

*SOLID WASTE*



## SOLID WASTE

### FY2004-2010

#### **1. BACKGROUND ISSUES**

The solid waste element contains capital improvements to both disposal and recycling facilities.

##### **Disposal**

Increased generation of household refuse and construction and demolition waste has been an inevitable consequence of the sustained population growth and building trends in Wake County.

Refuse collection and hauling services are provided to residents of Wake County through a combination of private contractors and municipal collection services. Historically, the majority of the waste collected throughout the County was disposed at landfills owned by Wake County. Due to the recent emergence of large privately owned landfills and the lack of control over the flow of waste, an increasing portion of waste is being disposed of in privately owned landfills in and around Wake County. In addition to disposal facilities, the County also provides convenience centers (11 total) where a percentage of residents bring household waste, which is then hauled to the County's landfills.

Since the 1970's, Wake County has owned and operated landfills that accept municipal solid waste (MSW) and construction and demolition (C&D) waste. In 1996, the County opened a lined landfill at the North Wake facility (off Durant Road) and dedicated the unlined Feltonville landfill to accept C&D waste exclusively (in accord with State and Federal regulations). In 1998, a transfer station was constructed in southern Wake County adjacent to the Feltonville landfill. In July 2001, the County added a small, unlined C&D landfill adjacent to the lined facility at the North Wake complex.

The solid waste capital program includes investments in the County's disposal infrastructure in the form of construction of new facilities, repair

and remediation to existing facilities, and general upgrades of existing facilities to meet demands of the general public.

##### **Recycling**

In an effort to divert waste from entering the landfills, the County currently operates two multi-material facilities that accept various recyclable commodities including corrugated cardboard, white goods (e.g. refrigerators, washers, dryers), lead-acid batteries, used motor oil, and scrap tires. The two multi-material sites are located at the North Wake landfill site and the Feltonville landfill facility. The North Wake Multi-Material Facility also accepts drywall, wood pallets, and computers. In addition to providing disposal drop-off services, the eleven (11) convenience center sites have areas for recyclable commodities such as newspapers, cardboard, glass containers (green, brown, clear), aluminum containers, steel cans, scrap metal, and plastics. Fifty-one (51) school igloo facilities provide recycling opportunities as well as educational opportunities for elementary, middle, and high school students throughout the County.

#### **2. PROGRAM & FACILITY GOALS**

The primary goal of the Solid Waste capital program is to facilitate the effective and efficient implementation of solid waste operating programs and policies by providing new facilities in a timely manner and maintaining existing facilities in good condition.

- Provide convenient, effective, and economical drop-off, transfer and disposal facilities that protect the public health and environment.
- Promote the Division's recycling plans and policies with convenient, effective, and efficient recycling drop-off facilities.

### **3. COMPREHENSIVE PLAN**

The ten-year Solid Waste Plan is the focal point that will integrate waste reduction, reuse, recycling, disposal operations and capital strategies. The ten-year Plan is expected to be complete in the Summer of 2003 and will outline the plan to re-assessment of the convenience centers system, the school igloo program, and the services provided at both multi-material facilities. By the end of FY2004 an updated comprehensive facility plan will be developed and the seven-year CIP program will be updated accordingly at that time.

### **4. SEVEN-YEAR CIP PROGRAM SUMMARY**

The current capital plan provides \$48 million for solid waste capital over the next seven years. This includes an investment of \$7.73 million in FY2004 at several solid waste facilities. Several projects that were initiated in prior years are continuing through FY2004. In addition, shorter-term projects such as upgrading convenience center 3 is scheduled for completion in FY2004, with additional projects occurring in FY2005 and beyond. The North Wake C&D landfill will close near the end of FY2003 and \$444,634 is identified for that project. The C&D landfill at Feltonsville is likely to close in FY2004 at a cost of approximately \$1.9 million. The North Wake Subtitle D landfill will be closed out in phases with Phase I beginning in FY2004 (\$4.8 million). Phase II and the final closure of the facility are expected to occur in FY2006 and FY2009, respectively, depending upon waste tonnages. The total cost of the North Wake Subtitle D landfill closure is estimated to be \$12.5 million. These closure activities are supported by reserves that were accumulated as part of the tipping fee structure throughout the life of the landfill.

Plans for a new landfill in southern Wake County have been completed and a permit for the construction has been issued by the State. Land on which the new landfill is permitted to be constructed is currently owned by Wake County. Although construction of the new landfill is a viable alternative, staff is evaluating various other options for long-term (25 years) disposal of solid waste. It is anticipated that a report of the various options considered, along with specific recommendations on the proposed

long-term solution(s), will be presented to the Board of Commissioners in FY2004.

