Triangle’s Best
Solid Waste Management Practices
2002
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Best Practice: Curbside Computer Recycling Program

Jurisdiction: Town of Cary

Brief Description: During the fall 2000, the Town of Cary decided to address the issue of recycling of computers and their parts. To make it the most convenient for citizens, the Town decided to piggyback upon its existing curbside special pick-up program. Citizens can call the Customer Service office and request a pick-up of their old computers and parts. Town staff goes and retrieve the set-out computers and then a representative from Chatham Salvage of Bear Creek, NC transports them to their facility for processing. This program is open to all residents of the Town of Cary.

Goal: The goals of this program are to reduce the impacts on the environment by removing hazardous items from the waste stream and to help meet Cary’s solid waste reduction goals.

Ordinance: N/A

Implementation Details: The implementation of this program was accomplished with no changes to the solid waste collection infrastructure or capital purchases. As a result, collection costs are negligible.

The Town currently pays $4.00 per monitor to Chatham Salvage in recycling/processing costs.

Results: The program averages fifteen pick-ups a week. From November, 2000 to April 2002, the following has been has recycled:

<table>
<thead>
<tr>
<th>Item</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monitors</td>
<td>903</td>
</tr>
<tr>
<td>CPUs</td>
<td>7.33 tons</td>
</tr>
<tr>
<td>Printers</td>
<td>3.43 tons</td>
</tr>
<tr>
<td>Keyboards &amp; other misc. equipment</td>
<td>1.21 tons</td>
</tr>
</tbody>
</table>

Future Plans: The Town of Cary will continue to offer this service for free to its citizens and will explore the feasibility of expanding the program.

Contact:
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(919) 462-3873
Best Practice: Incorporation of solid waste management issues into development review and approval process including C&D management and long term recycling storage capacity at new developments.

Jurisdiction: Town of Chapel Hill

Brief Description: In 1992, the Town passed an amendment to its development ordinance mandating submittal of a Solid Waste Management Plan from any new development that is subject to zoning compliance permit or a special use permit requirements. The Plan must have two key elements – 1) outdoor areas adequate to accommodate recycling storage and loading and 2) a plan for management of C&D waste associated with the project. Approval of a formal Plan requires a pre-construction meeting to clarify the requirements of the Plan. The Plan need not include any recycling of C&D or any interior building improvements to accommodate recycling, but the Plan review process creates a forum for encouraging both.

Background/Findings/Goal: The Town recognized that C&D is one-third of the waste disposed at the County landfill and that requiring a plan at the point of generation could potentially reduce this waste stream. The reduction would help the Town comply with waste reduction goals and save landfill space. Further, there was evidence that effective recycling is often precluded or made difficult at new developments due to a lack of adequate, accessible storage areas for the recyclables collected from the building(s) once they were operating. Consequently, the Town passed these amendments to ensure adequate space and to encourage builders to address C&D waste management.

Ordinance/Policy: The development text amendment is simple (appendix 1a). Forms are required that show the outdoor storage space allocation for recycling and waste collection (appendix 1c) and detail how the developer intends to manage waste generated from the project’s development (appendix 1b). All three items are attached, the last two are in the same “Solid Waste Management Plan” document.

Implementation Details: Implementation was an evolutionary process between the Planning Department and the Solid Waste Management Department. Ten years after its passage, the process is relatively smooth. It requires about 75% of a staff person to ensure the requirements are met for 100 to 150 plan reviews per year. The staff person also provides technical assistance to the developer, conducts pre-construction meetings, assists the builder with finding markets for recyclable C&D, maintains a library of construction materials with recycled content, and conduct follow-up to ensure the project was actually built as designed. For the first six years of the ordinance, there was an additional requirement for consideration of materials with recycled content. That requirement was dropped in order to make the ordinance more readily enforceable. The Solid Waste Department continues to provide information about such products where appropriate.

There was a long period of negotiation with UNC Chapel Hill to determine if campus development would be subject to the Town’s ordinance. Currently, there is a cooperative agreement whereby the Solid Waste Management Department provides primarily technical assistance in marketing and reusing materials from campus renovation and offers recommendations when appropriate concerning adequate recyclables storage. UNC’s Facilities Management Department now provides specifications to require separation of construction waste materials for recycling, and County Solid Waste staff is routinely called in to assist in their development, often including preconstruction walk-through “Salvage and Recycling Assessments” for the architecturally unique buildings on the 200 year old campus.

Results: Any large scale, non-single family construction or renovation project within Town limits is now subject to this ordinance. Results have been that outdoor sites for recycling and waste storage and truck access to those sites have improved significantly. This makes future recycling programs far more cost effective. Further there has been a reduction in C&D waste, although it is not clear how much of that is
attributable to this ordinance. Most builders operating in the Town are now familiar with the ordinance, which should make it easier for them to comply with the pending County Regulated Recyclable Materials Ordinance. Many public projects, notably renovations to public housing contracted by the Town and some campus projects, have successfully reduced demolition waste by early and effective use of the Solid Waste Management Plan. A recent private building demolition reduced the amount landfilled to less than 10% of waste generated by use of technical and marketing assistance of Solid Waste Management staff.

Next Steps/Future Plans/Collateral Practices: The Towns of Carrboro and Hillsborough and Orange County have considered but not formally adopted such an ordinance. They often call on Solid Waste staff for assistance in development review, especially to ensure adequate outdoor storage space and access to collection areas. The solid waste plan requirements will need to be integrated with the County’s pending Regulated Recyclable Materials Ordinance.

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Best Practice: Collection of Residential Waste in Roll Carts at the Curb.

Jurisdiction: Town of Chapel Hill

Brief Description: Conversion of 10,400 units to once-a-week semi-automated roll 68 gallon cart curbside residential waste collection from twice a week, backyard in own cans.

Background/Findings/Goal: This program was implemented to save money and collection time for the Town.

Ordinance/Policy: Voluminous pre-program analyses were conducted. These are available from the Town of Chapel Hill Public Works Department (968-2796) but not attached here. Ordinances were enacted to enable use of roll carts (appendix 2a) and to penalize those who leave carts at the street overnight (appendix 2b).

Implementation Details: The Town decided to implement this conversion in two phases beginning in February 2001 and concluding in February 2002. The first half of the Town was converted to roll carts in February 2001. The conversion of the second half was accelerated and completed in October 2001. The acquisition of the carts was conducted in a standard competitive purchasing procedure although the carts were financed. The actual cost was $34 per cart rather than the initially projected $55. The interest rate for financing the purchase was 5.03% rather than 5.5% projected.

Town staff assembled and delivered the carts to each residence and now collects solid waste in them weekly. Each Town residence received an advance mailing to notify them of the change in their collection schedule. Information was also included in the roll cart when delivered. The Town opted for a 68 gallon cart, instead of the standard 90 gallon cart issued in most residential programs. The universal residential curbside recycling program diverts a significant enough volume of waste to enable most residents to stay within the 68 gallon per week limit. Those exceeding that limit are encouraged to recycle and are allowed to place excess bags of garbage at the curb.

Results: In the two fiscal years, 2000-2001 and 2001-2002, the combined saving is $238,500, or $56,755 more than the original estimate of $181,745 for the two years. The combined cost avoidance in salaries and benefits for the three fiscal years 2001 through 2003 is estimated to be $552,500 (9 positions eliminated through attrition). The original estimate was $513,100 in the analysis of May 3, 2000. Exemption rate: 6.6% (620 customers out of total of 10,320; data include Southern Village, a recent added subdivision).

Roll Carts: Actual # acquired: 10,700 (19% more than original estimate of 9,020; higher number primarily results from infill and Southern Village). Unit cost of cart was $34; original report assumed $55 (a difference of $21, or 38%). Actual interest rate for financing cart acquisitions: 5.03%, compared to an assumed rate of 5.5% (cf., 8.5% lower than estimated). Combined total saving for carts combining relatively favorable unit cost and interest rate will be about $203,000.

Enforcement: Town Code was revised effective with first phase of service change to require carts to be placed at the curb prior to 6:00 a.m. on collection days and removed from the curb before 7:00 p.m. on collection days.

A system was adopted in April, 2002 in which enforcement citations are issued to residents in non-compliance with set-out and removal times for carts noted above. After written notices and three warnings, repeat violators are fined, generally $25, per incident of non-compliance. From April 26 through June 1, 2002, 121 citations have been written to offending businesses and residences.
Workload  Since initiation of curbside service, quantities of residential refuse placed for collection have increased at a rate of less than 5% annually.

Other Major Benefit  A key benefit resulting since this change in service has been an increase of the service level for collection of yard waste placed by residents at the curb. Collection of residential yard waste is now made weekly, either on Thursday or Friday. Before this weekly, date-certain service, yard waste was collected on an unscheduled basis, with a collection cycle often in excess of two weeks. This improvement has been possible because of the increase in service efficiency made possible by conversion to weekly curbside collections.

Future Plans:  The program is completely implemented. More rigorous enforcement of leaving carts at the curb has begun with $25 citations now being issued to residents who leave their carts at the curb after three written warnings.

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**Best Practice:** Grazing Card Program

**Jurisdiction:** Chatham County

**Brief Description:** The program allows controlled salvaging of items in the Bulky and Scrap Metal/Appliance boxes under the supervision of the attendants on duty at the county collection centers. After paying a small fee, signing liability waivers, and agreeing to follow the Grazing Card’s safety guidelines, a resident is issued a grazing card. The card allows the resident to remove items from the Appliance/Scrap Metal or Bulky boxes. Cards are good for two years and are renewed free of charge as long as cardholder responds to short survey.

**Background/Findings/Goal:** The Grazing Card Program was implemented by the county as part of its ongoing effort to promote reuse of material. Many items that are still useful never make it to the Swap Shops at the 12 collection centers and instead are placed in the Bulky box for disposal or the Scrap Metal/Appliance box for recycling. Controlled salvaging from these boxes reduces the waste stream, saves the tipping fee for disposal, and reduces the amount of material the county hauls from the collection centers. Separate liability waivers were designed for the staffing contractor.

**Ordinance/Policy:** Grazing Card Policy (appendix 3a)

**Implementation Details:** The program was presented for consideration to the Chatham County Board of Commissioners as a new policy and was approved. The card was designed in software program that allows the resident’s information to be entered and stored in database as it creates a wallet-size card that is laminated and issued at time of purchase. The program requires mailing out renewal surveys every two years and a second mailing to issue new cards to those who respond to survey. Some training was required for attendants at collection centers and some restrictions have been applied to accommodate traffic and hauling schedules.

**Results:** Results of surveys indicate that thousands of pounds are diverted from the landfill through the Grazing Card Program each year. Residents “graze” for metal and wood for art and household projects, small and large appliances and parts for repair and resale, furniture for reuse and repair, and building supplies for home renovations. Last year’s grazing card survey indicates that a little more than 8 tons was diverted through this program (the sum of what the card holders estimated).

**Next Steps/Future Plans/Collateral Practices:** Nothing else planned

**Contact:**
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(919) 542-0130
**Best Practice:** Swap Shops: A Cost Effective Residential Reuse Program

**Jurisdiction:** Chatham County

**Brief Description:** Swap Shops are set up for citizens to drop off items they no longer need but are still useful. Other citizens pick up items they want from the Swap Shop, such as furniture, clothing, books, tools, and other household items. Swap Shops are located at staffed collection centers where people are already bringing their garbage and recyclables. The Swap Shops are not intended to be a charity service that reserves items for the most needy in the community. Items are available on a first come, first serve basis, and collection center attendants do not monitor who takes items.

**Background/Findings/Goal:** Swap Shops are set up to keep reusable materials out of the landfill. Waste reduction is the first priority. For a small investment, communities can construct Swap Shops that pay for themselves in a short time through avoided tipping fees. Citizens appreciate a convenient place to reuse items and Swap Shops are frequently the most popular component of a collection center.

**Ordinance/Policy:** NA

**Implementation Details:** Chatham County has Swap Shops at all 12 staffed collection centers. They are three-sided sheds with a roof that have been framed out of wood. The Swap Shops sit on a concrete pad and measure 10 ft. x 13 ft. Shelves, hooks, and rods are used to hang clothing and display items. Chatham County's Swap Shops were constructed for between $2,000 and $3,000 per building (including lumber, concrete pad, shingles, and labor). Collection Center attendants generally spend 5% of their time monitoring and maintaining the Swap Shops. They make sure items are reusable and not dangerous. Originally, electronic devices were not allowed in Swap Shops, but the issuance of signs (drafted by County Attorney) waiving liability for County and the staffing contractor now makes it possible to include those items.

**Results:** It is estimated that over 70% of what goes into the Swap Shops is reused, and the rest eventually is thrown away. A survey conducted at the collection centers showed that 87% felt the Swap Shops were a valuable service. The estimated diversion from Swap Shops has increased from under 25 tons the first year to over 400 tons in Fiscal Year 1999-2000. There are 12 centers and they get different amounts of usage.

**Next Steps/Future Plans/Collateral Practices:** Future plans include a promotional campaign, attendant training to increase diversion to the Swap Shops, and new shelves and signs for the buildings.

**Contact:**
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(919) 542-5516
Best Practice: Overall Recycling Program/Disposal Ban on Target Recyclables

Jurisdiction: City of Durham

Brief Description: The Solid Waste Management Department (SWM) contracts with a private company, TFC Recycling, to collect, process and market commingled recyclables from over 60,000 households (curbside collection), ten recycling drop-off centers, and multi-family cluster collection locations in 64 apartment complexes. TFC owns and operates a complete materials recovery facility (MRF) located in Durham. The Department coordinates a recycling program for City offices and also provides free corrugated cardboard collection from the City’s stationary container customers. A disposal ban on target recyclables has been in place since 1997.

Background/Findings/Goal: The City has had a recycling collection program in place since 1988. As a result of the state requirement for cities to implement measurable waste reduction goals and the closure of Durham’s landfill, the Durham City Council passed an ordinance in 1997 that bans the disposal of target recyclables. The City’s goal is to reduce waste by improving Durham’s recycling program, increasing recycling program participation, and enforcing the recycling ordinance.

Ordinance/Policy: In 1997, the Durham City Council passed an ordinance Ban on the Disposal of Recyclables (appendix 4a), an accompanying manager’s memo (appendix 4b) and resolution for penalty fees (appendix 4c) which makes it unlawful for residents, businesses and industries to throw away any of the following “target” recyclables that must instead be reused or recycled:

- Aluminum cans
- Glass bottles and jars
- Steel cans
- Newspaper
- Corrugated cardboard

Implementation Details: A permanent sticker has been placed on all roll-out trash carts and City-serviced stationary containers (dumpsters) to inform residents and businesses of the recycling ordinance. Solid waste collection crews tag trash carts containing banned recyclables. After three educational tag warnings and a personal consultation with a supervisor, residents may receive fines of $15 per violation if they continue to be in violation of the ordinance. In a similar process, businesses are given educational letters and site visits. Businesses are also given three chances to start recycling service with a local provider, and will be fined $50 per violation if no recycling program is implemented within ninety days. At the City’s Transfer Station, loads that are contaminated with target recyclables will be assessed a doubled tipping fee.

Materials collected by TFC Recycling curbside and at drop-off centers include: glass bottles and jars, plastic bottles #s 1, 2, 5 & 7, steel cans, aluminum cans, aluminum foil and pie tins, gable-top beverage containers, aseptic containers, plastic 6-pack rings, newspaper, glossy magazines & catalogs, white and colored office paper, and corrugated cardboard. In addition, mixed paper drives are held seven times a year at rotating recycling drop-off center locations and the City has two permanent drop-off locations for mixed paper.
Results: The amount of materials recycled by the City recycling programs is shown in Table 7.

<table>
<thead>
<tr>
<th>Program</th>
<th>Amount (in tons)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Curbside and Drop-off Centers</td>
<td>10,144</td>
</tr>
<tr>
<td>City Interdepartmental Collection</td>
<td>2,500</td>
</tr>
<tr>
<td>Corrugated Cardboard (commercial)</td>
<td>35</td>
</tr>
<tr>
<td><strong>Total Tons</strong></td>
<td><strong>12,679</strong></td>
</tr>
</tbody>
</table>

The ordinance was amended in the fourth quarter of 1999 to extend the start date of enforcement to January 1, 2000. Since that time over 14,975 educational tags have been given to violators. No citations have been issued yet, although tipping fees have been doubled for loads at the Transfer Station that have been contaminated with target recyclables.

Next Steps/Future Plans/Collateral Practices: The City will begin to more actively enforce the recycling ordinance and will request that fees from enforcement be used to directly subsidize recycling programs. The City will continue to encourage residents to recycle special items such as computers, textiles, construction waste, and scrap metal. Additional future plans include: coordination of special collections for mixed paper and electronics; expansion of the recycling program incrementally as markets and budgets allow, while enhancing general levels of awareness about waste reduction; working with the Development Review Board (DRB) to stipulate that all site plans for new businesses and multi-family developments allow room for on-site recycling; and contracting with a drywall product manufacturer for recycling of gypsum; and increasing C&D recycling opportunities for businesses in Durham.

Contact:
David McCary, Solid Waste Director
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(919) 560-4185
Quarterly Recycling Tonnage for the City of Durham
(calendar year)

Tons recycled quarterly

- Enforcement Begins
- Concentrated Education Program Begins
**Best Practice:** Private Operation of Yard Waste Compost Facility

**Jurisdiction:** City of Durham

**Brief Description:** The City of Durham has a contract with a private firm to operate its yard waste compost facility. Solid waste collection crews, as well as local landscapers, contractors and citizens, bring yard waste to the facility. The contractor provides staff to direct trucks where to unload, to examine the waste for contaminants, to grind and screen waste, and to follow composting procedures. Finished products of mulch, compost and topsoil are loaded into trucks for those customers that are purchasing the products. The City and the contractor share in the revenues that are generated from product sales.

**Background/Findings/Goal:** Privatization has dramatically improved both the site operation and the products for sale. In addition, this contract has provided a new revenue source for the City. The revenue was limited during the first year, but has begun to improve since the contractor has begun an intense marketing effort. A contractor sales staff person is making calls on local landscaper and landscape supply companies to introduce them to the quality of the mulch and compost products processed at the City’s facility. Landscape contractors and suppliers have begun to purchase large quantities of the products.

**Ordinance/Policy:** The City of Durham encourages public-private partnerships. The contract has been an example of that policy. See memo to City Council (appendix 5a) recommending hiring of contractor.

**Implementation Details:** The implementation of this contract resulted in an initial need to add mulch and compost options to the scale operation computer. Training of the scale house staff and inter-departmental coordination was involved. Currently, the contractor is paid $18.00 per ton for all yard waste that is brought in by the City and local customers. The contractor is not paid for yard waste that is generated from tree-clearing operations performed by the contractor in the Triangle area. The contractor’s wood waste, as well as that brought in by other customers, is ground with the contractor’s equipment on site and composted according to State composting rules. The City gets thirty percent of the sales of all materials on site, which include mulch ($8/cy), compost ($21/cy) and topsoil ($15/cy). There is a 25% discount for more than 7cy purchase and a 50% discount for tractor-trailer loads. The contractor has made or arranged for delivery of large loads. It has also paid delivery fees for large loads as part of the initial marketing effort. The City collects all fees and sales proceeds at the scale house. Monthly payments are made to the contractor for operation fees and the contractor’s share of product sales.

**Results:** Since the contract’s implementation in March 2001, the contractor has processed over 13,000 tons of yard waste. The site is well organized, all incoming waste is being ground and processed, and the site is always supervised. Mulch, compost and topsoil are now being marketed locally and sales have increased dramatically in the past month.

**Next Steps/Future Plans/Collateral Practices:** The products will be advertised and marketed more aggressively now that there is a stockpile of finished products. The goal is to have products sales subsidize the cost of the contract.

**Contact:**
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**Best Practice:** Drop Off Container for Cooking Oil Disposal

**Jurisdiction:** City of Durham

**Brief Description:** This program is for the collection of residential cooking oil and grease, which cannot be disposed in regular solid waste and should not be disposed of in the sewer system. A drop-off center for the residents is provided as part of the facilities at the Waste Disposal and Recycling Center at 2115 East Club Boulevard. The company recycling the oil and grease provides a 300 gallon tank and collection of oil and grease on an “as needed” basis. Their fee is $300 per year.

**Background/Findings/Goal:** Providing this service answers the disposal problem for residents that create the waste and have no proper way for disposal.

**Ordinance/Policy:** The City of Durham has an ordinance that prohibits the disposal of grease and oil down drains or storm sewers (appendix 6a)

**Implementation Details:** The implementation of this program consisted of getting two quotes for services and authorizing a contract to provide this service. The contractor delivered the tank and provides pickup when called.

**Results:** This program has just started up. City staff now have a suggested remedy to residents who request information on proper disposal.

