Regional Wastewater Services Plan

Annual Report 2001

December 2001

KING COUNTY
Department of Natural Resources
Wastewater Treatment Division

Contents

Introduction 1
Background 1

Treatment Improvements 3
Brightwater Siting Process Overview 3
Coordinating with Snohomish County 4
Public Involvement 4
Brightwater Marine Outfall Siting Study (MOSS) 4
Brightwater Phase I Summary 5
Finding Potential Land Areas 5
Developing and Applying the Site Screening Criteria 5
Council Reviews Candidate Sites and Criteria 7
Brightwater Phase II Summary 7
Applying the Site Selection Criteria 7
Recommended Candidate Systems 8
King County Council Decision 10
Schedule for 2002 10

Conveyance Improvements 11
Conveyance Planning 11
South Green River Planning Area 11
South Lake Sammamish Planning Area 13
North Lake Sammamish Planning Area 13
North Lake Washington Planning Area 14
North Lake Interceptor 14
Seismic Vulnerability Study 14
Projects in Design 15
Bellevue Pump Station 15
Pacific Pump Station 15
Juanita Bay Pump Station 15
Hidden Lake Pump Station and Boeing Creek Trunk 17
Tukwila Freeway Crossing 17
Kenmore Interceptor Flapgate Sensors 17
Projects in Construction 18
North Creek Storage 18
East Side Interceptor 18
Kenmore Pump Station Emergency Generator 18

Infiltration and Inflow 19
Flow Monitoring 19
2001 Accomplishments 20
Developing standards, procedures & policies 20
Public involvement 20
Side sewer rehabilitation 21
Local agency workshops 21
Schedule for 2002 22

Combined Sewer Overflows 23
Seattle CSO Plan Update 23
Lower Duwamish Superfund Listing 23
Sediment Management Program 24
CSO Control Program Annual Report 24
Schedule for 2002 25

Biosolids 27
Evaluating New Technologies 27
Schedule for 2002 28

Water Reuse & Conservation 29
Water Reuse Technology Demonstration Project 29
Sammamish Valley Reclaimed Water Production Facility 30
Water/Wastewater Conservation Program 30
King County Housing Authority 30
King County Department of Community and Human Services 32
Public Outreach and Education 32
Schedule for 2002 32

Financing – Capacity Charge 33

RWSP Project Information 35
Project Number 36
2001 Appropriation and "Percent Spent" 36
Project Scope & Milestones 36
Schedule 36
Project Cost 37
Contract Information 37

Visit the Regional Wastewater Services Plant Web site at
http://dnr.metrokc.gov/wtd/rwsp/rwsp.htm

The information will be provided in alternate formats for individuals with disabilities. Please call 206 684-1280 or Relay Service 711.

Introduction

This report describes progress made in implementing the Regional Wastewater Services Plan (RWSP) for the period January through December 2001. The report is organized according to the seven major elements of the RWSP, including treatment, conveyance, infiltration and inflow, combined sewer overflows, biosolids, water reuse, and financing. The activities under each element are summarized along with a schedule for the upcoming year. In addition, the final section of the report—RWSP Project Information—provides specific budget, schedule, milestones, labor, and contract status for active RWSP capital projects.

Background

In December 1999, the King County Council adopted Ordinance 13680, which comprehensively updated King County's Comprehensive Water Pollution Abatement plan. This update, termed the Regional Wastewater Services Plan, is a 30-year capital improvement program designed to provide wastewater capacity for this region's rapidly growing population and protect its aquatic resources.

Ordinance 13680 requires the King County Executive to report semiannually to the King County Council and King County Regional Water Quality Committee about progress in siting and constructing new wastewater facilities. This report, in conjunction the June Semi-annual report and a briefing to the Council and RWQC, satisfies the requirement. This report also meets the requirements of Ordinance 14018 adopting King County's 2001 budget.

Treatment Improvements

The Regional Wastewater Services Plan identified needed improvements at King County's regional wastewater treatment plants at West Point and Renton. For example, by the year 2018, the West Point Plant will be upgraded to treat the extra flow from combined sewer overflow control projects. And by 2029, the South Treatment Plant will receive a 20 million-gallon per day (mgd) capacity upgrade. In the near term, the RWSP identified the need for constructing a new 36-mgd secondary treatment plant in the north service area by 2010. This section of the report will focus on progress made in siting the new treatment plant and its associated conveyance pipes and outfall—collectively termed the Brightwater Facilities. The section begins with a summary to date of the process to site the Brightwater facilities and is followed by a more detailed review of what occurred during Phase I and Phase II of this three-phase process.[1]

Brightwater Siting Process Overview

Following the adoption of the RWSP late in 1999, the King County Department of Natural Resources (KCDNR) began a process to site the Brightwater Facilities. Last May, KCDNR completed Phase I of this siting process, identifying six candidate treatment plant sites and eight candidate marine outfall zones for further consideration under Phase II. On May 14, 2001, the King County Council adopted the plant sites and outfall zones along with a set of criteria to help further narrow these sites.

Phase II of the siting process began in June and was broadened to evaluate complete "candidate systems" for each site; that is, conceptual systems that included a general plant layout and two options for the conveyance pipes serving the plant. One conveyance option involved burying the pipes just below the surface and the other involved tunneling the pipes deep underground. Each conceptual system also included two options for where the marine outfall would be located. Developing these six candidate systems allowed KCDNR to compare them consistently and fairly, especially related to cost and potential impacts. On September 17, 2001, the King County Executive, in consultation with the Snohomish County Executive, transmitted a recommendation to the King County Council to advance two candidate systems to Phase III for further evaluation under the State Environmental Policy Act (SEPA). The sites are the **Unocal** site in Edmonds and the **Route 9** site north of Woodinville. On December 10, 2001, the Council approved these sites for Phase III environmental review under the State Environmental Policy Act (SEPA) process.

[1] For more information about the Brightwater siting process, please visit the Brightwater Web site at http://dnr.metrokc.gov/wtd/brightwater/index.htm

Coordinating with Snohomish County

Because approximately 60-percent of the wastewater to be treated at Brightwater will come from homes and businesses in Snohomish County, King County Executive Ron Sims has worked closely with Snohomish County Executive Bob Drewel on the Brightwater siting process. The two Executives created a 24-member Siting Advisory Committee to help develop site screening criteria and provide comments on the siting process. Committee members were drawn from all sectors of the community in both counties, including tribal governments, city and state governments, utility districts, businesses, and environmental advocacy organizations. The committee met regularly and included a public comment period as part of each agenda. A technical committee, the Metropolitan Water Pollution Abatement Advisory Committee, and a policy committee, the Regional Water Quality Committee, reviewed and helped shape the process as well.

Public Involvement

Public involvement and community partnerships are critical to the project's success. King County DNR's public involvement plan for Brightwater was created to promote open communication with interested and affected community members and to encourage their participation in the siting process. For example, during Phase II, over 60 meetings were held with regional leaders and over 30 presentations were given to local governments, businesses, and environmental groups. In addition, four public workshops were held and Brightwater information booths were staffed at three fairs and festivals in the site selection area. As part of the public outreach effort, King County has made extensive use of the Internet and newsletter mailings to provide information on the siting process. An average of 1,500 visits per month have been made to the Brightwater internet home pages, and close to 700 pieces of Brightwater-related correspondence have been received by the County.

Brightwater Marine Outfall Siting Study (MOSS)

As part of the Brightwater siting process, KCDNR is working on a project to identify a suitable site for a new marine outfall for the Brightwater Treatment Plant. This effort, termed the Marine Outfall Siting Study (MOSS), is focused on providing basic scientific information on Puget Sound to support the siting of the outfall and its subsequent permitting and design. In Phases I and II, the MOSS team evaluated seabed geology, currents, marine life, and chemical and bacteria conditions in Puget Sound. After developing and applying site screening criteria, the team identified eight suitable outfall zones, three of which were approved by the King County Council for advancement to Phase III. The MOSS team will conduct more detailed investigations at the selected outfall zones in Phase III in support of the environmental review process.

Brightwater Phase I Summary

Beginning in the summer of 2000, King County formed an interdisciplinary team to identify a final location for the Brightwater Treatment Plant using a three-phase siting process. The goal of Phase I was to identify a group of 10 to 15 potential candidate sites for the plant. To accomplish this goal, the team began two parallel efforts. One effort was to identify land areas that might be suitable for a treatment plant, and the other was to develop a set of policy site screening criteria that would be used to evaluate potential treatment plant sites.

Finding Potential Land Areas

The team identified a pool of 95 suitable land areas from a variety of sources, including geographic information system analysis, a commercial/industrial land search, and a community nomination process. These land areas were validated by applying a broad set of engineering and environmental criteria to identify serious constraints that would limit the construction or operation of a wastewater facility; for example, steep slopes, flood zones, presence of parks, or Superfund sites. This initial screening revealed 38 “unconstrained” sites that could be brought forward for further review.

