

The Annual Report of the Recycling Public Advisory Council



**Presented to the
Honorable John Carney, Governor of Delaware and the
149th Delaware General Assembly**

**March 2018
Sixteenth Edition**

The Annual Report of the Recycling Public Advisory Council

March 2018 (Sixteenth Edition)

Authored by:

The Recycling Public Advisory Council

Edited and Prepared by:

The Division of Waste & Hazardous Substances
Department of Natural Resources and Environmental Control

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For More Information Contact:

Jacquelyn M. Howard
Solid & Hazardous Waste Management Section
The Department of Natural Resources and Environmental Control
89 Kings Highway
Dover, DE 19901
Phone: (302) 739-9403
Fax: (302) 739-5060
Email: jackie.howard@state.de.us

Website: <http://www.dnrec.delaware.gov/dwhs/info/pages/rpac.aspx>

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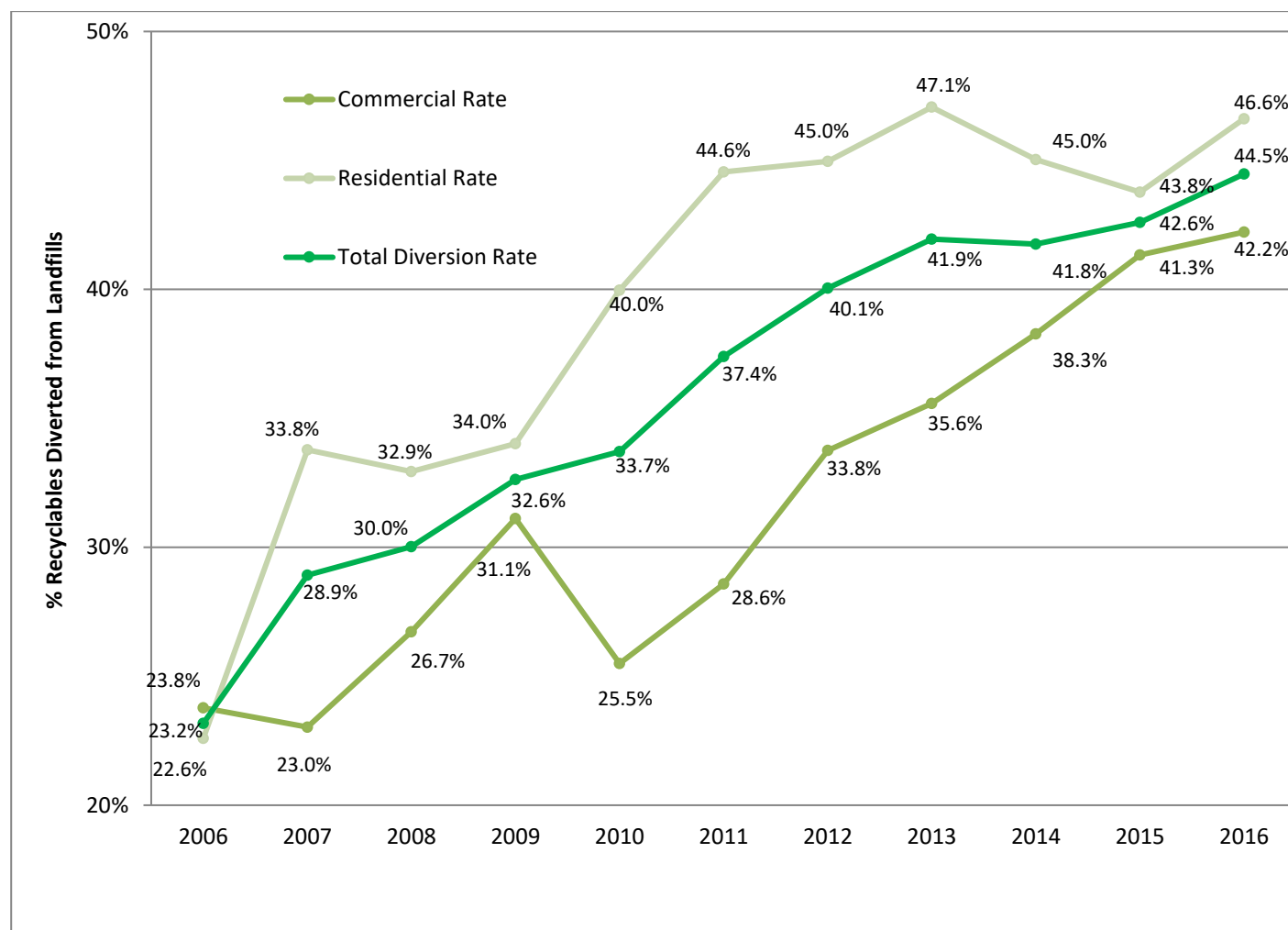
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Executive Summary

Thanks directly to the passage of Delaware's Universal Recycling Law, signed into law on June 8, 2010, the state currently recycles approximately 45% of its municipal solid waste, which includes both commercial and residential materials diversion (see chart below). This makes us a national leader in recycling. But our job is not done. We as a state seek to continually reap the social and environmental benefits of recycling, strive to reach our target goal of 50% residential and commercial waste diversion and delay the costly burden of constructing a new landfill in Delaware.

Residential, Commercial and Total Diversion Rates in Delaware, CY2006-2016

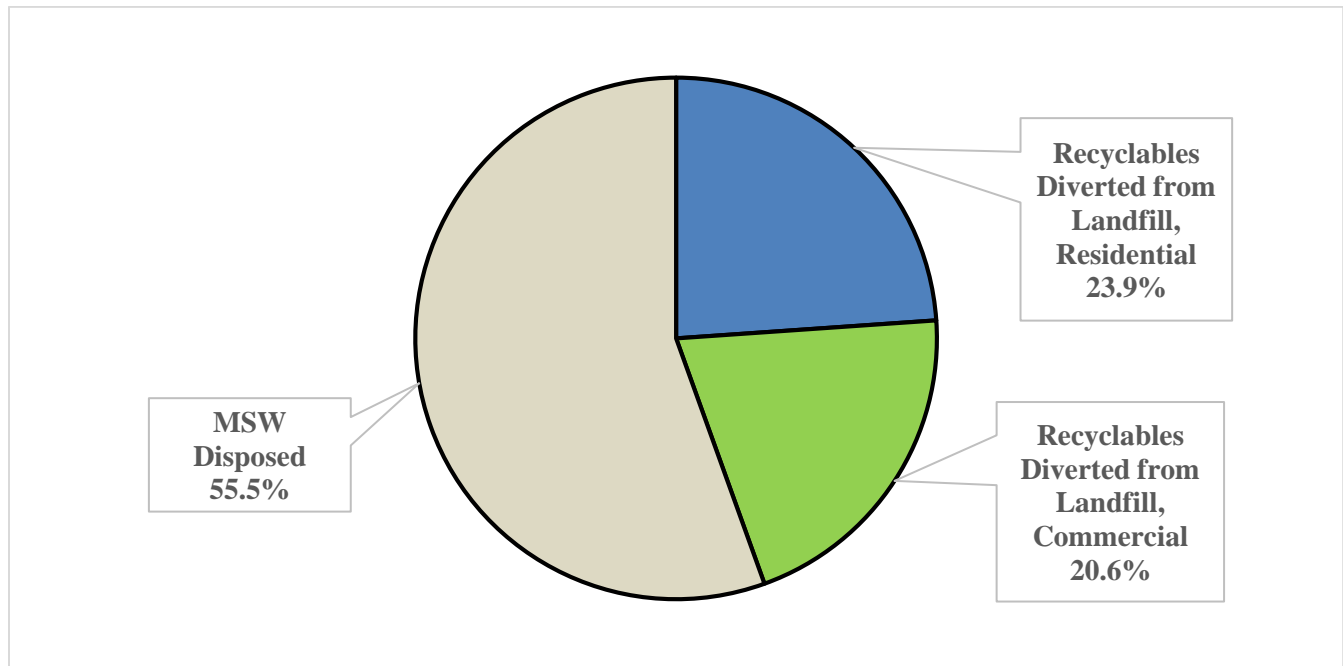


Since 2006, Delaware has roughly doubled the recovery rate of most of our recyclables and decreased our annual landfill tonnage by about 1/3. Significant effort is still necessary to improve the recovery rates of some materials, among them food waste, paper, cardboard, textiles, and others, if we are to reach our Universal Recycling goals and to maximize the life of our landfills.

The Recycling Public Advisory Council, along with DNREC's Division of Waste and Hazardous Substances, believe education and outreach initiatives to our schools, businesses and communities on what and how to recycle and targeted initiatives are the most important steps for continuing progress. Continuing to grow recycling and implementing new programs in our state is a sound and wise investment and leaves our future generations with a cleaner and more sustainable environment.

