

Executive Proposed

Solid Waste Disposal Fees – 2012

March 2011



Department of Natural Resources and Parks

Solid Waste Division

Executive Proposed

Solid Waste Disposal Fees – 2012

March 2011



King County

Department of Natural Resources and Parks
Solid Waste Division

CONTENTS

INTRODUCTION	1
Interlocal Agreements.....	1
<i>Figure 1. Example – debt service varies with the term of bonds</i>	<i>2</i>
Proposed 2012 Fees.....	3
<i>Table 1. Comparison of current and proposed tipping fees</i>	<i>3</i>
KEY FACTORS IN CALCULATING THE BASIC FEE	4
<i>Figure 2. Objective – Keep growth in rates at or below the rate of inflation</i>	<i>4</i>
Tonnage Forecast	5
<i>Figure 3. Tonnage decline since 2007</i>	<i>5</i>
Revenues	6
Expenditures	6
<i>Figure 4. Solid Waste Division fund structure.....</i>	<i>6</i>
Operating Costs	7
Administrative Costs.....	7
Debt Service	8
Transfers to Other Funds	8
RATE MODELING PROCESS	10
CALCULATION OF PROPOSED TIPPING FEES.....	11
Tonnage	11
<i>Table 2. 2012 tonnage forecast by site</i>	<i>11</i>
Basic Fee	12
<i>Table 3. Basic Fee – 2012 expenditures and per ton cost</i>	<i>12</i>
Regional Direct Fee.....	13
<i>Table 4. Regional Direct Fee calculation</i>	<i>13</i>
 Appendix A: Tonnage Forecast Through 2030	
Appendix B: Rate Model Through 2030	
Appendix C: Construction Fund	
Appendix D: Capital Equipment Recovery Program	
Appendix E: Landfill Reserve Fund	

INTRODUCTION

The King County Solid Waste Division (the division) is proposing a rate increase that would be effective January 1, 2012. Under this proposal, the Basic Fee would increase from \$95.00 to \$108.00 per ton for the one-year period of 2012. With this increase, the effect on the average residential customer with weekly one-can collection service would be about \$0.76 per month.

The rate increase is necessary to continue to fund safe, effective solid waste operations. The current rate of \$95.00 per ton was intended for the three-year period of 2008, 2009, and 2010; however, as a result of efficiencies the division was able to defer the increase for an additional year. The current rate will not support the expenses of the system beyond 2011.

The county's solid waste system is funded primarily by the fees, called tipping fees, charged at county transfer facilities and the Cedar Hills Regional Landfill. Since 2007, the solid waste system has experienced an approximate 18 percent decline in tonnage received and an associated decline in revenue; the decline in tonnage is primarily attributable to the general economic downturn. In response to reduced revenue, and to hold the current rate for an additional year, the division has implemented numerous efficiencies and budget controls, including adjusting operating hours and reducing staffing. The division's objective is to keep fees as low as reasonable and to keep growth in rates at or below the rate of inflation, while covering the costs of effectively managing the system and providing service to the residents and businesses of King County, including:

- Protecting human health and the environment
- Extending the life of the Cedar Hills Regional Landfill
- Renovating the nearly 50 year old urban transfer system
- Maintaining reserve funds at adequate levels

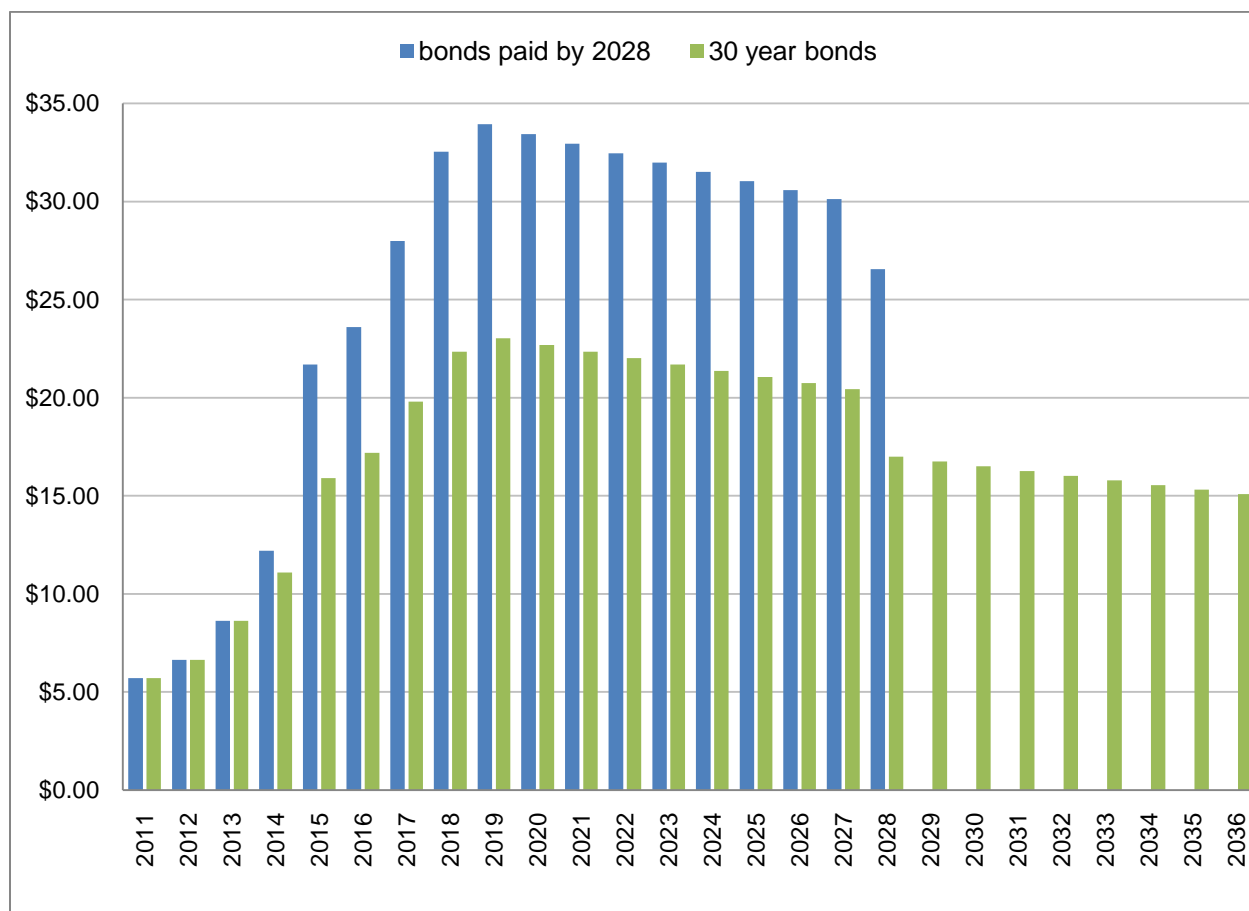
A new rate for 2012 will provide the funds necessary to operate the system at the current level of service, while allowing the cities and the county time to work in partnership on long-term agreements that will keep fee increases to a minimum while allowing for essential improvements to the solid waste transfer system.

Interlocal Agreements

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 2006 *Solid Waste Transfer and Waste Management Plan* (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. Because long-term bonds will not be issued until 2014, the 2012 rate is not affected by the decision on which of these courses to follow. However, the effect on rates beyond 2012 could be significant.

Figure 1 below, shows an example of the debt service that would be added to the rate depending on the term of bonds. Bonds that would be repaid by 2028, when the current ILAs expire, would result in higher rates in the short-term. Bonds with a 30-year term would result in lower rates in the short-term with payment over a longer time period and a larger overall debt service total. Information about the Capital Improvement Program is provided in Appendix C: Construction Fund.

Figure 1. Example – debt service varies with the term of bonds



Note: Debt for 30-year bonds would continue to 2048.

Cities and the county are discussing potential changes to the ILAs, including a possible extension of existing ILAs or new ILAs with longer terms, and expect to conclude discussions later this year. Any changes to ILAs that would affect the rate will be incorporated into the next rate study.

Proposed 2012 Fees

The following fees are proposed to increase on January 1, 2012.

- **Basic Fee:** The fee charged to commercial collection companies that collect materials curbside and to residential and business self-haulers who bring solid waste to the transfer facilities
- **Regional Direct Fee:** The fee charged to commercial collection companies that haul solid waste to the Cedar Hills landfill from their own transfer stations and processing facilities, thus bypassing county transfer stations

The Basic Fee accounts for about 98 percent of tipping fee revenues. It is used as the foundation for calculating the Regional Direct Fee. Table 2 summarizes the changes that are proposed.

Estimated effect of the fee increase on the residential one-can rate

The Basic Fee of \$95.00 per ton has been in effect since January of 2008. A change to \$108.00 per ton beginning in January 2012 will increase the cost for the average one-can residential customer by about \$0.76 per month.

The average garbage can placed at the curb contains 27 pounds of waste. Assuming 52 weeks of pick-up service, the monthly average weight is 117 pounds, or 0.0585 tons. At \$108.00 per ton, the charge for disposal at a county facility rises from \$5.56 to \$6.32 per month. This charge is only one component of the customer's bill; the customer is also charged for the cost of collection, recycling, and other charges, which are not determined by the division.

Table 1. Comparison of current and proposed tipping fees

Tipping Fee	Last Change in Fee	Current Fee	Proposed Fee	Change in Fee	Percent Change
		\$ per ton			
Basic Fee	2008	\$ 95.00	\$ 108.00	\$ 13.00	12%
Regional Direct	2008	\$ 80.00	\$ 92.50	\$ 12.50	13.5%

A rate study for 2013 through 2015 will begin later this year after key decisions about the term of the ILAs. Also, later this year there will be a new appraisal of the Cedar Hills property. The current payment schedule for the rent the division pays to the County General Fund for use of the Cedar Hills property ends in 2014. Any change in the rent, resulting from the new appraisal, will be incorporated into the next rate.

