



The Seventh Annual Report of the Recycling Public Advisory Council



**Presented to the
Honorable Jack Markell, Governor of Delaware
and the
145th Delaware General Assembly**

February 2009



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Executive Summary

This report covers the Recycling Public Advisory Council (RPAC) activities for 2007 and 2008 and recycling data for 2007. The RPAC focused its efforts on increasing recycling activities in Delaware. Specific actions other than the discussions and presentations held during monthly public meetings included:

- Supporting House Bill 159, the primary recycling legislation in 2007 and 2008, which could have dramatically increased recycling in Delaware;
- Completing the first annual Recycling Measurement and Methodology Recycling Diversion Report for the State of Delaware for CY2006 with input and agreement among the DSWA, Department of Natural Resources and Environmental Control (DNREC), and the RPAC – delivered March 2008;
- Completing the second annual Recycling Measurement and Methodology Report – included in this report;
- Supporting the ban on yard waste entering the DSWA Cherry Island Landfill, specifically documented in a letter sent to Governor Minner and State Legislators dated January 19, 2007;
- Providing \$7,500 to the Northeast Recycling Council (NERC), complementing State funding, for the Recycling Economic Information Study of Delaware;
- Encouraging the creation of a commercial material recovery facility in Delaware; and
- Participating in the House Resolution 73 task force.

Recycling Legislation

In 2007, Governor Minner's recommended legislation was introduced as House Bill 159 (HB 159). It eventually passed the House of Representatives in May of 2008. In July of 2008, HB 159 was defeated by the Senate. Several entities supported HB 159 including the RPAC, the DSWA, DNREC, the League of Women Voters, and the Delaware League of Local Governments. HB 159 would have encouraged recycling via a comprehensive recycling grant program while discouraging disposal via a \$3 per ton assessment on landfilling.

Recycling Assistance Grant Program

For FY2007, as in previous years, the amount of grant funding requested by eligible groups significantly exceeded the amount available. DNREC, following the RPAC's recommendations, selected eight grant recipients to receive the \$50,000 in available grant funds. The FY2008 grant funding requested was over \$134,658 with only \$50,000 available. Unfortunately, the program was cut before the grants were awarded due to state budgetary issues.

Recycling Diversion

As directed by Executive Order 90, the RPAC developed an objective, scientific, and auditable methodology for calculating recycling rates in Delaware that is consistent with the U.S. Environmental Protection Agency's guidelines. A summary of the recycling rates produced using the aforementioned methodology is shown in Table 4.3 below:

Table 4.3 Summary Results for CY2006 and CY2007

	Residential		Commercial		Total	
	2006	2007	2006	2007	2006	2007
Diverted Recyclables (tons)	122,448	233,691	125,962	143,375	248,410	377,066
Landfilled MSW (tons)	419,602	405,495	403,878	389,490	823,479	794,984
Total Municipal Solid Waste = Diverted Recyclables + Landfilled MSW	542,049	639,186	529,840	532,865	1,071,889	1,172,050
Percent Diverted Recyclables	22.6%	36.6%	23.8%	26.9%	23.2%	32.2%

As shown above, reported recycled material increased by 128,000 tons, or about fifty percent from CY2006 to CY2007, resulting in a nine percent increase in the recycling diversion rate. Eighty-four percent of the increase in diverted materials was yard waste. This significant increase in diversion is likely the product of several influences including:

- The ban on yard waste material disposal at the DSWA Cherry Island Landfill;
- The development of three Community Yard Waste recovery facilities which have been very successful;
- The provision of many new private yard waste recycling services;
- A real increase in recycled yard waste;
- An increase in the reporting of yard waste recycling;
- A thriving economy which created historically high demand for recycled commodities, including all fibers (paper), plastics, metals, mulch and compost; and
- A 4% drop in landfilled MSW (Diversion Rate = Recyclables / MSW & Recyclables)

By the end of 2008, nearly 66,000 households had curbside recycling service in Delaware. These curbside services were provided by the City of Wilmington, the DSWA, Kent County, and independent haulers. That is about 20% of an estimated 322,000 Delaware households. It is noteworthy, however, that more recyclables were still received at the Recycle Delaware Drop-off facilities statewide than were collected curbside, suggesting the participation of a much larger number of households and businesses.

Recommendations

The RPAC's recommendations for increasing the recyclables diversion rate are as follows:

1. Enact comprehensive, statewide recycling legislation to increase diversion and improve efficiency.

2. Maintain the yard waste ban at the Cherry Island Landfill and expand statewide as appropriate.
3. Maintain the community yard waste demonstration sites and establish a permanent source of funding for these sites.
4. Continue the Recycling Measurement and Methodology Report annually. This report is a significant advance in understanding the quantity and details of recycling. Funding will be needed to provide the updates of this critical benchmark.
5. Enact legislation to require recycled material reporting.
6. Support the completion of the DSWA Recyclables Diversion Plan.
7. Support the completion of the House Resolution 73 report and recommendations by the Recycling Task Force of which the RPAC has representation.
8. Enact legislation to establish a permanent source of funding for the Recycling Assistance Grant Program.

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1.0 Purpose

This is the Seventh Annual Report of the Recycling Public Advisory Council (RPAC). The purpose of the report is to fulfill requirements of Executive Order No. 90, which directs the RPAC to prepare an annual report addressing the following:

1. the status of attainment of the 51% municipal solid waste recycling goal;
2. an accounting of the Recycling Assistance Grant Program and recommendations for future funding of the program;
3. an assessment of the activities of both the DNREC and the DSWA in achieving the 51% recycling goal;
4. an objective, auditable accounting of recycling rates for total solid waste, municipal solid waste, and residential solid waste; and
5. such other recommendations as the RPAC shall deem appropriate.

Executive Order No. 90, issued by Governor Ruth Ann Minner in September 2006, is attached to this report as Appendix A. It supersedes Executive Order 82 which previously established the RPAC. A list of the current RPAC members can be found in Appendix B.

In February 2008, the RPAC voted to shift the deadline for its Annual Reports to November 1st of each year (Appendix C). This change from March 1st will allow for more suitable timing to process data and synchronization of the Annual Report with the sub-requirement to account recycling rates.

2.0 Introduction

2.1 Benefits of Recycling

Many people recycle simply because they believe that “it is the right thing to do”, or because they don’t believe in being wasteful, or because they want to preserve our environment for the benefit of future generations, but there are many benefits of recycling. Some of these benefits are listed below. For further detail and supporting documentation please reference The Sixth Annual Report of the Recycling Public Advisory Council, visit the RPAC website, or contact the Division of Air and Waste Management.

- **Provides over 10 times more jobs than landfilling**
- **Extends the useful life of municipal landfills**
- **Reduces emissions of greenhouse gases**
- **Saves energy**
- **Preserves natural resources**
- **Reduces environmental damage from industrial waste**
- **Reduces environmental damage from residential and commercial waste**
- **Teaches environmental stewardship to individuals**

2.2 Recent Recycling Efforts in Delaware

The Cherry Island Landfill permit was renewed in 2006 with language that required the DSWA to ban yard waste from entering the landfill no later than January 1, 2007. After many community meetings, outreach efforts, and more, DNREC and the DSWA began enforcement of the ban in early 2008.

House Bill 159 (HB 159) was introduced in 2007 and supported by the RPAC (see Appendix E). In May of 2008, HB 159 was voted on and passed in the House of Representatives but was defeated in the Senate in June of 2008. Several entities supported HB 159 including the DSWA, DNREC, the League of Women Voters, and the Delaware League of Local Governments. HB 159 would have encouraged recycling via a comprehensive recycling grants program while discouraging disposal via a \$3 per ton assessment on landfilling.

Starting in January of 2008, Kent County provided recyclables collection service to residents serviced in their trash districts. The County administers a contract for trash collection in several unincorporated areas within the County. Single-stream recyclables collection was added to the contract, increasing the number of participating households in Delaware by about 11,147.

In early 2008, the DSWA converted their recyclables collection programs to single-stream. Participants no longer need to separate traditional recyclables (i.e. glass bottles, cans, plastic bottles, mixed papers) by material type, making recycling more convenient. Other entities, including waste haulers, have also offered single-stream recyclables collection service.

At the end of 2008, nearly 66,000 households have curbside recycling service in Delaware. That is about 20% out of an estimated 322,000 households. These curbside services were provided by the City of Wilmington, the DSWA, Kent County, and independent haulers. It is noteworthy, however, that more recyclables were still received at the Recycle Delaware Drop-off facilities statewide than were collected curbside, suggesting the participation of a much larger number of households and businesses.

A background of previous recycling efforts in Delaware can be found in Appendix K.

3.0 RPAC Activities

During 2007 and 2008, the RPAC focused its efforts on providing input to draft recycling legislation (House Bill 159), supporting HB 159, supporting the yard waste ban at the Cherry Island Landfill, working to properly measure and define recycling, and looking at other ways to improve recycling in Delaware.

3.1 House Bill 159

In 2007, Governor Minner's recommended legislation was introduced as House Bill 159 (HB 159) which is included in this report as Appendix E. The RPAC had an opportunity to provide input to the draft legislation that would become HB 159. This bill would establish a "Delaware Recycling Fund" to help local governments, communities, and the private sector establish recycling programs. Like many other states' recycling funds, the revenue would come from a \$3 per ton surcharge on all solid waste generated and/or disposed in Delaware and was expected to generate between \$3 million and \$4 million a year. The design was to encourage recycling while discouraging disposal.

HB 159 passed the House of Representatives Energy and Natural Resources Committee and was laid on the table in the House of Representatives in 2007. In May of 2008, HB 159 was voted on and passed in the House of Representatives and went to the Senate Natural Resources and Environmental Control Committee. It passed Committee in June but was defeated by the Senate in July of 2008. Several entities supported HB 159 including the DSWA, DNREC, the League of Women Voters, and the Delaware League of Local Governments. The RPAC strongly supported HB 159 and believed it would significantly improve recycling in Delaware.

Other recycling related bills were also introduced. These included House Bill 146 which incorporated a mandatory recycling component which was also supported by the RPAC, and House Bill 1 which would have removed the ban on yard waste at the Cherry Island Landfill. These bills were not voted past the House of Representatives.

3.2 Supporting Banning Yard Waste From Landfills

It has long been the position of the RPAC that banning yard waste from landfills is an effective method to increase waste diversion and extend landfill life. The products of yard waste, mulch and compost, have a wide variety of very beneficial uses. Furthermore, due to local shortages, Delaware regularly imports mulch and compost to meet our needs. The RPAC expressed support on banning yard waste from landfills in a letter sent to Governor Minner and Legislators in January of 2007 (see Appendix F).

There was significant resistance from some members of the public and legislators to the ban on yard waste entering the Cherry Island Landfill. Some legislators even drafted legislation that would not only remove the ban, but expand the Cherry Island Landfill and interfere with

DNREC's regulatory authority. The RPAC strongly supported the ban on yard waste due to the fact that yard waste is the easiest material to recycle. Several Delaware specific studies and countless National studies and experiences demonstrate that yard waste bans increase waste diversion rates and extend landfill life. Yard waste bans also provide an opportunity for new businesses interested in collecting and processing yard waste thereby creating jobs and helping Delaware's economy.

3.3 Measurement and Methodology

The Methodology and Measurement Sub-Committee focused on the RPAC's charge to develop a methodology for measuring recycling diversion rates based upon EPA guidelines. The Sub-Committee includes representation from the DSWA and DNREC and has developed an objective and auditable approach to recycling measurement and reporting consistent with EPA standards. The second Measurement and Methodology Report was completed in December of 2008. Most importantly, these Measurement and Methodology Reports establish a uniformly accepted approach that will make future recycling measurements comparable to this initial baseline.

3.4 Other Activities

The RPAC voted to provide \$7,500 to help fund the Recycling Economic Information Study, a Delaware-specific report on the economic benefits of recycling, such as jobs and economic activity created. The Recycling Economic Information Study is part of a regional effort to produce similar data in other states organized by the Northeast Recycling Council.

4.0 Measurement and Methodology Report

Under Executive Order 90, the RPAC is directed to use the U.S. Environmental Protection Agency's definitions of "recycling" and "municipal solid waste" and also to develop an "objective and auditable accounting of recycling rates for total solid waste, municipal solid waste, and residential solid waste". In response to this directive, the RPAC created the Methodology and Measurement Subcommittee comprising members of the RPAC, DSWA, and DNREC. In March of 2008, the Measurement and Methodology Subcommittee produced a report for calendar year 2006, "Recycling in Delaware: Measurement and Methodology" as an addendum to "The Sixth Annual Report of the Recycling Public Advisory Council". Most notably, the 2006 report and the current report (CY 2007) employ a methodology which was developed via an open and transparent process, recorded in such a way that it could be easily understood by members of the general public, was fully endorsed by each organization represented on the Council, and which could be used with little change in subsequent years so that meaningful trends and comparisons could be established. For extensive information on this methodology please see the 2006 report and appendices.

4.1 Data Collection

The M&M Subcommittee obtained data from two sources for CY2007.

- DSWA: The Authority collects "hard data" on diverted recyclables and also on landfilled material; They weigh all materials, recyclable and otherwise, coming into their possession and this information is reported to the RPAC. See Appendix H.
- Third Party Consultant (DSM): DSM Environmental Services, Inc. was contracted to collect data on all recyclable materials which don't enter the traditional waste stream, but which nevertheless get recycled by facilities not operated by DSWA. An example is plastic bottles collected at supermarkets and returned directly to reproducers without any involvement by DSWA. DSM uses a combination of written surveys, phone and face-to-face interviews, and physical spot inspections of vehicle loads. See Appendix I.

The RPAC has worked closely with DSM and the DSWA to insure that both the Authority's and DSM's methodology for data gathering are consistent with EPA guidelines – and that there is no double counting of recycling activities. The DSWA plans to continue to fund survey work by DSM in coming years, but has transferred program management responsibility to the RPAC.

4.2 Diversion Rate Calculation

The waste stream can be broken down into two primary categories: Municipal Solid Waste (MSW) and non-Municipal Solid Waste. Put simply, MSW is what most of us think of when we think of 'trash' even though it contains a high percentage of valuable resources. The EPA's guidance for calculating recycling rates limits 'recycling' to the category of MSW. (Additional

detail regarding definitions of recycling can be found in our 2006 report and in EPA document # EPA530-R-97-011, “Measuring Recycling...”)

