

# 6 Analysis of Full Costs and Financing Mechanisms

## 6.1 Description and Assessment of Full Costs

The revised Solid Waste Management Act requires that local solid waste management plans contain an assessment of full costs and financing mechanisms for existing programs. This section provides a summary description and assessment of solid waste management costs as reported by the County and each municipality based upon the State's full cost accounting template. Detailed cost tables are provided in Appendix C. The results of this assessment will be useful in determining how Rockingham County jurisdictions will finance future solid waste reduction and management programs as well as improving the cost-effectiveness of those now in operation. The reader should exercise caution in comparing cost estimates between jurisdictions, since each program's operations and costs are unique and jurisdictions may have grouped program data in different ways.

### 6.1.1 Rockingham County

Rockingham County operates a MSW landfill; a recycling program consisting of a convenience drop-off site plus mobile recycling trailers; used oil collection; antifreeze collection; white goods/scrap metal recycling; electronic recycling; clean wood waste processing; and the County scrap tire management program. The total costs for the County solid waste management programs in FY 10-11 were \$3.56 million which includes Proforma annualized data to indicate true operating costs plus projected costs for continuous landfill operations (see Table 6-1). The vast majority of these costs are associated with the landfill and adjunct operations. A per-ton cost for MSW landfill operations, clean wood waste processing, and white goods/scrap tire management operations was \$38.45. Omitted from this \$38.45 per ton calculation are any tipping fee revenues associated with these programs. A per ton cost for the Recycling Program was \$291.78 resulting from \$195,768 in operating costs for the recycling drop-off center/recycling trailers minus the \$31,785 revenues from selling recyclables collected.

The major cost components for landfill operations were funding for annualized large capital expenditure, annualized landfill closure & post-closure costs, annualized landfill development cost, and employee wages and benefits. These four line items account for approximately 70% of landfill costs.

**Table 6-1: County Solid Waste Management Budget, FY 10-11**

	Landfill and Adjunct Operations	Recycling Program	Total
Total Annual Cost	\$3,359,919	\$195,768	\$3,555,687
Total Annual Revenue	\$56	\$31,785	\$31,841
Net Annual Cost	\$3,359,863	\$163,983	\$3,523,846
Tons	87,385	562	87,947
Net Cost per Ton	\$38.45	\$291.78	\$40.07

Source: Rockingham County



Curbside solid waste collection in the unincorporated areas of the County is currently provided by Waste Management, a franchised private hauler. The hauler charged an average monthly fee of \$12.15 household for subscribers in FY 2010-11. Based on County estimates, approximately 61% of unincorporated households subscribe to this collection service.

### 6.1.2 Eden

The City of Eden's solid waste management programs include residential solid waste collection, full service drop-off and six drop-port recycling centers, commercial solid waste collection (through private contract), leaf collection, residential yard waste collection, bulky waste collection, and white goods/scrap metal processing including recycling. The total allocated cost for solid waste management in FY 2010-11 was \$1,895,909. The net total cost was \$898,999 as compared to \$898,999 in FY 2007-08.

Costs are summarized in Table 6-2. Revenues are from the recycling drop-off centers, white goods processing, wood/yard waste recycling, and fees for commercial and residential wastes collections/disposal. Cost to operate the City's transfer station is allocated across the residential solid waste and commercial waste collection programs.

**Table 6-2: Eden Solid Waste Management Budget, FY 2010-11**

	Resid. SW Coll. & Disposal	Recycling Centers	Leaf Coll.	Comm. SW Collection & Disposal	Bulk Coll.	Bulk Recycle	Total
Total Annual Cost	\$564,582	\$186,941	\$177,227	\$459,251	\$305,597	\$202,311	\$1,895,909
Total Annual Revenue	\$541,614	\$21,400	\$ 3,200	\$407,396	\$6,300	\$17,000	\$996,910
Net Annual Cost	\$22,968	\$165,541	\$174,027	\$51,855	\$299,297	\$185,311	\$898,999
Tons	5,310	795	4,315	4,243	1,993	2,400	19,056
Households / Businesses	5,904	6,208	6,208	308	5,904	5,904	6,208
Net Cost/Ton	\$4.33	\$208.23	\$40.33	\$12.22	\$150	\$77	\$48
Net Cost /Unit	\$3.89	\$26.67	\$28.03	\$168.36	\$50.69	\$31.39	\$145

Source: City of Eden

The major components of Eden's solid waste management costs are employee wages and benefits, landfill tipping fees for residential/commercial wastes, contracted collections, leaf collection, and recycling services (detailed cost data in Appendix C).