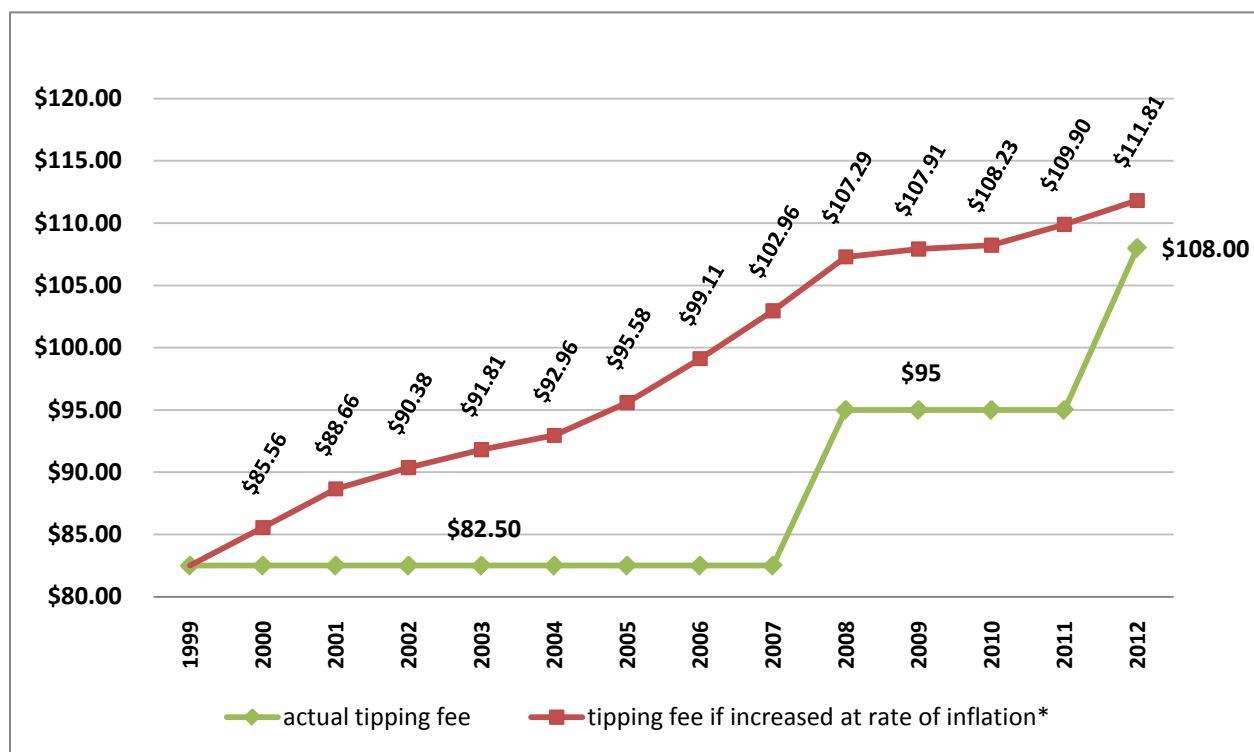
Changes to the special waste and yard/wood waste fees are not being proposed at this time – in 2010, the combined revenue from these two sources was less than one percent of total division revenue. The yard/wood waste fee and fees for other recyclable materials will be included in the next rate study.

KEY FACTORS IN CALCULATING THE BASIC FEE

An econometric rate model is used to determine the tipping fees required to support the operational and other costs of managing the division. First, the division's expenditures over the rate period are estimated, including operating and administrative costs and transfers to reserve funds; then, anticipated revenues from all non-tipping fee sources are subtracted from the total expenditures to arrive at the amount of tipping fee revenue that will be needed to support the division over the rate period. That amount is divided by the forecasted tons to determine the per-ton Basic Fee and the Regional Direct Fee is derived using the Basic Fee as a foundation.

What follows is background information and a more detailed discussion of how the division arrives at a Basic Fee that 1) fulfills the need to maintain an efficient and cost-effective solid waste system, and 2) meets the county's commitment to keep increases at or below the rate of inflation (with 1999 as the base year) as illustrated in Figure 2. This section describes the various categories of revenues, expenditures, and fund transfers that are used in the rate model to calculate the Basic Fee. A description of the rate model is provided in the next section.

Figure 2. Objective – Keep growth in rates at or below the rate of inflation



*Seattle CPI-U

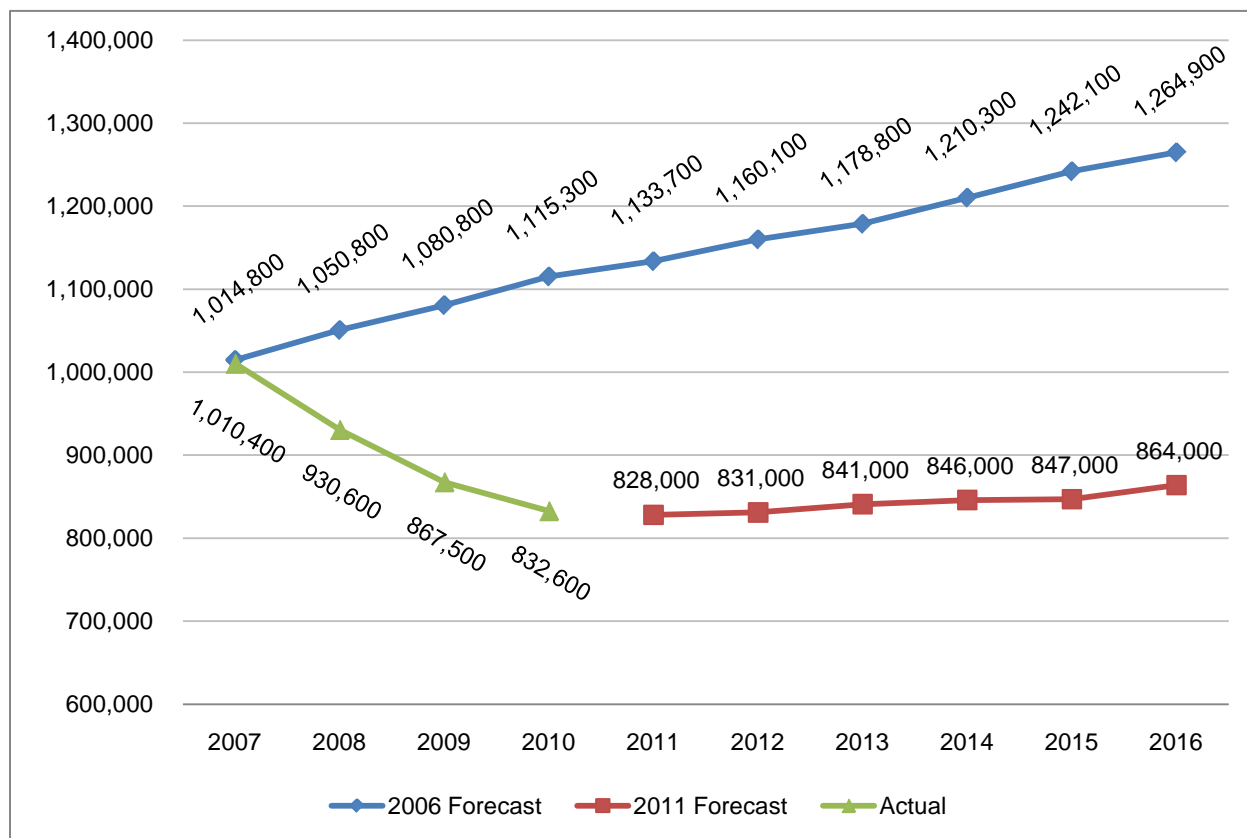
Tonnage Forecast

A primary driver in determining disposal fees is the forecast of solid waste tonnage. The division uses a planning forecast model to predict future waste generation over a 20-year period. Waste generation is defined as *waste disposed + materials recycled*. The planning forecast model relies on established statistical relationships between waste generation and various economic and demographic variables that affect it, such as population, employment, and income, among others.

However, beginning in late 2007, a nationwide financial crisis – which is now being called the Great Recession – created a great deal of uncertainty and unpredictability in variables used in the division's forecasting model to predict the short-term (1- to 5-year) trends in solid waste generation. To respond to this uncertainty, the division has temporarily adjusted its approach to forecasting, using a more flexible system of ongoing monitoring while reviewing the model's assumptions.

Tonnage has declined by about 18 percent since 2007 and is significantly less than the 2006 rate study forecast. Further declines are not expected in 2012; however, growth is expected to be modest over the next several years.

Figure 3. Tonnage decline since 2007



Appendix A provides more information on forecast and tonnage forecasts through 2030.

Revenues

The King County Solid Waste Division is an enterprise fund managing nearly all of its expenses with revenues from fees collected at its transfer facilities and the landfill. About 95 percent of the division's revenue comes from these fees; the remainder comes from a few additional sources. The most significant of these is the Local Hazardous Waste Management Program (LHWMP), which pays for the handling of household hazardous waste. Additional sources of revenue include interest earned on fund balances; the construction and demolition (C&D) surcharge (see sidebar); revenue from the sale of recyclable materials received at division transfer facilities and from a fee on recyclables collected in unincorporated areas; Washington State Department of Ecology grants to help clean up litter and illegal dumping throughout the county, and to support waste prevention and recycling (WPR). Beginning in mid-2009, the division also began receiving revenue from the sale of landfill gas from Cedar Hills. Based on economic and market conditions, revenues from the sale of recyclable materials and interest earned can vary considerably.

