2011 Solid Waste Division Annual Report



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Letter from the Division Director

In 2011, the division achieved major milestones on many of the projects undertaken in 2010. The preliminary draft *Comprehensive Solid Waste Management Plan* was revised in response to public comments. The revised plan and a cost assessment were submitted to the Washington State Department of Ecology and the Washington Utilities and Trade Commission for review. Their review was concluded in August, and required revisions were incorporated into the resulting final draft plan, which will be submitted to the Metropolitan King County Council and the cities for approval in 2012.

The division continues to work toward the more than \$300 million modernization of its 1960s-era network of transfer stations in order to meet the needs of its customers. Normal services for all customers resumed at Houghton Transfer Station after an award-winning mitigation project that improved safety and addressed impacts of station operations on the neighborhood. Construction of the new Bow Lake Recycling and Transfer Station at the site of the existing facility in Tukwila continued throughout 2011. The project has maintained a stellar safety record while remaining on schedule and within budget. Throughout construction, the division has successfully continued to serve both commercial and self-haul customers at the existing station.

Preliminary design for the new Factoria Recycling and Transfer Station began in 2011. Value engineering was performed on the preliminary design, and in response to declining tonnage projections, changes were made to the project scope that will significantly reduce construction costs. A consultant has been selected to assist in siting two new transfer facilities to replace the aged Houghton and Algona transfer stations. The division will seek community involvement and consider issues of equity and social justice throughout the siting process for the new Northeast County and South County Recycling and Transfer Stations.

In response to declining tonnage and associated revenue, the division has cut \$39 million in expenses over the past three years through reduced staffing, changes to operating hours, and other efficiencies. In 2011, the County Council approved a one-year disposal rate of \$109 per ton for 2012. The new rate keeps fees as low as possible while covering the cost of providing service. Only the second solid waste rate increase in 12 years, the new rate remains lower than rates in several neighboring jurisdictions.

I am proud to report these and other major accomplishments for 2011, and to recognize those who helped make them possible – including our employees, our customers, the County Council, our partnering cities and advisory committees, and the many business and nonprofit organizations in the region.

Kevin Kiernan, Division Director





Bow Lake Recycling and Transfer Station in 2010 and 2011.

Solid Waste Transfer and Disposal

Proper management of the region's solid waste supports each of the primary goals of the King County Strategic Plan, with particular emphasis on environmental sustainability and service excellence. The division manages the only operating landfill in King County - the Cedar Hills Regional Landfill (Cedar Hills), where all municipal solid waste generated in the service area is disposed. Located on a 920-acre site in the Maple Valley area, Cedar Hills has provided for the safe and efficient disposal of the county's solid waste since 1965. In 2011, the division disposed of 812,683 tons of solid waste at Cedar Hills, a decline of approximately two percent from 2010. Reflecting the division's commitment to maintaining the highest environmental standards at Cedar Hills, the King County Industrial Waste Program awarded the landfill a gold Commitment to Compliance award for meeting discharge permit standards every month for five consecutive years with no violations of any kind.

Transfer stations are the public face of the solid waste system. In 2011, transfer facilities received 796,188 tons of garbage through 738,566 customer visits. The transfer stations operate 362 days per year – closing only on Thanksgiving, Christmas and New Year's Day. Specific operating hours at each location are determined by customer use patterns to maximize customer convenience and operational efficiency.

Planning, design and construction are well underway in the development of a new generation of solid waste transfer facilities. The aging transfer system is in need of extensive improvements after nearly 50 years of service to a growing region. Progress on these improvements is described in "Capital Improvements."

Waste Prevention and Recycling

The division works closely with the cities in King County to continue its national leadership in waste prevention, recycling, and environmental stewardship. Each year, the division responds to changes in markets, technologies, and consumer needs to develop programs that will effectively prevent the disposal of usable resources.

Partnerships Help King County Recycle More

For the past three years, the division's "Recycle More. It's Easy to Do." campaign has formed partnerships with focus cities - suburban cities with residential recycling rates of less than 35 percent. The partnership approach leverages outreach and budgets to effectively reach residents in the targeted cities with information on how to recycle more. The division



Volunteers answer the public's recycling questions at community events.

provides a variety of outreach services to the cities, including one-on-one outreach to residents in the community; community newspaper and city newsletter articles about recycling and waste reduction; consultation on outreach material development; and production of instructional videos for city public TV stations. In cities where new garbage contracts are being implemented, the partnership offers extraordinary opportunities to assist in residential education planning. In 2011, focus cities included Kenmore, Kent, Renton, SeaTac, Tukwila, and Maple Valley.

In addition to working with focus cities, the division formed promotional partnerships with Allied Waste Services, Bartell Drugs, and Papa John's Pizza. The partnership combined TV and radio advertising with in-store promotion and distribution of recycling information on stickers delivered with Papa John's pizza boxes to encourage curbside yard waste service sign-up and food scrap recycling. The partnership dramatically increased sales of food scrap containers and compostable bags, and spurred garbage, recycling and yard waste account signups.





The Recycle More campaign promoted basic recycling, food scrap recycling, and yard waste sign-up using television, radio, on-line, and Facebook advertising in 2011. Earned media events were used to raise awareness of food scrap recycling and how to organize a household for easy recycling. For example, in one earned media campaign, the division collaborated with 10 Issaquah neighbors to step up their food scrap recycling efforts for a three-week period. In another, the web-based Spring Cleaning Week encouraged residents to reduce their waste, clean out their clutter, and set up recycling systems throughout the house. During the summer, at community events across the county, the campaign continued with one-on-one outreach. King County residents got answers to their recycling questions along with free samples of compostable bags, used to encourage food scrap and food-soiled paper recycling. The Cube of Food, a popular display that illustrates the amount of food scraps and food-soiled paper a single-family household produces each year, provokes many questions. These questions are answered by the division's volunteer Master Recycler Composters (MRCs). In 2011, the MRCs

spoke to 12,875 residents at community events in support of the Recycle More campaign.



Neighbors in Issaquah step up food recycling.