Developing and Applying the Site Screening Criteria

During this initial screening process, the team was developing site screening criteria to further evaluate the unconstrained sites. To guide this process, the team first developed a set of project goals. Then, based on public comments and refinements by technical, policy, and advisory committees, a set of draft screening criteria were developed. In September 2000, the King County Executive forwarded the criteria to Council for review. In February 2001, the Council amended the criteria and required a refined set of “site selection criteria” for use in Phase II of the siting process. The amended site screening criteria were adopted in Ordinance 14043. The Council also requested a second and third review process. The second review would be to approve the Phase II candidate sites and the site selection criteria for the final candidate sites. The third review would be to approve the final candidate sites for evaluation in the SEPA environmental review process in Phase III.

To help evaluate how well a site met the adopted screening criteria, the team developed a set of detailed evaluation questions that assessed measurable site characteristics. Certain questions became “key factors” and were given additional emphasis to help distinguish between the sites. For example, one key factor was the total length of conveyance pipelines needed for a particular site. After answering the detailed evaluation questions for the 38 unconstrained sites, the King and Snohomish County Executives recommended seven candidate sites to the King County Council for continued evaluation in Phase II of the siting process. The sites are shown in Figure 1 and summarized in Table 1.

Figure 1
Phase I Candidate Sites

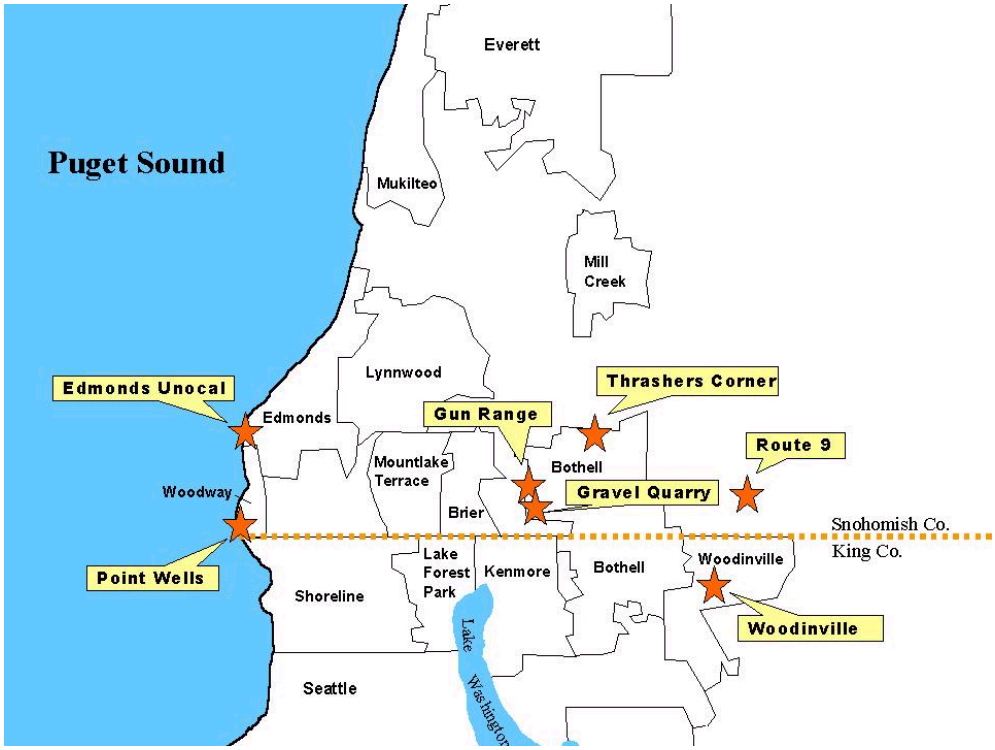

Table 1
Phase I Candidate Sites

Site Name	Site No.*	Total Area (acres)	Estimated Useable Area (acres)	Jurisdiction	Current Land Use
Edmonds Unocal	IND1/71	53	43	City of Edmonds, Snohomish Co.	Unocal operations; Inactive Tank Farm
Point Wells	30/CN5	98	29	Unincorporated Snohomish Co.	Chevron Asphalt Plant
Gun Range	33/CN1	80	80	Unincorporated Snohomish Co.	Kenmore Gun Range
Gravel Quarry	17	69	68	City of Bothell & Unincorporated Snohomish Co.	Gravel Quarry and Undeveloped Land
Thrashers Corner	19/25	144	63	City of Bothell, Snohomish Co.	Low Density Residential & Open Space
Route 9	IND9/64	108	104	Unincorporated Snohomish Co.	Businesses & Light Industrial
Woodinville	15	44	44	City of Woodinville, King County	Undeveloped – Residential Proposed

* Site number designations were developed as part of the lands area inventory. “IND” indicates its current use as an industrial site. “CN” indicates that the site was submitted as part of the community nominations process.

Council Reviews Candidate Sites and Criteria

Soon after announcing the seven candidate sites, King County learned that the State of Washington was preparing covenants for the Woodinville site that would restrict the land use on the site to affordable housing. Because state authority supercedes the county's authority to condemn the land, the King County Council removed the Woodinville site from consideration under the Brightwater process during its meeting on May 14, 2001. Also at that meeting, the Council passed Ordinance 14017 approving six candidate sites for continued evaluation during Phase II of the siting process. The Council also refined the site selection criteria to ensure that sites are evaluated for opportunities to recycle biosolids, methane gas, and reclaimed water. A new criterion was also added which stated "King County shall select north treatment plant sites that do not displace existing facilities that are used for law enforcement and public safety training and, as a practical matter, are difficult to site elsewhere." The new criterion was applied to the six remaining candidate sites in Phase II of the siting process.

Brightwater Phase II Summary

Phase II of the Brightwater siting process began in June 2001 following the King County Council's adoption of six candidate sites, eight marine outfall zones, and refined site selection criteria. As mentioned in the Overview, the Phase II process was broadened to evaluate complete "candidate systems" for each site; that is, conceptual systems that included a general plant layout, two options for the conveyance pipes serving the plant, and two options for the marine outfall location.

Applying the Site Selection Criteria

As in Phase I, the project team developed and applied the site selection criteria using a set of detailed evaluation questions (DEQs). The DEQs were developed to provide comparable answers to questions that evaluated potential project constraints and opportunities in four areas: technical (engineering and land acquisition), environmental, community (neighborhood effects) and financial. For each of the six candidate systems, one or more DEQs were applied to each policy criterion. Information used to answer the DEQs came from site reconnaissance, aerial photographs, local plans, published environmental and geotechnical data, known permitting requirements, title reports, and cost estimates from comparable construction projects.

Based on the professional judgement of the project team, certain DEQs were better at distinguishing substantive differences between sites, so these DEQs carried additional emphasis for determining the most suitable candidate systems. These DEQs, termed key factors, evaluated the relative level of constraints imposed by factors such as usable site area, total conveyance pipe length, legal restrictions on title, Endangered Species Act compliance, wetlands, compatibility with surrounding land use, and traffic disruption. For example, in considering the preliminary plant

layouts for each site, the project team determined whether the usable site area would limit flexibility in designing, constructing, or operating the treatment facility. Sites with greater usable area allowed more flexibility (fewer constraints) and were ranked relatively higher than sites with less usable area.

Recommended Candidate Systems

By applying the Detailed Evaluation Questions, the project team evaluated the six candidate sites and eight marine outfall zones to determine which of them best satisfied the siting criteria. The findings are summarized in Table 2.

Table 2
Phase II Candidate Systems

Site	Meets site selection criteria	Level of suitability	Executive's recommendation
Edmonds Unocal	Yes	Suitable	Advance to Phase III
Route 9	Yes	Suitable	Advance to Phase III
Point Wells	Yes	Suitable	
Gravel Quarry	Yes	Suitable	
Thrashers Corner	Yes	Unsuitable	
Gun Range	No		

Table 2 shows that of the six systems evaluated, only the Gun Range failed to meet all of the mandatory policy site selection criteria. This is because the Gun Range supports public safety and law enforcement training and relocating the Range within a reasonable time or within a reasonable distance to the existing site would not be possible. The Thrashers Corner site was found to be the least suitable site because the extensive on-site wetlands fragment the useable area. The remaining four sites—Point Wells, Edmonds Unocal, Gravel Quarry, and Route 9—were found to be consistent with the site selection criteria and feasible alternatives for future environmental review.

