

NORTH CAROLINA

State Agency Purchases of Recycled Products and Reduction of Solid Waste Disposal

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Twelfth Annual Report

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Gary Hunt, Director
Scott Mouw, Chief, Community and Business Assistance Section
Rachel Eckert, Recycling and Environmental Purchasing Coordinator

DPPEA would like to thank the agencies that diligently submit their reports to our office each year. Your hard work and dedication is very appreciated.



North Carolina Department of Environment and Natural Resources
Division of Pollution Prevention and Environmental Assistance
1639 Mail Service Center
Raleigh, North Carolina 27699-1639

Phone: (919) 715-6500 or (800) 763-0163
Fax: (919) 715-6794
E-mail: Rachel.Eckert@ncmail.net
Web site: www.p2pays.org

The Division of Pollution Prevention and Environmental Assistance provides free, non-regulatory technical assistance and training on methods to eliminate, reduce or recycle wastes before they become pollutants or require disposal. Contact DPPEA for more information about this document or waste reduction.

0 copies of this public document were printed in an effort to conserve resources. The report can be viewed online at <http://www.p2pays.org/epp/stagencies.asp>. Hard copies are available upon request.

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Introduction

State agencies are directed to use products containing recycled materials by state law - N.C. General Statute 143-58.2(a), - and by Executive Order. Executive Order 156 was signed in 1999 in support of N.C. Project Green, the state environmental sustainability initiative, and was an updating and strengthening of the original initiative of Executive Order 8, signed in 1993.¹ Purchasing recycled and other environmentally preferable products improves recycling markets, helps reduce environmental impacts from waste, and saves energy and natural resources. Many state agencies and local school districts help achieve these goals through thoughtful purchasing decisions and the use of recycled content products.

North Carolina state government has continued to make progress toward environmental sustainability by offering recycled and environmentally preferable products at affordable prices on state contract. Currently, there are about 20 categories of products on term contract that offer products with recycled content materials, and several more products available exhibit some sort of environmentally preferable attribute, including recycled content packaging or energy efficiency. State agencies and others who can buy from state term contract, such as local governments, have a wide degree of choice in the purchase of high quality, cost-effective recycled products on term contract. The list of products can be seen at: www.doa.state.nc.us/PandC/recycled.htm.

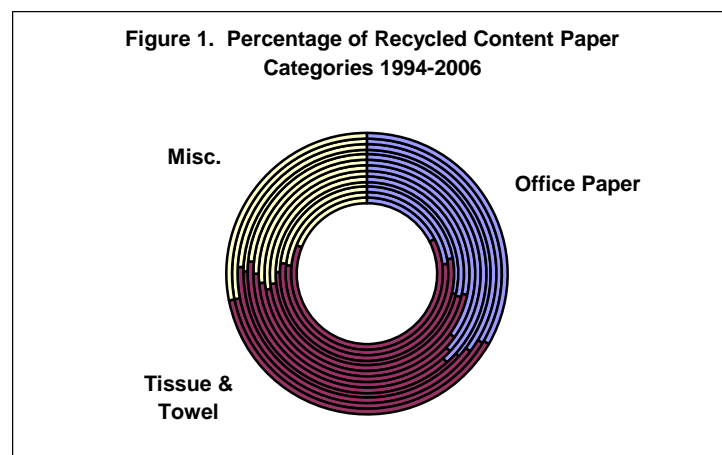
This document summarizes the efforts of state agencies to purchase recycled products. It fulfills the reporting mandate of N.C. General Statute 143-58.2(f) for fiscal year 2006. It compiles purchasing reports required from 27 state government department and offices, 12 constituent institutions of the University of North Carolina, 53 community colleges and 82 local public school administrative units. In fiscal year 2005-2006, reports were received from 79 percent of agencies (174 out of 221). The majority of nonreporting agencies are local school entities. Almost half of the agencies that did not report did not comply with reporting requirements last year either. All reporting was conducted online, saving paper and postage.

The N.C. Division of Pollution Prevention and Environmental Assistance is the agency charged with compiling data from agency reports and publishing this summary. Copies of this and past reports may be obtained on-line at www.p2pays.org/epp or by calling (919) 715-6505 or (800) 763-0136.