Primary Recyclables in the Comprehensive Solid Waste Management Plan	Secondary Recyclables in the Comp	orehensive Solid Waste Management Plan
 Newspaper Cardboard High-grade office paper Computer paper Mixed paper (may include paper grades listed above) Polyethylene terephthalate (#1) and high-density polyethylene (#2) bottles, clear and colored Yard waste (less than 3 in. in diameter) Glass containers (flint, amber, and green) Tin cans (steel cans) Aluminum cans 	 Polycoated paperboard All plastics except PET and HDPE bottles, which are primary recylables Bulky yard waste (greater than 3 in. in diameter) Wood Food waste Compostable paper Appliances (white goods) Other ferrous metals Other non-ferrous metals Textiles Stable wastes (animal manure and bedding) 	 Motor oil Oil filters Latex paint Antifreeze Brake fluid Carpet Electronics Reusable household and office goods Reusable building materials Concrete Toilets Tires Batteries
	Other materials recycle	d in King County in 2010
	 Asphalt and other asphaltic materials Asphalt roofing Brick and masonry Carpet pad Ceramic materials Fluorescent lamps 	 Fluorescent lamps Other glass Landclearing debris Rendering - meat scraps Rendering - used cooking oil Toner/ink cartridges

EcoConsumer Helps Residents Reduce Waste

The EcoConsumer environmental outreach program helps consumers reduce their environmental impact, and often save money and save time as well. It is among the most visible environmental public outreach programs in the Northwest. This program includes the EcoConsumer column in the Seattle Times every two weeks, monthly TV segments on KOMO4, and more than 40 additional TV and radio appearances every year, all supported by a strong social media presence (including the EcoConsumer blog, and more than 1,700 followers on Twitter). It also includes more than 25 public presentations every year at libraries, senior centers, businesses, schools, and elsewhere.

In 2011, the EcoConsumer program introduced a new service on its website – the King County Junk Mail Opt-Out Service. Developed in partnership with the national non-profit organization Catalog Choice, this



Local youth with Seattle Mariners manager Eric Wedge and University of Washington softball player Kelli Seguro support Green Holidays at Safeco Field.

service makes it easier for county residents to remove themselves from bulk-mailing lists.

The EcoConsumer program's Green Holidays campaign includes creative media events during the holiday season and for Earth Day in April. In 2011, a televised Green Holidays media event was held jointly with the Seattle Mariners at Safeco Field. The EcoConsumer program promoted waste reduction strategies to use during the holidays, such as "give an experience instead of stuff." To encourage composting of holiday food waste, Mariners manager Eric Wedge pitched a fruitcake into a yard waste collection cart.

Product Stewardship Efforts Continue

Product stewardship is an overarching strategy for conserving resources and minimizing waste throughout the life cycle of a product. It encourages environmentally friendly product design, and shifts responsibility for financing and management of the product at its end of life from ratepayers and government to producers and users. The division pursues product stewardship strategies for a number of materials. In 2011, significant efforts were directed towards pharmaceuticals and mercurycontaining lights.



Recycling these mercury-containing lights is about to become much easier.

State legislation that would require pharmaceutical manufacturers to create and finance a secure, statewide medicine return program for unwanted medicines from households was introduced for the third time, but did not pass. The bill is expected to start the 2012 session in the Rules committee. A communications campaign to inform the public about the safety and environmental impacts of improperly disposed pharmaceuticals was developed. The campaign, called Take Back Your Meds, used a website, Facebook, radio advertising, and other strategies to build awareness about the issue.



The division prioritizes improved recycling of carpet in King County.



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During 2011, the rule making process in the state legislature began on the mercury-containing lights proper disposal law passed in 2010 that will establish a statewide producer-financed product stewardship program for mercury-containing lights. The Washington State Department of Ecology expects to have the final rule adopted in November 2012 and for the program to begin in January 2013.

The division will continue to work towards the development of product stewardship bills for carpet and paint.

LinkUp Program Facilitates Development of Recycling Infrastructure

The LinkUp program works to expand markets for recyclable and reusable materials by facilitating an interactive community of businesses, public agencies, and other organizations. LinkUp works to eliminate market barriers such as a lack of recycling infrastructure and poor end-markets. In 2011, LinkUp continued to focus on asphalt shingles, carpet, and mattresses, which have been identified as priority recyclable materials for King County.

- Asphalt Roofing Shingles: Currently, 40,000 tons of asphalt shingles generated in King County are disposed in landfills each year. For several years, LinkUp has worked to create a viable recycling market for this material. The award-winning "Shingles in Paving" project tested the performance of a two-mile stretch of road paved with asphalt containing recycled asphalt roofing shingles. Second-year tests have confirmed that the pavement continues to perform as well as traditional asphalt pavement. In 2011, King County's Department of Natural Resources and Parks began to use newly developed pavement specifications for asphalt containing recycled shingles.
- **Carpet:** Consistent with the Northwest Carpet Recycling Strategy, LinkUp worked to facilitate supply chain development. The program co-hosted a meeting for key recyclers, carpet processors and flooring business representatives in the Northwest. The meeting provided an opportunity for these businesses to learn about the rapidly developing supply chain for recycled carpet in the Northwest; network with companies that may be

strategic partners, suppliers and/or customers; and learn about available resources and services that can facilitate success.

LinkUp facilitated the development of the 2011 Carpet Removal Best Practices for Carpet Recycling (Best Practices). The Best Practices, when used, will help ensure that carpet removed from buildings is suitable for recycling. This is the first known document that clearly lays out the air quality and worker safety regulatory requirements related to carpet removal, which protect workers and building owners/occupants. The Best Practices were promoted to flooring professionals throughout Washington state.

• Mattresses: LinkUp held a Mattress Recycling Summit, attended by over 50 participants from all parts of the mattress supply chain. LinkUp presented the Take it Back Network as a successful recycling model that could be used for mattresses. Participants discussed the transportation, storage, and cost challenges to recycling mattresses and learned from successful recyclers in the region. In 2011, the Washington State Department of Corrections' Correctional Industries, currently the only mattress recycler in Washington, recycled approximately 40,000 mattresses.

For the first time, the division's 2011 Waste Characterization Study quantified mattresses disposed of through King County transfer stations. The results of this study will be available in the second quarter of 2012.



Options for recycling mattresses are improving in King County.