After considering the four candidate systems, King County Executive Ron Sims found that two alternatives rose above the rest: Edmonds Unocal and Route 9. In addition to meeting our future wastewater needs, these two systems offered significant opportunity for intergovernmental partnerships that benefit the surrounding communities. They also met regional goals and needs addressing efficient use of urban land, provision for affordable and multi-modal transportation options, revitalization of land, and the balancing of urban land uses with environmental protection. The Executive recommended that Edmonds Unocal and Route 9 advance for continued evaluation under Phase III.

In terms of conveyance, the Executive recommended that both near-surface and deep-tunnel construction methods be advanced for further review. At present, the deep-tunnel conveyance option appears preferable due to its lower overall impact, lower capital cost, and lower operation and maintenance cost.

For the marine outfall component, the Executive recommended that outfall zones 5, 6, and 7 continue forward for evaluation in Phase III. All eight outfall zones were found to be suitable, but the Executive favored these three because of their proximity to the recommended treatment and conveyance systems. A total of five diffuser sites within these three outfall zones will move forward in the evaluation process as well, though a diffuser site will not be selected until after the environmental review is completed. The proposed final candidate systems recommended by the King County Executive are shown in Figure 2. Table 3 lists the proposed conveyance and outfall options for these systems.

Figure 2
Recommended Phase II Candidate Systems

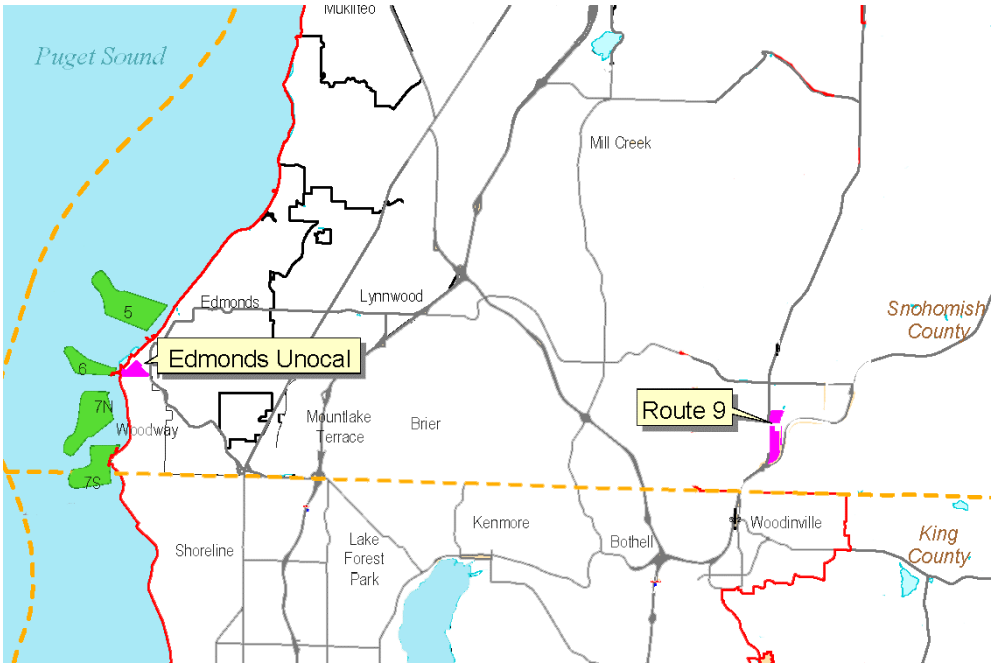

Table 3
Recommended Phase II Candidate Systems

Plant Sites	Conveyance Options	Marine Outfall Options
Edmonds Unocal	Near-Surface Pipeline	Zone 5
Route 9	Deep Tunnel	Zone 6
		Zone 7 (north and south)

King County Council Decision

On December 10, 2001, the King County Council adopted Ordinance 14278, which identified four treatment plant sites—Edmonds Unocal, Route 9, Point Wells, and Gravel Quarry—and eight marine outfall zones as meeting the Council-adopted policy site selection criteria. The Council approved the Edmonds Unocal and Route 9 sites and three outfall zones as action alternatives for analysis in an environmental impact statement (EIS). The EIS will also consider both surface and tunneling construction methods for the conveyance system serving each treatment plant site. Following the EIS process, the King County Executive will make the final decision on where to locate the Brightwater facilities. This decision is expected in early 2003.

Schedule for 2002

With the adoption of the Edmonds Unocal and Route 9 systems, KCDNR will begin Phase III of the siting process. Phase III involves a more in-depth analysis of technical and financial aspects of the systems coupled with a thorough review of environmental/community issues through the formal State Environmental Policy Act (SEPA) and the National Environmental Policy Act (NEPA) process. The SEPA/NEPA evaluation will begin with a public scoping process to ensure that the environmental analysis encompasses topics of interest and concern to the public and affected agencies. The scoping process will likely occur in the summer of 2002 and will include a variety of ways to solicit citizen and agency participation.

Following the scoping process, KCDNR will prepare a draft environmental impact statement (EIS) for the final candidate systems and will incorporate relevant information from the scoping comments. We expect to issue the draft EIS in the fall of 2002, followed by public hearings and a public comment period.

The final EIS is expected in the winter of 2003. Following completion of the environmental review, the King County Executive will review the complete Phase III analysis of technical, environmental, community, and financial issues and select the preferred Brightwater system.

Conveyance Improvements

Planning, design, and construction work continues on a number of conveyance projects outlined in the Regional Wastewater Services Plan. Conveyance improvements are outlined under three sections, beginning with planning activities carried out as part of the Conveyance System Improvement Program. The second section describes projects in design and the third section details projects in construction. Schedule information is presented for each planning area and each project. For additional schedule information on the RWSP conveyance projects in design or construction, please see the section in this report titled "RWSP Project Information."

Conveyance Planning

Wastewater basin planning is underway in several of the County's regional basins as part of the Conveyance System Improvement (CSI) Program. The focus of the CSI program is to upgrade and improve the level of service of the regional conveyance system for the 34 local sewer agencies in King and Snohomish Counties. The CSI program integrates with the RWSP and other programs such as asset repair and replacement to provide consistency in conveyance planning system-wide and to take advantage of opportunities to address common issues, leverage resources, and minimize customer disruption.[2]

Beginning in 1999, the CSI program identified and prioritized ten planning areas in the wastewater service area. Starting in the highest priority areas, teams of county staff and consultants began a comprehensive planning process to evaluate the area's conveyance needs. The teams also identified a range of flow management alternatives and specified working alternative to address the needs. Planning is underway this year in four planning areas: south Lake Sammamish, north Lake Sammamish, north Lake Washington, and south Green River (Figure 3).

South Green River Planning Area

Planning was completed for this area early in 2001 and we are coordinating with local sewer agencies in south King County to detail needed conveyance improvements in both the regional and local conveyance systems. The South Green River Planning Area includes the King County wastewater service area south of the Kent-Cross Valley. This area is divided into three planning zones – the City of Kent, the City of Auburn (including the City of Pacific), and the southern part of the Soos Creek Water and Sewer District (which includes Black Diamond). A model that compared projected flow with existing capacity to the year 2050 revealed that the capacity of substantial sections of the conveyance system throughout this area would be inadequate before 2010.

[2] Visit the CSI Web site at http://dnr.metrokc.gov/wtd/csi/index.htm for more information.

