that are or could be impacted by influent, effluent, sanitary system overflows, or CSOs.

Reporting

The county executive will submit an annual report to council that details the sampling and monitoring efforts of the previous year, the impacts of CSOs and the benefits of abating CSOs, biosolids quality, and any research activities undertaken that year.

Performance measures for water quality protection

The performance measures and the expected time of completion are shown in Table 8.

Table 8
Water quality protection performance measures

PERFORMANCE MEASURE	COMPLETED BY
Annual water quality monitoring report	annually
Report on North Outfall Study	2003
Report on Habitat Conservation Plan and fish studies	2003
Report on Green/Duwamish Study	2003
Report on Sammamish/ Lake Washington Area Management Plan (SWAMP)	2004
Monitor, evaluate, and report as required by local, state, and federal permits	ongoing
Share water quality information from water resource sampling, monitoring, analysis, and research activities	ongoing
Participate in developing water quality laws, standards, and programs to maintain and enhance environmental and public health	ongoing
Assess human health and environmental risk from wastewater treatment and conveyance activities; use information to evaluate pollution abatement options	by project
Implement comprehensive water quality monitoring program of streams and water bodies that are or could be impacted by influent, effluent, sanitary system overflows, or CSOs.	ongoing

Wastewater planning

King County will plan comprehensively to provide for the design and construction of facilities that meet the wastewater system needs of the service area. King County will coordinate with local jurisdictions to minimize the disruption to neighborhoods from construction and related activities.

In planning future wastewater systems, King County will make a long-term assessment of wastewater system needs, collaborate with other jurisdictions, look for opportunities to achieve cost savings, and accommodate build-out population in facility sizing.

King County recognizes that the RWSP is a complex and dynamic plan that will need to be updated regularly. Accordingly, the county will conduct periodic reviews to ensure that the RWSP is consistent with other county-adopted policy, with planning assumptions, and with scientific, economic, and technical information.

Semi-annual reviews. The county executive will submit an annual written report and will report semiannually to the RWQC and the council on siting, permitting, design and construction of any new treatment facilities and associated conveyances, project cost estimates, schedules and issues of concern. The written report will be submitted no later than December 1 of each year until the facilities to implement the RWSP are operational. The initial report will identify key decision points during implementation.

Annual plan review. The county executive will provide an annual plan review report to the Regional Water Quality Committee and the council. The purpose of the review is to ensure that the RWSP reflects current conditions. An annual review of the plan should address water pollution abatement, water quality monitoring results, water conservation and water reclamation, ESA compliance, septic system conversions to the regional sewer system, biosolids management, wastewater public health problems, compliance with other agency regulations and agreements. The annual plan review will be due on March 1 of every year.

Three-year review. Beginning in 2003, and every three years thereafter the county will conduct a comprehensive review of the RWSP to evaluate the planning assumptions, the phasing and size of facilities, and the effectiveness of policy implementation for water reuse, biosolids, CSO abatement, water quality protection, environmental mitigation, public involvement, and I/I reduction. The executive will transmit a report to the RWQC and the council summarizing the review findings including recommended policy changes if warranted. The three year comprehensive review shall be combined with the annual review in a single report. This combined report will be due on March 1 beginning in 2003.

Performance measures for wastewater planning

The performance measures and the expected time of completion are shown in Table 9.

Table 9
Wastewater planning performance measures

PERFORMANCE MEASURE	COMPLETED BY
Report on implementation to the RWQC/Council	semi-annually written report annually by Dec. 1
Plan review report to the RWQC/council	annually by March 1
Comprehensive plan and program report to the RWQC/council	By March 1 every 3 years beginning in 2003

Environmental mitigation

As part of the Regional Wastewater Services Plan, King County will construct many large capital projects throughout the service area. The county will work with communities to develop mitigation measures for environmental impacts created by the construction, operation, maintenance, expansion, or replacement of these projects.

Mitigation measures identified through the State Environmental Policy Act (SEPA) process will be incorporated into design plans and construction contracts to ensure full compliance. The siting process and mitigation for new facilities will be consistent with the Growth Management Act, SEPA, ESA, and the lawful requirements and conditions established by the jurisdictions governing the permitting process.

King County will mitigate the long- and short-term impacts for wastewater facilities in the communities in which they are located. The county's goal will be to construct regional wastewater facilities that enhance the quality of life in the region and in the local community and are not detrimental to the quality of life in their vicinity.

King County will enter into agreement with any community that is adversely impacted by the expansion or addition of major regional wastewater conveyance and treatment facilities. Mitigation for impacts will be designed and implemented in coordination with the local community and will be at least ten percent of the costs associated with the new facilities. For the North and South Treatment Plants, a target for mitigation will be at least ten percent of individual project costs or a cumulative total of ten million dollars for each plant, whichever is greater. Mitigation funded through wastewater revenues must be consistent with RCW chapter 35.58, King County Charter Section 230.10.10, agreements for sewage disposal entered into between King County and component agencies, and other applicable county ordinance and state law restrictions.

Performance measures for environmental mitigation

The performance measure and the expected time of completion are shown in Table 10.

Table 10
Environmental mitigation performance measures

PERFORMANCE MEASURE	COMPLETED BY
Complete SEPA process and develop mitigation measures	ongoing by project

Public involvement

The public involvement program, which has been ongoing and will continue in the future, is intended to maintain public information and education programs and to engage the public and component agencies in planning, designing and operating decisions that affect them. As part of public involvement, King County will develop public information and education programs to support county wastewater programs and will lay the groundwork for public understanding of and involvement in specific programs. The public involvement program will:

- involve public officials and citizens of affected jurisdictions early and actively in the planning and decision-making process for capital projects
- inform affected residents and businesses in advance of capital construction projects
- disseminate information and provide education to the general public, private sector and governmental agencies regarding the status, needs and potential future of the region's water resources
- support regional water suppliers and purveyors in efforts to educate the public about water conservation
- develop and implement a public awareness and education program regarding the costs and environmental impacts of I/I in the local and regional conveyance system.

Performance measures for public involvement

The performance measures and the expected time of completion are shown in Table 11.