### 6.1.3 Madison

The Town of Madison contracts for solid waste collection on behalf of residents and small businesses and for curbside recycling. The Town performs direct collection of bulky items, white goods, brush and leaves. The total reported annual costs of all



services for FY 2010-11 were \$229,173 and net costs per household/business were \$243.80 per year.

**Table 6-3: Madison Solid Waste Management Budget, FY 10-11**

	Collection of SW Leaves, Brush, Bulky Items	SW Disposal	Recycling	Total
Total Annual Cost	\$173,315	\$31,080	\$24,778	\$229,173
Total Annual Revenue	\$0	\$0	\$0	\$0
Net Annual Cost	\$173,315	\$31,080	\$24,778	\$229,173
Tons	953	953	29	982
Households/ Businesses	940	940	730	940
Net Cost per Ton	\$181.86	\$32.61	\$854.41	\$233.37
Net Cost per Unit	\$184.38	\$33.06	\$33.94	\$243.80

Source: Town of Madison

#### 6.1.4 Mayodan

The Town of Mayodan provides solid waste collection and disposal services for residences, commercial establishments using 90-gallon carts, bulky item collection including recycling of white goods and separate collection of yard waste. The total reported solid waste management cost for FY 2010-11 as \$170,888 (see Table 6-4). Solid waste collection and disposal accounted for 76% of this cost. Waste diversion programs accounted for 24% of net annual costs.

**Table 6-4: Mayodan Solid Waste Management Budget, FY 10-11**

	Collection of SW Yd. Waste, Bulky Items	SW Disposal	Recycling Yard Waste Mgt./Other	Total
Total Annual Cost	\$77,493	\$52,604	\$40,791	\$170,888
Total Annual Revenue	\$0	\$0	\$0	\$0
Net Annual Cost	\$77,493	\$52,604	\$40,791	\$170,888
Tons	933	933	677	1610
Households / Businesses	1,192	1,192	1,192	1,192
Net Cost per Ton	\$83.06	\$56.38	\$60.25	\$106.14
Net Cost per Unit	\$65.01	\$44.13	\$34.22	\$143.36

Source: Town of Mayodan



### 6.1.5 Reidsville

The City of Reidsville provides residential solid waste collection, commercial solid waste collection in the downtown area, drop-off recycling, and collection of yard waste and bulky items, including recycling of white goods. Table 6-5 provides a summary of budget data reported by Reidsville. Solid waste service to commercial generators (outside of the downtown area) is provided by a private contractor to 241 businesses with collections of 3,900 tons of MSW. Fees for this service are paid directly by generators to the contractor thus cost data for this service was not available through the City; consequently these costs are not included in the analysis. Recycling costs include both the drop-off center and scrap metal programs. Other program costs include yard waste management costs. Non-recyclable bulky waste management costs are included in solid waste collection and disposal costs. The total annual cost for FY 2010-11 was \$1,615,952 (see Table 6-5). The total net annual cost was \$1,206,774.

**Table 6-5: Reidsville Solid Waste Management Budget, FY 10-11**

	Residential SW Collection	Residential SW Disposal	Recycling	Downtown Comm SW Collection	Other	Total
Total Annual Cost	\$462,019	\$375,757	\$123,986	\$275,127	\$379,063	\$1,615,952
Total Annual Revenue	\$319,215	\$0	\$19,668	\$70,295	\$0	\$409,178
Net Annual Cost	\$142,804	\$375,757	\$104,318	\$204,832	\$379,063	\$1,206,774
Tons	4,796	5,870	215	846	3,228	9,313
Households / Businesses	5,600	5,600	5,617	296	5,600	5,896
Net Cost per Ton	\$29.78	\$64.01	\$485.20	\$242.12	\$117.43	\$129.58
Net Cost per Unit	\$25.50	\$67.10	\$18.57	\$692.00	\$67.69	\$204.68

Source: City of Reidsville

### 6.1.6 Stoneville

The Town of Stoneville provides residential solid waste collection and disposal plus leaf vacuuming services through contracts with private service providers. City crews provide bulky items, white goods, bagged leaves, and brush collection on an as needed basis. The Town's total waste management costs for FY 2010-11 are reported to be \$88,675. Solid waste collection and disposal accounts for 91% of this cost with the leaf/brush service as reported accounting for the remaining costs (see Table 6-6). The average cost per household/business is \$182.08 for solid waste collection and disposal. Tonnage data was not available (estimate only) for leaf and brush waste or for mulching.