Program	Intent of Program	Results	
Schools Education Program	Elementary school students learn about resource conservation through assembly programs and classroom workshops, and receive assistance in forming teams to carry out environmental projects.	In the 2010-2011 school year, the program presented assemblies at 50 elementary schools. Many of these schools received both the primary and intermediate versions of the assembly, so 86 total assemblies were presented. The assemblies reached 22,793 students. The program also presented 191 classroom workshops to 4,715 students, and reached 210 students through a community watershed festival. The program registered 65 Green Team classrooms (involving 1,864 students).	
	Middle and high school students participate in EcoConnections classroom workshops, and receive assistance in forming Green Teams to carry out environmental projects.	The program presented 451 workshops to 17,468 secondary students and registered 23 classrooms (600 students total) as Green Teams in the 2010-2011 school year.	
	Green Teams work to make recycling more convert		
Household Hazardous Waste School Program	Workshops for teachers of grades 4 through 12 provide information on household hazardous waste (HHW) and incorporating HHW information into lesson plans for a variety of subjects. Teachers can request follow-up support through classroom presentations and assistance on projects with their students. Parents of young children also receive presentations about HHW.	In 2011, the program provided HHW training to 50 teachers, responsible for 7,806 students. It provided information on teaching HHW to 50 agency staff at the North American Hazardous Materials Management Association conference, and delivered 65 classroom presentations, reaching 1,751 students. Assistance was given to 20 teachers affecting over 2,100 students. Thirteen presentations were given to 150 parents of young children. One presentation was given to 15 adult English Language Learners.	



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Program	Intent of Program	Results
Green Schools Program	 Helps public and private schools and school districts pursue conservation practices in: Waste reduction and recycling (Level One) Energy conservation (Level Two) Water conservation (Level Three) Optional categories, including Environmental education Environmental purchasing Green building Hazardous materials management Litter reduction Transportation options Schools and districts receive recognition after completing criteria in each program level. Levels Two and Three require schools to maintain and build upon the practices initiated in Level One. For a school district to be recognized at Level One, at least 75 percent of the schools in its district must have completed Level One. School recognition includes a banner, a success story on the program website, and mention in a press release issued by the division. 	 During 2011, the program assisted: 148 individual schools serving 88,665 students in 16 school districts and 29 cities Eight school districts (Bellevue, Federal Way, Highline, Issaquah, Kent, Mercer Island, Tahoma, and Vashon) In 2011, the division recognized the following program achievements: 35 schools - Level One 36 schools - Level Two 27 schools - Level Three 1 school district - Level One 1 school district - Level Two In the school year ending in June 2011: 93 percent of school participants raised their recycling rates at least 15 percent, or reached a recycling rate of at least 40 percent. The average recycling rate achieved by elementary and middle school participants was 51 percent; high school participants achieved 50 percent, and private school participants achieved 45 percent. 60 percent of school participants (72 schools) collected food scraps for offsite composting, compared to 48 percent in 2009-10.
Take It Back Network	Provides residents and small businesses with recycling opportunities for electronic products and fluorescent lamps. The network is an ongoing recycling program that the division coordinates with retailers, recyclers, repair shops, and charitable organizations. Network members sign an agreement with the division obligating them to recycle the products in an environmentally sound manner. The division publicizes the network members on the web, in brochures, and through the media.	Twenty locations in the Take It Back Network currently accept electronics, and 69 accept fluorescent lamps. In 2011, network members recycled: •6,654 cell phones •37,063 televisions •30,563 monitors •42,785 computers •62,018 fluorescent bulbs •73,342 fluorescent lamps

Program	Intent of Program	Results
Master Recycler Composter (MRC) Program	Trains volunteers to serve as community educators about waste prevention, recycling, home composting, and alternatives to household hazardous wastes. MRCs learn practical "how-to" information to educate citizens and motivate them to action. MRCs bring information to King County residents' homes, workplaces, community events, neighborhoods, and schools to help people make informed decisions about managing their waste.	Eighteen new volunteers received training, joining about 140 active volunteers. MRCs participated in 113 outreach events, recording more than 890 hours of outreach to more than 19,670 King County residents. In 2011, much of this activity focused on the "Recycle More. It's Easy to Do." campaign in the focus cities. MRCs provided information on curbside recycling and food scrap recycling through presentations to groups; information booths at community events, such as Issaquah Salmon Days and Kent Cornucopia Days; and distributing samples of compostable food scrap bags at farmers markets and retail stores throughout the county.
Household Hazardous Waste	As a part of the Local Hazardous Waste Management Program (LHWMP), the division operates the Factoria Household Hazardous Waste Drop-Off Service and coordinates the Wastemobile mobile collection program, which includes special collection events throughout the county and regularly scheduled service at the Auburn SuperMall. These services are funded through a surcharge on solid waste disposal and wastewater discharge. There is no direct fee for utilizing the service. Wastes collected are reused by other customers, recycled, or properly disposed, as appropriate.	The Wastemobile served 9,227 customers and collected 195 tons of materials in 21 events in 2011. The twice monthly Auburn SuperMall Wastemobile service collected 310 tons of materials from 4,047 customers. Together, both Wastemobiles served 13,274 customers and collected 505 tons of materials. The Factoria Hazardous Waste drop-off served 14,408 customers and collected 355 tons of materials in 2011. The King County facilities served 154 small quantity generator business customers and collected 12 tons of hazardous waste from small businesses.
Bag Your Bags	"Bag Your Bags. Bring'em Back." is a public awareness campaign promoted through media events with retail partners to encourage plastic bag recycling at grocery stores. Strategies used to raise awareness of the nearly one million pounds of plastic bags and film disposed annually in King County include radio and online public service announcements.	The division kicked off its second campaign with a three week contest between elementary schools in Burien and Des Moines to collect plastic bags. In a media event covered on three local TV stations, in two newspapers, and online, students from the winning school filled a school bus with the 630 pounds of plastic bags and film they collected. A partnership with four grocery chains including 64 stores throughout the county encouraged plastic bag recycling and use of reusable bags.
Best Workplaces for Recycling and Waste Reduction	Best Workplaces is a recognition program for businesses that have successful waste prevention and recycling programs in place. Each business provides a profile describing how those programs qualify their business as a Best Workplace for Recycling and Waste Reduction, and offering advice to other businesses.	In 2011, the division named 89 local businesses to its fifth annual "Best Workplaces for Recycling and Waste Reduction" list, and introduced a new Honor Roll for businesses that have made the list for five years in a row. Innovative strategies included staff emails on "green topics of the day," and a commitment to using fewer than six reams of copy paper in one year.



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Green Building

The division's green building program – GreenTools – supports internal county agencies, cities, the building community, and the public in designing buildings and structures that have fewer impacts on the environment, are energy efficient, and use recycled materials. In 2011, GreenTools won Public Sector Leadership Awards from Cascadia Green Building Council and Built Green of King and Snohomish Counties.