**Next Steps/Future Plans/Collateral Practices:** To continue the program.

**Contact:**
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(919) 560-4185
**Best Practice:** Fully Automated Waste Collection Program

**Jurisdiction:** City of Durham

**Brief Description:** Automated collection is a technologically advanced waste collection system that employs a special fitted refuse vehicle. Refuse is mechanically dumped into the truck from a curbside location. The operator uses a set of controls inside the truck cab to operate a mechanical arm that lifts, dumps, and returns the container to the curb. The automated refuse collection vehicle has several advantages over traditional waste collection methods. One automated vehicle operator can do the same work of the conventional rear loader semi-automated vehicle.

**Background/Findings/Goal:** In the spring of 2001 the Department of Solid Waste Management introduced for the first time in the triangle area, fully automated waste collection service to 10,800 (18%) residential customers. By FY-02 the Department successfully introduced this advance technology to over 18,000 (28%) residential customers. The Department will have a cost avoidance of $562,500 by the end of FY-03. When the program is fully implemented by the end of FY-06, the Department will have avoided $3.1 million in costs.

**Ordinance/Policy:** Although the intent was not to introduce a written automated waste collection policy or ordinance, the Department of Solid Waste Management was successful in introducing to City Council the strategy for implementing this innovative, performance driven, extremely safe and cost effective collection program (appendix 7a).

**Implementation Details:** This program was implemented in coordination with the existing vehicle replacement schedule. A Department work plan was implemented and the steps taken are as follows.

- Design equipment specification for automated vehicle.
- Purchase automated equipment through procurement procedures.
- Coordinate intent with community groups that fit automation’s start-up requirements.
- Train potential operators on the mechanics of automated equipment.
- Optimize route development for maximum efficiency (heuristic).
- Re-evaluate customer satisfaction report as well as automated collection performance.
Results:

<table>
<thead>
<tr>
<th>Fiscal Year</th>
<th>Reduction in Positions</th>
<th>Reduction in Budget</th>
<th>Accumulated Cost Avoidance</th>
</tr>
</thead>
<tbody>
<tr>
<td>2002</td>
<td>5</td>
<td>187,50</td>
<td>187,500</td>
</tr>
<tr>
<td>2003</td>
<td>5</td>
<td>187,50</td>
<td>562,500</td>
</tr>
<tr>
<td>2004</td>
<td>6</td>
<td>225,00</td>
<td>1,162,500</td>
</tr>
<tr>
<td>2005</td>
<td>7</td>
<td>262,50</td>
<td>2,025,000</td>
</tr>
<tr>
<td>2006</td>
<td>6</td>
<td>225,00</td>
<td>3,112,500</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>29</strong></td>
<td><strong>1,087,500</strong></td>
<td></td>
</tr>
</tbody>
</table>

**Next Steps/Future Plans/Collateral Practices:** Automated collections will provide continued savings of approximately $1 million each additional year. Future steps include maximizing the automated collection program to include automated recycling collection with 60 to 90 gallon roll-out carts.

**Contact:**
David McCary, Solid Waste Director
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560-4185
**Best Practice:** Computer Recycling Program

**Jurisdiction:** Lee County (Unincorporated Areas)

**Brief Description:** Lee County accepts computers (monitors, CPUs, keyboards, and printers) for recycling at each of its 6 convenience centers. A solid waste employee picks up all computers collected through the county’s convenience centers and takes them to a staging area located at the county landfill. A representative from Chatham Salvage of Bear Creek, NC picks up the computers from the county’s location and transports them to their facility for processing. This program is open to all residents of Lee County's unincorporated areas only.

**Background/Findings/Goal:** The main goal of this program is to reduce the negative impact of landfills on the environment by removing potentially hazardous items from the waste stream as well as meeting the county’s solid waste reduction goals.

**Ordinance/Policy:** Lee County does not currently have any written policy or ordinance requiring the separation of computers from the solid waste stream.

**Implementation Details:** The implementation of this program was accomplished with no changes to the county’s solid waste collection infrastructure or capital purchases. As a result, collection costs are negligible. The county currently pays Chatham Salvage $4.00 per monitor in recycling/processing costs.

**Results:** Since the program’s implementation in July, 2000, the county has recycled the following:

<table>
<thead>
<tr>
<th>Item</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monitors</td>
<td>522 pcs.</td>
</tr>
<tr>
<td>CPUs</td>
<td>3.09 tons</td>
</tr>
<tr>
<td>Keyboards</td>
<td>0.58 tons</td>
</tr>
<tr>
<td>Printers</td>
<td>1.89 tons</td>
</tr>
</tbody>
</table>

**Next Steps/Future Plans/Collateral Practices:** The next step for this program is to expand it to include residents of the City of Sanford and the Town of Broadway as well as commercial and institutional generators.

**Contact:**
Joseph Cherry, Solid Waste Superintendent
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(919) 774-8440
**Best Practice:** Orange County: Use of Alternative Daily Cover (ADC) at landfill to save space, soil, labor and equipment operating costs

**Jurisdiction:** Orange County

**Brief Description:** In 1995, when the lined landfill opened, the County began use of a spray-on alternate daily cover called “Posi-Shell” that replaced the standard six inches of earth with about one-half inch of this cover. The Posi-Shell had consisted of shredded paper, polyester fiber, cement kiln dust. The paper has been eliminated in the new formulation saving shipping costs and packaging. Water is added and the material sprayed on the working face of the landfill three-and-a-half to four days per week, when weather conditions permit.

**Background/Findings/Goal:** Realizing the expense of constructing and operating a lined landfill, the County solid waste staff investigated a variety of alternatives to using six inches of daily cover dirt for the MSW. After investigating use of tarpaulins and two types of spray foam, the County decided on Posi-Shell. Over the life of the landfill, we estimate that we will have saved as much as two years of space due to use of Posi-Shell in place of earth coupled with high levels of waste compaction. The revenue per year for MSW landfilled last year was approximately $2,144,000. Other savings accrue from use of less cover dirt and less labor and equipment to move dirt. We estimate savings of 560 cubic yards of dirt each week. At an estimated market value of three dollars per cubic yard, the gross savings over five years on dirt are $145,600. The Posi-Shell material costs $30,000 per year plus lease of the applicator equipment at $56,400 annually or $432,000 over five years. Daily use of one hour of labor and a scraper pan has been eliminated saving $113,750 over five years. Net savings over the five year period of analysis is $4,115,350.

**Ordinance/Policy:** No ordinance was needed to use the alternative daily cover. Approval through a permit modification was granted by the NC Solid Waste Section of DENR for use of Posi-Shell. The annual budget ordinance included leasing of the application equipment beginning in 1996-97.

**Implementation Details:** Following evaluation of various ADCs, we selected Posi-Shell because it stayed in place longer than the foam products and was less work than the tarpaulins. Following the permit modification from the state, training was received from the Landfill Services Corporation and use of the spray cover began in 1996-97. Daily we mix the Posi-Shell with water and tow the mixing container to the working face where the material is sprayed on using a hydraulic pump. Various nozzles are used depending on application needs.

**Results:** The single most important result is the estimated savings of as much as two years of landfill space due to using one-half inch of cover contrasted with the six inches of soil required. Net monetary savings are estimated at $4,115,350. The seagull population is markedly reduced since beginning use of this daily cover.

**Next Steps/Future Plans/Collateral Practices:** We plan no changes to this program except when the manufacturer changes the product formulation as they have done recently.

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Best Practice:  Adoption of Regulated Recyclable Materials Ordinance

Jurisdiction:  Orange County (pending in Towns of Carrboro, Chapel Hill and Hillsborough)

Brief Description:  This ordinance, passed by the Orange County Board of Commissioners in November 2001, mandates that certain materials be segregated for recycling or other productive use rather than landfilled. The initial list or regulated recyclable materials includes pallets, scrap metal, corrugated cardboard and unpainted, untreated wood waste. The primary objective of the ordinance is to reduce the amount of construction and demolition waste, but the ordinance is crafted to readily allow for addition of materials commonly found in other waste streams to the list of those items which must be recycled.

The ordinance regulates builders by requiring a “Recyclable Material Permit” along with their building permit. Haulers must be licensed to do business in Orange County under the condition they will separate these materials for recycling. The regulated materials delivered to Orange County landfill must be brought in separately. The three Towns are now considering adopting the County’s ordinance.

Background/Findings/Goal: The ordinance was developed as the primary tool to reduce construction and demolition wastes in Orange County by requiring the separation of marketable materials at the point of generation and their delivery to a recycling, composting or other legitimate reclamation facility. The C&D landfill is scheduled to be full in 2002.

Taken together, wood, metal and corrugated cardboard constitute up to 30% by weight of Orange County’s C&D waste as well as an estimated 8% of commercial waste. Given their bulky nature, the percentage of landfill airspace they consume is actually higher. The ordinance is coupled with development of infrastructure at the Orange County landfill to enable processing and marketing of the separated materials delivered there. Tip fees are lowered, or in some cases eliminated, for separated materials.

Analysis of the current situation resulted in an ordinance with three distinct parts:

- Regulating builders generating the majority of this material by requiring that building permits be tied to issuance of a regulated recyclable material permit. This permit in turn requires builders to properly separate the regulated materials or prove they are destined for a County-certified (mixed) recycling facility.
- Regulating haulers to ensure that materials to be hauled to facilities outside Orange County are properly managed. An agreement to separate the regulated materials is a condition of a receiving an Orange County hauling license.
- Penalty tipping fees imposed for loads containing more than incidental amounts of the regulated recyclable materials. This provides the incentive properly separate materials.

Ordinance/Policy:  The ordinance itself is attached as part of the appendix to this document (appendix 7a). In addition there is a recyclable material permit form (appendix 7b pending), a hauler’s licensing application (appendix 7c pending), landfill penalty ticket forms (appendix 7d pending), a builder’s guide for compliance (appendix e pending), an application for certification of commingled recycling facility (appendix 7f pending), and a “Frequently Asked Questions” handout about the ordinance (appendix 7g).

Implementation Details:  Implementing an ordinance to regulate recyclable materials is a complex task. It involves:
- coordinating many departments in various governments within a County, including planning, inspections, solid waste and on occasion, engineering, budget and manager’s office;
- educating builders, haulers and County personnel;
- creating both management and physical infrastructure to handle the new streams of materials;
- enforcing the ordinance at several points including building permit issuance, on the job site (at the dumpster for existing commercial waste generators), in the hauling vehicle, and at Orange County’s disposal/management site;
- determining how to regulate existing commercial generators of the regulated recyclable materials (e.g. bike shops, cabinet shops, home improvement stores);
- processing and marketing the materials delivered to Orange County’s facility

The implementation details are still being developed but include coordinating among the jurisdictions the tasks of ensuring builders and haulers have gotten their permits and are properly separating materials. Given the relatively large number of building projects and a staff of two field inspectors to manage this program, it is going to be difficult to develop thorough coverage without assistance from other agencies such as building inspectors or others constantly in the field.

Issuance of permits will be done when applying for a building permit by each building inspection department, once that jurisdiction adopts the ordinance.

While licensing haulers will be the responsibility of only the County, enforcement of the ordinance on haulers will be difficult without broad cooperation of other departments, possibly including law enforcement who may stop someone for a moving violation and inspect their load if they are a commercial hauler (i.e. larger than 9,000 lbs. GVW).

Each jurisdiction must adopt the ordinance for it to be most effective.

The County has decided to provide ‘markets’ for the regulated materials. This entails significant investment in buildings, equipment and transportation to move materials to market. Others considering a RRMO may opt for other approaches to providing markets for materials including more private sector partnerships or simply ‘banning’ the materials and letting the private sector work out the details, as was done when corrugated cardboard was banned at the Orange County Landfill.

**Results:** The ordinance has not yet been implemented in Orange County. Implementation will occur later in 2002.

**Next Steps/Future Plans/Collateral Practices:** The next steps are to purchase the processing equipment and build the processing area, work with the municipalities to adopt the ordinance, and continue to educate builders prior to enforcement. Following establishment of the processing area, ordinance enforcement will begin.

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Best Practice: Ban on landfilling or disposing non-residential corrugated cardboard

Jurisdictions: Orange County, Town of Chapel Hill, and Town of Carrboro

Brief Description: In November 1995, Orange Regional Landfill prohibited the landfilling of more than an incidental amount of non-residential corrugated cardboard: i.e., when any vehicle except a rear-packer truck arrives at the landfill, it is subject to this prohibition. Loads containing more than an ‘armload’ of recyclable corrugated cardboard were penalized an amount double the tipping fee. Rear packer trucks are assumed to contain exclusively residential wastes. The Towns of Carrboro and Chapel Hill also adopted ordinances prohibiting the deposit of corrugated cardboard in dumpsters they serviced. In 1999, the ordinance was improved by adding a further penalty to loads greater than 50% corrugated cardboard to discourage the use of roll-off containers to bring large amounts of exclusively corrugated cardboard to the landfill. These loads are penalized an additional $400.

Background/Findings/Goal: Four seasonal waste composition studies conducted at Orange Regional Landfill in 1990 showed corrugated cardboard to be 20% of commercial waste by weight. A series of two follow-up waste sorts in 1995 showed that this material was still 10% of the waste stream, prior to implementation of the ordinance. Given that corrugated cardboard has long-term stable recycling markets, is readily recyclable, easily identifiable and bulky, thus taking up an inordinate amount of landfill space by weight, the Landfill Owners group decided to ban the landfilling of the material. Further, they discontinued provision of recycling services for this material which had been provided to high volume generators of corrugated cardboard for seven years and along with the ban, informed non-residential customers of their obligation to separate corrugated cardboard. Small scale generators were allowed to take boxes to drop-off sites, any establishment generating over fifty boxes per week was strongly encouraged to either rent a recycling container or share container rental or other corrugated recycling services.

Ordinance/Policy: A total of four ordinances were adopted to implement this policy: The first one was by the three member governments of Orange Regional Landfill implementing the penalty fee on non-residential corrugated cardboard delivered to the landfill (appendix 8a). The second was by the Town of Chapel Hill prohibiting its customers from depositing corrugated cardboard in their dumpsters serviced by the Town (appendix 8b). The Town of Carrboro passed a similar ordinance. Hillsborough did not pass an ordinance but uses an informal enforcement practice on its small commercial route. The Landfill governments passed a follow-up ordinance to add a $400 surcharge to loads greater than 50% cardboard (appendix 8d). This ended the practice of delivery of large, bulky but extremely light loads of predominantly corrugated cardboard from being cost-effectively landfilled, even with the double tipping fee.

Implementation Details: After several years of general discussion of a possible cardboard ban, the specific ban proposal was discussed broadly in public in the fall of 1995 using two newspaper articles, a press release, a public hearing and a county-wide newsletter article to publicize the policy. Following passage of the ordinance in November 1995 by the three Landfill Owners, there was a four month ‘grace’ period during which ‘mock’ tickets were issued to drivers whose loads had more than the nominal amount of cardboard and mock penalty bills sent to the companies those drivers represented.

Results: The simplest way to express the result is to note that the 2000 waste composition study conducted at the Orange County Landfill showed that the percent of corrugated cardboard in the commercial waste stream declined to 3.5% from 10.7% in 1995 and in the multifamily waste stream, corrugated declined in 2000 to 2.8% from 7.2% in 1995. Most businesses have leased a separate dumpster for corrugated cardboard and hired a service to remove it for recycling. The use of the containers at the drop-off sites for corrugated cardboard has continued to increase to the provision of
service three times per week at unstaffed sites and continued addition of containers. Tonnage has increased from 800 tons two years ago to over 1,200 tons currently. Many small businesses and group residences such as fraternities and sororities contract with ‘niche’ private services to remove corrugated cardboard and other recyclables to the dropoff sites. The landfill calculated a space savings equal to eight months of landfill life due to elimination of non-residential corrugated cardboard. A primary reason for the success of the ban is the strict enforcement at the landfill and the supplemental enforcement by local government commercial collection programs.

Now that the Towns are beginning to charge for commercial waste hauling, one unintended consequence of the program is that some businesses are opting out of the Town’s publicly provided service. Private haulers offer generators waste hauling prices that are lower than what they will pay the Town plus the additional cardboard service. The private haulers inform the generators, who have often been plagued with people placing corrugated in their dumpsters, that by using a private service that does not dump at Orange County landfill, they can save money and management headaches by eliminating their separate cardboard dumpster. While the practice of ignoring local ordinances respecting solid waste is illegal under North Carolina statute, there is no precedent for enforcement of this statute.

**Next Steps/Future Plans/Collateral Practices:** While bans on landfilling of residential corrugated cardboard have been considered by various local governments in Orange County, no such ban is likely to be implemented without curbside collection for the material. The corrugated cardboard ban is fully mature and likely to become more strictly enforced as corrugated cardboard is one of the materials listed in the recently adopted Regulated Recyclable Materials Ordinance.

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**Best Practice:** Methane Extraction from Landfill

**Jurisdiction:** City of Raleigh

**Brief Description:** The City’s Wilders Grove Landfill has a system in place to extract methane gas from the landfill. This system collects the odorless gas and in turn sells to a local corporation, Ajinimoto, Inc. to produce boiler fuel for its operation. The system is owned and operated by Natural Power, Inc., also a locally owned company. The extraction system helps the City stay in compliance with the Clean Air Act permit by keeping emissions well under required limits.

**Background/Findings/Goal:** Wilders Grove Landfill began experiencing methane gas problems in the mid to late ‘80’s as the gas started moving from one location to another within the landfill. As the danger of the gas moving off-site of the landfill increased, a local company, Natural Power, Inc., approached the City and proposed an answer to the problem. After much discussion Natural Power was given permission to install a methane extraction system. To this day no methane gas has migrated off the landfill property.

**Ordinance/Policy:** N/A

**Implementation Details:** In the late ‘80’s Natural Power, Inc. approached the City about a methane gas extraction system for the City’s Wilders Grove Landfill. As the City was already experiencing gas problems, the City signed a contract for the system. Over the years the system has been expanded and has become more efficient at removing the methane gas.

**Results:** The methane extraction system has been expanded over the years, as well as made more efficient. Now the methane is removed and sent to Ajinimoto to be used as boiler fuel. As a result of this system the City has no problems with methane migration, and collects a bonus of $75,000 per year. The City also collects data from the contract, which assists in complying with the clean air permit from the State of North Carolina.

**Next Steps/Future Plans/Collateral Practices:** Raleigh plans to continue operating this system in the future. Natural Power, Inc. is currently seeking additional customers to use the excess methane presently being burned off.

**Contact:**
Linda Leighton, Recycling Coordinator
Linda.Leighton@ci.raleigh.nc.us
(919) 831-6522
**Best Practice:** Neighborhood Clean-ups

**Jurisdiction:** City of Raleigh

**Brief Description:** The City of Raleigh offers a “Spring Neighborhood Clean-up” each year during the month of April. If a neighborhood has a garden club on a city-approved list, they receive this clean up. Items only have to be placed at the curbside for this service. During the remainder of the year, the City offers neighborhood clean-ups on weekends, on a scheduled basis (call-in special request). Items collected include appliances, bulky furniture, tires without rims, and yard waste materials. There is no fee for this service. Some of these items are not normally collected by SWS residential collection crews and would pose a burden or cost to citizens to dispose of them themselves.

**Background/Findings/Goal:** This program was started when many of the garden clubs began to meet together occasionally and discuss interests in the neighborhoods. It was always discussed that many of the neighborhoods needed “sprucing-up”, but many of the citizens had no way of getting rid of materials. When the clubs approached the City, the City devised a plan whereby each of the neighborhoods would receive a clean up in April, and thus the Neighborhood Clean Up program was started. Since that time the clean ups have expanded to all neighborhoods that request a clean up, not just neighborhoods with garden clubs.

**Ordinance/Policy:** N/A

**Implementation Details:** At the direction of the Manager and Council for the City, the Street Maintenance Department identified the employees and equipment needed to implement this program. Most recently the program has been expanded to offering the clean ups on Saturdays year round.

**Results:** The City is cleaning up approximately twenty-five neighborhoods per year in April and averaging two per month year round. Even though the City does offer a “special load” pickup for a fee of $30 we have not seen a reduction in the use of that program where residents are reverting over to this new program. The new program is seen as a community activity/event.

**Next Steps/Future Plans/Collateral Practices:** Plan to continue this program into the future.

**Contact:**
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**Best Practice:** Source Separation of Residential Recyclables Collected

**Jurisdiction:** City of Raleigh

**Brief Description:** The City devised a residential recycling program based on source separating recyclables materials at the curbside, so as to be able to sell the materials to the private sector, rather than have to pay them to be processed. These same materials are source separated at six centrally located recycling drop off centers and approximately 35,000 multi-family units at 230 complexes.

