

2016 Solid Waste Division Annual Report



Mount Rainier looming in the distance of the Cedar Hills Regional Landfill is a constant reminder of our environmental mission.



King County

Department of
Natural Resources and Parks
Solid Waste Division

Message from the Director

I am pleased to present the Solid Waste Division's 2016 Annual Report, which highlights our major achievements in waste prevention, resource recovery, and waste disposal.

This past year was an especially important one for our division as we celebrated a major milestone – 50 years of operations at the Cedar Hills Regional Landfill. In April, we invited members of the public to come to the landfill and see our operations up close and personal. As we toured the landfill we wanted the public to understand just how much has changed since the late 1960s when the landfill first began operating. Even more, the public gained a greater appreciation for this environmentally advanced local approach for managing the region's waste.

While our operation continues to provide a cost-effective and environmentally responsible service, we did request a modest increase in our solid waste disposal fees in 2016. The King County Council adopted a new rate structure of \$144.34 per ton with a minimum fee of \$24.25. This change will ensure our ability to address new regulatory requirements, replace aging equipment and expand our service offering to our customers through facility improvements such as the new Factoria Recycling and Transfer Station which is currently under construction. Our rates remain lower than other regional systems such as Seattle and Pierce County facilities.

One of the most important aspects of our business is the development and implementation of waste prevention and recycling programs. After all, 70 percent of the materials sent to the landfill have value and could be recycled instead.

Consequently the Solid Waste Division offers unique and effective waste prevention programs to county residents – programs like *Recicla Mas* and *Threadcycle* that work with

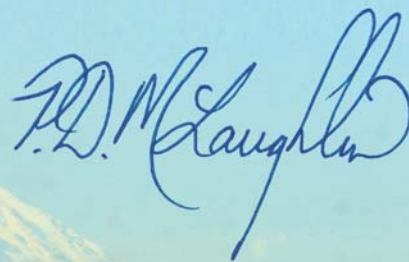
community members and local organizations to spread the message about how to properly prevent waste, or *Green Schools* and *Earth Heroes at School* that focus on the next generation of recyclers, composters, and conservationists.

In 2016, the Solid Waste Division expanded its recovery efforts at its Recycling and Transfer Stations, ensuring valuable resources such as cardboard, scrap metal, or clean wood are not being wasted. The results were we increased the recycled tonnage by 41 percent at transfer stations. These materials, and many others, have established markets and are worth much more if they are routed back into the economy instead of decomposing in the landfill.

For the materials that are already buried, our landfill gas collection system captures methane gas – a resource that, once collected and processed, becomes a valuable form of renewable energy. Our partnership with BioEnergy Washington resulted in another record year of clean energy production for our region and provided revenue to subsidize rates. Production volume increased by 21 percent and revenue grew by \$1.5 million.

It is a great privilege to serve people who care about our shared environment and who believe in our mission. Our work from this past year makes us proud, and it could not have been possible without the support of our customers, partnering cities, advisory committees, our valued staff, the King County Executive, and the King County Council.

Together, we will continue to build on our past successes while always looking ahead for new opportunities and meeting the challenges that come next.



Recicla Mas event.



Waste Prevention

Preventing waste from entering the waste stream is paramount to the division's goals of achieving a 70 percent recycling rate and having zero waste of resources by 2030. From recycling pilots to ordinances that require certain materials to be recycled to education programs, 2016 was another important year for the Solid Waste Division's waste prevention efforts.

Vashon Food and Yard Waste Pilot Becomes Full-Fledged Program

In late 2015, in collaboration with the nonprofit Zero Waste Vashon, the division began a one-year pilot project that brought yard and food waste recycling services to the Vashon Recycling and Transfer Station. Following the successful pilot program during 2016, the division decided to make those services a regular feature of the facility. During the pilot period, customers brought 584 tons of yard and food waste separated from garbage to the facility. The materials are transported to Cedar Grove Composting, Inc. in Maple Valley where they are turned into nutrient-rich compost.

Green Schools has helped schoolchildren like those at Arthur Jacobsen Elementary School to become the next generation of recyclers, composters, and conservationists.