Sustainable Cities Program

In 2011, GreenTools delivered 12 roundtable events, five technical trainings, two tours, and the GreenTools Government Confluence. The Government Confluence, held in conjunction with the 2011 Built Green Conference, was a programming highlight. At this event, the winner of the Little Footprint Big Forest contest, a cargo-container design competition, was announced to an audience of 155 conference attendees. Also at this event, several cities signed the King County-Cities Climate Collaboration pledge, highlighting the partnership between King County and the cities in fighting climate change and bringing the total number of signatory cities to seven.

Construction and Demolition Recycling Program Supports Green Jobs

An exciting development in 2011 was the hiring, under the Department of Community and Human Services' YouthSource program, of a deconstruction crew lead. The crew lead manages a rotating deconstruction crew of three to seven young adults between the ages of 18 and 21 who have dropped out of high school and are working to earn their GED or diploma credentials. Each group of program participants goes through safety and equipment training, as well as training in basic work practices. The crew then works together to entirely deconstruct a house, diverting the majority of materials for reuse and recycling. This federally-funded work training program provides crew services to King County at no cost to the project. The crew takes about a month to deconstruct one 1500 square foot house. Crew members were kept busy in 2011 removing houses located on floodplains for the Water and Land Resources Division.

GreenTools launched the CleanBin program in 2011 to recognize jobsites that demonstrated best practices for separating construction and demolition (C&D) garbage from recyclable materials. This means, at a minimum, always having two containers at the job site – one for materials that can be effectively recycled, and another container for the C&D materials that are truly waste.

Two jobsites were recognized in 2011:

- St. Elizabeth Hospital This project, managed by Sellen Construction, had an overall diversion rate of 99 percent.
- zHome This project was managed by Ichijo USA Co., LTD with an overall diversion rate of 92 percent.



Workers sort recyclable C&D materials from the waste stream.

Green Building Assistance Provided to Innovative Projects

The division awarded green building grants and provided technical support to two important green developments completed in 2011. Adjacent to one another in Issaquah, the zHome and YWCA Village developments are each significant for very different reasons. The division's GreenTools program worked with community partners to develop the nation's first zero-energy, carbon neutral multifamily community in the zHome development. ZHome is the highest rated Built Green project ever certified. It received the Forest Stewardship Council's Project of the Year award, and was King County's first Salmon Safe and U.S. Environmental Protection Agency Water Sense certified project. The YWCA Village provides 146 units

Green Building (continued)

of affordable housing in a transit-oriented, low impact development that features green materials and numerous energy efficiency measures. The residential buildings in the YWCA Village earned Built Green five star certification, while the commercial buildings and community center were awarded Leadership in Energy and Environmental Design (LEED) Gold.

In further support of equity and social justice in King County, GreenTools has joined with Habitat for Humanity and Miller Hull Partnership on the Immediate House of the Future project. The project kicked off in 2011 with a workshop attended by over 60 local experts who focused on four major topics: Construction, Energy, Program, and Site, prioritizing repeatable solutions for near-term Habitat for Humanity projects. The Immediate House of the Future is also a recipient of King County's final LEED grant funds. It will be completed in 2012 on the grounds of the Seattle Center before moving to its final home in the Hope IV neighborhood of Rainier Vista.

In 2011, two more recipients of the county's green building grants earned green certification. Pond Lily, a wet lab at the Mercer Slough Environmental Education Center, received five star certification from Built Green. In 2011, LEED grant recipient Kenmore City Hall received LEED Gold Certification.

Green Building Team Assists Countywide Green Building

The division coordinates and staffs the countywide Green Building Team in accordance with King County Ordinance 16147. This multi-agency team is charged with helping King County projects optimize their performance in green building. In 2011, GreenTools staff completed the King County Green Operations and Maintenance (O&M) Guidelines, which will establish a



ZHome is the nation's first zero-energy, carbon neutral multifamily community.



The YWCA Village makes affordable housing sustainable.

standard for greening O&M at all King County facilities. This tool will provide guidance and support to O&M staff in developing sustainable practices.

A Greenhouse Gas (GHG) Emissions Calculator was also created in collaboration with the Climate Change Team as a tool for project managers to quantify GHG emission savings from green building efforts. In addition, nearly 100 staff were trained to use an updated life cycle cost analysis tool. Conducting life cycle cost analysis helps project managers select cost effective design alternatives, and is a prerequisite for projects utilizing King County's Sustainable Infrastructure Scorecard.

The 2011 King County Green Building Summit and Excellence in Building Green Awards Ceremony was held at the brand new Brightwater Environmental Education and Community Center with participation from eleven county divisions and over 125 county employees. More than three dozen employees were honored by Executive Dow Constantine for their work that helps maintain the county's position as a national leader in cost-effective and sustainable building practices.

Green building activity by King County agencies in 2011 consisted of 10 LEED projects, and 202 projects using the Sustainable Infrastructure Scorecard, bringing the inventory of completed Sustainable Infrastructure Scorecards to 251. On average, King County capital projects diverted 79 percent of construction materials from landfills. Salvage and deconstruction assistance, including on-site building assessments, was provided on 31 different King County projects.





Environmental Stewardship

The division places environmental stewardship at the forefront of all its activities and plans. Through its participation on the countywide Climate Team, the division continues to support the Executive's 2007 King County Climate Plan through its operations and programs, as well as its participation on state and regional forums.

Climate Action

In 2011, the division and its partners, with grant funding from the U.S. Department of Energy, completed a groundbreaking greenhouse



gas emissions inventory. The project updated the results of a previous, traditional inventory that measured direct emissions occurring within the county's geographic boundaries. A second, innovative approach counted all emissions resulting from consumption in King County, regardless of where the emissions actually occurred. Thus, emissions generated in the manufacture of goods exported from King County were not counted, but emissions generated in the manufacture of goods consumed in King County were. This new method draws attention to significant upstream emissions resulting from consumption choices made in the county, particularly of food, goods and services, further emphasizing the significance of waste reduction and recycling efforts. This was the first consumption inventory performed in the United States.