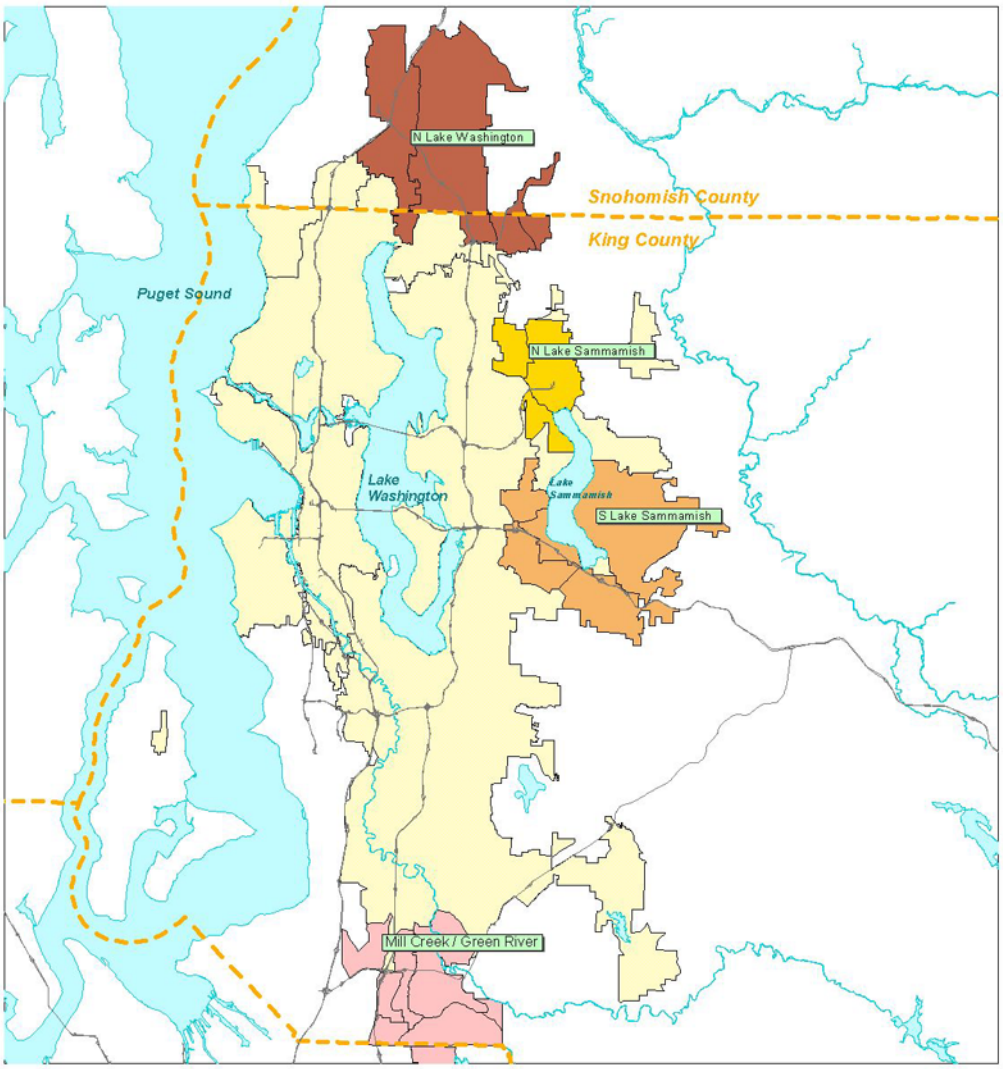

Figure 3: Current Conveyance Planning Areas

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KING COUNTY

1 0 1 2 3 4 5 Miles

December 10, 2001

Legend
County Boundaries
Planning Basins
N Lk Washington
North Lk Sammamish
Mill Creek / Green River
S Lk Sammamish
KCWTD Service Area

For the **Kent and Auburn planning zones,** the current working alternative is to build a separate pipeline near the West Valley Highway. This new pipeline – the Southwest Interceptor– would divert flow from south Auburn around the Auburn Interceptor and relieve the capacity problems in the existing line. A number of minor connection/diversion projects are planned to bring wastewater flow to the Southwest Interceptor.

For the **Soos Creek planning zone,** the CSI team developed alternatives that would maximize the use of gravity sewers, provide regional and local benefits such as eliminating pump stations, and maintain flexibility to respond to future needs. These new alternatives involve routing flows by gravity along State Route 18 toward Kent and Auburn. New regional facilities in this area would provide the flexibility to accommodate future growth in the south and maximize long-term facility use. Requests for bids for design and construction of first of the refined alternatives will begin in mid-2002.

South Lake Sammamish Planning Area

Planning is nearing completion in the South Sammamish Basin located in central King County around the southern half of Lake Sammamish. Wastewater facilities in the basin collect flows from the Sammamish Plateau Water and Sewer District (Sammamish Plateau WSD) on the east side of Lake Sammamish, the City of Issaquah at the south end of the lake, and parts of the City of Bellevue to the west of Lake Sammamish. The primary problem in this area is the more than 20,000 feet of large-diameter pipe that will reach capacity within this decade, in some cases causing storm-related overflows as well as O&M issues related to two aging pump stations. This is also a high growth area. The planning team is developing alternatives for conveyance upgrades, diversions, and projects to attenuate peak flows, such as storage and I/I control. We expect to develop working alternatives early in 2002.

North Lake Sammamish Planning Area

Planning is beginning in the North Lake Sammamish Planning Area, which includes Redmond and the north end of Lake Sammamish. While there are no significant problems in this high growth basin, flow management planning was accelerated to coordinate with the Brightwater Treatment Plant siting process because wastewater from this area will ultimately be sent to the new plant. Planning for this area will be completed in mid-2002.

North Lake Washington Planning Area

The North Lake Washington Service Area includes the areas north and east of the Kenmore Interceptor in King and southern Snohomish Counties. Problems in this basin include overflows from heavy rains and failures resulting from power loss. This is also an area of high population growth. Project-specific planning is underway for the North Lake Interceptor, as described below. Construction has begun on the North Creek Storage Facility, and we have designed a solution to increase the reliability of the Sheridan Beach collection system and reduce the probability of future flooding events. Part one of this project—a basin collection line redirecting flow from smaller basins—has been completed; the balance of the project will be completed by year's end.

North Lake Interceptor

Planning continues for the proposed North Lake Interceptor (NLI) as part of the North Lake Washington basin planning and development of the Brightwater conveyance system. The NLI will be a multi-purpose conveyance tunnel and 10 million gallon (MG) storage facility that will further safeguard north-end residents against possible sewer backups and overflows. In the near term, the NLI would convey flow to the West Treatment Plant. Peak flow above the capacity of the Kenmore Lake Line would be stored in the NLI and pumped into the Logboom Regulator and into the Lake Line after flow subsided. In the long term, the NLI would convey flow northward from the McAleer/Lyon Trunks to the Kenmore Pump Station. The NLI will enable flow to be sent to the Brightwater Treatment Plant or to the West Point Treatment Plant during emergencies. Using the NLI, it will be possible to convey most flow away from the Lake Line, except for local flow sent directly to the Lake Line.

Seismic Vulnerability Study

In 1999, The King County Council directed and authorized a Seismic Vulnerability Study to evaluate all the County's major underwater conveyance pipelines. A final consultant task list was developed to assess the vulnerability of these pipelines to earthquake damage and to recommend short- and long-term protective action if warranted. The study, which began in May 2000, assesses pipes under Lake Washington, Lake Sammamish, the Ship Canal, sloughs, rivers, and creeks. The first report assesses the seismic vulnerability of the Kenmore Interceptor. The report identifies a range of working alternatives based on various costs and risks to public health. King County DNR is currently reviewing drafts to the second and third reports. By December 2001, all the reports will be complete and we will prepare a recommendation on what improvements, if any, are necessary for underwater pipelines.

Projects in Design

After a working alternative for a particular conveyance project is identified during the planning process, the project starts predesign and is assigned a project number and project manager. Following predesign, which takes a project through approximately 30-percent of the design process, the project starts final design, where detailed drawings and specifications for construction are developed. There are six RWSP projects currently in design, as shown in Figure 4.

Bellevue Pump Station

A preferred alternative was selected to divert excess flows from the Sweyolocken Pump Station toward the Eastside Interceptor. The proposed alternative is to upgrade the Bellevue Pump Station and construct a new 5,500 foot-long, 24-inch diameter force main from the pump station to the Eastside Interceptor. This project provides needed capacity to provide sewage overflows at the Sweyolocken Pump Station. King County DNR has requested proposals from consultants for predesign services in December 2001 and expects to select a design consultant in February 2002.

Pacific Pump Station

The existing 3.4-mgd Pacific Pump Station, located in City of Pacific street right-of-way, has insufficient capacity to convey the existing and future peak flows. This project will construct a new 7-mgd pump station at an alternative site, a permanent generator to provide dedicated backup power supply, and possibly a new 12- to 16-inch force main to replace the existing one. The predesign consultant was selected in October 2000 and notice to proceed on predesign was given in April 2001. King County DNR has been working with the City of Pacific & adjacent property owners to identify the preferred site for the Pump Station—1st Avenue NW right-of-way. This site is contingent on obtaining ditch setback waiver from City of Pacific and a permit for use of the right-of-way for the pump station.

Juanita Bay Pump Station

The Juanita Bay Pump Station is an aging facility that is experiencing significant operational difficulties in conveying current flows. The working alternative recommended for predesign is to replace the existing 14.2-mgd pump station with a new 28-mgd pump station. However, the predesign study will determine whether the existing pump station will be replaced or rehabilitated. The study will also evaluate whether or not the Juanita Force Mains will require repair, replacement, or an upgrade. Notice to proceed on a predesign consultant contract for the Juanita Bay Pump Station was given in May 2001. Sites for the new pump station are being evaluated.