Determining the percent diversion of recyclables from Delaware’s solid waste stream involves the following calculation:

$$\text{Diversion rate of recyclables (\%)} = 100 \times \frac{\text{MSW recyclables, tons diverted}}{\text{MSW recyclables, tons diverted} + \text{MSW, tons landfilled}}$$

There is an added layer of complexity per Executive Order 90: we are interested not only in the total MSW landfilled tonnage and percent diverted recyclables from MSW, but we are also interested in the same information just from the residential sector versus just from the commercial sector. Therefore we also divided the total MSW recyclables data, and also total MSW landfilled data, into the portion deriving from the residential sector and the portion deriving from the commercial sector. It should be noted that it is often difficult to determine whether a material was generated by the commercial or residential sector and this allocation was developed for the CY2006 report and based upon a comprehensive waste composition study conducted in 2006 and 2007 and the best judgment of DSM and the members of the M&M Subcommittee.

4.3 Recycling Rates

As directed by Executive Order 90, the RPAC developed an objective, scientific, and auditable methodology for calculating recycling rates in Delaware that is consistent with the U.S. Environmental Protection Agency’s guidelines. A summary of the recycling rates produced using the aforementioned methodology is shown in Table 4.3 below:

Table 4.3 Summary Results for CY2006 and CY2007

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Percent Diverted Recyclables	22.6%	36.6%	23.8%	26.9%	23.2%	32.2%

4.4 Understanding the Data – CY2007

Reported recycled material increased by 128,000 tons, or about fifty percent from CY2006 to CY2007, resulting in a nine percent increase in the recycling diversion rate. Detailed recycling data for CY2007 can be found in Appendix G of this report. At first glance, a nine percent increase, year-over-year, may appear suspect. However, there were some very significant and understandable influences in 2007 that could account for it.

Eighty-four percent of the increase in diverted materials was yard waste. Reported yard waste recycling increased from 75,533 tons in 2006, to 184,153 tons in 2007 - an increase of 144

percent. It is likely that this increase was primarily driven by the ban on yard waste materials entering the DSWA Cherry Island Landfill. And while the ban was not in full effect for 2007, due to legislative intervention, public awareness was raised and commercial enterprises and residents began changing their behavior in late 2006. For 2007, Recycled Yard Waste comprised forty-nine percent of all recycled material in Delaware and roughly sixteen percent of all MSW. (Nationwide, twenty to twenty-five percent of landfilled MSW is yard waste.)

While it is very likely that the majority of the increase in yard waste being recycled was, in fact, new recycling due to the Yard Waste Ban, it is suspected that some of the increase is also due to more diligent data reporting in 2007 vs. 2006. In addition the thriving economy of CY2007 created strong demand for mulch and compost products produced from yard waste. Lastly, there were some exceptional storms that struck Delaware in 2007 which may have also contributed to this increase. It is probable that the reported increase of 128,000 tons in yard waste recycling was the product of all of these factors.

Another significant factor in CY2007 was a five percent decrease in MSW receipts landfilled. As Landfilled MSW is a component of the denominator in the recycling rate calculation, this decrease would contribute to an increase in the overall recycling rate.

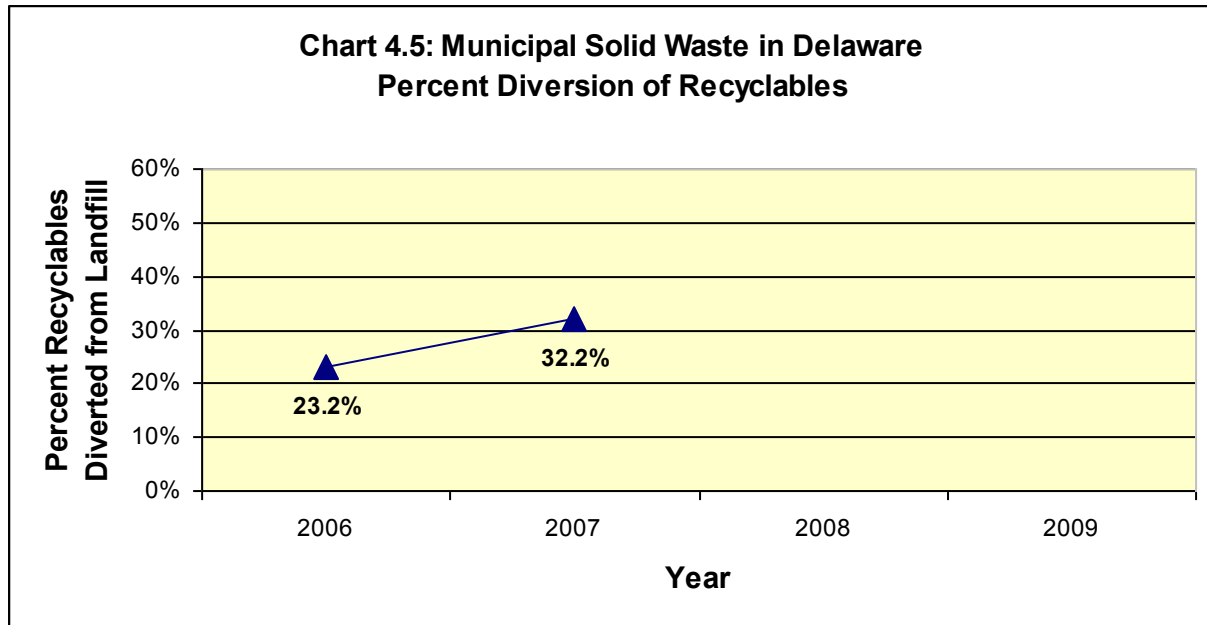
Not included in the reported yard waste numbers was a notable increase in mulched pallets of 3,912 tons. This is likely attributable to an increased need for carbon inputs required to make compost. (Compost requires a balance of carbon inputs, i.e leaves and wood, and nitrogen inputs, i.e. grass and plant material.)

While there was a decrease in most fiber, glass, and plastic recycling, this drop was largely offset by a substantial increase in the Single Stream Materials Recycling. This is likely explained by the fact that during this period, the City of Wilmington completed the implementation of their single stream curbside program.

Lastly, it must be understood that despite every effort to consistently collect the best data available, the reported recycling rate should only be viewed as an approximation of recycling activities in Delaware. The majority of the data collected is voluntarily submitted and the accuracy is dependent upon the yearly participation of hundreds of recyclers in Delaware. Furthermore, the new methodology has now only been applied two years in a row. In order to reliably identify long-term trends in recycling activities, a data set covering a longer time period is required.

4.5 Status of the 51% MSW Recycling Goal

Diversion rates of recyclables for CY2007 are 36.6% of residential solid waste, 26.9% of commercial solid waste, and 32.2% of the total municipal solid waste stream. By maintaining a consistent methodology, reasonably accurate and meaningful trend line analysis can be developed over a period of years. This will require continued analysis and reporting, but it will enable the tracking of progress toward the 51% goal established by Executive Order 90.



5.0 Recycling Grants

5.1 Grant Program History and Status

The Recycling Assistance Grant Program was established in 2001. The DNREC developed the grant criteria and selection procedures, with advice from the RPAC. Recipients are required to match 25% of the total project cost. Grant selections are made by the DNREC in consultation with the RPAC.

The chart below summarizes the grant statistics for Fiscal Year 2001 through 2009.

	State Funds Available	State Funds Requested	# Applications Received	# Projects Funded
FY 2001	\$46,000	\$122,000	9	6
FY 2002	\$75,000	\$130,175	12	10
FY 2003	\$68,334	\$99,852	11	10
FY 2004	\$50,000	\$140,146	11	7
FY 2005	\$50,000	\$85,374	9	6
FY 2006	\$50,000	\$90,117	6	5
FY 2007	\$50,000	\$103,609	9	8
FY 2008*	\$50,000*	\$134,659	13	0*
FY 2009	\$50,000	\$227,096	19	11

*The FY2008 Recycling Assistance Grant Program funding was rescinded due to state budgetary issues

The period covered by this Annual Report encompasses the close-out of the FY2006 grants through the awarding and implementation of the FY2009 grants. The grant activities for these fiscal years are described in the next four sections.

5.2 Close-Out of FY2006 Grants

All FY2006 grants ended on May 1, 2007. Each grant contract specified that a final report must be submitted to DNREC by that date and that no expenses incurred after that date would be reimbursed with grant funds.

Five projects were approved for funding in FY2006. The amount of state funding approved was \$50,000. The amount of funding awarded to each grant recipient, and the amount actually spent, are listed in Table 5.2 below:

Table 5.2 FY2006 Recycling Assistance Grant Program

<i>Grant Recipient</i>	<i>State Funding Approved</i>	<i>Amount Reimbursed</i>	<i>Brief Description of Project</i>
Mount Pleasant Band Boosters	\$3,059.00	\$3,059.00	Expand the aluminum recycling program
Iron Hill Museum	\$5,400.00	\$5,400.00	Implement an educational initiative targeting elementary schools
City of Wilmington	\$24,679.00	\$24,679.00	Implement a recycling pilot project
Middletown High School	\$2,237.13	\$2,235.23	Establish a paper recycling program
University of Delaware	\$14,624.83	\$14,624.83	Composting education

Appendix D contains a more detailed description of each project, including objectives and accomplishments. Descriptions of projects funded in previous years can be found in the RPAC's previous Annual Reports and on DNREC's recycling web page.

5.3 FY2007 Grant Summary

As provided for in Executive Order 90, the Recycling Assistance Grants Program's eligible activities were expanded from focusing on just residential solid waste to encompassing all municipal solid waste (MSW) which includes commercial waste. Like all previous grant years, the amount of funding requested by eligible groups exceeded the amount available. Eight projects were selected for funding; however, because of the limited amount of money available (\$50,000), the University of Delaware was asked to modify their composting education proposal in order to reduce costs. The amount of funding awarded to each grant recipient and the amount actually spent are listed in Table 5.3 below:

Table 5.3 FY2007 Recycling Assistance Grant Program

<i>Grant Recipient</i>	<i>State Funding Approved</i>	<i>Amount Reimbursed</i>	<i>Brief Description of Project</i>
Town of Camden	\$5,392.00	\$4,672.86	Expand the town's curbside recycling program
Iron Hill Museum	\$5,400.00	\$5,400.00	Implement an educational initiative targeting elementary schools
City of Wilmington	\$20,000.00	\$20,000.00	Implement an outreach program to promote the new recycling program
University of Delaware	\$8,600.00	\$7,535.00	Establish waste diversion program for the student move-out timeframe
University of Delaware	\$4,888.00	\$4,888.00	Composting education
Sussex Central Middle School	\$365.00	\$0.00	Did not complete activities
North Star Elementary School	\$2,287.50	\$2,205.67	Implement a recycling collection and education program
Thurgood Marshall Elementary	\$3,066.95	\$0.00	Did not complete activities

Appendix D of this report contains the project descriptions for the FY2007 grants.

5.4 FY2008 Grant Summary

As in all previous grant years, the amount of funding requested by eligible groups exceeded the amount available. Thirteen entities requested a total of over \$134,658 in state funding. However, before the applications were scored, the grant funding was rescinded due to state budgetary issues. The applicants were notified and thanked for their interest, but no projects were funded.

5.5 FY2009 Grant Opening

The FY2009 grants were announced in early August of 2008. DNREC held workshops in all three counties for interested parties. Completed applications were due to DNREC by September 19, 2008. The amount of funding available for the grants was \$50,000. Like all previous years, the amount of funding requested by eligible groups exceeded the amount available. Over \$227,095 was requested in state funding from 19 applicants. Eleven were awarded; two of which at partial funding. The amount of funding awarded to each grant recipient, and the applicant match, are listed in Table 5.5 below:

Table 5.5 FY2009 Recycling Assistance Grant Program

<i>Grant Recipient</i>	<i>State Funding Approved</i>	<i>Applicant Match</i>	<i>Brief Description of Project</i>
Arbour Park Civic Association	\$290.00	\$184.00	Educating the neighborhood and helping households start composting
Caravel Academy	\$1,329.79	\$8,733.70	Establishing a recycling program at the school
Children's House Montessori School	\$11,732.85	\$30,343.37	Establishing a composting program, producing a waste reduction dvd, and recycling educational activities
Delaware Technical and Community College	\$4,768.43	\$10,787.00	Establishing a mixed recyclables collection program on the Stanton and Wilmington campuses
Iron Hill Museum	\$7,000.00	\$2,660.00	Expanding a recycling outreach campaign targeting 40 schools
Midway Little League	\$1,385.00	\$522.00	Implementing a recycling program at their ball fields
North Georgetown Elementary School	\$1,857.42	\$619.15	Implementing a paper recycling program including education
Our Lady of Fatima	\$1,827.28	\$609.09	Establishing a recycling program at the school including education
Sussex Technical High School	\$7,375.80	\$24,000.00	Assisting other schools in establishing recycling program including education
University of Delaware	\$4,768.43	\$1,589.48	Expanding the single-stream recycling program on campus
Wilmington Montessori School	\$7,665.00	\$8,277.00	Implementing a recycling program at the school including education

5.6 Recommendations for Future Funding

The potential of the Recycling Assistance Grant Program has been severely limited by the amount of funding that the state has historically provided. Previous reports and recommendations from industry experts have stated that more grant money would be needed to achieve a higher recyclables diversion rate, with one report by the Institute for Local Self Reliance calling for the creation of a \$3 million/yr recycling fund. Further jeopardizing progress on recycling, current funding is easily subject to removal which was demonstrated in Fiscal Year 2008 when the funding was reduced to zero.

With the state goal of recycling 51% of MSW, and the economy struggling, the need for recycling assistance is even greater. If our primary tool for increasing the recycling rate continues to be the grant program, that program must provide dedicated, sufficient funding to enable a wide variety of organizations to implement sustainable programs that will capture significant quantities of recyclables. It is recommended that a permanent source of funding of at least \$100,000 per year be established for the Recycling Assistance Grant Program.

The RPAC also recommends legislation to create a Recycling Fund of \$3 to \$4 million per year. This is consistent with previously proposed recycling legislation which would have established a \$3 per ton surcharge on all solid waste generated and/or disposed in Delaware to fund the grants. The RPAC strongly supported this design of encouraging recycling while discouraging disposal.

6.0 DNREC Activities

DNREC's activities conducted in support of attaining the 51% MSW diversion goal fall into four major areas: providing support to the RPAC, administering the Recycling Assistance Grant Program, conducting education and outreach designed to increase diversion, and maintaining the Cherry Island Landfill Yard Waste Ban.

6.1 Support to the RPAC

In fulfillment of its responsibilities under Executive Order No. 90, DNREC continues to work diligently to provide support to the RPAC. The tasks that DNREC carried out in this area included, but were not limited to:

- Making meeting arrangements for all RPAC meetings;
- Preparing and distributing agendas and minutes for all RPAC meetings;
- Publicizing the RPAC meetings, reports, and efforts;
- Preparing summaries and edits of draft recycling legislation (HB 159) and summaries of other legislation;
- Coordinating work related to the administration of the Recycling Assistance Grant Program;
- Participating in the Measurement and Methodology Subcommittee responsible for establishing an agreeable recycling measurement for Delaware;
- Drafting and/or producing pertinent products or documents for RPAC meetings and Subcommittees; and
- Preparing the RPAC's Annual Report including printing and distribution.

