NORTH CAROLINA

State Agency Purchases of Recycled Products and Source Reduction, Recycling, and Composting Efforts

July 1, 2006 – June 30, 2007

Thirteenth Annual Report

ACKNOWLEDGMENTS

Published by the N.C. Division of Pollution Prevention and Environmental Assistance

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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.

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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.

January 2008

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 Executive Order, signed in 1993.[1] Purchasing recycled content (RC) and other environmentally preferable products (EPPs) improves recycling markets, reduces 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 RC products.

NC state government has continued to make progress toward environmental sustainability by offering RC and EPPs at affordable prices on state contract. Currently, there are about 25 products on term contract that exhibit some sort of environmentally preferable attribute, including recycled content, reduced packaging, and energy efficiency. State agencies and others who can buy from state term contracts, such as local governments, have a sample 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 2007. This year there was a slight decrease in reporting agencies, the majority of which were local school entities, but reporting community colleges also decreased significantly. More than half the non-reporting agencies did not comply with reporting requirements last year. All reporting was conducted online, saving paper and postage.

Figure 1. 2007 Reporting Summary	
Departments	23
UNC Institutions	10
Community Colleges	45
Local Public School Units	78
Total (220)	156
Percent Reporting	**71%**

Figure 2. Department of Corrections	
Office Paper	36% RC
Tissue and Towel	23% RC
Miscellanous Paper	78% RC
Total Paper	33% RC
NonPaper Expenditures recycled content products	$111.6 million
Toner	$5.8 million
Container	$2.6 million
Carpet	$2.1 million
Rerefined Oil	$3.8 million
Office Supplies	$70.1 million
Plumber	$24.6 million
Recapped Tires	$2.7 million

Fluctuations in data have stabilized somewhat, with small various annually. This year, numbers were greatly skewed, due to a sizeable increase in data reported by Department of Corrections. When this data was removed from the equation, most comparisons varied relatively predictably with years past, experiencing mild improvements. For the purpose of drawing comparrisons amongst the other agencies, DOC commodity data was extrapulated and is highlighted in Figure 2. DOC made up 85 percent of all nonpaper products and 89 percent of all paper purchases reported.

Purchases of Recycled Products

Paper and Paper Products. This is the sixth year in which agencies failed to meet the goal set forth by Executive Order 156; that, as of FY 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.

The percentage of RC paper purchases reached an all-time high of 84 percent in 2000, and has since fluctuated in the 70s, a decline attributable to the reinstatement of the virgin paper available on state contract at a lower price. Recycled content paper costs about three dollars more per box than virgin paper, or 30 cents per ream. Seeking more vendors of RC 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 statewide goals.

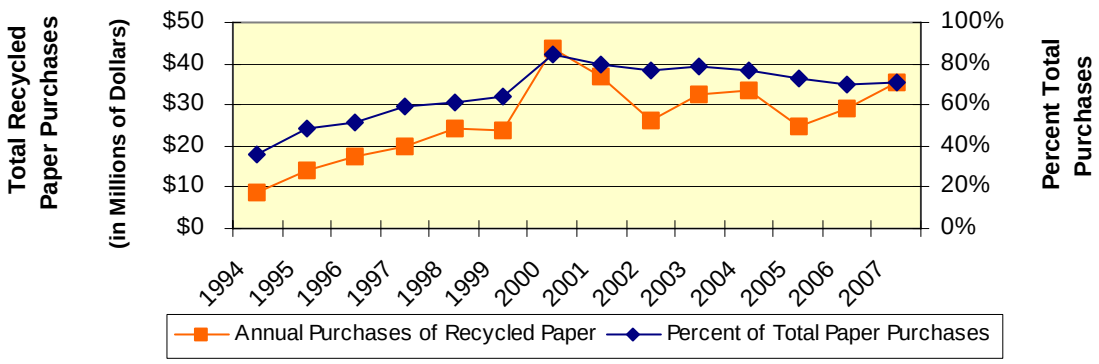
Below, **Chart 1** illustrates the trend in overall dollar amounts and percentages of recycled paper purchases over the past 14 fiscal years, including this year's increase in RC paper expenditures. Recycled content paper purchases totaled $35.3 million, which represents 71 percent of all paper

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

purchases, nearly equivalent to last year. The data indicates a need to enhance efforts to achieve the 100 percent goal across all agencies, which is incorporated in the ***Recommendations*** section below.