**Background/Findings/Goal:** The goal was to offer the service in as efficiently and economically as possible while diverting materials away from the waste disposal stream.

**Ordinance/Policy:** N/A

**Implementation Details:** A plan was put together which began offering source separated recycling for City single-family residential areas in 1989. This was started in sections of the City and expanded each year until citywide coverage was reached in December 1991. The City purchased trucks, hired and trained employees on a schedule according to phases of the operation. This plan assisted in reducing the start-up costs of the program. Materials accepted include newspaper and all inserts; magazines and catalogs; white paper and white paper direct mail (junk mail); food and beverage cans; all #1 and #2 plastic drink bottles, glass food and beverage containers. The recycling drop off centers only also accept old corrugated cardboard, all plastic BOTTLES (the neck must be narrower than the base), paperboard and SBS board. City crews take the source separated material to Paper Stock Dealers located in central Raleigh. PSD bales the materials and sells them. Revenues are shared with the City.

As with the City’s solid waste collection program, costs are funded through property taxes/general fund.

**Results:** Since implemented the City has always received revenues for the sale of the materials. The current contract with Paper Stock Dealers guarantees the City at least $26 per ton. In addition, when PSD’s weighted average sales price exceeds $50 in any given month the City receives 50% of the overage revenues. For fiscal ’00-01 the City received over $621,000. The revenues received recovered 37% of the cost of the program. Over 87,000 single-family households are provided with the curbside service that diverts over 14,000 tons each year from the landfill. Since its inception well over 120,000 tons have been recycled.

**Next Steps/Future Plans/Collateral Practices:** The City plans to continue this operation while continuing to expand the materials accepted as the market allows.

**Contact:**
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(919) 831-6522
**Best Practice:** City of Raleigh Yard Waste Facility

**Jurisdiction:** City of Raleigh

**Brief Description:** Establishment of a facility to process city-collected yard waste materials (weekly, seasonal leaf and Christmas trees), as well as materials from others for a tipping fee. Materials are ground in a tub grinder then placed in windrows for seasoning. Wood pallets are also chipped. The products – mulch, compost and wood chips – are on sale. The City also uses much of its product for its own landscaping and gardening programs at City parks and facilities.

**Background/Findings/Goal:** Weekly curbside collection of yard waste materials and the opening of the processing facility was initiated in 1992 in response to the state’s banning of yard waste materials in landfills.

**Ordinance/Policy:** N/A

**Implementation Details:** The City already owned the land where the Yard Waste Center was to be built. A work plan was devised as follows:

- Design equipment specifications and bid documents for the heavy equipment used at the site, as well as the automated scales.
- Advertise for and interview applicants for various positions.
- Receive equipment and train employees in the various facets of the operation, keeping in mind an opening date of November 1, 1991.

The facility accepts yard waste materials, pallets, and clean non-treated wood for recycling. All incoming materials at are charged the same tipping fee. Non-commercial vehicles pay a fee of $20.00 per ton, with a minimum charge of $5.00. Commercial vehicles pay a fee of $20.00 per ton, with a minimum charge of $10.00.

The facility equipment (including two tub grinders, windrow machine, rubber tire loader and track loader) is owned by the City. Maintenance costs are high on the tub grinders - however when evaluated, leasing showed no cost savings would be gained.

A year after the facility opened, sales of wood chips, mulch and compost sales to the public began. No marketing plan was used. The facility passes out information flyers at the scales. The product sales fee schedule is:

<table>
<thead>
<tr>
<th>Product</th>
<th>Price Per Bag/Can</th>
<th>Price Per 2 1/2 Cubic Yard</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wood Chips</td>
<td>$1.00</td>
<td>$12.00</td>
</tr>
<tr>
<td>Mulch</td>
<td>$1.00</td>
<td>$12.00</td>
</tr>
<tr>
<td>Compost</td>
<td>$2.00</td>
<td>$18.00</td>
</tr>
</tbody>
</table>

**Results:** Tipping fees and product sales recovered approximately 72% of the programs expenses in fiscal ’00-’1 (actual expenses, including depreciation for capital equipment replacement less actual revenues received). Since implemented, the facility has recycled over 193,000 tons of yard waste materials. The recycled products have sold themselves. For fiscal ’00-01 the facility sold 487 bags and 2,927 loads of
compost; 871 bags and 5,669 loads of mulch; and 125 bags and 819 loads of wood chips. City crews used over 5,900 tons of products for landscaping projects in parks, greenways, and other applications in Fiscal Year 2000-01. The cost of purchasing commercial mulch for City-owned properties has been virtually eliminated.

**Next Steps/Future Plans/Collateral Practices:** Raleigh plans to continue this operation. A pilot program is in the planning stage to combine a mixture of old leaves and lime-stabilized sewage sludge to produce a soil amendment.

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(919) 831-6494
**Best Practice:** Utilization of Alternate Daily Cover (ADC) at North Wake MSW Landfill

**Jurisdiction:** Wake County

**Brief Description:** Wake County Solid Waste Management Division utilizes two alternate daily cover (ADC) systems at the North Wake MSW Landfill. The first ADC is a tarpaulin (a thick canvas cover), which is placed over the garbage at the end of the work day. The next morning, the tarp is removed and new garbage is placed over the previous day's garbage. The second ADC is a product called Posi-Shell, which is a cement-like product that is sprayed over the garbage at the end of the day. The landfill operator later places additional garbage directly over the Posi-Shell. The Posi-Shell system can be used as cover for a period of approximately seven days before additional cover or garbage needs to be placed on the area.

**Background/Findings/Goal:** The Alternate Daily Cover program was implemented in order to reduce the amount of soil used in daily operations of the landfill. Soil used for daily cover consumes air space that could be used for garbage. Reduced use of soil cover results in increased revenues to the County through the sale of that air space for garbage. Reduced use of soil cover also increases the life of the landfill through increased air space. The North Wake MSW Landfill has a soil deficit, and use of ADCs reduces the amount of soil needed for daily operations, allowing it to be saved for later use. Savings result from the County not having to purchase soil from other sites and paying transportation costs to have the soil delivered to the facility.

**Ordinance/Policy:** N/A

**Implementation Details:** DENR Solid Waste Section requires a 90 day protocol for any use of ADC's on landfills in the state. The Solid Waste Section evaluates the product and if the results are favorable, determines the operating requirements and grants permission for the use of the ADC. Wake County has received approval for both the tarp and Posi-Shell as alternate daily covers. In the case of Posi-Shell, engineering calculations were made and cost estimates were determined. It was estimated that the product would save the County 208 cubic yards of soil daily, which is equivalent to $770,000 per year in waste disposal revenue. This revenue is generated by the ability to “sell” the airspace for waste disposal. The savings realized from not having to purchase off-site soil is estimated at $1.5 to $2 million. Wake County Solid Waste entered into an agreement with its landfill operator for the implementation of the protocol.

**Results:** DENR Solid Waste evaluated the programs and approved the use of both the tarp and Posi-Shell as alternate daily cover. The engineering study for Posi-Shell is not yet complete, but we do know that soil use has been reduced and we expect substantial financial benefits. The ADC tarp benefits have not been calculated.

**Next Steps/Future Plans/Collateral Practices:** None at this time.

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Best Practice: Creation of Construction & Demolition (C&D) Task Group to target commercial waste reduction.

Jurisdiction: Wake County

Brief Description: The C&D Task Group is comprised of private and public sector individuals interested in reducing the amount of C&D debris generated and disposed of in Wake County. The Group meets bi-monthly to discuss current issues regarding C&D debris, including potential recycling programs.

Background/Findings/Goal: According to a waste characterization study conducted in 1999, C&D debris comprised approximately 22.5% of the material disposed in the County municipal solid waste landfill. The C&D Task Group was formed to address this large percentage of the waste stream and to research and develop programs to reduce the amount of disposed C&D.

Ordinance/Policy: N/A

Implementation Details: In 1997, the Solid Waste Advisory Committee requested that the Division study current C&D recycling and waste reduction activities in Wake County. The waste reduction goal, set by the state, of 40% by the year 2001 was the impetus to create the task group.

Results: The C&D Task Group has been involved in several projects and workshops to educate the building community on the issues of C&D recycling. They include: a builder/contractor session during the “Go Green” workshop; builder focus groups; building inspection meetings; a recycled content product vendor show for construction products; and a C&D grant report by NC Division of Pollution Prevention and Environmental Assistance. The Task Group provides a good opportunity to hear from both the private and public sector on issues regarding C&D.

Next Steps/Future Plans/Collateral Practices: The C&D Task Group will continue to meet bi-monthly to discuss issues regarding C&D debris. Depending on the direction the Wake County Solid Waste Management Division moves in addressing C&D - either through regulations or incentives for recycling the material or a combination of the two - the Task Group will be involved throughout the process.

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Best Practice: Construction & Demolition (C&D) Surcharge to Increase the Life of the North Wake landfill

Jurisdiction: Wake County

Brief Description: An employee inspects all loads of trash disposed at the North Wake Municipal Solid Waste (MSW) Landfill and at the Feltonsville Transfer Station. If an MSW load contains more than 10% C&D debris, the employee issues the hauling company a “Wake County Surcharge Violation” citation and the hauler is charged double the normal tipping fee. At month’s end, the landfill manager forwards copies of the C&D surcharge citations to the Wake County Solid Waste Management Division (WCSWMD). Information that is collected from the citation includes: date of violation, issued by, facility, hauler, transaction #, permit #, tag #, truck #, time of violation, net weight, % contamination, origin of load (customer name & address) and the drivers signature.

Background/Findings/Goal: C&D material is disposed in unlined areas at the North Wake C&D Landfill and the Feltonsville Landfill. Minimizing C&D material that is disposed in the North Wake MSW Landfill (a lined Subtitle D landfill) conserves airspace that must be used for MSW. The C&D surcharge was implemented at the North Wake Landfill and Feltonsville Transfer Station in an effort to reduce the amount of C&D debris entering the North Wake MSW Landfill. According to a waste characterization study conducted in 1999, C&D debris comprised approximately 22.5% of the material disposed of in the landfill. The goal of this practice is to extend the life of the lined MSW landfill.

Ordinance/Policy: The Wake County Solid Waste Management Division developed and enacted a Construction and Demolition Debris Surcharge Ordinance in September 2000 at the North Wake MSW Landfill and Feltonsville Transfer Station. (appendix 9a) All haulers, (both public and private) servicing commercial, industrial, institutional and governmental generators and disposing of solid waste at County facilities will pay double the tipping fee of the facility if their MSW load contains ten percent (10%) or more construction and demolition debris by weight or volume.

Implementation Details: When the Ordinance was implemented, the WCSWMD promoted the policy change and worked to educate the haulers and business community. There is not an additional cost associated with the program because inspectors already examine loads at the MSW Landfill and at the Transfer Station for banned items.

Results: The number of violations and percent contamination has decreased over the 8-month period since the surcharge was implemented at both the North Wake MSW Landfill and Feltonsville Transfer Station (see chart below). From September 2000 to June 2001, surcharges were predominately written at the Feltonsville Transfer Station, as that was the only location of a County operated C&D Landfill. In July 2001, the North Wake C&D Landfill opened and landfill employees began issuing citations at the MSW Landfill as well. For the purposes of this analysis, data was observed from the period when the surcharge was implemented at both facilities to ensure consistency.

<table>
<thead>
<tr>
<th>Date</th>
<th># Violations</th>
<th>Date</th>
<th># Violations</th>
</tr>
</thead>
<tbody>
<tr>
<td>7/01</td>
<td>93</td>
<td>11/01</td>
<td>20</td>
</tr>
<tr>
<td>8/01</td>
<td>41</td>
<td>12/01</td>
<td>14</td>
</tr>
<tr>
<td>9/01</td>
<td>28</td>
<td>1/02</td>
<td>16</td>
</tr>
<tr>
<td>10/01</td>
<td>24</td>
<td>2/02</td>
<td>17</td>
</tr>
</tbody>
</table>
Next Steps/Future Plans/Collateral Practices: The WCSWMD is currently looking at the licensing requirements for all haulers that work inside the County. This will provide the Division with a better understanding of the movement and generation of C&D in Wake County and provide the Division with information to better evaluate current solid waste management programs. The WCSWMD is also in the planning stage of how to manage C&D debris generated in Wake County once the North Wake and Feltonsville C&D Landfills close in the next 12 to 18 months.

Contact:
Jim Reynolds, Director
Wake County Environmental Services, Solid Waste Management Division
james.reynolds@co.wake.nc.us
(919) 856-5520
**Best Practice:** Drywall, Pallet and Computer Recycling Programs

**Jurisdiction:** Wake County

**Brief Description:** The Drywall Recycling Program began on October 1, 2001 through a contract with McGill Environmental Systems. Drywall is collected at the North Wake Multi-Material Drop-Off Facility for $28.00 per ton. The drywall is recycled into compost and other products.

The Pallet Recycling Program began on September 4, 2001 through an agreement with B&R Enterprises. Pallets are collected at the North Wake Multi-Material Drop-Off Facility for $25.00 per ton or $2.00 per pallet. The pallets are reused, refurbished or ground for compost or boiler fuel.

The Computer Recycling Program began on September 4, 2001 through a contract with O.C. Stafford. Computer monitors, CPU’s, Printers, Keyboards and other related computer materials are collected at the North Wake Multi-Material Drop-Off Facility for $5.00 per monitor or $5.00 per vehicle load (if no monitors are present) for commercial customers. Residential computers and equipment are accepted at no cost. The computers are reused, refurbished or dismantled for parts.

**Background/Findings/Goal:** The Drywall and Pallet Recycling Programs were implemented as a result of a Waste Characterization Study conducted in 1999 showing that construction and demolition debris made up approximately 22.5% of the waste stream. Of this, drywall and wood (notably pallets) comprised a large portion. Wake County collected computers as part of another annual recycling program and discovered that there was a large need by the public to recycle computers. In addition, it has become clear that computers contain hazardous materials and should be kept out of municipal solid waste landfills.

**Ordinance/Policy:** On August 20, 2001 the Wake County Board of Commissioners adopted an expansion of recycling services at the North Wake Multi-Material Facility for Computer Monitors and Pallets. Also, the County created a Construction and Demolition Debris Surcharge Ordinance in September 2000 (appendix 10a). Pallets were included in the definition of Construction and Demolition waste. The Ordinance states that haulers disposing of solid waste at County facilities will pay double the tipping fee of the facility if their MSW load contains ten percent (10%) or more construction and demolition debris by weight or volume.

**Implementation Details:** Wake County staff estimated the amount of pallets and computers expected for collection along with equipment and labor costs. Staff then requested quotes for service and visited the facilities of companies chosen. The contractors also toured the Wake County facility and logistical details were finalized for collection, handling and transportation. The Multi-Material Drop-Off staff was notified of the program changes and assisted in the implementation process. Drywall had already been collected using another vendor prior to the restart of the program in October 2001.

**Fiscal Year: 2001 – 2002 Program Costs:**

<table>
<thead>
<tr>
<th>Program Costs</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Drywall Recycling Program Costs</td>
<td>$ 14,347</td>
</tr>
<tr>
<td>Pallet Recycling Program Costs</td>
<td>$ 42,572</td>
</tr>
<tr>
<td>Computer Recycling Program Costs</td>
<td>$ 60,702</td>
</tr>
</tbody>
</table>

**Results:** To date, Wake County has recycled approximately 569 tons of drywall, 131 tons of pallets, and 219 tons of computer equipment.

**Next Steps/Future Plans/Collateral Practices:** It is hoped that given budget availability, Wake County can expand its drywall, pallet and computer recycling programs to the Multi-Material Drop-Off Facility in
the southern part of the county. In addition, Wake County hopes to work with other local governments to collect computers from residents and recycle them through the facility. The North Carolina General Assembly has expressed an interest in computer recycling legislation. New legislation is expected to be passed within the next year or two.

**Contact:**
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james.reynolds@co.wake.nc.us
(919) 856-5520
**Best Practice:** School Igloo Recycling Program

**Jurisdiction:** Wake County

**Brief Description:** The School Igloo Recycling Program began in January 1991 at 51 collection sites. Wake County collects clear, brown and green glass, steel food cans, aluminum cans, plastics bottles #1-7, and newspaper in separate containers. The program also accepts the following paper commingled: white and colored copy paper, computer paper, notebook paper, magazines, catalogs, fax paper, blueprints, mixed paper, and multiple listing service publications.

**Background/Findings/Goal:** The School Recycling Program was one of several implemented in Wake County as a result of State legislation commonly known as Senate Bill 111. This legislation required Counties in the State to implement programs to reduce the amount of solid waste going to landfills.

**Ordinance/Policy:** See explanation above.

**Implementation Details:** Wake County staff met with the Wake County Public School Administration staff to develop the logistics of the program. Wake County pays for all program costs and the Wake County Schools approve final site locations and receive all revenue generated from the sale of recyclables. Division staff also approached the News and Observer and partnered with them to collect newspaper (in separate News and Observer containers next to the recycling igloo).

**Fiscal Year: 2001 – 2002 Program Costs/Revenues:**
- School Recycling Program Costs (to date): $335,623
- School Recycling Program Revenues (to date): $10,674

**Results:** Since its inception in 1991, Wake County has recycled approximately 9,594 tons of recyclable materials through this program.

**Next Steps/Future Plans/Collateral Practices:** The County will evaluate this program for efficiencies that can be achieved and/or entire program changes to best recover recyclable material in the most economical fashion with the greatest results.

**Contact:**
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Wake County Environmental Services, Solid Waste Management Division
james.reynolds@co.wake.nc.us
(919) 856-5520
**Best Practice:** Partnerships for Recycling Collection Programs

**Jurisdiction:** Wake County

**Brief Description:** The Wake County Solid Waste Management Division has worked with other jurisdictions to form educational and operational partnerships (i.e. America Recycles Day, Holiday Wrap Up, and Computer Recycling). The partnerships allow groups to combine resources to increase participation in existing education, waste reduction, and recycling programs, as well as future initiatives.

**Background/Findings/Goal:** The Wake County Board of Commissioners and County Manager have made environmental stewardship and sustainability a priority. Last year the County and City of Raleigh made a commitment to join forces and utilize resources to their fullest potential to reduce and recycle more waste. Wake County is continuing to build on environmental education collaborations begun last year by extending partnerships into other jurisdictions and regionally. Achieving various recycling and waste reduction goals with limited resources will require working together to implement events, educational efforts, and programs for targeted material waste reduction.

**Ordinance/Policy:** N/A

**Implementation Details:** Initial steps begin with event or program expansion feasibility discussions. Participants identify ways to share resources - i.e. staffing, equipment, facilities, and funding - needed for implementation. Each partner brings different strengths to the table, and a synergistic effect is often realized. Budget constraints may restrict an expansion of these programs at this time, but plans to continue these types of partnerships will be included in long-range goals.

**Next Steps/Future Plans/Collateral Practices:** The Environmental Services Department is currently in partnership with the Greater Raleigh Chamber of Commerce to host the Community Success: Partnerships for the Environment conference in September 2002. It is in this facilitated structure that foundations for many partnerships and collaborations will be built regarding solid waste management, air quality, water quality, growth and open space.

The Solid Waste Management Division, under new leadership, is in the process of generating new strategies that incorporate a different perspective of comprehensive, integrated waste management practices. This will include re-establishing goals and objectives in coordination with the municipal jurisdictions in the County, as well as other municipal and county jurisdictions in the Triangle J region. The strategies will address overall waste management with a focus on commercial, institutional and industrial waste, and specifically construction, restaurants and electronics. This comprehensive approach will include updating the County’s Ten Year Solid Waste Plan and the Wake County Solid Waste Ordinance, establishing inter-local agreements, and developing environmental education and public information initiatives tailored to the strategy.

**Contact:**
Jim Reynolds, Director
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james.reynolds@co.wake.nc.us
(919) 856-5520
**Best Practice:** Solid Waste Reduction Grant Program

**Jurisdiction:** Wake County

**Brief Description:** Each year the Wake County Solid Waste Management Division provides $40,000 in grant funding to any business, non-profit, or tax supported agency that plans to implement a project that will reduce, reuse, and/or recycle waste generated by the commercial sector in Wake County. Priority is given to those projects that are innovative or promise significant benefits and could be easily adopted by other businesses.

**Background/Findings/Goal:** The grant program began in 1995 after being recommended in a Commercial, Industrial and Institutional waste study.

**Ordinance/Policy:** N/A

**Implementation Details:** Through the budget process, the Wake County Solid Waste Management Division annually requests $40,000 for the grant program. Division staff administers the grant program and promotes and encourages grant applications through involvement with commercial businesses, Chambers of Commerce, SWAC, the NC Division of Pollution Prevention and Environmental Assistance, the Carolina Recycling Association and via the Internet.