The Universal Recycling Law also implemented a short term beverage container fee that resourced the successful implementation of the Universal Recycling Grants and Low Interest Loan Program. This competitive program, administered by the Department of Natural Resources and Environmental Control's Solid and Hazardous Waste Management Section, completed an eighth round of grants in 2016 awarding schools, businesses, and community grants to assist in implementing and expanding recycling programs and opportunities throughout Delaware. Since the grant program's inception, 112 grants, totaling more than \$8.5 million, and have been awarded to bolster recycling activities and waste diversion innovation in the state. The funding source for this collaborative program was sunset in 2014 but more recently has been cut and the awarding of future grants is not possible without additional funding.

MSW Disposed and % Residential and Commercial recyclables in CY2016



RPAC Members continue to offer advice and suggestions to DNREC on all things related to solid waste diversion and recycling. RPAC holds monthly meetings throughout the year to discuss opportunities to engage the public and the Legislature in ways the promote recycling.

Current RPAC members:

Stan Mills, RPAC Chairman, Delaware League of Local Governments
Marjorie Crofts, Department of Natural Resources and Environmental Control
Michael Parkowski, Delaware Solid Waste Authority
Richard Cecil, Delaware Association of Counties
Paul Bickhart, Recycling Industry
Steve Masterson, Waste Hauling Industry
Sewall McCabe, Soft Drink industry
Michael Fusca, Alcohol Beverage Industry
Rustyn Stoops, Delaware Chamber of Commerce
Adam Webster, Delaware Restaurant Industry
Marianne Cinaglia, Public Interest
Coralie Pryde, Public Interest
Wendy Turner, Public Interest
Vikram Krishnamurthy, Public Interest
Vacant, Public Interest
Julie Miro Wenger, Delaware Food Industry Council

The Recycling Public Advisory Council was established under Executive Orders going back to 2000 but was more recently formally established in the Universal Recycling Law. Members of the Council are volunteers who are appointed by the Governor. The Council's tasks include, but are not limited to offering advice to the Department of Natural Resources and Environmental Control and the Delaware Solid Waste Authority on all aspects of recycling and to advise in developing criteria for the ongoing multi-media Recycling Outreach and Education Campaign. The Council plays a key role in reporting to the Governor and General Assembly on the Annual Status of Recycling in Delaware. An additional responsibility of the Council is to maintain an approved, sound and current methodology to measure recycling rates that is both scientific and comparable to other state and federal measures.

2016 Recycling Rates Summary in Tons

Diverted Recyclables	MSW Disposed	Total Municipal Solid Waste = Diverted Recyclables + MSW Disposed	Percent Diverted Recyclables
542,079	675,721	1,217,800	44.5%

(from 2016 DSM report, Appendix D)

Current Recommendations

The RPAC's recommendations to Governor Carney and the General Assembly include the following steps to support our efforts to increase the recyclables diversion rate. These are summarized Recommendations. Further detail on each Recommendation can be found in 'Section 8- Recommendations' of this Report.

- (1) **Lead by example** – mandate recycling in all state government facilities, including public schools and libraries, the courts system, and the legislature.
- (2) **Re-allocate funding to the Universal Recycling Grants and Low Interest Loan Program** – this highly successful program supported ongoing efforts to implement, expand, evaluate and promote economically and environmentally sustainable practices through encouraging recycling behavior throughout the state.

DNREC's Recycling Grants and Low Interest Loan Program (the Program) is no longer able to offer grants to our schools, businesses and communities due to the State Legislature re-appropriating almost all remaining funds during FY 2016. The Program was self-funded through the \$0.04 bottle recycling fee which was sunset on December 1, 2014. The Grant funds were projected to carry the Recycling Grants Program through 2020 to ensure compliance with the State's Universal Recycling Law.

- (3) **Actively promote recycling** – by providing information from RPAC in newsletters distributed internally and at public meetings; ensuring staff are informed on the state of recycling in the state, offering staff opportunities to attend RPAC meetings and participate in other DNREC and RPAC events, Co-hosting, a "meet and greet" event so that RPAC and the Legislators and staff become acquainted with each other and utilize and optimize electronic and web based media to leverage information sharing.
- (4) **Strengthen organics diversion** – employ the recommendations of the Organics Recycling Task Force that will result in long term, viable solutions for organics diversion in Delaware.
- (5) **Support the "Recycle Right" message** of the DNREC Recycling Media Outreach and Education Campaign (see example below):

Did you know that you can't put recyclables in a trash bag? If they're in a bag, they all go in the trash. Keep your recyclables loose in the bin.



Check out all the rules for recycling right in Delaware at www.recyclerightde.org/

The ***Recycle Right DE*** campaign is airing across all media platforms throughout the state: print, TV, radio, billboard, web/social media and through public service announcements at Delaware's two largest movie theaters – Carmike Dover and Penn Wilmington. RPAC supports this effort and believes it will increase recycling in Delaware by reinforcing recycling "dos and don'ts" and by promoting recycling through a broad based education and information outreach campaign that reaches into our schools, homes, businesses, commercial and industrial sectors.

This multi-media campaign has an effective date of August 2017 – July 2020 and is funded by the last of the grants monies. When this multi-media public outreach programs ends so does the likelihood of future outreach programs because of the depletion of grant funding.

It is RPAC's position that a leveraged campaign such as this will produce, over time, an increase in residential and commercial recycling that will allow the State to achieve its stated goal of 60% diversion of MSW as stipulated in the Universal Recycling Law by 2020.



Recycle these

(Place these materials loose in recycling carts or dumpsters-no bags please)



Newspapers



Regular and junk mail/magazines



Paperback books



Paper board boxes



Pizza boxes (empty)
(no food residue)



Corrugated cardboard



Telephone books



Office paper/file folders



Rigid plastic



Yogurt and butter containers



Plastic bottles/jugs



Cartons



Aluminum and metal cans
(Can lids and clean foil)



Glass bottles/jars
(Remove lids and caps-
recycle separately)

Not Accepted

Keep these items out of your recycling cart or dumpster:

- | | | |
|-----------------------|---------------------------|------------------------|
| -Any plastic bags | -Scrap metal | -Clothing and textiles |
| -Styrofoam | -Window glass and mirrors | -Propane tanks |
| -Motor oil containers | -Yard waste | -Diapers |
| -Chemical containers | -Shredded paper | -Paper Cups |
| -Ceramics or dishes | -Food waste | -Electronics |
| | -Straws | -Plastic utensils |

PLASTIC GROCERY BAGS

may be returned to stores. These stores shall have a receptacle for recycling plastic bags and may also collect plastic film. All materials must be clean and dry.



DELAWARE
RECYCLES
It's second nature.

www.recycling.delaware.gov

1.0 Purpose

This is the Sixteenth Annual Report of the Recycling Public Advisory Council (RPAC). The purpose of the report is to fulfill requirements of 7 Del. C., §6058, which directs the RPAC to prepare an annual report addressing the following:

- The status of attainment of the recycling goals specified in 7 Del. C., §6056;
- An accounting of the recycling grants and loans programs and recommendations for future funding of the programs;
- An assessment of the activities of both the Delaware Department of Natural Resources and Environmental Control (DNREC) and the Delaware Solid Waste Authority (DSWA) in achieving the goals specified in 7 Del. C., §6056;
- An objective, auditable accounting of recycling rates for total solid waste, municipal solid waste, and residential solid waste; and
- Such other recommendations as the RPAC shall deem appropriate.

The Solid Waste Recycling Law (the Universal Recycling Law) is attached to this report as Appendix A. A list of the current RPAC members can be found in Appendix B.

2.0 Background

2.1 *Benefits of Recycling*

There is more to recycling than feeling good about the environment. It also has tremendous economic value. Recycling:

- Creates local industry and jobs
- Extends the useful life of state landfills and defers creation of future sites
- Reduces emissions of greenhouse gases
- Saves energy
- Conserves natural resources
- Reduces environmental damage from industrial, residential, and commercial waste
- Teaches environmental stewardship to individuals, businesses and government agencies

2.2 *Recent Recycling Efforts in Delaware*

The State of Delaware has promoted recycling since 1975. A more extensive history of these efforts can be found in Appendix E.