### **5. PROJECT ACCOMPLISHMENTS IN FY2003**

The capital investments in FY2003 are categorized by facility: North Wake landfill, Feltonsville landfill, South Wake landfill, and Convenience Centers.

**North Wake Landfill:** Continuing an ongoing project that started in FY2001 to assess off-site migration of landfill gas, the County developed and began implementation of remediation measures in FY2003. Remediation construction began by installing numerous gas collection, and monitoring wells. Installation of an underground gas collection piping system, cut-off trench, and connection to gas monitoring wells was initiated in the spring of FY2003. Completion of this project is scheduled for winter of FY2004. Design work, including preparation of construction bidding documents, was completed for closure of North Wake C&D landfill. Bids for C&D closure construction activities were received and a contract awarded. These closure activities are supported by reserves that were accumulated as part of the tipping fee structure throughout the life of the landfill.

**Feltonsville Landfill:** A corrective action plan was prepared and implemented to address high landfill gas readings recently discovered at a few existing monitoring wells. The potential for off-site gas migration was evaluated. Remediation work included the installation and testing of additional gas extraction and monitoring wells. Completion of this project achieved compliance with permit requirements.

**South Wake Landfill:** In FY2003, staff continued to reassess and evaluate long-term options for solid waste disposal. Efforts involved the development of a formal Request for Expressions of Interest and proposals for operating the South Wake Landfill or alternative disposal option(s). Responses to this formal request are expected in the 1st quarter of FY2004.

**Convenience Centers:** Planning, permitting and preliminary design studies were completed for improving Convenience Center 3 (located on Aviation Parkway). This included hiring and working with an engineering consultant specializing in convenience center design. Alternatives for a comprehensive upgrade and expansion of the existing facility were explored. A continued increase in the number of customers and quantity of material dropped off at the site make this project a high priority. Upgrades include a more accessible entrance, additional drop off containers and an increased vehicular stacking area for more efficient flow. Complications with Morrisville/Cary site plan approval processes and Aviation Parkway widening costs dictated by the two towns may jeopardize the financial viability of the project. These issues will be further pursued and appropriate decisions made by July 2003.

#### **6. FY2004 PROJECT ACTIVITY SUMMARY**

The capital investments in FY2004 are categorized by facility.

**North Wake Landfill:** Remediation efforts consisting of the installation of an underground gas piping system, cut-off trench, and connection to gas collection/monitoring wells that began in May 2003 is expected to be completed in FY2004. In FY2003, a construction contract was awarded for closure activities associated with North Wake C&D landfill at a cost of \$444,634 in FY2004.

North Wake Subtitle D Landfill (MSW landfill) will be closed out in three phases over the next several years. Phase 1 closure beginning in FY2004 will be completed at an approximate cost of \$4.8 million. This partial closure will assist with odor reduction at the landfill. Closure activities will be funded from a reserve account established in prior years to cover costs of closure activities. The County has submitted a report assessing the existing ground water contamination at the unlined portion of the landfill and is budgeting \$125,000 in FY2004 in anticipation of potential assessment costs for corrective measures that may be required.

**Feltonville Landfill:** A facility assessment was recently completed to identify any repairs needed at the South Wake Transfer Station. Some

recommendations with minimal costs were addressed as part of operations maintenance. The condition of the floor will be closely monitored for possible future repair. In FY2004, \$1.87 million will be dedicated to closure of Feltonville C&D landfill. Actual closure activities are planned to commence in the last quarter of FY2004. The closure cap must be constructed to Federal Subtitle D landfill standards, since the C&D landfill was constructed on top of a closed MSW landfill. These funds will be drawn from a reserve account established in prior years for closure. The County has submitted a report assessing the existing ground water contamination at the unlined portion of the landfill and is budgeting \$75,000 in FY2004 in anticipation of potential assessment costs for corrective measures that may be required.

**South Wake Landfill:** Staff will continue efforts to comprehensively reassess and evaluate long-term options for solid waste disposal. Efforts will involve the evaluation of proposals for operating a new South Wake landfill and alternative disposal options. It is anticipated that a report of the options considered, along with specific recommendations on the proposed long-term solution (s), will be presented to the Board of Commissioners by the fourth quarter of FY2004. The life of the North Wake landfill determines when the future disposal option must be available to accept waste. Calculations and projections of its remaining life are periodically updated. The life of the North Wake landfill is currently projected to expire in December 2007. If the development of South Wake landfill is ultimately selected as the best option, construction contracts will need to be awarded in FY2005.

**Convenience Centers:** The majority of capital invested in FY2004 for this area is dedicated to Convenience Center 3. This included hiring a consultant and contractor to provide a comprehensive upgrade to the capacity of the facility to increase in the number of customers and increase the quantity of material dropped off at the site (\$440,275). Upgrades include a more open entrance area and locating all drop-off containers next to the traffic lane for more efficient flow. Convenience Center 3 construction is planned for completion in FY2004.