Expenditures

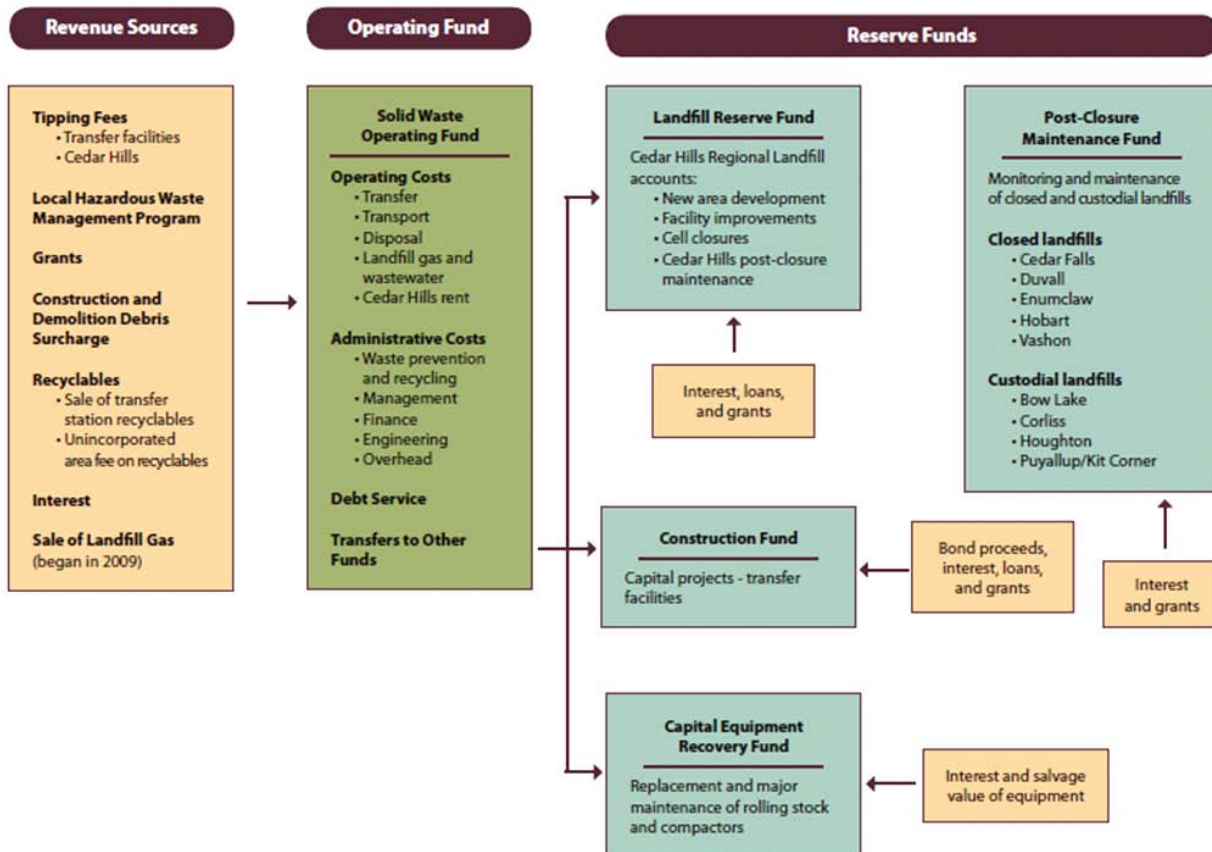
The fees charged at county facilities, called tipping fees, pay for the operation and maintenance of transfer and disposal facilities and equipment, education and promotion related to WPR, grants to cities to support WPR efforts, and administrative operating expenses and overhead. Tipping fees also pay for the construction of transfer facilities; although bonds or loans may be used for large capital projects, repayment of the debt is funded by tipping fees. Finally, the tipping fees fund reserves that cover the ongoing costs of landfill development, closure, and post-closure care and remediation; to replace equipment and vehicles; and to contribute to construction of transfer system projects. The reserve funds are discussed in more detail later in this section. The fund structure is illustrated in Figure 4.

Construction & demolition debris surcharge

King County has contracts with two private companies – Allied Waste and Waste Management – to manage the majority of the county's C&D. Customers disposing of C&D at the facilities operated by these companies pay a per-ton fee based on the type of material. Fees for recyclable C&D are lower than the fees for non-recyclable C&D or mixed loads.

Allied Waste and Waste Management pay the county a \$4.25 per ton surcharge for all C&D debris generated in the county's jurisdiction; the surcharge is established by county code KCC 10.30.050 and required in the contracts. The surcharge is used to pay incentives to these companies based on the amount of C&D material they recycle. To date, the total amount paid to the county has surpassed the amount paid back in incentives. The surcharge is set to expire in 2014 when the current C&D contracts expire.

Figure 4.
Solid Waste Division fund structure



Division expenditures, paid through the Solid Waste Operating Fund, can be divided into four broad categories: operating costs, administrative costs, debt service, and transfers to other funds.

Operating Costs

Operating costs include the day-to-day expenses for transfer, transport, and landfill operations. This includes the maintenance of equipment and facilities, and management of landfill gas and wastewater. It also includes rent the division pays to the county for use of the Cedar Hills landfill property. For forecasting purposes, these costs are divided into variable and fixed components. Variable components are those affected by inflation and the amount of tonnage received at solid waste facilities. Fixed costs are generally affected by inflation alone.

Administrative Costs

This cost category includes administrative functions that support operations, such as engineering, finance, and management. It also includes grants to the cities and other WPR programs and services provided by the division.

A new cost in this category would be an additional grant program as proposed in the 2011 *Comprehensive Solid Waste Management Plan* (Comp Plan). The division would work collaboratively with cities and other stakeholders to develop this new competitive grant program that would be available to cities and collection companies to support programs that eliminate disposal of materials with economic value. For this rate proposal, the amount of the grant program would be \$500,000 in 2012.

Debt Service

Debt service is the payment of interest and principal on bonds and loans. General obligation (GO) bonds backed by the full faith and credit of the county's General Fund have been issued to pay for development of major transfer facility capital projects. It is anticipated that with approval of the King County Council, GO bonds will be issued for future transfer facility capital projects. Landfill capital projects are not funded through debt financing, but through the Landfill Reserve Fund discussed later in this section.

Transfers to Other Funds

Transfers from the Solid Waste Operating Fund to reserve funds constitute a portion of the division's costs. These funds were established to ensure that the division can meet future obligations, or expenses, some of which are mandated by law. Contributions to reserve funds are routinely evaluated to ensure they are adequate to meet short- and long-term needs. Paying into reserve funds stabilizes the impact on rates for certain expenses by spreading the costs over a longer time period, and ensures that customers who use the system pay the entire cost of disposal. The four reserve funds are discussed below. Additionally, based on direction from the King County Council, the division is proposing to establish a new reserve fund that would support expenses associated with managing debris generated by an emergency.

The division deposits bond proceeds and contributions from the Operating Fund into the **Construction Fund** to finance new construction and major maintenance of division transfer facilities. Contributions from the Operating Fund result in less borrowing and consequently a lower level of debt service. However, during times of economic pressure contributions to this fund may be reduced in order to maintain lower fees in the short term, as was done in 2011. Information on the Capital Improvement Program is provided in Appendix C: Construction Fund.

The **Capital Equipment Recovery Program** (CERP) is codified in KCC 4.08.280. The purpose of the CERP is to provide adequate resources for replacement and major maintenance of solid waste rolling stock (primarily long-haul trucks and trailers) and compactors. New equipment is purchased from the Operating Fund, but after the initial purchase, replacements are funded from the CERP.

By accumulating resources in the CERP, the division ensures that it is able to replace needed equipment while leveling the impact on rates from variable expenditures even with fluctuations in revenue. Annual contributions to the CERP are calculated by projecting future replacement costs, salvage values, and equipment life. Contributions are adjusted to reflect changes in facilities and operations that affect equipment needs. The contributions are held in an account, earning interest, until needed. More information on the CERP is provided in Appendix D.

The **Landfill Reserve Fund** (LRF), codified in KCC 4.08.045, covers the costs of four major accounts maintained for the Cedar Hills landfill, shown below. The new area development and facility improvement accounts ensure sufficient funds for capital projects without bonding. The cell closure and post-closure maintenance accounts are mandated by federal and state law.

Extending the life of the Cedar Hills landfill

An important development during the current rate period was approval of a plan to extend the life of the Cedar Hills Regional Landfill by constructing a new disposal area. As in the past, the new area will not be financed by bonds, but via the Landfill Reserve Fund.

Contributions to this fund will increase by about \$2.00 per ton in order to finance the new area's construction, closure, and post-closure maintenance.

With development of the new area, the landfill will reach capacity and close in approximately 2024, although there is opportunity for additional landfill development should that be desirable. The longer life of the landfill will defer the eventual transition to some other, likely more costly method of disposal.

- *New area development account:* Covers the costs for planning, designing, permitting, and building new refuse cells.
- *Facility improvements account:* Covers a wide range of capital investments required to sustain the infrastructure and operations at the landfill, such as enhancements to the landfill gas and wastewater systems.
- *Cell closures account:* Covers the cost of closing refuse cells, or operating areas, within the landfill that have reached capacity. These contributions help the division prepare incrementally for the cost of final closure of the entire landfill.
- *Post-closure maintenance account:* Accumulates funds to pay for post-closure maintenance of the Cedar Hills landfill for at least 30 years.

The sum of all four accounts, based on projected cost obligations, makes up the LRF rate charged as part of the tipping fee. Projected cost obligations are based on the current plan for the landfill. More detail on the LRF is provided in Appendix E.

When Cedar Hills closes, the division will discontinue its contributions to the LRF. At closure, the balance of the LRF will be transferred to the Post-Closure Maintenance Fund.

The **Post-Closure Maintenance Fund** is a separate fund that pays for the maintenance and environmental monitoring of nine closed and custodial landfills in the county for which the division has responsibility. Federal and state laws require this fund for closed landfills; the

county has included funding for custodial landfills as well. At this time, the balance of this fund is sufficient to cover anticipated post-closure expenses, thus no money is currently being transferred to the fund. The division periodically reviews the fund to ensure that it remains ample for future needs. Once the Cedar Hills landfill closes, the balance of the LRF will be transferred to this fund to pay for Cedar Hills' post-closure expenses.

RATE MODELING PROCESS

The division projects tipping fees using five economic and financial models – the tonnage forecasting model; the LRF, construction, and CERP models; and the operating fund model which incorporates the other models as well as projected expenditures and revenues. These models employ various assumptions and projections to calculate detailed revenues and expenses over the rate period, as well as over the longer-term. The tipping fees are calculated such that:

- Revenues are sufficient to cover the daily costs of operations and services as required by a variety of regulatory and legal mandates
- Funds are available to provide for landfill maintenance and closure, as well as capital investment projects for the transfer and disposal system
- An adequate Operating Fund balance is maintained for contingencies, such as natural disasters or other events, that might disrupt the flow of revenue required to keep the entire system operational for the protection of public health and the environment
- Any increase in the Basic Fee meets the county's commitment to keep increases at or below the rate of inflation

Although the immediately relevant rate period is for 2012 only, these various models project the division's revenues and expenses out to the year 2030 and beyond. Note, however, that projections become increasingly less reliable further out. As stated above, various assumptions and projections are entered into the models.

Financial Assumptions: Financial assumptions used in the model include primarily estimates of future interest rates and rates of inflation.