Table 11
Public involvement performance measures

PERFORMANCE MEASURE	COMPLETED BY
Create specific task forces/workgroups for programs, e.g., I/I, water reuse, & CSOs	ongoing as needed
Develop community relations plan for construction projects	ongoing by project
Create siting advisory committee(s) for North Treatment Plant	June 2000
Develop and implement wastewater/water conservation education program	2001 – 2006
Develop and implement I/I public awareness program	January 2001

Siting new facilities

This plan calls for expanding existing wastewater facilities and siting many new ones, including a new treatment plant and outfall located in the vicinity of the North Service Area. Although the following process and principles focus on the North Treatment Plant and associated facilities, King County will use a similar approach for building or expanding other facilities.

Process for siting the North Treatment Plant

King County will develop a comprehensive public involvement program to provide the public the opportunity to participate in the siting process. The public will comment on the criteria and the screening process used to select and narrow sites; they will also give input on the selection of a final site. King County will look for and acquire a treatment plant site large enough to accommodate the treatment plant at the ultimate build out capacity. Build out will be determined based upon the size of the treatment plant service area and long term population projections. It will also take into account any agreements that may

be reached to extend service to neighboring utilities. The size of the site could be 60-90 acres depending on the amount of buffer necessary for the surrounding land uses.

As part of the siting process, the King County Executive will establish one or more committees to aid in siting the North Treatment Plant. One task of the committees will be to evaluate the criteria for selecting sites. The executive will transmit a motion to the council establishing the siting criteria. With council approval of this motion, the committees will then help apply the criteria and propose a narrowed list of sites to the executive for consideration. Throughout this process, the executive will report regularly to the RWQC and council about the sites being considered and, later, the final candidate sites. Based on public input and council approval of the criteria, the King County Executive will make the final decision on a site for the North Treatment Plant.

Principles for siting the North Treatment Plant

The details of the siting process, including the public involvement elements, will be further developed after an initial assessment of the proposed site selection area is completed and the possible approaches to the site selection process are evaluated by the King County. The initial assessment will include the study of local issues, economics, environment, social and cultural elements. The process will reflect the issues identified in the assessment. The following principles will guide the siting process:

- King County will site the North Treatment Plant within approximately 3 years
- The siting process will be flexible
- King County will seek partnerships with other jurisdictions adjacent to the county's service area to maximize the use of facilities
- Criteria for a site will comprehensively evaluate environmental, technical, financial, and community needs
- King County will keep costs within guidelines
- All parties with a significant interest in the siting process will be involved in the decision process
- Communities will help develop the criteria by which a site is selected and may help identify what is needed to mitigate impacts and enhance the community when a plant is built
- King County will meet agreements made with local communities
- Citizens in the region and in local communities will have access to relevant information
- King County will support local community efforts to effectively participate in the process to site new facilities
- King County will listen and respond to input from citizens and communities

Performance measures for siting the North Treatment Plant

The performance measures and the expected time of completion are shown in Table 12.

Table 12
North Treatment Plant siting performance measures

PERFORMANCE MEASURE	COMPLETED BY
Develop a comprehensive public involvement program	2000
Select and set-up Siting Advisory Committee	June 2000
Executive to transmit a motion to council that establishes the criteria for selecting sites and outfalls	2000
Executive to report to council about sites and outfalls being considered and final candidate sites	ongoing
Narrow site selection for North Treatment Plant and outfalls to 3 – 5 sites, possibly acquire multiple sites	Dec. 2001
Complete project level EIS for North Treatment Plant and outfall	June 2003
Recommend preferred package (site, conveyance and outfall) for North Treatment Plant to county Executive	June 2003
Executive makes final decision on site and outfall	2003
Site the North Treatment Plant and outfall and acquire property for the sites	2003

Habitat Conservation Plan

In March 1999, prior to council adoption of the RWSP, the National Marine Fisheries Service listed Puget Sound Chinook salmon as threatened under the Endangered Species Act. U.S. Fish & Wildlife Service added bull trout to the list in November 1999. In addition, several species of groundfish were proposed for listing during that same time frame, with a final listing decision due in the spring of 2000.

These listings will affect how the Wastewater Division conducts its business, including operation of existing facilities and implementation of the RWSP. To gain greater certainty regarding necessary actions under the ESA, the Wastewater Division is preparing a Habitat Conservation Plan under Section 10(b) of the ESA. This plan will address the probable effects of the wastewater program on protected species, and set out special measures and/or modifications that will counter adverse effects and, ideally, contribute to species recovery by improving conditions in a particular project area or habitat quality in general.

The HCP will be prepared in phases. The first phase will address current operations (treatment/discharge, CSOs, maintenance and repair) and the siting and construction of the North Treatment Facility under the RWSP, including the necessary new conveyance lines and outfall. Phase I of the HCP is targeted for completion in mid to late 2001. The second phase will address other elements of the RWSP, including CSO control projects, use of reclaimed water, and conveyance construction. Phase II is currently scheduled for completion in 2003.

The completed HCP will be memorialized by an Implementation Agreement, executed by the Federal Services, King County, and other appropriate agencies. The agreement will set out any changes to the wastewater program, including ESA mitigation projects and/or amended policies to be included in the RWSP.

Performance measures for siting the Habitat Conservation Plan

The performance measures and the expected time of completion are shown in Table 13.

Table 13
Habitat Conservation Plan performance measures

PERFORMANCE MEASURE	COMPLETED BY
Prepare phase I of the Habitat Conservation Plan	2001
Prepare phase II of the Habitat Conservation Plan	2003

Financing the RWSP

King County currently spends about $175 million each year operating and maintaining the existing wastewater system, repaying money borrowed to construct capital projects, and implementing wastewater management programs. The Regional Wastewater Services Plan includes new capital facilities and associated operation and maintenance activities that will add to these ongoing costs.[4] Table 14 estimates these new costs through the year 2030 both in terms of net present value (1998 dollars) and cumulative capital. The cost estimates include assumptions on population growth, sewered area, and other factors that would affect the size and timing of new facilities. No allowance has been made for extraordinary costs associated with uncertainties such as the implementation of the Endangered Species Act. They either increase or decrease if actual circumstances differ from these assumptions.

Table 14
Estimated Costs for the Regional Wastewater Services Plan

Wastewater Element	Net Present Value*	Cumulative Capital
Treatment	$277,000,000	$400,000,000
Conveyance	$582,000,000	$729,000,000
CSO	$230,000,000	$360,000,000
Biosolids	$85,000,000	$72,000,000
Water Reuse	$20,000,000	$24,000,000
Total	$1,194,000,000	$1,585,000,000

* 1998 dollars

Several large facilities in the plan account for the majority of the treatment and conveyance costs shown in Table 14. These include the new North Treatment Plant, the facilities for pumping and conveying flow from the existing system to the new plant, and the new outfall system from the North Treatment Plant to Puget Sound.