**Results:** Since its inception, the program has funded 17 projects ranging from recycling C&D material, holding workshops, starting composting projects and creating a waste auction web site. In the last grant cycle over 11,000 tons of material was recycled (see table below).

**2001-2002 Grant Winners**

<table>
<thead>
<tr>
<th>Company Name</th>
<th>Project</th>
<th>Tons Recycled</th>
</tr>
</thead>
<tbody>
<tr>
<td>Debris Removal</td>
<td>Implemented a wood recycling program to be used at construction sites in Wake County.</td>
<td>508 tons</td>
</tr>
<tr>
<td>Jordan Tree Service</td>
<td>Coordinated a LCID, yard waste and clean wood recycling program for businesses and residents of Wake County.</td>
<td>9,400 tons</td>
</tr>
<tr>
<td>The Scrap Exchange</td>
<td>Increased Wake County company donations, outreach events, and workshops to the Scrap Exchange through a web page.</td>
<td>1,200 tons</td>
</tr>
<tr>
<td>Waste Answers, Inc.</td>
<td>Built a waste recycling auction website for companies in Wake County.</td>
<td>0 tons</td>
</tr>
</tbody>
</table>

**Next Steps/Future Plans/Collateral Practices:** Division staff will continue to encourage organizations to apply for the solid waste reduction grants. Division staff will promote the program at future business fairs, expositions, organizational meetings and through waste assessments. As stated in the Environmental Stewardship Agenda for Wake County, the Division will continue to support recycling markets and businesses by encouraging them to participate in the grant program.

**Contact:**
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[james.reynolds@co.wake.nc.us](mailto:james.reynolds@co.wake.nc.us)
(919) 856-8820
Town of Chapel Hill’s Solid Waste Management Plan Requirement

Development Ordinance

Design Manual Reference: Section 7

14.11 Collection of Solid Waste and Recyclables

All developments shall provide a detailed solid waste management plan, including a recycling plan and a plan for management of construction debris subject to approval by the Town Manager.

All developments shall provide secure, safe, and sanitary facilities for the storage and pickup of solid waste and recyclables. Such facilities shall be convenient to collection and shall be appropriate to the type and size of the development being served.

Except for single-and two-family dwellings, all solid waste and recyclables storage facilities shall be screened by a solid wall, fence, tight evergreen hedge, or combination of the above. Such screening shall be of sufficient height and design to effectively screen the facility from the view from adjacent residential uses and streets, and from adjacent properties.
The Town of Chapel Hill’s development ordinance requires all development applications to provide a detailed solid waste management plan, including a recycling plan and a plan for management of construction debris. The following forms must be completed to fulfill this requirement.

**COMPLETE ALL INFORMATION BELOW**
(Incomplete contact information will delay plan review and approval.)

- **Project Name** __________________________________________________
- **Property ID #:** ________________________  **Permit:** ____________
- **Project Location** __________________________________________________
- **Project Owner** __________________________________________________
- **Contact Person** __________________________________________________
- **Address** __________________________________________________
- **Telephone** (____) ___-___________
- **Fax/Mobile** (____) ___-___________
- **Design Firm** __________________________________________________
- **Contact Person** __________________________________________________
- **Address** __________________________________________________
- **Telephone** (____) ___-___________
- **Fax/Mobile** (____) ___-___________
- **Date** ________________________

* Provide a brief description of the work to be performed under this application: *

(e.g.- construct new commercial building [include use/sq. ft.], apartment complex [# units], place of worship, horizontal improvements for subdivision, etc.)

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

**OFFICE USE ONLY**

Reviewed By: ________________________

Recycling ________________________

Date ________________________
Summary/Comments/Info needed:

**Landclearing, Construction, & Demolition Wastes Checklist**
- trees/plant-
- dirt, rocks, brick, concrete-
- asphalt-
- metal-
- clean wood-
- mixed wood-
- drywall-
- structure/salvage-
- OCC-

**Space Planning Checklist**
- Recyclables in:
  - roll carts-
  - bulk waste containers-

**Site Plan layout**
- Refuse/recycling sites - number, access, dimensions

Pre-SWMP meeting date __________________
Pre-construction conference date ________________
Construction audit 1 __________________
Construction audit 2 __________________
Other ________________________________________________
Appendix 1b

THIS FORM MUST BE COMPLETED AND APPROVED TO SATISFY THE REQUIREMENT OF A PLAN FOR MANAGEMENT OF CONSTRUCTION DEBRIS FOR THE TOWN OF CHAPEL HILL'S DEVELOPMENT ORDINANCE. PLEASE COMPLETE ALL INFORMATION IN ITS ENTIRETY.

Project Name: __________________________________________

Property ID #: _____________________________________ Permit: __________________________

Completed by _______________________________ Date:_____________________

During landclearing, demolition, construction, or renovation of a facility, the amount of waste destined for a construction waste landfill or an inert debris facility should be minimized or diverted for reuse or recycling. Many materials can be reused, recycled, or salvaged, provided that materials are kept separate as needed. This approach may also reduce overall project waste disposal costs. Solid Waste staff is required to attend the project pre-construction meeting to review the local waste reduction/recycling requirements and options. Consider whether the following materials will be generated on this project, in any quantity, and indicate the management method(s).

Specifying waste reduction/recycling practices on a project will assure their performance. WasteSpec is a publication of model specification language for construction site recycling and waste reduction available in electronic and print form. More information is available by calling Triangle J Solid Waste Planner at (919)-558-9343 or at www.state.nc.us/TJCOG/solidwst.htm#morespec.

1) **Trees and plant materials:** (from land clearing activities)
   
   No tree/plant wastes will be produced

   Estimated quantity tree/plant wastes: __________________________ tons or yds$^3$
   
   Valuable trees will be salvaged as timber or chipped on site as mulch/boiler fuel.
   
   Estimated market survey timing: __________________________
   
   Valuable plants will be removed for replanting.

   Tree waste will be segregated for delivery to
   
   ☐ mulching facility
   ☐ landclearing & inert debris landfill
   ☐ construction and demolition waste disposal landfill
   ☐ Other-(specify) __________________________

   Other comments on tree/plant waste:

2) **Dirt, rock, clean fill, inert material to be removed from site:** (from landclearing)
   
   No- Site is balanced   No- site needs fill

   Estimated quantity excess clean fill: __________________________ tons or yds$^3$

   (NOTE: Orange Community Recycling maintains a list of have/need fill projects)

   How will material be handled?
   
   ☐ hauled to a project needing fill material
   ☐ need fill reference

   disposed at:
   
   ☐ construction and demolition waste landfill
   ☐ landclearing & inert debris landfill
   ☐ Other-(specify) __________________________

   Other comments on excess fill-type material:
3) **Asphalt Paving**: (from demolition or landclearing)
   - No asphalt wastes will be produced
   - Estimated quantity asphalt waste: ____________ tons or yds
     - Recycled at an asphalt paving producer
       (NOTE: Most asphalt producers accept any reasonably clean asphalt delivered to their plant for reuse in paving mixes for free or nominal charge. Orange Community Recycling has information on options and locations.)
   - Used on or off site. Describe use: ________________________________
   - Disposed in an approved landfill
   - Other-(specify) ________________________________
   Other comments on asphalt waste:

4) **Concrete, Brick, Block and other aggregate materials**: (demo, landclearing, or construction)
   - No aggregate wastes will be produced
   - Estimated quantity aggregate wastes: ____________ tons or yds
     - Recycled as scrap at an aggregate producer
       (NOTE: Local yards accept material at little to no charge. On-site mobile crushing also available. Orange Community Recycling has information on options and locations.)
   - Used on or off site. Describe use: ________________________________
   - Disposed at a construction and demolition landfill
   - Disposed in an inert debris facility
   - Other-(specify) ________________________________
   Other comments on aggregate waste:

5) **Metal Scrap**: (from construction and/or demolition) This includes: sheet metal, piping, wiring, rebar, steel studs, structural steel, and other materials that can be recycled as scrap metal.
   - No metal wastes will be produced
   - Estimated quantity metal waste: ____________ tons or yds
     (NOTE: Cost-free metal recycling collection from construction sites, zero tip-fee delivery to Orange Regional Landfill, and other scrap hauling and recycling references available from Orange Community Recycling.)
   - Segregated for on-site recycling collection
   - Segregated for hauling to scrap dealer by general contractor
     - Recycling is specified
   - Sub-contractor(s) will handle (e.g. HVAC, plumbing, electrical)
     - Recycling is specified
   - Disposed in an approved landfill
   - Other-specify ________________________________
   Other comments on metal waste:

6) **Clean Wood Wastes**: (from construction) This includes unpainted, untreated, unstained dimension lumber, plywood/chipboard and shipping pallets.
   - No clean wood wastes will be produced
   - Estimated quantity clean wood wastes: ____________ tons or yds
     - Segregated for Recycling
Appendix 1b

(NOTE: Orange Regional Landfill accepts separated, clean wood wastes at a lower tip fee than mixed construction wastes. Pallets are sorted for reuse.)

Saved and used on future jobs
Separated for private salvage or charity - e.g. Habitat for Humanity, Durham Community Land Trustees, Orange Community Housing Corporation, Boy Scout Pallet reuse, etc.
Disposed in an approved landfill
Other-(specify) 

Other comments on clean wood waste:

7) **Drywall Scrap**: (from construction)

   - No drywall scrap will be produced
   - Estimated quantity drywall waste: __________________________ tons or yds³
   - Segregated and hauled for recycling
   - (NOTE: Waste Reduction Products of Goldston recycles clean, unpainted, reasonably dry wallboard at a lower tip fee than disposal. Call (919)898-4105 for more information.)
   - Used on site
   - Separated for use elsewhere as agricultural supplement
   - Disposed in an approved landfill
   - Other-(specify) __________________________

Other comments on drywall waste:

8) **Recyclable corrugated cardboard**: (from construction activities)

   *Provisions for private recycling of construction cardboard are required.*

   As of March 1996, Orange Regional Landfill charges a *double tipping fee penalty* for construction wastes mixed with recyclable corrugated cardboard. As of March 1999 an *additional penalty of $400/load* is charged for loads with over 50% cardboard.

   - [ ] No recyclable corrugated cardboard will be generated on this project (please verify).
   - [ ] On-Site cardboard recycling container provided by
   - [ ] Segregated on-site for hauling to paper dealer

Other comments on construction cardboard recycling plan:

Town of Chapel Hill ordinance requires that any bulk waste container be labeled to exclude recyclable cardboard. Container provider is responsible for labeling.

   - [ ] There will be one or more bulk waste container(s) at the site for construction waste.
   - [ ] Contractors will be required to remove own wastes without use of bulk container(s).

Permitted Waste Disposal Site(s)  will / will not be used for non-recyclable construction wastes.
9) Demolition/Salvage of Building(s)/Structure(s) on the site
Several organizations exist who accept donation of whole or partial structures including: Building Supply Recycling Center, 490-0414; Durham Community Land Trustees, 490-0063; Habitat for Humanity Building Supply Reuse Center, 833-1999 x230, Preservation North Carolina, 832-3652; and Turn of the Century Restoration and Salvage Company, 556-9193. Orange Community Recycling has contacts and references for these and other organizations of this type.

a) Do any structures currently exist on the site?
   Yes- (describe)- No-

b) Could the structure(s) be moved from the site?
   Yes     No
   Has the sale or donation of the structure(s) been explored? (please explain)
   Yes      No

   How will the structure(s) removal be handled otherwise?

a)

What is the timetable on removal of the structure(s)?

c) Are there salvageable materials that could be removed for reuse prior to demolition?
   Yes     No

   Have these materials been offered for sale or donation? (please explain)
   Yes      No

10) Other recyclable surplus materials/items/fixtures (from construction)
Specify how the following surplus usable materials, if any, will be handled.

a) brick/block, shingles, doors, windows, sinks, porcelain fixtures, lighting fixtures:

b) paint (NOTE: Orange Community Recycling’s Household Hazardous Waste Collection Facility is not permitted to accept contractor wastes.):

c) other materials (specify):

The following organizations, along with others, may accept and/or remove usable, excess materials:
Building Supply Recycling Center, 490-0414; Durham Community Land Trustees, 490-0063; and Habitat for Humanity Building Supply Reuse Center, 833-1999 x230, Orange Regional Landfill Construction Materials Salvage Operation, 932-2989. Orange Community Recycling has contacts and references for these and other organizations of this type.
Appendix 1c

THIS FORM AND ASSOCIATED PLAN DETAILS MUST BE APPROVED TO SATISFY A RECYCLING PLAN AS REQUIRED BY THE TOWN OF CHAPEL HILL’S DEVELOPMENT ORDINANCE.

Project Name: ____________________________________________

Property ID #: ___________________________ Permit: ________________

Completed by: ____________________________________________

Phone Number(s): ________________________________ Date: ________________

I. Waste Determination and Recycling Requirements

Depending on the eventual use of the structure, different waste materials will be produced and available for recycling. Recyclable materials must be separated into categories based on collection methods.

Indicate group(s) of materials to be generated:

Standard- Glass bottles/jars (green, brown, clear), Metal Cans (aluminum, tin/steel), Newspapers, Glossy Magazines, #1 plastic bottles, #2 plastic bottles.

Cardboard- Recyclable Corrugated Cardboard (excludes waxed or single layer cardboard).

Extra- Mixed Paper (junk mail, cereal boxes), Aluminum foil, #5 plastic bottles, #7 plastic bottles.

Office Papers- White/Colored copy or Computer paper, and Confidential papers.

Restaurant- Food wastes, Fry oil/Cooking grease, disposable dining ware.

Other- Business-specific waste(s) Please describe: ________________________________

II. Cardboard Recycling Requirements

The Town of Chapel Hill and Orange Regional Landfill require recyclable corrugated cardboard to be kept separate from all other refuse. All developments must provide for cardboard recycling. If the facility’s refuse will be collected from a bulk waste container, a second bulk waste container is likely to be required for corrugated cardboard recycling. Recyclable corrugated cardboard can be contracted for collection by a private hauler. Public recycling drop-off sites are not designed for commercial use.

Site plan includes space for cardboard recycling container

and

Cardboard recycling container detail is labeled on site plan Sheet #: ____________________

Cardboard recycling will be handled in an alternate manner (description required):

____________________________________

NOTE: Alternate Cardboard recycling plan will require stipulation that if method is not sufficient, a new method must be developed.
Appendix 1c

III. Refuse and Recycling Container Location(s), Size and Number.
Standard details/notes for any of the following are available from Town of Chapel Hill Planning Department or Orange Community Recycling.

This project will be served by the following recycling collection method(s):
Space should be allotted on the site plan and in building interior for these separations.
CHECK ALL THAT APPLY

☐ Exterior individual or cooperative-use bulk waste container site including:
  • may be suitable for: Apartment Complexes, Restaurant/Foodservice/Cafeteria, Places of Worship, Educational Facility, Office Building, Retail/Office/Restaurant Combination
    bulk refuse container (Dumpster)
    bulk cardboard recycling container (Dumpster)
    groups of at least 9 recycling carts for glass, cans, plastic bottles, newspaper/magazines
    recycling containers for office paper or other recyclables
    cooking grease rendering container (required for any kitchen facility)
    food waste collection container

☐ Interior collection container site(s) including:
  • may be suitable for: Apartment Complexes, Restaurant/Foodservice/Cafeteria, Places of Worship, Educational Facility, Office Building, Retail/Office/Restaurant Combination
    recycling bins for glass, cans, plastic bottles, and newspaper/magazines near any beverage vending machines and in any break/lunch room or clubhouse/pool area
    recycling bins for office paper or other papers near any photocopy areas and desks
    food scrap containers near any preparation area or busing station

☐ Standard “curbside” recycling collection- (units must be receiving standard “curbside” refuse collection and streets or alleys must be built to Town Standard)
  • may be suitable for: single-family-home-type development, including some duplex, triplex, and townhome developments
    interior collection containers incorporated into any kitchen design for recycling of glass, cans, plastic bottles, and newspaper/magazines.

Site plan showing all (existing and/or proposed) waste/recycling container enclosures and access to containers is/are located on plan sheet(s) #:

REQUIREMENTS:
1. Indicate location(s) of all bulk waste containers for refuse and any containers for recycling.
   *Plan must show location of containers, even if using existing refuse/recycling enclosure(s).
2. All refuse/recycling containers are required to be on concrete pads.
3. Label all bulk waste containers on site plan with type of material to be collected.
4. Provide details of required screening, bollards, and concrete pad.
5. Indicate whether refuse/recycling area will be gated.
   *Any doors/gates will need retainers to be latched open for refuse/recycling collection.
6. Ensure adequate collection vehicle access to all containers for deposit and collection.
   *Access templates are available from Orange Community Recycling.
7. Sharing of exterior recycling locations is acceptable if a joint access/shared use agreement is filed and the deeds of all properties amended.
AN ORDINANCE AMENDING CHAPTER 8 OF THE CODE OF ORDINANCES ON GARBAGE, TRASH AND REFUSE (2001-09-24/O-4)

BE IT ORDAINED by the Council of the Town of Chapel Hill as follows:

Section 1. Sec. 8.5 is hereby revised to read as follows:

“Section 8-5. Garbage and household waste cans; construction; location.

Any person or association referred to in section 8-3, and receiving twice weekly service, shall provide suitable standard metal or plastic receptacles, generally known as garbage cans, for deposit of garbage, household refuse, and other refuse. Said receptacles shall be of thirty-two gallon capacity or less and shall be watertight, of fly-proof construction and with a tight-fitting lid when used for wet garbage or other decomposable material. Such receptacles shall weigh sixteen (16) pounds or less when empty and may not be loaded with more than forty-five (45) pounds of refuse at a time. Such receptacles shall be located conveniently for the collector, but shall in no case be placed on the street or sidewalk unless done under the regulations prescribed by the town manager under authority of the council. Any person or association referred to in section 8-3, and receiving once weekly curbside service, shall provide suitable standard metal or plastic receptacles, generally known as garbage cans, for deposit of garbage, household refuse, and other refuse. Said receptacles shall be of thirty-two gallon capacity or less and shall be watertight, of fly-proof construction and with a tight-fitting lid when used for wet garbage or other decomposable material. Such receptacles shall weigh sixteen (16) pounds or less when empty and may not be loaded with more than forty-five (45) pounds of refuse at a time. Residents may choose to utilize a mobile refuse cart provided by the town. Unless granted an exemption by the town due to age or health, once weekly service collections will be curbside. Receptacles shall be conveniently located at the curb, but shall in no case be placed on the street or sidewalk as to create a hazard or interfere with traffic. Trash is to be placed at the curb no earlier than 4:00 6:00 p.m. on the day before collection, with containers removed before 6:00 a.m. on the day following collection.”

Section 2. This ordinance shall become effective upon adoption.

This the 24th day of September, 2001.
Penalty Clause for Leaving Residential Refuse Containers at the Street

Sec. 8-44. Penalties and enforcement

(a) Any violation of sections 8-23, 8-24, 8-24.1, 8-25, 8-26, 8-33, 8-35, or 8-38 shall constitute as civil violation and be subject to a civil penalty in the amount of twenty five dollars ($25.00). Each day that a violation continues uncorrected shall constitute a separate violation. In addition, the town may refuse to empty any receptacle containing loose household refuse or garbage in violation of section 8-23.
Appendix 3a

Grazing Card Policy
The grazing card is a program implemented by the county as part of its ongoing efforts to promote reuse of material. The grazing card is a privilege offered so that useful items that are placed in the Scrap Metal/ Appliance and Bulky bins can be reused. Reusing these items not only keeps useful items from being landfilled, it also reduces the amount of material the county must haul from the centers.

**Holders of this card agree to:**
- Show this card along with photo I.D. to the collection center attendant on duty before removing anything from bins. Grazing cards are not transferable. Grazers must also sign in on guard's log sheet.
- Remove items from the Scrap Metal/ Appliance and Bulky Bins ONLY.
- Comply with instructions from collection center attendants.
- Avoid blocking traffic or otherwise interfering with operations of the center.
- Leave the collection center if the attendant indicates it is too busy for grazing.