Tonnage Projections: As discussed above, the most fundamental input to the Solid Waste Operating Fund model is the tons of waste expected to be disposed at division facilities during each year of the planning horizon. The annual projection of tons is multiplied by the tipping fees to calculate revenues.

Sources of Revenues: The majority of revenues are from tipping fees, which are calculated based on the forecast of solid waste tonnage and the fees charged for each type of waste. In addition, other sources of revenue are forecast over the rate period.

Costs: For each year of the planning horizon, projections are made for the division's Operating and Administrative costs, for the transfers to reserve funds and for debt service related to the transfer system construction program.

Target Fund Balance: The model considers that when all revenues and expenditures are taken into account, the division would retain an average 45-day reserve in the fund balance. This represents a change from past practice, which anticipated a balance below this level in the last year of a rate period.

CALCULATION OF PROPOSED TIPPING FEES

This section presents the calculation of the Basic and Regional Direct Fees for 2012.

Tonnage

The tonnage forecast is the first input to the tipping fee calculation. As of February 2011, 831,000 tons are forecast to enter the county's solid waste system in 2012.

Table 2. 2012 tonnage forecast by site

	Tons
Transfer facilities	
Algona Transfer Station	132,000
Bow Lake Transfer Station	266,200
Enumclaw Recycling & Transfer Station	20,100
Factoria Transfer Station	128,500
Houghton Transfer Station	145,500
Renton Transfer Station	60,600
Shoreline Recycling & Transfer Station	43,700
Vashon Recycling & Transfer Station	8,000
Cedar Falls Drop Box	3,400
Skykomish Drop Box*	900
Subtotal	808,000
Cedar Hills Regional Landfill direct	
Regional direct waste	6,000
Special waste	2,000
Other municipal solid waste	10,000
Subtotal	18,000
Total	826,000
Yard waste/organics (transferred to a compost facility)	5,000
System total	831,000

* Solid waste collected at the Skykomish drop box is transported to the Houghton transfer station for disposal. Projected tons for Skykomish are shown for illustrative purposes, but are counted in the Houghton tonnage figures.

Basic Fee

Using the tonnage forecast, projections of revenue from other sources, and projected costs, a Basic Fee is calculated. That figure is then rounded up to the nearest \$.25 and a fee is proposed.

Table 3. Basic Fee – 2012 expenditures and per ton cost

Expenditures	Cost	Cost per ton
Fixed Operating Costs		
(a) Disposal	11,801,479	14.29
(b) Transfer & Transport	16,718,203	20.24
Variable Operating Costs		
(a) Disposal	2,926,765	3.54
(b) Transfer & Transport	11,596,092	14.04
Administrative Costs		
(a) Finance & IT	5,825,371	7.05
(b) SWD Administration	4,479,417	5.42
(c) Overhead	3,492,189	4.23
(d) Strategic Planning & Communications	1,653,071	2.00
(e) Legal	363,621	0.44
Recycling & Environmental Services		
(a) General Programs	4,221,151	5.11
(b) Grants to Cities	1,185,803	1.44
(c) Competitive Grants (NEW)	500,000	0.61
Reserves		
Landfill Reserve Fund	6,824,214	8.26
Capital Equipment Recovery Program Fund	4,300,000	5.21
Construction Fund	2,000,000	2.42
Emergency Fund (NEW)	100,000	0.12
Rent - Cedar Hills	8,867,391	10.74
Debt service	5,076,500	6.15
B & O Tax	1,513,649	1.83
Total expenditures	\$ 93,444,914	\$ 113.13
Adjustments		
Public Health Fee Increase	413,000	
Fund Balance	(2,585,083)	
Other Revenue	(2,169,100)	
Adjusted total	\$ 89,103,730	\$ 107.87
Basic fee calculated		\$ 107.87
Basic fee proposed		\$ 108.00

Once the Basic Fee is established, the Regional Direct Fee can be calculated.

Regional Direct Fee

The Regional Direct Fee is the fee charged to commercial collection companies that bypass the county's transfer stations by hauling solid waste in large refuse trailers directly to the Cedar Hills landfill from their own transfer stations and processing facilities.

This fee is based on the Basic Fee, minus the marginal cost of handling this waste at the county transfer stations. Marginal costs include added hours at the Bow Lake transfer station and the cost of operating and maintaining the trucks that transport the additional waste.

Table 4. *Regional Direct Fee calculation*

Transportation	Cost per ton	
Truck driver labor	\$ 6.12	
Fuel	\$ 2.45	
Equipment	\$ 2.26	
Transfer		
Transfer station operator labor	\$ 1.74	
Scale operator labor	\$ 1.44	
Equipment, fuel, and utilities	\$ 1.40	
Total marginal cost	\$15.41	
Basic Fee		\$108.00
Less marginal cost (rounded)		\$ 15.50
Regional Direct Fee		\$ 92.50

APPENDIX A

Tonnage Forecast Through 2030

TONNAGE FORECAST

To predict solid waste generation over the long term, the planning forecast model relies on established statistical relationships between waste generation and various economic and demographic variables that affect it, such as:

- Population of the service area
- Employment
- Household size in terms of persons per household
- Per capita income (adjusted for inflation)

Increases in population, employment, and per capita income and decreases in household size typically lead to more consumption and hence more waste generated. Studies indicate that for the long-term planning forecast, from 2010 through 2030, the following trends are expected:

- Population is expected to grow at a steady rate of 1 percent per year. Population growth is directly correlated with the amount of waste generated, i.e., more people = more waste generated.
- Employment is expected to increase following recovery from the recession at an annual rate of 1.8 percent. Increased employment activity typically leads to an increase in consumption and waste generation.
- Household size is expected to decrease from an average of about 2.6 persons per household to 2.4 persons per household. The trend in household size reflects a nationwide move toward smaller family size and an aging population. Because a “household” implies a certain level of maintenance, mail, purchasing, and so on, a decrease in household size tends to increase waste generation per capita.
- Per capita income is expected to grow by about 2 percent per year through 2030, adjusted for inflation. As with employment activity, increases in income typically lead to an increase in consumption and waste generation.

Data Sources: The data used are the most recent available. Projections for population and household size are based on data developed by the Puget Sound Regional Council (PSRC; 2006). Data provided by PSRC are based on U.S. Census and other data sources and developed in close cooperation with the county and the cities. The income and employment data are provided by the local economic forecasting firm of Dick Conway and Associates (August 2010).

Developing the tonnage forecast is a two-step process, in which waste disposal and waste diversion are calculated separately. In the first step, an econometric model is used to relate historical data for waste disposal and recycling to past demographic and economic trends in the region. Once these relationships are established, the model can be used to project future waste generation based on expected trends over the planning period. This first step produces a baseline disposal forecast, which assumes that the percentage of waste recycled remains constant.

In the second step, goals for waste prevention and recycling (WPR) are used to calculate how much additional material is expected to be diverted from disposal given the same demographic and economic trends. This information is used to adjust the baseline forecast. Data on tons of materials recycled are provided by the curbside collection companies, division data from transfer facilities, and survey data collected annually by Ecology.

Since 2007 there has been a great deal of uncertainty and unpredictability in variables used in the division's forecasting model to predict the short-term (1- to 5-year) trends in solid waste generation. To respond to this uncertainty, the division has temporarily adjusted its approach to forecasting, using a more flexible system of ongoing monitoring while reviewing the model's assumptions.

This interim forecasting method involves:

- Monitoring solid waste tons delivered to division transfer facilities and the Cedar Hills landfill on a daily basis
- Regularly checking regional and state-wide economic forecasting activities (Dick Conway, King County economic forecast, Washington State Economic and Revenue Forecast Council)
- Monitoring state-wide tax revenue streams, particularly in the home improvement sector, furniture store sales, clothing sector, and other key markets
- Communicating regularly with other jurisdictions about the trends in their service areas

This information has been used to forecast short-term tonnage and subsequent revenues for use in critical budgeting, expenditure control, and management of capital projects over the 3- to 5-year period. The division will continue to use this interim forecasting method until the economy recovers from the recession and some degree of predictability returns. Once that occurs, the forecasting model will need to be adjusted and recalibrated to reflect any changes created by the multi-year recession and recovery periods. As of late 2010, economists are indicating that the recession is over, although economic recovery will take some time. In the solid waste industry, garbage tonnage has not returned to 2007 levels, but declines have begun to moderate. It may be 2012 to 2014 before sufficient economic recovery occurs to grasp the long-term effects of the recession. In the meantime, the division routinely updates its long-term, 20-year forecast for use in future planning.

Table 1 shows the tonnage forecast through 2030. Short-term forecasting methods are used through 2016 and revert to the traditional long-term forecasting method in 2017. The tonnage shown for 2010 is actual; although it was somewhat higher than forecast, it is too early to see this as a trend.

Table A-1. Tonnage forecast through 2030

Year	Total System Tons	Yard Waste	Tons Disposed	Regional Direct	Special Waste	Basic Rate Tons
2010	835,948	5,016	830,932	5,664	2,462	822,806
2011	828,000	4,000	824,000	6,000	3,000	815,000
2012	831,000	5,000	826,000	6,000	3,000	817,000
2013	841,000	6,500	834,500	6,000	3,000	825,500
2014	846,000	7,000	839,000	6,000	3,000	830,000
2015	847,000	8,000	839,000	6,000	3,000	830,000
2016	864,000	8,500	855,500	6,000	3,000	846,500
2017	880,000	8,500	871,500	6,100	3,000	862,400
2018	895,000	8,500	886,500	6,200	3,000	877,300
2019	908,500	8,500	900,000	6,300	3,000	890,700
2020	922,000	8,500	913,500	6,400	3,500	903,600
2021	936,000	8,500	927,500	6,500	3,500	917,500
2022	950,000	8,500	941,500	6,500	3,500	931,500
2023	965,500	8,500	957,000	6,500	3,500	947,000
2024	980,000	8,500	971,500	6,500	3,500	961,500
2025	994,700	8,500	986,200	6,500	3,500	976,200
2026	1,009,600	8,500	1,001,100	6,500	3,500	991,100
2027	1,024,700	8,500	1,016,200	6,500	3,500	1,006,200
2028	1,040,000	8,500	1,031,500	6,500	3,500	1,021,500
2029	1,055,600	8,500	1,047,100	6,500	3,500	1,037,100
2030	1,071,500	8,500	1,063,000	7,000	3,500	1,052,500