6.2 Administering the Recycling Assistance Grants Program

DNREC takes pride in assisting schools, municipalities, community groups, and non-profit organizations with implementing or improving recycling programs and reducing the amount of waste contributing to our landfills. In administering the Recycling Assistance Grants Program, DNREC develops the grant packet, publicizes the grant availability, holds workshops for potential applicants, works with potential applicants, processes the completed applications, coordinates with RPAC to score the applications, informs applicants not selected for funding and grant recipients, prepares grant contracts and related information, works with grant recipients on timely submission of contracts and reports, processes reimbursements, assists recipients as needed in implementing grant activities, and closes out all grants after the final deadline.

6.3 Public Education and Outreach

DNREC conducted or participated in many activities to increase public awareness of recycling opportunities and to promote the grant program. DNREC distributed outreach materials and information at public events such as the Earth Day Celebration on Rodney Square in Wilmington, the Delaware State Fair, Coast Day, school presentations, and community presentations. The outreach focuses on the opportunities and benefits of recycling and waste reduction. As a result of these activities, tens of thousands of Delaware residents were educated on a variety of recycling issues.

DNREC continues to improve and augment the recycling information resources available on its website and in its handouts. All of RPAC's Annual Reports, recent meeting minutes and agendas, several studies, information on the Recycling Assistance Grant Program, and general information on recycling and composting can be found on the DNREC recycling website (www.awm.delaware.gov/Pages/recycling.aspx) and the DNREC-maintained RPAC website (www.awm.delaware.gov/Info/Pages/RPAC.aspx).

6.4 Supporting the Diversion of Yard Waste

With the initial concerns regarding a yard waste ban addressed, the Cherry Island Landfill Permit was renewed in 2006, requiring that DSWA ban yard waste from entering the landfill no later than January 1, 2007 (Appendix J). It also called for DSWA to effectively educate the public and waste haulers on the ban's effective date and alternatives for yard waste management.

DNREC has supported the ban on yard waste disposal as a significant and effective way to reduce landfilling and increase the recyclables diversion rate. In 2005, some legislators raised concerns about legislation that would ban yard waste. They were concerned about the impact that such a ban would have on residents and businesses in the state. DNREC acted quickly to address these concerns by creating the Yard Waste Management Committee, with stakeholder representation from both the public and private sector in the field of yard waste composting and mulching. This group met many times, addressed specific areas of concern, and produced a final report in the form of consensus points to which the committee as a whole agreed. These consensus points supported the RPAC's assertion that a ban on the landfilling of yard waste would divert a large percentage of municipal solid waste from disposal, be economically and technically feasible, and would create business opportunities in the private sector. Several waste haulers expanded their businesses by offering a yard waste collection service, and at least one new commercial yard waste drop-off and mulching facility was established. In addition to creating and chairing the Yard Waste Management Committee, DNREC created a web page on which it posted information about the committee's activities as well as a variety of resources on yard waste management. This information can be found online at www.awm.delaware.gov/Pages/recycling.aspx. DNREC also gave dozens of yard waste presentations to community and interest groups.

However in early 2007 some legislators still were not comfortable. A few even drafted legislation that would not only remove the ban, but expand the Cherry Island Landfill and interfere with DNREC's regulatory authority. Senate Joint Resolution 2 (SJR 2) was issued as a measure to mediate these concerns. It directed DNREC and DSWA to conduct a number of activities including delaying the effective ban until January of 2008, fostering options for

recycling yard waste, establishing community yard waste demonstration sites, and producing three reports on these activities. DNREC continued to encourage and advertise yard waste recycling options. Initially several private mulching businesses offered to accept yard waste from individuals and businesses, and the list has since expanded. Nearly all waste haulers collecting in Northern New Castle County have since offered a yard waste collection program either of their own or have partnered with another business. DNREC also worked with groups such as the University of Delaware Cooperative Extension and the Delaware Center for Horticulture to educate residents on composting and other alternatives. DNREC continued to present yard waste management information and options to community and interest groups.

The bulk of DNREC's yard waste diversion efforts have been the establishment, operations, and maintenance of three temporary community yard waste demonstration sites. The DART Mid-County site is located near Bear, the Polly Drummond Hill Road site is located near Newark, and the Brandywine Hundred site is located north of Wilmington. The sites are available for residents to bring yard waste from their own yards for free. The yard waste is periodically ground into mulch. The mulch is made available to the public for free when supplies exist. The sites, which have been opened 18 months, 14 months, and 11 months respectively, are extremely popular. These sites are estimated to produce 25,000 to 30,000 cubic yards of mulch per year. As a result, these sites alone divert approximately 7,500 tons of material from entering the landfill while creating a useful mulch which is desired by residents.

The community yard waste demonstration sites have been very well received by the general public. Not only do they appreciate having a place to drop their yard waste free of charge, but they readily take the free mulch that is created from the yard waste. Many patrons have expressed how happy they are with this program, even declaring it one of the best things the state has ever done, and expressed their desire to see the program continue.

The enforcement of the Cherry Island Landfill yard waste ban has been in place for about a year and individuals and businesses have adjusted well. It is estimated that 50,000 tons of yard waste were diverted from the Cherry Island Landfill in 2008 as a result of the yard waste ban. Banning yard waste has effectively diverted a useful material from entering the landfill while fostering local jobs and businesses.

7.0 DSWA Activities

7.1 RECYCLE DELAWARE Drop-off Program

The DSWA continues to operate the RECYCLE DELAWARE program, one of the most successful and cost-effective voluntary drop-off programs in the nation. In FY07, approximately 20,750 tons of recyclables were received at RECYCLE DELAWARE centers. The materials collected at the centers are taken to the Delaware Recycling Center (DRC), an intermediate processing facility in Wilmington, where they are prepared for market.

List of all drop-off materials by Type and Quantity for FY 2007 (in tons)

ONP	Plastic	Clear Glass	Brown Glass	Green Glass	OCC	Cans	Junk Mail	Batteries	Grocery Bags	Oil	Textiles
10,478	1,172	1,193	403	754	2,375	621	2,105	54	126	1,361	108

7.2 Other DSWA Recycling and Recovery Programs

Curbside Recycling Program

In July 2006, DSWA expanded its curbside recycling program to serve all Delaware residents. As of March 2007, DSWA was serving 13,639 customers (7,706 in New Castle County, 1,804 in Kent County, and 4,129 in Sussex County). DSWA collected 7,386,000 pounds through the curbside program in FY07.

Through a cooperative curbside recycling initiative called “Partners in Recycling,” many trash haulers are offering discounts to their trash collection customers who sign up for the curbside recycling service. In addition, DSWA is working with municipalities to provide service on a contractual basis. Currently, the City of Dover, Town of Odessa, the City of New Castle, Arden, City of Rehoboth, Bellefonte, City of Milford, Bethany Beach, Lewes, Fenwick Island and South Bethany are under contract with DSWA.

Electronic Goods Recycling Program

In FY07, 1,669 tons of electronic goods were recycled through DSWA’s electronic goods collection program. An average of fifty high profile businesses and schools participate in this program each month.

Household Hazardous Waste (HHW) Program

In FY07, DSWA held seven (7) HHW events throughout the state. The total amount of HHW collected at all events totaled 182,783 pounds, making it the highest total in any fiscal year.

Yard Waste

During 2007, DSWA diverted 5,443 tons of yard waste from the working face of its landfills. The material was used at the landfills for wet weather pads, or in the production of compost.

DSWA began turning yard waste into compost using methods developed by Gore. This is being conducted at the DSWA Sussex County landfill located at Jones Crossroads as well as Cherry Island Landfill in New Castle County.

Oil Filter and Waste Oil Recycling Programs

In FY07, DSWA collected 437 tons of oil filters and 1,361 tons of motor oil from over 700 service stations and businesses throughout the state and from over 60 RECYCLE DELAWARE centers. On average, 1.4 million oil filters are sold annually in Delaware; DSWA collects over 1.2 million of those oil filters.

7.3 Assistance to Communities

DSWA continues to provide assistance to recipients of Recycling Assistance Grants in the form of containers, processing, and marketing services. As an example, the Town of Camden uses storage containers provided by DSWA for the recyclables collected in the Town's curbside recycling program. DSWA provides the transportation (through their contractor), processing, and marketing of the materials.

DSWA serves as the market outlet for the plastic containers collected in Rehoboth Beach's program and for the plastic bottles, shrink wrap, glass containers, and cans from Maryland's Midshore Recycling program.

7.4 Public Education and Outreach

DSWA views Public Education and Outreach as one of their main priorities. DSWA educates Delawareans on current issues while providing them with options for their future. DSWA believes in being a leader in Delaware by actively dealing with various environmental issues and developing educational material that relates to these issues to provide residents with options and a better understanding. The manner in which DSWA handled the yard waste ban in New Castle County is an excellent example. DSWA provides Delawareans with yard waste recycling options at the landfill and curbside pick-up as well as composting information. DSWA educates residents on these recycling services that are provided to them at a minimal fee. DSWA offers yard waste curbside pick-up for \$1.00 a bag and provides composting bins for \$10.00 each. DSWA spends countless hours giving public presentations and attending events on these options as well as developing outreach materials. DSWA believes that all Delawareans should be educated on environmental topics and takes an active role in the communities including schools to educate teachers and students. DSWA is extremely proud of their Composting Coloring and Activity Book, which helps students understand composting while also teaching them how they can create their own composting pile. The Composting and yard waste theme was also used in DSWA's annual poster/calendar contest for children in grades Kindergarten through 5 using an environmentally related theme. DSWA had well over 500 participants in the contest from all over the state.

DSWA outreach programs include classroom presentations, landfill tours, DSWA website, brochures, and educational materials for Delaware teachers such as the Trash Can Dan and the Clean Up Kids' Coloring and Activity Book and ABC's of Recycling Book. DSWA's Public

Information Group had presentations and mailings that reached over 174,000 contacts throughout Delaware. DSWA is constantly developing new educational materials for public outreach and to assist with concerns from the public. Another valuable DSWA outreach is its toll-free Citizens' Response Line, which answers approximately 150 calls per day dealing with various questions about recycling, composting, and landfilling. This gives residents the ability to have their questions or concerns dealt with on a daily basis.

DSWA's commitment to education and public outreach is evident through their constant participation in public events. One event that DSWA is particularly proud of is their Earth Day Festival. DSWA held its 7th Annual Earth Day Festival at Killens Pond State Park, Felton, Delaware. Over 3,000 people enjoyed a day full of fun activities, games, and environmental education. This event is held on the third Saturday of April to help commemorate the nationally celebrated Earth Day on April 22. For nine years DSWA has also partnered with many other groups to organize and participate in the Annual Safe Summer Day Event. This is an event that has been a valuable partnership for DSWA as well as the residents of Delaware. This event is an outreach to approximately 3,000 Delawareans that not only teaches individuals the importance in the environment but also various safety issues involved with the environment. This event is an excellent way for DSWA to educate the public on household hazardous materials and their proper disposal. DSWA views education and public outreach with not only great importance but also excitement. It's with this intention that DSWA takes the opportunity to participate in many other events such as the Delaware State Fair, The Great Green Expo, Delaware ENVIROTHON, University of Delaware's Coast Day, and several school presentations or events.

DSWA's goal to educate Delawareans about valuable environmental issues has been greatly assisted through their relationship with Delaware teachers. One of the many ways that DSWA has established relationships with these teachers is through the Newspapers in Education (NIE) Program. This exceptional program is a partnership with the News Journal and DSWA. This program benefits the teachers and students of Delaware by educating them on various environmental topics with hands-on activities. This educational resource reaches over 550 teachers statewide and provides them with educational materials, contacts, and additional environmental resources. DSWA is committed in educating residents on environmental issues such as recycling and how to participate in such programs. DSWA takes their commitment to the environment and Delawareans one step further by providing recycling containers at many public events such as the Wilmington Blue Rocks Games and the Delaware State Fair.

8.0 Recommendations

The RPAC's recommendations for increasing the recyclables diversion rate are as follows:

1. Enact comprehensive, statewide recycling legislation to increase diversion and improve efficiency.
2. Maintain the yard waste ban at the Cherry Island Landfill and expand statewide as appropriate.
3. Maintain the community yard waste demonstration sites and establish a permanent source of funding for these sites.
4. Continue the Recycling Measurement and Methodology Report annually. This report is a significant advance in understanding the quantity and details of recycling. Funding will be needed to provide the updates of this critical benchmark.
5. Enact legislation to require recycled material reporting.
6. Support the completion of the DSWA Recyclables Diversion Plan.
7. Support the completion of the House Resolution 73 report and recommendations by the Recycling Task Force of which the RPAC has representation.
8. Enact legislation to establish a permanent source of funding for the Recycling Assistance Grant Program.

8.1 Status of Previous Recommendations

Below is a listing of the previous RPAC recommendations as well as those from other groups. Most recommendations, such as providing incentives and resources for recycling and banning yard waste from landfills, are shared among groups.

Previous Recommendations from the RPAC Annual Reports

Date	Recommendation	Status
March 2007	Enact the proposed recycling legislation enabling the creation of a recycling fund that has the ability to substantially increase recycling and waste reduction in Delaware.	Legislation has been drafted but not successfully written into law.
	Maintain the yard waste ban at the Cherry Island Landfill and expand statewide as appropriate.	Senate Joint Resolution 2 directed the DSWA and DNREC to delay enforcement of the ban until January 2008.

Date	Recommendation	Status
April 2006	Enact legislation to permanently establish the RPAC.	
	Maintain the conditions in the Cherry Island landfill permit that are consistent with the provisions contained in S.B. 225.	Senate Joint Resolution 2 (2007) directed the DSWA and DNREC to delay enforcement of the ban until January 2008.
	Create a Delaware Recycling Fund to assist in the establishment and enhancement of recycling programs throughout the state. The source of funding should be an assessment on all solid waste collected and/or disposed of in Delaware except for those materials destined for recycling.	Legislation has been drafted but not successfully written into law.
April 2004	DNREC ban yard waste from the state's landfills to increase yard waste diversion	Yard waste banned from Cherry Island Landfill effective January 1, 2007 as part of the landfill permit
	DSWA develop a Materials Recovery Facility (MRF)	
	Develop a law that establishes a diversion rate and target date for its achievement.	Legislation has been drafted but not successfully written into law.
January 2003	Development of a comprehensive strategy for increasing the RSW diversion rate	
	Completion and evaluation of the cost study for curbside collection of recyclables and construction and operation of a MRF for New Castle County	Report prepared by DSM (October 15, 2003) demonstrating curbside recycling can be implemented cost effectively.
January 2002	Provide grant funding of \$100,000 for 2003 and increase \$25,000 per year through 2005.	Legislature decreased funding from \$75,000 to \$50,000 in FY2004 where it remained until FY2007 before it was eliminated due to budget shortfalls. It was re-implemented in FY2009, but was not included in the FY2010 budget.
	Maintain DNREC's current recycling staff level of one Environmental Scientist and one Community Relations Officer and add a Planner position in fiscal year 2004.	Not only has there not been a planner position added, the Community Relations Officer position was cut.
	Increasing awareness of the 'RECYCLE DELAWARE' program during grant and educational outreach activities, Revisiting the House Bill allowing DSWA easier access to shopping centers, where usage is typically highest, to site new 'RECYCLE DELAWARE' centers, Designing more aesthetic 'RECYCLE DELAWARE' centers to promote their acceptance.	Ongoing
	Support and expand recycled materials markets through DEDO's Green Industries Initiative and DNREC's Recycling Assistance Grant Program.	