Cost and rate projections for the RWSP are considered planning level estimates, which are commonly used at this stage in the process. These estimates will be used by the King County to begin the implementation of the RWSP but more refined budget numbers will be created as each project gets implemented. Planning level estimates are based on local experience and drawn from cost estimating methods established by standard engineering practices. All estimates include contingency and allied costs. All project costs including contingency and allied costs are then spread annually to estimate annual cost and revenues needed so that rates can also be estimated. A model based on historical experience was created for the RWSP to standardize the cost estimates across the various strategies and options so that cost and rate comparisons could be made.

During implementation all project costs will be refined as more precise information is developed and budgets will be developed that reflect these more refined cost estimates.

[4] Additional operation and maintenance costs for the RWSP are estimated at $150 million through the year 2030

Financial forecasting and budget planning

If the cost of wastewater operations exceeds the proposed budget or if expected revenues are below estimates, the executive will present an alternative spending plan to council in the quarterly budget report. This report will identify steps to reduce cost increases. The executive will also review business practices for savings and efficiencies and report the results in the annual budget submittal.

Reserves, overhead, and assets

King County will maintain prudent cash reserves, including cash flow and potential future liabilities, as approved by the council in the annual sewer rate ordinance.

The county will charge general government overhead to the wastewater system based on a methodology that best matches the estimated cost of the services provided to the actual overhead charge. The overall allocation formula and any subsequent modifications will be reported to the RWQC.

Wastewater system assets will be used for the exclusive benefit of the wastewater system. The system will be fully reimbursed for the value associated with any use or transfer of such assets for other county government purposes. The executive will inform the RWQC of any significant asset transfers for other county government purposes both before and after the transfer.

Funding water quality improvements

Where deemed appropriate by the council, in consultation with RWQC, wastewater revenues may be used to fund activities, programs and projects to improve water quality even if they are not directly related to wastewater treatment. Funds for these improvements will be limited to one and one-half percent of the annual wastewater system operating budget. The improvements will be summarized in an annual report to the RWQC. Use of wastewater revenues for water quality improvements will continue until the King County Regional Needs Assessment is adopted and implemented.

Correcting water quality problems caused by septic system failures will not be funded by King County unless existing wastewater customers benefit from the added rate revenues from connecting these failed septic systems to the wastewater system.

Debt financing and borrowing

Projects such as a new treatment plant, major conveyance and pump station upgrades, and CSO control projects range in cost from a few million dollars to over $100 million. This plan will spread these costs over time to keep rates steady for rate payers. King County will accomplish this in the same way that projects have been financed in the past—by issuing bonds.

Bonds will be issued each year to provide the primary source of funding for this plan (including an estimated $30 million in capital replacement costs) provided that:

- all available sources of grants are utilized to offset targeted program costs
- excess funds from operations or reserves may be used for capital
- consideration is given to competing demands for use of the county's overall general obligation debt capacity
- consideration is given to the overall level of debt financing that can be sustained over the long term

A small share of annual capital costs will be paid for using annual revenues from rates and capacity charges. Revenue from the monthly rates and capacity charges is used to pay the annual debt service. This plan assumes that the revenue bonds will have 35-year terms with constant annual payments.

King County's Wastewater Treatment Division has issued some general obligation bonds that are secured by the property tax base in King County. This enabled the wastewater system to pay lower interest rates than with the wastewater system's revenue backed bonds, thus keeping rates lower. The county will also consider short-term borrowing to fund a portion of the capital program, provided that:

- outstanding short-term debt comprises no more than fifteen percent of total outstanding revenue bonds and general obligation bonds
- appropriate liquidity is available to protect the day-to-day operations of the system

The county will continue looking for other methods to keep rates low and improve efficiencies.

Collecting revenue

King County has two primary means of funding the costs of constructing, maintaining, and operating the county's regional wastewater system: monthly rates and capacity charges.

Monthly rates

Monthly rates are uniformly assessed on all residential customers; commercial and industrial customers pay on the basis of residential customer equivalents (RCE) where 750 cubic feet of wastewater per month equals one RCE. Monthly rates make up approximately 90 percent of current operating revenue sources.

King County's wastewater rates will cover the costs of constructing and operating its wastewater system, maintain capital assets in good condition, maintain and rehabilitate facilities so they are reliable and cost effective, and maintain water quality standards. The county executive will consult with the RWQC and provide a report to council in support of the proposed monthly sewer rates for the next year.

The county will also attempt to adopt a multiyear rate to provide stable costs to customers. Once adopted, the county will create a rate stabilization reserve account to ensure that funds are available to sustain the rate through the rate cycle. The Wastewater Division will submit an annual report on the use of this fund to the RWQC.

Monthly capacity charges

A secondary source of revenue is the monthly capacity charge collected from customers with new connections to the wastewater system. The capacity charge makes up only about 4 percent of current operating revenue sources—a percentage that will decline in the future because of existing legislative constraints that limit the capacity charge to $10.50 through the year 2001 and half of the monthly rate after the year 2001. A further constraint is that the capacity charge is calculated on costs related only to wastewater facilities described in the pre-1989 Comprehensive Plan.

Table 15 presents the estimated monthly rates and capacity charges, both with and without inflation, for the Regional Wastewater Services Plan.

Table 15
Regional Wastewater Services Plan
average monthly rates and capacity charges

	average rate [a] 1997 - 2030	average capacity charge [b] 1997 – 2030
without inflation	$19.62	$6.26
with inflation	$33.40	$9.75

[a] assumes 3 percent annual rate of inflation
[b] reflects constraints of existing legislation

Addressing capacity charge constraints

King County will pursue changes in state law to attain greater flexibility in setting capacity charges. In 2000 King County will seek to achieve the authority to set such charges locally, in the same manner granted to cities and towns. Within six months of achieving the authority to set such charges locally, the executive will propose for consideration by the county, after consultation with the RWQC, explicit policies for setting the capacity charge including recommendations to achieve growth paying for growth. Upon implementation of these explicit policies, the Seattle combined sewer overflow benefit charge with be discontinued.

Needed resources and workload

This section identifies the resources and expected workload needed to implement the Regional Wastewater Services Plan.

Needed resources

The financial resources needed to implement the RWSP were determined as part of a long-range forecasting process. See the section titled "General Cost Estimates" for specifics on how financial resource needs were estimated.