APPENDIX B

Rate Model Through 2030

Solid Waste Division Financial Forecasting and Rate Model

Table B-1.**Rate Model Through 2030**

	2010	2011e	2012	2013	2014	2015	2016
<i>1999 Basic Fee plus inflation</i>	<i>107.95</i>	<i>109.61</i>	<i>111.51</i>	<i>113.76</i>	<i>116.11</i>	<i>118.58</i>	<i>121.20</i>
Basic Fee	95.00	95.00	108.00	115.00	115.00	115.00	123.00
Total System Tons	835,948	828,000	831,000	841,000	846,000	847,000	864,000
Revenues							
Net Disposal Fees	80,034,514	78,508,560	89,038,160	95,948,758	97,428,530	97,514,090	106,299,931
Interest Earnings	219,243	125,653	120,534	143,030	202,944	318,196	410,814
Grants	465,986	301,000	250,000	250,000	275,000	275,000	281,078
Landfill Gas	31,559	884,000	1,370,000	1,370,000	1,398,359	1,428,144	1,459,706
Recycling	552,935	335,000	235,000	239,724	244,686	249,898	255,420
Other Revenue	831,251	187,148	192,762	198,545	204,502	210,637	216,956
Total Revenue	82,135,487	80,341,361	91,206,457	98,150,057	99,754,020	99,995,965	108,923,905
Operating Expenditures							
Debt service	5,871,848	4,579,622	5,076,500	7,211,700	8,168,500	9,446,500	21,307,225
Rent - Cedar Hills	8,358,372	8,609,117	8,867,391	9,133,412	3,356,901	<i>See note below</i>	
Landfill Reserve Fund	4,029,909	4,884,000	6,824,214	6,894,439	7,070,943	7,214,427	7,506,855
CERP Fund	3,240,034	3,100,000	4,300,000	4,300,000	4,300,000	4,300,000	4,300,000
Construction Fund	2,000,000	1,000,000	2,000,000	2,000,000	2,000,000	2,000,000	2,000,000
Emergency Fund (NEW)			100,000	102,010	104,122	106,339	108,689
Overhead	3,517,161	3,432,464	3,492,189	3,562,382	3,636,123	3,713,573	3,795,643
SWD Administration	4,118,038	4,402,808	4,479,417	4,569,453	4,664,041	4,763,385	4,868,656
Legal	297,637	357,402	363,621	370,930	378,608	386,672	395,218
Planning & Communications	1,383,231	1,624,799	1,653,071	1,686,297	1,721,204	1,757,865	1,796,714
Finance & IT	4,501,237	5,725,743	5,825,371	5,942,461	6,065,470	6,194,664	6,331,566
Recycling & Environmental Services	4,418,618	4,148,959	4,221,151	4,305,996	4,395,130	4,488,746	4,587,948
Grants to Cities	1,042,694	1,165,523	1,185,803	1,209,638	1,234,677	1,260,976	1,288,843
Competitive Grants (NEW)			500,000	510,050	520,608	531,697	543,447
Variable Operating Costs							
(a) Disposal	2,843,969	2,919,678	2,926,765	2,985,592	3,047,394	3,112,304	3,181,086
(b) Transfer & Transport	11,606,052	11,689,533	11,596,092	11,829,174	12,074,038	12,331,215	12,603,735
Fixed Operating Costs							
(a) Disposal	11,153,317	11,599,450	11,801,479	12,038,688	12,287,889	12,549,621	12,826,968
(b) Transfer & Transport	15,800,004	16,432,004	16,718,203	17,054,239	17,407,261	17,778,036	18,170,931
B & O Tax	1,405,758	1,444,628	1,513,649	1,615,523	1,640,270	1,641,384	1,790,053
plus prior year carryover		1,893,818					
3% under expenditure		(1,949,245)					
Total SWD Costs	85,587,879	87,060,303	93,444,914	97,321,984	94,073,178	93,577,404	107,403,576
Ending Fund Balance	15,987,621	9,268,680	7,031,026	7,863,540	13,553,488	19,985,926	21,506,254
Target Fund Balance (45-day reserve)	6,512,973	6,683,597	6,914,600	7,307,729	7,559,939	7,858,967	9,489,145
Amount of Above Target	9,474,648	2,585,083	116,426	555,811	5,993,549	12,126,959	12,017,109

Note: Current rent schedule ends in 2014; a new appraisal will be done and rent reassessed.

Table B-1.**Rate Model Through 2030**

	2017	2018	2019	2020	2021	2022	2023
<i>1999 Basic Fee plus inflation</i>	<i>124.08</i>	<i>126.99</i>	<i>129.91</i>	<i>132.90</i>	<i>135.96</i>	<i>139.09</i>	<i>142.28</i>
Basic Fee	123.00	123.00	132.00	132.00	132.00	133.00	133.00
Total System Tons	880,000	895,000	908,500	922,000	936,000	950,000	965,500
Revenues							
Net Disposal Fees	108,269,553	110,116,206	119,878,391	121,687,107	123,536,856	126,329,637	128,394,451
Interest Earnings	399,390	307,815	236,219	231,062	231,662	237,281	249,297
Grants	287,739	294,501	301,274	308,204	,292	322,544	329,963
Landfill Gas	1,494,301	1,529,417	1,564,594	1,600,579	1,637,393	1,675,053	1,713,579
Recycling	261,474	267,618	273,774	280,070	286,512	293,102	299,843
Other Revenue	223,464	230,168	237,073	244,186	251,511	259,057	266,828
Total Revenue	110,935,921	112,745,726	122,491,325	124,351,208	126,259,226	129,116,672	131,253,960
Operating Expenditures							
Debt service	25,510,626	29,986,481	31,651,159	31,651,409	31,651,409	31,650,909	31,649,659
Rent - Cedar Hills							
Landfill Reserve Fund	8,044,699	8,356,742	8,658,738	8,962,203	9,275,799	9,594,715	9,934,523
CERP Fund	4,300,000	3,500,000	3,500,000	3,500,000	3,500,000	3,500,000	3,500,000
Construction Fund	2,000,000	2,000,000	2,000,000	1,000,000	1,000,000	1,000,000	1,000,000
Emergency Fund (NEW)	111,265	113,880	116,499	119,179	121,920	84,700	66,777
Overhead	3,885,599	3,976,911	4,068,380	4,161,953	4,257,677	4,355,604	4,455,783
SWD Administration	4,984,043	5,101,168	5,218,495	5,338,520	5,461,306	5,586,916	5,715,415
Legal	404,584	414,092	423,616	433,359	443,327	453,523	463,954
Planning & Communications	1,839,296	1,882,520	1,925,818	1,970,111	2,015,424	2,061,779	2,109,200
Finance & IT	6,481,625	6,633,943	6,786,523	6,942,613	7,102,294	7,265,646	7,432,756
Recycling & Environmental Services	4,696,682	4,807,054	4,917,616	5,030,722	5,146,428	5,264,796	5,385,886
Grants to Cities	1,319,389	1,350,395	1,381,454	1,413,227	1,445,731	1,478,983	1,513,000
Competitive Grants (NEW)	556,327	569,401	582,497	595,895	609,600	623,621	637,964
Variable Operating Costs							
(a) Disposal	3,256,477	3,333,005	3,409,664	3,488,086	3,568,312	3,650,383	3,734,342
(b) Transfer & Transport	12,902,443	13,205,650	13,509,380	13,820,096	14,137,958	14,463,131	14,795,783
Fixed Operating Costs							
(a) Disposal	13,130,967	13,439,545	13,748,654	14,064,873	14,388,365	14,719,298	15,057,842
(b) Transfer & Transport	18,601,582	19,038,719	19,476,609	19,924,571	20,382,836	20,851,642	21,331,229
B & O Tax	1,822,806	1,853,468	2,018,711	2,048,722	2,079,396	2,126,077	2,160,321
Total SWD Costs	113,610,086	119,320,546	123,147,696	124,215,730	126,334,145	128,474,256	130,682,729
Ending Fund Balance	18,832,089	12,257,269	11,600,899	11,736,377	11,661,458	12,303,875	12,875,106
Target Fund Balance (45-day reserve)	10,176,340	10,900,028	11,272,603	11,440,907	11,613,050	11,789,090	11,969,086
Amount of Above Target	8,655,749	1,357,241	328,296	295,470	48,408	514,785	906,020

Table B-1.