The following is a summary of recent recycling achievements in 2017:

- **Recycling Grants Program**– The remaining *Universal Recycling Grant and Low Interest Loan Program* funds were awarded in 2016 and distributed in 2017. A total of 33 recipients received \$1,882,124.10 in funds to support and strengthen recycling efforts in schools, businesses and communities throughout Delaware. Effective July 1, 2016, the Grant Program was effectively terminated as funding was re-appropriated to other programs
- **DNREC Recycling Outreach** – From January 1, 2017 to December 31, 2017, DNREC held 18 recycling outreach, education and training events throughout the state. DNREC also held 14 no-cost, onsite waste assessments at for schools, businesses, and communities to assist with identifying best practices in implementing and expanding recycling programs. For a detailed list of these events see Table 11 in Section 6 of this report
- **Recycling Measurement** – DSWA conducted a waste characterization study of what is landfilled in Delaware today with a “Total Solid Waste” sub component study to evaluate wastes that do not typically end up in a landfill but are recycled in other ways. This will offer the State of Delaware and the RPAC a more complete analysis of recycling rates for specific commodities and a picture of waste management in the State. Worth noting is that Delaware is one of only a handful of states that tracks and analyzes this type of comprehensive data on its waste stream

3.0 RPAC ACTIVITIES

RPAC continues to focus its efforts on implementation of the Universal Recycling Law. This includes providing recycling grant and loan guidance, improving recycling guidance and toolkits for residents and businesses and continuing with measurement and reporting of the amount and percent diversion of recyclables from Delaware landfills.

3.1 Measurement and Reporting

The RPAC's Measurement and Methodology Subcommittee developed a statistically acceptable and comparable methodology for measuring recycling diversion rates based upon EPA guidelines. This methodology provides an objective and auditable approach to recycling measurement which is relevant and repeatable. The Subcommittee's name was subsequently changed to "Measurement and Reporting" but their work continues in the current RPAC and has resulted in the tenth Recycling Measurement Report (see Section 4.0). Moreover, these Recycling Measurement Reports establish a uniformly accepted approach making past, present, and future recycling measurements consistent and comparable.

The RPAC and DNREC have developed guidelines for the recycling industry to report information as directed by the Universal Recycling Law (7 Del. C., §6056). To help protect proprietary business information, the RPAC has been using a consultant to collect recycling data. Because reporting on commercial recycling activities was not previously obligatory, the Recycling Measurement Report was limited to voluntary surveys. The new, legally required reporting system generates a fuller and more accurate spectrum of data, and will result in a better overall measurement of recycling in Delaware. The first reporting year with the new data collection requirement was 2011, with 2017 being the seventh year of industry reporting. This data reflects the impact of implementation in all three phases of Universal Recycling – i.e. single-family, multi-family, and commercial recycling (including schools, communities and businesses).

3.2 Recycling Markets

Paul Bickhart, RPAC Member representing the recycling industry, and Michael Parkowski, RPAC Member representing the Delaware Solid Waste Authority (DSWA) maintain key industry contacts who provide information on the commodities market for the sale of collected recyclables. Together they have offered RPAC incisive insights into the status of recycling markets allowing Members to better understand current industry circumstances. In late 2008, the markets for recycled commodities declined sharply in response to the national and global economies. Later in 2009 prices very slowly started to improve. The outlook continued to be positive into 2010, and was relatively strong and stable in 2011. Prices generally declined for some commodities and remained flat for others in 2012. In 2013 the overall recycling markets were relatively flat with little price movement up or down. In 2014 and 2015 prices declined further and remain on the low side of historical trends. Again, this data is relevant to the 2017 report detailing recycling in CY 2016. This trend has historically followed the price of oil.

This extended period of low pricing for recyclable materials is a global issue and is of concern to recycling managers everywhere. Consumers of recyclable materials continue to place strong emphasis on material cleanliness and have a low tolerance for contamination. Delaware is well suited to meet these demands with the modern separation infrastructure that has recently been constructed and despite low recyclables pricing, recycling remains more cost effective than disposal.

3.3 Outreach

The RPAC remains a vital part of recycling in Delaware and is presented with information and statistics on DNREC programs, events, activities and news related to outreach, education and implementation of on-going and emerging initiatives focused on recycling throughout the state. Two new initiatives in 2017 are the implementation of the Recycling Outreach and Education Campaign and a draft Recycling Compliance Initiative in the Commercial Sector strategy which will be implemented in 2018. Appendix D showcases recycling activities including the interactive, educational recycling game, *Bin it to Win it*, and other public events focused on recycling.

The unveiling of the interactive *Bin it to Win it* recycling game at both Coast Day and at Clayton Intermediate School were huge successes! Adults and middle schoolers alike were able to “live test” their recycling knowledge in a non-compliance activity geared towards better understanding of what goes in and what stays out of Single Stream recycling. The game is portable, is educational and interactive and is available to schools, community groups and for events of all kinds. Visit www.recycling.delaware.gov for more information on bringing the game to your school or event and for general recycling information.

DNREC staff continues to perform no-cost, onsite waste assessments at schools and businesses across the state. This effort has culminated in a greater awareness within DNREC and the RPAC of the impact proactive educational outreach has on understanding and implementing best and most current practices in recycling at point of disposal.

3.4 Other Activities

The RPAC is committed to helping Delawareans realize and implement better waste management practices. Regular RPAC meetings provide insight into a variety of topics. Most discussions and presentations over the past year have focused on enforcement of the Universal Recycling Law, the need for additional recycling outreach and education and what additional efforts will be necessary in order to achieve the Universal Recycling diversion goals, mainly the 50% residential and commercial rate stipulated in the Law. Specific to these additional efforts, the 2016 State-wide waste characterization study, prepared by DSM Environmental Services, Inc., and found at <http://www.dnrec.delaware.gov/dwhs/Info/Pages/RPAC.aspx>, targeted both recyclable materials (e.g. cardboard) and recycling sectors (residential vs. commercial). Data in this report affords the state and other recycling stakeholders the opportunity to evaluate respective waste streams, understand if and where excessive recyclables are found in the respective waste streams and determine if corrective actions are needed.

RPAC continues to seek ways in which to assist recycling efforts in Delaware since the loss of funds for the Universal Recycling Grants and Low Interest Loan Program. On behalf of RPAC DNREC is conducting a review of and data analysis of past program recipients to determine successful recycling program implementation due to grant funding.

4.0 MEASUREMENT REPORT

Under Executive Order 90, the RPAC was directed to use the U.S. Environmental Protection Agency's (EPA) 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, the RPAC, in 2006, created the Measurement and Reporting Subcommittee (M&R Subcommittee) comprising members of the RPAC, DSWA, DNREC, and the public. The M&R Subcommittee utilized the EPA definitions as directed, produced a recycling measurement methodology easily understood by Members, DSWA and DNREC staff and the general public. This methodology continues to be employed by the RPAC to analyze recycling data, track and report on meaningful trends and compare results across calendar years to develop a trend analysis. Comparisons could be established.

4.1 Data Collection

The M&R Subcommittee has obtained CY 2016 data from DSM Environmental Services, Inc. (DSM) for this report. The DSM report, State of Delaware Assessment of Municipal Solid Waste Recycling for Calendar Year 2016, is excerpted in Appendix C. In previous reports, DSM had collected data on recyclable materials collected by private industry in Delaware, while DSWA collected its own data and reported numbers directly to the RPAC. The RPAC then calculated commercial and residential waste disposal and recycling estimates using both data sets. Starting with calendar year 2011 data, DSM has collected data from both the DSWA and from private industry, and calculated recycling rates using methodology consistent with the M&R Subcommittee's previous efforts. DSM's CY 2016 data represents the sixth year that private industry in Delaware has been required to report on their respective recycling activity (Universal Recycling Law). While reporting has notably improved as a result of this requirement, DNREC and DSWA continue to work with DSM to work with and pursue to identify any non-reporters and ensure they are contacted.

The more data collected from all industries in the State, the greater analysis, accuracy of data reported and percentage outcomes will be. The RPAC and DSM have worked to ensure that the methodology for data gathering is consistent with EPA guidelines and that there is no double counting of recycling activities. The recycling survey work by DSM is funded by the DSWA for CY2017, with program management and reporting residing with the RPAC and DNREC.

4.2 Diversion Rate Calculation

The waste stream can be broken down into two primary categories: Municipal Solid Waste (MSW) and non-MSW. 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 rate limits "recycling" to the category of MSW. Additional detail regarding definitions of recycling can be found in RPAC's 2006 Annual Report and in "Measuring Recycling: A Guide for State and Local Governments" (EPA-530-R-97-011 at: <http://infohouse.p2ric.org/ref/01/00801/>). Determining the percent diversion of recyclables from Delaware's solid waste stream involves the following calculation:

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

The methodology developed by the RPAC calculates the percent of recyclables diverted from the MSW stream, as well as the total tonnage of MSW being landfilled. It also subdivides results into the residential and commercial sectors. These residential and commercial allocations were developed based upon comprehensive waste composition studies conducted in 2006 and 2007, the best judgment of DSM, and the best judgment of the members of the M&R Subcommittee.

Determining whether a material was generated by the commercial or residential sector can sometimes be difficult to resolve and is not always intuitive. Generally the EPA and the M&R Subcommittee allocate materials to the original ‘generator’ even though they may not be the one who actually performs the recycling. For example, lead acid battery recycling performed by a commercial battery retailer would be attributed 80% to the residential sector because approximately 80% of the batteries are generated from non-commercial vehicles. While this ‘generator rule’ can be debated, it is consistent with general EPA guidelines and has been applied consistently since 2006.