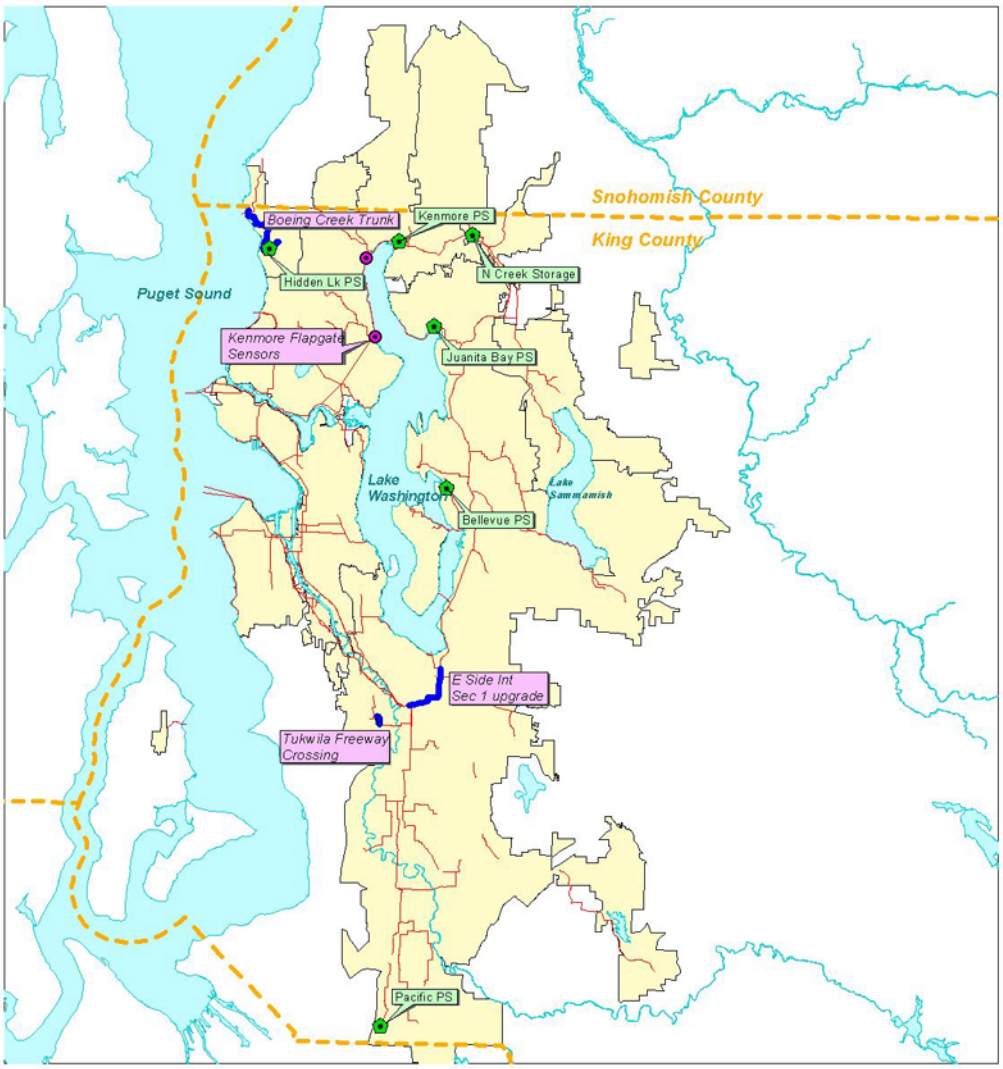

Figure 4: RWSP Conveyance Projects in Design and Construction

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KING COUNTY

1 0 1 2 3 4 5 Miles

December 10, 2001

Legend

- RWSP Conveyance Projects in Design
- RWSP Conveyance Projects in Design
- Kenmore Flap gate sensors
- Sewers
- County Boundaries
- KCWTD Service Area

Hidden Lake Pump Station and Boeing Creek Trunk

This project has three elements that will reduce the number of storm related overflows at the Hidden Lake Pump Station. One is to increase the capacity of the pump station from 3.8- to 5.5-mgd, either by retrofitting or replacing the existing Hidden Lake Pump Station. Another element is to parallel or replace over 7000-feet of the Boeing Creek Trunk where restrictions have reduced pipe capacity. The third element is to construct 0.5-MG of storage upstream of the Hidden Lake Pump Station. The project is larger in scope than previously estimated because it combines replacement of the pump station (asset management) and accommodates more inflow and infiltration (I/I) than was originally estimated. A predesign consultant has been selected and we issued the notice to proceed in September 2001.

Tukwila Freeway Crossing

King County DNR is evaluating alternatives to upgrade portions of the Tukwila Interceptor and Tukwila Freeway Crossing under the I-5/I-405 freeway near Tukwila. The working alternative will initially parallel or replace portions of the Tukwila Freeway Crossing, but before the project is ready for predesign we must receive additional information from the Port of Seattle regarding their predicted industrial waste discharges and sanitary flow into our system. We expect this information in early 2002. In addition, we must complete basin planning for the north Green River basin, which is anticipated later in 2002.

Kenmore Interceptor Flapgate Sensors

The Kenmore Interceptor, also know as the Lake Line, is a gravity sewer in Lake Washington that conveys sewage from the Kenmore pump station and Log Boom Regulator into the Matthews Beach Pump Station. The Lake Line has a series of seven flap gates that open automatically if the line becomes surcharged during extreme high flows, protecting the Matthews Beach Pump Station from flooding or shutting down. This only happens on rare occasions but, until recently, it was difficult to confirm whether the flap gates had opened and discharged sewage into the Lake. To address this issue, KCDNR committed to a system that can monitor the flap gates so we can alert residents of potential health hazards if they open and discharge sewage. The County has completed the design of the flap gate monitors and the components were installed in July 2001. During the next 6 to 12 months, KCDNR will test the sensors and develop a response sequence for use by Wastewater Operations and Maintenance staff. We are working with the City of Seattle, Lake Forest Park, and the nearby community on ways to keep them informed in the event the flap gates open.

Projects in Construction

North Creek Storage

Final design work is complete to construct 6-MG of storage at the site of the North Creek Pump Station, and a notice to proceed for construction was issued in November 2001. The storage facility will store sewage flows from the Bothell-Woodinville and North Creek Interceptors during large storms, providing protection against sanitary sewer overflows into Lake Washington upstream of the Kenmore Interceptor. After the storm, the stored flow will be pumped back into the interceptors. The facility will be constructed underground.

East Side Interceptor

This project will restore the East Side Interceptor to its original design capacity of 224-mgd by constructing a 72-inch parallel pipeline around the earthquake-damaged section (Section1) of the East Side Interceptor. The project will install 1,800 feet of 72-inch diameter pipe by tunneling methods. Final design work is complete and we issued a notice to proceed for construction in November 2001

Kenmore Pump Station Emergency Generator

Construction is substantially complete on an emergency generator and chemical injection system at the Kenmore Pump Station. The emergency generator provides backup power at the Kenmore Pump Station, helping to minimize the risk of sanitary sewer overflows during power outages. The chemical injection system consists of equipment to inject chemicals into the wastewater collection system to reduce corrosion and odors. Both systems are now operational. Future road frontage work as part of the City of Kenmore permit mitigation will also occur pending Lakepointe Development plans.

Infiltration and Inflow

The Regional Infiltration and Inflow Control Program is a comprehensive five-year study to identify sources of infiltration and inflow (I/I) into local sewer systems. The study is based on a cooperative partnership between the County and the 34 local agencies serving the region. The primary goal of this program is to define current levels of I/I for each local agency and determine how much I/I is cost effective to remove. The current program is expected to develop into an on-going, long-term effort to reduce infiltration and inflow sources in the service area.[3]

Flow Monitoring

A key component of the 2001 work effort was to measure flows in 727 mini basins to isolate sources of infiltration and inflow in local agency sewer systems. This involved collecting flow information from 807 flow meters installed in the fall of 2000 and rainfall information from 72 existing rain gauges. Unfortunately, the winter of 2000-2001 was one of the driest on record, with rainfall amounts for November, December, and January at 60-, 40-, and 50-percent of normal, respectively. This circumstance, coupled with the fact that soils were not saturated at normal levels because of a dry fall, meant that we did not obtain the peak wet weather data necessary to accurately measure either infiltration or inflow last winter.

Last winter's drought prompted a second monitoring effort for this winter, which began November 1 with an intensive 10-week flow monitoring effort designed to supplement last year's work. This effort will collect information from 697 meters in local agency lines and 75 meters within King County conveyance lines. In addition, we are enhancing our rainfall monitoring with sophisticated Doppler radar technology to more accurately establish how rainfall intensity and duration varies over the service area. The second monitoring effort is already paying dividends: we captured our first intensive storm of the season on November 14, which distributed over two inches of rain in parts of the service area. The flow information from this and other large storms in December will help us identify levels of I/I within our service area and select pilot projects scheduled for design in 2002 and construction in 2003.