Rate Model Through 2030

	2024	2025	2026	2027	2028	2029	2030
<i>1999 Basic Fee plus inflation</i>	<i>145.56</i>	<i>148.90</i>	<i>152.33</i>	<i>155.83</i>	<i>159.42</i>	<i>163.08</i>	<i>166.84</i>
Basic Fee	133.00	133.00	160.50	160.50	160.50	133.00	133.00
Total System Tons	980,000	994,700	1,009,600	1,024,700	1,040,000	1,055,600	1,071,500
Revenues							
Net Disposal Fees	130,326,298	132,284,778	161,800,142	164,227,141	166,686,274	140,398,341	142,509,094
Interest Earnings	257,979	261,178	255,999	234,155	221,599	218,149	185,854
Grants	337,552	345,315	353,258	361,383	369,694	378,197	386,896
Landfill Gas	1,752,991	1,793,310	1,834,556	1,876,751	1,919,916	1,964,074	2,009,248
Recycling	306,740	313,795	321,012	328,395	335,948	343,675	351,580
Other Revenue	274,833	283,078	291,570	300,318	309,327	318,607	328,165
Total Revenue	133,256,392	135,281,455	164,856,538	167,328,142	169,842,759	143,621,044	145,770,837
Operating Expenditures							
Debt service	31,652,409	31,648,659	31,653,409	31,650,909	28,401,159	<i>Note: Assumes all bonds paid by 2028</i>	
Rent - Cedar Hills							
Landfill Reserve Fund	10,269,651	10,612,442	<i>Note: Assumes Cedar Hills stops accepting waste at end of 2025</i>				
CERP Fund	3,500,000	3,500,000	2,800,000	2,800,000	2,800,000	2,800,000	2,800,000
Construction Fund	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000
Emergency Fund (NEW)	68,313	69,884	71,492	73,136	74,818	76,539	78,299
Overhead	4,558,266	4,663,106	4,770,357	4,880,076	4,992,317	5,107,141	5,224,605
SWD Administration	5,846,870	5,981,348	6,118,919	6,259,654	6,403,626	6,550,909	6,701,580
Legal	474,625	485,541	496,709	508,133	519,820	531,776	544,007
Planning & Communications	2,157,711	2,207,339	2,258,107	2,310,044	2,363,175	2,417,528	2,473,131
Finance & IT	7,603,710	7,778,595	7,957,503	8,140,525	8,327,757	8,519,296	8,715,239
Recycling & Environmental Services	5,509,762	5,636,486	5,766,125	5,898,746	6,034,417	6,173,209	6,315,193
Grants to Cities	1,547,799	1,583,398	1,619,816	1,657,072	1,695,185	1,734,174	1,774,060
Competitive Grants (NEW)	652,637	667,648	683,004	698,713	714,783	731,223	748,042
Future Disposal Costs (after Cedar Hills closes)			58,798,599	60,783,820	62,834,377	64,958,430	67,158,333
Variable Operating Costs							
(a) Disposal	3,820,232	3,908,097					
(b) Transfer & Transport	15,136,086	15,484,216	15,840,353	16,204,682	16,577,389	16,958,669	17,348,719
Fixed Operating Costs							
(a) Disposal	15,404,172	15,758,468					
(b) Transfer & Transport	21,821,848	22,323,750	22,837,197	23,362,452	23,899,788	24,449,484	25,011,822
B & O Tax	2,192,300	2,224,700	2,725,533	2,765,828	2,806,634	2,358,699	2,393,500
Total SWD Costs	132,950,720	135,263,987	165,397,122	168,993,789	169,445,246	144,367,077	148,286,530
Ending Fund Balance	13,180,778	13,198,246	12,657,661	10,992,014	11,389,527	10,643,494	8,127,802
Target Fund Balance (45-day reserve)	12,153,726	12,341,792	10,520,143	10,670,790	10,419,004	7,026,842	7,188,460
Amount of Above Target	1,027,052	856,453	2,137,518	321,224	970,524	3,616,652	939,342

APPENDIX C

Construction Fund

CAPITAL IMPROVEMENT PROGRAM

Summary

The Capital Improvement Program (CIP) funded under this rate study implements the transfer system renovation plan as set forth in the collaboratively developed 2006 *Solid Waste Transfer and Waste Management Plan* (Transfer Plan) and approved by the King County Council in 2007.

Background

The transfer network has served the region well for nearly five decades; however, all of the urban transfer stations are now outdated and over capacity, with the exception of the newly constructed Shoreline Recycling and Transfer Station. Along with the growth in population, since the late 1980s there has been an emphasis on recycling to reduce wastes. While recycling containers have been placed at transfer stations, wherever space allows, space constraints limit the number of containers and the range of materials that each site can accommodate. These space constraints prohibit the addition of recycling opportunities for materials that are commonly disposed at the stations, including yard waste, clean wood, and scrap metal. Changes in the industry have also created operational constraints. For example, commercial collection trucks are larger than in the past, making it more difficult to unload the vehicles safely and efficiently. Given these and other factors, in 2004 the division and its advisory committees – the Solid Waste Advisory Committee (SWAC) and the Metropolitan Solid Waste Management Advisory Committee (MSWMAC) – embarked on a comprehensive analysis of the urban transfer system to determine how best to update the system to meet current needs.

Five of the urban transfer stations, with the exception of the newly constructed Shoreline station, were evaluated using 17 criteria. In general, the criteria focused on the level of service to users, the capacity of stations to handle garbage and recyclables both now and in the future, structural integrity, and the effects of facilities on surrounding communities. Once the criteria were applied to each urban station, the results were used to evaluate its condition to determine whether the station should be reconstructed in its current location, whether it should be closed and a new station built in a different location, or whether it should be closed without being replaced.

The advisory committees worked closely with the division to develop and apply the 17 criteria, evaluate options, and formulate recommendations for upgrading the transfer system. The work of the division and the committees culminated in the Transfer Plan, which was approved by the King County Council in December 2007.

As outlined in the Transfer Plan, the Bow Lake and Factoria stations will both be deconstructed, and new recycling and transfer stations will be built on the existing sites and adjacent properties. Both the Houghton and Algona stations will be closed and replaced with newly sited recycling and transfer stations in the Northeast and South County areas respectively. The Renton station was approved for closure.

The activities approved by the County Council in the Transfer Plan include the following:

Bow Lake – deconstruct the existing transfer station and construct a new recycling and transfer station on the existing site and adjacent property purchased from the Washington State Department of Transportation

Factoria – deconstruct the existing transfer station and construct a new recycling and transfer station on the existing site and adjacent properties to the northwest of the site, which the division purchased in 2007

Algona – close the station and replace it with a new recycling and transfer station in the South County area

Houghton – close the station and replace it with a new recycling and transfer station in the Northeast Lake Washington area

Renton – close the station and do not replace it

**Figure C-1. Capital Improvement Program –
Transfer Plan implementation schedule**

	2011	2012	2013	2014	2015	2016	2017	2018
Bow Lake	Construction Open							
Factoria	Design and Permit		Construction		Open			
Northeast	Site New Facility		Design and Permit			Construction		Open
South County	Site New Facility		Design and Permit			Construction		Open
Houghton	Close							
Algona	Close							
Renton	Close*							

* Decision to close Renton subject to evaluation after siting of the new South County transfer station.

**Table C-1. Capital Improvement Program –
Revenues, expenditures, and fund balances**

	2011	2012	2013	2014	2015	2016	2017	2018	2019
Estimated interest earnings rate	0.01	0.015	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Estimated inflation	0.0221	0.0237	0.0235	0.0230	0.0230	0.0230	0.0230	0.0230	0.0230
Beginning fund balance	5,343,146	7,317,127	1,009,633	1,116,631	884,589	1,199,104	477,714	885,946	1,283,299
Revenues									
Transfer from operating fund	1,000,000	2,000,000	2,000,000	2,000,000	2,000,000	2,000,000	2,000,000	2,000,000	2,000,000
Interest earned	169,981	151,006	422,998	200,208	99,413	81,558	229,650	237,663	108,656
Borrowing	40,000,000	18,000,000	74,000,000	32,000,000	13,000,000		39,000,000	39,000,000	13,500,000
Other revenue (1)						10,000,000			
<i>Total</i>	<i>41,169,981</i>	<i>20,151,006</i>	<i>76,422,998</i>	<i>34,200,208</i>	<i>15,099,413</i>	<i>12,081,558</i>	<i>41,229,650</i>	<i>41,237,663</i>	<i>15,608,656</i>
Expenditures									
Bow Lake	23,537,000	19,482,000	13,566,000	2,665,000					
Factoria	2,500,000	4,000,000	28,000,000	27,000,000	4,000,000				
Northeast County	500,000	1,200,000	23,000,000	2,000,000	5,000,000	7,000,000	20,000,000	20,000,000	7,300,000
South County	500,000	1,200,000	11,000,000	2,000,000	5,000,000	5,000,000	20,000,000	20,000,000	7,300,000
Other projects	2,159,000	576,500	750,000	767,250	784,897	802,949	821,417	840,310	859,637
Other expenditures (2)	10,000,000								
<i>Total</i>	<i>39,196,000</i>	<i>26,458,500</i>	<i>76,316,000</i>	<i>34,432,250</i>	<i>14,784,897</i>	<i>12,802,949</i>	<i>40,821,417</i>	<i>40,840,310</i>	<i>15,459,637</i>
Ending fund balance	7,317,127	1,009,633	1,116,631	884,589	1,199,104	477,714	885,946	1,283,299	1,432,318

(1) Sale of Factoria property in 2016

(2) Repay 2010 internal borrowing

APPENDIX D

Capital Equipment Recovery Program

THE CAPITAL EQUIPMENT RECOVERY PROGRAM

The Solid Waste Division's Capital Equipment Recovery Program (CERP) involves both a model and a fund. The CERP Model applies life-cycle costing considerations to SWD capital equipment and is a tool used in determining the timing of asset replacements. The CERP Fund was codified in 1981 (KCC 4.08.280) to ensure the timely and economical replacement of equipment. The fund serves three main purposes: 1) accumulate the financial resources for the replacement of the SWD's rolling stock and stationary compactors on a timely and cost effective basis; 2) stabilize the monetary effects of equipment purchases on the operating fund; and 3) provide stability in the operating budget against the effects of dramatic tonnage decreases.

CERP INVENTORY

By code, the CERP Fund explicitly includes SWD's "rolling stock and stationary compactors." However, since establishment of the CERP Fund, business practice and equipment technology have advanced and SWD's capital equipment now includes significant fixed assets that are not "rolling stock" or "stationary compactors", but have direct operational use, such as the power units for the landfill tippers. In keeping with the intent of the CERP Fund, these major assets are included in the CERP Model.

CERP FUND

The initial purchase of equipment is from SWD's operating fund. After initial acquisition, an annual contribution is made to the CERP Fund for the eventual replacement of CERP Inventory. Also, a 1993 ordinance authorized payment from the CERP Fund for major equipment overhauls in lieu of replacement. All auction, salvage, and buyback income from disposal of SWD equipment is treated as CERP Fund revenue.

CERP Fund Contributions

For each CERP Inventory asset, an annual payment to the CERP Fund is calculated based on assumptions about the asset's life and net future replacement cost (total estimated replacement cost minus estimated salvage/trade-in/buyback income). These annual payments ensure that adequate funds are available to purchase the replacement for that piece of equipment in the scheduled year.

Historical Funding Policies

Prior to 1995, the CERP funding policy was "100 percent" funding, meaning that cash in the fund was 50 percent of replacement cost with the other 50 percent attributed to salvage value of the existing assets. Through 1996, the policy was 40 percent of replacement cost. As of 1997, SWD adopted a minimum funding policy which stated, "Beginning fund balance for any given year is equal to or greater than equipment purchases projected for the same given year." Under this policy, a minimum funding percentage was not used to determine the fund balance. The transfer required from the operating fund to the CERP Fund was reduced substantially with this

change in policy to minimum funding from the 40 percent funding policy. As of 2009, the CERP Fund balance was approximately 18 percent of the net replacement cost of currently held CERP Inventory.