Date	Recommendation	Status
January 2002	Through legislation provide DNREC with the authority to require waste collectors (municipal and private) to provide DNREC, on a confidential basis, information on the tons of trash and recyclable material collected in Delaware. This could be a requirement imposed as part of the transporter permitting process. It is proposed this legislation be effective July 2002.	
	Encourage municipal and home composting and divert yard waste from landfill disposal as follows: Encourage municipal composting by state purchase (Parks and Recreation, Administrative Services, Del DOT) of composted material for use in landscaping and, Provide a rebate for the purchase of mulching mowers; double if the mower is battery or electric or, banning yard waste from the active landfill and provide space at the landfill to collect the material for processing.	Yard waste banned from Cherry Island Landfill effective January 1, 2007 as part of the landfill permit. This is consistent with the Yard Waste Management Committee recommendations.
	Fund a study to determine the per-household cost of recycling/composting in different parts of the state. It is estimated such a study would cost at least \$50,000 and take several months to complete. The following recommendations will require major action by the State of Delaware to realistically achieve the thirty-percent diversion rate.	
	Provide franchise district capability to New Castle and Sussex County.	
	Collect a recycling fee from all waste haulers on a per ton basis as a part of the permitting process to support the building and operation of a Materials Recovery Facility (MRF). A MRF is needed to process commingled recyclables and market materials.	
	Build a MRF in New Castle County and adopt co-mingled curbside collection in the denser population areas.	

Recommendations from the Solid Waste Technical Working Group report, “Solid Waste Management Alternatives for Delaware” (May 15, 2006) related to source reduction and recycling

Recommendation	Status
Divert as much material from landfills as possible	
Strive for higher recycling goals and citizen participation which will require providing incentives for households, businesses, and government	Executive Order 90 called for increasing the former 30% of RSW recycling goal to 51% of MSW
Prohibit yard waste from all of Delaware’s landfills	Effective only at Cherry Island Landfill
DSWA provide opportunities for citizens to dispose of yard waste at each landfill and transfer station and convert these materials into compost or mulch	DSWA currently accepts yard waste separately at all facilities to manage as compost or mulch
Explore feasibility of banning other wastes from the landfills	
Further evaluate additional residential, commercial, and government source reduction/waste minimization problems	

Recommendations from the McCabe and Associates report, “An Assessment of Waste and Dredging Issues Relating to Landfill Capacity in the State of Delaware” (2005)

Recommendation	Status
General Assembly fund recycling programs and grants significantly like other states do	
General Assembly enact legislation to allow unclaimed beverage container deposit funds to be used to support recycling	

Appendix A. Executive Order Number 90

EXECUTIVE ORDER NUMBER 90 - Establishing The Recycling Public Advisory Council

WHEREAS, the average Delawarean produces 1,200 pounds of solid waste annually and much of that waste can and should be recycled;

WHEREAS, increasing Delaware's recycling efforts will benefit the environment and increase the useful life of the state's landfills;

WHEREAS, the Department of Natural Resources and Environmental Control (the "Department") and the Delaware Solid Waste Authority (the "Authority") promote varying aspects of municipal solid waste recycling in the State of Delaware;

WHEREAS, increasing our recycling efforts over the long-term will require a strong commitment on the part of Delawareans;

WHEREAS, schools, colleges, universities, municipalities, not-for-profit organizations, civic associations, and other community organizations are the entities most able to increase recycling within their borders and need assistance to provide the tools necessary to start recycling programs; and

WHEREAS, Delawareans increasingly recognize the importance of recycling and many Delawareans have expressed an interest in participating in curbside and other recycling programs,

NOW, THEREFORE, I, RUTH ANN MINNER, by virtue of the authority vested in me as Governor of the State of Delaware, do hereby declare and Order as follows:

1. It shall be the goal of this State to achieve a fifty-one percent (51%) diversion rate for recyclables from Delaware's municipal solid waste stream comprised of residential and commercial solid waste.
2. The Recycling Public Advisory Council (Council) is re-established and continued. The Council shall be composed of eleven (11) members who shall be appointed by the Governor as follows:
 - a. One member from the Department;
 - b. One member from the Authority;
 - c. One member representing county governments with such member being recommended by the Delaware Association of Counties;
 - d. One member representing municipal governments with such member being recommended by the Delaware League of Local Governments;
 - e. One member representing the recycling industry to be appointed by the Governor;
 - f. One member representing the waste hauling industry to be appointed by the Governor; and
 - g. Five members representing community-based or public-interest groups to be appointed by the Governor.
3. Members of the Council, except for those appointed pursuant to subparagraphs a, b, and c of paragraph 2 above, shall serve of up to 3 years and may be reappointed. Members of the current Council shall continue in office for the balance of their terms and shall also be eligible for reappointment. Members shall be appointed for staggered terms so that no more than 3 appointments shall expire in any one calendar year. Members may be reimbursed for travel to

and from meetings. The Governor shall appoint a Chairman from among the eleven members. Actions of the Council shall be approved by a majority vote of the Council. At least six (6) members of the Council shall constitute a quorum.

4. The Recycling Public Advisory Council shall:

- a. Advise the Department and the Authority on all aspects of recycling;
- b. Advise the Department in developing grant criteria, including local match requirements, and selection of applications as well as provide an annual assessment of the revenue needed to satisfy the grant requirements;
- c. Develop, in conjunction with the Department and the Authority, a methodology for measuring recycling rates;
- d. Provide advice and recommendations regarding the recycling outreach and education programs conducted by the Authority and/or the Department;
- e. Report to the Governor and the General Assembly annually by March 1 of each year on the status of recycling activities in Delaware. Said report shall include, but not be limited to the following:

- (1) status of attainment of the 51% recycling goal;
- (2) an accounting of the recycling grants program and any recommendations for future funding of the grants program;
- (3) an assessment of the activities of both the Department and the Authority in achieving a 51% municipal solid waste recycling goal;
- (4) an objective, auditable accounting of recycling rates for total solid waste, municipal solid waste, and residential solid waste; and
- (5) such other recommendations as the Council shall deem appropriate.

- f. Use the definitions of 'recycling' and 'municipal solid waste' as stated by the United States Environmental Protection Agency in its document EPA530-R-97-011 dated September 1997. The Council shall be able to adopt changes to these definitions.

5. The Department's Division of Air and Waste Management, in concert with the Authority and the Council, shall:

- a. Monitor the State's recycling initiatives and measure Delaware's achievements toward attainment of the 51% recycling goal;
- b. Implement a grant program for use by schools, colleges, universities, municipalities, not-for-profit organizations, civic associations, and other community organizations in reaching the statewide recycling goal specified herein;
- c. Design and implement public educational efforts aimed at increasing public awareness of recycling opportunities;
- d. Implement a public school recycling initiative whereby our school systems are able to participate in and benefit from increased recycling opportunities;
- e. Provide technical assistance to local entities to assist them in increasing their recycling rates;
- f. Provide administrative support to the Council;
- g. Report to the Governor and the Office of Management and Budget on the need for staff to provide this support; and

- h. Promote any other measures identified by the Council to support the achievement of the 51% recycling goal.
 - 6. The Department shall make matching grants available to schools, colleges, universities, municipalities, not-for-profit organizations, civic associations, and other community organizations to implement programs to reduce the amount of municipal solid waste disposed of in Delaware. Grants may be used for implementing or expanding recycling programs, encouraging composting of yard waste, implementing “pay-as-you-throw” programs, or any other activity that supports the achievement of the 51% recycling goal. The availability of grant money shall be subject to annual appropriations by the General Assembly.
 - 7. Executive Order Number 82 adopted September 14, 2000, is rescinded.
- Approved: September 6, 2006

Appendix B.
Recycling Public Advisory Council Members

Brock J. Vinton II, RPAC Chairman
Citizens Solid Waste Solutions Commission

Patricia Todd
League of Women Voters of Delaware

Robert A. Mooney
Mayor of Camden, League of Local Governments

Richard C. Cecil
Executive Director, Delaware Association of Counties

Pasquale S. Canzano
Delaware Solid Waste Authority

Paul R. Bickhart
Recycling Express of Delaware, Inc.

Steve Masterson
Waste Management of Delaware

James D. Werner
Department of Natural Resources and Environmental Control
Division of Air and Waste Management

Wallace Kremer
Del EASI

Dick Fleming
Delaware Nature Society

Teresa Iris
Indian River School District

Appendix C. Change in Reporting Date Letter



RECYCLING PUBLIC ADVISORY COUNCIL

Council Members

Brock J. Vinton II, Chairman
Paul Bickhart
Pasquale Canzano
Richard Cecil
Richard Fleming
Ptery Iris
Wallace Kremer
Steve Masterson
Patricia Todd
James D. Werner
George C. Wright, Jr.

March 12, 2008

The Honorable Ruth Ann Minner
Governor, State of Delaware
Tatnall Building, William Penn Street
2nd Floor
Dover, DE 19901

Dear Governor Minner,

On behalf of the Recycling Public Advisory Council (RPAC) I wanted to inform you that the RPAC has decided to shift the deadline for its Annual Reports to November 1st of each year. This change from March 1st will allow for more suitable timing to process data and synchronization of the Annual Report with the sub-requirement to account recycling rates. The first report for this sub-requirement, the Measurement and Methodology Report, will be presented to you shortly as an addendum to the Sixth Annual Report of the Recycling Public Advisory Council (March 2007).

If I can be of service, please do not hesitate to contact me at 302-777-1832.

Sincerely,

Brock J. Vinton II
Chairman
Recycling Public Advisory Council

cc: John Hughes, DNREC Secretary
Lydia Prigg, Governor's Office

Appendix D. Recycling Assistance Grant Project Summaries

FY 2006 Recycling Assistance Grant Summaries

Grant Recipient: Mount Pleasant Band Boosters
5201 Washington Street Ext.
Wilmington, DE 19809
302-651-6885
Contact: Robert Mason

Grant Amount: \$3,059.00
Amount Used: \$3,059.00

Project Description: Double the amount of aluminum recycled in Mount Pleasant High School's existing recycling program by expanding the drop-off recycling at the high school, engaging local businesses to recycle, and promoting recycling through community outreach.

Project Accomplishments: The Mount Pleasant Band Boosters implemented an outreach campaign that included newspaper advertisements, producing a canopy and banner used every month, purchasing additional signage, and distributing refrigerator magnets. They also purchased a shed for storage of aluminum and supplies. The Band Boosters expanded their activities by collecting from several local businesses. In twelve months the program collected about 8,000 pounds of aluminum.

Grant Recipient: Iron Hill Museum
1355 Old Baltimore Pike
Newark, DE 19702
302-368-5703
Contact: Laura M. Lee

Grant Amount: \$5,400.00
Amount Used: \$5,400.00

Project Description: Implement an educational/outreach initiative on recycling, targeting 40 schools in the Christina, Red Clay, Colonial, and Appoquinimink School Districts, as well as additional schools in New Castle and Sussex Counties, and focusing on grades 3 through 6.

Project Accomplishments: Educational outreach was provided to 149 classes and over 3,400 students including scout troops on recycling and resource conservation. Each class group also collected at least 100 pounds of junk mail for recycling.

Grant Recipient: City of Wilmington
Department of Public Works
800 French Street
Wilmington, DE 19801
302-576-3076
Contact: Alfonso Ballard

Grant Amount: \$24,679.00
Amount Used: \$24,679.00

Project Description: Conduct a 6-month pilot curbside recycling program in the City in partnership with RecycleBank.

Project Accomplishments: The City of Wilmington conducted a pilot recycling program in the City with RecycleBank. The program offers participants up to \$30 per month in coupons of their choosing. The City also advertised the recycling program through signs and billboards. They have a very good record of collection parameters which helps both Wilmington and RecycleBank monitor the program. Wilmington and RecycleBank have developed an excellent relationship and the program is now city wide.

Grant Recipient:	Middletown High School 120 Silver Lake Road Middletown, DE 19709 302-376-4140 Contact: Shane Rifenburg	Grant Amount: \$2,237.17 Amount Used: \$2,235.23
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Project Description: Establish a program to recycle paper at Middletown High School, with a goal of recycling 13,440 pounds of paper during the 2005-2006 and 2006-2007 school years.

Project Accomplishments: Middletown H.S. purchased 81 bins, 5 large containers, and 1 recycling collection cart for recyclables. Teachers held a recycling presentation which was followed by announcements giving recycling facts and advertising the recycling program. Students created a database to track the recycling and in four months, over 8,500 pounds of paper were collected for recycling. Student volunteers collect paper and weigh it before it is taken to be recycled. The average amount of paper collected increased steadily since the program's start. Over 2,800 pounds of paper is diverted from the waste stream each month.

Grant Recipient:	University of Delaware Office of the Vice Provost 210 Hullihen Hall Newark DE 19716 302-831-2136 Contact: Nancy Rash	Grant Amount: \$14,624.83 Amount Used: \$14,624.83
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Project Description: Encourage more composting in Delaware by performing educational outreach to elementary school children, teachers, and the general public.

Project Accomplishments: Composting education programs were conducted at numerous sites throughout New Castle County for over 5,500 youth, teachers, and general public. The University also purchased and distributed 400 backyard composters.

FY 2007 Recycling Assistance Grant Summaries

Grant Recipient: Town of Camden
2 South Main Street
Camden, DE 19934
302-697-2299
Contact: Donald Mulrine

Grant Amount: \$5,392.00
Amount Used: \$4,672.86

Project Description: Purchasing new bins and expanding the program to accommodate new households.

Project Accomplishments: Purchased 700 recycling containers and 100 additional lids. Advertised and delivered recycling bins to households, expanding the recycling service to all Camden residents.

Grant Recipient: Iron Hill Museum
1355 Old Baltimore Pike
Newark, DE 19702
302-368-5703
Contact: Laura M. Lee

Grant Amount: \$5,400.00
Amount Used: \$5,400.00

Project Description: Implementing an educational/outreach initiative on recycling, targeting 40 schools in New Castle and Kent Counties, and focusing on grades 3 through 6.