Purchases of Recycled Products

Paper and Paper Products. This is the fifth year in which agencies failed to meet the goal set forth by Executive Order 156: "State agencies shall attempt to meet the goal that, as of Fiscal Year 2000-01, 100 percent of the total dollar value of expenditures for paper and paper products be toward purchases of paper and paper products with recycled content".² Just about half the expenditures for paper were spent on office paper, achieving a 69 percent success in recycled content office paper purchases.

Twenty-one agencies succeeded in reaching the 100 percent goal this fiscal year for all paper purchases, including office paper, tissue and towel paper, and miscellaneous papers such as legal pads, file folders, labels, and continuous feed forms. This number has been relatively consistent over the past 10 years. More than a third of the agencies achieved a stellar 90 percent or higher in recycled content



¹ Full text of No. 156 is available online at www.p2pays.org/epp/reports.asp.

purchases for their paper needs. Less than a quarter of reporting agencies purchased all their office paper with recycled content, but more than half bought all recycled content towel and tissue products. **Figure 1** demonstrates fluctuations in the three paper categories reported on since 1994, which is the innermost circle. Recycled content towel and tissue paper purchases have been declining the last two years, with 80 percent containing recycled content.

Since 2003, the percentage of recycled content paper purchases has decreased by 9 percent, a decline attributable to the reinstatement of the virgin paper available on state contract at a lower price. Recycled content paper costs just over two dollars more per box than virgin paper, or 20 cents per ream. Seeking more vendors of recycled content paper and implementing waste reduction techniques, such as double-sided printing and reusing one-sided pages, could help neutralize this cost, which is a notable obstacle in reaching state-wide goals.

More positively, a significant impact is realized from the state's purchases of recycled content paper. For comparison, assume that the roughly \$15 million spent on recycled content office paper and the nearly \$7 million on virgin office paper included exclusively 8 1/2X11 white copy paper, all purchased from the state contract. The recycled office paper purchased conserved almost 89 million trees, saved enough BTUs to provide more than 600,000 households with energy for a year, and reduced the CO2 equivalent of removing 708,313 cars off the road for a year. Over 32 billion gallons of wastewater were also conserved, which is the equivalent of nearly 50,000 swimming pools. The solid waste avoidance could fill 148,496 garbage trucks, amounting to 4 billion pounds. If we converted the \$7 million in virgin paper to 30 percent post consumer recycled paper, we could save another 37 million trees, 26 million more BTUs, and 63,332 more truckloads of garbage. These comparisons help put the impacts of the state's purchasing decisions in more tangible terms, and validate the motives behind our recycled content purchasing efforts³.

Another element of recycled paper usage for state agencies includes contracted print jobs. Reported spending on outside print orders was \$13.4 million, in-line with last year's data. Agencies achieved an impressive 10 percent increase of recycled content paper purchases in this category.