Current Funding Policy

Beginning in 2010, contributions to the Fund are based on a six-year average of the estimated replacement value of equipment due to be replaced within that time frame. The estimated replacement value is adjusted for capitalized repairs and factors for inflation and salvage value. Optimally, fund balance is maintained between 15 percent and 20 percent of total CERP Inventory replacement value.

Budgeting

Budget planning for equipment purchases, rebuilds, and replacements occurs early each year. This may include a revisit of the equipment purchase plans for the current year's Adopted Budget, but is primarily focused on plans for the following year's Budget Request. However, purchase of some items, may require a greater lead time – as much as two years – so budget planning looks beyond the next year for such assets.

The initial purchase of a new asset (expansion of fleet or new type that is not replacing an outgoing asset) is purchased from operating funds and not the CERP Fund. Other than the cost of repairs included in the rebuild program, all equipment repair costs are paid from the Operating Fund.

CERP MODEL

The CERP Model accomplishes the life-cycle costing for CERP Inventory. Components of the life-cycling costing for equipment are age, usage (meters), maintenance (costs), and condition.

Model Function and Overview

The life-cycle costing model currently in place is a function of the CCG Faster Fleet Management application. Information regarding the purchase, life, replacement, and disposal of equipment is stored in the CCG Faster application database. The CCG Faster application automatically calculates equipment replacement dates and costs based on age, usage, and maintenance dollar spent. An inflation factor is included in the cost calculation. The estimated replacement date calculation is driven by a 15-point rating method—CCG Faster assigns point values to the age of the equipment, maintenance dollars spent, and miles/hours meter reading. A higher total point value, up to 15, accelerates the equipment's Adjusted Replacement Date. Because some assets, such as stationary compactors, lack an appropriate meter, custom reports include a calculation for purposes of generating an adjusted replacement date, monthly contribution, and remaining balance for these assets.

Asset Life Expectancies

An asset's life expectancy is based on the Original Equipment Manufacturer (OEM) suggested life which is adjusted for SWD working conditions and SWD historical average use by type of asset. For example, a long-haul tractor's life per OEM is one-million miles for normal usage. However, SWD's usage of this type of vehicle is short-haul with heavy, urban traffic plus regular off-road driving on the landfill. Therefore, SWD expected life, based on actual average usage, is about 400,000 miles. At an average of 40,000 miles per year, this is about 10 years.

Some assets may be rebuilt, which will extend their life beyond the OEM suggested life. For example, the original life expectation for a bulldozer is 10,000 hours or 60 months; the expected life extension for a power train overhaul is 10,000 hours or an additional 60 months. Other assets expected to have an extended life as a result of rebuild work are excavators, refuse trailers, pre-load compactors, and hydraulic power units (for tippers). Second rebuilds have not proven cost-effective for extending useful life.

15-Point Replacement Rating Method

CCG Faster calculates equipment replacement two ways. First, is a targeted replacement date based on system entries for the original date in service and a life expectancy in months. Second, that original date is adjusted via a 15-point rating method in which CCG Faster calculates point values for equipment age, maintenance expense, and the mile/hour meter reading. This total can be tempered with manual entry of a subjective Condition Factor. The higher the combined total of these four factors, the sooner the Adjusted Replacement Date will be for that equipment.

Age Points are calculated based on an asset's actual age-to-date compared to an estimated or expected life for that asset – the maximum age points are 5. Meter Points are calculated based on an asset's actual hour or mile meter reading compared to an estimated or expected life meter for that asset – the maximum meter points are 5. Maintenance Points are calculated based on an asset's actual repairs but excluding repair types coded as Accident, Warranty, and Capital Repairs – the maximum maintenance points are 10.

The Condition Factor is a subjective value entered manually for each asset. These points serve to accelerate or decelerate CCG Faster's calculation of the asset replacement date. If an asset is in good condition, the adjusted replacement date can be extended by deducting up to 2 points from the total point score while if an asset is in poor condition its replacement date can be accelerated by adding up to 2 points to the total point score.

Adjusted Replacement Date

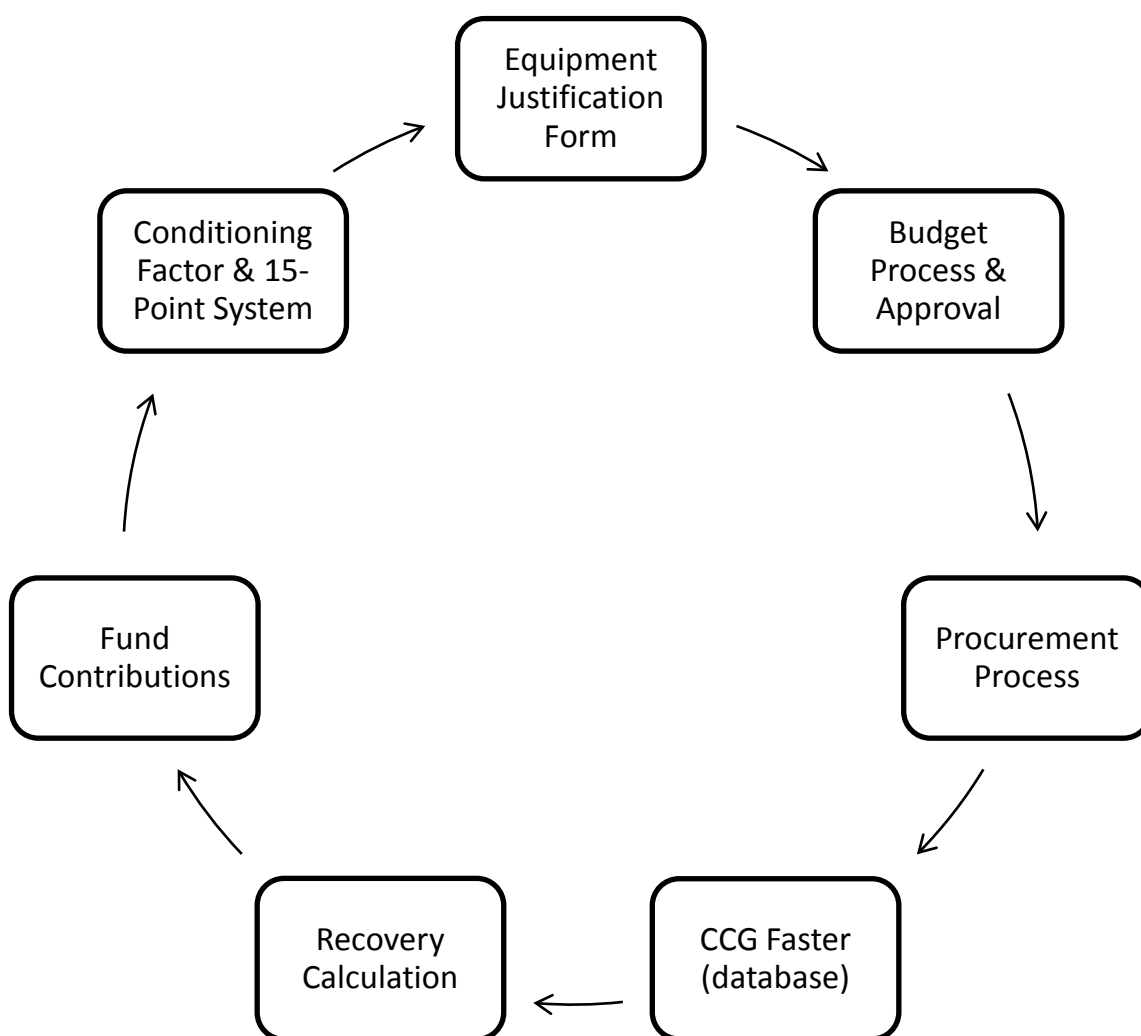
The formula CCG Faster uses for calculating an asset's Adjusted Replacement Date based on the 15-point rating method involves the percentage of remaining points multiplied by the asset's Life Expectancy in Months. The formula is: ((Maximum Possible Points minus Total Points) divided by Maximum Possible Points) times Life Expectancy in Months). This yields the asset's Remaining Life in Months which when added to the current date equals that asset's Adjusted

Replacement Date. An example of the calculation for an asset with a Life Expectancy in Months of 120 and Total Points of 12.4 is as follows: $((15.0 - 12.4) / 15.0) * 120 = 20.7$ months of remaining life. The months of remaining life is added to the current date to determine the asset's Adjusted Replacement Date.

CERP Process

Processes, procedures, and definitions are documented in the division's CERP Manual. The figure below summarizes the process for inventory purchase and replacement.

Figure D-1. Process Flow – CERP Inventory Purchase and Replacement



Appendix D: Capital Equipment Recovery Program

Equipment Class	Life Expectancy in Months	Inventory Count 1/1/2011	Units due to be Replaced	2011 Replacement Cost	2012 Replacement Cost	2013 Replacement Cost	2014 Replacement Cost	2015 Replacement Cost	2016 Replacement Cost	2017 Replacement Cost
BACKHOE	240	5	3			90,708				263,312
BAILER, CARDBOARD	200	2								
COMPACTOR, LANDFILL	60	3	3	1,000,000		1,000,000			2,000,000	
COMPACTOR, PRELOAD	240	3								
COMPACTOR, STATIONARY	120	11								
CRANE, HYDRAULIC MATERIAL HANDLING	240	1	1					153,442		
DOZER, TRACK (1)	60	9	9	720,000	360,000		3,077,747	3,779,305		
EXCAVATOR	120	2	1				750,813			
FORKLIFT	240	1								
GRADER, ROAD, WHEELS	240	1	1			357,096				
HYDRAULIC POWER UNIT	120	3								
LOADER, FRONT END	120	4	1							366,338
PICKUP / TRUCK	120	35	30	60,000	375,868	107,277	159,556	227,476	138,501	62,041
ROLLER, VIBRATORY	243	1								
SCRAPER (WHEELS)	120	4	4			874,497	882,037	886,213	868,451	
SCREENPLANT	180	1								
SEDAN, HYBRID GAS/ELECTRIC	120	8	8				91,866	89,548	65,720	
SERVICE TRUCK WITH CRANE	120	1	1		36,497					
SLOPE MOWER	150	2	1		124,293					
SUV	120	10	6			104,881	108,643			
SWEEPER	36	2	1		78,866					
TARPING MACHINE, LANDFILL AUTOMATED	120	1	1				98,657			
TRAILER, BELLY DUMP 3-AXLE	200	4	4			229,286				
TRAILER, DUMP	120	2								
TRAILER, EQUIP, HYDR. TAIL, 2-AXLE	150	1								
TRAILER, LO-BOY	300	1	1				69,194			
TRAILER, REFUSE, COMPACTOR	108	16	3					109,286	113,368	119,014
TRAILER, REFUSE, TOP LOAD (2)	144	134	70	960,000				640,000		640,000
TRAILER, TANK	360	5								
TRUCK, CLASS 8, FUEL TANKER	240	2	1		202,173					
TRUCK, CLASS 8, LONG HAUL	120	55	33		157,445	1,046,937	1,275,660	682,747	525,607	1,836,686
TRUCK, CLASS 8, LUBE	240	1								
TRUCK, CLASS 8, ROAD MAINTENANCE	120	1								
TRUCK, CLASS 8, STEAM CLEANER	120	1	1		65,885					
TRUCK, CLASS 8, WATER	240	1	1		207,903					
TRUCK, LUBE	240	2	2		144,166					
TRUCK, SCALE	240	1						74,214		
VACTOR	120	1								
VAN	240	6	4			86,325	30,183			
YARD GOAT	150	21	14	452,000	689,985	119,371	122,628	127,406	123,744	