4.3 Recycling Rates

Since CY2006, the RPAC has employed an objective, scientific, and auditable methodology for calculating recycling rates in Delaware that is consistent with the U.S. EPA’s guidelines. A summary of the recycling rates produced using the aforementioned methodology is shown in Table 2 below:

Table 1. Recycling Rates Summary, CY2006-2016.

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Diverted Recyclables (tons)	248,410	323,396	318,002	323,637	359,147	401,883	405,953	450,499	472,344	499,363	541,234
MSW Disposed	823,479	794,984	741,143	668,353	706,368	672,761	607,539	623,463	658,788	673,058	675,721
Total Municipal Solid Waste = Diverted Recyclables + MSW Disposed	1,071,889	1,118,380	1,059,145	991,990	1,065,515	1,074,644	1,013,492	1,073,962	1,131,132	1,172,421	1,216,955
Percent Diverted Recyclables	23.20%	28.90%	30.00%	32.60%	33.70%	37.40%	40.10%	41.90%	41.80%	42.6%	44.5%

The residential-recycling rate increased in 2016 and continues to exceed the commercial recycling rate; 2014 was the first year of the commercial requirement to recycle and showed a three percent increase in the commercial diversion rate followed by a one percent increase in 2015. It is also important to understand that waste and recycling tonnages fluctuate on an annual basis for many reasons and due to a variety of influences such as the economy, weather’s impact on yard waste generation, recyclables markets and minor errors and omissions that may be discovered in subsequent reporting years.

Results comparing the residential to commercial sector rates for CY2015 & CY2016 are shown in Table 4 below.

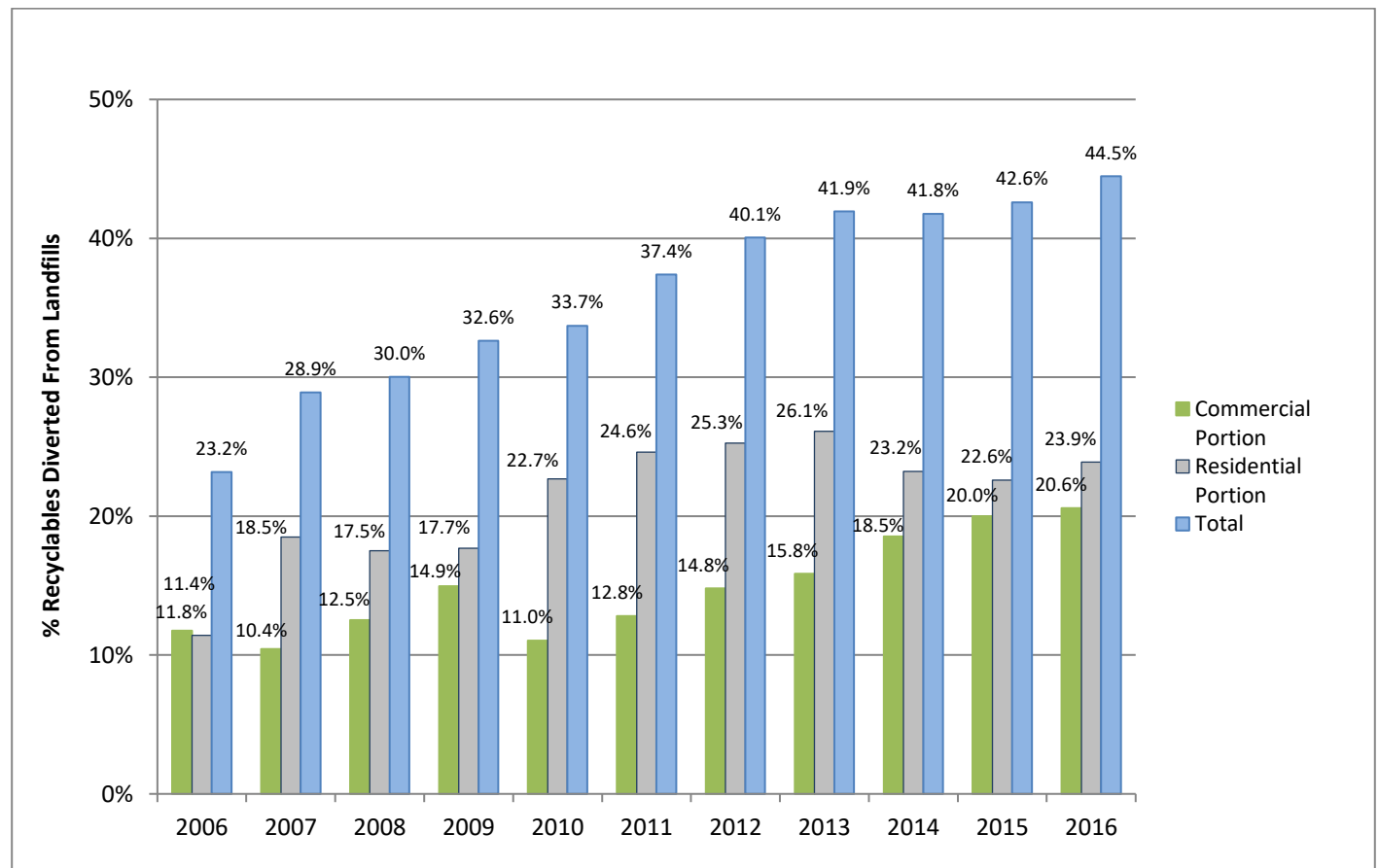
Table 2. Recycling Rates for Residential and Commercial Sectors, CY2015-2016.

	2015		2016	
	Residential	Commercial	Residential	Commercial
Diverted Recyclables (tons)	264,750	234,613	290,735	250,499
MSW Disposed	340,052	333,006	332,934	342,787
Total Municipal Solid Waste = Diverted Recyclables + MSW Disposed	604,802	517,619	623,669	593,286
Percent Diverted Recyclables	43.8%	41.3%	46.6%	42.2%

4.4 Behind the Data – CY2016

CY2016 saw a substantial gain in diverted recyclables versus CY2015. The CY2015 statewide average diversion rate (residential plus commercial) was 44.5%, a 2% gain over CY2015. This 2% gain in Delaware's diversion rate likely represents an increase in commercial recycling and better reporting as a result of the Universal Recycling Law, as well as a slight improvement in the economy, and maintenance of the yard waste bans.

Figure 1. Percentage of recyclables diverted from landfills in Delaware, CY2006-2016.



Note: The green and grey columns represent the commercial and residential percentage of the recyclables diverted from disposal. For the individual residential and commercial diversion rates, 46.6% and 42.2% respectively, see Figure 2 below. The light blue column is the total diversion rate of all residential and commercial recyclables since 2006.

Figure 2. Residential, Commercial and Total Diversion Rates in Delaware, CY2006-2016