Labor needed to implement the RWSP will come in the form of King County staff, private consultants, and private contractors. County staff will share responsibilities with consultants toward planning, predesign, and design of the RWSP facilities. The actual construction of the facilities will be done by private contractors. Procurement and project delivery systems will comply with federal, state, local, and King County requirements. Specific resources will be developed at each stage of the project and incorporated into the 6-year Capital Improvement Program and annual budget process.

Operation and maintenance costs for labor, power, chemicals, and other elements have also been estimated. Large increases in operation and maintenance due to new facilities are not expected for several years, but they will be incorporated in the 6-year budget forecasts and annual budget process. This will allow stakeholders and decision makers to see up front when those costs are anticipated.

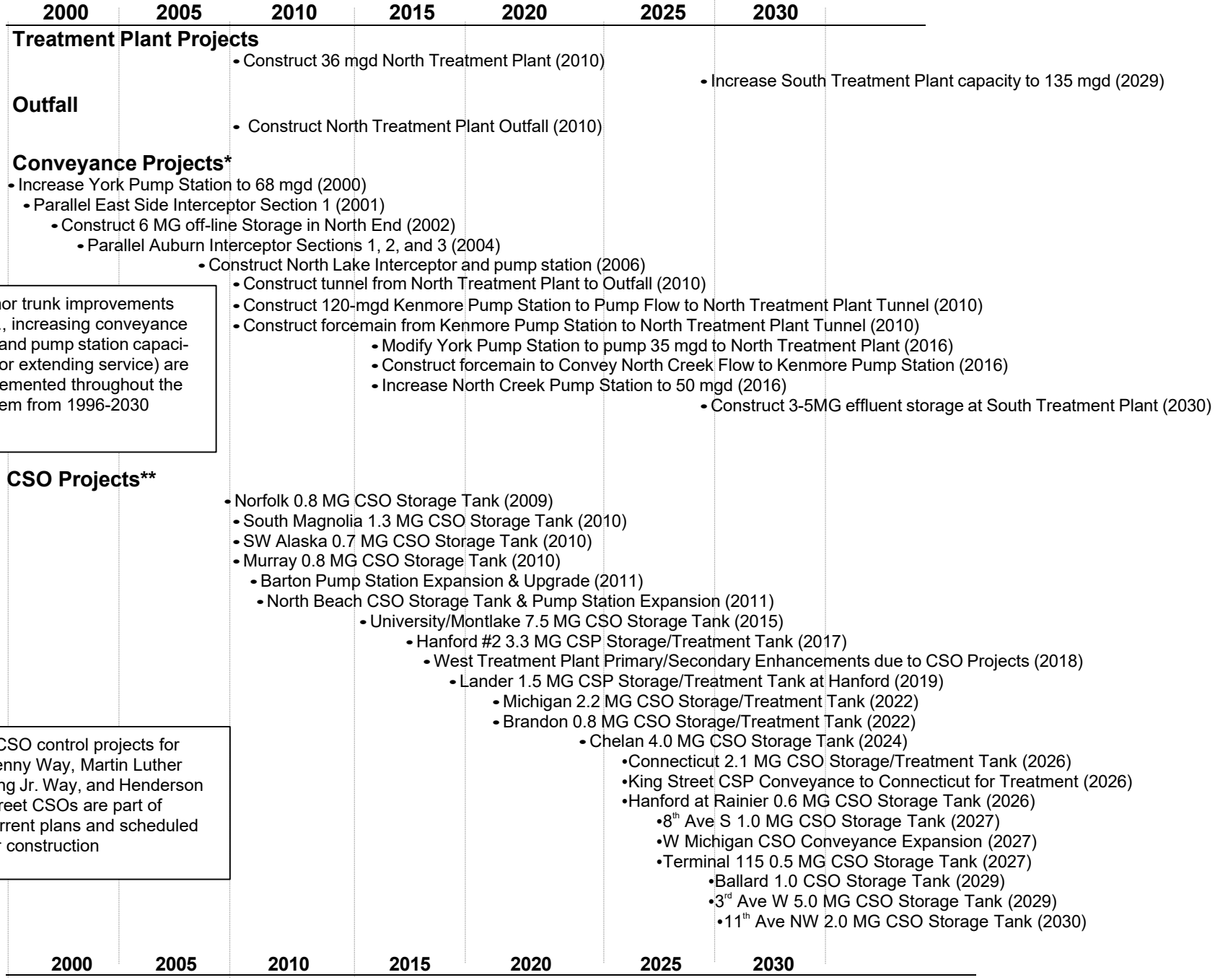
The Wastewater Treatment Division will assess various project delivery approaches to ascertain alternatives that will produce efficiencies and lower overall costs. Although grant revenues were not included in the RWSP costing, Wastewater Treatment Division staff will attempt to secure federal and state grant funding whenever possible.

Projected workload

King County expects to begin implementing the RWSP in 1999 and will continue implementation through the year 2030. Building the capital projects listed in Table 16 will involve a mix of activities, including planning, public involvement, evaluating possible environmental impacts, siting, acquiring property, undertaking additional studies, and permitting.

In the first few years of implementation, King County plans to conduct a public process to find possible sites for the new North Treatment Plant, select and purchase a site, and conduct studies to determine where to locate the outfall pipe for discharge into Puget Sound. These activities are necessary preliminaries to designing, permitting, and constructing the plant by 2010. A SEPA environmental review process will be conducted at appropriate phases. The first few years will also include construction of minor conveyance improvements not specifically listed in this plan.

Table 16
Phasing of capital facilities by date of completion



Appendix A – developing the RWSP

This section summarizes the history of the Regional Wastewater Services Plan planning process, which began in 1991 under the Wastewater 2020 Plus project—a joint King County/consultant effort to develop a long-range wastewater plan to amend the existing Sewer Comprehensive Plan originally developed in 1959. Over the same period, King County developed/revised its long-term plans for reducing combined sewer overflows and managing biosolids and water reuse. All of these separate efforts were combined to form the RWSP.