- Half the paper purchases were spent on office paper, achieving a 40% rate for RC office paper
- 18 agencies reached 100% goal for all paper purchases, relatively consistent over the past 10 years
- More than 1/3 of the agencies achieved a stellar 90% or higher rate of RC purchases for paper
- Only 16% of reporting agencies purchased all office paper with recycled content
- 50% of the agencies purchased all RC towel and tissue products, achieving an overall purchase rate of 84%
- $18.2 million was spent on outside print orders, increasing more than 1/3 from last year, 76% of which was RC

Chart 1. State Agency Purchases of Recycled Paper and Paper Products
Fiscal Years 1994-2007

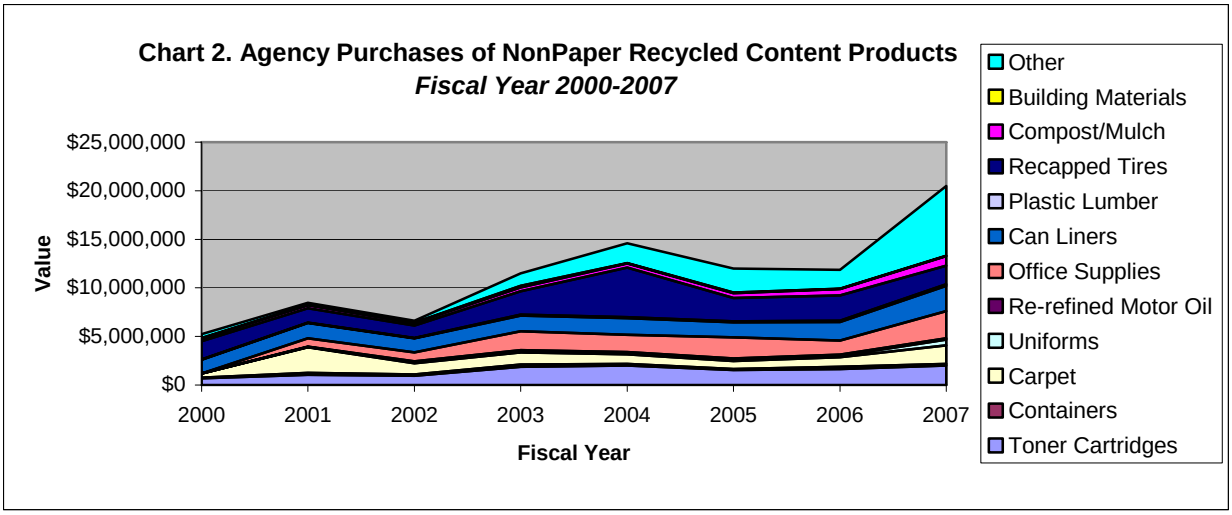


A significant impact is realized from the state's purchases of RC paper. For comparison, assume that the roughly $35.3 million spent on RC office paper and the nearly $14.7 million on virgin office paper included exclusively 8 1/2X11 white copy paper, all purchased from the state contract. The recycled office paper purchased conserved 25,711 trees, saved enough BTUs to provide nearly 200 households with energy for a year, and reduced the CO2 equivalent of removing 205 cars off the road for a year. Over 58 million gallons of wastewater were also conserved, equivalent of nearly 14 swimming pools. The solid waste avoidance could fill 43 garbage trucks, amounting to 1.2 million pounds. If we converted the $14.7 million in virgin paper to 30 percent RC paper, we could save another 11,851 trees, 20 more truckloads of garbage, and heat and light 91 more homes. These comparisons help put the impacts of the state's purchasing decisions in more tangible terms, and validate the motives behind our purchasing efforts[2].

Policy and Administrative Support. While agencies are not required to develop an internal policy by the General Statutes or Executive Order, it could be the first step to improving our state's effectiveness in RC product purchases. A mere 42 percent report having a buy recycled policy or goal in place, which is consistent with the last four years. Agencies are specifically charged with the responsibility of purchasing RC products, as well as designating a lead coordinator, which less than half have reported accomplishing. Agencies are also reporting that fewer administrators are communicating the importance of green purchasing. These are key components to a successful RC procurement program, and should be examined as a way to significantly increase participation.

Non-Paper Products. Agencies reported spending $20.5 million on non-paper RC products in fiscal year 2007, doubling last year's expenditures. Non-paper recycled product spending is on the rise, and is expected to increase continually as purchasers become further educated about the products they buy, and as the array of recycled products become more readily available.

[2] 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.



Total expenditures of the recycled non-paper products reflect similar numbers as last year and are illustrated below in **Chart 2**. 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 include uniforms and other. The "other" category includes furniture, animal bedding, outdoor equipment, and housekeeping supplies.

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, or green purchasing, includes a host of attributes that can be considered to decrease the impact of our purchases on the environment. Western Carolina University is utilizing biodiesel in campus vehicles, and Camden County Schools and Gaston County Schools are making their own biodiesel. Kannapolis City Schools are developing an EPP plan of action. Several agencies have reported procuring energy efficient lighting figures, including florescent bulbs and low-mercury fluorescent tubes. Polk County Schools started a recycling program this year, and a few school systems are beginning to use green custodial products.

Other EPP successes in state government this year include continued dialogue between some of the DOA Purchase and Contract engineers and DPPEA to revise product specifications where possible. Two notable efforts include a new contract for neighborhood electric vehicles (similar to golf carts highly utilized on collegiate campuses) and designing new specifications for a green cleaner contract.

Conclusion

The purchase of RC products is a well-established practice in state government, supported by statutory and executive order requirements, as well as the possibility of using government purchasing power to establish state term contracts that offer high quality, affordable RC choices for purchasers. Still, progress must be made to bring agencies to full compliance with the 100 percent RC 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 $279.3 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.

The following recommendations may help state government meet goals set forth both in EO 156 and General Statutes, and increase overall RC purchases. According to previous recommendations, DPPEA worked on reinvigorating NC Project Green via a revitalization of the website and communication with

former participants. Training sessions were conducted for a few purchasing organizations, including department purchasers and local school unit procurement professionals. According to reporting agencies, administrative support increased over the last year. DPPEA made continual efforts to share RE3 with universities, community colleges, and high schools across the state. Other efforts included participation in the Carolina Recycling Association's Collegiate Conference and other meetings, where higher education schools met to discuss recycling and sustainability efforts.

Recommendations

I. **NC Procurement Professionals should communicate their interest in procuring green products to DOA's Purchase and Contracts Division.** Educational sessions reveal that government-purchasing professionals are interested in increased green product choices available on contract. While some university purchasing offices have management support and are interested in developing specifications and policies, most can not dedicate time to designing internal green policies or searching for EPP contract language and would be interested in utilizing pre-negotiated state contracts. They also need assistance justifying price differentials for more durable and healthier products.
   - Evaluate products in terms of broad environmental impacts including: durability, energy efficiency, performance, RC and recyclability, toxicity, biodegradability, local manufacturers, and packaging.
   - Engage P&C regarding products and contractual services that take into account environmental impact.

II. Increase efforts to achieve the 100 percent goal. A renewed emphasis and commitment to meet the statutory and executive goals, combined with a targeted campaign of outreach to agencies purchasing a high level of virgin paper could augment change. In particular, P&C and DPPEA should seek more RC paper vendors in order to have more competitively priced RC paper on state contract.

Agencies that Purchased 100 Percent Recycled Paper in FY 07

Administration, Dept. of
Alexander County Schools
Asheboro City Schools
Central Carolina Community College
Central Piedmont Community College
Crime Control & Public Safety, Dept. of
Currituck County Board of Education
Davidson County Schools
Durham Technical Community College
Fayetteville Tech Community College
Guilford County Schools
Lenoir County Public Schools
Madison County Schools
Pamlico County Schools
Randolph Community College
Stokes County Schools
UNC Charlotte
Wilson Technical Community College

Agencies that Failed to Report Data for FY 07

Alleghany County Board of Education
Auditor, Office of State
Beaufort County Community College
Beaufort County Schools
Bladen Community College
Bladen County Schools
Brunswick Community College
Cabarrus County Schools
Carteret County Schools
Catawba County Schools
Cherokee County Schools
Clay County Board of Education
Clinton City Schools
Coastal Carolina Community College
Columbus County Schools
Cultural Resources, Dept. of
Dare County Schools
Davidson County Community College
Edgecombe Community College
Elizabeth City State University
Fayetteville State University
Franklin County Schools
Gates County Public Schools
Graham County Schools
Harnett County Schools
Hertford County Schools
Hoke County Board of Education
Hyde County Board of Education
Iredell-Statesville Schools
Jackson County Public Schools
James Sprunt Community College
Johnston County Schools
Kings Mountain District Schools
Lieutenant Governor's Office
Martin Community College
Mayland Community College
McDowell County Schools
McDowell Technical Community College
Mooresville Graded School District
NC Central University
NC School of Science & Mathematics
NC School of the Arts
NC State University
Northampton County Schools
Office of Information Technology Services
Pasquotank County Schools
Person County Schools
Roanoke-Chowan Community College
Robeson County Public Schools
Shelby City Schools
Southeastern Community College
Stanly Community College
Surry County Schools
UNC Hospitals
UNC Pembroke
Wake Technical Community College
Warren County Schools
Watauga County Schools
Whiteville City Schools
Wilkes Community College
Wilkes County Schools

*Completed the 2006 State Agency Source Reduction, Recycling, and Composting Report

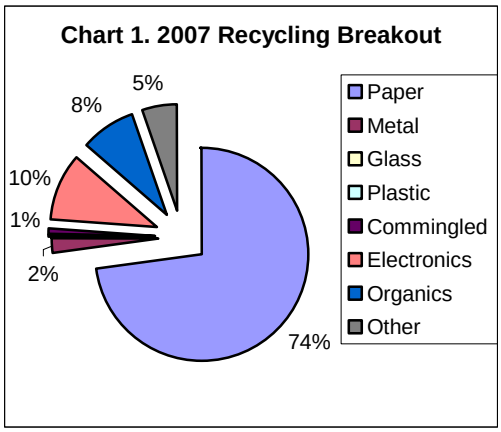
State Agency Source Reduction, Recycling, and Composting Efforts

State agencies are directed to recycle by state law - N.C. General Statute 143 and by Executive Order 156. The Division of Pollution Prevention and Environmental Assistance suspended reporting for a few years, but in 2005 started a new baseline for state recycling trends. Fifty-one agencies reported data, which constitutes half of the required reporting entities and represents a 10 percent increase from last year. Universities and community colleges are heavily represented, accounting for 33 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. Departments make up 25 percent of the required reports. More than twice as many state employees work in regional office across than the Capital area. This year eight agency departments reported, twice as many as last year. 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, managed by the Department of Administration's 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 2007, state agencies collectively diverted 58,888 tons from disposal in landfills and incinerators. Respondents reported recycling 42,826 tons of paper, 1,411 tons of metals, 18 tons of glass, 33 tons of plastic, 552 of commingled containers, 4,894 tons of organics, and 3,135 tons of other materials, as demonstrated in Figure 1. The commingled containers category was added this year because expanding markets across the state are able to handle mixed materials. This is a great improvement, as simple programs have the highest participation rate.



Based on FY 2007 data, the agency recycling rate for all wastes managed during the year was 43 percent. This is a 16 percent increase from the 2006 report. There was also an enormous increase in the 'paper' and 'electronics' categories. Six agencies reported recycling tonnages this year but did not include solid waste tonnages, including DOA.

Figure 1. DOT Recycling Tonnages

Material	Tons
Paper	1106
Metal	1753
Glass	21
Plastic	25
Electronics	106
Organics	10477
Other	209499
Total Tons Recycled	222987
Recycling Rate	94%

This data is extremely variable, and drawing comparisons is difficult because reporting behaviors are not consistent year to year. For example, last year the data reported by Facilities Management represented 6 percent of the total recycling tonnage. This year, they account for less than two percent. Department of Transportation, however, generated 77 percent of all recycling tonnage. In order to draw some conclusions and demonstrate a few comparisons in this year's report, DOT's data is not included in the charts and overall recycling rate for the state. DOT's data is displayed in Figure 1, and a summary of its activities are included in this Solid Waste Report.

Data was collected for electronics recycling for the third year in a row. Encouragingly, nearly half the agencies have a contract set up with a computer-recycling vendor, and in FY 2007 collected 6,125 tons of electronics. This does not include data from DOA or the State Surplus Office. Most agencies report 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 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 opportunity to reclaim valuable resources from electronic products.

Solid Waste and Program Costs. Approximately 104,052 tons of solid waste were landfilled for state agencies in FY 2007, including DOT figures, costing about $7.6 million in collection and disposal fees at an average cost of just under $165 per ton. This falls short of the 134,599 tons reported in 1999 costing $11.75 million, but it is an 11 percent increase from last year. While the overall cost of disposal decreased by over $2 million dollars from last year, the cost per ton actually increased by $42. This number is extremely fickle depending on how complete agency reports are.

Calculating the total cost of solid waste and recycling programs is difficult, and respondents may need training to review this computation. This year additional calculations were included to more accurately compute the expense of recycling programs. In order to determine the true cost or cost avoided, agencies must submit complete reports. 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, some 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 estimated over $11.2 million, an astounding increase from last year.

While over a third of the reports claim some revenues for the sale of recyclables amounting to almost $250,000, 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 $11 per ton of recyclables, $154 less than the cost for solid waste disposal**, which exemplifies the savings in recycling. It should be noted that 8 agencies did not include recycling program costs although they did report recycling tonnages. 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 an 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 over half have a lead coordinator for waste reduction and recycling program. Forty-two percent have a waste reduction program, and an equal portion have ongoing educational 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. Some agencies detailed that limited training is provided but could be improved if upper tier administrative support is gained. Information was generally communicated and distributed via:

- ✓ Employee email, newspaper, radio, word of mouth and one-on-one education at campus events where promotional items are distributed
- ✓ Website, brochures, student groups, volunteers and volunteer activities
- ✓ Presentations at training sessions and managers meetings, as well as annual reports
- ✓ Recycling policies and procedures listed in materials such as Employee Manuals, printed on campus phone directories, given to residence hall staff, and posted online
- ✓ Posters and signs in break rooms, recycling centers, hallways, and restrooms.

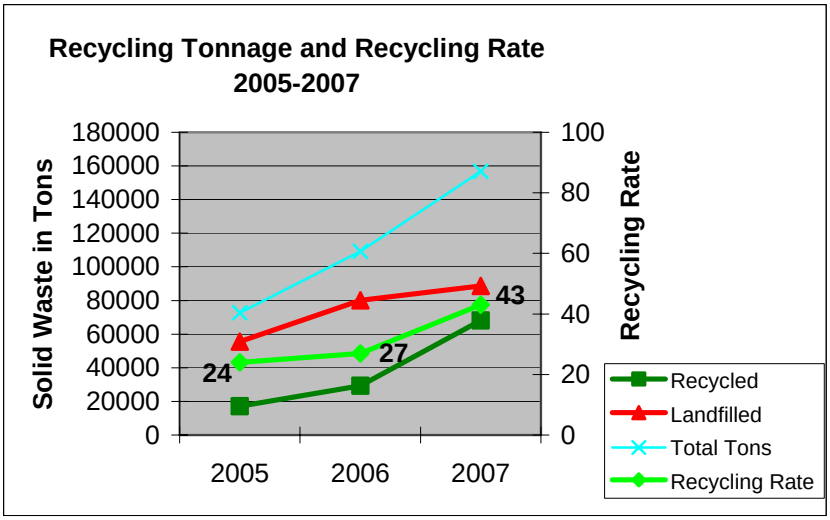
Eighty-five percent of state agencies practice waste reduction at the source, including reducing office paper by eliminating unnecessary reports and forms or converted to electronic format, making fewer copies, double sided printing, using email and voice mail to communicate, and posting announcements on bulletin boards or in break areas. Agencies estimate a 13 ton reduction in paper usage in fiscal year

2007. A third 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 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 are still challenges. 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.

Excluding DOT's data, this year's recycling tonnage represents a 133 percent increase from last year, nearing the 71,344 tons reported in 1999. Inconsistencies and inaccurate reports are still a problem, making finite conclusions complicated. For instance, a variable set of agencies report each year, and there is missing data in many reports. In addition, many departments neglect to report for their regional offices. This year the integrity of the data improved with updates to the report form.



Some of the changeability in statistics 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 at one facility and the truck is brought across scales to obtain an exact weight, which rarely occurs for some agencies that collect their own materials. For these reasons, figures reported 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 a conclusion that increased recycling tonnage caused a decrease in solid waste being disposed of in the state's landfills. **Overall, this year's 43 recycling rate improved by 16 percent from 2006.** This estimates that agencies are recycling nearly half of their solid waste, and reports indicate they may have achieved some waste reduction through their efforts. Improved awareness of agency solid waste streams and more accurate data collection will make a more reliable comparison possible.

It is encouraging that some agencies have pulled forward as stars in waste reduction and recycling efforts. Many universities provide reuse programs including large-scale collection and redistribution of clothing, furniture, household supplies, and 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 reached out for assistance to restart or revitalize their program. Guilford Technical Community College, UNC Pembroke, and NC A&T State University 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 2007, 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. DPPEA developed new materials to continue promoting the program, including online resources such as a web-blog, new commercials, and more promotional materials, which were all well received and enhanced the efforts of RE3.

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. Use the Source Reduction and Recycling Report Data to Assist Programs Statewide. Tracking the amounts of solid waste disposed annually by state agencies is the best 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, 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 facility, 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.