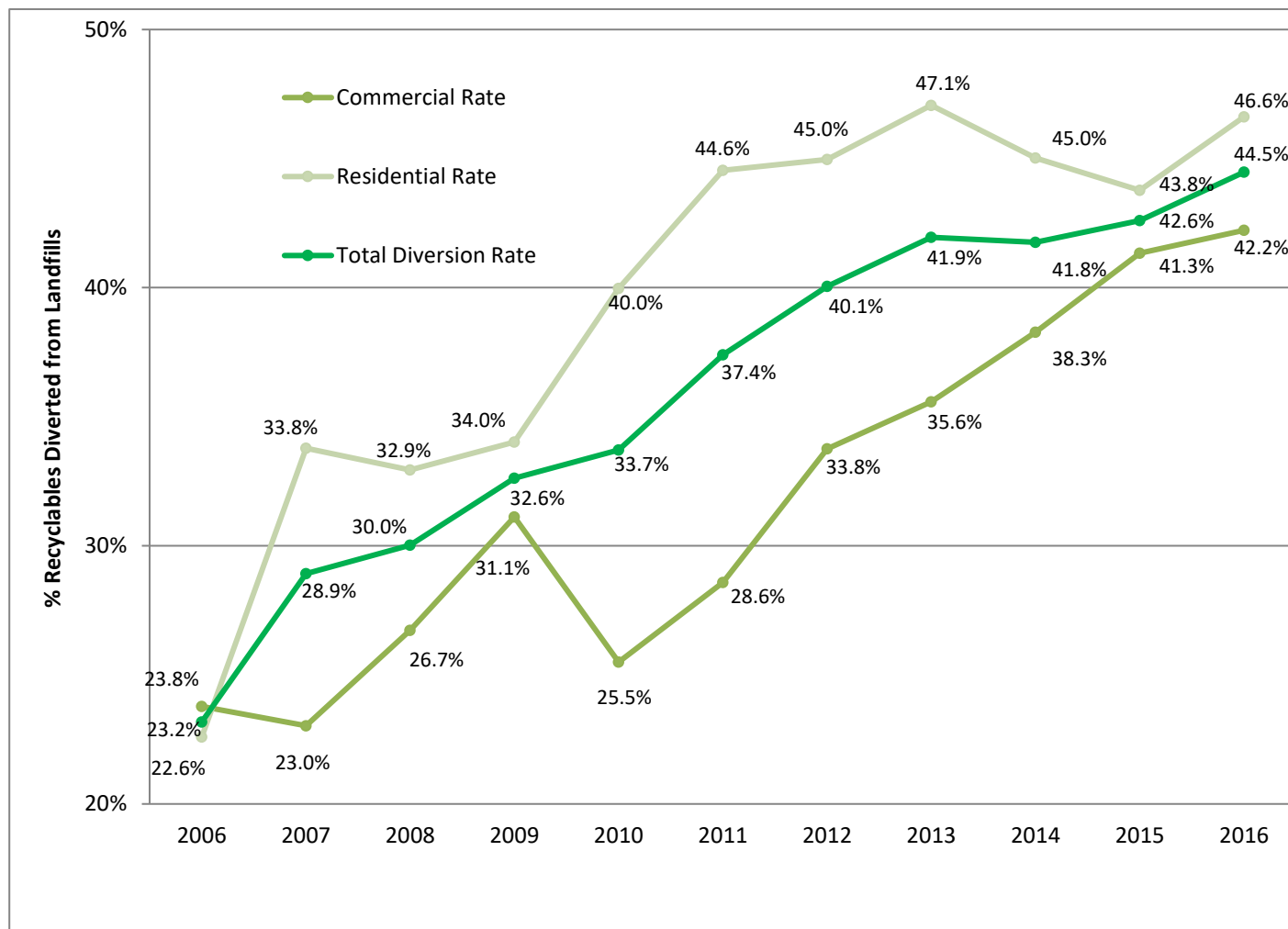


Figure 3. Total tons of MSW recycled or landfilled in Delaware, CY2006-2016

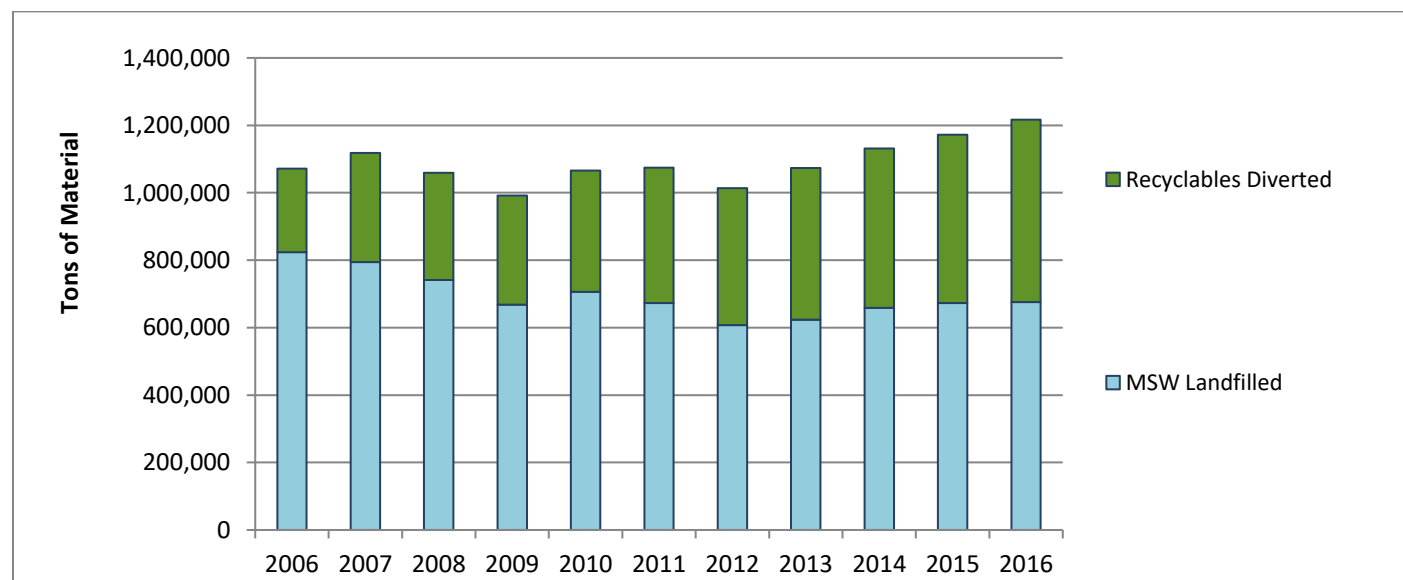
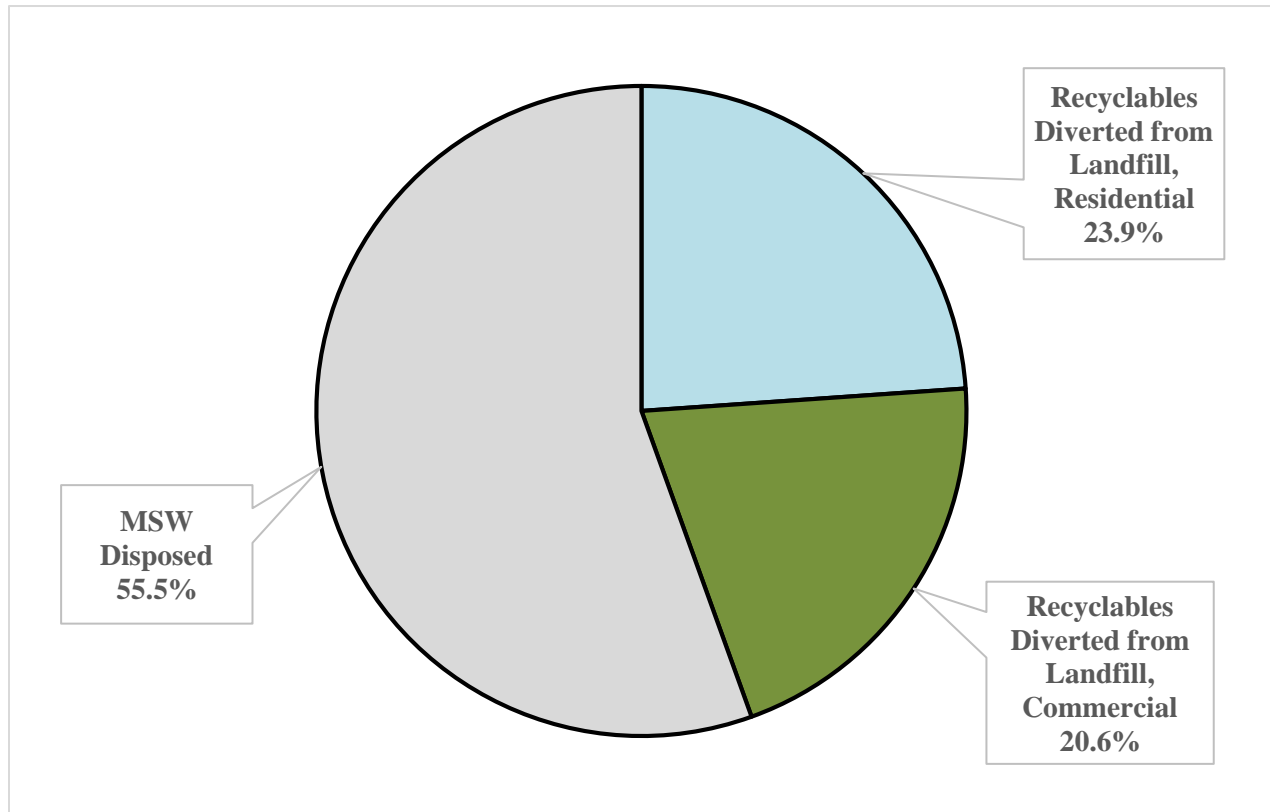


Figure 4. MSW Disposed and % Residential and Commercial recyclables in CY2016



4.5 Status of the Recycling Goals

The passage of the Universal Recycling Law established diversion goals of 50% for MSW and 72% for solid waste by 2015. The diversion rate of recyclables for CY 2016 was 44.5% for the MSW stream, which is above the national average. To reach the goal of 50% set in our recycling legislation (and 60% in 2020), will require the diversion of substantially more residential and commercial waste. This will likely require additional measures which include, but are not limited to:

- Additional recycling outreach and education efforts focused on what materials to recycle and how and where to recycle them.
- Continued expansion of recycling in the commercial sector.
- Comprehensive recycling throughout all branches of government.
- Programs such as Product Stewardship, Pay-As-You-Throw and/or disposal bans.
- The re-establishment of outlets for the organic fraction of the waste stream.