Enhanced Participation in Green Schools program

The division's Green Schools Program provides resources, supplies, and assistance to the next generation of recyclers, composters, and conservationists. As of December 2016, 250 schools – 50 percent of the K-12 schools in King County outside of the City of Seattle – have been or are being assisted by the King County Green Schools Program. More than 165,000 students in those schools have had opportunities to learn about and engage in waste reduction, recycling, and other conservation practices. Of those 250 schools, 214 have been recognized by the program for meeting criteria in one or more program level.

Recycling Pilots Target Mercury Lighting, Plastic Wrap, and Polystyrene

Recycling services for spent mercury lighting continued for the second year at the Bow Lake, Shoreline, Vashon, and Enumclaw recycling and transfer stations. Part of the state-sponsored LightRecycle WA program, the division collected more than 31,000 pounds of mercury-containing lightbulbs and tubes. At Shoreline and Bow Lake, the division began a pilot project offering recycling services for polystyrene and for plastic wrap and film. The first 10 months of the pilot saw 24,000 pounds of these materials collected at the two stations.



Waste Prevention Continued

New Ordinance Mandates Construction and Demolition Waste Recycling

Construction and demolition waste (C&D) makes up one-third of the solid waste generated in the county. A new C&D ordinance became effective in 2016 that furthers the division's recycling and climate change mitigation efforts by mandating recycling of selected C&D materials. In 2016, the division partnered with 12 privately managed facilities to handle C&D, exceeding the division's initial goal of seven facilities. As a result, more than 160,890 tons of C&D were recycled, an increase of 152,777 tons. The new fee structure incentivizes recycling and provides revenue to the division to provide ongoing program oversight and enforcement. The data provided by the Washington State Department of Ecology on the C&D recycling rate lags two years behind the reporting period. In 2014, the C&D recycling rate was 80 percent.

The division contracts with the King County Sheriff's Office to assist in enforcing the new regulations. Each week a detective visits jobsites to surveil management of C&D. Since the new ordinance was passed, the division held four stakeholder meetings to discuss the enforcement program. Initial enforcement activities focused on education and outreach (rather than fines) to inform the construction industry of the need to send C&D to designated processing facilities. When potential violations are noted the detective takes immediate action to inform the hauler and contractor of the requirements. In 2016, the division started issuing warning letters to potential violators. Seven warning letters were issued in 2016. The division also suspended one of the designated facilities based on compliance issues, and conducted a detailed financial audit at another facility that resulted in collection of additional fees and improvements to its recordkeeping procedures.



Primary and Secondary Recyclables

As specified in the *Final 2001 Comprehensive Solid Waste Management Plan*, materials designated as recyclable are divided into two categories – primary and secondary. Primary recyclables are materials that have a curbside collection program available throughout most of King County. Secondary recyclables are materials currently not collected in most curbside programs, but which have recycling options and markets.

Primary Recyclables

- Newspaper
- Cardboard
- High-grade office paper
- Computer paper
- Polycoated paperboard
- Mixed paper (may include paper grades listed above)
- Plastic containers #1 through #7, excluding #6 polystyrene
- Yard waste (including woody materials less than 3 inches in diameter)
- Food scraps and food-soiled paper
- Glass containers
- Tin cans (steel cans)
- Aluminum cans
- Ferrous and non-ferrous metals (subject to size limitations)

Secondary Recyclables

- All other single-resin plastics not included as primary recyclables
- Electronics
- Textiles
- Photographic films
- Toner/ink cartridges
- Reusable household and office goods
- Fluorescent lamps
- High-intensity halide lamps
- Plate glass
- Tires
- Batteries
- Fats and oils
- Porcelain
- Appliances
- Carpet and pads
- Bulky yard waste
- Untreated wood
- Land-clearing debris
- Reusable building materials
- Used oil and oil filters
- Anti-freeze
- Gypsum

Resource Recovery

Whether it is removing recyclable materials from the waste stream and putting them back into the economy or recapturing gases produced by garbage decomposition, resource recovery is all about getting the most out of materials. Not only does resource recovery have important environmental benefits, it also helps the division as it continues to work toward its goal of zero waste of resources.

Recycling Goal Exceeded

When 2016 began, the Solid Waste Division set a goal of recycling 24,000 tons of materials. With an expansion of recycling services at transfer stations and drop boxes and more customers doing their part to recycle, the division surpassed its goal by handling 25,560 tons of recyclable and compostable materials. This represents a 41 percent increase in recyclable materials brought to division facilities compared to 2015. Yard waste accounted for half of the total tons of recyclable material collected, followed by scrap metal, commingled recyclables, clean wood, and cardboard.