**Table 6-6: Stoneville Solid Waste Management Budget, FY 2010-11**

	Collection & Disposal of SW	Curbside Recycling	Other (Brush Coll. Labor)	Total
Total Annual Cost	\$80,750	N/A	\$7,925	\$88,675
Total Annual Revenue	\$0		\$0	\$0
Net Annual Cost	\$80,750		\$7,925	\$88,675
Tons	589		8	597
Hhlds / Businesses	465/22		465/22	465/22
Net Cost per Ton	\$137.10	N/A	N/A	\$148.53
Net Cost per Unit	\$165.81	N/A	\$16.27	\$182.08

Source: Town of Stoneville

### 6.1.7 Summary

The nature of solid waste management operations and associated costs varies widely in Rockingham County. Comprehensive data is not available for all communities. Due to inconsistency in how information was accounted for relative to associated program costs, unit costs estimates provided in the summary tables may not accurately reflect true full costs. As each jurisdiction continues fine-tuning its full cost record keeping and accounting methods, reporting of more accurate and detailed cost information should be possible in future years. The County periodically performs financial studies on total landfill disposal cost, financing methods, and implications with respect to appropriate landfill tipping fees for the future.

## 6.2 Description of Financing Methods

### 6.2.1 Rockingham County

The County landfill is operated as an enterprise fund. Tipping fees fund most of the costs with ad valorem tax covering limited recycling program costs however recycling is a small percentage of the total budget. The current tipping fees are listed in Table 6-7.

The State's Advance Disposal Fee for tires and County tipping fees fund the tire management program. The State Advance Disposal Fee for white goods help support the management of the white good materials. Recycling activities are funded through the enterprise fund plus revenue from the sale of recyclables.

According to County estimates only 4-6% of the tonnage entering the landfill is delivered as individual loads. The majority of municipal solid waste is delivered by municipal and private waste collection and transfer trucks. Therefore, the majority of



**Table 6-7: Current County Landfill Tipping Fees**

Item	Tipping Fee *
MSW	\$36 per ton
Individual Loads	\$9.00 to \$36 per load
C&D	\$38 per ton
Clean Wood & Inert Debris	\$21 per ton
Special Waste	\$76 per ton
Animal Remains	\$2 to \$20 each
Tires	no charge
Tires with Rims	\$0.50 to \$10 each
White Goods/Scrap Metal	no charge

Source: Rockingham County \*NC Solid Waste Disposal Tax Not Included

Landfill MSW tipping fees received by the County are based on tonnage delivered at \$36 per ton **excluding** the new North Carolina Solid Waste Disposal Tax.

Currently, landfill tipping fee revenues are adequate to cover operations and funding for closure and post-closure care. To address concerns that there will be insufficient funds to capitalize the development of future landfill cell construction, the County expanded its geographic service area to include a 75-mile radius around the County landfill and also promotes greater use of the landfill by in-county waste generators and haulers. Due to the economic slowdown experienced in the County during FY 2010/11, the tonnage of MSW received by the County landfill for the year decreased to an average of 286 tons per operating day; however, this trend has reversed in FY 2011/12 year with average MSW tonnage returning to higher levels allowing more efficient use of Facility personnel and equipment. The County periodically evaluates current and future projected rates of fill and tipping fee structure to determine means of ensuring that the flow of waste and resultant revenue stream will be adequate to cover costs associated with construction of future landfill phases. By utilizing these ongoing financial studies, Landfill tipping fees are reviewed and set annually.

### **6.2.2 Eden**

The City of Eden funds solid waste services through a combination of user fees and the general fund. The City charges its 308 commercial solid waste customers a variable fee based on the size of each container used and frequency of service. The solid waste weekly rate schedule is summarized in Table 6-8 with recycling container fees adding \$45.00 per month where applicable. The commercial fees generated in FY 07-08 amounted to \$407,396. Approximately 11.3% of the total cost was subsidized by the general fund in FY 07-08 due to revenue shortfall.

The City implemented a Pay as You Throw(PayT) Residential System July 1, 2002 that bases charges according to the average volume of household waste generated weekly. Due to excessive cost, Eden discontinued the PayT program in July 2010, and installed a single fee of \$18.65 per month for each household for waste collection/disposal.