The RPAC may recommend additional mechanisms to improve solid waste diversion in Delaware after analysis of the DSWA Waste Characterization Study which was recently completed and presented to the Council.

DSWA obtained the services of DSM Environmental, Inc. to estimate the State's CY2015 Total Solid Waste (TSW) diversion rate. It is important to understand that the TSW is significantly different than MSW. MSW, which is the waste we typically think of as household and commercial waste and which had a CY2016 weight of 1,217,800 tons, is a subset of TSW which had a Mid-2015 weight of 3,467,216 tons. While TSW includes MSW, it also includes much larger sources of solid waste such as poultry waste, asphalt, concrete, coal ash and more. These wastes are largely recycled or put to beneficial use by the industries that create them because it makes sense to do so. Collectively the CY2015 TSW had a diversion weight of 2,500,068

tons with a diversion rate of seventy-two (72) percent. This meets the 2015 Universal Recycling interim diversion goal for TSW, but additional effort will be necessary to meet the 2020 diversion goal of 85% set by the Legislature. By maintaining a consistent methodology for ten (10) years, the RPAC has been able to develop a reasonably accurate and meaningful trend line analysis for recycling progress in Delaware. Continuing with this consistent methodology will enable the accurate tracking of progress toward the state's goals and help to inform future policy decisions.

5.0 Recycling Grants and Loans Program

The Universal Recycling Law established the Recycling Grants and Low Interest Loan Program (7 Del. C., §6054 and 7 Del. C., §6055). This program is designed to help implement:

- Recyclables collection programs for residential, schools and community programs; and
- Other recycling initiatives including outreach and education and the recycling of commercial waste and organics.

The Recycling Grants and Low Interest Loan Program was funded through recycling fees established in the Universal Recycling Law. The fees were sunset on December 1, 2014. At the end of FY 2016, the Legislature re-appropriated remaining grant funds, \$5 million, to other non-recycling programs. Prior to the loss of the funding, the balance was expected to carry the grants program through 2020. With a depleted grants funding account and absent new funding, DNREC and RPAC maintain that any opportunity to reach the legislated diversion goals established for 2020 is in jeopardy.

5.1 Cycle 1

The application deadline for the First Cycle of the Program was January 24, 2011. Funding criteria prioritized startup costs for single-stream, curbside recycling programs, primarily funded the purchase of recycling carts, collection trucks, related equipment, and outreach expenses for municipalities and waste haulers.

Table 3. Recipients Awarded Funding During the First Grant Cycle.

Applicant	Funding
Bethany Beach	\$250,377.00
City of Dover	\$101,151.00
City of Lewes	\$118,830.00
City of New Castle	\$24,220.00
City of Newark	\$212,063.00
City of Rehoboth	\$40,187.00
City of Wilmington	\$657,320.00
Delaware City	\$29,130.00
DE Restaurant Association	\$12,470.00
Delaware Sanitation	\$301,662.00
Econo-Haul	\$983,075.00
Fenwick Island	\$10,920.00
First State Disposal	\$201,053.00
Hockessin Sanitation	\$101,831.00
Jay D C Enterprises	\$149,760.00
KRC Waste Management,	\$104,160.00
Moor Disposal Services	\$778,939.00
O'Fig Sanitation	\$66,375.00
Palmatary's Sanitation	\$114,447.00
Town of Elsmere	\$94,622.00
Town of Middletown	\$306,000.00
Town of Smyrna	\$170,295.00
Total Encumbered	\$4,828,887.00
Total Expenditures	\$4,688,262.96

5.2 Cycle 2

The application deadline for the Second Cycle of the Program was March 14, 2012. Funding criteria for this round prioritized compliance assistance with the multi-family residential component of the Universal Recycling legislation, although other projects were considered. This cycle primarily funded recycling dumpsters, collection trucks and related equipment, and outreach expenses.

Table 4. Recipients Awarded Funding During the Second Grant Cycle.

Applicant	Funding
Wilmington Housing	\$18,059.80
HARJOCO	\$54,941.84
DE Restaurant Association	\$3,000.00
Econo-Haul	\$138,965.00
City of Rehoboth Beach	\$18,300.00
City of Newark	\$6,604.00
Lutheran Senior Services	\$2655.48
Burns and McBride	\$83,521.66
Total Encumbered	\$326,047.78
Total Expenditures	\$292,954.98

5.3 Cycle 3

The application deadline for the Second Cycle of the Program was March 14, 2012. Funding criteria for this round prioritized compliance assistance with the multi-family residential component of the Universal Recycling legislation, although other projects were considered. This cycle primarily funded recycling dumpsters, collection trucks and related equipment, and outreach expenses.

Table 5. Recipients Awarded Funding During the Third Grant Cycle.

Applicant	Funding
Waste Management Inc.	\$91,933.33
Bethany Beach	\$17,325.00
Del. Nature Society	\$3,425.00
RevolutionRecovery	\$357,949.00
RPJ Waste	\$280,152.82
Recycling Express	\$58,291.63
Lewes	\$34,800.00
Delaware State Fair	\$22,480.00
Dover Downs	\$28,532.50
REPLENISH – North	\$76,608.00
Del-Mar-Va Council	\$35,212.43
K.S.I.	\$20,225.25
EDEN Delmarva-TLG	\$58,400.00
First State Disposal	\$172,227.00
Peninsula Disposal	\$133,357.33
Total Encumbered	\$1,390,919.29
Total Expenditures	\$1,295,408.04

Grant contracts for these awardees were signed in June of 2013. The 146th General Assembly used Bond Bill (House Bill 410) to direct DNREC to issue a recycling grant to fund the DNREC run yard waste sites. Holland Mulch was awarded a grant to establish a new yard waste drop-off site. Details of this site are discussed in greater detail in Section 6.2 of this report.

5.4 Cycle 4

The application deadline for the fourth cycle of the Program was December 18, 2013. Funding criteria for this round prioritized compliance assistance with the commercial recycling component of the Universal Recycling legislation as well as non-profits and school recycling, although other projects were considered. This cycle primarily funded recycling dumpsters, school dishware conversion, balers and outreach and education expenses. Grant contracts for these awardees were signed in the spring of 2014. The awardees were a mix of municipalities, waste haulers, private businesses, schools and not-for-profit entities.

Table 6. Recipients Awarded Funding During the Fourth Grant Cycle.

Applicant	Funding
City of Newark	\$52,075.00
Waste Management Inc.	\$47,700.15
Caesar Rodney	\$16,437.31
Seaford Elementary	\$2,544.48
BFI Truck Body	\$64,646.00
Sanford School	\$25,306.90
BFI Containers	\$48,440.00
Bilcare	\$8,733.61
DE School for Deaf	\$27,687.68
Craig Technologies	\$8,625.00
Goodwill	\$21,907.50
Sussex County Habitat for Humanity	\$18,750.00
Biggs Museum	\$3,999.92
DE Ctr. for Inland Bays	\$19,012.95
Total Encumbered	\$365,866.50
Total Expenditures	\$190,851.33

5.5 Cycle 5

The application deadline for the fifth cycle, which prioritized implementation of school recycling programs, was August 14, 2014. Funding was primarily in the form of recycling containers and outreach and educational materials in the form of signage and posters. Those receiving funds are listed below.

Table 7. Recipients Awarded Funding During the Fifth Grant Cycle.

Applicant	Funding
Delmar School District	\$1,459.00
Kirk Middle School	\$4,792.18
Mt. Pleasant Elementary	\$2,881.45
Wesley College	\$47,736.04
Total Encumbered	\$56,868.67
Total Expenditures	\$46,815.08

5.6 Cycle 6

The application deadline for the sixth cycle, which was a mix of school, municipal, non-profit, multi-family and office recycling programs was March 3, 2015. Those receiving funds are listed below.

Table 8. Recipients Awarded Funding During the Sixth Grant Cycle.

Applicant	Funding
Appoquinimink School Dist.	\$6,993.59
Cape Henlopen School Dist.	\$7,630.25
Capital School Dist.	\$15,276.00
Bright Fields Inc.	\$1,119.66
East Pointe Apartments	\$4,928.22
Georgetown Manor Apartments	\$5,285.97
Laurel School Dist.	\$6,635.89
Partnership for the DE Estuary	\$12,029.50
Red Clay School Dist.	\$56,215.65
Fenwick Island	\$2,689.00
University of Delaware	\$5,985.00
City of Wilmington*	\$143,150.00
Total Encumbered	\$267,938.73
Total Expenditures	\$131,154.34

5.7 Cycle 7

The application deadline for the seventh cycle, which was a mix of schools, municipal, and businesses was June 22, 2016. Cycle 7 award contracts included schools, businesses, and municipalities as well as public outreach.