The division has developed a series of web pages designed to illustrate the connection between "stuff" and climate change. The website highlights the fact

that products and services we all purchase, use and throw away have a significant impact on the climate. Visitors to the website can learn how making purchasing decisions that reduce or prevent the use of materials, and making product "end of life" decisions to reuse or recycle can reduce their emissions. The website also contains information about actions that the division and other county agencies are taking to address climate change. In the division, these actions include, among others, proper management of landfill gas, promotion of organics recycling throughout the county, and pursuit of operational efficiencies to reduce energy use and fuel consumption.

The division's climate team produced an addendum to the 2010 report "Responding to Climate Change" that provides the performance measures, targets, and 2010 results for seven of the actions included in the original report. Several other actions undertaken by the division in 2011 to address climate change were also highlighted.



Solar panels on the roof of the new Bow Lake transfer building will provide some of the structure's energy needs.

Environmental Stewardship (continued)

New Ordinances Improve County's Environmental Footprint

In an effort sparked by an employee suggestion, the division coordinated with several county agencies to develop Ordinance 17074. This legislation requires all county agencies to use 100 percent recycled paper; to print documents double-sided; and to implement other paper reduction efforts. These efforts are expected to reduce overall paper use throughout the county by 20 percent over the next two years. King County will save about \$100,000 per year, and avoid the production of 100 tons of industrial solid waste.

With the passage of Ordinance 17085, King County became the first county in the state - and only the second in the nation - to formally ensure that all county agencies recycle electronic waste like computer monitors, TVs, and cell phones in an environmentally responsible manner. This ordinance qualifies the county to earn the "e-Steward Enterprise" designation based on the standard for responsible recycling and reuse of electronic equipment established by the watchdog group Basel Action Network. The ordinance guarantees the responsible management of about 90,000 pounds of electronic waste each year.

Leadership in Illegal Dumping Cleanup Continues

The division continues to take a leadership role among the numerous agencies that share responsibility for handling cleanup of litter and illegal dumping in King County. Three of the division's programs deal with litter and illegal dumping: the Community Litter Cleanup Program, the Community Cleanup Assistance Program, and the Illegal Dumping Hotline. The Community Litter Cleanup Program funds prevention and education programs, as well as the cleanup of litter and illegal dumpsites on public lands and waterways in King County. In 2011, more than \$106,000 from the division was spent on the program, with an additional investment of over \$27,600 in grant money from the Washington State Department of Ecology. This partnership allowed crews to clean up approximately 74 tons of debris from 105 sites. About 20 percent of the debris was recycled – recycled items included tires, appliances, and junk vehicles.

The Community Cleanup Assistance Program (CCAP) was implemented in 2008 to help keep our communities clear of litter and illegal dumping. Through CCAP, county and city environmental site inspectors can request solid waste disposal vouchers that waive the disposal fee for 1) victims of illegal dumping and 2) those on a limited or fixed income who need assistance cleaning up their properties. Throughout King County, 285 vouchers were redeemed in 2011. Residents in unincorporated King County and in 18 of the suburban cities used the program to clean up dumped waste on private property.

The voucher program has inspired tremendous good will between the county and the cities and between the county and its residents. Victims of illegal dumping appreciate that the program removes the financial burden from the frustrating situation of having to clean up someone else's garbage. The program saves agencies and residents money by getting problem sites taken care of quickly and decreasing the need for repeat inspections and costly enforcement actions.







Environmental Stewardship (continued)

The division manages the Illegal Dumping Hotline, which is staffed around the clock, and maintains the database that tracks all calls received. The division undertook an upgrade to the hotline in 2010 that added a mapping function. The upgraded application has proved to be much more versatile and efficient, reducing the amount of time required to take an illegal dumping report. In 2011, the hotline took 720 calls. Nearly all of these were reporting the location of an illegal dump site.

Brownfields Work Continues to Enhance the Urban Environment

The purpose of the King County Brownfields program is to promote cleanup and reuse of contaminated sites. The program uses U.S. Environmental Protection Agency grant funds to conduct environmental site assessments and provide technical assistance to businesses, municipalities, and nonprofit organizations in the county. The division contracts with the nonprofit Environmental Coalition of South Seattle and environmental consultant CDM Smith, Inc. to implement the program.

In 2011, CDM Smith conducted the following environmental site assessments:

- Supplemental Phase II assessment for the City of Enumclaw to better determine the extent of contamination and the cleanup cost of a former oil distribution site the city wishes to have redeveloped into senior housing.
- Phase II assessment to determine the extent of a solvent plume on the former Raincheck Cleaners site, which the City of Bothell is planning to purchase and redevelop into a mixed use municipal campus which will include a new City Hall.
- Phase II assessment to determine the extent of contamination on a site now owned by the City of Federal Way. Underground storage tanks from a former gas station were removed from the site, which is adjacent to an area intended for wetland protection.
- Phase I assessment for the Interim Community Development Association to determine the extent of contamination on the site of a former garage in Seattle's International District. Interim wishes to have the site redeveloped into affordable housing.



The division cleaned up 16 illegally dumped cars in 2011.



Underground storage tanks were removed from a former gas station in the City of Federal Way.

Capital Projects

The division is in the midst of a more than \$300 million modernization of its 1960s-era network of transfer stations in order to meet the needs of the residential self-haulers, businesses, and garbage collection companies who use them. Replacement or renovation at the Vashon, Enumclaw and Shoreline transfer stations has been completed. The division is currently constructing an expanded recycling and transfer station at Bow Lake. The schedule calls for the Factoria Transfer Station to be rebuilt when construction is completed at Bow Lake. Two new recycling and transfer stations are scheduled to be built by 2018. After those stations are completed, the Algona and Houghton transfer stations will be closed. Depending on the locations of the new stations, the Renton Transfer Station may also be closed.



Houghton Transfer Station Mitigation Project Wins Award

After a mitigation project at Houghton Transfer Station improved customer and employee safety, and addressed impacts of station operations on the neighborhood, the station returned to normal operations for all customers in January 2011. Improvements such as raising and strengthening the existing roof to meet current codes and building a sound wall will allow the station to continue operating until it can be replaced. The American Public Works Association's Washington State Chapter awarded the Houghton renovation "Project of the Year" in its category for 2011.

Bow Lake Recycling and Transfer Station Buildings Completed

Construction of the new Bow Lake Recycling and Transfer Station at the site of the existing facility in Tukwila continued throughout 2011. The structure of the transfer station building was erected and the staff building was largely completed.