**Restrictions:**
- **Do not enter** the bins behind the wall at Cole Park and Pittsboro centers. Items must be carefully removed from the top of bins. If items are too difficult to reach, use a long tool to retrieve it or leave it there.
- Grazing will be permitted only for Grazing Cardholders who are 18 years or older and have registered with the county and paid all applicable administrative fees.
- Grazers can take items off the top of a load or off the back of a box but cannot remove items from the center if the load will be disrupted. The box must be left in a neat and safe condition when grazer leaves.
- Items must be removed by hand or with a long tool such as a rake or stick, no other heavy equipment can be used. Collection center equipment (rakes, other tools) cannot be used.
- Collection Center attendants should not be relied on to help remove items from bins.
- Collection center attendants have the discretion to ask grazers to leave if they are disrupting the center or abusing the system. Grazers will lose their privilege if they do not cooperate with attendants.
- All grazing is to be completed 30 minutes before a center closes.
- Cole Park Plaza and Pittsboro centers closed to grazing on Sundays due to high traffic.
- The county or its agents may rescind a cardholder’s grazing privileges at any time and cardholder will have to surrender their card.
- Hours for grazing may be changed at any time by the county.
- No grazing is permitted while county hauling vehicles are picking up containers from the collection centers.
- All material is available on a first-come first-served basis; no material can be identified or set aside for pick-up at a later time.
- Grazing Card fees are subject to change.
- The Grazing Card Program may be canceled or revoked at any time. Cardholders will be notified by mail to turn in their cards.
- Chatham County Waste Management reserves the right to refuse issuance of a grazing card to anyone having previously demonstrated their unwillingness to abide by center rules and regulations.
- Grazing cards are valid January 1 – December 31 of the following year. The cost of cards is not prorated. There will be a minimal renewal fee every two years starting December 31, 1999.
- Grazers that do not reside in Chatham County may remove items in accordance with the above restrictions, but under no circumstances will they be permitted to leave items to be disposed of at the Collection Centers. Any out-of-County grazer that disposes of wastes at the centers shall have their grazing privileges revoked.

I have read and understand the above policy: (sign) __________________ (date) __________
AN ORDINANCE AMENDING CHAPTER 10 OF THE DURHAM CITY CODE BY INCLUDING REVISED SECTIONS REGARDING THE BANNING OF DISPOSAL OF RECYCLABLES AND THE USE OF A TRANSFER STATION

BE IT ORDAINED BY THE CITY COUNCIL OF THE CITY OF DURHAM:

Section 1. That "Section 10-1. Definitions " be amended to include the following in alphabetical order:

- **Disposal Area** - Area where refuse is unloaded from collection trucks, either a landfill, rubble landfill, compost facility or a transfer station

- **Recyclables** - Materials that can be converted into component materials for the manufacture of new products.

- **Target Recyclables** - Materials, declared as target recyclables by written policy of the Director, that can be converted into component materials for the manufacture of new products and that have a stable market which assures that the materials will be sold and will not need to be stored or disposed.

- **Tipping Fee** - A monetary charge levied per ton for the disposal of garbage, yard waste, or other types of waste at a City disposal area.

- **Transfer Station** - A facility that allows for the unloading of solid waste so that it can be put in large trailers or containers and transported to a sanitary landfill.

Section 2. That "Section 10-3. Persons authorized to haul away refuse set out for collection." be amended as follows:

**Section 10-3. Persons authorized to haul away refuse and recyclables set out for collection.**

No person other than a person under the authority of the Director shall haul away any refuse or recyclables set out for collection by the City.

Section 3. That Article III. PREPARATION, ETC., OF REFUSE FOR COLLECTION be amended as follows:

**Article III. PREPARATION, ETC., OF REFUSE AND RECYCLABLES FOR COLLECTION**

Section 4. That "Section 10-50. Wrapping and draining garbage; refuse allowed in garbage receptacle." be amended as follows:

**Section 10-50. Wrapping and draining garbage; refuse allowed in garbage receptacle; source separation of recyclables.**

All garbage placed in receptacles shall be wrapped or contained in bags and shall be drained and free of wastewater. No liquids, except natural moisture contents of garbage, shall be placed in receptacles. Recyclables shall be properly prepared, separated from garbage and placed into a separate bin for collection. Recyclables shall not be put in the garbage receptacle.

Section 5. That the following sections be added:

**Section 10-59.3. Use of Stationary Containers Reserved for Recyclables**
All stationary containers reserved for recyclables, such as corrugated cardboard, glass, and plastics, shall be used for recyclable materials only. It shall be unlawful for other types of refuse to be placed in these stationary containers. There shall be a fee, established by action of the City Council, assessed to businesses that mix refuse in with recyclables.

Section 10-72. Disposal of Target Recyclables

Target recyclables, as well as other recyclables handled by the City, are to be placed in a recycling bin and set out on the curb for collection. There shall be a fee, established by action of the City Council, assessed to the property owner for mixing target recyclables with other refuse.

Section 6. That "Division 3. City Landfill Area" be amended as follows:

Division 3. City Disposal Area

Sec. 10-90. Disposition of privately hauled refuse, etc.

The Director may permit disposal of privately hauled refuse at a City disposal area under appropriate regulations and conditions.

Sec. 10-91. Materials delivered to be City property.

All materials, properly delivered to a City disposal area, shall become property of the City.

Sec. 10-92. Unauthorized separation, removal of materials delivered.

No person shall separate, collect, carry off, remove or disposal of materials delivered and deposited for disposal at the City disposal area unless authorized to do so by the Director.

Sec. 10-93. When disposal allowed.

Hours when disposal of refuse is permitted at the City disposal area shall be established by the Director and posted on the premises, and no such disposal of any materials shall be made by any person at any time other than the hours so prescribed.

Sec. 10-95. Responsibility of City for injuries to persons or vehicles.

The City will not be responsible for any injuries to persons hauling refuse to the City disposal area, while on the disposal area premises, nor will the City be liable for damage to vehicles from accidents on the premises. Provided, however, this section shall not be construed to apply to the employees of the City and City-owned equipment regularly employed on such premises.

Sec. 10-96. Fees.

The City Council may from time to time establish tipping fees for use of the City disposal areas. The City Manager may provide for periodic billing to frequent users of the City disposal areas.
Sec. 10-96.1. Target Recyclables.

The tipping fees established by this division shall apply to target recyclables. Where the load is comprised in whole or in part of an amount of target recyclables, the tipping fee charged shall be an amount equal to two (2) times the regular tipping fee.

Sec. 10-96.2. Fees for violations.

The City Council may from time to time establish fees to be assessed as civil penalties for violations of this ordinance.

Sec. 10-97. Use denied.

The Director may deny any person or business entity the use of City disposal areas for a period of up to one week for failure to comply with ordinances or regulations relating to the City disposal areas. The Director may deny any person or business entity use of City disposal areas for failure to pay the fees prescribed herein, until those fees have been paid.

Sec. 10-99. Disposal Area regulations.

The City disposal areas shall be operated in accordance with the rules and policies established by the Director and the laws of the State of North Carolina. The following items shall not be accepted at City disposal areas: 1) Waste determined by the Director or the Director’s designee to be too hazardous to be safely disposed of at City disposal areas; and 2) Automobiles, and other items determined by the Director to be inappropriate for a City disposal area.

Section 7. This ordinance shall be effective on January 1, 1998.
CITY OF DURHAM, NORTH CAROLINA

MEMORANDUM

October 16, 1997

MEMO TO: P. Lamont Ewell, City Manager

THROUGH: Cecil Brown, Senior Assistant City Manager
Fred Ravin, Director of Solid Waste Management

FROM: Nancy L. Newell, Solid Waste Manager/Engineer

SUBJECT: Ordinance Regarding the Disposal Ban of Recyclables and the Use of the Transfer Station.

Executive Summary

In response to the City of Durham's Solid Waste Management Plan and direction from the City Council, an ordinance revision is necessary to implement a ban on the disposal of target recyclables (cardboard, newspaper, glass and aluminum) and to establish rules on the use of the transfer station. Enforcement of the disposal ban will be phased in gradually, with specially targeted education efforts being the initial step. For safety and operational efficiency, sections of the ordinance regarding the use of the transfer station will be added. It is recommended that the City Council approve the ordinance.

Background

As part of the local government's responsibility for solid waste management, the City Council approved a Solid Waste Management Plan in June, 1997. One method of waste reduction encouragement included in the plan is the adoption of an ordinance that excludes target recyclables from materials that may be disposed with regular refuse. The City Council directed the staff to develop this ordinance earlier during this year.

There are currently ordinance sections that pertain to the use of the City's landfill and the area around the landfill. The transfer station and the area surrounding that facility will be used similarly by the public and by large equipment.

Statement of Problems/Issues

The City Council has approved a Solid Waste Management Plan which includes a waste reduction goal of 25% by 2001 and 40% by 2006. In order to reach this goal, an ordinance that bans the disposal of target recyclables has been developed. Since there are recycling programs available, which include curbside collection for residents, drop-off sites for residents and small businesses, and commercial firms to perform the services for large businesses and industries, there are reasonable alternatives to disposal of target recyclables for the community. Increased participation in these programs can result in reduced waste that will be sent through the transfer station to the landfill in Virginia, more revenues to offset the cost of providing recycling services, and more creative ways to reach the waste reduction goals established by the City.

Recognizing that complying with this ordinance will require life-style changes for some citizens, an intensive education program will be developed and implemented during the initial six months after the effective date of the ordinance. This education program will endeavor to help citizens understand the personal impacts their actions can have on our community and that in July, 1998 enforcement of the ordinance will begin with fee penalties. The implementation of enforcement measures, which include projected fees of approximately $15
for residents, $50 for stationary container customers, and double tipping fees for transfer station customers, will be phased in a manner that allows for the education program to be effective before punitive methods are needed. The proposed program phasing includes: January to June, 1998 - public education; July 1998 - education continues and fee is charged at the transfer station; January, 1999 - education continues and fee is charged to stationary container customers; July, 1999 - education continues and fee is charged to residential customers.

Ordinances that are pertaining to the use of a landfill need to be changed to reflect the fact that the City will have a transfer station facility as well as a rubble landfill for disposal. Current ordinance sections do not include the transfer station in the description. Most sections will use the term "disposal area" in place of landfill so that the regulations will apply to the rubble landfill, the transfer station area and the yard waste area.

Alternatives

The alternative to the disposal ban is educate the public, but omit any enforcement that requires citizens to participate in recycling programs. This has been effective for the last few years in reaching the current waste reduction status, but is not considered adequate incentive to reach the City's waste reduction goals. Small businesses and commercial establishments have not been taking advantage of the recycling opportunities. Participation by this sector of the community is expected to influence our waste reduction goal significantly.

Financial Impacts

The revenues from this ordinance is unknown at this time and therefore will not be included in the budget. Once revenues are available, a projection can be made and included in future budgets. It is hoped that the revenues that result from this ordinance will be adequate to cover the enforcement expenses.

Expenses initially will be for the education program. Brochures, videos, special presentation materials, etc. will be needed. An initial estimate of $50,000 for the current year's budget could be covered by the savings generated from the transfer and haul contract. Once enforcement is needed throughout the City, there may be a need to add one or more inspector positions to the staff. The current plan is to use solid waste supervisors to perform these duties.

Fees to be assessed as civil penalties for non-compliance with this ordinance will be brought back to City Council for their approval in early 1998.

M/WBE Summary

Due to the nature of this report, a review of the M/WBE requirements was not conducted.

Recommendation

It is recommended that the City Council adopt an ordinance amending Chapter 10 of the Durham City Code by including revised sections regarding the banning of disposal of recyclables and the use of a transfer station.
RESOLUTION SETTING PENALTY FEES FOR NONCOMPLIANCE WITH AN ORDINANCE REGARDING THE BANNING OF DISPOSAL OF RECYCLABLES

WHEREAS, Sec. 10-96.2 of the City Code entitled Fees for violations states that the City Council may from time to time establish fees to be assessed as civil penalties for violations of Section 10, and

WHEREAS, such fees for violations in regards to the ban of disposal of recyclables have not been set,

THEREFORE, BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF DURHAM:

SECTION 1. The civil penalty fee for violations of Sec. 10-50. Wrapping and draining garbage; refuse allowed in garbage receptacle; source separation of recyclables shall be fifty dollars ($50) for stationary container customers and fifteen ($15) dollars for residential household customers. This fee shall be charged to stationary container customers effective January 1, 1999 and to residential household customers effective July 1, 1999.

SECTION 2. The civil penalty fee for violations of Sec. 10-59.3. Use of Stationary Containers Reserved for Recyclables shall be fifty dollars ($50). This fee shall be charged effective July 1, 1998.

SECTION 3. The civil penalty fee for violations of Sec. 10-96.1. Target Recyclables shall be an amount equal to the tipping fee for the load that included target recyclables. Therefore, for loads violating Sec. 10-96.1, a tipping fee would be charged, plus a civil penalty of the same amount would also be assessed against the violator. This fee shall be charged effective July 1, 1998.

SECTION 4. This Resolution shall be effective January 1, 1998.
MEMORANDUM

January 18, 2001

MEMO TO: Gregory A. Bethea, Interim City Manager
THROUGH: John Pedersen, Assistant City Manager
FROM: A. T. Rolan, Director of Environmental Resources
SUBJECT: Privatization of Yard Waste Composting

Executive Summary

Yard waste composting is an important disposal method for the yard waste collected from the citizens of Durham. Limited funds and staff have resulted in minimal amounts of compost or mulch being generated at the current facility. A Request for Proposals was issued to find a contractor to provide appropriate yard waste compost services. Hensons’, Inc. submitted a proposal that includes provision of staff on site to screen incoming loads, properly monitor the compost process and to produce quality compost and mulch products. In addition, the proposal included a revenue sharing agreement, where the City receives a 30% share of revenue derived from the sale of mulch and compost products that are promoted by Hensons’, Inc.

The contract amount of $180,000 is listed to cover the cost of $18.00 per ton for an annual estimated 10,000 tons of waste. The estimated cost of this contract for the reminder of the current fiscal year is $48,000 and is included in the FY00-01 Budget. Funding of this unit-cost contract will also be included in the proposed FY01-02 budget. Revenue projections of $25,000 for revenue sharing are included for the initial year of operation. Surplus revenue can be used to grind current stockpile of unground yard waste materials.

Based on qualifications and their response to the City’s Request for Proposal for these services, the Administration recommends the selection of Hensons’, Inc. as the contractor and that the Interim City Manager be authorized to execute the contract with Hensons’, Inc. for yard waste compost and mulch services for four years beginning March 1, 2001.

In addition, the Administration recommends that the City Council authorize the Interim City Manager to modify the contract before execution provided the modifications do not increase the dollar amount of the contract and are consistent with the general intent of the version of the contract approved by City Council.

Background

State regulations prohibited the disposal of yard waste in sanitary landfills in the early 1990’s. In response to this, the City began a separate collection of yard waste from residences in the City. The materials collected have been brought to the yard waste compost facility that was permitted to receive such waste. During the last few years, changes in the budgeting responsibilities for this facility and to the staffing level of the solid waste facility have resulted in limited staff and funds available to optimally operate the yard waste facility.

Issues/Analysis

In order to select a contractor to perform these services, a Request for Proposal was prepared, advertised and
sent to a list of potentially qualified bidders. Responses were received from the following two firms: Banks Wood Grinding and Hensons’, Inc. A selection committee met to select a qualified firm with which to negotiate. Hensons’, Inc. was selected based on their experience and price. This firm has performed this service for other local governments, has several grinders available to assist in emergency clean-up after storms and is familiar with State regulations.

The contract includes operation of the Yard Waste Compost Facility; and includes:

- Receiving wood and yard waste on-site
- Inspection of loads for appropriate materials
- Directing trucks to unloading areas
- Moving, stockpiling, grinding, windrow turning, screening, composting and loading of yard waste/compost materials
- Maintaining all yard functions related to the retail and wholesale marketing and sale of mulch and compost

The contract also includes periodic grinding of yard waste until the current stockpile of unprocessed material is depleted.

Hensons’ intends to use the City’s facility to compost materials that they have ground off-site. This material would be brought in without payment of a tipping fee. In return, they will actively market both mulch and compost products made from waste received by the City and materials they bring in from work done by them in the area. The City will receive a thirty percent share of the revenue earned from the sale of these materials. The City’s scale house will be collecting the revenues for these sales and issuing receipts to acknowledge payment.

If Hensons’ is unable to market any of the mulch or compost, there is a possibility that there will be reduced available revenue to cover debt service and indirect costs as compared to previous years’ operations.

Alternatives

This service is required by State solid waste regulations as long as the City has a permit for the yard waste facility. The alternative of the City continuing to provide this service will most likely continue the partial processing and may increase the likelihood of a permit violation.

Financial Impacts

The cost of this service varies depending on the number of tons of yard waste received. The current tipping fee for yard waste is $24.00 per ton. The contract amount of $180,000 is listed to cover the cost of $18.00 per ton for an annual estimated 10,000 tons of waste. The difference between the tipping fee and operation costs has been used in the Solid Waste Fund to cover debt service and other fund administrative costs. The current year’s budget includes $100,000 to grind yard waste and minimal operation and personnel costs. There are adequate funds remaining to cover the estimated costs of $48,000 for this contract for the rest of this fiscal year.

The contract provides for the contractor to share thirty percent of any revenues derived from the sale of mulch and compost. The contractor estimated that the City’s share could be as much as $96,000 per year,
which would result in a net contract cost to the City as low as $84,000 per year. During the first year, additional revenue will be earmarked for grinding expenses to eliminate the stockpile of unprocessed materials. Funds for this contract are available in the FY00-01 budget and are included in the proposed FY01-02 budget. The revenue sharing projection for the FY01-02 budget is $25,000.

**M/WBE Summary**

Equal Opportunity/Equity Assurance staff reviewed the request for proposal issued and determined that there were no opportunities for minority or woman-owned businesses to perform this service at the present time.

**WORKFORCE STATISTICS**

The workforce statistics for Hensons’, Inc. are as follows:

<table>
<thead>
<tr>
<th>Total Workforce</th>
<th>41</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total # Females</td>
<td>5 (12%)</td>
</tr>
<tr>
<td># Males</td>
<td>36 (88%)</td>
</tr>
<tr>
<td># Black Males</td>
<td>2 (5%)</td>
</tr>
<tr>
<td># White Males</td>
<td>32 (78%)</td>
</tr>
<tr>
<td># Other Males</td>
<td>2 (5%)</td>
</tr>
<tr>
<td># Black Females</td>
<td>0 (0%)</td>
</tr>
<tr>
<td># White Females</td>
<td>5 (12%)</td>
</tr>
<tr>
<td># Other Females</td>
<td>0 (0%)</td>
</tr>
</tbody>
</table>

**Recommendation**

Based on qualifications and their response to the City’s Request for Proposal for these services, the Administration recommends the selection of Hensons’, Inc. as the contractor and that the Interim City Manager be authorized to execute the contract with Hensons’, Inc. for yard waste compost and mulch services for four years beginning March 1, 2001, subject to the availability of funds in the annual budget.

In addition, the Administration recommends that the City Council authorize the Interim City Manager to modify the contract before execution provided the modifications do not increase the dollar amount of the contract and are consistent with the general intent of the version of the contract approved by City Council.
AN ORDINANCE ENACTING AMENDMENTS TO CHAPTER 23, THE SEWER USE ORDINANCE REGARDING THE REMOVAL OF FAT, OIL, AND GREASE

WHEREAS it is well-documented that releases of fat, oil, and grease into the sewer system cause blockages of the sewer lines, increase the need for and cost associated with line maintenance, and impede sewage treatment at the wastewater plant;

WHEREAS because of recent changes in State law, the City of Durham faces greater penalties for blocked sewer lines and inadequate maintenance of such lines than it previously faced;

NOW, THEREFORE, the City Council of the City of Durham hereby enacts the following:

SECTION I:

Chapter 23, Article IV, Sec. 23-98 of the Durham City Code is amended by deleting the section as it now reads and replacing it with the following amended language:

"Sec. 23-98. Fat, Oil, Grease and Sand Removal Systems.

(a). When Removal Systems are Required

On or before March 1, 2001, certain establishments that prepare, process, or serve food shall install a removal system meeting approved standards that removes and collects fat, oil, and grease from wastewater and shall establish acceptable standard operating procedures for grease disposal. Such establishments include but are not limited to grocery stores, restaurants, bakeries, and companies, schools, and institutions with on-site cafeterias. Establishments that must meet this requirement include all new establishments, all existing establishments with a monthly average water consumption greater than 1500 cubic feet, and establishments which monitoring has shown discharge more than 250 mg/liter of fat, oil, or grease. The Director shall promulgate guidelines that implement this Section 23-98. These guidelines may, among other things, further define and categorize those establishments covered by this requirement, and distinguish amongst them; specify the types of removal systems the various categories of establishments must install and the specifications of such systems; establish cleaning schedules for various types of removal systems and frequency of removal of the fat, oil, and grease from the establishment. Other users that generate sand, oil and grease such as car washes, and automotive and machine shops shall install sand, oil, and grease removal systems when the Director notifies the user of the need for such system or when it is required by the Plumbing Code.

(b). Prohibited Discharges into the Fat, Oil and Grease Removal System.