Currently applied rates capture 43.9% of total cost for all residential services and generated \$541,614 in FY 07-08. The remaining residential services costs were subsidized by recycling revenues (2.5% of total cost) and general fund (53.6% of total cost).

**Table 6-8: Eden Rate Schedule for One Pick up per Week, 2010/2011**

Container Type (cubic yards)	Customer Cost w/o Container	Customer Cost w/ Container	Extra Pick up	Container Rental
8	\$94.42	\$110.42	\$40.00	\$16.00
6	\$72.12	\$86.12	\$40.00	\$14.00
4	\$48.97	\$60.97	\$40.00	\$12.00
Recycling Container		\$45.00		

Source: City of Eden

### 6.2.3 Madison

Madison charges all Water & Sewer customers (households and small businesses) a monthly fee for solid waste collection services. The fees are \$10.00 per month for residential households in Fiscal Year 10-11 and fees for small businesses are \$20 per month. For FY 11-12, service fees are estimated at \$151,690, which account for 88% of the estimated total solid waste management budget. The remaining solid waste management costs are derived from the Town's general fund.

### 6.2.4 Mayodan

The Town of Mayodan funds its solid waste and recycling collection services through its general fund. Bulky items are collected for a fee of \$10 per pick up and large loads of yard waste are collected for a fee of \$30 per load. Beginning July 01, 2002, the town of Mayodan began charging a \$4.00 per month solid waste fee.

### 6.2.5 Reidsville

The City of Reidsville finances solid waste services through a combination of user fees and general funds. Households were charged a flat monthly fee of \$5.35, which generated \$319,215 during FY 2010-11. This fee is defined as a landfill tipping fee and it covered 85% of residential solid waste disposal costs. The remaining disposal costs plus collection costs were financed through the City general funds. Waste diversion programs are funded primarily through general funds with (16%) covered by revenue from the sale of recyclables. The commercial solid waste service is funded through a flat service fee plus general funds. The City charges \$2.51 per pick up for twice weekly service and \$3.88 per pick up for weekly service. Total billings in FY 2010-11 were \$70,295, which accounted for 26% of total costs and the remaining costs were covered through general funds. At the present time the City is not planning alternative financing

mechanisms such as variable rates, full-cost-based user fees, or Pay-as-You-Throw (PAYT) fees.

### **6.2.6 Stoneville**

The Town of Stoneville finances all solid waste and recycling services through its general fund.

### **6.2.7 Summary**

Solid waste programs in Rockingham County are financed through flat and variable rate user fees, tipping fees, sale of recyclables, special state taxes, and general funds derived from property taxes. The County has experienced increased tonnage of incoming solid waste and tipping fee revenues by receiving more in-county generated solid waste. The current tonnage provides adequate revenues to fund landfill operations. However as the County Landfill competes with other landfills in the region for tonnage, alternative financing strategies may be needed to fully cover future landfill costs.

A large percentage of the municipal solid waste management costs are not directly apparent to citizens because they are paid through general funds. By fully converting solid waste financing to user fees and enterprise funding, jurisdictions could more clearly determine the true cost of solid waste management (both diversion and disposal programs) and communicate the true cost of solid waste management to citizens. Variable rate user fees can provide a strong economic incentive for waste reduction and recycling. The City of Eden has begun movement towards an enterprise system through the Pay T variable rate user fees.



## **SOLID WASTE PLANNING COMMITTEE MEMBERS 2012**

### **COMMISSIONER**

James E. Kallam  
101 Farrar Store Road  
Stokesdale, NC 27357  
(H) 427-3401

### **MADISON**

David Stewart  
902 Parkway Avenue  
Madison, NC 27025  
(H) 427-4464

### **MAYODAN**

Tim Simpson  
1312 Roach Street  
Mayodan, NC 27027  
(H) 548-1250

### **EDEN**

James C. Burnette  
531 Glovenia Street  
Eden, NC 27288  
(W) 623-3210

### **STONEVILLE**

Jerry Smith  
600 East Main Street  
Stoneville, NC 27048  
(H) 573-3388

### **WENTWORTH**

Dennis Paschal  
550 Pannel Road  
Reidsville, NC 27320  
(H) 349-8926

### **REIDSVILLE**

Pat Knowles  
1100 Vance Street  
Reidsville, NC 27320  
(W) 349-1074

### **ATTENDEES EDEN**

Rodney Carter  
Eden Public Works  
1050 Klyce Street  
Eden, NC 27288  
(W) 627-4688

**All Town & City Managers**