The division will seek LEED Gold certification for this project. Green features include solar panels on the staff building, rainwater harvesting and energy

efficient design. With help from the LinkUp program, project specifications for asphalt were revised to require use of recycled asphalt roof shingles. This will earn the project additional points towards achieving LEED Gold.

Throughout 2011, the project remained on schedule and within budget, and maintained a stellar safety record with no lost-time injuries. Throughout construction, the division has successfully continued to serve both commercial and self-haul customers at the existing station.



The new transfer building for the Bow Lake Recycling and Transfer Station.







Capital Projects (continued)

Factoria Recycling and Transfer Station Design

Preliminary design for the new Factoria Recycling and Transfer Station began in 2011. Value engineering was performed on the preliminary design, and in response to declining tonnage, changes were made to the project scope that will significantly reduce construction costs. At the close of 2011, the project was approaching the 30 percent design milestone.

Division Set to Site Two New Transfer Facilities

After an extensive review process, the division selected the consulting company URS to assist in siting two new transfer facilities to replace the aged Houghton and Algona transfer stations. URS was one of several companies that responded to the request for proposals, and was selected after a review of its proposal and two interviews. The division will seek community involvement and consider issues of equity and social justice throughout the siting process for the new Northeast County and South County Recycling and Transfer Stations.



Modifications to the Factoria Recycling and Transfer Station design will save millions in construction costs.

Public Information

The division has added social networking tools such as blogs, Facebook, and Twitter to traditional communication approaches such as brochures, fliers, telephone calls, and web page updates. These media are more than just a way to get messages out – they are avenues for learning from the public and others working in the field of solid waste, recycling, waste prevention, "green" living, and more. The division is a leader among public agencies in utilizing the full array of communication strategies available to engage with its customers and stakeholders.

The division's website continues to be a well-tapped source of solid waste information, with well over a half million visits to the site generating more than 1.2 million unique page views in 2011 - an eight percent increase in visits compared to 2010. Over 80 percent of those visits were to the following sites:

The "What Do I Do With …?" feature: Guides the user to the many vendors that accept materials for reuse, recycling, or disposal.

Transfer station- and facility-related information: Includes division hours of operation, directions, and station closures, as well as daily updates on the status of facilities during major weather events. **Garbage and Recycling site:** Includes city-specific curbside hauler information, location and driving directions to the nearest transfer facilities, contact information for each suburban city and details about special recycling events. The site also includes environmental education topics such as "Recycle More. It's Easy To Do." and the Zero Waste website.

The Take it Back Network: A partnership of government agencies, retailers, repair shops, charitable organizations, and recyclers that provides consumers with options for recycling certain wastes – and their hazardous components – in a safe and cost-effective manner.

The division's Customer Service Unit (CSU) fields customer inquiries that come by telephone and through the "Contact Us" website comment form. In 2011, the team responded to nearly 38,000 telephone inquiries and 1,062 website email requests. The CSU assists customers with website searches to help them download brochures and access detailed information about programs. The CSU also answered 484 calls to the Illegal Dumping Hotline.

2011 Solid Waste Division Awards

National

Houghton Transfer Station

Roofing and Mitigation Project Project of the Year -Structures Less Than \$5 Million Category American Public Works Association

Alkaline Battery Project

Program Innovation North American Hazardous Materials Management Association

LinkUp Shingles in Paving Project

NACo Achievement Award, Best in Category, Environmental Protection and Energy National Association of Counties (NACo)

State

King County Elementary School Assembly Program *Recycler of the Year – Youth Education* Washington State Recycling Association

Local

Cedar Hills Regional Landfill *Commitment-to-Compliance Award (Gold)* King County Industrial Waste Program

Houghton Transfer Station

Roofing and Mitigation Project 2011 King County Excellence in Building Green Planning Award King County

King County GreenTools

Built Green Public Advocate Award Master Builders Association of King County

Planning for the Future

In 2012, the division will transmit the final proposed 2012 *Comprehensive Solid Waste Management Plan* for approval by the Metropolitan King County Council and the cities. The plan builds upon the division's efforts to increase waste prevention and recycling and to advance green building practices in the region and in its operations. The division will continue to refine operational practices and facility designs in ways that further reduce its carbon footprint and promote the greening of the natural and built environments.

The division will continue to renovate and replace its aging transfer facilities according to the approved *Solid Waste Transfer and Waste Management Plan* (Transfer Plan). The new Bow Lake Recycling and Transfer Station building will begin operation while the old building is demolished and replaced with a recycling area. The division will begin working with stakeholders to identify potential sites for new transfer stations in the northeast Lake Washington area and in the south county to replace capacity when the Algona and Houghton transfer stations are closed.

The current interlocal agreements (ILAs) between 37 cities (all cities in King County except Seattle and

Milton) and the county will expire in 2028. As the county prepares to issue bonds to finance the renovation of the transfer system, as approved under the cooperatively developed Transfer Plan, ensuring adequate revenue to repay the bonds is critical. Because the ILAs require participation in the county's solid waste system, all bonds must be repaid before the expiration of the ILAs. This could be accomplished through shorter bonds that are repaid by 2028 or through longer ILAs and bonds of greater length. Cities and the county are discussing potential changes to the ILAs, and expect to conclude discussions in 2012.

After the cities and the county complete ILA discussions, decisions will be made about financing the transfer system improvements. Those decisions will have a significant effect on the new, multi-year solid waste rate that the division will propose for 2013 and beyond. This rate will keep fee increases to a minimum while providing the funds necessary to operate the system at the current level of service, and allowing for essential improvements to the solid waste transfer system.





Planning for the Future (continued)

Solid Waste Projections

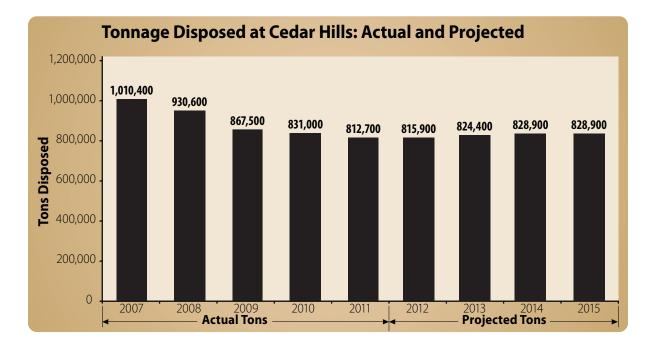
Projections of solid waste tonnage play an important role in planning, as fees for disposal are the division's primary source of revenue. These projections are developed using an econometric model that incorporates variables such as population, per capita income, employment, and the disposal tipping fee. Also factored into the equation is the estimated success of future waste prevention and recycling efforts in reducing the rate of solid waste disposal. The recycling rate in 2011 approached 50 percent.

The current recession, with high unemployment, significant under-employment, lowered housing prices, and reduced consumer and business spending has led to an overall drop in waste generation. Disposal at the Cedar Hills landfill decreased about 2 percent from 2010, to about 813,000 tons. Since 2007, the tonnage disposed at Cedar Hills has dropped by 20 percent. Decreased waste generation means that recycling tonnage has also dropped.

After the precipitous drop in 2007, tonnage has continued to decrease slightly each year. Although

tonnage may begin to increase in the near future, the division does not anticipate a return to the higher tonnage levels that existed prior to 2007 for many years. Garbage tonnage is expected to remain more or less flat over the next several years. While some increase in total generation due to improving economic conditions is expected, it will be somewhat offset by additional recycling programs, which will divert waste from disposal.

The division has implemented numerous efficiencies and budget controls, including adjusting operating hours and reducing staffing in order to keep rates low for customers. Despite the challenges and pressure on the operating fund, the division has maintained its financial integrity while continuing to serve the citizens of King County and operating a transfer and disposal system that meets or exceeds the highest standards for protection of public health and the environment. In the coming years, the division will continue to look at ways to balance customer needs with cost-effective services as financial conditions change.



Appendices

Note: Throughout the appendices, totals in the table may vary slightly due to rounding.

Table A-1: 2011 Estimated Population and 2011 Housing Data							
Jurisdiction	Multi Family Units 2011	Mobile Homes 2011					
Unincorporated	285,265	92,100	13,400	5,900			
Incorporated	1,045,235	263,900	159,600	11,700			
Total 1,330,500 356,000 173,000 17,600							

1 Includes yard waste, food waste and food-soiled paper

Sources: Office of Financial Management (OFM).

April 1 Population of Cities, Towns, and Counties and 2011 Housing Unit Inventory by County. Used for Allocation of Selected State Revenues.

Table A-2: 2011 Single-Family (1-4 units) Curbside Collection - Service Subscribers (excludes Seattle & Milton)

Area	Curbside Garbage and Recycling	Curbside Organics ¹				
Unincorporated	66,635	28,773				
Incorporated	242,096	178,157				
Total	308,731	206,930				
1 Includes yard waste, food waste and food-soiled paper						

Table A-3: 2011 Single-Family (1-4 units) Curbside Collection - Average Pounds per Month (excludes Seattle & Milton)

Area	Garbage	Recycling	Organics ¹	
Unincorporated	121	53	136	
Incorporated	104	55	117	
Countywide	108	54	119	

1 Includes yard waste, food waste and food-soiled paper

- Recyclables includes other curbside materials not included in Table A-4 (textiles, oil, electronics).

- Estimated contaminants have been subtracted from recycling and organics and added to garbage.

- Organics numbers based upon number of households subscribing to organics service, not number of households receiving garbage service.

Table A-4: 2011 Single Family Curbside Recycling Tonnage (excludes Seattle & Milton)									
	Mixed Paper	News- Print	Card- Board	Glass	Tin & Steel	Alum.	Plastic	Organics	Total
Unincorporated	10,390	3,241	2,658	3,327	449	245	794	23,446	44,550
Incorporated	39,020	12,173	9,980	12,494	1,686	921	2,982	124,794	204,049
Total 49,410 15,414 12,638 15,821 2,135 1,166 3,776 148,240 248,599									
- Material tonnage based on weighted average characterization from consolidated hauler reports.									

- Organics tonnage reported by haulers reduced by 2.1 % to account for estimated contaminants.



Table A-5: 2011 Tons Disposed at Transfer Facilities ¹							
Transfer Stations & Drop Boxes	Total Tons	Total Tons % Self-Haul					
Algona	137,533	27%	73%				
Bow Lake	249,199	19%	81%				
Cedar Falls Drop Box	3,285	100%	0%				
Enumclaw	19,570	58%	42%				
Factoria	121,854	19%	81%				
Houghton	150,379	18%	82%				
Renton	61,872	26%	74%				
Shoreline	44,647	47%	53%				
Skykomish Drop Box ²	999	59%	41%				
Vashon	7,849	69%	31%				
Total	796,188	24%	76%				
1 Tons measured on arrival at Cedar Hills.							

2 Solid waste transported from Skykomish to the Houghton station; this row is not added to totals.

Transfer & Drop Box Stations	Total Transactions	% Self-Haul	% Commercial	
Algona	134,360	87%	13%	
Bow Lake	170,256	76%	24%	
Cedar Falls Drop Box	17,972	100%	0%	
Enumclaw	41,115	96%	4%	
Factoria	98,194	82%	18%	
Houghton	109,317	81%	19%	
Renton	73,226	76%	24%	
Shoreline	70,785	94%	6%	
Skykomish	2,736	93%	7%	
Vashon	20,605	98%	2%	
Total	738,566	88%	12%	

Table A	-7: Total Refuse Ton	nage Disposed, 19	77- 2011		
Year	Rural Landfills	Transfer Stations	Cedar Hills Regional Direct	Cedar Hills Other Waste	Total Disposed
1977	55,100	264,100	-	48,800	368,000
1978	56,746	320,181	-	40,668	417,595
1979	54,498	428,187	156,554	36,342	675,581
1980	54,827	460,577	218,560	35,756	769,720
1981	44,280	509,680	244,417	50,755	849,132
1982	33,890	519,931	213,715	24,943	792,479
1983	32,318	498,643	206,691	9,566	747,218
1984	33,649	527,522	256,459	10,512	828,142
1985	36,862	568,342	268,795	13,592	887,591
1986	39,053	624,247	272,485	22,345	958,130
1987	36,979	681,472	595,058	28,165	1,341,674
1988	38,655	667,651	556,247	39,954	1,302,507
1989	41,614	712,156	476,602	55,462	1,285,834
1990	43,097	846,422	483,950	58,105	1,431,573
1991	28,553	842,083	258,319	53,014	1,181,969
1992	23,656	769,177	119,341	21,317	933,490
1993	21,020	710,077	144,974	24,740	900,811
1994	10,288	631,274	150,400	22,423	814,385
1995	7,388	642,498	146,089	26,610	822,585
1996	7,765	595,300	190,797	23,740	817,602
1997	8,180	610,941	229,007	24,449	872,577
1998	8,229	626,871	226,618	22,004	883,722
1999	3,949	692,921	214,422	18,015	929,306
2000	-	711,565	216,169	19,440	947,174
2001	-	696,665	222,664	16,982	936,310
2002	-	683,966	238,290	17,233	939,489
2003	-	704,128	257,283	17,426	978,837
2004	-	867,917	119,110	19,136	1,006,163
2005	-	944,100	25,304	19,451	988,855
2006	-	962,407	19,331	16,468	998,207
2007	-	956,549	37,099	16,781	1,010,429
2008	-	907,678	8,802	14,137	930,616
2009	-	847,386	5,192	14,902	867,481
2010		811,614	5,664	13,634	830,912
2011		796,187	6,103	10,393	812,683