Projected Replacement Cost by Year	3,192,000	2,443,081	4,016,378	6,666,984	6,769,637	3,835,391	3,287,391
Projected Repair Expenditures by Year	830,000	830,000	830,000	830,000	830,000	830,000	830,000
Total Projected Expenditures	4,022,000	3,273,081	4,846,378	7,496,984	7,599,637	4,665,391	4,117,391

Computation of Per Year CERP Fund Contribution to Achieve Target 2017 Fund Balance:

Estimated Beginning Fund Balance 2012	11,886,000
Target Fund Balance 2017 (3)	7,425,000
Projected Revenue 2011-2017	1,605,000
Projected Expenditure 2011-2017	31,998,862
Per Year Contribution to Achieve 2017 Target Fund Balance	<u>4,322,144</u> Rounded to \$4,300,000

(1) Three D7 dozers will be replaced with Loaders at new Bow Lake station.

(2) Replaced with combination container/chassis units as stations are rebuilt with preload-compactors.

(3) 15% CERP Inventory Replacement Value

APPENDIX E

Landfill Reserve Fund

E-1. Average per ton contribution by account – 2012

E-2. Cedar Hills new area development

E-3. Cedar Hills facility improvements

E-4. Cedar Hills closure

E-5. Cedar Hills post closure maintenance

E-6. Landfill Reserve Fund Project Cost Estimates

Table E-1. Average per ton contribution by account - 2012

New area development	\$ 3.63
Facility improvements	\$ 0.74
Closure	\$ 3.89
Post-closure maintenance	\$ -
	\$ 8.26

Table E-2. Cedar Hills new area development

Per ton contribution 2012 \$3.631

Year	Transfer	Interest earnings (3% real)	Expenditures	Year-end Balance
2010	1,213,586	(137,615)	1,827,700	(11,019,787)
2011	1,845,760	(302,907)	0	(9,476,935)
2012	2,998,961	(239,841)	34,500	(6,752,315)
2013	3,029,822	(160,624)	233,447	(4,116,563)
2014	3,046,160	(123,333)	3,035,261	(4,228,997)
2015	3,046,160	(267,459)	12,418,770	(13,869,066)
2016	3,106,067	(528,483)	10,600,154	(21,891,637)
2017	3,164,158	(679,271)	4,665,613	(24,072,364)
2018	3,218,619	(674,323)	28,750	(21,556,818)
2019	3,267,633	(597,690)	0	(18,886,875)
2020	3,316,648	(516,857)	0	(16,087,083)
2021	3,367,478	(432,100)	0	(13,151,706)
2022	3,418,307	(343,277)	0	(10,076,676)
2023	3,474,583	(250,182)	0	(6,852,274)
2024	3,527,228	(153,410)	50,000	(3,528,455)
2025	3,580,600	(52,145)	0	(0)

Table E-3. Cedar Hills facility improvements

Per ton contribution 2012 \$0.744

Year	Transfer	Interest earnings (3% real)	Expenditures	Year-end Balance
2010	224,345	(9,465)	201,785	(757,944)
2011	683,920	(47,092)	2,007,500	(2,428,616)
2012	639,177	(83,506)	1,349,000	(3,221,945)
2013	645,754	(123,355)	2,225,500	(5,125,045)
2014	649,237	(154,709)	913,050	(5,343,567)
2015	649,237	(153,868)	220,000	(5,068,198)
2016	662,005	(143,616)	100,000	(4,649,810)
2017	674,386	(130,879)	100,000	(4,206,302)
2018	685,993	(117,399)	100,000	(3,737,708)
2019	696,440	(103,185)	100,000	(3,244,453)
2020	706,886	(88,230)	100,000	(2,725,797)
2021	717,720	(72,508)	100,000	(2,180,585)
2022	728,553	(55,989)	100,000	(1,608,021)
2023	740,548	(38,632)	100,000	(1,006,106)
2024	751,768	(20,407)	100,000	(374,744)
2025	763,143	(1,295)	100,000	287,104
2026	0	7,113	100,000	194,217
2027	0	4,327	100,000	98,544
2028	0	1,456	100,000	(0)

Table E-4. Cedar Hills closure

Per ton contribution 2012 \$3.887

Year	Transfer	Interest earnings (3% real)	Expenditures	Year-end Balance
2010	2,592,436	146,490	1,831,806	11,730,492
2011	2,348,400	309,381	5,483,953	9,204,321
2012	3,186,076	309,983	929,174	11,771,206
2013	3,218,863	362,457	2,597,487	12,755,038
2014	3,236,220	392,162	2,602,194	13,781,226
2015	3,236,220	418,495	2,899,025	14,536,916
2016	3,299,864	449,099	2,433,767	15,852,112
2017	3,361,580	521,487	300,000	19,435,179
2018	3,419,439	566,922	4,495,000	18,926,540
2019	3,471,511	603,361	1,100,544	21,900,868
2020	3,523,584	638,308	4,771,433	21,291,327
2021	3,577,585	620,832	4,771,433	20,718,312
2022	3,631,587	604,452	4,771,433	20,182,917
2023	3,691,374	592,602	4,550,398	19,916,496
2024	3,747,304	475,169	11,902,384	12,236,584
2025	3,804,005	286,446	9,180,750	7,146,285
2026	0	76,677	9,180,750	(1,957,787)
2027	0	(214,405)	10,378,112	(12,550,305)
2028	20,055,886	(185,472)	7,320,109	0

Table E-5. Cedar Hills post closure maintenance

Per ton contribution 2012 \$0.000

Year	Transfer	Interest earnings (3% real)	Set Aside	Year-end Balance
2010	0	412,011	0	32,992,646
2011	0	989,779	0	33,982,425
2012	0	1,019,473	0	35,001,898
2013	0	1,050,057	0	36,051,955
2014	0	1,081,559	0	37,133,513
2015	0	1,114,005	0	38,247,519
2016	0	1,147,426	0	39,394,944
2017	0	1,181,848	0	40,576,793
2018	0	1,217,304	0	41,794,097
2019	0	1,253,823	0	43,047,919
2020	0	1,291,438	0	44,339,357
2021	0	1,330,181	0	45,669,538
2022	0	1,370,086	0	47,039,624
2023	0	1,411,189	0	48,450,813
2024	0	1,453,524	0	49,904,337
2025	0	1,497,130	0	51,401,467
2026	0	1,542,044	0	52,943,511
2027	0	1,588,305	0	54,531,816
2028	0	1,102,281	35,578,212	20,055,886

Assuming future interest earnings, this account is fully funded and no longer requires contributions.

Funds remaining when transfer to post-closure maintenance fund occurs will be added to the closure account – see Table C-4.

Table E-6. Landfill Reserve Fund Project Cost Estimates

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Cedar Hills Landfill New Area Development																			
Landfill Gas-to-Energy Support	231,165																		
Surface Water Management System Modifications	2,412																		
Area 6 Development	7,963																		
Area 7 Development	1,586,160																		
Area 8 Development			34,500	233,447	3,035,261	12,418,770	10,600,154	4,665,613	28,750										
Area 5,6,7,8 Top Lift Development															50,000				
Total New Area Development Projects	1,827,700		34,500	233,447	3,035,261	12,418,770	10,600,154	4,665,613	28,750						50,000				
Cedar Hills Facility Improvement																			
Replace Pump Station 4	455																		
Master Electrical			500,000	800,000	200,000														
Lechate Forcemain	52,591	900,000																	
Groundwater Monitoring Wells & Hydrogeologic Report		100,000																	
Equipment Platform		275,000	200,000	650,000	300,000														
Site Development Plan	142,131	100,000																	
Environmental Control System Improvements		632,500	649,000	775,500	413,050	220,000													
General Facility Improvements	6,609						100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000
Total Facility Improvement Projects	201,785	2,007,500	1,349,000	2,225,500	913,050	220,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000
Cedar Hills Landfill Closure																			
Leachate & Landfill Gas Management System Evaluation	490,661	300,000																	
Groundwater Monitoring Wells	219,365																		
Area 5 Closure	269																		
Area 6 Closure	1,121,511	5,115,000	500,000																
Area 7 Closure		68,953	429,174	2,597,487	2,602,194	2,899,025	2,433,767	300,000	4,495,000	408,688									
Area 8 Closure										691,856	4,771,433	4,771,433	4,771,433	4,550,398	2,750,384	28,750	28,750	1,226,112	7,320,109
Area 5,6,7,8 Top Lift Closure															9,152,000	9,152,000	9,152,000	9,152,000	
Total Landfill Closure Projects	1,831,806	5,483,953	929,174	2,597,487	2,602,194	2,899,025	2,433,767	300,000	4,495,000	1,100,544	4,771,433	4,771,433	4,771,433	4,550,398	11,902,384	9,180,750	9,180,750	10,378,112	7,320,109

This material will be provided in alternate
formats upon request by contacting:

King County Solid Waste Division

206-296-4466

1-800-325-6165, ext. 6-4466

TTY Relay: 711

www.kingcounty.gov/solidwaste



King County

Department of Natural Resources and Parks

Solid Waste Division



Printed on recycled paper