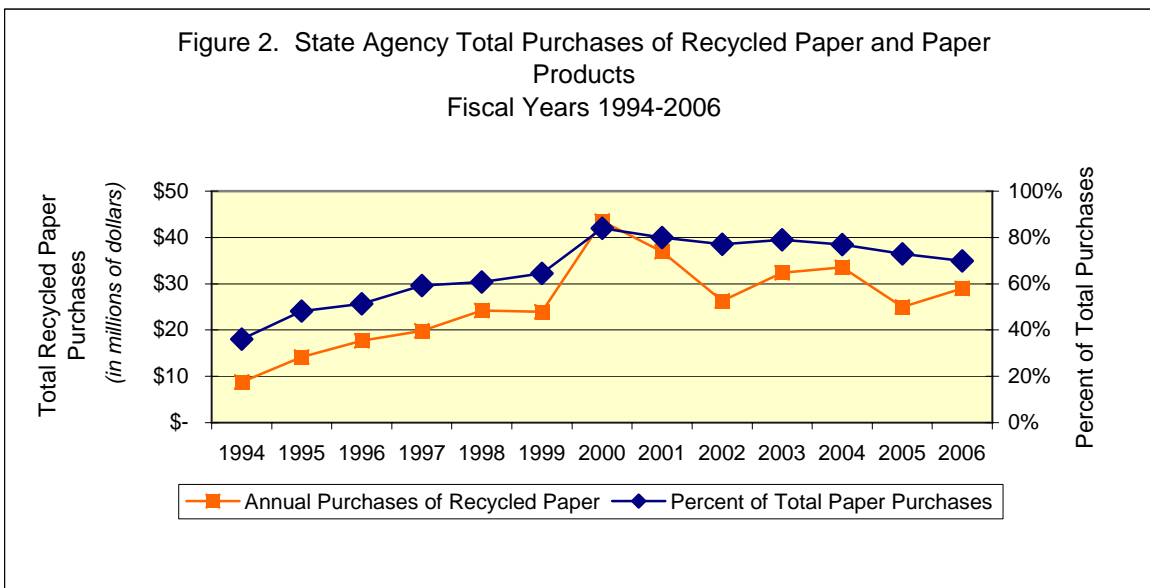


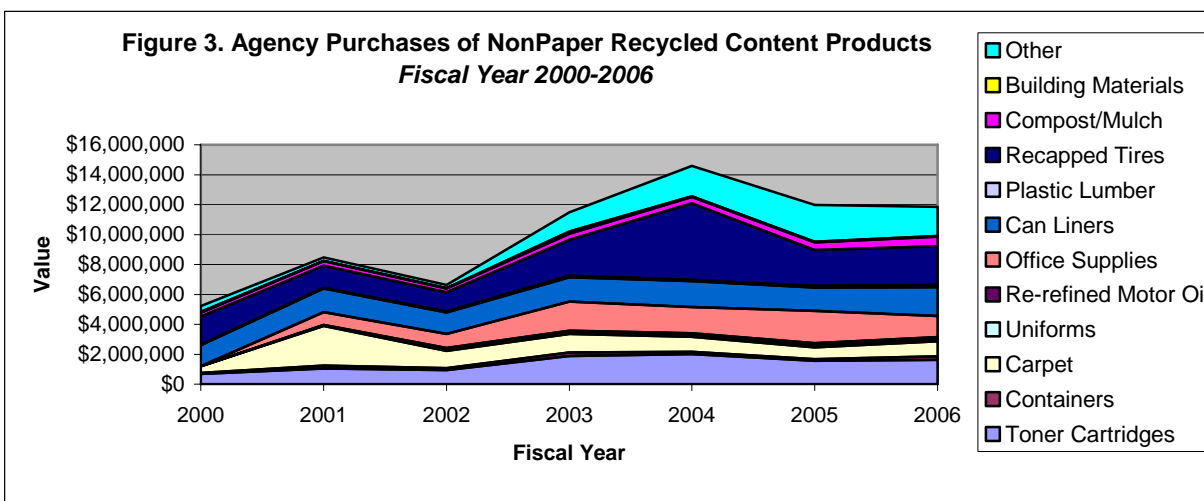
Figure 2 illustrates the trend in overall dollar amounts and percentages of recycled paper purchases over the past 13 fiscal years, including this year's increase in recycled content paper expenditures. Recycled

³ These numbers are based on the assumptions outlined in the report. The weight of the office paper was estimated using a calculator at www.replanttrees.org, and the environmental impacts were estimated from the Environmental Defense's paper calculator at www.environmentaldefense.org/papercalculator.

content paper purchases totaled nearly \$29 million, which represents 70 percent of all paper purchases, a slight decrease from last year. The data indicates a need to enhance efforts to achieve the 100 percent goal across all agencies. The accomplishment of the goal would be helped by a renewed emphasis and commitment from top management in directing agencies to meet the statutory and executive goals. A targeted campaign of outreach to agencies that purchased a high level of virgin paper is also warranted.

Policy and Administrative Support. While agencies are not required to develop a policy by the General Statutes or Executive Order, it could be the first step to improving our state's effectiveness in recycled content product purchases. Agencies are specifically charged with the responsibility of purchasing recycled content products, as well as designating a lead coordinator. A mere 41 percent of the reporting agencies responded positively to having a buy recycled policy or goal in place, consistent with the last three years. Agencies are also reporting that fewer administrators are communicating the importance of purchasing recycled content products, and less than half report having a lead coordinator for buy recycled efforts. These are key components to a successful recycled content procurement program, along with administrator encouragement, and should be examined as a way to significantly increase participation.