Project Accomplishments: Educated about 3,500 students on recycling. Initiated the recycling of 20,125 pounds of junk mail and paper from the schools. Helped foster the continued collection of recyclables in the schools and at the students' homes.

Grant Recipient: City of Wilmington
Department of Public Works
800 French Street
Wilmington, DE 19801
302-576-3076
Contact: Alfonso Ballard

Grant Amount: \$20,000.00
Amount Used: \$20,000.00

Project Description: Implementing an outreach initiative promoting the City's curbside, incentives-based recycling program.

Project Accomplishments: Distributed mailers to 900 households on a monthly basis. Conducted a door-to-door community outreach campaign. Advertised using local media to better inform residents about the recycling program. Helped increase waste diversion to 32% during the outreach effort.

Grant Recipient: University of Delaware
Office of the Vice President
and University Secretary
126 Hullihen Hall
Newark, DE 19716
302-831-8498
Contact: Deborah Hoff

Grant Amount: \$8,600.00
Amount Used: \$7,535.00

Project Description: Conducting recycling and waste minimization programs, including outreach, to maximize waste diversion during the student move-out timeframe.

Project Accomplishments: Provided a means of diverting, separating, and recycling waste generated by departing University of Delaware students and some Newark residents. The program also collected reusable furniture, household goods, non-perishable foods, and clothing for the Ministry of Caring, Food Bank of Delaware, and Planet Aid. Reduced the amount of material landfilled during this time by 64 tons or 31%. The program also prevented the

illegal dumping of various materials. There was also a cost saving of \$3,180 over previous years where everything was disposed. Involved businesses and the community in the project.

Grant Recipient:	University of Delaware Office of the Vice Provost 210 Hullihen Hall Newark DE 19716 302-831-2136 Contact: Ellen Pletz	Grant Amount: \$4,888.00 Amount Used: \$4,888.00
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Project Description: Teaching the basics of composting to about 2,000 elementary school students as an important part of waste reduction.

Project Accomplishments: Educated nearly 5,000 youth and adults on composting, teaching the basics of home composting. Distributed composting bins to 400 youth. Distributed 1,500 "Start Composting Today" brochures.

Grant Recipient:	Sussex Central Middle School 301 West Market Street Georgetown, DE 19947 302-856-1900 Contact: Whitney Price/Teresa Lunn	Grant Amount: \$365.00 Amount Used: \$0.00
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Project Description: Educating students on the importance of recycling and implementing a recycling program targeting paper and milk containers.

Project Accomplishments: Did not conduct grant activities.

Grant Recipient:	North Star Elementary 1340 Little Baltimore Road Hockessin, DE 19707 302-234-7200 Contact: Cristen Whittaker	Grant Amount: \$2,287.50 Amount Used: \$2,205.67
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Project Description: Educating students on the importance of recycling and implementing recycling programs in the school.

Project Accomplishments: Incorporated recycling into classroom lessons. Students track the recycling of paper and milk bottles, weighing the material weekly. Held a recycling competition among classrooms. Had the New Castle County Master Gardeners visit the school to educate students on composting. The school went from recycling nothing to collecting 16 pounds of paper each day.

Grant Recipient:	Thurgood Marshall Elementary 101 Barrett Run Road Newark, DE 19702 302-454-4700 Contact: Nancy Ventresca	Grant Amount: \$3,066.95 Amount Used: \$0.00
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Project Description: Educating students on the importance of recycling and implementing recycling collection and outreach programs in the school.

Project Accomplishments: Did not conduct grant activities.

Appendix E. House Bill 159

SPONSOR: Rep. Valihura & Sen. McBride ;
Reps. Lofink, Hall-Long, Longhurst, McWilliams,
Mulrooney, Brady, Ennis, Johnson, Kowalko, M
Marshall, Oberle, Schooley, B. Short; Sens. McDowell,
Sokola, Copeland, Sorenson, Connor, Henry

HOUSE OF REPRESENTATIVES
144th GENERAL ASSEMBLY

HOUSE BILL NO. 159

AN ACT TO AMEND TITLE 7 OF THE DELAWARE CODE TO PROVIDE ASSISTANCE FOR THE
ESTABLISHMENT OF PUBLIC AND PRIVATE PROGRAMS TO INCREASE THE LEVEL OF VOLUNTARY
RECYCLING AND BENEFICIAL USE OF SOLID WASTE MATERIALS IN DELAWARE.

BE IT ENACTED BY THE GENERAL ASSEMBLY OF THE STATE OF DELAWARE (Three-fifths of all
members elected to each house thereof concurring therein):

Section 1. Amend § 6002, Title 7 of the Delaware Code, by inserting therein the following new paragraphs:

- “(74) ‘Collector’ means a person who collects recyclable materials and/or organic yard waste.
- (75) ‘Municipal Solid Waste’ means durable goods (excluding vehicles and other moving equipment), nondurable goods, containers and packaging, food scraps, organic yard waste and miscellaneous inorganic waste from residential (single- and multi-family households) and non-residential (commercial, institutional and industrial) sources. Municipal solid waste does not include construction and demolition debris, vehicle bodies, pre-consumer waste, municipal sludges, combustion ash or industrial process wastes.
- (76) ‘Organic yard waste’ means plant material resulting from lawn maintenance and other horticultural gardening and landscaping activities and includes grass, leaves, prunings, brush, shrubs, garden material, Christmas trees and tree limbs up to 4 inches in diameter.
- (77) ‘Processor’ means a person who manages recyclables and/or organic yard waste for the purpose of returning them to the economic mainstream.
- (78) ‘Recyclable Material’ or ‘Recyclables’ means any material or group of materials that can be collected and sold or used for beneficial purposes.

- (79) ‘Single Stream’ means a system in which all fibers (at a minimum paper, cardboard, etc.) and containers (at a minimum plastic and metal) are mixed together for collection into one container instead of being sorted into separate commodities and multiple containers.
- (80) ‘Source Separated’ means the process by which recyclable materials are segregated and kept apart from the waste stream by the generator thereof for the purpose of collection, disposition, recycling or resources recovery.
- (81) ‘Transporter’ means any person engaged in the transportation of solid waste.
- (82) ‘Authority’ means the Delaware Solid Waste Authority.
- (83) ‘Recycling’ means the process by which discarded municipal solid waste materials are separated and used as raw materials, products or replacement of products, including the reuse of organic yard waste, but does not include the burning of materials for energy.
- (84) ‘Local Governments’ means counties, cities, towns, municipalities, civic or community associations within unincorporated areas of the state that are recognized as a not-for-profit organization under state and federal law.”.

Section 2. Amend Chapter 60, Title 7 of the Delaware Code, by adding the following new Sections to Subchapter II thereof:

“§6043. Local Government Recycling Grants Program and Private Sector Initiatives.

- (a) Local Government Recycling Grants Program. There is hereby established a competitive Local Government Recycling Grants Program (Program) to assist local governments with (1) the implementation of source separated recyclables collection and processing programs with emphasis on start-up costs for single-stream curbside collection and (2) start-up costs for initiatives which result in the beneficial use of solid waste materials which would otherwise be land disposed. The Program shall be administered by the Department, and monies from the Program shall be paid based on approved grant requests. The Department shall be entitled to charge to the Program an administrative fee of 7.5% of grants made to cover the cost of managing the Program. The Department shall be entitled to disburse grant monies for the documented costs of implementing the collection or processing of source separated recyclable materials. The Department shall be entitled to adopt guidelines and procedures for administering the Program and determining

eligibility for receipt of funding pursuant to § 6044(a) of this Title. The Department shall solicit the commentary of the grant eligible stakeholders during development of the grant guidelines and procedures. Local Governments electing to implement a curbside recycling program are in no way precluded from requiring mandatory participation by the residents within their jurisdiction. The Program shall be funded by monies made available under the provisions of § 6044.

- (b) Local Governments and private sector entities engaging in the collection, transportation, processing, and marketing of source-separated recyclable materials shall conduct such activities in a manner that the source-separated recyclable materials enter the marketplace or, in the event the recyclable materials are unmarketable, then put to other beneficial use.”
- (c) Private Sector Initiatives. There is hereby established a competitive grant program to assist private sector entities with (1) start-up costs for the implementation of source separated recyclables collection and processing programs with emphasis on single-stream curbside collection and (2) start-up costs for beneficial use initiatives which result in the beneficial use of solid waste materials which would otherwise be land disposed. The private sector initiatives program shall be administered and subject to the requirements set forth in subsection (a) above.

§6044. Delaware Recycling Fund.

- (a) There is hereby established a Delaware Recycling Fund in the Department for the exclusive purpose of funding specific activities designed to enhance the state’s recycling rate and the beneficial use of materials otherwise land disposed. Monies in the Delaware Recycling Fund shall be retained in an interest bearing account and may be expended only:
 - (1) To fund the Local Governments Recycling Grants Program and Private Sector Initiatives. Annual funding for the Local Governments Recycling Grants Program and Private Sector Initiatives shall be dependent on revenue generated by the Delaware Recycling Fund referenced in subsection (d) of this Section;
 - (2) To pay the Department’s limited and reasonable costs and grant recipient’s costs of establishing and conducting public outreach and education programs to promote the Grant Program, curbside recycling and organic yard waste management and beneficial use initiatives;

- (3) To pay the limited and reasonable cost of the Department and Recycling Public Advisory Council, collectively studying and evaluating the status and potential for recycling the commercial component of municipal solid waste, and other improvements to the residential curbside recycling program, including the funding of initiatives undertaken by Local Governments and the private sector to enhance the recovery rates of recyclable materials and determination of the level of recycling achievable for all solid waste generated in the state as a result of implementation of the programs established under this Subchapter.
- (b) The funding for the Delaware Recycling Fund shall be derived from an assessment of \$3.00 per ton made by the Department for every ton of solid waste generated and/or disposed in Delaware, excluding recyclable materials actually recycled and hazardous waste, collected by transporters and/or generators subject to: (i) the permit requirements of the Department pursuant to § 6001(c)(6), § 6003 (a)(4), and § 6025 of Title 7 of the Delaware Code; and (ii) the licensing requirements of the Authority adopted pursuant to § 6404 (6) of Title 7 of the Delaware Code. Quarterly (by the 15th of January, April, July and October) the Authority shall submit to the Department the names and addresses of the transporters subject to the provisions of 7 Del. C. 6404(6) and the total solid waste tonnage that each transporter delivered to each DSWA facility. The Department, via its transporter permit program, shall be responsible for identifying the generators and transporters of solid waste which do not use the Authority's facilities, and shall make an assessment for the tonnage of solid waste generated and/or disposed in Delaware.
- (c) Any Local Governments subject to the assessment established under this § 6044 shall be entitled to seek and obtain an exemption from the assessment upon demonstration to the satisfaction of the Secretary that the Local Government has adopted a program which has achieved a recovery rate of 30 percent of the total residential solid waste which would otherwise be land disposed by the Local Government. The exemption shall be valid so long as the 30 percent recovery rate is being achieved on an annual basis.
- (d) The assessment shall become effective three (3) months from the date of enactment and the Department shall collect the assessment from transporters and/or generators after the initial

assessment on a quarterly basis utilizing forms and procedures developed by the Department. Payment of assessments shall be due within 30 days of the end of the quarter (The 30th of January, April, July and October), and any late payment shall bear interest at the rate of 1.5% per month. The Department shall provide an annual report to the Authority and the Recycling Public Advisory Council setting forth the amounts collected from each transporter and/or generator and any delinquencies. The Authority and the Department shall cooperate in maintaining an accurate list of active transporters and/or generators subject to the assessment. The Department shall be entitled to seek collection of any assessments due to the Department through civil action or may seek to impose on the transporter and/or generator the sanctions specified for violation of a permit condition as set forth in § 6005 of Title 7 of the Delaware Code.

- (e) The Department shall commence the Local Governments Recycling Grants and Private Sector Initiatives Programs in calendar year 2008 and offer the Programs at least annually thereafter until December 31, 2015. One year prior to the termination date, the Department in consultation with the Recycling Public Advisory Council and pursuant to the solicitation of commentary by grant eligible stakeholders), shall report on the status of the Programs and make recommendations to the Governor and General Assembly on whether and how the Program should be reauthorized. The assessment shall terminate as of December 31, 2015 unless reauthorized by enabling legislation.
- (f) The Recycling Public Advisory Council, pursuant to solicitation of commentary by grant eligible stakeholders, shall make recommendations annually to the Department regarding the programmatic priorities for awarding grant funds under §6043 of this Title. The Recycling Public Advisory Council shall provide recommendations regarding the categories and priorities for grants that reflect an informed and representative view of the most urgent and important areas where grant funding will provide the most benefit to the State of Delaware balancing current needs with those of future generations.
- (g) The Department shall review all applications and requests for funding from the Delaware Recycling Fund and award funding grants taking into consideration the Recycling Public Advisory Council recommendations. In those cases where the Department's funding decisions differ

significantly from the Recycling Public Advisory Council recommendations, the Department shall report to the Recycling Public Advisory Council the justification for such differences.

- (h) The Authority shall not be entitled to receive any grants from the Delaware Recycling Fund.
- (i) The Recycling Public Advisory Council and the Department shall publish annually by November 1st of each year a report on all actions and activities involving the Delaware Recycling Fund and the status of recycling activities in Delaware as they relate to attainment of the goals established under 7 Del C. §6046(a).
- (j) The monies provided from the Delaware Recycling Fund shall be subject to independent audit and the recipient of any such funding shall agree to the audit and cooperate with the auditor as a condition of receiving funding.

§6045. Residential Curbside Recycling Programs

Residential Curbside Recycling Programs eligible for receiving funding from the Delaware Recycling Fund shall provide that persons who participate in the curbside recycling program separate in single stream or multi-stream at least paper materials (including at a minimum corrugated cardboard), aluminum materials, steel materials, organic yard waste and plastics materials deemed capable of being recycled from other municipal solid waste generated at their homes, apartments and other residential establishments and to store such materials until collection. Nothing shall be deemed to impair the ownership of separated materials by the person who generated them unless and until such materials are placed at curbside or similar location for collection by the Local Government or other collector.”.

Section 3. Amend § 6451, Title 7 of the Delaware Code, by inserting therein the following new paragraphs:

- “(6) ‘Single stream’ means a system in which all fibers (at a minimum paper, corrugated cardboard etc.) and containers (at a minimum plastic and metal) are mixed together for collection into one container instead of being sorted into separate commodities and multiple containers. (7) ‘Organic yard waste’ means plant material resulting from lawn maintenance and other horticultural gardening and landscaping activities and includes grass, leaves, prunings, brush, shrubs, garden material, Christmas trees and tree limbs up to 4 inches in diameter.”.