Table 9. Recipients Awarded Funding During the Seventh Grant Cycle.

Applicant	Funding
Capital School Dist.	\$21,831.67
DE State University Phase I	\$42,048.00
Fifer Middle School	\$1,827.88
HO Brittingham Elem. School	\$1,378.36
Milford, City of	\$42,230.00
MOT Charter School	\$2,997.47
Postlethwait Middle School	\$6,659.90
Red Clay School Dist.	\$5,100.00
Republic Services	\$36,400.00
William Penn High School	\$2,313.25
Total Encumbered	\$156,612.78
Total Expenditures	Pending closeout

5.8 Cycle 8

The application deadline for the eighth cycle, which was a mix of schools, municipal, businesses and media was September 30, 2016.

Table 10. Recipients Awarded Funding During the Eighth Grant Cycle.

Applicant	Funding
Delmarva Broadcasting	\$101,020.40
ab+c Creative Intelligence	\$495,940.00
WRDE TV	\$72,000.00
iHeart Media	\$129,920.00
Marquee Broadcasting	\$63,960.00
ScreenVision	\$101,300.00
Clear Channel	\$256,520.00
TSN Media	\$36,480.00
Perdue Farms Milford	\$9,038.78
Mountaire Farms	\$1,982.16
Econo-Haul	\$17,839.00
Smyrna School Dist.	\$25,030.00
Waste Industries	\$44,900.68
Evergreen Waste Services	\$16,222.00
Blue Hen Disposal	\$67,963.20
Responsive Management	\$47,487.96
Chipman Middle School	\$1,580.00
Talley Middle School	\$4,818.19
Milford, City of	\$83,622.25
Rehoboth Beach, City of	\$24,967.70
Mt Pleasant High School	\$1,201.17
Univ. of Delaware	\$126,442.99
Amtrak Maintenance Facility	\$27,516.70
DE State University Phase II	\$50,917.50
Total Awarded	\$1,808,714
Total Expenditures	Pending closeout

6.0 DNREC ACTIVITIES

DNREC's activities conducted in support of waste minimization and attaining the waste diversion goals include the following:

- Continue to provide no-cost, on site waste assessments to schools, businesses and communities
- Offer administrative support to RPAC and attend RPAC meetings
- Encourage yard waste recycling
- Implement and ensure compliance with the Universal Recycling Law
- Attend meetings, education and outreach events
- Provide technical guidance to individuals and organizations on request
- Administer recycling outreach and education media campaign

6.1 *Supporting the RPAC*

In fulfillment of its responsibilities under the Universal Recycling Law and previously under Executive Order No. 90, DNREC continues to provide support to the RPAC. DNREC tasks include but are not limited to:

- Schedule and publicize meetings
- Prepare and distribute meeting agendas and meeting minutes
- Participate in Subcommittees
 - Measurement and Reporting (M & R) Subcommittee which is responsible for establishing and enforcing recycling reporting requirements
 - Education and Outreach Subcommittee
- Draft documents for RPAC meetings and Subcommittees
- Prepare and distribute RPAC's Annual Recycling Report to the Governor and General Assembly

6.2 *Supporting the Diversion of Yard Waste*

The bulk of DNREC's yard waste diversion efforts have been focused on the Polly Drummond Site located in New Castle County. This site was created to facilitate residents dropping off yard waste at no cost. The materials collected at this site are periodically ground into mulch and removed by a contractor. The 146th General Assembly used Bond Bill (House Bill 410) language to direct DNREC to issue a recycling grant to fund the DNREC operated yard waste sites. Following DNREC's 2012 request for support, the RPAC recommended that DNREC use recycling grant money to issue either: a) A one-time grant for establishment of a private yard waste site that will serve as an alternative to both the DART and Polly Drummond Hill Road sites in between the two existing sites, OR b) A one-time grant for the establishment of a private alternative to the DART site and a one-time grant for the operation of the Polly Drummond Hill Road site or its alternative. The intent was solely to transition state-operated yard waste drop-off sites into the private sector.

The selected grantee, Holland Mulch, used the grant funds to establish a new yard waste drop-off site in between the two sites. Due to a long delay in Holland Mulch getting the necessary approvals from New Castle County and the Department of Transportation to open this new site located at 1034 South Chapel Street in Newark, a temporary site was opened on Brookhill Drive. The South Chapel Street became fully operational in August of 2014 and accepted yard waste from Delaware residents at no cost until October 2017, at which time Holland Mulch began charging a fee to all customers. To date, DNREC has been unable to close the Polly Drummond Hill site due to legislative direction to keep it open.

DNREC presents yard waste management information and options to community and interest groups,

maintains a yard waste management website that includes information on composting at:
<http://www.dnrec.delaware.gov/yardwaste/Pages/YardWasteHomeowners.aspx>.

The enforcement of the Cherry Island Landfill yard waste ban has been in place for close to ten years. Yard waste bans were incorporated in permits for DSWA's central and southern landfills effective January 1, 2011. Individuals and businesses have adjusted well. It is estimated that at least 142,520 tons of yard waste were diverted from Delaware's landfills in 2016. Banning yard waste from landfills has diverted a useful material that can be reused as well as supporting local jobs and businesses.

6.3 Implementing Recycling Legislation

Since the passage of the Universal Recycling Law, DNREC continues with implementation of the tasks required by the Universal Recycling law, including but not limited to:

- Outreach and educational efforts
- Meeting with waste haulers, municipalities, and the DSWA to coordinate implementation of universal recycling
- Managing remaining grants under the Universal Recycling Grant and Low-Interest Loan Program
- Recycling measurement and reporting

DNREC continues to invest significant staff time and resources to support and carry out the mandates articulated under the Universal Recycling Law. Much work remains as staff work towards achieving the state's 2020 diversion goals.

6.4 Public Education and Outreach

DNREC works with RPAC and the DSWA on ways to reach every Delawarean with recycling messaging. DNREC's accomplishments in 2017 include the following:

- Upgraded and maintained the *Delaware Recycles* website at: www.recycling.delaware.gov
- Maintained the *Delaware Recycles* Facebook page at: www.facebook.com/delawarerecycles
- Continued to post past and current RPAC Annual Reports, meeting minutes and agendas at: www.dnrec.delaware.gov/dwhs/Recycling/Pages/Recycling.aspx
- Maintained and updated the Yard Waste at: www.dnrec.delaware.gov/yardwaste
- Created a new landing page and website pointed to www.recycling.delaware.gov containing new and enhanced information on recycling
- Participated in media events, interviews and activities in support of the "Recycle Right" campaign
- Revised and republished the *How to Recycle* guide which can be viewed and downloaded at: <http://www.dnrec.delaware.gov/dwhs/Recycling/Pages/Recycling.aspx>

DNREC conducted or participated in many activities to increase public awareness of recycling opportunities and benefits. Table 11 below lists public outreach events and meetings attended or hosted by DNREC.

Table 11: DNREC Recycling Public Outreach Events, Meetings, Assessments for CY2017

Date	Meeting/Event (Location)	Hosted By
December 19	Bin it to Win it Recycling Game	Clayton Intermediate School
December 6	Recycling Presentation to homeschoolers	Milton Public Library
November 14	Preview of Recycling PSAs	Car Mike Movie Theater, Dover
October 24	Presentation to the Town of Milton	Sustainability committee of Milton
October 19	Unveiling of Recycling Program	City of Milford

October 16	Onsite Waste Assessment	Town of Milton offices and facilities
October 02	Onsite Waste Assessment	Odyssey Charter School
October 1	Coast Day	University of Delaware - Lewes
September 26	Recycling brochure drop off and brief presentation	Woodbridge School District
September 14	DNREC Children in Nature Coalition Meeting	St Jones Reserve
September 06	Onsite Waste Assessment	Smyrna School District
July 20 -29	State Fair Exhibit	DNREC State Fair Building
July 20	Evening Summer School Event	Postlethwait Middle School
July 6	Recycling Presentation for summer school kids	Milton Public Library
June13	Recycling Facilities Visit	New Castle
June 5	Onsite Waste Assessment	Mountaire Offices
June 1	Onsite Waste Assessment	William Henry Middle School
May 30	Onsite Waste Assessment	Phillip C. Showell Elementary School
May 30	Onsite Waste Assessment	Forwood Elementary School
May 25	Onsite Waste Assessment	Polytech High School
May 22	Onsite Waste Assessment	EPA Green Schools – Postlethwait Middle
May 17	Onsite Waste Assessment	Ursuline Academy
May 10	Recycling Presentation and Booth	DOE’s STEM event, Collette Ctr. Dover
April 28	Onsite Waste Assessment	Clayton Intermediate School
April 26	Recycling Presentation	DOE Lead Teacher Conf. K-5, Smyrna
April 25	Recycling Presentation	DOE Lead Teacher Conf. 6-12, Smyrna
April 21	Wilmington Earth Day Exhibit	City of Wilmington – Delaware Estuary
April 5	Chaperone; handed out recycling materials	St. Jones Reserve
March 17	Onsite Waste Assessment	Mariner Middle School
February 27	Onsite Waste Assessment	DHSS – Hagley Building
January 27	Onsite Waste Assessment	Mt. Pleasant Elementary
January 25	Onsite Waste Assessment	Office of State Treasurer

7.0 DSWA Activities

7.1 *Recycle Delaware Drop-Off Center Program*

The DSWA operates recycling drop off centers located throughout Delaware. These recycling drop off centers are staffed centers designed to reduce contamination of recyclables and assist Delaware residents while dropping off material. Residents can drop off single stream recycling as well as used motor oil, oil filters, household batteries, corrugated cardboard and textiles at every center in the State. There is also one center in each county that accepts electronic goods, polystyrene foam, documents for shredding and household hazardous waste.