The RWSP planning process identified a wide range of feasible wastewater strategies, four of which were eventually selected and presented to the public for review and comment in the 1997 *Regional Wastewater Services Plan Draft Plan*. Following a public involvement process, the King County Executive made his recommendation for a long-term wastewater plan in the 1998 *Regional Wastewater Services Plan Executive's Preferred Plan*. Subsequent review of the *Executive's Preferred Plan* by the King County council's Regional Water Quality Committee and King County Council yielded an amended plan that is now being implemented. The following discussion summarizes how the alternatives were developed, how they were prioritized and ranked, and later, how options were developed that could modify the various aspects of each service strategy. Each of the major milestones in the RWSP planning history is explained in more detail below. See Appendix A for a list of the major RWSP planning documents.

Developing a range of wastewater alternatives

Two important elements contributed to the development of a wide range of possible alternatives: guidance from citizens and stakeholders and concurrence with planning objectives.

Guidance from citizens and stakeholders

An extensive interview process was conducted at the outset of the planning process with citizens, wastewater customers, community and environmental advocates and local elected officials. Over 120 people were interviewed, and all expressed strong interest in wastewater and water quality issues. In summary, the participants of this interview process felt the Regional Wastewater Services Plan should:

- recognize that clean water and public health are the main priorities, even more so than concerns about costs and sewer rates
- recognize cost as an important consideration
- accommodate and help manage future growth
- encourage partnerships with cities and sewer districts
- explore nontraditional wastewater treatment methods

- locate facilities to provide capacity where it's needed to avoid sending wastewater over long distances, and to minimize the need to parallel existing pipelines
- consider decentralized conveyance and treatment facilities as part of long-range planning
- site and construct new facilities with sensitivity to the environment
- address infiltration and inflow
- consider water conservation, recycling of biosolids and reuse of wastewater in planning

Additional guidance came from King County Wastewater Treatment stakeholders. Stakeholders included: (1) elected officials and staff from King County, Seattle, Bellevue, Renton, Shoreline, and a number of the other suburban cities; (2) staff from the Washington State Department of Ecology; (3) the Metropolitan Water Pollution Abatement Advisory Committee (MWPAAC); (4) representatives of the Puget Sound Action Team; (5) the Citizens' Water Quality Advisory Committee (CWQAC); (6) local tribal governments and organizations; and (7) the Regional Water Quality Committee.

Planning objectives

The direction and input, plus the input obtained early on from the stakeholders and elected officials formed the basis for a group of seven planning objectives used to develop a range of wastewater alternatives:

- **Maximize existing public investment.** This objective calls for efficiencies in both the operation of existing facilities and the planning of new facilities. Over $3 billion has been invested by the region's rate payers in the wastewater treatment and conveyance system, which was designed and constructed for a 50-plus year lifetime. Making the most of the components of the current wastewater system is logical and financially responsible, and should be a factor in all system alternatives considered.
- **Reduce wastewater flow and solids through demand management programs, conservation and coordination of services with other regional utilities.** There are a number of ongoing and proposed programs that are designed to reduce the volume of wastewater, e.g., I/I control, and solids entering the sewerage system. Some of the programs are being implemented by other jurisdictions or utilities in cooperation with or with funding assistance from the county, such as water reuse, infiltration and inflow reduction, and consideration of reducing food waste.
- **Locate wastewater facilities designed to serve new growth where growth is occurring.** Population and employment forecasts indicate the majority of population growth is expected to occur outside the City of Seattle, in northeast and southeast King County, and southern Snohomish County. The greatest overall growth is anticipated in southeast King County, where wastewater flow can be readily conveyed to the South Treatment Plant. Increasing treatment capacity by building a new treatment plant in north King or south Snohomish County provides the greatest opportunity to locate a facility where the highest near-term population increases are expected to occur. This could also allow the county to share construction and operating expenses with other interested parties in south Snohomish County.

- **Ensure the wastewater system is designed and constructed to meet regulatory requirements.** The goal of this objective is compliance with existing local, state and federal requirements. The four service strategies meet all applicable regulations, and include a variety of proven technologies with varying associated risks and benefits. All of the technologies identified will be further reviewed and evaluated in the design process prior to construction of any new facilities. In this way, King County can take advantage of new or future technologies as they prove themselves cost-effective and reliable.
- **Design the wastewater system to preserve and enhance water quality and protect public health.** Preserving and enhancing water quality and protecting public health is a top priority of King County. This objective ensures that the service strategies developed are all capable of protecting the environment and public health in the service area. It also assumes that facilities are in place in time to prevent system overloads due to population growth to minimize overflows from the system during storm events.
- **Plan a wastewater system that provides maximum flexibility to respond to changes in growth projections and regulations.** This objective recognizes the need to look ahead to future population and employment trends and changing regulations. This allows future facility sizing and timing to be modified based on actual conditions at the time. It allows for changes in regulatory requirements to be factored into future design efforts, and allows incorporation of water reuse projects if the regulatory environment for both wastewater treatment and water supply, and the economics, make this a desirable outcome for the region.
- **Design a wastewater system that minimizes impacts on rate payers and provides reasonable equity.** Sewer rates reflect the costs associated with financing new facilities, and operating, maintaining and upgrading existing facilities. This objective reflects the intent of King County to provide reasonable rates to its customers through comprehensive long-range planning of conveyance and treatment facilities. Furthermore, this objective reflects the intent of King County to be responsive to ratepayer concerns regarding equity in rates.

These objectives were used throughout the planning process; however, King County recognized that each alternative would meet the objectives to different degrees resulting in potential conflicts between the alternatives.

Ranking the wastewater alternatives

Over 60 preliminary wastewater system alternatives were developed and subsequently evaluated and prioritized by King County staff, stakeholders, and an expert panel.

The initial 60 wastewater alternatives included permutations of existing and new treatment plants in a variety of sizes, locations, and capabilities. Examples of alternatives considered include a large Advanced Wastewater Treatment (AWWT) plant discharging to Lake Washington, a 72-mgd plant in the Interbay area, the construction of two new plants in the North End and Duwamish, and the maximum expansion of the South Treatment Plant. Other alternatives included options to transfer wastewater flow to treatment plants in adjacent communities, including Pierce County. Flow transfers were removed from further consideration either because they were not cost effective or they had potential long-term negative environmental impacts.