Section 4. Amend § 6452(2), Title 7 of the Delaware Code, by inserting the words “and single stream materials” immediately after the word “materials” as it appears therein.

Section 5. Amend § 6452, Title 7 of the Delaware Code, by striking the word “and” at the end of paragraph (9) thereof; by striking the period as it appears at the end of paragraph (10) thereof and substituting in lieu thereof a semi-colon; and by inserting therein the following new subsections:

- “(11) The implementation of a single-stream source separated recycling system that balances the need for drop-off recycling centers with public and private sector implementation and expansion of curbside recycling programs; provided, however, that where a municipal government implements mandatory curbside recycling within its jurisdiction, the Authority may remove the drop off sites located within the same jurisdiction; and
- (12) The development of recycling centers for organic yard wastes on Authority controlled and publicly controlled lands if necessary in the event private organic yard waste recycling efforts are unable to provide this service at a level capable of managing all of the organic yard waste which is generated.”.

Section 6. Amend Chapter 64, Title 7 of the Delaware Code, by striking § 6454 thereof in its entirety and by substituting in lieu thereof the following:

“§6454. Recycling Centers.

- (a) The Authority shall establish organic yard waste recycling centers on lands owned or controlled by the Authority or other public entity if needed to supplement organic yard waste recycling facilities operated by the private sector. The Authority shall be entitled to impose a tipping fee or other service charge to cover the capital and operating costs of Authority recycling centers which handle organic yard waste.
- (b) Implementation of efficient and cost-effective recycling programs will require that Delaware have access to processing facilities capable of processing single and/or multiple-stream recyclables. Where the private sector has developed extensive recyclables processing capability and unique programs that provide incentives to the general public to recycle that are not available to Delaware residents, the Department and the Authority shall encourage and work with the private sector to establish private facilities for recyclables and recycling incentive programs in Delaware. If, the

private sector does not provide sufficient private facilities for recyclables, as determined by the Department and the Authority, then the Authority shall accept at no cost and process or provide for the processing of single stream recyclable materials comprised of paper materials, aluminum materials, steel materials and plastic materials. Additional materials may be accepted at the single-stream recycling center subject to the approval of the Authority. The Authority shall receive recyclable materials for transfer to the processing facility at locations designated by the Authority. It shall be the responsibility of the Authority to ensure that processing and/or transfer facilities for managing single-stream collected recyclables are in operation in each County. It shall also be the responsibility of the Authority to transport or arrange for the transport of recyclables from transfer stations or landfills at which they choose to accept recyclable materials to a processing facility. Municipal and private collectors shall not be required to use the Authority's recycling centers. The revenues derived from the sale of recyclable materials and the Authority's revenue stream resulting from the elimination of drop off recycling centers under the provisions of this Act shall be used to offset the Authority's costs of transporting, receiving, processing and marketing recyclable materials."

Section 7. Amend Chapter 64, Title 7 of the Delaware Code, by striking § 6455 thereof in its entirety and substituting in lieu thereof the following:

"§6455. Public Education and Promotion of Recycling, Composting and other Waste Reduction Programs.

The Authority, in cooperation and consultation with the Department, shall initiate and conduct public outreach and education programs on the operation of its residential curbside recycling, drop off and organic yard waste programs, as well as continuing education on the purposes and value of source separated recycling and resources recovery. The intent of these educational programs shall be to maximize the diversion and recovery of household recyclables and organic yard waste, whether it was generated by the commercial or residential sector. Such program may be conducted in conjunction with similar efforts of private industry, municipalities, public interest groups and the Department. The program may include the use of public advertising."

Section 8. Amend Chapter 64, Title 7 of the Delaware Code, by inserting therein the following new Sections:

"§ 6461. Residential Curbside Recycling Programs.

- (a) *Establishment.* The Authority shall establish and implement a statewide residential multi-stream and/or single stream source separation and collection program for recyclable materials in accordance with this section. This shall include provisions encouraging and facilitating the development of flexible private and municipal systems for source separating recyclables, collecting source separated recyclables, processing source separated recyclables and marketing source-separated recyclables.
- (b) *Notice.* The Authority shall establish a comprehensive and sustained public information and education program addressing recycling program features and requirements. As a part of this program, the Authority shall, at least 30 days prior to the initiation of the recycling program and thereafter, provide notification to all affected residents of the requirements of any residential curbside collection program.
- (c) *Implementation.*
 - (1) In the absence of private or municipal participation, in whole or in part, in the collection, transportation, processing, and marketing of multi-stream and/or single stream source separated recyclable materials, the Authority shall make such services available statewide through a multi-stream and/or single stream drop off sites and by offering a subscription multi-stream and/or single stream curbside recycling service, directly or through contract with others. The Authority may utilize its own personnel and resources but preference should be given to contracting with the private sector if cost effective, to provide this service consistent with the provisions of 7 Del. C. 6401(b)(4).
 - (2) Nothing contained herein shall be construed to prevent any person from collecting, transporting, processing, and marketing source separated recyclable materials in competition with municipalities or the Authority, provided that the requirements of this Subchapter are satisfied.”.

Section 9. Amend Chapter 60, Title 7 of the Delaware Code, by inserting therein the following new Section:

“§ 6046. Minimum Recovery Rates.

- (a) It is the intent of the General Assembly that the program implemented pursuant to this Subchapter reduce the amounts of municipal solid waste, which is comprised of residential and commercial solid waste (including organic yard waste), currently deposited or capable of being deposited in

landfills in this State by recovering from such municipal solid waste recyclable materials at the recovery levels specified below. The Department and the Recycling Public Advisory Council shall report annually on the recovery rates of solid waste by identifying all public and private recycling efforts which reduce the amounts of municipal solid waste generated. Any person engaged in recycling or resource recovery of source separated solid waste generated in the State shall file with the Department an annual statement which contains the information required by the Department to determine and report on the recovery rate. It shall be a goal to achieve recovery rates of municipal solid waste according to the following schedule:

Time in which Recovery Rates are achieved	Total Residential Solid Waste Recovered	Total Commercial Solid Waste Recovered
January 1, 2008	20%	_____
January 1, 2009	25%	_____
January 1, 2010	30%	50%

The goal for recovery of municipal solid waste (residential solid waste and commercial solid waste) shall be 51% to be attained by January 1, 2015.

- (b) Notwithstanding any provisions or definition to the contrary contained in this Chapter, for purposes of satisfying the minimum recovery rates set forth in subsection (a) above recyclable materials shall be those paper, aluminum, metal, and plastic materials and other municipal solid waste which is source separated and collected for recycling, and recycling for purposes of the program established hereunder shall mean the process by which discarded municipal solid waste materials are separated and used as raw materials, products or replacement of products, or put to other beneficial use, including the reuse of organic yard waste, but does not include the burning of materials.”.

SYNOPSIS

This Act establishes a framework for a statewide residential curbside recycling system and provides the opportunity for local communities, municipalities, counties and private sector entities to establish residential curbside recycling programs. It addresses the elements of a recycling system, including separation, collection, and processing of recyclables, while leaving the existing trash collection system intact. It provides for the establishment of transfer and processing facilities to which single stream recyclables can be delivered. If not provided by the private sector, the processing of the recyclables will be provided at no cost by DSWA. They will be designed to accept recyclables collected in a multi-stream and/or single-stream collection systems. In assuming additional recycling responsibilities DSWA will incur additional costs which need to be absorbed in its budget. DSWA projects a \$10.4M deficit for FY 07 for its current recycling

programs.

This Act establishes a Recycling Fund to help pay for various aspects of the recycling system. The source of funding will be a \$3 per ton assessment on all solid waste (excluding recyclables) collected and/or disposed of in Delaware. Thus, those who collect solid waste in Delaware and dispose of it out of state will also pay the assessment to support the Delaware recycling initiatives. The fund will be administered by DNREC and used to help municipalities with start-up costs, fund private sector initiatives, support an education and outreach program and fund an assessment of the potential for increased commercial waste recycling. DSWA is not eligible to receive any monies from the Recycling Fund.

The Act provides for the development of yard waste management facilities to handle such materials. Development of private facilities will be encouraged; however, if these do not materialize, DSWA will manage the yard waste on its property or other public property. DSWA is entitled to charge a tipping fee at these facilities sufficient to cover the costs of operation.

The Act establishes recycling goals for both residential and commercial solid waste and involves the Recycling Public Advisory Council, whose role will be to advise DNREC and DSWA on various aspects of recycling and to report annually on the state of recycling and progress made toward the established goals.

Appendix F. Yard Waste Ban Support Letter



RECYCLING PUBLIC ADVISORY COUNCIL

Council Members

Brock J. Vinton II, Chairman
Patricia Todd
Pasquale Canzano
Paul Bickhart
Richard Cecil
James D. Werner
Richard Fleming
Wallace Kremer
Teresa Iris
George C. Wright, Jr. *
Steve Masterson **

January 19, 2007

The Honorable Ruth Ann Minner
Governor, State of Delaware
Tatnall Building, William Penn Street
2nd Floor
Dover, DE 19901

Dear Governor Minner:

Since our establishment in 2000, the Recycling Public Advisory Council has supported banning yard waste from Delaware's landfills. Yard waste is the easiest, most cost effective, and most sensible form of recycling. Several Delaware specific studies and countless National studies and experiences demonstrate that yard waste bans increase waste diversion rates and extend landfill life. Yard waste bans also provide an opportunity for new businesses interested in collecting and processing yard waste thereby creating jobs and helping Delaware's economy. The Recycling Public Advisory Council has researched this subject in detail and has continuously advised the Governor and Legislators to ban yard waste from landfills in all five of our annual reports.

Furthermore, both the May 2006 Solid Waste Technical Working Group Report and Executive Order 90 have established a statewide goal of diverting 51% of our municipal solid waste and the Recycling Public Advisory Council is committed to achieving this goal. In order to reach 51%, the Recycling Public Advisory Council believes it is imperative that yard waste, comprising 19-25% of the waste stream, be banned from disposal in Delaware landfills.

The Recycling Public Advisory Council appreciates any support you can provide for a yard waste ban and is available as a resource with respect to yard waste and other recycling issues in Delaware.

Sincerely,

Brock J. Vinton II
Chairman
Recycling Public Advisory Council

cc: Legislators
RPAC Members
Lee Ann Walling, Senior Advisor
John Hughes, Secretary

* Council member abstained from vote

** Council member not present for vote

Appendix G. Recycling Measurement Data

G.1 – Diverted Recyclables Spreadsheet (see next page)

G.1 – Diverted Recyclables Spreadsheet

RPAC ANNUAL REPORT - CALENDAR YEAR 2007																
Tons of Diverted "EPA-Recyclables" in MSW - Source of Data: DSWA and DSM																
"Recyclables" means "those materials recovered from the solid waste stream and transported to a processor or end user for recycling." (EPA530-R-97-011)																
CATEGORIES OF RECYCLABLES		DSM RECYCLABLES SURVEY DATA Delaware Businesses (DSM Report, Appendix) **			DSWA RECYCLABLES -- WEIGHED UPON RECEIPT (DSWA Report, Appendix) "%R" is Percent Residential; "%C" is Percent Commercial									TOTAL RECYCLABLES COLLECTED FOR PROCESSING (TONS)		
		Tons of Recyclables			Drop-off Containers *			Other Collections *			Curbside Collection *					
		RESIDENTIAL	COMMERCIAL	TOTAL	Tons (Total)	%R	%C	Tons (Total)	%R	%C	Tons (Total)	%R	%C	Res'l	Comm'l	Total
Category I. Diverted "EPA-Recyclables" - MSW materials classified by EPA as "recyclables", diverted from landfill (CY2007)																
PAPER	ONP (old newspapers)		3,033	3,033	9,847	90	10	121	100	0	224	100	0	9,207	4,018	13,225
	OCC (old corrugated containers)		73,314	73,314	2,637	90	10	2,676	0	100	108	100	0	2,481	76,254	78,735
	Mixed Paper		10,179	10,179	2,019	90	10	599	0	100	214	100	0	2,031	10,980	13,011
	Sorted Office Paper		5,249	5,249										0	5,249	5,249
	Undeliverable Mail from Post Office			0				825	50	50				413	413	825
PACKAGING	Clear Glass			0	1,125	90	10	0	100	0				1,013	113	1,125
	Brown Glass			0	356	90	10	0	100	0				320	36	356
	Green Glass			0	765	90	10	0	100	0				689	77	765
	Mixed Glass		10					5,671	100	0	234	100	0	5,905	0	5,905
	Plastic Bottles		46	46	1,156	90	10	121	90	10	31	100	0	1,180	174	1,354
	Aluminum Cans		16	16										0	16	16
	Pallets, mulched		12,412	12,412										0	12,412	12,412
	Shrink Wrap		1,713	1,713										0	1,713	1,713
VEHICLE WASTE	Plastic Grocery Bags and Film			0	112	90	10							101	11	112
	Oil Filters	91	18	109				414	90	10				464	59	523
	Automotive Lead-Acid Batteries			0				0	100	0				0	0	0
	Lead Acid Batteries	3,739	748	4,487										3,739	748	4,487
SPECIAL WASTE	Tires	4,729	1,182	5,911										4,729	1,182	5,911
	Carpet and Textiles			0	78	90	10							70	8	78
	Carpet		32	32										0	32	32
	Textiles	3,409		3,409										3,409	0	3,409
	Fluorescent Bulbs		40	40										0	40	40
	Electronics		200	200										0	200	200
AG & FOOD WASTES	Electronic Goods			0				1,943	90	10				1,749	194	1,943
	Fats, Oil, Grease		4,716	4,716										0	4,716	4,716
GREEN WASTE,	Food waste		4,847	4,847										0	4,847	4,847
	Leaf and Yard Waste	67,093	5,676	72,769				4,182	50	50	565	100	0	69,749	7,767	77,516
	Trees and Branches	94,790	11,847	106,637										94,790	11,847	106,637
	Clean Wood (e.g. trees, stumps), mulched		0	0										0	0	0
METALS	Aluminum & Steel Cans			0	594	90	10				73	100	0	608	59	667
	White Goods	21,036		21,036				2,118	90	10				22,942	212	23,154
	Ferrous			0										0	0	0
	Non-Ferrous, All Other			0										0	0	0
	Durables, mixed (e.g. small appliances)	0		0										0	0	0
SINGLE STREAM	"Mixed recyclables": collected mixture of different categories of recyclables; includes City of Wilmington collection	4,680		4,680							3,423	100	0	8,103	0	8,103
Subtotals, Category I (Tons)		199,567	135,278	334,835	18,689			18,670			4,872			233,691	143,375	377,066
* NOTE: Drop-off containers commonly known as "Igloos". "Other Collections" are mostly materials delivered to landfill sites by individuals and businesses, not commercial waste haulers. Percentage estimates based on a 2003 DSM study.																
** DSM Report: "Evaluation of Enhanced Residential Waste and Recyclables Collection and Processing for New Castle County FINAL REPORT OCTOBER 15, 2003"																