Electronic Goods Recycling Program

In FY17, 2,009,685 pounds of electronic goods were recycled through DSWA's electronic goods collection program. DSWA collected 39,021 electronic devices for FY17. The total cost of this program to DSWA was \$491,836.66.

Household Hazardous Waste (HHW) Program

In FY17, DSWA held fifteen (15) HHW events throughout the state. Approximately 10,347 vehicles dropped off household hazardous waste. The total amount of HHW collected at all events totaled 296,899 pounds. In addition to the fifteen events held throughout the state, DSWA holds weekly collection events at the DSWA Cheswold Collection Station, Delaware Recycling Center in New Castle, and the Jones Crossroads Landfill in Sussex County. These weekly events collected an additional 399,570 pounds of material, making a grand total of 696,469 pounds collected for FY15. The total cost of this program to DSWA was \$835,621.50.

Oil Filter and Waste Oil Recycling Programs

In FY17, DSWA collected 37 tons of oil filters and 510 tons of used motor oil from DSWA drop off centers located throughout Delaware.

Polystyrene Foam Recycling Program

In FY17, DSWA collected polystyrene (#6 foam); Residents and commercial companies can drop off polystyrene at the Milford Transfer Station and the Delaware Recycling Center in New Castle. DSWA recycled 26,658 pounds of polystyrene.

Household Battery Recycling

In FY17, DSWA collected just over 80,000 pounds household batteries that were recycled.

Latex Paint Recycling

In FY17, DSWA held 1 Latex Paint Recycling events. DSWA collected 49,600 pounds of latex paint from 362 participants.

Paper Shredding

In FY17, DSWA provided paper shredding at all the special events. This service allows Delaware residents to safely recycle their sensitive documents with no fear of identity theft. DSWA collected 231,780 pounds of paper for FY17.

7.2 *Public Education and Outreach*

DSWA strongly believes in educating Delaware residents to increase awareness and to establish an interest

in protecting the environment. DSWA educates residents about their programs through school and community presentations, attending special events, and developing educational curriculum which is taught at the Environmental Education Building. In 2016, DSWA attended over 55 school and community presentations reaching over 10,000 residents. DSWA distributed educational materials covering multiple topics for children of all ages with emphasis on recycling and composting.

In 2016, DSWA placed an important emphasis on its public outreach effort by attending over 19 different events throughout the state, which reached over 235,000 Delaware residents. DSWA attended events such as the Delaware State Fair in Harrington and many others. DSWA attends events like these to promote environmental awareness throughout the state as well as educate the public on programs and facilities that DSWA provides for residents.

The DSWA Environmental Education Building is located at the Delaware Recycling Center, next to the MRF. In the fourth school year of operation, over 7,000 children from Delaware schools visited the center and learned about recycling, composting and conservation.

DSWA encourages citizens of Delaware to contact them if they are in need of environmental information concerning any DSWA program or facility. DSWA provides a Citizens' Response Line, (800-404-7080) which answers approximately 50 calls a day from residents. In addition, DSWA's website, www.dswa.com, provides even more information for Delaware residents. These resources provide valuable information and keep the personal touch that has helped to establish DSWA as a leader in the environmental community.

8.0 RPAC Recommendations

8.1 Current Recommendations

The RPAC's recommendations to the Governor and the General Assembly include the following steps to support our efforts to increase the recyclables diversion rate:

(1) Lead by example – mandate recycling in all state government facilities, including public schools and libraries, the courts system, and the legislature.

- Many government facilities lack effective recycling programs. With the commercial recycling requirement in effect January 1, 2014 and with government offices falling under the jurisdiction of the commercial recycling requirement, appropriate measures should be taken to ensure recycling is provided at all government facilities
- Require all government facilities to undergo a no-cost, onsite waste assessment by DNREC-SHWMS
- Survey the status of all government offices and perform a needs analysis to determine what offices are in compliance, what offices are not and what offices are somewhat compliant
- Require all state agencies to submit a report on the status of recycling collection availability at their offices including a synopsis of how recyclables are collected inside of buildings
- General Assembly pass a resolution to require comprehensive recycling in all state government facilities, including public schools, libraries, courts and the legislature.
- Judiciary, Department of Justice, Office of the Treasurer, Office of Insurance Commissioner and Office of Auditor of Accounts issue directives to each of their staffs to require comprehensive recycling in all of their offices
- Consult DNREC-SHWMS on the implementation or expansion of state office recycling programs

(2) Re-allocate funding to the Universal Recycling Grants and Low Interest Loan Program – this highly successful program supported ongoing efforts to implement, expand, evaluate and promote economically and environmentally sustainable practices through encouraging recycling behavior throughout the state.

DNREC's Recycling Grants and Low Interest Loan Program (the Program) is terminated and no longer offers grants to our schools, businesses and communities due to the State Legislature re-appropriating almost all remaining funds during FY 2016. The Program was self-funded through the \$0.04 bottle bill recycling fee which was sunset on December 1, 2014. The Grant funds were projected to carry the Recycling Grants Program through 2020 to ensure compliance with the State's Universal Recycling Law.

- In June, 2016, the Legislature re-appropriated \$5 million of the Program's funding. In doing this, the Legislature has effectively denied future opportunity to our schools, businesses and communities in furthering recycling in Delaware. RPAC, in the strongest terms, requests refunding of this important and critical program to support and build on the successes that Delaware has achieved in recycling and waste diversion. We are a leader among states and are 10 percentage points ahead of the national average in diverting waste to recycling. This creates jobs and a sense of well-being and accomplishment amongst Delaware citizens that our public and private spaces are clean and free of trash and litter and that our State, the First

State, is and shall remain first in recycling in the nation.

(3) Legislators should actively promote recycling by:

- Including information provided by RPAC in their newsletters and distributing it in public meetings
- Conducting quarterly or as-needed information briefings to key legislators and staff ensuring members are informed in a timely way on the changing and evolving state of recycling locally, regionally and nationally
- Inviting Legislators and staff to monthly RPAC meetings
- Offering Legislators and staff opportunities to participate in DNREC and RPAC educational opportunities (i.e., invite select staff to onsite waste assessments in their respective districts)
- Co-hosting with the Legislature, a “meet and greet” event so that RPAC and the Legislators become acquainted with each other, each has the others correct contact information and to build a collegiality bridge and communications conduit for ease of communicating back and forth on recycling efforts in Delaware
- Utilizing and optimizing electronic and web based media to leverage information sharing that include use of e-invites, email blasts, e-newsletters, Facebook and other platforms. This will increase the immediate, rapid sharing of information that will keep the Legislature informed on news events and other recycling happenings throughout the state

(4) Strengthen organics diversion – Employ the recommendations of the Organics Recycling Task Force that will result in long term, viable solutions for organics diversion in Delaware.

- Organic waste, which includes food waste, is a significant and valuable part of the waste stream comprising approximately 25% of landfill waste. With the closing of the Wilmington Organic Recycling Center and with Blue Hen Organics stopping food waste recycling, there are no options for commercial food waste composting in Delaware. This is projected to result in approximately a 10,000 ton reduction in the state’s diversion of municipal solid waste and eliminate the potential for any additional increase in organics diversion in the near term. Note that Blue Hen Organics is still accepting yard waste for recycling and turning this material into high quality mulch products.
- This will have a direct impact on meeting the state’s established diversion goals. RPAC received a final report from the Organics Waste Recycling Task Force and its recommendations on how best to re-establish and expand organics in the state by mid-2017
- For more info visit: <http://www.dnrec.delaware.gov/dwhs/SHWMB/Pages/ORGANIC-WASTE.aspx>.

APPENDICES

Appendix A.

Universal Recycling Law

Delaware Code TITLE 7 Conservation Natural Resources

CHAPTER 60. ENVIRONMENTAL CONTROL

Subchapter III. Solid Waste Recycling

§ 6051. