



Review of 2008 accomplishments

Finance

- Moody's and Standard & Poor's upgraded King County sewer revenue bond ratings, citing progress made on the Brightwater project as well as strong management practices, continued positive financial performance and commitment to capital improvement. The Moody's rating went from A1 to Aa3 while S&P raised their rating from AA to AA+. The county issued \$350 million in sewer revenue bonds to finance capital construction projects for the county's regional wastewater system, which includes the new Brightwater Treatment System. The favorable credit ratings will lower the cost of borrowing by reducing the amount of debt service, which, in turn, reduces impacts to the rate.
- The division implemented a Capacity Charge E-Pay option that enables customers to check their account balance and pay bills online. The online payment Web site is located at <http://info.kingcounty.gov/WastewaterCapacityCharge/Default.aspx> and includes a "Help" section, as well as addition links to background information on the Capacity Charge Program.

Major Capital

- The division made significant progress on Brightwater, the county's largest clean-water project since the 1960s:
 - Contractors completed the first 2.6 mile segment of the 13-mile-long wastewater pipeline that will run up to 450 feet below ground from the Brightwater Treatment Plant north of Woodinville to Point Wells near Shoreline. All four tunneling machines were operating in 2008.
 - Construction on Brightwater's mile-long, 600-foot deep marine outfall was completed in October.
 - At the Brightwater Treatment Plant site, contractors began building facilities to process solids, control odors, and power the plant. Brightwater's North Mitigation Area, which includes 40 acres of open space at the north portion of the treatment plant site, is completed and scheduled to open for public use in 2009.
 - Construction continued this year on a pipeline system to bring reclaimed water produced at the Brightwater Treatment Plant to irrigators and industrial customers in north King and south Snohomish counties.
- An environmental cleanup project completed in February successfully removed more than 14,000 cubic yards of historically contaminated sediment – enough to fill 1,400 dump trucks – from Elliott Bay near Myrtle Edwards Park. The contamination had accumulated during decades of stormwater and sewage overflows discharged through the old Denny Way outfall that was removed in 2004.

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- In March, contractors completed installation of the Boeing Creek Trunk, adding 12,000 feet of new sewer pipe from the Richmond Beach Pump Station into Innis Arden. The project was part of the Hidden Lake Pump Station Replacement and Sewer Improvement Project, which began in 2006 to protect public health and the environment by adding capacity and increasing system reliability. The Hidden Lake project also included replacing the aging Hidden Lake Pump Station, adding 1,200 feet of new sewer pipe for Ronald Sewer District, installing 6,500 feet of water main line for SPU, and adding a 500,000 gallon storage tank in Boeing Creek Park to reduce overflows during heavy rains.
- The newly completed Juanita Bay Pump Station began operating in January 2009, serving Northshore Utility District customers by replacing a 40-year-old facility that could no longer meet growing service demands. In addition to doubling pumping capacity to about 30.6 million gallons per day, improved noise and odor control along with architectural updates and new landscaping will make the new pump station a better neighbor.

Resource Recovery

- University of Washington researchers completed the first year of a two-year research project to study the effects of reclaimed water on horticultural plants and food crops including lettuce, carrots and strawberries, which are commonly eaten uncooked. The objective is to study the safety of food crops irrigated with reclaimed water and to assess the affect of reclaimed water on the plants' growth. The studies to date show that the food crops irrigated with reclaimed water were safe to eat and met food safety standards. The horticultural component showed that growth, physiology and productivity of ornamental and vegetable crops benefited by reclaimed water irrigation, producing flowers and vegetables of market quality.
- In 2007-2008, the University of Washington conducted a study entitled "Fate of Personal Care Products and Pharmaceuticals (PCPPs) and Growth Response for Reclaimed Water Irrigated Turf Grass". The purpose of this study was to assess the benefits and potential exposure to PCPPS by turf grass irrigated with water. The results of this study indicate that the three chemical of concern (estrogen, triclosan and Ibuprofen) did not persist in soils irrigated with reclaimed water and that the product was beneficial to soils. For the public, the study demonstrated no movement or plant uptake of PCPPs, easing concerns about possible exposure.