Non-Paper Products. Agencies reported spending \$11.8 million on non-paper recycled products in fiscal year 2006, corresponding with last year's expenditures. Agencies seem to be aware of what the categories include due to outreach and education. In general, non-paper recycled product expenditures have begun to increase, and are expected to rise as purchasers become further educated about the products they buy, and as the array of recycled products become more available on term contracts and through vendors.



Total expenditures of the recycled non-paper products reflect similar numbers as last year and are illustrated below in **Figure 3**. The size of the colored categories represent the total dollars of purchases in that category and the height in that fiscal year represents total purchases of non-paper recycled products. Reports revealed minor fluctuations in most categories; exceptions included containers, which nearly doubled, office supplies, which were down about half, and compost and mulch, which increased by more than 30 percent. The "other" category decreased by 20 percent and includes furniture, animal bedding, outdoor equipment, and housekeeping supplies. Re-refined motor oil purchases increased by 35 percent this year, which could be a result of education on the availability of the product.

Other Environmental Purchasing Efforts. Some state agencies have excelled beyond buying recycled, and have begun to tackle more sustainable purchasing issues like environmentally preferable purchasing (EPP). EPP, or green purchasing, includes a host of attributes that can be considered to decrease the impact of our purchases on the environment.

Several universities have developed green building initiatives for new facilities or have begun greening energy and water elements in older buildings. Green buildings require architects and contracts to

consider many things from building placement, water and energy use and more environmentally friendly products. Other successes in state government this year include the initiation of dialogue between some of the DOA Purchase and Contract engineers and DPPEA to revise some product specifications. One huge success included updating the carpet specifications to include more recycled content, as well as language that requires the vendor to remove and recycle old carpet.

Conclusion

The purchase of recycled content products is a well-established practice in state government, supported by statutory and executive order requirements, as well as state term contracts that offer high quality, affordable recycled content choices for state purchasers. Still, progress must be made to bring agencies to full compliance with the 100 percent recycled content paper goal.

Several key agencies could, with a few significant purchasing decisions, substantially increase the overall performance of state government in recycled paper purchasing. Converting the current \$12.5 million in virgin paper purchases to recycled paper will allow North Carolina state government to contribute substantially to the strength of recycling markets. As a major player in the collection of paper for recycling, state government stands to benefit directly from improved markets. The use of recycled products will also help North Carolina achieve its environmental goals by reducing natural resource, energy and water usage, and preventing air and water pollution. In the case of a product like re-refined motor oil – which meets the exact specifications of virgin oil and is supported for use by engine manufacturers – agency purchases of the product is strongly recommended.

The following recommendations may help to increase recycled content purchasing in the future and help state government meet goals set forth both in Executive Order 156 and General Statutes.

Recommendations

I. Engage agencies regarding sustainability throughout the year. Continuing efforts to reach out and network with state agency purchasers will help establish green purchasing efforts as an every day activity. It will also strengthen the ability for DPPEA to collect and manage data related to state agency purchases. Reinvigorating NC Project Green, continuing onsite visits, and encouraging collegiate participation in the Collegiate Recycling Conference will revitalize this communication.

II. Increase administrative support and educational programs. Disparity among agencies in the degree of support and routine communication received from top management may be the most significant barrier to increased agency participation in recycling and recycled content product procurement. Administrative support is crucial also to the successful implementation of agency sustainability plans that incorporate waste reduction, recycling, and environmentally preferable procurement. For those agencies that have not yet prioritized waste reduction and buying recycled, it is recommended that they:

- Implement and adhere to the goals of Executive Order 156.
- Issue and enforce internal policies, official memoranda and formal declarations that demonstrate administrative leadership and support for Executive Order 156.
- Develop and implement ongoing outreach and education programs for employees and visitors, and take advantage of the assistance DPPEA can offer.