The next component of the prioritization process was to begin to narrow the range of potential alternatives to a core group for more extensive public review and feedback. This narrowing, or prioritization process involved many iterations and the use of a ranking process. Using a set of criteria developed during stakeholder workshops, the range of feasible alternatives was narrowed from over 60 to 14:

- **Minimize cost to rate payers***:* This criterion favors service strategies with reasonable construction and maintenance costs, and with relatively low increase on the existing sewer rate
- **Minimize risk and uncertainty**: This criterion gives preference to service strategies that can likely be completed on time and within budget, and can further allow for the most reliable construction and operation technologies
- **Maximize flexibility to respond to change:** Ideal service strategies can accommodate changing conditions such as less growth or more growth than expected, decreases or increases in regulatory requirements, increased demand for reclaimed water, or technological advances
- **Minimize impacts to the natural environment:** This criterion favors strategies that cause the least impact on environmental quality during construction and long-term operation of facilities. Factors considered include the location of treatment facilities and outfalls, construction impacts, treatment technology, land use impacts, traffic, parks and existing utilities
- **Maximize public health and safety:** Preference is given to service strategies that feature optimum locations and technologies for CSO control and wastewater treatment outfalls
- **Maximize equity and fairness:** Service strategies that provide the widest distribution of facilities throughout the service area are favored by this criterion. This criterion is intended to prevent the concentration of public pollution control facilities in minority or low-income neighborhoods and to place facilities closer to the growth that requires them

The next level of prioritization by King County staff and consultants reduced the number of alternatives to nine[5]. Subsequent study, analysis, and ranking by King County staff, the CWQAC and MWPAAC reduced the number of alternatives to four[6]. The final four alternatives, termed wastewater service strategies in the *RWSP Draft Plan,* included two variants of a two-plant system and two variants of a three-plant system.

Developing service strategy options

The four wastewater service strategies were developed to provide an adequate level of service to meet known or anticipated demands and regulatory requirements.

In early 1996, these strategies were presented to elected officials, staff from Seattle and the suburban cities, citizen committees, community leaders, and local elected officials. The response from these groups raised a number of important questions: "Do the four service strategies represent the best approach to meeting this region's water resource management needs? Could the strategies be modified with respect to rates, environmental

[5] A detailed discussion of this ranking process can be found in Chapter 10 of *the Wastewater 2020 Plus World of Alternatives, Task 6 Technical Memorandum,* January 1995.
[6] See Chapter 2 of the *Wastewater 2020 Plus Conveyance and Treatment Alternatives Screening and Refinement, Task 6.1.3, Final Report*, January 1996, for more information on this process.

protection, water reuse, and regulations? What would the implications be?

The result of this feedback was a study by county staff to identify and present more options.[7] These options were not intended to be a complete list of possibilities, but rather to address the concerns and ideas expressed by stakeholders for this Plan. In all, fourteen options were selected for discussion in the 1997 *RWSP Draft Plan*.

The five-year Wastewater 2020 Plus planning process laid a solid foundation for the next step in the RWSP process—developing a document to provide interested people with the information and opportunity to make choices about how the region will meet its wastewater service needs for the next 30-plus years. The next section provides an overview of this document, the 1997 *RWSP Draft Plan*, and its companion documents, the *RWSP Draft Environmental Impact Statement* and *RWSP Draft Financing Plan*. The next section also summarizes the public involvement/comment process conducted by King County following the release of the draft RWSP**.**

The RWSP Draft Plan

King County Department of Natural Resources released the *RWSP Draft Plan* in May 1997. This document provided background about the existing wastewater system and explained the wastewater issues and problems facing this region. Solutions to these problems were presented in the form of the four service strategies based on two approaches. One approach was to maximize the existing system by expanding existing treatment and conveyance facilities. The other was to add a new treatment plant in an area of rapid population growth. The draft RWSP described two alternative strategies under each approach and fourteen options that could modify the level of service provided under each strategy. Options included water reuse and alternative design standards.

Two companion documents to the draft RWSP were also released in May 1997, the *RWSP Environmental Impact Statement* and the *RWSP Draft Financing Plan.*

RWSP Draft Environmental Impact Statement

The Draft Environmental Impact Statement (DEIS) described and compared the potential environmental impacts of the various elements of the plan as required under the State Environmental Policy Act (SEPA). It also identified steps that could be taken to avoid, minimize, or mitigate adverse environmental impacts. The purpose of the DEIS was to help residents and decision makers weigh the environmental consequences of different approaches described in the draft RWSP. Citizen comments on the DEIS would guide further development of the RWSP and the accompanying Final Environmental Impact Statement (FEIS).

RWSP Draft Financing Plan

The Draft Financing Plan focused primarily on economic issues associated with the draft RWSP. The purpose of the financing plan was to provide financing information that

[7] Regional Wastewater Services Plan *Collection of Modules Developed by the Value Added Team,* August 1996

could be combined with the policy perspectives of the draft RWSP to help interested people and decision makers make choices about the best overall service strategy.

Public involvement on the Draft Plan and Draft EIS

To help elected officials decide on a strategy, King County conducted a public involvement process in summer 1997 after the release of the draft RWSP. The King County Department of Natural Resources and Regional Water Quality Committee sponsored five public hearings on the draft plan in 1997 (advertising appeared in display ads in the Seattle PI, Seattle Times, Journal of Commerce and community papers); public testimony was received and included in the review record.

As part of the process, the county provided information about the RWSP and solicited public opinion about wastewater issues. Public opinion was compiled from two primary sources: (1) focus groups and a telephone survey of more than 700 randomly selected residents, and (2) written and oral comments on the draft RWSP, EIS, and financing plan from 75 citizens, tribal governments, agencies, and other interested parties. A summary of public opinion from the hearings, focus groups, and telephone surveys was published in November 1997 in a document titled the *RWSP Public Opinion Summary*.

A 10-page color "Choices" brochure summarizing the draft RWSP was created and distributed to a mailing list of 2,800 people that had grown since the RWSP planning process began. The Choices brochure also contained a return mailer so people could give their comments about the plan and request additional information. In addition, the county published and distributed a brochure summarizing the findings from the public opinion research and hearings. King County also updated the RWSP Web Site, which had been part of the RWSP public involvement effort for years. Visitors to the Site could read the draft RWSP and EIS and email their comments to staff. The larger documents were mailed to stakeholders and individuals that requested them.

Post-release revisions to the RWSP Draft Plan

Two important revisions were made to the materials presented in the draft RWSP following its release in May 1997. One revision was to the population projections used to estimate wastewater flow and size of the wastewater facilities presented in the draft RWSP. The other revision was the addition of a new strategy for consideration. This new strategy, termed Service Strategy 3B, was proposed by the City of Seattle as an alternative to the executive's recommended approach. This strategy was rejected by the executive and reviewed again by the RWQC along with the other service strategies.

Revised population projections

Following the release of the draft RWSP, King County received comments that the forecasting methodology should be reviewed because the rate of growth and projected population from 2020 to 2050 appeared very high. In response, the county evaluated other alternatives and selected a less conservative method to estimate wastewater flow for the *Executive's Preferred Plan*. The method selected was a "linear trend function" and this straight-line approximation had the effect of lowering population projections after 2020.

This revised method yielded a seven percent decrease in estimated sewered population for the wastewater service area in 2030. The effect of this change was to reduce the total projected number of gallons of additional treatment capacity required over the planning period. As a result, some of the major conveyance improvements originally proposed in the draft RWSP were downsized, delayed, or eliminated in the service strategies.

Service Strategy 3B

Strategy 3B is a modified version of Strategy 3 developed at the request of the Regional Water Quality Committee in 1998. This strategy delays the need for a third treatment plant by first expanding the South Treatment Plant to 135 mgd (2013) and paralleling the Kenmore Interceptor (2010). The South Treatment Plant is expanded again in 2021 to 154 mgd, and in 2030, an 18 mgd North Treatment Plant is added along with a forcemain from Kenmore to the North Treatment Plant. In 2040, the North Treatment Plant will be expanded to 36 mgd.

The RWSP Executive's Preferred Plan

After reviewing the public comments about the RWSP service strategies and considering other factors such as cost, flexibility, and regional equity, King County Executive Ron Sims decided that a three-plant system based on Service Strategy 3 featuring a new treatment plant located in north King or south Snohomish County would provide the best means of meeting these needs now and in the future. The next section summarizes the planning process that began with the release of the executive's recommendations and ended after the review and approval of Substitute Ordinance 98-290 by the King County council's Regional Water Quality Committee.

King County released the *RWSP Executive's Preferred Plan* and *RWSP Final Environmental Impact Statement* in April 1998. The main features of the executive's Plan included building a new North Treatment Plant, expanding the South Treatment Plant, and building a new outfall into Puget Sound.

The plan included other important features:

- Making improvements to parts of the conveyance system, including pipes and pump stations, to serve treatment plants and to handle additional flow in the system
- Pursuing an aggressive CSO program, including building CSO storage tanks and treatment plants, to reduce discharges from each CSO outfall to meet the state standard of one overflow event per year on average
- Implementing a program that includes financial incentives that encourage local agencies to reduce inflow and infiltration into the County's wastewater system
- Continuing to recycle biosolids and finding ways to make biosolids recycling even more efficient

- Providing opportunities to use reclaimed water from the plants and continuing to study ways to economically provide reclaimed water by conducting pilot and demonstration projects, investigating stream-flow augmentation and groundwater recharge, and exploring the idea of building satellite plants to provide reclaimed water to local communities
- Continuing to work with the state to allow us more flexibility in applying the capacity charges so that growth pays its appropriate share of improvements to the system

Regional Water Quality Committee Review

On May 11, 1998, the *Regional Wastewater Services Plan Executive's Preferred Plan* was referred to the Regional Water Quality Committee (RWQC) as Proposed Ordinance 98-290. The RWQC anticipated making a recommendation on the *Executive's Preferred Plan* by October 1998, but by August the Committee decided it needed more time to fully review the plan. In September, the council approved a motion to extend the RWQC review time until December 31, 1998. A list of the meetings conducted by the RWQC is shown in Table 17.

Table 17
Regional Water Quality Committee Review Schedule

RWQC Meeting	Topics and Actions
May 14, 1998	Introductory review of *Executive's Preferred Plan* (Proposed Ordinance 98-290)
June 11, 1998	Public Involvement & Capital Plan
July 2, 1998	Conveyance System (Special Meeting)
July 9, 1998	Inflow / Infiltration
July 30, 1998	Water Reuse (Special Meeting)
September 3, 1998	Siting (Special Meeting)
September 10, 1998	Biosolids & CSO
October 8, 1998	Financial recommendations
October 29, 1998	Financial Policy Retreat with executive (Special Meeting)
November 12, 1998	Adopted financial plan
November 30, 1998	Public Hearing, Bothell
December 2, 1998	Public Hearing, Renton
December 3, 1998	Public Hearing, Magnolia
December 10, 1998	Refer recommended strategy to council (Proposed Substitute Ordinance 98-290)
June 21, 1999	RWQC receives council recommendations
July 27, 1999	Reviewed and discussed council strategy (special meeting); amendment proposals were discussed and acted on
September 9, 1999	Continued review and acted on some of the proposed amendments to council strategy

RWQC Meeting	Topics and Actions
September 23, 1999	Approved a motion to extend their review period through October, 1999
October 28, 1999	Approved technical amendments; approved a motion to extend their review period through November, 1999
November 12, 1999	Amended and approved final ordinance

RWQC public hearings

The Regional Water Quality Committee requested three public hearings to provide the public with additional opportunities to express their views on the RWSP. Hearings were held in November and December 1998, resulting in 80-100 citizen participants and approximately 40 speakers providing public testimony. Opportunities for additional public testimony relating to the RWSP was provided during most RWQC meetings. An overall review of the testimony from all hearings shows that there was broad support for the King County Executive's recommendation.

RWQC recommended policy amendments

Through the review process conducted by the RWQC, the Executive's plan was amended, although the construction of a new third plant had the support of a majority of the committee membership. The Executive/RWQC-amended recommendation did not result in the least costly option, but it did result in an alternative that provides geographic equity, environmental quality, compliance with state law and legal settlements, and long term capacity in the view of a majority of the RWQC membership. However, some members of the RWQC wanted the less expensive Strategy 1 or 3B evaluated further for possible implementation. Other members felt that the proposed financing structure was not the most equitable solution for their constituency (the final vote on the financing recommendations was 11-1 in favor).

On December 10, 1998 the RWQC voted 8-3 to move forward with the Executive's plan as amended by the Committee in Proposed Substitute Ordinance 98-290.

Finance Policy Work Group

In June 1998, executive Sims chartered an interagency work group called the RWSP Finance Policy Work Group to evaluate means for assuring that new customers to the sewer system pay their fair share of the cost of new wastewater facilities, i.e., that growth pays for growth. The work group met biweekly through the summer evaluating various options and rate structures before deciding on rate structure that involves a three-step process:

1. Wastewater system costs assigned to existing customers are used to calculate the monthly sewer rate for existing customers (monthly rate set by existing customer allocation).

2. RWSP costs assigned to new customers are determined, and an amount equal to the monthly rate for existing customers is assigned to the new customer monthly rate.

3. The remaining costs assigned to new customers are collected through a capacity charge.

Thus, the costs of growth are recovered from new customers through a combination of a monthly sewer rate and a capacity charge.

Robinswood Retreat

In October 1998, the King County Executive and RWQC held a retreat to discuss financing the implementation of the RWSP. The "Robinswood" retreat resulted in guiding principles for funding the RWSP, and the Committee agreed to final language on the financing plan at its November 1998 meeting. The following principles were agreed upon, and signed into a letter dated November 16, 1998 to Executive Sims:

- The wastewater system is a regional system
- As a region, we are committed to protecting the water quality of our waterways, lakes, and Puget Sound
- The RWQC will provide periodic, substantive review of RWSP implementation
- The regional wastewater financing structure should reflect uniform regional rates for existing and new customers and achieve the principle of "growth pays for growth"

The specific points of agreement resulting from the Robinswood Retreat included:

- Maintain a uniform monthly sewer rate for both existing and new customers such that, in general, existing customers pay for the existing system and new customers pay for growth
- Establish a uniform capacity charge within the service area to cover growth costs not captured by the monthly sewer rate for new customers
- Develop a proposed legislative strategy for changing the capacity charge and build a coalition for supporting it at the Legislature
- Maintain the current rate structure until the capacity charge is changed
- King County pays 100 percent of the cost of I/I assessments and any pilot projects that are done to demonstrate I/I effectiveness
- Discontinue CSO benefit charge when changes in state legislation authorizing the capacity charge are passed (Seattle CSO payment)
- In five years, perform a substantive technical and financial review of the I/I assessments & pilot projects and the CSO control efforts for potential adjustments
- Establish uniform financing, construction, operation, maintenance, and replacement policies for all interceptors in its service area
- Assume responsibility for interceptors under this policy at the time the RWSP is adopted

December action

On December 10, 1998, the RWQC forwarded its adopted amendments to Proposed Substitute Ordinance 98-290 to the King County Council. The council reviewed the ordinance, made amendments, and returned it to the RWQC on June 21, 1999, for its reconsideration—a step required by King County Charter. The RWQC completed its review of the ordinance on November 12, 1999, and returned it to the council.

Council Review

The Executive's Preferred/RWQC amended Plan was transmitted to the King County Council in December 1998. Council review began early in 1999 with council staff presenting the various elements of the amended RWSP.

During review, the council appointed a panel of experts, the RWSP Peer Review Panel, to evaluate the assumptions used to develop the Regional Wastewater Services Plan. The experts responded to eleven questions. The King County RWSP Peer Review Panel convened in the King County Courthouse on April 1999 and evaluated the King County wastewater situation based on their own experience at other locations and using industry standards. The Panel reviewed information, heard presentations by persons responsible for studying and evaluating the various elements of the plan. Overall, the Panel found that the assumptions used to develop the RWSP were reasonable, appropriate, and consistent with industry standards for wastewater collection and treatment and made suggestions on further refinements. The Panel's findings were presented in the April 1999 report entitled *King County Peer Review of the Regional Wastewater Services Plan.*

The council continued its deliberations on the RWSP. On June 21, 1999, the council adopted amendments that included a parallel Kenmore Interceptor, a lower capacity charge for new customers to the regional wastewater system, an accelerated program to reduce inflow and infiltration, and accelerated water reuse program, new and improved odor control standards, implementation of public education for water conservation, and an expanded water quality monitoring program.

Final Review and adoption

The council referred Proposed Substitute Ordinance 98-290 to the RWQC for reconsideration, a step required by the King County Charter. The Regional Water Quality Committee reviewed and deliberated the amended plan during the months of July through November 1999. On November 12, 1999 the RWQC submitted their recommendations to the King County Council. On November 22, 1999 the council re-referred Proposed Substitute Ordinance 98-290 to the RWQC for reconsideration. The RWQC made technical changes and re-submitted their recommendation to the King County Council. The council adopted the RWSP by Ordinance 13680 on November 29, 1999. The Ordinance was signed by the King County Executive and was effective December 13, 1999. This Operational Master Plan reflects the provisions of Ordinance 13680.

Appendix B - major RWSP planning documents

Puget Sound Subarea Forecasts: Model Calibration and Forecasts, 1992

Wastewater 2020 Plus, Inflow/Infiltration - Existing Conditions, Benefit/Cost Analysis, Volumes I, II, III & IV, 1994 -

Wastewater 2020 Plus Existing Conditions, HDR Engineering, August 1994

Wastewater 2020 Plus Sensitivity Analysis, HDR Engineering, August 1994

Wastewater 2020 Plus Sensitivity Analysis, HDR Engineering, August 1994

Brown and Caldwell et al., Metro CSO Five Year Update, Task 5 Report: Metro Regional Wastewater Services Plan System Alternatives, Supporting CSO Project Descriptions, August 1995

Brown and Caldwell/KCM and Associated Firms, Combined Sewer Overflow Control Plan, 1995 Update, February

Biosolids Long Range Strategy and Facilities Plan- RWSP, O'Neill / Brown and Caldwell, September, 1995

Wastewater 2020 Plus Conveyance and Treatment Alternatives Screening and Refinement, HDR Engineering, January 1996

Brown and Caldwell et al., Metro CSO Five Year Update, Task 4 Report: Development of Alternatives, December 1997

King County, Regional Wastewater Services Plan Public Opinion Summary, November 1997

King County, Regional Wastewater Services Plan, Draft Financing Plan, May 1997

King County, Regional Wastewater Services Plan, Draft Plan, May 1997

Brown and Caldwell, Metro CSO Five Year Update, Federal and State CSO Control Policy, History, Rationale, and Prospects for Change, August 7, 1998

Final Report of the RWSP Water Reuse Policy Task Force" King County Department of Natural Resources, February, 1998

King County, CSO Water Quality Assessment for the Duwamish River and Elliott Bay, Volume 1, Summary Report, July 1998

King County, Regional Wastewater Services Plan Executive’s Preferred Plan, April 1998

King County, Regional Wastewater Services Plan Final Environmental Impact Statement, April 1998

Opportunities for Reclaimed Water Production Under Two- and Three-Plant System, Issue Paper; King County Department of Natural Resources, 1998

Montgomery Watson, King County Peer Review of the Regional Wastewater Services Plan. April 1999