The following shall not be discharged into the fat, oil, and grease removal system:

1) Waste that does not contain fat, oil, grease, and that otherwise does not require treatment;
2) Wastewater from dish washing machines or wastewater with temperature exceeding 150° F;
3) Ground residue from food waste grinders and garbage disposals;
4) Sanitary waste;
5) Emulsifiers, chemicals, and enzymes.
Appendix 6a

(c). Maintenance and Cleaning of System; Maintenance of Records

All users with removal systems shall clean such systems in accordance with the Director's guidelines. Such users shall maintain cleaning records on site showing the date and time of cleaning and person doing the cleaning for a period of three years.

(d). Collection of Fat, Oil, and Grease; Maintenance of Records

All users with removal systems shall contract for the removal of the fat, oil, and grease collected from the removal system. The contract shall be available on site for inspection by the City. The user shall require the contractor to complete a form provided by the City indicating the ultimate disposition of the fat, oil, and grease collected -- e.g., the disposal destination, such as a named landfill, of the removed substances and whether the fat, oil, and grease are being reprocessed or rendered. The user shall also require the contractor to indicate on a form, which, if it is not the City's form, shall be acceptable to the City, each collection made from the user. Required forms shall be maintained on site for a period of three years.

(e) Monitoring of Discharge

The Director or designee may require that any user monitor and test their discharge for fat, oil, grease, and/or sand in such a manner and with such methods as are specified by the Director. All monitoring results shall be shared with the City. In addition, as a condition of discharging to the system, all users may be monitored by the city without prior notice.

(f) Exceptions

The Director is authorized to vary application and enforcement of this section in cases where establishments existing prior to March 1, 2001 cannot site outside removal systems without extreme hardship because of lack of available adjacent land or other similar circumstances.

SECTION 2:

Any sections of the City Code that are in conflict with this amendment are hereby superceded.

SECTION 3

This amendment shall be effective upon passage.
Appendix 7a

CITY OF DURHAM NORTH CAROLINA

January 17, 2001

Memo To: Gregory A. Bethea, Acting City Manager

Through: Laura Gill, Acting Assistant City Manager

From: David W. McCary, CPM, Director Department of Solid Waste Collections

Subject: To introduce the new automated collection system to improve performance and reduce operating expense.

Executive Summary
During the FY-2001 Budget presentation, the Department of Solid Waste Collections introduced to council a cost savings strategy that is designed to improve performance and collection efficiency. Automated roll-out cart collection is the strategy of choice. Automated collection is a technologically advanced waste collection system that employs a special fitted refuse vehicle. Refuse is mechanically dumped into the truck from a curbside location. The operator uses a set of controls inside the truck cab to operate a mechanical arm that lifts, dumps and returns the container to the curb.

The standard 90-gallon container is currently being serviced by semi-automated rear loading vehicles and is ideal for the fully-automated collection vehicle. The Department will introduce this concept to Durham residents starting with 3,000 collection points beginning April 1, 2001, and an additional 6,000 collection points beginning June 1, 2001. This process will provide the department with the tools needed to begin evaluating the cost and operational benefits.

Automation Background
In the early 70’s Scottsdale Arizona introduced the first, very unique automated vehicle for the collection and disposal of discarded solid waste materials. This technologically advanced waste collection system named “GODZILLA” at the time, was the first of its kind. Improvements were made in the mechanical design giving the next generation of models the name “The SON OF GODZILLA”.

The City of Durham has done well with the current (semi-automated) collection system. This current rear loading collection system (3 member crew) employs a mechanical flipper designed to help the collector lift the 90-gallon roll-out cart which by design, helps to reduce back-related injuries. As discussed in the Solid Waste 10 Year Plan, automated collection was identified as the best fit for the City of Durham, to improve performance and efficiency of solid waste collections. Over the last two years the department’s strategy has been documented with the clear intent to reduce operational cost through automated initiatives.

Background Continued
The Department of Solid Waste Collections will introduce automated collections in the spring of 2001 to 3,000 Durham residents. At that time, the Department will begin evaluating the cost and operational benefits of automated collection. Automated collection is a technologically advanced waste collection system that employs a special fitted refuse vehicle. Refuse is mechanically dumped into the truck from a curbside location. The operator uses a set of controls inside the truck cab to operate a mechanical arm that lifts, dumps and returns the container to the curb. The standard 90-gallon container is ideal for the fully-automated vehicle and has no additional financial impact to the budget.

The purchase of these automated collection vehicles is crucial to the success of this program as well as a comprehensive public relations campaign. Switching from semi-automated collection vehicles to automated
collection vehicles represents a change in service. Public education is essential to participating communities during the start up phase. The first 3,000 residential units will be pre-determined by the Department in an effort to diversify the program. Additional units will be identified and implemented through our structured educational program to determine which communities best fit the program. Automated collection provides an aesthetically pleasing atmosphere to the communities it serves.

**Issues / Analysis**

One automated vehicle operator can do the same work of the conventional rear loader semi-automated vehicle. The department feels that not every rear-loading semi-automated collection route can be replaced with a side-loading fully-automated collection route. However, it does feel that by eliminating semi-automated vehicles where practical will help keep staffing levels low, increase productivity and reduce job related injuries. Keeping with the theme of the Department’s structure replacement schedule, we will implement automation without one employee losing their job through attrition.

**Expected Savings**

In the first three (3) years of implementation we will convert 8 rear loader crews to 8 automated crews. This action will save one million dollars over the next three years. The actual savings per collection crew converted is 75K dollars annually. In addition, years four and five will provide for converting another 6 crews, which will provide for an accumulative savings of three (3) million dollars in a five (5) year period. Based on current dollars, it saves a million dollars every year after the fifth year of implementation.

**Expected Savings Continued**

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| Alternatives | The Department could continue to operate under the current rear-loading semi-automated collection program or it can explore other collection alternatives designed to help reduce the cost of operation. |

**Financial Impact**

By introducing automated collection to the City of Durham, we anticipate a slight increase in capital outlay when comparing the new automated vehicle to the traditional rear-loading vehicle, which will be offset by efficiencies in personnel services. The Department’s well-structured replacement schedule provides direction and timelines as to when rear-loading collection vehicles can be replaced by new side-loading automated vehicles. The current 90-gallon roll-out cart container is ideal for this fully automated collection system and requires no additional funding.

**Recommendation**

To accept the automation collection report. The Department of Solid Waste Management feels that automated refuse collection vehicle has several advantages over the traditional waste collection methods. Our goal is to continue our efforts to look for ways to improve collection performance and reduce the overall operating expense of the department through these innovated concepts.
AN ORDINANCE REGULATING RECYCLABLE MATERIALS AND LICENSING THE COLLECTION OF REGULATED RECYCLABLE MATERIAL IN ORANGE COUNTY

SECTION I. FINDINGS. Orange County, North Carolina does hereby find that:

Orange County has heretofore adopted ordinances governing the storage, transportation, and recycling of solid waste within the unincorporated sections of County; and

Orange County owns and operates solid waste management facilities as a public enterprise to protect the citizens of Orange County and the environmental health both within the unincorporated areas of the County and within the municipalities in Orange County; and

Orange County, Chapel Hill, Carrboro, Hillsborough, and Mebane have heretofore adopted and followed separate ordinances for the regulation of solid wastes within their respective jurisdictions; and

Siting and permitting of construction and demolition landfills and sanitary landfills has become increasingly difficult; the disposal of solid waste and construction and demolition waste has become increasingly more expensive; and construction and demolition waste continues to be disposed of through open burning, adding to the increasing air pollution problem within the County; and

Units of local government are charged by the legislature in N.C.G.S. § 130A-309.09A(b) to make a good faith effort to achieve the State’s forty percent (40%) municipal solid waste reduction goal by the year 2006; and

Orange County has committed itself to recycling recyclable materials, including construction and demolition waste, as part of its own solid waste reduction goal of 61% by the year 2006; and

Construction and demolition waste constitutes approximately one-third (1/3) of the overall solid waste stream delivered to the Orange County Landfill, at least fifteen percent (15%) of which is readily recoverable for purposes of recycling, secondary-market salvage, or re-integration into existing or subsequent projects; and

Orange County has the legal authority under State law, including but not limited to N.C.G.S. § 153A-136, § 153A-445, and § 130A-309.09B, to enact regulations with respect to the disposal of solid waste including recyclable material, land-clearing debris that is not sold as timber or chipped for use onsite or sale, and to provide reasonable penalties and other provisions for the enforcement thereof,

NOW THEREFORE be it ordained by Orange County as follows:

SECTION II. PURPOSE AND APPLICATION.

The purpose of this ordinance is to regulate the storage, collection, transportation, use, disposal and other disposition of regulated recyclable material in Orange County. This ordinance is adopted pursuant to the authority contained in N.C.G.S. §§ 153A-121, 123, 132.1, 136, 274-278, 291-293, 445, and N.C.G.S. §§ 130A-309.01-309.08, 309.09A, 309.09B, 309.09C, 309.09D. Unless otherwise indicated, this ordinance pertains to all solid waste activity in Orange County.
SECTION III. MANAGEMENT OF REGULATED RECYCLABLE MATERIAL; NO OPEN BURNING OF SOLID WASTE.

1. Regulated recyclable material includes recyclable construction and demolition material, ferrous and nonferrous scrap metal other than recyclable construction and demolition material, pallets, corrugated cardboard, and other materials as may be designated as such by amendments to this ordinance.¹

2. All regulated recyclable material generated in Orange County shall be recycled (1) unless doing so would pose a threat to public health and safety through exposure to carcinogens and other toxic substances including, but not limited to, lead, asbestos, fuel oils, gasoline, or (2) unless the regulated recyclable material is attached to other material, including other regulated recyclable material, in a way that it is not reasonably possible to separate the regulated recyclable material into its constituent parts or from non regulated recyclable material. It is a violation of this ordinance for any person to dispose of regulated recyclable material except as permitted in this ordinance.

3. Regulated recyclable material shall be disposed of through (1) delivery to a recyclable waste center, (2) delivery to a licensed collector of regulated recyclable material, (3) reuse, (4) sale or (5) other means that allow for the safe recycling of the material. Regulated recyclable material shall be separated from other solid waste unless delivered to a Commingled Recycling Facility certified as such in the manner provided for in this ordinance.

4. No person shall discard, dispose of, leave or dump any regulated recyclable material on or along any street or highway or on public or private property, unless such material is placed in a receptacle, placed at a location designated by the County, Carrboro, Chapel Hill, Hillsborough or Mebane for the deposit of regulated recyclable material, or otherwise placed in possession and control of a licensed collector of regulated recyclable material.

5. Transporting or accepting for transport any regulated recyclable material for purposes of disposal as solid waste or treatment in a manner inconsistent with this ordinance constitutes a violation of this ordinance.

6. Any person collecting or transporting regulated recyclable material for purposes of disposal at an approved disposal site must do so in a manner that prevents this material from escaping that vehicle or container used for the collecting or transporting.

7. No person may dispose of solid waste through open burning in Orange County.

8. No person may contaminate regulated recyclable materials so as to make them unrecyclable.

¹ Additional materials may be added to the list of regulated recyclable materials, including but not limited to: aluminum, drink boxes, kraft paper, glass bottles and jars, magazines, used motor oil, newspaper, office paper, scrap paper, plastic bottles including milk jugs, soda bottles, steel and tin cans, telephone directories, food waste when exclusively source-separated for composting, non-reusable wood waste, drywall.
SECTION IV. CERTIFYING COMMINGLED RECYCLING FACILITIES.

1. Any facility accepting regulated recyclable materials, commingled with other solid waste (hereafter “commingled regulated recyclable materials”) originating from within Orange County, must be certified as an approved Commingled Recycling Facility. Any person wishing to dispose of commingled regulated recyclable materials originating from within Orange County may only do so by delivery to a facility which has been certified as an approved Commingled Recycling Facility. In order to be certified as an approved Commingled Recycling Facility, the facility must submit documentation to the Department exhibiting the following:
   A. a valid North Carolina (1) Solid Waste Landfill, (2) Processing and Recycling, or (3) Composting Facility permit; and
   B. One of the following:
      (1) the technical ability to separate and market all those materials required by this ordinance to be recycled by Orange County, or
      (2) a documented performance of at least 30% recycling of all materials that the Facility accepts. Inert debris shall be excluded from the material accepted and from the material recycled in the recycling performance calculation.

2. Certification.
   A. A Facility complying with the above requirements shall be certified as an approved Commingled Recycling Facility by the Department. This certification will be valid for one year from the date of approval by the Department and must be renewed annually.
   B. If the certification application does not meet the requirements of this ordinance, the notification of denial shall state the reasons that the application was denied. If the Department denies certification pursuant to this Section, the applicant may request a hearing with the Department Director. The Department Director shall keep minutes of the hearing, including all documents that are part of the application and all documents submitted at the hearing. Within one week after the hearing the Department Director shall give the applicant written notice of the decision either granting the certification or affirming the denial of the certification. The applicant may appeal the Department Director’s decision to the Orange County Manager by giving written notice of appeal to the County Manager within five (5) working days of receipt of the Department Director’s decision. The Manager shall reverse, affirm or remand the decision of the Department Director to the Department Director based on the minutes of the hearing, including all documents that are part of the minutes. If the decision of the Orange County Manager is to reverse the decision of the Department Director, the applicant is deemed certified. If the Orange County Manager remands to the Department Director, the remand decision shall direct the matters to be reconsidered by the Department Director on remand.

SECTION V. LICENSING COLLECTORS OF REGULATED RECYCLABLE MATERIAL.

1. Any person collecting or otherwise hauling regulated recyclable material within the County in any vehicle with a gross vehicle weight of nine thousand (9000) pounds or greater must obtain a regulated recyclable material collection license (“RM license”). Each vehicle used by the licensed collector or hauler must be registered with the Department.

2. Applications for an RM license shall be filed with the Department on forms furnished by Orange County. All applications must be accompanied by a processing fee for each vehicle that will collect regulated recyclable material. The amount of the fee will be set by the Board annually with the adoption by the
Board of the annual budget ordinance of Orange County. The applicant shall furnish the following information:
   A. Name and address of the applicant and the applicant’s business name
   B. A list of the equipment possessed, available, or otherwise to be used by the applicant in regulated recyclable material collection, including motor vehicle license tag numbers;
   C. Liability insurance coverage, proved by providing the Department, at the time that the license is applied for, a certificate of insurance showing coverage in effect at the time of application;
   D. Name and location of facilities where collected regulated recyclable materials are to be delivered.

3. Before issuing a license pursuant to this section, the Department may inspect or cause to be inspected all facilities and equipment the applicant plans to use in the regulated recyclable material collection business. Vehicles and containers used in the collection and transportation of regulated recyclable material shall be covered, durable, and easily cleaned. They shall be cleaned as often as necessary to prevent a nuisance and insect breeding and shall be maintained in good repair. Vehicles shall display, in numbers at least three (3) inches high, the county license number of the licensee and the license sticker issued by the Solid Waste Management Department.

4. Issuance of license.
   A. The Department may issue the applicant a RM license only when it is found that the applicant’s facilities, equipment, insurance coverage and proposed operating methods are in compliance with this ordinance and the applicable rules of the Department which implement this ordinance and that are consistent with it and that the applicant will perform regulated recyclable material collection and disposal in a manner consistent with this ordinance. A condition of the RM license shall be that the licensee shall serve every person in such a manner that the RM licensee does not cause the person served to be in violation of this ordinance.
   B. If the RM license application does not meet the requirements of this ordinance, the notification of denial shall state the reasons that the application was denied. If the Department denies a RM license, the applicant may request a hearing with the Department Director. The Department Director shall keep minutes of the hearing, including all documents that are part of the application and all documents submitted at the hearing. Within one week after the hearing the Department Director shall give the applicant written notice of the decision either granting the license or affirming the denial of the license. The applicant may appeal the Department Director’s decision to the Orange County Manager by giving written notice of appeal to the County Manager within five (5) working days of receipt of the Department Director’s decision. The Manager shall reverse, affirm or remand the decision of the Department Director to the Department Director based on the minutes of the hearing, including all documents that are part of the minutes. If the decision of the Orange County Manager is to reverse the decision of the Department Director, the license is deemed issued. If the Orange County Manager remands to the Department Director, the remand decision shall direct the matters to be reconsidered by the Department Director on remand.
   C. A license shall be valid for a period of one year from the date of issuance.

5. With each license renewal application, a RM licensee shall submit report to the Department containing the following information:
   A. New and replacement equipment;
   B. Identity of all equipment no longer in use by licensee that was listed in original application for RM license;
   C. Total amount of regulated recyclable material collected by type and amount; and
   D. The locations to which the regulated recyclable material was delivered.

6. No RM license issued pursuant to this ordinance is assignable.
7. Violations of this ordinance involving collectors of regulated recyclable material include:
   A. Collecting or otherwise hauling regulated recyclable material within the County in any vehicle with a
gross vehicle weight of nine thousand (9000) pounds or greater without a valid RM license
constitutes a violation of this ordinance.
   B. Regulated recyclable material which is to be delivered to an approved Commingled Recycling
Facility may be commingled so long as all of the material in a given container is to be delivered to
that Facility. Otherwise, placement of regulated recyclable material into any solid waste container,
including the solid waste compartment of a collection vehicle, for any length of time, constitutes a
violation of this ordinance.
   C. Transporting or accepting for transport any regulated recyclable material that has not been separated
for purposes of recycling, or which has been commingled with non-regulated recyclable material or
solid waste, unless the material and/or waste is to be delivered to an approved Commingled
Recycling Facility constitutes a violation of this ordinance.
   D. Repeated violations of this ordinance may result in RM license suspension or revocation as provided
in this ordinance.

SECTION VI. PERMITS FOR THE MANAGEMENT OF REGULATED RECYCLABLE
MATERIALS.

1. Any person applying for a building permit and/or a zoning compliance permit from any unit of local
government in Orange County authorized to issue such permits, shall, prior to applying for such permits
and before construction, demolition, land clearing or other preparatory activity commences, make
application to the Department for a regulated recyclable material management permit (RM permit) for
the management of regulated recyclable material.

2. The RM permit application shall provide estimates of the amount and types of solid waste to be
generated by the project, the amount and types of regulated recyclable material to be generated by the
project, whether the project requires demolition or deconstruction and the methods to be employed for
disposal of the solid waste and regulated recyclable material generated by the project.

3. Applications for a RM permit shall be filed with the Department on forms furnished by Orange County.
All applications must be accompanied by a processing fee. The amount of the fee will be set by the
Board annually with the adoption by the Board of the annual budget ordinance of Orange County.

4. The Department will review and, within ten (10) days, make a decision on the RM permit. The applicant
will then be notified of the Department’s decision within two (2) working days after the decision is
made.
   A. If the RM permit application meets the requirements of this ordinance, a RM permit will be issued to
the applicant. The RM permit is good for one year from the date of issuance unless the expiration
date of the permit is extended by the Department prior to expiration of the RM permit, for good
cause shown. The RM permit applies only to the project for which the application was made. The
permit shall prescribe the permissible methods of disposal of regulated recyclable material. If the
project requires demolition or deconstruction not resulting from condemnation under the North
Carolina Building Code, the permit may direct a delay in demolition or deconstruction, not
exceeding sixty (60) days from the issuance of the RM permit, in order for the Department to
perform an assessment of whether and to what extent the structure to be demolished or deconstructed
consists of regulated recyclable materials that can be reasonably recycled.
   B. If the RM permit application does not meet the requirements of this ordinance, the notification of
denial shall state the reasons that the application was denied. If the Department denies a RM permit,
the applicant may request a hearing with the Department Director. The Department Director shall
keep minutes of the hearing, including all documents that are part of the application and all
documents submitted at the hearing. Within one week after the hearing the Department Director shall
give the applicant written notice of the decision either granting the permit or affirming the denial of
the permit. The applicant may appeal the Department Director’s decision to the Orange County
Manager by giving written notice of appeal to the County Manager within five (5) working days of
receipt of the Department Director’s decision. The Manager shall reverse, affirm or remand the
decision of the Department Director to the Department Director based on the minutes of the hearing,
including all documents that are part of the minutes. If the decision of the Orange County Manager is
to reverse the decision of the Department Director, the permit is deemed issued. If the Orange
County Manager remands to the Department Director, the remand decision shall direct the matters to
be reconsidered by the Department Director on remand.

C. A permit shall be valid for a period of one year from the date of issuance.

SECTION VII: ENFORCEMENT.

The following shall pertain to violations of this ordinance:

1. Double Tip Fee. Any person disposing of regulated recyclable material at the Orange County Landfill in
violation of this ordinance, in addition to being subject to the other remedies provided in this ordinance,
shall pay, for the load or loads disposed of in violation of this ordinance, double the tip fee in effect at
the time of the disposal.