**7. SUMMARY OF FUTURE PHASES (FY2005-2010)**

Landfill gas remediation efforts at North Wake landfill should be completed by FY2005. At that point, periodic monitoring and reporting will be required. Minor remediation efforts may be ongoing at the Feltonville landfill if NC DENR requests them in their response to the groundwater report mentioned earlier. Other capital projects for this period will include: finishing the closure of the Feltonville landfill (FY2005) and the lined landfill at North Wake (Phase II - FY2006, Phase III - FY2009); development of a new master plan for the entrance to the South Wake facilities (including convenience center, multi-material drop-off, possible transfer station and scale house); and the development of a master plan for the post-closure use of the North Wake facility. As a result of final closure of the North Wake Subtitle D landfill, the county will either open South Wake landfill or develop contracts for others to provide long-term disposal services.

The strategic direction set forth in the ten-year Solid Waste Plan (completed in late FY2003) will inform the type, location, and focus of capital investments in solid waste. In addition, the entire convenience center system will be reviewed in FY2004, including addressing customer feedback solicited by the County. It is expected that Convenience Center 10 and 11 will need significant upgrades.

**8. OPERATING IMPACT**

Because the majority of the capital investments are in the renovation or replacement of existing facilities, increases in operating costs are expected to be negligible during the current capital improvements planning period. However, operating costs could be reduced and efficiency of services increased as a result of the program reviews and enhancements contemplated. Implementing key elements of a master planned new entry at the South Wake facilities will improve multiple facility operations.

**9. RELATIONSHIP TO OTHER PLANS**

Development of the capital plan for facilities will be integrated with the Wake County Ten-Year Solid Waste Plan and coordinated with municipal solid waste plans in the County. The Solid Waste Plan is developed

through the county's Solid Waste Advisory Committee (SWAC) and either incorporates the solid waste plans of the municipalities within the County, or coordinates with their individual plans. In addition, the capital plan will be impacted by the recommendations of the citizens advisory committee that will be created for assisting in the development of the post-closure use plan of the North Wake lined MSW landfill. Lastly, as the business plan of the Solid Waste Division is developed over the next few years, the need for capital improvements and investments in new facilities may be identified, requiring updates of this capital plan.

**10. ILLUSTRATIONS**



North Wake Construction and Demolition Landfill



North Wake Gas Remediation Project



Drop Off Center at Convenience 4



Recycling Pad at Convenience Center 4

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**11. FINANCIALS**

<b>PART I. EXPENDITURES</b>								
	FY2004	FY2005	FY2006	FY2007	FY2008	FY2009	FY2010	TOTAL
LANDFILLS AND DISPOSAL	\$7,699,634	\$630,000	\$8,578,000	\$11,000,000	\$6,400,000	\$5,850,000	\$5,000,000	\$45,157,634
RECYCLING/CONVENIENCE CENTERS	\$0	\$1,000,000	\$350,000	\$750,000	\$500,000	\$500,000	\$500,000	\$3,600,000
<b>TOTAL APPROPRIATIONS</b>	<b>\$7,699,634</b>	<b>\$1,630,000</b>	<b>\$8,928,000</b>	<b>\$11,750,000</b>	<b>\$6,900,000</b>	<b>\$6,350,000</b>	<b>\$5,500,000</b>	<b>\$48,757,634</b>
<b>PART II. FUNDING SOURCES</b>								
	FY2004	FY2005	FY2006	FY2007	FY2008	FY2009	FY2010	TOTAL
Revenue Bonds (Proposed)	\$0	\$0	\$6,505,500	\$11,000,000	\$5,600,000	\$0	\$5,000,000	\$28,105,500
Reserves (Closure)	\$3,274,634	\$0	\$2,000,000	\$0	\$0	\$5,700,000	\$0	\$10,974,634
Pay As You Go	\$0	\$1,630,000	\$422,500	\$750,000	\$1,300,000	\$650,000	\$500,000	\$5,252,500
1997 Bond Issue Funds	\$4,425,000	\$0	\$0	\$0	\$0	\$0	\$0	\$4,425,000
<b>TOTAL</b>	<b>\$7,699,634</b>	<b>\$1,630,000</b>	<b>\$8,928,000</b>	<b>\$11,750,000</b>	<b>\$6,900,000</b>	<b>\$6,350,000</b>	<b>\$5,500,000</b>	<b>\$48,757,634</b>
<b>PART III. OPERATING IMPACT</b>								
	FY2004	FY2005	FY2006	FY2007	FY2008	FY2009	FY2010	TOTAL
Total Operating Cost	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0