Resource Recovery Program Expands, More Materials Successfully Recycled

After successful results at the Shoreline and Enumclaw recycling and transfer stations, the division expanded its Resource Recovery program to the Bow Lake Recycling and Transfer Station. This expansion included mechanical sorting of the targeted materials – cardboard, clean wood, and scrap metal – on the tipping floor. Transfer Station Operators also spent more time informing and encouraging customers on how to sort their loads. Resource Recovery resulted in 5,816 additional tons of cardboard, clean wood, and scrap metal recovered in 2016.

More Efficient Gas Collection and Better Market Prices Results in Increased Revenue

BioEnergy Washington (BEW), which contracts with the division to process landfill gas into pipeline-quality Renewable Natural Gas (RNG) for sale to Puget Sound Energy, produced more gas and generated more revenue for the division than ever before. With improved collection operations from the Solid Waste Division and better processing at the plant, BEW processed 21 percent more gas than in 2015. With increased RNG market prices, the division received \$2.3 million in revenue from gas it delivered to BEW from January through October 2016, about \$1.5 million more than over the same period in 2015.

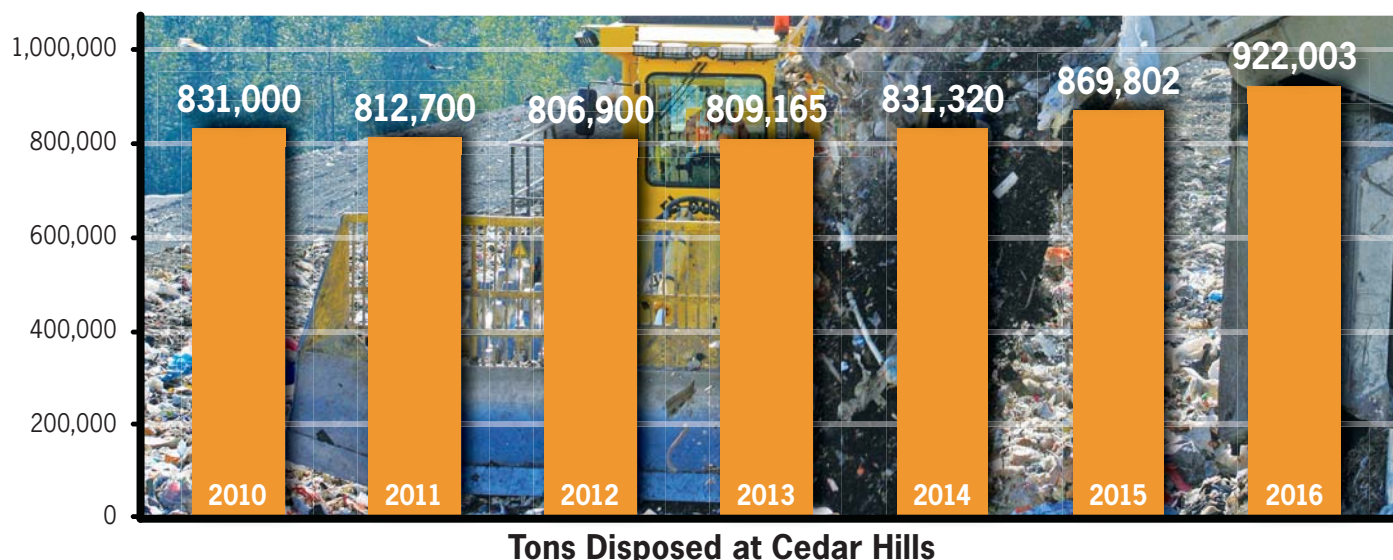
Green Building Roundtables Provide Valuable Tools and Information to Stakeholders

The *GreenTools* program supports internal county agencies, cities, builders, and the public in designing buildings and infrastructure that have fewer impacts on the environment, are energy efficient, and that use recyclable materials. Six years ago the program developed the “Sustainable Cities Roundtables” to help jump-start conversation and change at the local level. In 2016, with \$23,000 obtained through a Bullitt Foundation grant, *GreenTools* initiated a series of “next-generation roundtables” that sought to enhance the roundtable experience by offering more detailed sessions with green building experts. In total, *GreenTools* held six roundtables and 11 workshops across King County. Roundtable discussions ranged from planning for resilience in infrastructure to improving energy efficiency, among many other topics.