While 2000-2001 conditions were less than ideal to measure peak I/I levels, they were excellent for recording baseline dry flow conditions. We now have a comprehensive dry weather flow database from which to assess the quantities of water that leak into the local agency sanitary sewers and ultimately into King County's conveyance and treatment system. Another benefit of the dry winter was

[3] Visit the Infiltration and Inflow Web site at http://dnr.metrokc.gov/wtd/i-i/index.htm

the significant discovery that infiltration and inflow was detected in virtually every mini basin and that over 50-percent (367 of 727) of the mini basins exceed the King County design threshold of 1,100 gallons/acre/day. And when considering normal wet-weather conditions, an additional 276 mini basins were identified as having "probable" excess infiltration and inflow and meriting further evaluation. These results were described in detail in a July 16 technical memorandum to the Regional Water Quality Committee.

2001 Accomplishments

A significant amount of work was accomplished under the program's 2001 work plan in the areas of developing standards,

Developing standards, procedures & policies

King County DNR is coordinating the development of regional I/I control standards, procedures, and policies for new construction, rehabilitation of existing sewer systems, and sewer system maintenance. These standards are based upon existing local agency standards and practices as well as national industry practices. They are being developed to provide a uniform and effective methodology to locally control I/I levels and include control of I/I sources on private property. At this time the local agencies are reviewing the first round of draft design/policy standards and providing comments. These comments and standards will be discussed at Workshop 7 in January 2002.

Public involvement

The County began its public education program to learn about people's awareness of the causes and impacts of excessive I/I. The first of three annual focus group sessions were held October 23 and 25, 2001. The first annual session included four focus groups, facilitated by the Gilmore Research Group, representing the Seattle area and north, east and south King County. The north area also represented parts of south Snohomish County. The purpose of the sessions was to help us assess public understanding of the issue and to develop a regional education program to effectively raise public awareness. The main lessons we learned from these first four sessions are highlighted below:

- The public is generally unaware of what I/I is, or that it is a problem they should be concerned about
- I/I reduction is not viewed as a priority in light of other more visible regional concerns such as transportation
- Each focus group expressed a need for substantial public education if I/I reduction projects include work on private property.

- Many participants said that if it could be proven to them that laterals on their private property were contributing I/I, they would be willing to help pay to fix them
- When asked who should pay to fix I/I problems in public sewer lines, participants felt that the jurisdiction that owns the line should pay to fix the problem

A second focus group will be held in 2002 to present updated information about the I/I program, get input regarding funding options, and test our messages and language for clearly explaining inflow and infiltration.

Side sewer rehabilitation

Private side sewers are a major source of I/I in the regional wastewater systems, yet they are difficult to control because of their private ownership. In July we completed a National I/I Program Review, surveying nine regional agencies. The objectives of the review were as follows:

- Review I/I control programs of similar size regional sewerage agencies that serve multiple local agencies
- Summarize the approaches taken by each agency
- Determine if the agency's approach was successful or not
- Determine which approaches may be applicable to the King County Regional I/I Control Program

A key finding from the summary report describing the results of the National Program Review is that rehabilitating the private laterals and side sewers was an important factor in successfully reducing inflow and infiltration. As part of its pilot program, King County DNR will rehabilitate a private lateral to evaluate the cost and effectiveness of this approach for large scale implementation.

Local agency workshops

The implementation of the County's Regional I/I Control Program includes the continuous need to build and maintain consensus with the local agencies throughout the contract term. Key to the consensus building process throughout the Regional I/I Control Program is the work of the local agency and policy managers to maintain clear lines of communication between the local agencies and KCDNR throughout the Program. This approach has proven to be instrumental in the successful implementation of key elements of the Regional I/I Control Program. Four local agency workshops were held in 2000 and two more were held in 2001, as summarized below. To date, 6 of 14 local agency workshops have been completed.

Workshop 5 - Flow Modeling, February 27 & March 1, 2001
Two identical modeling workshops that focused on wastewater flow modeling were held, one in the North Region on February 27, 2001 and one in the South Region on March 1, 2001. This workshop presented many modeling topics, including the need for wastewater flow modeling, what models can do and how they work, an overview of the model that KCDNR selected, the development and calibration of the selected model, and applications of the selected model.

Workshop 6 - Design Standards, Alternative Contracting Methods, and Private Property Approaches, July 31, 2001
This workshop focused on the following I/I Control Program topics:

- I/I Control Program pre-design, design, construction, and post-construction standards and rehabilitation techniques
- Project construction contract management and language options and requirements
- Private property I/I removal concerns and issues

Schedule for 2002

The flow monitoring effort is scheduled for completion on January 10, 2002. The data will by analyzed by April and used in conjunction with selection criteria to select potential pilot projects from throughout the region. Once these pilot projects are identified, the sewers in these areas will undergo an extensive evaluation to define the repairs that need to be made. Construction on the pilot projects would begin in 2003. King County DNR will also conduct pre- and post-construction flow monitoring to evaluate the effectiveness of the pilot projects.

On January 30, 2002, we will hold a seventh workshop to discuss design standards for new construction and rehabilitation, contract preferences, and approaches to dealing with private property issues. Participants will also review what was learned from the four focus groups. Workshop 8 will be held in April to identify which pilot projects to be reviewed by the County Executive and submittal to the King County Council by July 1, 2002. In October, workshop 9 will allow King County and the 34 local agencies to collaborate to revise and complete the development of regional design/policy standards for new construction, rehabilitation of existing sewer systems, and sewer system maintenance. These standards will be forwarded to the King County Executive for review and approval. The Executive is required to transmit these standards to the King County Council by December 31, 2002, in accordance with RWSP Policy I/IP 2.2.

Combined Sewer Overflows

The primary work effort for the CSO Control program in 2001 was to lay the groundwork for future combined sewer overflow control projects and for the 2005 CSO Update. This work included coordinating with the City of Seattle on their CSO Plan Update and responding to the Environmental Protection Agency's Superfund listing of the Lower Duwamish Waterway. Program staff also gave two presentations at the Water Environment Federation's specialty conference, held in July in Bellevue. Water pollution control professionals from across the nation attended this conference and heard about King County's CSO control efforts. We also submitted the *Combined Sewer Overflow Annual Report* to the Department of Ecology (Ecology) in October. Each of these activities is described in more detail below.[4]

Seattle CSO Plan Update

In June, the City of Seattle issued its *Draft Combined Sewer Overflow Reduction Plan Amendment* for review and comment. During the summer and early fall, KCDNR reviewed this complex technical document, which generally proposes to use storage to control most Seattle CSOs. At this time, we are not sure that the amount of storage proposed is adequate to prevent adverse impacts to the county's sewer system. If not, then increased overflows out of King County's system could occur. Accordingly, we will need to coordinate closely with the City during pre-design and design to review additional technical information for their projects. We have discussed this with Seattle and described it in our formal comments. Additionally, both agencies have agreed to develop "guiding principles" to allow more efficient and cost effective coordination on future CSO projects. These principles will be included in future Plan Updates. Seattle's final Plan Amendment was approved by the Seattle City Council in December 2001.

Lower Duwamish Superfund Listing

In 1999, KCDNR partnered with the City of Seattle, the Port of Seattle, and Boeing to develop an alternative to Superfund for cleaning up contaminated sediment in the Lower Duwamish Waterway. This partnership, in coordination with EPA and Ecology, developed a consent agreement to prepare a remedial investigation and feasibility study (RI/FS) for the Lower Duwamish Waterway. The agreement gave KCDNR the opportunity to shape the process and to implement any clean ups earlier than would occur under a traditional Superfund approach. Unfortunately, the partnership was not able to reach agreement with EPA, resulting in the September

[4] To learn more about CSOs, please visit the Web site at http://dnr.metrokc.gov/wtd/cso/index.htm

listing of the Lower Duwamish Waterway as a Superfund site.[5] However, KCDNR is continuing to meet the consent agreement, progressing on the technical studies for the remedial investigation and identifying candidate sites for early action cleanup by mid 2002. In addition, KCDNR worked with the City of Seattle and Port of Seattle to secure a state grant for the remedial investigation phase of the project.

Sediment Management Program

King County is responsible for cleaning up sediment contamination related to combined sewer overflows under the federal Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), and the state Model Toxics Control Act (MTCA). King County's plan is to comply with these regulations and meet the following objectives:

- Remediate sediments in a timely, efficient, and economical way
- Prevent harm to public health
- Limit future liability

In 2001, KCDNR began two key components of the sediment management program: development of a sediment recontamination model needed for state approval of cleanup actions and selection of a contractor for individual site studies for the cleanups identified in the plan.