III. Increase procurement of non-paper recycled content products. Outright expenditures for non-paper recycled products continue to lag behind those of paper purchases. A vast variety of products are available with recycled content materials, which is apparent from the federal governments purchasing regulations under Executive Order 13101. Their *Comprehensive Procurement Guidelines* features more than 50 items in eight categories, including paper, non-paper office, construction, landscaping, park and recreational, transportation, vehicles and miscellaneous products (visit <http://www.epa.gov/cpg/> for more information). Purchasing a diverse array of recycled content products not only strengthens recycling and job markets in North Carolina, it also helps agencies fulfill their obligation to become more environmentally sustainable. To improve overall buy-recycled efforts, state agencies should:

- Expand the quantity and variety of non-paper recycled products purchased through agency convenience contracts and state term contracts.
 - Improve electronic tracking systems for all recycled product purchases.
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- Specify or encourage the use of recycled materials and supplies by contracted services, especially in construction, housekeeping and printing.

IV. Make purchasing decisions based on full environmental impact versus one-time cost. To determine the full environmental impact of a product or service, it is important to look at the full life cycle analysis of a product. By doing so, agencies can begin to make purchasing decisions that will reap short and long term benefits.

- Begin looking at products in terms of broad environmental impacts including: durability, energy efficiency, performance, recycled content and recyclability, toxicity, biodegradability, local manufacturers, and packaging.
- Open dialogue with P&C regarding products on STC and contractual services that take into account environmental impact.

Agencies that Purchased 100 Percent Recycled Paper in FY 06

| | |
|--------------------------------------|------------------------------------|
| Alamance Community College* | Pamlico County Schools |
| Appalachian State University | Randolph Community College |
| Asheboro City Schools | Roanoke Rapids City Schools |
| Davidson County Schools | Sampson County Schools |
| Fayetteville Tech Community College | Stokes County Schools |
| Guilford County Schools | UNC Charlotte |
| Hoke County Board of Education* | Wake Technical Community College |
| James Sprunt Community College | Wilkes County Schools |
| Kannapolis City Schools | Wilson Technical Community College |
| Madison County Schools | Winston-Salem State University |
| McDowell Technical Community College | |

*Did not report any office paper or miscellaneous paper purchases.

Agencies that Failed to Report Data for FY 06

| | |
|-------------------------------------|------------------------------------|
| Alexander County Schools | Graham County Schools |
| Alleghany County Board of Education | Hertford County Schools |
| Asheville City Schools | Hyde County Board of Education |
| Avery County Schools | Iredell-Statesville Schools |
| Bertie County Schools | Johnston County Schools |
| Bladen Community College | Kings Mountain District Schools |
| Brunswick County Schools | Lenoir County Public Schools |
| Cabarrus County Schools | Lieutenant Governor's Office |
| Caldwell County Schools | McDowell County Schools |
| Carteret Community College | Mitchell County Schools |
| Carteret County Schools | Mooresville Graded School District |
| Catawba County Schools | NC Central University |
| Cherokee County Schools | NC School of the Arts |
| Clay County Board of Education | Northampton County Schools |
| Clinton City Schools | Pasquotank County Schools |
| Coastal Carolina Community College | Pembroke State University* |
| Columbus County Schools | Pender County Schools |
| Dare County Schools | Roanoke-Chowan Community College |
| Edenton-Chowan Schools | Robeson County Public Schools |
| Edgecombe Community College | Shelby City Schools |
| Elizabeth City State University | Tyrrell County Schools |
| Fayetteville State University | UNC Hospitals |
| Franklin County Schools | Union County Public Schools |
| | Warren County Schools |

*Completed the 2005 State Agency Source Reduction, Recycling, and Composting Report

State Agency Source Reduction, Recycling, and Composting Efforts

This is the second consecutive year the Division of Pollution Prevention and Environmental Assistance collected the recycling report since FY 1999. Forty-four agencies reported data, consistent with last year, which constitutes 42 percent of the required reporting entities. Universities and community colleges are heavily represented, accounting for 40 reports.

Agency departments pose a difficult challenge in reporting because they often have several regional offices to gather data from, and many work in leased facilities and share buildings with non-state businesses. They make up 27 percent of the required reports, and include more than twice as many state employees than the Capital area. This year four agency departments reported. The Department of Commerce and the Department of Insurance answered questions regarding their internal recycling program. The Department of Transportation filed a complete report, and a complete summary of their solid waste and recycling program is included in this Solid Waste Management Annual Report.

The majority of agency offices located in the Raleigh area are included under one contract for recycling and solid waste collection, provided by the Department of Administration and managed by Facilities Management. Facilities Management gathers data from the collection companies and completes this report for agencies in the capital region.

Recycling Performance. In fiscal year 2006, state agencies collectively diverted 29,210 tons from disposal in landfills and incinerators. Respondents reported recycling 8,682 tons of paper, 2,315 tons of metals, 338 tons of glass, 349 tons of plastic, 6,180 tons of organics, and 11,219 tons of other materials, as demonstrated in Figure 1. Many universities and community colleges remarked that they now commingle their containers; glass and plastic categories may therefore represent estimated numbers or a lump sum of mixed containers.

This data is extremely variable, and drawing comparisons to the 1999 data is difficult because reporting behaviors have most likely changed.

Based on FY 2006 data, the agency recycling rate for all wastes managed during the year was about 27 percent. This is a 3 percent increase from the 2005 report, but still 8 percent less than the 1999-recycling rate. Three agencies reported recycling tonnages this year but did not include solid waste tonnages.

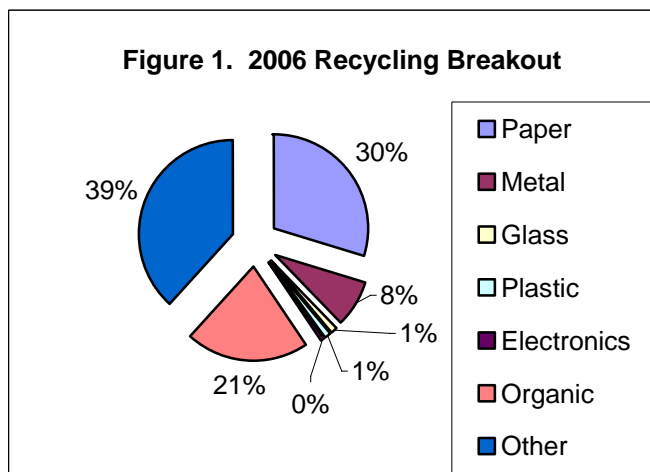


Figure 2. DOA Recycling Tonnages

| Material | Tons |
|---------------------|------|
| Paper | 1852 |
| Metal | 15 |
| Glass | 3 |
| Plastic | 10 |
| Total Tons Recycled | 1880 |

The Capital area recycling data reported by Facilities Management is included in this data. A breakout of the categories is exhibited in Figure 2, representing 6 percent of the total recycling tonnage. Given the data reported, the projected recycling rate of the Capital region would be 53 percent, a gross overestimate that results from a lack of comparative solid waste disposal data.

Data was collected for electronics recycling for the second year in a row. An encouraging one third of agencies have a contract set up with a computer recycling vendor, and in FY 2006 collected 126 tons of electronics.

This does not include data from DOA or the State Surplus

Office. Most agencies assert using the statewide electronics recycling contract (www.doa.state.nc.us/PandC/926a.htm) to complement recycling through state surplus. A handful of agencies reported other vendors they work with, all of which are listed in our online Recycling Markets

directory at www.p2pays.org/dmrm. A few claim to work in conjunction with their local government to dispose of electronics and one or two donated to local schools. Agencies and local governments are becoming keenly aware of the need to recycle electronic materials, bearing in mind their contribution of hazardous substances to landfills and the alternate opportunity of reclaiming valuable resources from electronic products.

Solid Waste and Program Costs. Approximately 80,078 tons of solid waste were landfilled or incinerated for state agencies in FY 2006, costing about \$9.8 million in collection and disposal fees at an average cost of just under \$123 per ton. This is just a fraction of the 134,599 tons reported in 1999 costing \$11.75 million, but it is a 44 percent increase from last year. While the overall cost of disposal increase by almost \$3 million dollars from last year, the cost per ton actually decreased by five dollars. This number is extremely fickle depending on how complete agency reports are. Two agencies reported solid waste tonnages but did not report the cost of disposal.

Calculating the total cost of solid waste and recycling programs is difficult, and the report falls short in acquiring sequential data for accurate calculations. Some agencies even responded to this point. In particular, calculating the total cost of solid waste and recycling collection, in conjunction with a successful recycling program, may require more supplemental calculations. In order to determine the true cost or cost avoided, both programs must be considered in the equation. The reliability of this data also depends on how in-depth the reporting agencies examine their program fees.

Agencies are asked to report the cost avoided through recycling, calculated by multiplying the recycling tonnage by the cost per ton of solid waste. While most appeared to do this from the data, 8 agencies reported tremendous differences in their cost avoided through recycling. Those discrepancies were either miscalculations or took into consideration other costs of the program that were not supplied in the report. The total cost avoided was over \$4 million.

While nearly half the agencies reported some revenues for the sale of recyclables amounting to just over \$300,000, the majority still experienced program costs totally nearly \$2.7 million. Program costs include collection, processing, and outreach and education. **The result is an average cost of \$91 per ton of recyclables, \$32 less than the cost for solid waste disposal**, which exemplifies the savings in recycling. Recycling programs should not have the expectation of zero cost, but can expect that there will be an overall savings by avoiding the higher disposal fees of solid waste. As with most new programs and efforts, there is sometimes a higher upfront cost for containers and initial education, and minimal costs to continue marketing the program.

Administrative Support and Source Reduction. The majority of agencies report that they receive top-down administrative support for recycling efforts, and well over half have a lead coordinator for waste reduction and recycling program. Forty-one percent have a waste reduction program, and a handful more have ongoing educational and promotional programs for waste reduction and recycling. Most agencies that routinely host the public at their facilities, such as state parks, highway rest areas, museums, and sports venues, provide recycling opportunities for visitors. Information is communicated and distributed via:

- ✓ Meetings with staff, dormitory resident assistants, and employee and student orientation
- ✓ Presentations and tabling special events such as: Move-In, Move-Out, Earth Day, America Recycles Day, Ozone Day
- ✓ Employee manual and materials distributed during student move-in and move-out
- ✓ Websites, emails, electronic bulletin boards, brochures, flyers, newspaper, newsletters
- ✓ Posters, signs, and recycling bins
- ✓ Environmental Clubs and SGA.

An outstanding 90 percent of state agencies practice waste reduction at the source, including reducing office paper by eliminating unnecessary reports and forms or converted to electronic format, making fewer copies, double sided printing, using email and voice mail to communicate, and posting announcements on bulletin boards or in break areas. Agencies estimate to have reduced 288.5 tons of paper by reducing their usage in fiscal year 2006. A quarter of agencies conducted solid waste assessments of the amount

and types of solid waste at its facilities. Some use this reporting process to reevaluate their program. Other agencies conduct site visits, collect landfill invoices, or audit on-site trash dumpsters. The results help in finding the best place to put recycling containers, deciphering which materials are most feasible to recycle, and identifying where waste reduction techniques would be most efficient.

Conclusion

While in many ways the revitalization of the recycling report has shown a great percentage of agencies continuing their waste reduction and recycling efforts that were established several years ago, there has not been significant overall improvement. Some agencies, including community colleges and a few universities, are struggling to recycle basic material like cardboard and aluminum cans. Sometimes this is a market issue. More often, it is a perceived barrier due to lack of education and funding, which stems from insufficient support internally.

This year's recycling tonnage represents a 70 percent increase from last year, but only a fraction of the 71,344 tons reported in 1999. This and other inconsistencies can be attributed to a few major challenges, making overall

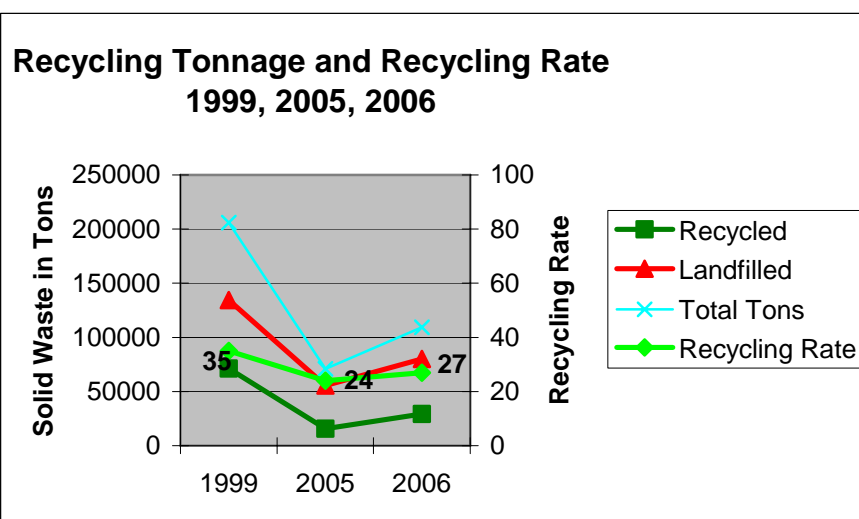
comparisons complicated. For instance, some agencies are reporting their data in tons while others in pounds. This year the data was reviewed more acutely. Next year, the integrity of the data will improve further with updates to the final report form. In addition, there has been a decrease in the number of departments reporting for regional offices in particular.

Furthermore, some agencies in downtown Raleigh supplement the State's collection contract with their own, and have not reported that data.

Much of the variability in performance difference can be attributed to the inability of agencies to accurately track tonnages. Solid waste and recycling weights are still estimated because collection companies have not integrated onboard truck scales. Exact weights can only be obtained if collection is completed in one region and the truck is brought across scales to calculate the tonnage. For these reasons, data reported by state agencies likely underestimate the true quantities and costs of waste being disposed. Incomplete tracking and estimation may also contribute to fluctuations in reported recycling over time.

The unreliability of the data prevents an accurate comparison between recycling tonnage increasing causing a decrease in solid waste being disposed of in the state's landfills and incinerators. While the amount of recycling increased by 70 percent since 1999, and the solid waste tonnage only increased by 44 percent, which is less than half. Overall, the recycling rate improved by 3 percent, from 24 percent in 2005 to 27 percent in 2006. Improved awareness of agency solid waste streams and more accurate data collection will make a more reliable comparison possible. Data compiled for this report indicate that state agencies are recycling less than a third of their solid waste. It appears that agencies have simultaneously achieved some waste reduction through their efforts.

More encouraging are examples of agencies that have pulled forward as stars in waste reduction and recycling efforts. Many of the universities provide reuse programs including large-scale collection and redistribution of clothing, furniture, household supplies, and sometimes even electronic products. A few



universities have conducted sustainability audits over the last year or two, which include energy and water tracking mechanisms as well as waste audits of the campus. With the re-establishment of the recycling report, some community colleges and universities have reached out for assistance to restart or revitalize their program. UNC Wilmington, Forsyth Tech, and Wake Tech all contacted DPPEA following the reporting season last year for assistance in reviving their programs.

DPPEA has developed a new outreach and education campaign that is available to all universities and community colleges to help promote recycling programs. In FY 2006, many schools took advantage of the RE3 campaign, utilizing posters and commercials on campus. At annual outreach events from job festivals to Earth Day celebrations, campus coordinators gave out promotional materials to encourage students to visit www.re3.org to learn more about recycling. In 2007 DPPEA is planning to develop new materials to continue promoting the program, including online resources such as a web-blog, new commercials, and more promotional materials.

Recommendations

Upon review and consideration of the data contained in this report, DPPEA submits the following recommendations to improve the solid waste reduction and recycling efforts of North Carolina state agencies.

I. Assess the Impact of Source Reduction and Recycling on Waste Disposal and Costs. Tracking the amounts of solid waste disposed annually by state agencies is the only way to determine whether efforts to reduce waste, including recycling programs, are impacting the waste stream. This information, along with data on the costs for collection and disposal of solid waste, can be used to evaluate the cost efficacy of agencies' waste management strategies as well as the costs avoided through waste reduction and recycling. To maximize data recovery and assessment, it is recommended that agencies:

- Conduct waste assessments at their constituent facilities, offices, and institutions.
- Require full accounting for all costs associated with solid waste collection and disposal services.

II. Develop a means to communicate your recycling program. Programs are ineffective if they are not visible and not explained to employees. This may be as simple as quarterly email reminders of what is accepted at the various bins in your office, and where the bins are located (i.e. by the copy machine, in the staff lounge, in the lobby, etc.). Depending on the work environment, such efforts may include a full-fledged outreach and education program. DPPEA makes materials available for promotional initiatives, including posters, stickers, and other advertising tools through the RE3 program at www.re3.org.