Project Planning, Operation and Asset Management

- Forecasting models predict that climate change will produce wetter winters in the Pacific Northwest in addition to global rises in sea level, both of which could have an impact on the normal operation of sewer facilities in the Puget Sound region. WTD is already taking steps to protect the valuable assets in its system. In 2008, Planning and Asset Management employees completed an inventory of potentially vulnerable facilities that could be at risk for climate related flooding and storm surges as early as 2050. Out of the five identified, four are slated for upgrades or modifications within the next five years,

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presenting an opportunity to economically incorporate design changes to better protect these facilities for the next generation of ratepayers.

- The county responded in late May to a serious sewage spill in which about 6.7 million gallons of sewage overflowed from a stormwater pipe into Ravenna Creek and the Union Bay Slough over a 10-day period. The overflow occurred after county employees mistakenly diverted wastewater into a stormwater pipe while trying to repair a wastewater regulator gate in the Lake City Tunnel. The Department of Ecology fined Wastewater Treatment Division \$30,000, but recognized the county's prompt response and cleanup. The division is upgrading its procedures to ensure that a cross-connection with a storm drain will not occur again. The overflow also exposed some engineering flaws in the regional and local sewer/stormwater system that will need to be addressed in a separate project. King County is working with City of Seattle to coordinate work.
- Last January, the U.S. Environmental Protection Agency Office of Compliance and Enforcement began a Clean Water Act compliance inspection of the county's sanitary sewer system and CSO facilities. EPA officers toured the county's wastewater and CSO facilities, conducted interviews with division employees, and reviewed reports and records. The outcome of the EPA's investigation is pending.
- Odor and the potential for odors is by far the biggest concern among community members who live and work near our treatment plants. In 2008, the division completed the first phase an odor control project at South Plant that entailed covering the first pass secondary aeration basins. In response to prior odor occurrences, the division developed an air quality Environmental Management System plan that was submitted to the Puget Sound Clean Air Agency. The plan will require yearly audits on system performance. The division will also take additional steps to improve odor control over the coming year.
- The division supported a Water and Land Resources Division (WLRD) project to upgrade the Black River Stormwater Facilities by bringing the aging equipment up to current standards and while ensuring that it's properly operated and maintained in the future. All funding for employee time and resources comes from WLRD.

Environmental and Community Services

- The division's Community Services employees lead about 3,000 current and future ratepayers on tours through the regional treatment facilities, educating the public about the importance clean-water infrastructure. Tour programs promote environmental stewardship and encourage responsible at-home behaviors, helping to keep harmful materials that can damage facilities, injure workers, or degrade the quality of biosolids and other resources out of the treatment system.
- All four treatment plants – South Plant, West Point, Carnation and Vashon – met or exceeded standards set in their respective NPDES permits. West Point and South Plant earned Platinum Peak Performance Awards from NACWA for meeting permit compliance for five consecutive years.
- Industrial Waste's Dental Waste Reduction Program caught the attention of the U.S. Congress. Since 2003, King County dentists have been required to install amalgam separators or obtain compliance permits to limit their mercury discharges into the sanitary

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sewer system. In five years, dentists have kept about 375 pounds of mercury out of the environment, significantly improving the already high quality of the division's biosolids product. In July, Industrial Waste Compliance Investigator Patricia Magnuson was invited to Washington D.C. to testify on the program's outcome at a congressional policy subcommittee hearing, "Assessing State and Local Regulations to Reduce Dental and Mercury Emissions."

- The Industrial Waste Program responded to a large number of serious permit violations during the year, taking enforcement action that resulted in more than \$218,000 in fines for five companies. Post-violation charges in 2008 totaled \$29,820.

Staffing, Training and Process Improvements

- To improve response to overflows and other emergencies, WTD conducted a mandatory table top training exercise at the Emergency Coordination Center in Renton in September. About 75 employees participated in the half-day training session. The division will continue similar training in the future to ensure employees follow communication protocols and understand their roles and responsibilities during emergencies.
- WTD Human Resources streamlined the application and hiring process through NEOgov, an online tool that enables both internal and external candidates to search listings and apply for jobs online. The online application process reduces paper, and makes the recruitment process more efficient for both job seekers and hiring managers.
- A new staffing plan was developed for the Brightwater Treatment Plant. Implementation of the plan is already under way, and focuses on using existing staffing resources to operate the Brightwater facilities.
- The division took significant steps to improve and standardize its project management systems, adopting the international standards of the Project Management Institute and requiring training in basic PMI principles. A parallel effort also included integrating PMI principles into the division's normal business practices. These improvements will contribute to better defined team roles, greater accountability and clearly defined goals and expectations.

Awards

- The South Treatment Plant in Renton and the West Point Treatment Plant in Seattle earned Platinum Peak Performance awards from NACWA for outstanding compliance with state and federal permit requirements.
- The newly completed Carnation Treatment Plant earned the Small Project of the Year Award from the WateReuse Association for its innovative use of reclaimed water to enhance wetlands and preserve local habitat at Chinook Bend Natural Area.

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Looking Ahead – Priorities in 2009

Administrative issues

- In 2005, voters passed Initiative 900, which requires all state and local governments to undergo performance audits to ensure accountability with public funds. WTD is currently participating in three state required performance audits that began in 2008. A Utility Performance Audit is reviewing the management of fleet vehicles and the management of the biosolids program. A Construction Management Audit is looking at the division's management of capital projects. An I/I Pilot Program Accountability Audit is also beginning to get underway. The auditors' reports are expected to be issued in 2009.

Finance

- The economic downturn and unpredictable credit markets will continue to affect the utility's finances over the next year, although the level of impact at this time remains unclear. The division remains committed to maintaining the 2009 rate into 2010 while meeting its Balanced Scorecard and major capital goals, though likely spending constraints could affect the schedule and implementation of a number of projects and programs. In 2009, WTD could possibly benefit from federal funding for some of its projects if Congress passes a large economic stimulus package that emphasizes investment in "shovel ready" infrastructure projects.
- The Capacity Charge Program is seeing greater success in collecting on delinquent accounts by warning customers that they face property liens if they fail to bring their account current. The level of compliance following the warning has been very high. The division will continue its efforts to avoid delinquent accounts by working to educate property owners about the capacity charge and their payment options, primarily through outreach to escrow companies and realtors. WTD is also working with several component agencies to improve the reporting of new connections.

Resource Recovery

- The technologies WTD uses to create resources from waste products could one day benefit dairy farmers in south King County. The division is lending its project management skills and technical knowledge to a project evaluating the feasibility of using small digesters on local farms to process manure and other waste. The project offers a number of potential benefits for land use management, economic development and environmental protection. WTD will not provide any funding for the project or its employee's time, which will be financed through a combination of grants, loans and county general funds.
- Discussions with regional leaders and stakeholders about how and when King County should expand the availability of reclaimed water produced at its plants will continue as part of the division's development of a Reclaimed Water Comprehensive Plan. The division will respond to a County Council proviso to prepare a report on the status of the Reclaimed Water Program, including the status of efforts to market reclaimed water and establish a rate structure. Work will also continue around efforts to develop a potential reclaimed water customer database to facilitate discussions with water utilities.

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- The Resource Recovery Section will review the 11 proposals it received in response to a Request for Information issued last June. The division is seeking input on how it might find new markets and uses for some of the biosolids it produces each year. To be considered, proposed options must meet standards of environmental safety, economic feasibility, and make use of the material's beneficial qualities. The county may some day use the information it gathers to develop a Request for Proposal for some component of biosolids management services.
- The division will continue expanding its capture and use of gas and heat created in the treatment process through alternative "green" energy technologies. A project under way at West Point Treatment Plant called Waste-2-Energy, or W2E, will upgrade the plant's cogeneration system to increase the use of digester gas as a source of heat and power. The division is scheduled to solicit contractor bids in 2009. Additionally, the division will build on the work begun in 2008 to revitalize its energy program. Division employees will also incorporate green building practices into its capital facilities planning, and participate in countywide energy taskforce meetings to achieve broader policy goals to make county facilities more energy efficient.