CSO Control Program Annual Report

Under the National Pollutant Discharge Elimination System (NPDES) permit for the West Point Treatment Plant, the County is required to review the status of our CSO system and Control Plan each year. This report was submitted in October. Rainfall during this last wet season was only 23.3 inches compared to an average of 37 inches. As a result only 133 million gallons of combined sewage overflowed during 131 overflow events. During a normal year we would expect to see about 1.5 billion gallons of overflow during 330 events. At the time of this report, rainfall appears to be returning to a more typical pattern. Current control projects are the Denny Way Lake Union project, and the Henderson/MLK/Norfolk project. Both are progressing well. Final planning for the first CSO control projects under the RWSP will begin in 2004.

[5] This listing could impact the priorities for CSO control that were identified in the Regional Wastewater Services Plan. The 2005 Plan Update will assess this impact.

Schedule for 2002

In early 2002 King County will begin work on the program review required by the Council in their adoption of the RWSP. This work will then feed into the 2005 CSO Plan Update.

King County DNR will continue its support of the RI/FS process for the Lower Duwamish Consent Order. It is expected that candidate early action clean up sites will be identified by mid year. We also expect to move ahead on the sediment management program in 2002 – 2007 with contaminated sediment cleanups at two CSO locations: Denny Way and Diagonal/Duwamish (as an Elliott Bay/Duwamish Restoration Panel project). In addition, we will begin the cleanup process at three more CSO locations, including Hanford, Lander, and King Street. King County DNR will continue to work cooperatively with the Port of Seattle, the City of Seattle, and Washington Departments of Natural Resources, and Ecology to further cleanup efforts and share implementation costs. The timing of these cooperative opportunities could lead to proposed changes to the sediment management plan schedule.

Biosolids

There are two ongoing efforts under the biosolids program. One is to continue producing Class B biosolids at all treatment plants. On average, King County produces approximately 135,000 wet tons of biosolids produced each year—all of which is recycled for use in forestry and agricultural applications.[6] The other effort is to evaluate new technologies for biosolids processing, as described below.

Evaluating New Technologies

King County DNR has completed initial assessments of four biosolids processing technologies that have the potential to improve biosolids quality, increase the efficiency of existing digesters, reduce truck traffic, and otherwise minimize the potential impacts of solids processing at our wastewater treatment facilities. Four technologies were reviewed.

Centridry®

Centridry® is a process to reduce the water content of biosolids using a centrifuge and heat. This process, evaluated at the South Treatment Plant, was shown to be very effective in reducing the water content of biosolids, achieving a Class A product that was between 60- and 70-percent solids compared to about 20-percent solids for standard cake from the digesters. However, current product testing indicates that for best usability the product should also be composted, which significantly increases costs. This project was completed in the summer of 2001 and we do not anticipate any further testing on this process.

Vertad®

This technology utilizes a 400 foot deep vertical shaft and air injection to create high pressure, aerobic conditions suitable for thermophilic aerobic digestion. A second phase of testing will assess the technology when operated in conjunction with anaerobic digestion to obtain the benefits of both systems.

Microwave gasification

This technology, designed to use microwave power to convert biosolids to a usable gas, failed to meet performance objectives and did not operate reliably. No further testing is anticipated.

[6] Learn more about the biosolids program at http://dnr.metrokc.gov/WTD/biosolids/index.htm

Thermophilic/mesophilic digestion

This technology, currently being considered for use at both the South and West Point Treatment Plants, uses a temperature-phased anaerobic process to increase the efficiency of the digestion process and reduce the required digestion volume. It also has the potential to produce a class A biosolids product with the addition of appropriate high temperature storage capacity. Pilot-scale testing of this technology at the South Treatment Plant was conducted in 2001.

Schedule for 2002

King County DNR anticipates making a decision in the first quarter of 2002 about whether or not to implement new biosolids treatment when the South Treatment Plant has to replace the dewatering system that has reached the end of its useful life. If there is a need to upgrade the solids technology, it may be most cost effective to do it when the dewatering equipment is replaced.

Water Reuse & Conservation

The goal of the County's Water Reuse Program is to use reclaimed water to meet the water resource needs of this region's residents and environment. The five-year Water Reuse Work Plan was transmitted to Council in December 2000 and two primary implementation efforts are underway: the technology demonstration project[7] and the satellite treatment facility.

Water Reuse Technology Demonstration Project

King County DNR began operating a water reuse technology demonstration facility at the West Point Treatment Plant in June 2001. The nine-month project will evaluate the effectiveness, operability, and cost of seven wastewater treatment technologies. The goal of this program is to identify technologies that could:

- Minimize the size of a satellite treatment facility
- Reduce the costs and potential impacts of producing "Class A" reclaimed water at small, upstream "satellite" plants for commercial and irrigation uses
- Cost-effectively remove nutrients, pathogens, organics, and other contaminants from wastewater as may be necessary to make reclaimed water suitable for discharge to freshwater to supplement surface water supplies

The demonstration facility combines several treatment technologies into small-scale operational process systems to assess their ability to meet process objectives. For example, one of the first technologies we'll evaluate is a "Fuzzy Filter," which is a column containing tightly packed compressible filter media typically used for tertiary treatment. We are also evaluating this technology for its ability to provide primary treatment by decompressing the media and reducing flow through the column. Another technology being tested is a membrane bioreactor. This technology combines a biological process to provide secondary treatment with membrane filters that screen particles larger than one-tenth of a micron from the aerated bioreactor to produce Class A quality effluent. This technology has the potential to eliminate the need for a primary treatment process, secondary clarification, and tertiary filtration. Testing will be completed in March 2002.

[7] Please see the new section of the reuse program Web site for more information on treatment alternatives for water reuse project at http://dnr.metrokc.gov/wtd/reuse/index.htm

Sammamish Valley Reclaimed Water Production Facility

In 1997, the Water Reuse Policy Development Task Force adopted a needs statement suggesting that "recycling and reusing highly treated wastewater effluent should be investigated as a significant new source of water." As part of the RWSP, KCDNR is striving to meet the intent of this statement in part by evaluating this region's need for a satellite treatment facility and its ability to support it. We worked with a Stakeholder Task Force to solicit and rank nominations from public and private parties interested in partnering to implement water reuse demonstration projects. In all, we received 11 nominations representing 13 projects.

Each of these projects was ranked based on a set of criteria developed jointly with the Stakeholder Task Force. The criteria evaluated factors such as cost per unit of reclaimed water, regulatory issues, community impacts and support, and integration with other County projects. The Sammamish Valley Reclaimed Water Production Facility, which will produce between one- and three-million gallons per day of water for irrigation, ranked favorably on all the criteria and therefore received the highest overall ranking. Accordingly, this project was selected for implementation. Predesign of the facility began in December 2001 and the project is expected to move into the design phase in August 2002. The facility should be operational in June 2004. The timing of this project is being coordinated with the siting of the Brightwater Treatment Plant so that we are not developing an oversupply of reclaimed water in the area.

Water/Wastewater Conservation Program

Under the Regional Wastewater Services Plan, the King County Council decided to implement a water conservation program to provide a holistic approach in water resource management and to reduce impacts to the wastewater system. Specifically, the RWSP policy calls for King County to "support regional water supply agencies and water purveyors in their public education campaign on the need and ways to conserve water through pilot projects that support homeowner water conservation, emphasizing strategies and technologies that reduce wastewater." King County DNR has $300,000 per year for a five-year program. 2001 was the first year and all $300,000 was spent on the projects described below.

King County Housing Authority

King County DNR partnered with the King County Housing Authority (KCHA) and Seattle Public Utilities to replace washing machines and toilets at low-income housing facilities administered by the King County Housing Authority. King County DNR spent approximate $275,000 for new washing machines and toilets under this program, with estimated savings of 14 million gallons of water this year. In addition,

we expect significant reductions in energy use because the new washing machines remove more water from clothing and so less energy is needed to dry them. Old toilets were recycled into road aggregate.

King County Department of Community and Human Services

King County DNR partnered with Department of Community and Human Services (DCHS) to spend $10,000 to replace toilets, showerheads, and faucet aerators at low-income housing units being repaired. These improvements are expected to save over 220,000 gallons of water per year.

Public Outreach and Education

King County DNR, through the Wastewater Treatment Division, allocated $15,000 to develop improved messages about reducing the amount of material disposed of in the wastewater system that is more appropriately disposed of in the garbage (e.g., facial tissue). This will result in both water savings and energy savings.

Schedule for 2002

Technology Demonstration Program – King County DNR will complete a nine-month program to evaluate water reuse/wastewater treatment technologies in March 2002.

Sammamish Valley Reclaimed Water Production Facility – King County DNR will complete predesign and begin design in the third quarter of 2002.

Water/Wastewater Conservation Program –Based on the success of the 2001 program, the following projects will continue in 2002.

- Continue working on a partnership with KCHA and Seattle Public Utilities to retrofit low-income units with new conservation fixtures.
- Remain active in the Water Conservation Coalition of Puget Sound, a group of local utilities with the goal of creating region-wide partnerships for conservation programs.
- Partner with local utilities to audit King County owned facilities that have high indoor water use and identify conservation opportunities.
- Continue partnership with DCHS to retrofit low-income units.
- Continue development of educational materials that urge customers to keep trash out of the wastewater stream.
- Remain active in the Water Conservation Coalition of Puget Sound.

Financing – Capacity Charge

At the time the RWSP was adopted in 1999, the Washington State statute governing capacity charges included provisions constraining the County's ability to pursue a policy of growth pays for growth.

- The capacity charge could not exceed $10.50 through the year 2001
- The capacity charge could not exceed one-half of the Residential Customer Equivalent (RCE) rate after the year 2001
- The capacity charge could be based only on facilities identified in the pre-1989 comprehensive wastewater plan

In recognition of these constraints, the King County Council adopted financial policy FP-12 in Ordinance 13680 to pursue a change in the legislation, which was done successfully in June 2000. The Ordinance also required the King County Executive to forward a set of policies outlining a proposed new capacity charge methodology to Council. These policies, transmitted to Council in January 2001, reflected points of consensus developed by the Regional Water Quality Committee; namely, that growth should pay for growth. This was accomplished in the proposed methodology by allocating costs associated with our capital projects between existing and new sewer customers. Table 4 shows that under this allocation, new customers would pay costs associated with building new capacity and existing customers would pay costs related to existing facilities. Operation and maintenance costs are shared by all customers.

The proposed capacity charge methodology was reviewed extensively by the Regional Water Quality Committee and the King County Prosecuting Attorney between April and September 2001. Under this review, the methodology was clarified and modified to conform with legal principles governing capacity charges before being sent to the King County Council as a striking amendment. The Council unanimously adopted the amendment on October 1, 2001, as Ordinance 14219.

The adopted capacity charge methodology sets the charge to recover 95-percent of the total cost of growth related facilities, which results in a capacity charge of approximately $17.60 for the year 2003. The capacity charge will bring in approximately $450 million (discounted for inflation and the time value of money) from new customers connecting to the system between 2003 to 2030.

Table 4
Capacity charge cost allocation

Cost category	Paid by new customers at 95% growth cost[1]	Paid by existing customers	Shared in Proportion[2]
New treatment - new customers	X		
New conveyance - new customers	X		
York PS capacity increase			X (85/15)
Auburn Interceptor Sections 1,2, 3			X (10/90)
2001-2010 trunk improvements			X (10/90)
New biosolids capacity - new customers	X		
Existing excess capacity	X		
Capital asset management		X	
New biosolids capacity – existing cust.		X	
I/I assessment and reduction		X	
New conveyance - existing customers[3]		X	
New treatment - shared			X
New conveyance - shared			X
New biosolids capacity - shared			X
CSO control			X
O&M for new system operation[4]			X
O&M for current system operation[4]			X
O&M central administration[4]			X
Any costs not covered above[4]			X

[1] New customers pay through a combination of the monthly sewer rate and capacity charge.
[2] (percent paid by existing customers / percent paid by new customers)
[3] This includes the North Lake Interceptor and the enlargement and acceleration of North Creek Storage.
[4] These costs are paid through rate revenues only.

RWSP Project Information

This section provides additional information for each RWSP capital project as required by Ordinance 14018 in the 2001 Budget Proviso; namely, the year-to-date budget and staffing status. The projects are organized in the following tabs as shown in Table 5.

Table 5
RWSP Capital Projects by Element

Project	Project Number
Tab 1 - Treatment Improvements	
Brightwater Treatment Plant	423484
Marine Outfall Siting Study	423457
Tab 2 - Conveyance Improvements	
RWSP Conveyance System Improvements	423373
East Side Interceptor Section 1 Repair	423420
North Creek Storage	423519
Tukwila Interceptor/Freeway Crossing	423520
Hidden Lake/Boeing Trunk Upgrade Improvement	423365
Juanita Bay PS Modifications	423406
Pacific Pump Station	423518
Bellevue Pump Station	423521
Tab 3 –Combined Sewer Overflow Controls	
CSO Plan Update	423441
CSO Control & Improvement	423515
Sediment Management Program	423368
Tab 4 –Inflow & Infiltration Reduction	
RSWP Local System I/I Control	423297
Tab 5 - Water Reuse	
Water Reuse Technology Demonstration	423483
Sammamish Valley Reclaimed Water Production Facility	423528
RWSP Water/Wastewater Conservation Program	423523

Table 5 shows that there are 17 RWSP capital projects in various stages of design and construction. Figure 5 shows the information provided for each project, including the project's scope, milestones, schedule, budget (actuals through November 2001), and contract status. Each of these fields are described in more detail below and are consistent with the reporting requirements for Regional Wastewater Services Plan projects per Ordinance 13680 and by proviso in Ordinance 14018.

Project Number

Each wastewater capital project is assigned a six-digit number such as 423413. The first two numbers (42) identify this as a wastewater project (as opposed to a transit project or roads project). The third number (3) identifies the project as a capital project (as opposed to operating), and the last three numbers are sequential numbers reflecting the order the projects were assigned in a particular year.

2001 Appropriation and "Percent Spent"

The 2001 appropriation is the project budget for the year 2001; that is, the amount of money the King County Council authorized to be spent on the project that year. The "Percent Spent" number reflects how much of the budget has been spent as of the reporting period (November 30, 2001, for this report). However, projects in construction have their entire construction contract amount appropriated in the first year of construction, even if it's a multi-year construction project. As such, the percent spent value for these projects will be very low early in the project life. This is the case for two RWSP projects now in construction: 423420 (East Side Interceptor Section 1 Repair), and 423519 (North Creek Storage). In addition, delays in invoicing and fund transfers can also result in artificially low percent-spent values, such as for project 423373, conveyance system improvements. We are currently developing a system to better represent real-time project cash flows for future reporting.

Project Scope & Milestones

The project scope gives a brief overview of the project as described by the project manager. In general, the narrative describes the project and its purpose. The project milestones identify timeframes for important achievements in the project lifecycle. The milestones listed for projects in this document vary in timeframe from current year milestones to those covering the life of the project. Future reports will primarily address current year milestones.

Schedule

The project schedule information includes a start date and an end date for the project phases that are appropriate for that project. There are six phases for construction projects: planning, pre-design, final design, implementation, closeout, and land acquisition.

Project Cost

Project costs are provided for contracts, staffing, and permits & right-of-way (ROW) expenditures. The costs come from the IBIS financial reporting system and are reported both year-to-date and life-to-date for the month indicated. Please note that there is a four- to six-week delay in receiving project cost updates from IBIS.

Contract Information

There are generally four types of contracts associated with wastewater capital projects as identified by the first letter in the contract number: 'P' denotes a professional services contract, 'E' denotes an engineering & architectural services contract, 'T' denotes a technical consultant services contract, and 'C' denotes a construction services contract. The information provided for each contract is the total paid by project as of the report date and the contract amount. In some cases, a contract may support several projects, such as on call services, so the project may use only a portion of the contract amount.

Figure 5
Project information sheet

Project No. and Title

423457 Marine Outfall Study

Council District: All

2001 Appropriation: $2,463,746
Percent Spent: 82%

Project Manager: Shuman, Randy

Appropriation:
A20220 Brightwater Treatment Plant- New

Project Scope

This project is a technical study to obtain the environmental information needed to understand the flow of water in Puget Sound in the project area, the water and sediment quality conditions in the project area and the biological resources and human uses in the area. This project, part of the Regional Wastewater Services Plan, is needed to provide basic scientific information on Puget Sound to support the siting of the outfall for the new Brightwater Treatment Plant and information needed for the permitting and predesign process for the new outfall.

Milestones

KC Council approval of sites-May 2001
KC Councial approval of system packages-Fall 2001

Schedule

Phase	Start	Finish
1 Planning	1/1/2000	12/1/2003
2 Predesign		
3 Final Design	1/4/2004	12/31/2006
4 Implementation		
5 Closeout		
6 Land Aquisition		

Project Cost

Type of Project Cost		Year to Date NOV-01	Life to Date NOV-01
CONSTRUCTION		$0	$66,419
ENGINEERING CONTRACTS		$1,363,009	$2,780,223
OTHER COSTS		$116,593	$330,574
PERMITS & ROW		$633	$633
STAFF LABOR COSTS		$530,555	$1,609,028
STAFF LABOR LTD Hours	48.263		
Total Project Cost:		$2,010,790	$4,786,876

Current Contract Information

Contract Number and Title	Total Paid by Project	Contract Amt
P93001P PUGET SOUND OCEANOGRAPHIC SUPPORT STUDIES	$1,144,429	$1,363,247
P93009P - NORTH TREATMENT FACILITY - MARINE OUTFALL SITING STUDY	$850,937	$1,534,999