G.2 – Total Waste Spreadsheet

Category 4A - Delaware's <u>Total</u> Solid Waste To Landfill (CY2007)				
LANDFILL LOCATION	BREAKDOWN - TOTAL SOLID WASTE (%)			TOTAL (%)
	RESIDENTIAL	COMMERCIAL	CONSTRUCTION & DEMOLITION	
Cherry Island	43%	41%	16%	100%
Pine Tree Transfer Station	41%	41%	18%	100%
Central Landfill	34%	30%	37%	100%
Milford Transfer Station (only open one week in FY2006)	41%	44%	15%	100%
Rt. 5 (not open in FY2006)	38%	38%	25%	100%
Southern Landfill	26%	28%	46%	100%
BREAKDOWN - TOTAL SOLID WASTE (TONS)				TOTAL (TONS)
Cherry Island	230,699	217,332	86,981	535,012
Pine Tree Transfer Station	30,936	30,353	13,624	74,913
Central Landfill	53,097	46,187	57,221	156,505
Milford Transfer Station	17,497	18,914	6,614	43,025
Rt. 5	27,602	27,712	17,971	73,284
Southern Landfill	45,664	48,992	80,749	175,405
Subtotal, Category 4B (Tons)				1,058,144
Category 4B - Delaware's <u>Municipal</u> Solid Waste To Landfill (CY2007)				
	BREAKDOWN - TOTAL MUNICIPAL SOLID WASTE (%)			TOTAL MSW (%)
	RESIDENTIAL	COMMERCIAL		
Cherry Island	51%	49%		100%
Pine Tree Transfer Station	50%	50%		100%
Central Landfill	53%	47%		100%
Milford Transfer Station (only open one week in FY2006)	48%	52%		100%
Rt. 5 (not open in FY2006)	50%	50%		100%
Southern Landfill	48%	52%		100%
BREAKDOWN - TOTAL MUNICIPAL SOLID WASTE (TONS)				TOTAL MSW (TONS)
Cherry Island	230,699	217,332		448,031
Pine Tree Transfer Station	30,936	30,353		61,289
Central Landfill	53,097	46,187		99,284
Milford Transfer Station (only open one week in FY2006)	17,497	18,914		36,411
Rt. 5 (not open in FY2006)	27,602	27,712		55,313
Southern Landfill	45,664	48,992		94,656
Subtotals, Category 4B (Tons)				794,984

G.3 – Recyclable Diversion Rate Calculation

Using the data from the previous two pages, the diversion rate of recyclables can be calculated as follows:

$$\begin{aligned}\text{Diversion rate of recyclables (\%)} &= 100 \times \frac{\text{MSW recyclables, tons diverted}}{\text{MSW recyclables, tons diverted} + \text{MSW, tons landfilled}} \\ &= 100 \times \frac{377,066 \text{ tons diverted}}{377,066 \text{ tons diverted} + 794,984 \text{ tons landfilled}} \\ &= 32.17 \%\end{aligned}$$

The exact same calculation can be made for the Commercial and Residential segments* of the market by substituting the respective segment data from the previous two pages, as follows:

$$\begin{aligned}\text{Diversion rate of Commercial recyclables (\%)} &= \\ &= 100 \times \frac{\text{Commercial recyclables, tons diverted}}{\text{Commercial recyclables, tons diverted} + \text{Commercial MSW, tons landfilled}} \\ &= 100 \times \frac{143,375 \text{ Commercial tons diverted}}{143,375 \text{ Commercial tons diverted} + 32,865 \text{ Commercial MSW, tons landfilled}} \\ &= 26.90\%\end{aligned}$$

$$\begin{aligned}\text{Diversion rate of Residential recyclables (\%)} &= \\ &= 100 \times \frac{\text{residential recyclables, tons diverted}}{\text{residential recyclables, tons diverted} + \text{residential MSW, tons landfilled}} \\ &= 100 \times \frac{233,691 \text{ residential tons diverted}}{233,691 \text{ residential tons diverted} + 405,495 \text{ residential MSW tons landfilled}} \\ &= 36.56\%\end{aligned}$$

*** Important Note:** Readers and policy makers are cautioned against attributing too much value to the reported sector based diversion rates. In order to calculate specific rates for these market sectors, determinations must be made as to which market segment should be credited for given recycling or land filling activity. This is not a simple or obvious exercise. For example, should a recycled car battery from a personal car, that was recycled at a commercial garage, be considered Residential or Commercial? (If it was delivered by the resident? If it was replaced by the mechanic?) As another example: To what sector should recycled yard waste collected by a landscaping company from a residence be attributed? To address this problem, the Measurement and Methodology Sub-Committee developed a “Generator Rule”, which attributes the recycling activity to the sector which generated the material recycled. Yet even with this rule to guide the sector determinations, many determinations can be reasonably argued either way. It is for this reason that readers of this report and policy makers should be very cautious before drawing conclusions based upon the sector specific information.

Appendix H. DSWA Measurement Report



DELAWARE SOLID WASTE AUTHORITY

Pasquale S. Canzano, P.E., BCEE
Chief Executive Officer

Richard P. Watson, P.E., BCEE
Chief Operating Officer

Board of Directors

Richard V. Pryor
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Tonda L. Parks
Gerard L. Esposito

December 29, 2008

Mr. Brock J. Vinton II
Recycling Public Advisory Council
Division of Air & Waste Management
Dept. of Natural Resources & Environmental Control
89 Kings Highway
Dover, Delaware 19901

Dear Mr. Vinton,

The Delaware Solid Waste Authority (DSWA) has enclosed the recycling and facility information requested by the Methodology and Measurement Committee for calendar year 2007. There are two tables that contain the information that was requested. The first table is the recycling data for all DSWA activities in calendar year 2007. The second table shows the tonnage of material processed at all of its solid waste management facilities in calendar year 2007. Please feel free to contact me if you need any further information or clarification on the data presented by DSWA.

Sincerely,

Michael D. Parkowski
Manager of Business Services and Government Relations
Delaware Solid Waste Authority

prw/MDP/M&M cover letter 07

1128 S. Bradford Street, P.O. Box 455, Dover, Delaware 19903-0455
Phone: (302) 739-5361 Fax: (302) 739-4287

CITIZENS' RESPONSE LINE: 1-800-404-7080 www.dswa.com

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CATEGORIES OF RECYCLABLES		DSWA RECYCLABLES -- WEIGHED UPON RECEIPT (DSWA CY 2007) "%R" is Percent Residential; "%C" is Percent Commercial									
		Drop-off Containers			DSWA Programs			Curbside Collection			
		Tons (Total)	%R	%C	Tons (Total)	%R	%C	Tons (Total)	%R	%C	
PAPER	ONP (old newspapers)	9,847	90	10	121	100	0	224	100		
	OCC (old corrugated containers)	2,637	90	10	2,676	0	100	108	100		
	Mixed Paper	2,019	90	10	599	0	100	214	100		
	Undeliverable Mail from Post Office				825	50	50				
PACKAGING	Clear Glass	1,125	90	10							
	Brown Glass	356	90	10							
	Green Glass	765	90	10							
	Mixed Glass										
	Plastic Bottles	1,156	90	10	5,671	100		234	100		
	Plastic Grocery Bags and Film	112	90	10	121	90	10	31	100		
VEHICLE WASTE	Oil Filters										
	Motor Oil	1,403	90	10	414	90	10				
SPECIAL WASTE	Carpet and Textiles										
	Electronic Goods	78	90	10							
GREEN WASTE	Leaf and Yard Waste				1,943	90	10				
	Aluminum & Steel Cans										
METALS	White Goods	594	90	10	4,182	50	50	565	100		
								73	100		
SINGLE STREAM					2,118	90	10				
	"Mixed recyclables": collected mixture of different categories of recyclables; includes City of Wilmington collection							3,423	100		

**DSWA Waste Handling and Landfilling Activities
CY 2007 by Facility**

Cherry Island Landfill	
Asbestos Friable	516
Asbestos Non-Friable #1	567
Asbestos Non-Friable #2	441
C&D Debris	6,731
Household Batteries	52
MSW	526,217
12th Street MSW	11
Tires	378
Transfer Pine Tree	0
Yard Waste Rejects	99
Total	535,012

CSWMC/ Sandtown Landfill	
Asbestos Non-Friable #2	18
C&D Debris	56,053
MSW	99,992
Shredded Tires	1
Tires	423
Transfer from Milford	43,025
Transfer from PineTree	74,913
Yard Waste Rejects	18
Total	274,443

SSWMC/ Jones Crossroads Landfill	
Asbestos Non-Friable #2	31
C&D Debris	74,924
MSW	98,757
Shredded Tires	478
Sludge	692
Tires	498
Transfer from RT 5	73,284
Yard Waste Rejects	25
Total	248,689

Appendix I. DSM Measurement Report

This appendix contains select pages from the report shown below. An online version of the full report can be found on the RPAC website (www.awm.delaware.gov/Info/Pages/RPAC.aspx).

State of Delaware Assessment of Municipal Solid Waste Recycling For Calendar Year 2007

**Final Draft Report
*December 1, 2008***



Prepared for:
Recycling Public Advisory Council
c/o DNREC
89 Kings Highway
Dover, DE 19901

Prepared by;
DSM Environmental Services, Inc.
P.O. Box 2
Windsor, VT 05089-0002
www.dsmenvironmental.com

Results

Table 2 below presents estimated quantities of materials recovered for recycling or beneficial use by major material category in calendar year 2007, allocated between included and excluded MSW categories as defined by EPA. For each material category in Table 2, a description of what material has been included or excluded in the computation of the total quantity of MSW recycling is listed. In the case of metals, no quantities other than appliances and limited reporting of durables have been allocated to MSW even though the EPA includes metal from furniture, tires and miscellaneous durables in the definition of MSW. DSM could not disaggregate these types of materials from the totals reported for ferrous and nonferrous recycling.

A comparison of the 2007 data to the 2006 data leads to the following observations about the 2007 results:

- OCC tonnages have increased, probably due to high OCC values in 2007 and to increased economic activity.
- ONP dropped, probably reflecting decreased newspaper readership and newspaper size, which has been documented at the national level.
- SOP and MOP both dropped, probably due to lack of reporting by the major banks and the document destruction firms, not due to changes in the quantity generated or recycled.
- Shrink wrap increased, probably as a result of a mis-reporting of one survey result last year (it was mistakenly allocated to pallets because it was reported as "pallet wrap), and because of higher material value for all polyethylene plastics as well as an increase in sustainability programs at national retailers.
- Green waste is up significantly, probably as a result of the on-again/off-again yard waste ban in New Castle County which was heavily reported in the newspapers and promoted by the major waste haulers, as well as the increased demand for mulch, and better reporting. In addition, one of the large commercial composters significantly increased their composting activity in 2007 requiring much large quantities of carbon (ground tree and yard waste). Finally, a large storm in 2007 resulted in large quantities of tree waste which were ground for mulch.
- There was an increase in the quantity of pallets recovered for mulch, probably reflecting increased economic activity in 2007, increased reporting by additional companies in 2007 and an increase in the need for wood waste in composting operations.
- Lead acid battery recycling is up mostly due to new reporting that didn't take place in 2006.
- Fluorescent bulbs doubled because of a new company reporting to DSM.
- Carpet recovery is down although it is unclear why.
- Mixed recyclables are up due to implementation of city-wide single stream recycling by Wilmington in 2007.

*State of Delaware Assessment of Commercial and Industrial Recycling Activity (CY 2007)
Prepared by DSM Environmental Services, Inc.
Final Draft Report, December 1, 2008*

Table 2: Materials Recovery by Material Type and Breakdown of Materials Included in EPA Definition of MSW Recycling (State of Delaware, CY 2007)

Material Category	Total (tons)	MSW (tons)	Excluded from MSW (tons)	Explanation
Paper				
Corrugated (OCC)	73,314	73,314		
Newspaper (ONP)	3,033	3,033		Print overruns excluded where identified
Sorted Office Paper	5,249	5,249		
Mixed Paper (1)	10,179	10,179		Breakdown of print overruns unknown
Subtotal:	91,775	91,775	0	
Packaging				
Glass	10	10		
Shrink Wrap	1,713	1,713		
Plastic Containers	46	46		
Aluminum Cans	16	16		
Pallets (2)	12,412	12,412		Pallets rebuilt excluded
Mixed Recyclables (3)	4,680	4,680		
Subtotal:	18,877	18,877	0	
Metals				
White Goods	21,036	21,036		
Aluminum	3,099	unknown	3,099	
Ferrous	149,259	unknown	149,259	Includes metals removed from vehicles, C&D, etc.
Non-ferrous	14,345	unknown	14,345	Includes metals removed from vehicles, C&D, etc.
Scrap Cars	8,948	0	8,948	Scrap cars excluded and underreported
Subtotal:	196,687	21,036	175,652	
Green Waste				
Leaf and Yard Waste	72,769	72,769		All DSWA curbside and drop-off excluded
Trees and Branches	106,637	106,637		Trees and stumps from land clearing excluded
Clean Wood	2,000	0	2,000	Clean wood not broken out from pallets by most reporting facilities
Subtotal:	181,405	179,405	2,000	

*State of Delaware Assessment of Commercial and Industrial Recycling Activity (CY 2007)
Prepared by DSM Environmental Services, Inc.
Final Draft Report, December 1, 2008*

**Table 2: Materials Recovery by Material Type and Breakdown of Materials
(continued) Included in EPA Definition of MSW Recycling
(State of Delaware, CY 2007)**

Material Category	Total (tons)	MSW (tons)	Excluded from MSW (tons)	Explanation
Vehicle Waste				
Tires (4)	7,123	5,911	1,212	Tire derived fuel excluded from MSW
Lead Acid Batteries	3,739	3,739		
Oil Filters	91	91		
Subtotal:	10,953	9,741	1,212	
Special Wastes				
Textiles (5)	3,409	3,409		Textiles were shipped overseas and some were reused
Electronics	200	200		Excludes all DSWA recycling activity
Florescent Bulbs	40	40		Undercounted
Carpet	32	32		
Subtotal:	3,682	3,682	0	
Ag and Food Wastes				
Fats, Oil, Grease	4,716	4,716		
Food Waste	4,847	4,847		
Subtotal:	9,563	9,563	0	
Industrial Waste Recovery				
Mixed Plastics	1,862	931	931	Estimate 50% MSW
Subtotal:	1,862	931	931	
Total Recovery:	514,800	335,000	179,800	

Table 2 Notes:

(Numbers may not add due to rounding)

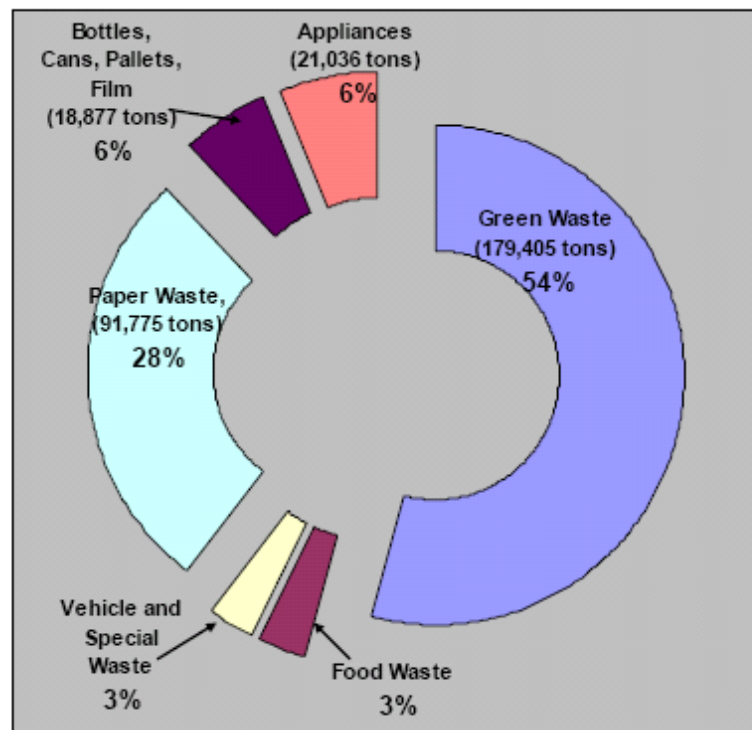
- (1) Mixed Paper: All included in MSW as most was reported from processors who did not reveal sources.
- (2) Pallets: Only pallets composted or ground for mulch are included in the totals reported.
- (3) Mixed Recyclables: Single stream materials collected from Wilmington's curbside recycling program during CY 2007.
- (4) Tires: Roughly 1212 of the 7123 tons reported went to tire derived fuel, which is excluded from the EPA recycling rate. The balance went to end uses such as crumb rubber and engineered products including drainage material, landfill cell construction and playground surfacing, which is included in the EPA rate.
- (5) Textiles: Used clothing including shoes are exported for recycling or reuse. The end uses change based on the condition and changing markets. The clothing is sorted into 4 color categories and sold as rags, or bagged as is and sold as clothing. No breakdown of the actual end use is available.

State of Delaware Assessment of Commercial and Industrial Recycling Activity (CY 2007)

Prepared by DSM Environmental Services, Inc.

Final Draft Report, December 1, 2008

**Figure 1: Materials Recovery by General Material Category
Included in EPA Definition of MSW Recycling
(State of Delaware, CY 2007)**



*State of Delaware Assessment of Commercial and Industrial Recycling Activity (CY 2007)
Prepared by DSM Environmental Services, Inc.
Final Draft Report, December 1, 2008*

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Residential vs. Commercial Recycling Activity

As discussed above, DSM was also asked to estimate the percentage of each material recycled and classified as MSW that was from a residential as opposed to a commercial source. These allocations are shown in Table 3.

In some cases, the source of the material was clear, however in other cases DSM was required to make our best professional judgment as to the source of the material. Since EPA does not attempt to quantify residential and commercial recycling separately, generally acceptable guidelines for allocation of materials recycling to the residential and commercial sector are not available. It should be noted when reading Table 3 that while significant amounts of newspaper, corrugated and mixed paper are generated by residential sources, these quantities are being reported to the M&M Subcommittee separately by DSWA, and the Wilmington single stream paper is reported under "packaging" as a separate category called "mixed recyclables" in Table 3.

Table 3: Estimate of Residential vs. Commercial MSW Recycling Activity (CY 2007), Exclusive of DSWA Materials

Material Category	Residential (tons)	Commercial (tons)	Total MSW (tons)
Paper			
Corrugated (OCC)	0	73,314	73,314
Newspaper (ONP)	0	3,033	3,033
Sorted Office Paper	0	5,249	5,249
Mixed Paper (1)	0	10,179	10,179
Packaging			
Glass	0	10	10
Shrink Wrap	0	1,713	1,713
Plastic Containers	0	46	46
Aluminum Cans	0	16	16
Pallets	0	12,412	12,412
Mixed Recyclables (2)	4,680	0	4,680
Metals			
White Goods	21,036	0	21,036
Green Waste			
Leaf and Yard Waste (3)	67,093	5,676	72,769
Trees and Branches (4)	94,790	11,847	106,637
Clean Wood	0	0	0
Vehicle Waste (5)			
Tires	4,729	1,182	5,911
Lead Acid Batteries	3,739	748	4,487
Oil Filters	91	18	109
Special Wastes			
Textiles (6)	3,409	0	3,409
Electronics	0	200	200
Florescent Bulbs	0	40	40
Carpet	0	32	32

*State of Delaware Assessment of Commercial and Industrial Recycling Activity (CY 2007)
Prepared by DSM Environmental Services, Inc.
Final Draft Report, December 1, 2008*

TABLE 3 Continued			
Ag and Food Wastes			
Fats, Oil, Grease	0	4,716	4,716
Food Waste	0	4,847	4,847
Totals:	199,600	135,300	335,000

Table 3 Notes:

(Numbers may not add due to rounding)

- (1) Includes some print overruns.
- (2) Single stream material from Wilmington curbside recycling program.
- (3) Leaf and Yard waste allocations were made using the same percentage from CY 2006 report.
- (4) Tree waste allocations were made using the same percentage from CY 2006 report.
- (5) Reported source of tires was 80% cars by one major tire recycler. Reported source of oil and oil filters is unknown. DSM assumed 80% of vehicle wastes recycled originated from households, and the balance from commercial vehicles.
- (6) Documented source of textiles is unknown, however DSM assumes most textiles came from residential sources. Also textiles reused are excluded under EPA but included here since reuse versus recycling cannot be determined.

Appendix J. Cherry Island Landfill Permit – Yard Waste Ban Section

Yard waste diversion: DSWA shall ban disposal of all yard waste from the NSWMC-2 effective no later than January 1, 2007. The NSWMC-2 yard waste ban shall be advertised in a manner to effectively educate the public and waste haulers, using technical support from academic extension and composting experts, regarding the ban's effective date and alternatives for yard waste management. To the extent no private sector alternatives for the sustainable management of the banned yard waste becomes available, DSWA will provide for a yard waste composting and mulching facility(ies) and operation(s) capable of managing diverted yard waste to that extent. If it is necessary for the DSWA to manage any yard waste generated as a result of the ban, the DSWA shall determine and implement a competitive tipping fee for the management of this material. The tipping fee shall be set at a rate to encourage recycling and discourage disposal, and not compete with private sector alternatives. "Yard waste" means plant material resulting from lawn maintenance and other horticultural gardening and landscaping activities and includes grass, leaves, prunings, brush, shrubs, garden materials, Christmas trees, and tree limbs up to 4 inches in diameter.

NSWMC-2: Northern Solid Waste Management Center -2 (essentially the Cherry Island Landfill)

Appendix K. Background of Recycling Efforts in Delaware

The State of Delaware first began promoting recycling in 1975 with the passage of the Delaware Solid Waste Authority's enabling legislation. This led to the opening of the Delaware Reclamation Plant, which held the title of the largest recycling/reclamation project in the world for nearly 11 years. About 2.5 million tons of municipal solid waste and 0.5 million tons of sewage sludge were processed through this plant. This facility was shut down in 1993 and the plant was modified to operate as the Delaware Recycling Center which processes and markets all the recyclables from the 'RECYCLE DELAWARE' Drop-Off Program.

The next major milestone was the implementation of the Beverage Container Law in 1979 designed to prevent roadside littering.

In 1990, the statewide drop-off recycling program, known as 'RECYCLE DELAWARE', was established by the Delaware Solid Waste Authority. The DSWA currently operates over 140 'RECYCLE DELAWARE' centers and collects about 27,500 tons/year of recyclables. Included are brown, green and clear glass bottles, plastic bottles, newspaper and magazines, aluminum and steel cans (including aerosols), plastic grocery bags, textiles, motor oil and oil filters, corrugated cardboard, and household batteries (the batteries are not recycled, but disposed of properly).

Despite these recycling milestones, Delaware's former Governor, Thomas Carper, received frequent letters and phone calls from Delaware residents requesting implementation of curbside collection of recyclables. These requests spurred Governor Carper to call a meeting in late 1998 with representatives of the DNREC, the Delaware Economic Development Office (DEDO) and the DSWA to discuss the feasibility of implementing curbside collection of recyclables in Delaware. The result of this meeting was the issuance of Executive Order No. 60 establishing the Citizens' Work Group on Recycling to evaluate recycling in Delaware. The work group would also recommend ways to increase recycling in Delaware.

In the spirit of conservation and pursuant to the report "A Course of Action to Increase Recycling in the State of Delaware," which was developed by and contained the recommendations of the Citizens' Work Group on Recycling, Governor Thomas R. Carper signed Executive Order Eighty-Two which:

1. Established the goal of a thirty (30) percent diversion rate for recyclables from Delaware's residential solid waste stream.
2. Required the Department of Natural Resources and Environmental Control (DNREC), Division of Air and Waste Management (DAWM) to work in concert with the Delaware Solid Waste Authority (DSWA) and the Recycling Public Advisory Council (RPAC) to:
 - a) develop a method for measuring recycling,
 - b) establish a recycling grant program,
 - c) establish a public outreach and education program aimed at educating the general public and students on the value of recycling as well as to increase the recycling rate,
 - d) provide technical assistance to local entities to increase the recycling rate, and

- e) provide administrative support to the RPAC.
- 3. Established the nine (9) member RPAC and tasked the RPAC with:
 - a) advising DNREC and DSWA on all aspects of recycling,
 - b) advising DNREC on developing grant criteria,
 - c) advising DNREC and DSWA on outreach activities to increase recycling, and
 - d) developing an annual report due on December 1st of each year detailing the status of recycling activities within Delaware.

Governor Minner appointed the members of the RPAC early in her Administration and the first RPAC meeting was held on February 27, 2001. DNREC also hired an Environmental Scientist and a Community Relations Officer to assist the Council. The Environmental Scientist aided the Council in developing the method for measuring recycling and provided recycling technical assistance to Delaware's communities and local governments.

The RPAC contracted a study on residential curbside recyclables collection in New Castle County. The final report, titled "Evaluation of Enhanced Residential Waste and Recyclables Collection and Processing for New Castle County", was published in 2003 by DSM Environmental Services, Incorporated. The report concluded that curbside collection of recyclables could be done at least as, if not more, cost effectively than trash if the system is properly designed.

In early 2006, Senate Bill 225 (SB 225) was introduced in the Delaware Senate. It established a framework for a statewide curbside recycling system, established a Recycling Fund to help pay for recycling programs, banned yard waste from disposal (providing for development of yard waste management facilities), established statewide recycling goals, and established the RPAC. The Governor's Office, DNREC, DSWA, and the RPAC all supported SB 225. The Bill did pass the Senate with amendments but it was tabled in the House of Representatives.

In October of 2005, DNREC Secretary, John Hughes, established the Solid Waste Management Technical Working Group (SWMTWG) pursuant to a directive from Governor Minner. It was comprised of individuals with technical backgrounds, financial backgrounds, and/or experience with municipal solid waste management systems and technologies. The SWMTWG was tasked to perform a feasibility review of municipal solid waste management alternatives and to recommend a program or programs that would best serve Delaware's municipal solid waste management needs. In April of 2006, the SWMTWG produced a report that recommends the state implement effective source reduction and recycling programs and building a processing facility.

The Citizens Solid Waste Solutions Commission (CSWSC), an organized group of environmentally conscious citizens, also produced a report in 2006. They called for more convenient and cost-effective recycling programs, better processing facilities for recyclables and discards, opposition to incineration, and a more focused recycling agency than the DSWA. They argued that recycling is an issue of resource management rather than one of waste disposal.

The City of Wilmington initiated a single-stream curbside recycling trial for over 6,000 households in the Summer of 2006. The City has partnered with RecycleBank, a recycling company based in Philadelphia, to provide the service. RecycleBank provides wheeled recycling containers, retrofits Wilmington's trucks to service the containers and weigh the material, provides various data reports, and provides outreach and education about the program. Through the RecycleBank program, participating households can earn up to \$35 per month in RecycleBank Dollars which can be redeemed at stores of the customer's choosing. The incentive encourages residents to recycle and helps Wilmington to divert waste from the landfill. The recycling rate in Wilmington's trial areas

went from almost zero to about 35% in about six months. In 2007 the program was expanded citywide. All parties are happy with the successes and Wilmington is continuing to divert over 30% of its residential waste stream.

In September of 2006 Governor Minner signed Executive Order 90 (see Appendix A) which replaced Executive Order 82 and re-established the RPAC. The new Executive Order 90 increases the membership of the RPAC by two public members. It also increases the former recycling diversion rate goal from 30% of residential solid waste to 51% of municipal solid waste.

The Cherry Island Landfill permit was renewed in 2006 with language that required the DSWA to ban yard waste from entering the landfill no later than January 1, 2007. After many community meetings, outreach efforts, and more, DNREC and the DSWA began enforcement of the ban in early 2008.

House Bill 159 (HB 159) was introduced in 2007 and supported by the RPAC (see Appendix E). In May of 2008, HB 159 was voted on and passed in the House of Representatives but was defeated in the Senate in June of 2008. Several entities supported HB 159 including the DSWA, DNREC, the League of Women Voters, and the Delaware League of Local Governments. HB 159 would have encouraged recycling via a comprehensive recycling grants program while discouraging disposal via a \$3 per ton assessment on landfilling.

In January of 2008, Kent County provided recyclables collection service to residents serviced in their trash districts. The County administers a contract for trash collection in several unincorporated areas within the County. Single-stream recyclables collection was added to the contract, increasing the number of participating households in Delaware by about 11,147.

In early 2008, the DSWA converted their recyclables collection programs to single-stream. Participants no longer need to separate traditional recyclables (i.e. glass bottles, cans, plastic bottles, mixed papers) by material type, making recycling more convenient. Other entities, including waste haulers, have also offered single-stream recyclables collection service.

At the end of 2008, nearly 66,000 households have curbside recycling service in Delaware. That is about 20% out of an estimated 322,000 households. These curbside services were provided by the City of Wilmington, the DSWA, Kent County, and independent haulers. It is noteworthy, however, that more recyclables were still received at the Recycle Delaware Drop-off facilities statewide than were collected curbside, suggesting the participation of a much larger number of households and businesses.