Environmental and Community Services

- The division continues working with Boeing, Port of Seattle, and City of Seattle on a Superfund cleanup plan and communication strategy for the Lower Duwamish Waterway. Among 2009 highlights, a draft feasibility study that will evaluate a number of possible cleanup options is due to be presented to agencies and the public in March. Because of the number of stakeholders who have an interest in the cleanup's potential impacts and costs, the county and its partners are working to solicit greater public input during the feasibility study comment period to ensure that eventual decisions reflect the vision of regional interests, local communities, and businesses whose livelihoods are connected to the Duwamish. There will also be an effort to connect with other Potentially Responsible Parties who may also bear responsibility for historical contamination and future cleanup efforts. The final decision on a cleanup plan will be made by EPA and is expected in early 2010.
- Increased awareness of water quality issues and Puget Sound Partnership initiatives sparked strong community interest in the renewal of West Point Treatment Plant's NPDES permit, which was scheduled to expire on Dec. 31, 2008. The Department of Ecology granted King County an extension of the permit in order to hold a public hearing in January and allow continued public comment through mid-February. Ecology's public process on the NPDES permit could offer stakeholders a forum in which to weigh the benefits of stricter permit standards against the cost and other challenges of upgrading treatment technologies. Strong public interest is again expected when the NPDES permit for South Plant comes up for renewal in 2009.
- The Industrial Waste Program will begin a project to determine whether or not permitted businesses and industries that will eventually be served by Brightwater are meeting discharge levels that will be acceptable for that facility.

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Project Planning, Operation and Asset Management

- A Maintenance Best Practices (MBP) plan implemented in 2008 laid the foundation for the division to become more efficient in maintaining the pumps, pipes and facilities that keep the regional wastewater system up and running 24/7. In 2009, the division will carry out its new best practices standards to plan and prioritize maintenance work, and to track it through a work order system. The MBP will also help employees maintain a comprehensive asset inventory.
- To avoid overflows, accurately assess system capacity needs and make cost-effective planning decisions on system expansion, the division's Asset Management group will kick off a Decennial Flow Monitoring project to improve the collection and quality of its data.
- Concerns about public health, the environment and worker safety are spurring a project to convert West Point Treatment Plant's disinfection system from chlorine gas to sodium hypochlorite. In 2009, employees will develop a baseline budget and schedule for the conversion project, which is expected to take about two years to complete. Though it's a more costly chemical than chlorine, a sodium hypochlorite disinfection system will require fewer training hours for employees to operate, less maintenance, and it will deliver a more effective, consistent level of disinfection required by permit standards.
- The intrusion of saltwater into facilities close to Puget Sound is increasing the production of hydrogen sulfide in the system that's causing corrosion, mechanical problems and threatening to shorten the useful lifespan of our regional wastewater facilities. The division's Facilities Inspection group is leading a Saltwater Intrusion Project to address this serious asset management challenge. Monitoring has identified problem areas near Elliott Bay and the Duwamish Waterway. Over the coming year, the division will involve stakeholders in a process to explore ways to better protect the system by adding new seals, raising weirs and implementing I/I control.
- The division continues planning on projects to control overflows of combined stormwater and sewage that occur during heavy rains in older parts of the system. In 2009, work will get under way on the five-year CSO Plan Update. A Request for Proposal will be issued this year.

Major Capital

The county's Wastewater Treatment Division will continue its commitment to public health and the environment by investing more than \$525 million in dozens of vital sewer improvement projects in 2009, the largest of which is Brightwater.

- Scheduled work on Brightwater next year includes:
 - Construction on the Influent Pump Station.
 - Pipe installation in the recently completed East Tunnel.
 - Completion of the three remaining tunnels on the West and Central contracts.
 - Continued work on reclaimed water pipeline construction.
 - Completion of the liquids processing facilities, the odor control systems and earthwork at the Treatment Plant Site.
 - Completing marine outfall restoration and eelgrass planting work.

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Other major capital improvements include investments in facility upgrades and expansions across the system. Projects under way next year include:

- Pre-design and planning for upgrades to Sunset/Heathfield Pump Stations in Bellevue.
- Continued planning and siting processes for the CSO Beaches Projects at North Beach, Magnolia, and Murray and Barton in West Seattle.
- Planning work on the Fremont Siphon.
- Replacement of the South Plant control system.
- Design work on Kirkland Pump Station.
- Begin construction on the Southwest Interceptor to expand capacity in Kent, Auburn, Algona and Pacific.
- Construction to upgrade the Bellevue Pump Station.
- Construction on the Ballard Siphon Project.
- Construction on North Creek Interceptor.

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