Sorting resources like cardboard helps return these important commodities back into the economy.

Waste Disposal



Even with the advances made in waste prevention and resource recovery, waste disposal remains a core piece of the Solid Waste Division's business. Compared to 2015, total tonnage in 2016 grew by 6 percent, about 52,200 tons, to 922,003 total tons of garbage disposed at transfer stations and the Cedar Hills Regional Landfill. In 2016, the division worked to make the collection, transfer, and disposal of those thousands of tons of trash more efficient.

Transfer System Continues Necessary Updates with New Factoria Transfer Building

In mid-May, the division opened a new Factoria Transfer Building in Bellevue to replace the old 1960s-era facility. The new 70,000 square foot building uses a "flat floor" design that lets customers unload their garbage directly onto the tipping floor instead of into trailers. This allows for more efficient traffic flow and flexibility in waste collection and processing. Initial measures indicate that customer service times have improved by 17 percent. Additionally, garbage compactors at the new facility have resulted in 500 fewer transfer trailer trips needed to transport the waste from Factoria to the landfill since the new building opened.

Collaboration with King County Sheriff's Office Aids in Proper Disposal of Ammunition

The Solid Waste Division collaborated with the King County Sheriff's Office to create a new household hazardous waste service – ammunition disposal. Every year, the Sheriff's Office collects about 2,000 pounds of ammunition. In the past, deputies destroyed the ammunition via burn trailers that exposed them to unhealthy fumes and created environmental issues from emissions and ash. Now the collected ammunition is sent to

a facility in Texas where the ammunition is dismantled and materials are recycled and reused. The Sheriff's Office provides collection, secure storage, and pick-up locations. Payment for disposal is funded by the Local Hazardous Waste Management Program.

A flat floor design at the new Factoria Transfer Building makes unloading easier for both commercial and self-haul customers.





Installation of a new pipeline will add redundancy to the existing system and make gas collection more efficient.

Updates to Landfill Gas Pipeline

To add redundancy to the existing landfill gas conveyance system that transports collected landfill gas to BEW for processing, the division began the installation of a second pipeline at the Cedar Hills Regional Landfill. The new pipeline is a 30-inch diameter high density polyethylene pipe buried two-to-four feet underground. The new pipeline will be used as the primary pipeline for transporting landfill gas to BEW and will operate under a vacuum. The existing pipeline will be used in a back-up capacity. This will allow maintenance and testing to occur, and still allow landfill gas to be delivered to the plant for processing into renewable energy. The new system will be

fully operational in early 2017. The division also installed 20 new precision valves that have improved the division's ability to fine-tune landfill gas collection.

New Web Cameras Enhance Customer Service at Transfer Stations

Just like not wasting resources, the division does not want its customers to waste their time. In October, the division added a new webpage where customers can view web cameras to check the length of the lines leading into the various stations. The webpage also shows the average amount of time it takes customers to weigh in, dispose of their waste, and weigh out.

2017 Outlook

The Solid Waste Division made great strides in 2016 regarding waste prevention, resource recovery, and waste disposal, but the solid waste industry is an ever-changing business that requires responsible planning for what comes next.

Throughout 2017 the division will continue work on updating the transfer system with a focus on a new South County facility to replace the aging Algona Transfer Station. Having completed an extensive Final Environmental Impact Statement for the new facility, the division plans to initiate the preliminary procurement and permitting process for the site selected in 2017. The new facility is expected to begin operating in 2022.

By December 2017, the division will complete the new Factoria Recycling and Transfer Station. In addition to the flat floor, the new facility will have expanded Household Hazardous Waste collection and disposal services in its own building and extensive recycling options, including commingled recyclables, appliances, scrap metal, textiles, wood, and yard waste.

By the end of 2017, the division anticipates it will produce a draft Comprehensive Solid Waste Management Plan, or Comp Plan. The plan is a blueprint for the county's solid waste management system that primarily looks out toward the next six years, but also considers the next 20 years. The division will work with its advisory committees, city partners, and stakeholders as it works toward issuing a draft for public review toward the end of the year.



2016

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