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Table A-8: 201	able A-8: 2011 Transfer Station and Drop Box Recycling Tonnage							
Origin	Organics ¹	Paper	T-A-P-G ²	Scrap Metal	Appliances / Electronics	Wood	Misc ³	Total
Cedar Falls	362	214	126				3	706
Cedar Hills				101	9		0	110
Enumclaw	458	424	255	55	173	4	7	1,377
Houghton		551	108				3	661
Renton		745	282				6	1,033
Shoreline	3,134	651	154	591	389	49	8	4,976
Skykomish		22	23					45
Snoqualmie		53	44					98
Vashon		135	520		64		4	722
TOTALS	3,955	2,795	1,512	747	635	53	31	9,729

1 Includes yard waste, food waste and food-soiled paper

2 T-A-P-G = tin cans; aluminum cans; plastic bottles, jugs and tubs; glass bottles and jars

3 Includes fluorescent bulbs and tubes, batteries, reusable household goods and building materials, and textiles

Note: The Algona and Factoria transfer stations do not have recycling bins because of space and operational constraints.

Bow Lake discontinued acceptance of materials for recycling during transfer station construction beginning in March 2009.

Table A-9: Number of Telephone Inquiries by Typ	e in 2011
2012 Fee Increase	7
Appliance Recycling	1,191
Bow Lake Renovation	94
Complaints	36
Compliments	2
Computer/Electronics Recycling	414
Construction/Demolition/Landclearing	1,638
Curbside Recycling	441
Directions to Facilities	1,958
Factoria Replacement Project	9
Furniture	933
General/Other Inquiries ¹	2,759
General Recycling	1,375
Hazardous Waste/Wastemobile	1,378
Houghton Roof Project	262
Hours of Operation	4,602
Illegal Dumping	484
Junk Vehicles	79
Latex Paint Disposal Policy	404
Metal	760
Non-Assistance Transfers and Wrong Numbers	1,440
Residential/Business Garbage Issues	1,735
Special Collection Events	458
Special Waste	381
Television	562
Transfer Stations	12,306
Transfer Station Recycling Changes	18
Yard Waste	1,060
Total	36,786
1 Other inquiries include calls about personnel, weather-related event	s, junk mail, school programs, composting, council contacts, etc.

Table A-10: Solid Waste Division Legislation Summary for 2011						
Name	Description	Approved by Council				
Cedar Hills Renewable Energy Credits	Ordinance 17022 - approving the contract with Puget Sound Energy for renewable energy credits.	1/31/2011				
Factoria Recycling and Transfer Station Facility Master Plan	Motion 13455 - approving the Facility Master Plan for the reconstruction of the Factoria Recycling and Transfer Station.	4/8/2011				
Office Paper Savings and Recycled Content	Ordinance 17074 - amending Title 10.16 - Recycled Product Procurement Policy, requiring King County departments to print documents double-sided and implement other paper use reduction efforts, and mandating use of 100% recycled paper.	5/2/2011				
Recycling electronic equipment from King County Departments	Ordinance 17085 - amending Title 10.16 - Recycled Product Procurement Policy, requiring King County departments to recycle unwanted electronic equipment with companies that follow the principles of the Basel Action Network (BAN).	5/9/2011				
ILAs with Snohomoish County and City of Bothell re: Solid Waste Transfer and Disposal	Ordinance 17112 - approving two ILAs - the extension of the solid waste ILA between King County and the City of Bothell from 2028 to 2057 and an ILA with Snohomish County.	6/20/2011				
2011 Budget Proviso 2: Rate Study and Rate Adjustment Ordinance	Ordinance 17184 - A solid waste rate adjustment proposal.	9/13/2011				
Name	Description	Transmitted to Council				
SWD Annual Report	Solid Waste Division Annual Report as required by KCC 10.14.080, 10.24.020, and 10.25.030.	4/28/2011				
Capital Improvement Plan Reallocation Report	Report required by KCC 4.04.275.	5/12/2011				
2011 Budget Proviso 1: Landfill Gas-to- Energy Report						



Chart A-1: Solid Waste Division Actual Revenues and Expenditures Year ending 12/31/2011

ager / Administ	ration	
Waste Prevention & Recycling and Mod. Risk Waste	 Education Technical and financial assistance Collection services 	Expenditure \$8,616 24
Landfill Operations	 Operate and maintain active and closed landfills Landfill and equipment replacement transfer Landfill rent 	Expenditure \$25,468 50
Transfer Station Operations	Collect fees Monitor waste Equipment replacement transfer	Expenditure \$12,577 93
Transportation Operations	Transport garbage to landfill Haul leachate & maintenance material Equipment replacement transfer	Expenditure \$9,287 62
Maintenance Operations	Maintain facilities and equipment Procure and control inventory	Expenditure \$7,971 62
Operations Administration	Operations management and administration Training	Expenditure \$879 8
Capital Facilities ¹	 Plan and execute capital projects Environmental monitoring Operations support 	Expenditure \$4,888 37
Debt Service		Expenditure \$4,404 0
Administration & Fiscal Services	 Manage fiscal functions Administer customer service Personnel functions Payroll Planning Communication 	Expenditure \$13,217 57
1 Operating portion o	nly of capital facilities budget; does not include debt-financed desigr	n/construction costs.
Summary of 2008 Actu	al Activities	
2011 Total revenue 2011 Total operatir Fund balance 2011 Total employe	s og expenditures	\$83,448 \$87,313 -\$3,864

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