2. Revocation of regulated recyclable material collection licensees.
   A. When the Department finds that a RM licensee has violated a condition of the license, the licensee
      shall receive written notice of the violation and be informed that if the violation is not corrected or if
      another violation occurs within thirty (30) working days the RM license shall be revoked. Notice of
      the revocation shall be by written notice from the Department delivered or mailed by first class mail
to the licensee. Delivery by first class mail shall be the method of delivery if the licensee cannot
readily be served with the notice of revocation in person. Upon receipt of the revocation notice, the
RM licensee shall stop collecting, transporting, or disposing of regulated recyclable material
originating in Orange County.
   B. The Department may reinstate a RM license revoked for a violation of a permit condition after the
revocation has been in effect for thirty (30) working days if the Department finds that the RM permit
conditions causing the violation have been corrected.
   C. When the Department finds that a RM licensee has transported or accepted for transport any
regulated recyclable material that has not been separated for purposes of recycling, or which has
been commingled with non-regulated recyclable material or solid waste, unless the material and/or
waste is to be delivered to an approved Commingled Recycling Facility, the RM license shall be
revoked for one year if:
      1. the violation has occurred within thirty (30) days of another such violation, or
      2. the violation is the fifth such violation to occur within one (1) year.
     The holder of a revoked RM license may reapply after one year of the date of revocation for a new
license. Any person whose RM license was previously revoked and who subsequently received a
new license will have that license revoked upon the receipt by that person of a single additional
violation.

3. Criminal Penalty. Any person violating this ordinance shall be guilty of a misdemeanor punishable by a
fine not to exceed five hundred ($500) dollars or imprisonment for not more than thirty (30) days, or
both. Each day’s continuing violation is a separate and distinct offense. Each violation is a separate and
distinct offense.
4. Civil Penalty. Any person who is found in violation of this ordinance shall be subject to a civil penalty of not to exceed five hundred ($500) dollars as provided herein and as authorized by N.C.G.S. § 153A-123. Each violation incident is a separate and distinct offense.

The Department Director may issue to any person who or that has violated this ordinance, a citation giving notice of the alleged violation(s) and the civil penalty imposed. Citations so issued may be delivered or mailed by first class mail to the person violating this ordinance. Delivery of the citation by first class mail shall be the method of delivery if the person violating the ordinance cannot readily be served in person. The following civil penalties shall be assessed for each violation of this ordinance:

(1) Failure to obtain a regulated recyclable material collection license.
(2) Failure to recycle regulated recyclable material as defined in this Ordinance.
(3) Failure to obtain an approved RM permit as defined in this Ordinance.

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<th>Number of Prior Violations</th>
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5. Equitable remedies. This ordinance may be enforced by equitable remedies. Any unlawful condition existing or in violation of this ordinance may be enforced by injunction and order of abatement in accordance with N.C.G.S. § 153A-123.

SECTION VIII. DEFINITIONS.

For the purposes of this Ordinance, the following definitions shall apply:

1. *Ashes.* refuse resulting from the burning of wood, coal, cork or other combustible material which has no live embers.
2. *Board.* The Board of Commissioners of Orange County.
3. *Bulk material.* A tightly constructed metal, plastic or other material container of two (2) cubic yards or greater capacity and of a design approved by the County manager as being capable of being emptied by equipment.
4. *Clean wood waste.* wood waste from construction and demolition activity that is not treated and free of paint.
5. *Collection.* The act of removing solid waste (including construction and demolition waste, land-clearing debris or recyclable materials) from a point of generation to a central storage point or to a disposal site, and from a central storage point processing center to a disposal site.
6. *Construction and demolition waste.* solid waste resulting generally from construction, remodeling, repair, or demolition operations on pavement, buildings, or other structures.
7. **Corrugated cardboard.** three-layered cardboard material with a middle, wavy layer. Nonrecyclable cardboard, such as waxed boxes, cardboard adhered to packing material (such as Styrofoam or wooden or plastic supports) and cardboard saturated with motor oil or foodstuffs in its normal use before disposal are excluded from this definition.

8. **Department.** The Solid Waste Management Department.

9. **Department Director.** The Director of the Solid Waste Management Department.

10. **Disposal.** The discharge, deposit, injection, dumping, spilling, leaking or placing of any solid waste into or on any land or water so that the solid waste or any constituent part of the solid waste may enter the environment or by emitted into the air or discharged into any waters, including groundwaters.

11. **Food waste.** food that has been prepared for human consumption and was not served or otherwise used for food.

12. **Garbage.** all putrescible wastes, including animal offal and carcasses, and recognizable industrial by-products, but excluding sewage and human wastes.

13. **Hazardous waste.** solid waste, or combination of solid wastes, which because of its quantity, concentration, or physical, chemical, or infectious characteristics may (1) cause or significantly contribute to an increase in mortality or an increase in serious irreversible or incapacitating reversible illness; or (2) pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported, disposed of or otherwise managed.

14. **Industrial solid waste.** all waste generated from factories, processing plants and other manufacturing enterprises that is not hazardous waste as defined in this section. Such waste may include, but is not limited to, waste resulting from the following manufacturing processes: Electric power generation; fertilizer/agricultural chemicals; food and related products/by-products; inorganic chemicals, iron, and steel manufacturing; leather and leather products; nonferrous metals manufacturing foundries; organic chemicals; plastics and resins manufacturing; pulp and paper industry; rubber and miscellaneous plastic products; stone, glass, clay, and concrete products; textile manufacturing; transportation equipment; and waste treatment. The term does not include mining waste or gas waste.

15. **Inert Debris.** solid waste which consists solely of material that is virtually inert or that is likely to retain its physical and chemical structure under expected conditions of disposal, including but not limited to brick, block, rock, asphalt, and dirt.

16. **Landfill.** a disposal facility or part of a disposal facility where waste is placed in or on land, and that is not a land treatment facility, a surface impoundment, an injection well, a hazardous waste long-term storage facility, or a surface storage facility.

17. **Medical waste.** any solid waste which is generated in the diagnosis, treatment, or immunization of human beings or animals, in research pertaining thereto, or in the production or testing of biologicals, but does not include any hazardous waste identified or listed pursuant to Chapter 130A, Article 9, of the North Carolina General Statutes, radioactive waste, household waste as defined in 40 C.F.R. § 261.4(b)(1) in effect on 1 July 1989, or those substances excluded from the definition of solid waste in this Chapter.

18. **Municipal solid waste.** any solid waste resulting from the operation of residential, commercial, industrial, governmental, or institutional establishments that would normally be collected, processed, and disposed of through a public or private solid waste program management service. Municipal solid waste includes construction and demolition waste and inert debris. Municipal solid waste does not include hazardous waste, sludge, industrial waste managed in a solid waste management facility owned and operated by the generator of the industrial waste for management of that waste, or solid waste from mining or agricultural operations.

19. **Non-reusable wood waste.** trees cleared from land for any purpose other than sale as a commodity or chipping for use on site or for sale.

20. **Open burning.** The combustion of solid waste as a means of disposal of that waste.

21. **Open dump.** a solid waste disposal site that does not have the permit or permits required by law or which does not comply with the rules set forth in this ordinance.

22. **Pallet.** A portable, wooden platform for handling, storing, or moving materials and packages used in warehouses, factories, retail and wholesale sales locations and vehicles.
23. **Person.** a person, group of persons, firm, company, corporation, association, partnership, unit of local government, state agency, federal agency, or other legal entity.

24. **Processing.** any technique designed to change the physical, chemical, or biological character or composition of any solid waste so as to render it safe for transport; amenable to recovery, storage, or recycling; safe for deposit; or reduced in volume or concentration.

25. **Project.** a planned undertaking of construction, remodeling, deconstruction and demolition.

26. **Putrescible.** solid waste capable of being decomposed by microorganisms with sufficient rapidity as to cause nuisances from odors, gases or liquids, such as kitchen wastes, offal and carcasses.

27. **Radioactive waste material.** solid waste containing any material, whether solid, liquid, or gas, that emits ionizing radiation spontaneously.


29. **Recovered material.** a material that has known recycling potential, can be feasibly recycled, and has been diverted or removed from the solid waste stream for sale, use, or reuse. In order to qualify as a recovered material, a material must meet the requirements of N.C.G.S. § 130-309.05(c).

30. **Recyclable construction and demolition material.** clean wood waste and metals (except closed drums and tanks) resulting generally from construction, remodeling, repair, or demolition operations on pavement, buildings, or other structures.

31. **Recyclable material.** The term “recyclable material” includes, but is not limited to, recyclable construction and demolition materials, aluminum, drink boxes, corrugated cardboard and Kraft paper, glass bottles and jars, magazines, ferrous and nonferrous scrap metals, motor oil, newspaper, office paper, scrap paper, plastic bottles including milk jugs, soda bottles, steel and tin cans, telephone directories, yard waste, cooking grease, clean wood waste, rubble, food waste when exclusively source-separated for composting, and other materials as may be specified by the Board of County Commissioners.

32. **Recycling.** The process by which solid waste or recovered materials are collected, separated, or processed, and reused or returned to use in the form of raw materials or products.

33. **Regulated recyclable material.** The recyclable material as designed in this ordinance as recyclable material.

34. **Regulated recyclable material collector.** any person who collects regulated recyclable waste.

35. **Scrap tires.** a tire that is no longer suitable for its original, intended purpose because of wear, damage, or defect.

36. **Septage.** solid waste that is a fluid mixture of untreated and partially treated sewage solids, liquids, and sludge of human or domestic origin which is removed from a septic tank system.

37. **Sharps.** needles, syringes, scalpel blades, and other sharp objects generated in the same manner and subject to the same limitations as medical waste.

38. **Sludge.** any solid, semisolid, or liquid waste generated from a municipal, commercial, institutional or industrial wastewater treatment plant, water supply treatment plant, or air pollution control facility, or any other waste having similar characteristics and effects.

39. **Solid waste.** construction and demolition waste; regulated recyclable material; hazardous or nonhazardous garbage; refuse or sludge from a waste treatment plant, water supply treatment plant, or air pollution control facility; domestic sewage and sludges generated by the treatment thereof in sanitary sewage collection, treatment, and disposal systems; and any other material that is either discarded or is being accumulated, stored, or treated prior to being discarded, or has served its original intended use and is generally discarded, including solid, liquid, semisolid or contained gaseous material resulting from industrial, institutional, commercial, and agricultural operations, and from community activities. The term does not include:

   a. Fecal waste from fowls and animals other than humans.

   b. Solid or dissolved material in:
      1) Domestic sewage and sludges generated by treatment thereof in sanitary sewage collection, treatment and disposal systems which are designed to discharge effluents to the surface waters.
      2) Irrigation return flows.
3) Wastewater discharges and the sludges incidental to and generated by treatment which are point sources subject to permits granted under Section 402 of the Water Pollution Control Act, as amended (P.L. 92-500), and permits granted under N.C.G.S. § 143-215.1 by the Environmental Management Commission. However, any sludges that meet the criteria for hazardous waste under RCRA shall also be considered a solid waste for the purposes of this Article.

c. Oils and other liquid hydrocarbons controlled under Article 21A of Chapter 143 of the General Statutes. However, any oils or other liquid hydrocarbons that meet the criteria for hazardous waste under RCRA shall also be a solid waste for the purposes of this Article.

d. Any source, special nuclear or byproduct material as defined by the Atomic Energy Act of 1954, as amended (42 U.S.C. § 2011).

e. Mining refuse covered by the North Carolina Mining act, N.C.G.S. § 74-46 through 74-68 and regulated by the North Carolina Mining Commission (as defined under N.C.G.S. § 143B-290). However, any specific mining waste that meets the criteria for hazardous waste under RCRA shall also be a solid waste for the purposes of this Article.

f. Recovered material.

g. Yard waste.

40. Solid Waste Advisory Board. The policy advisory board of the Board, the County Manager and the Solid Waste Management Department as described and with membership as provided in the Agreement for Solid Waste Management among Orange County and the Towns of Carrboro, Chapel Hill and Hillsborough.

41. Solid waste facility. any publicly owned solid waste management facility permitted by the State of North Carolina that receives solid waste for processing, treatment, or disposal.

42. Solid waste disposal site. any place at which solid waste is legally disposed of by any method.

43. Solid waste management. The purposeful, systematic control of the generation, storage, collection, transport, separation, treatment, processing, recycling, recovery and disposal of solid waste.

44. Special waste. solid waste that can require special handling and management, including white goods, whole tires, used oil, lead-acid batteries, and medical wastes.

45. Storage. The containment of solid waste, either on a temporary basis or for a period of years, in a manner which does not constitute disposal.

46. Structure. any construction, production, or piece of work artificially built up or composed of parts purposefully joined together.

47. Treatment. any method, technique, or process, including neutralization, designed to change the physical, chemical, or biological character or composition of any hazardous waste so as to neutralize such waste or so as to render such waste nonhazardous, safer for transport, amenable for recovery, amenable for storage or reduced in volume. “Treatment” includes any activity or processing designed to change the physical form or chemical composition of hazardous waste so as to render it nonhazardous.

48. Vehicle. any means by which someone or something is carried or transported.

49. White goods. The term “white goods” includes refrigerators, ranges, water heaters, freezers, unit air conditioners, washing machines, dishwashers, clothes dryers, and other similar domestic and commercial large appliances.

50. Yard waste. The term “yard wastes” means those organic materials commonly consisting of leaves, grass, weeds, hedge clippings, yard and garden waste, Christmas trees, pine straw, branches, small logs, twigs, and all vegetative matter resulting from residential landscaping activities.

SECTION IX. EFFECTIVE DATE.

The effective date of this ordinance is July 1, 2002.
Appendix

8b-8f

pending
Memorandum

To: All Interested Parties  
From: David Sparrow and Dave Ghirardelli,  
Orange County Solid Waste Management  
Subject: Regulated Recyclable Material Ordinance  
Date: June 1, 2002

This Report describes the Regulated Recyclable Material Ordinance, adopted on December 11, 2001. The original effective date was to be July 1, 2002, however we are recommending that be moved to October 1.

Background

The current Construction and Demolition (C&D) Landfill on Eubanks Rd is estimated to be full by December 2002.

On August 15, 2000 a C&D Recycling Task Force, created by the Board of County Commissioners, issued its final report. Among the Task Force recommendations was “Mandate recycling or reuse of C&D waste in Orange County through the use of an ordinance”. County staff have developed this ordinance with periodic comment from the Board, feedback from potentially effected parties such as builders and haulers, and input from municipalities and other County departments.

Additionally we have closely examined the experience of several cities and counties that have attempted, with varying degrees of success, C&D recycling ordinances. Plans for the recycling facility and staff and equipment needs have been thoroughly investigated and are addressed in the Master Facilities Plan approved by the Board on October 1, 2001. Also included in that plan is the development of a new, small C&D landfill.

Brief Summary of the Ordinance

1. The Ordinance creates a list of “Regulated Recyclable Materials” that must be kept separate and recycled. These are:

   • Unpainted, Untreated Wood Waste  
   • Pallets  
   • Scrap Metal  
   • Clean Corrugated Cardboard  

2. Recyclable Material Permits, estimating the types of waste anticipated from a project and explaining how the waste is to be disposed of, are required before development (Building and Zoning Compliance) permits are issued.

3. Haulers operating in Orange County are subject to licensing, renewable annually.

4. Demolition projects may be delayed up to 60 days in order to conduct assessments of the recyclability of the materials in the structure.
Potential Impact

While the proposed list of materials is mostly C&D waste materials (due to current pressing C&D disposal issues), this is not specifically a “C&D Ordinance” Actions mandating recycling of other materials can be taken by simply amending this ordinance. This will minimize the growth of a clumsy array of Solid Waste regulations if future Boards decide to pursue additional recycling mandates. Regulated Recyclables represent approximately 29% of the C&D waste stream in Orange County, or about 8,990 tons annually. Table 1 shows the potential recycling impact.

<table>
<thead>
<tr>
<th>Material</th>
<th>Percentage of C&amp;D</th>
<th>Tons per Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unpainted, Untreated Lumber</td>
<td>14</td>
<td>4,340</td>
</tr>
<tr>
<td>Pallets</td>
<td>3</td>
<td>930</td>
</tr>
<tr>
<td>Engineered Wood</td>
<td>8</td>
<td>2,480</td>
</tr>
<tr>
<td><strong>Clean Wood Subtotal</strong></td>
<td><strong>25</strong></td>
<td><strong>7,750</strong></td>
</tr>
<tr>
<td>Metal</td>
<td>4</td>
<td>1,240</td>
</tr>
<tr>
<td><strong>Total Recyclable Material</strong></td>
<td><strong>29</strong></td>
<td><strong>8,990</strong></td>
</tr>
</tbody>
</table>

In terms of volume (the real measure of how much landfill space can be saved) these materials account for possibly over 50% due to their bulky nature. This estimate is based on the wide variety of conversion rates available. How much space materials actually consume when compacted together is an unavoidably speculative measure.

Clean wood waste has been diverted and processed into colored mulch in a voluntary pilot project for several months.

Pallets have been recycled at the Landfill for reuse and remanufacture since 1998. They are now being processed with other wood wastes in the colored mulch pilot project.

Clean Metal has been recycled by landfill staff for almost 4 years now.

Corrugated Cardboard was banned from the landfill 6 years ago with successful results. The “Cardboard Ban” has simply been incorporated into this ordinance.

Other Materials may be added to this list in the future as markets are developed. Other materials may include landclearing and inert debris, carpeting, vinyl siding, or drywall.
Frequently Asked Questions

What about demolition waste?

Demolition waste includes a great deal of wood and metal, both recyclable materials. However, separation is much more difficult. Demolition waste must still be recycled if free of contaminants. But the waste would not be considered free of contaminants if it “is attached to other material . . . in a way that it is not reasonably possible to separate.” For example, sometimes it is not possible to separate studs or joists from tile, plaster, drywall, sheathing, or siding (possibly painted with lead-based paint). Much like the current cardboard ban, some “judgment call” at the landfill is unavoidable.

Another C&D Recycling Task Force recommendation was “Promote deconstruction.” The ordinance contains a provision that demolition projects for structures that have not been condemned may be delayed up to 60 days for the Department to perform assessments of “whether and to what extent the materials in the structure consist of regulated recyclable material” that should be separated and recycled.

Can mixed C&D recycling facilities be used?

Builders may choose to use mixed recycling facilities, bypassing the source separation requirement, but these facilities must be certified annually and held to at least the same recycling standard as we achieve. To do otherwise would simply shift waste out of the County. To get certification, facilities will have to either: 1) recycle at least all the materials regulated in Orange County, or 2) meet a 30% recycling rate, excluding inert debris from all calculations. As our program matures and achieves higher diversion rates, the standard can be raised.

What does licensing involve?

If you haul waste material using vehicles greater than 9000 lbs GVW, you will need to get a license annually and register each of their vehicles under it. Violations incurred in any registered vehicle subjects the company’s license to the suspension and revocation provisions described in the “enforcement” section on page 5 of this primer.

My business isn’t construction, but I still have wood, metal, etc. in my waste.

Metal, pallets, and corrugated cardboard from the commercial waste stream will be subject to the recycling requirement. This is the only way to avoid the untenable situation of having one landfill customer being allowed to dump these materials right next to another who is not. The Solid Waste Department staff will help you get a recycling program set up.

What’s this “Recyclable Material Permit” all about?

The Town in which you are building will need to adopt the ordinance for the permit to be required. You can apply for it at either the Zoning Compliance or Building Permit stage. It will require estimates of types of waste anticipated and how you intend to manage them. We will process your application as quickly as possible and are required to respond within 10 days. You will be able to pick up a permit application at Planning or Inspections Departments, but some Municipalities may require you to submit it to the Solid Waste Management Department.

Who will help me adapt to the new regulations and how?

Another Task Force recommendation was “Hire a second recycling educator to focus primarily on implementation of this ordinance and on environmentally sound, waste reducing building practices.” This
person will develop educational material, meet directly with contractors and subcontractors, issue permits, and implement and enforce the ordinance requirements.

How can I secure my dumpster from unauthorized use?

Unauthorized dumping of recyclable material into a waste container is specifically cited as a violation of the ordinance. While security of your dumpster remains your responsibility, signs stating civil and criminal penalties will be a much more effective deterrent than current “no dumping” signs.

**Enforcement**

**Landfill**

Loads containing wood, metal, pallets, corrugated cardboard, and clean unpainted drywall will be charged double the tip fee just as yard waste and cardboard are charged now. Tickets will be compiled and sent out with monthly bills for regular customers or the customer may choose to pay tickets individually.

**Permitting**

Individuals found to be conducting building activities without the appropriate Recyclable Material Permit will be issued a civil citation.

**Licensing**

Individuals found hauling C&D materials without the appropriate Recyclable Material Collector’s License will be issued a civil citation.

**Jobsite and Waste Destination**

As part of the C&D recycling education and ordinance enforcement effort, Solid Waste Department staff will regularly visit jobsites for which a Recyclable Material Permit has been issued. Municipal Inspections Departments visit jobsites several times during the course of the project and will be encouraged to inform the SW Enforcement staff when solid waste violations are noted. Individuals found to be illegally hauling Regulated Recyclable Material for out-of-county disposal will be issued a civil citation and the County will pursue appropriate legal action. Five violations of this type will cause the revocation of the Recyclable Material Collection License.

**Proposed Timeline**

<table>
<thead>
<tr>
<th>Date</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nov 7, 2001</td>
<td>Public Hearing</td>
</tr>
<tr>
<td>Dec 11, 2001</td>
<td>Adopt ordinance</td>
</tr>
<tr>
<td>Dec 11, 2001</td>
<td>Authorize new C&amp;D education and enforcement position</td>
</tr>
<tr>
<td>Jan - Aug, 2002</td>
<td>Take Ordinance to Municipalities</td>
</tr>
<tr>
<td>Jan - Aug, 2002</td>
<td>Finalize Administrative procedures</td>
</tr>
<tr>
<td>July - Aug, 2002</td>
<td>Begin issuing mock tickets</td>
</tr>
<tr>
<td>Sept, 2002</td>
<td>Initiate licensing</td>
</tr>
<tr>
<td>Sept, 2002</td>
<td>Begin certification of Commingled Recycling Facilities</td>
</tr>
<tr>
<td>Oct, 2002</td>
<td>End grace period</td>
</tr>
<tr>
<td>Oct, 2003</td>
<td>Review ordinance for costs, tonnage figures, and additional feedback from the regulated community</td>
</tr>
</tbody>
</table>
Sec. 8-55. Disposal of recyclable corrugated cardboard.

Disposal of recyclable corrugated cardboard is restricted and regulated per the following conditions:

(1) Disposal of recyclable corrugated cardboard from nonresidential sources is prohibited at the Orange Regional Landfill.

(2) Disposal of recyclable corrugated cardboard in mixed solid waste receptacles maintained throughout Orange County is prohibited. All bulk waste containers within Orange County shall be labeled with a permanent visible sign, prominently displayed, stating recyclable corrugated cardboard is prohibited from being dumped. These signs shall be in place by March 1, 1996.

(3) Any hauler of nonresidential waste to the landfill shall be subject to this prohibition. The disposal prohibition applies to all nonresidential loads of waste delivered by haulers to the landfill including mixed loads that contain both residential and nonresidential waste. All waste delivered to the landfill in small quantities by pick-up trucks, vans, small trailers and automobiles will also be subject to this prohibition.

(4) For the purpose of this prohibition, nonresidential waste includes, but is not limited to, waste generated by:

a. The commercial, institutional, industrial, construction and multifamily sectors;

b. Waste collected from bulk containers, including dumpsters, compactors, roll-off containers, and delivered to the landfill in bulk container collection vehicles; and

c. All other waste generated by the nonresidential sectors that is delivered to the landfill in any type conveyance.

(5) For the purposes this prohibition, recyclable corrugated cardboard refers to all corrugated cardboard that is deemed recyclable by current recycling industry standards. Any cardboard that is not recyclable due to contamination at the source (e.g. saturated with food) or due to its nature (e.g. waxed boxes) would be exempt from the penalty. Cardboard contaminated by action of the generator or hauler would not be exempt from the penalty fee.

(Ord. No. 95-11-13/O-4, § 1)
Sec. 8-44. Penalties and enforcement.

(a) Any violation of sections 8-23, 8-24, 8-24.1, 8-25, 8-26, 8-33, 8-35 or 8-38 shall constitute as civil violation and be subject to a civil penalty in the amount of twenty-five dollars ($25.00). Each day that a violation continues uncorrected shall constitute a separate violation. In addition, the town may refuse to empty any receptacle containing loose household refuse or garbage in violation of section 8-23.

(b) Any violation of sections 8-29, 8-30, 8-32 or 8-34 shall constitute a misdemeanor as provided by G.S. Section 14-4 and shall subject the violator to a fine of five hundred dollars ($500.00) or imprisonment for not more than thirty (30) days. Violations of sections 8-29, 8-30 or 8-34 may also be enforced by the assessment of a civil penalty as provided by law. Each day that a violation continues uncorrected shall constitute a separate violation.

(c) The town may refuse to collect any private dumpster or compactor which it determines upon inspection contains corrugated cardboard or any other material prohibited by this article from being disposed of at the Orange Regional Landfill. If the town refuses service, a twenty-five dollar ($25.00) civil penalty will be assessed against the owner of the container. The town will advise the owner of the container of the violation and allow the owner three (3) days to correct the violation. If upon reinspection the container is found to still contain corrugated cardboard or other materials prohibited by this article, an additional civil penalty of fifty dollars ($50.00) shall be assessed. Each day the violation continues thereafter shall constitute a separate offense and subject the owner to an additional fifty dollars ($50.00) per day civil penalty. Service of the container may be refused by the town until the violation is corrected.

(d) Any violation of the requirements of section 8-31 for the owner to properly secure and label a dumpster, bulk container or compactor shall subject the owner thereof to a civil penalty of twenty-five dollars ($25.00). If the violation is not corrected within three (3) days, an additional civil penalty shall be assessed in the amount of fifty dollars ($50.00). Each day the violation continues thereafter shall constitute a separate offense and subject the owner to an additional fifty dollars ($50.00) per day civil penalty. If the container is one which is being collected by the town, the town shall refuse service until the violation(s) is/are corrected.

(e) Upon a determination that any party is placing corrugated cardboard or any other material, the disposal of which is prohibited by the Town Code, in a town-owned compactor or dumpster, the town may suspend that person's right to use the town container for disposal of solid waste. Upon suspension of such service, said person shall immediately return to the town any key(s) provided by the town for access to said container. Violation of this section shall constitute a civil penalty in the amount of fifty dollars ($50.00).

(f) The public works director and his/ her designees are authorized to determine the existence of the violations and to assess the civil penalties established by this article by issuing a citation to the person determined to be in violation or by sending a letter to the property owner responsible for the violation. Any such notice or citation shall state the nature of the violation and the procedures available for review of the penalty imposed.

(g) Any violation and penalty assessed under this article may be appealed to the town manager provided such appeal is filed with the town manager's office within fifteen (15) days after notice of said civil penalty. If an appeal is timely filed, the manager or his designee shall conduct an administrative hearing; shall consider any information the party assessed the penalty presents; and shall render a decision on the appeal within ten (10) days of the conclusion of the hearing. If no appeal is filed the determination of the public works department shall be final.
(h) Any penalty not paid within thirty (30) days assessment or the conclusion of any appeals taken under the provisions of this section may be recovered by the town in a civil action in the nature of the debt. In addition to the penalties and remedies provided by this section, the town manager may institute any appropriate action or proceedings to prevent, restrain, correct, or abate a violation of this article.  
(Ord. No. 92-4-13/0-4, § 6; Ord. No. 96-3-25/0-2, § 8; Ord. No. 97-11-24/0-3, 1 ll-24-97)
Appendix 9c

Section 11-18  Storage and Collection Practices; Premises Served by Dumpsters (Amend. 10/14/80)

(a) All dumpsters serviced by the town shall contain a sign permanently visible to those using the dumpster, stating that no recyclable corrugated cardboard or aluminum cans may be placed in the dumpster. Such signs shall be placed on all such dumpsters by no later than March 1, 1996. (Amend. 11/21/95)

(b) With respect to premises served by dumpsters:

(1) The location of dumpsters shall be determined by the public works director and, whenever possible, this determination shall be made after consultation with the owner of the premises concerned. In making this determination, the public works director shall consider the welfare of the occupants of the premises, neighbors and passersby, and the town's need to facilitate collection and minimize the cost of service.

(2) Solid wastes shall be collected from the dumpsters by the town where the dumpsters are located by the public works director.

(3) The public works director may require that screening be provided around dumpsters if he determines that such screening is necessary to prevent solid wastes from being scattered about the site or transported onto neighboring properties or if the location of the dumpsters is such that, in the absence of screening the dumpsters would present an offensive appearance or cause offensive odors to be transmitted to occupants of the site, neighboring properties or passersby by: (Amend. 9/22/82)

   a. Being severely rusted;
   b. Having functioning parts either missing or not in workable condition;
   c. Being in disrepair to the extent that solid waste contents are spilled out when a dumpster is serviced by the collection vehicle;
   d. Having solid wastes routinely around the dumpster for whatever reason;
   e. Having the doors routinely left open;
   f. Having a poster or posters attached to it;
   g. Having a message painted on the dumpster in an unorganized form; for example, "No parking in front of dumpster" should be placed with a stencil;
   h. Having the paint severely chipped, faded, or otherwise worn off; or
   i. Being located within 45 feet of an existing residential structure on adjoining property.

(4) All solid wastes shall be stored in dumpsters pending collection by the town. No solid wastes not placed in dumpsters will be collected by the town, except in accordance with Section 11-20.

(5) All dumpsters shall be cleaned periodically to minimize offensive odors, and the tops or openings to all dumpsters shall be kept securely fastened at all times pending collection.
Appendix 9c

(6) No person may place within any dumpster any solid waste without the permission of the owner or occupant of the premises on which the dumpster is located. (Amend. 12/15/92)

(7) No person may place within any dumpster any solid waste that may not be placed for collection within mobile containers, as specified in Section 11-19. (Amend. 12/15/92)

(8) No person may place within any dumpster serviced by the town any recyclable corrugated cardboard. For purposes of this subsection, corrugated cardboard means cardboard that has three layers, including any inner wavy layer, and is the type generally used for most boxes, and recyclable corrugated cardboard means cardboard that is not waxed and is not contaminated with other materials (e.g., pizza boxes with food and oil). (Amend. 11/21/95)
Appendix 9c

Section 11-19  Storage and Collection Practices: Premises Not Served by Dumpsters
(Amend. 10/14/80, 12/15/92)

(a) The provisions of this section shall apply to premises not served by dumpsters.

(b) Except as otherwise provided in this section, all solid wastes may be stored, pending collection by the town, only in the mobile containers described in subsection 11-17(d), and the top of such containers shall at all times be kept securely fastened. Such mobile containers shall be kept between scheduled pickups either within a completely enclosed substantial structure such as a house, garage, or shed, or:

(1) If a lot has frontage on only one street, then such mobile containers shall be located behind the building line of the side of the principal building on that lot that faces the street;

(2) If a lot is a corner lot, then such mobile containers shall be located behind the building line of the side of the principal building on that lot that faces the street;

(3) If a lot has frontage on two streets that are more or less parallel, then such mobile containers shall be located behind the building line of the front of the principal building on that lot but (if possible) not closer than forty-five feet to the center line of the street that runs along the rear of such lot. If mobile containers stored behind the front building line must be located within forty-five feet of the center line of the street that runs along the rear of such lot, then such mobile containers shall be located along the side of the principal building.

(c) Mobile containers shall be placed adjacent to the street (on the street side of any drainage ditch or swale) for collection on the scheduled collection day or after dark on the preceding day. After collection, all solid waste receptacles and all uncollected solid wastes shall be removed to a storage location that complies with subsection (b) of this section by 6:00 a.m. on the day following the collection day.

(d) If the public works director determines that, because of the physical infirmity of the occupant of any premises, the occupant cannot without severe hardship transport the solid wastes from the storage location required by subsection (b) of this section to the collection point required by subsection (c) of this section, he may do one of the following:

(1) Authorize the occupant to store solid wastes at or near the pickup location between scheduled pickups; or

(2) Provide rear yard pickup service.

(e) Containers other than those described in Section 11-17(d) will be treated as solid wastes and collected by the town. However, except as otherwise provided in this article, the town reserves the right to refuse to collect solid wastes not placed in the approved containers.

(f) No person may cause, suffer, or permit any garbage can or solid waste receptacles other than described in Subsection 11-17(d) to be stored in any location that does not comply with the provisions of subsection (b) of this section dealing with the storage location of mobile containers.

(g) Yard wastes may not be placed in the mobile containers for collection by the town.

(1) As provided in subsection 11-2(b), yard wastes may be retained on the premises where they are generated.
(2) Except as provided in subdivision (3) of this subsection and subsection (h) of this section, yard wastes stored in a manner convenient for collection shall be collected by the town as part of the town's regularly scheduled extra trash service described in subsection (e) of this section.

(3) Yard wastes (other than leaves) that cannot be collected within an estimated period of ten minutes or less (as determined by town crews), as well as heavy or bulky items (e.g., tree trunks) or tree trimmings or hedge cuttings more than thirty-six inches in length or four inches in diameter will be collected by the town only in accordance with Section 11-20.

(h) Leaves may not be placed in the mobile containers for collection by the town. The town provides for the collection of leaves in accordance with the following:

(1) Between the first Monday of November and the Friday closest to February 28, loose leaves and bagged leaves placed adjacent to the street (on the street side of any drainage ditch or swale) so that they may be easily handled by the collector, shall be collected according to a schedule designated by the public works director. During this period, bagged leaves will not be collected as part of the extra trash collection.

(2) Between the first Monday following February 28 and the Friday prior to the first Monday of November bagged leaves placed adjacent to the street (on the street side of any drainage ditch or swale) so that they may be easily handled by the collector, shall be collected according to the same schedule as designated by the public works director for the collection of extra trash.

(i) Extra trash will be collected by the town according to a schedule designated by the public works director in accordance with Subsection 11-23(a), if placed adjacent to the street (on the street side of any drainage ditch or swale) so that it may be easily handled by the collector. Extra trash (other than yard waste) may be stored pending collection only in a location where a mobile container could be stored under subsection (6) of this section.

(j) In addition to the items specified in subsections (g), (h) and (k), the following items may not be placed within the mobile containers described in Subsection 11-17(d):

(1) Any liquid waste not enclosed with a tight container;

(2) Ashes or hot coals;

(3) White goods; (Amend. 12/13/94)

(4) Aluminum cans; (Amend. 12/13/94)

(5) Animal carcasses. (Amend. 12/13/94)

(6) Recyclable corrugated cardboard (as defined in Section 11-18(8)) from any commercial, industrial, construction, multi-family, or institutional source. (Amend. 11/21/95)

(k) The following wastes may not be placed within the mobile containers or other waste receptacles and will not otherwise be collected by the town:
(1) Building materials, including but not limited to such items as lumber, shingles, bricks, sheetrock, insulation, etc. Such materials may be taken by the individual in possession of them directly to the Orange Regional Landfill.

(2) Paint, gasoline, antifreeze, flammable liquids, solvents, or other liquids containing hazardous chemicals.

(3) Motor oil. Motor oil (two gallon limit) will be accepted at the Orange County Landfill for recycling.

(4) Wet cell batteries. Wet cell batteries (e.g., car batteries) will be accepted at the Orange County Landfill for recycling.
Attachment 1
A RESOLUTION INCREASING THE LANDFILL PENALTY FEES FOR INCLUSION OF OVER 50% RECYCLABLE CORRUGATED CARDBOARD BY TO DISCOURAGE LANDFILLING OF RECYCLABLE CORRUGATED CARDBOARD. VOLUME IN COMMERCIAL NON-RESIDENTIAL WASTE LOADS, IN ORDER TO DISCOURAGE LANDFILLING OF RECYCLABLE CORRUGATED CARDBOARD.

Whereas, the staff of Orange Regional Landfill has observed commercial non-residential waste loads consisting of primarily recyclable corrugated cardboard being dumped at the landfill, and

Whereas, the municipal solid waste landfill is estimated to be full in about eight years, and

Whereas, the construction and demolition waste landfill is estimated to be full in about one year, and

Whereas, under current penalty fee structure, since cardboard is bulky but light-weight, it costs very little to pay a penalty for a commercial non-residential load consisting of primarily recyclable corrugated cardboard, because the material is bulky but light-weight, and

Whereas, it appears that such commercial non-residential loads of primarily recyclable corrugated cardboard are dumped at the landfill because it is less expensive to pay the current double tipping fee or load penalty on light loads rather than acquire cardboard recycling services, and

Whereas, the double tipping fee or load penalty was instituted to discourage the landfilling of readily recyclable commercially non-residentially generated corrugated cardboard but however the penalty fee does not effectively inhibit loads of primarily recyclable corrugated cardboard.

NOW THEREFORE BE IT RESOLVED THAT the Council of the Town of Chapel Hill authorizes the Town Manager, to change the penalty fees as follows in order to encourage compliance with the ban on landfilling of non-residential recyclable corrugated cardboard:

If the commercial load in a single-axle dump or flatbed truck or other open vehicle, including pickup trucks, is determined by the landfill staff to be over 50% recyclable corrugated cardboard, then the penalty is $200 plus double the tipping fees. If a non-residential load, dumped from a pick-up truck, van or trailer, (10 foot maximum), is determined by the landfill staff to be more than 50% recyclable corrugated cardboard, then the hauler must pay an additional penalty of $200 over the $10 tipping fee and above the current $25 penalty. If the commercial load is delivered in a tandem, tri-axle, packer truck, compactor or roll-off box is determined by landfill staff to be more than 50% recyclable corrugated cardboard, then the penalty is $400 plus double the tipping fee. If a non-residential load, dumped from a single-axle, tandem, tri-axle, dump-truck, flatbed truck, other open vehicle, packer truck, compactor, or roll-off box, is determined by the landfill staff to be more than 50% recyclable corrugated cardboard, then the hauler must pay an additional penalty of $400 over the $38/ton tipping fee and above the current $38/ton penalty.

For the purpose of this prohibition, non-residential waste includes, but is not limited to, waste generated by: the commercial, institutional, industrial, construction, and multi-family sectors; waste collected from bulk containers, including dumpsters, compactors, roll-off containers, and dumped at the landfill from bulk container collection vehicles, and; all other waste generated by the non-residential sectors that is delivered to the landfill in any type of conveyance.

BE IT FURTHER RESOLVED THAT the Town Manager shall notify haulers that sixty days from the date of passage of this resolution, March 1, 1999, the above changes in the penalty fees for inclusion of commercially non-residentially generated recyclable corrugated cardboard with waste loads will take place.
This, the 11th of January, 1999.
Excesscombo2-mmoSL
WAKE COUNTY CONSTRUCTION AND DEMOLITION DEBRIS SURCHARGE ORDINANCE

WHEREAS, the County of Wake has heretofore adopted ordinances governing the storage, collection, transportation, and disposal of solid waste within Wake County, and

WHEREAS, the County of Wake owns and operates solid waste management facilities as public enterprises to protect the public and environmental health in Wake County, and

WHEREAS, the County has heretofore implemented use or disposal fees to defray the cost of operating said facilities, and

WHEREAS, it has become necessary, as permitting of municipal solid waste landfills becomes increasingly difficult and the disposal of solid waste becomes increasingly more expensive, to take steps to reduce the flow and volume of certain solid waste to county facilities, and

WHEREAS, recent studies have shown that construction and demolition debris constitutes an estimated twenty two percent (22%) of the solid waste going into the municipal solid waste landfills in Wake County and that most of the construction and demolition debris comes from Commercial, Industrial, Institutional and Governmental establishments located within Wake County, and

WHEREAS, the Wake County Solid Waste Management Division Staff recommends that construction and demolition debris no longer be accepted at municipal solid waste facilities without a surcharge if it constitutes ten percent (10%) or more of a load, and

WHEREAS, the Board of Commissioners finds that it would be in the best interest of all citizens and would promote the public health, the environmental health and the general welfare of all citizens to maximize the capacity of County municipal solid waste facilities, and

WHEREAS, this Board should make it the policy of the County that construction and demolition debris be separated at the source from other municipal solid waste;

Now therefore be it ordained by the Board of Commissioners of the County of Wake as follows:

1. That construction and demolition debris is a solid waste for which a surcharge will be imposed for the disposition at Wake County facilities.

2. Public or private haulers servicing Commercial, Industrial, Institutional and Governmental establishments and disposing of solid waste loads at County facilities which constitutes ten percent (10%) construction and demolition debris by weight or volume shall pay one of the following:

   a. Double the tipping fee at the Transfer Facility.

   b. The construction and demolition debris tipping fee at the municipal solid waste landfill, until such time as a Construction and Demolition landfill becomes operational.

   c. Double the tipping fee at the Municipal Solid Waste landfill contingent upon the North Wake Construction and Demolition Landfill being operational.

3. The County Manager is authorized by the Board to promulgate administrative procedures to carry out this program.
Betty Lou Ward  
Chair  
Wake Co. Board of Commissioners

Gwen I. Reynolds  
Clerk  
Wake Co. Board of Commissioners

Approved as to form:

Michael Ferrell, County Attorney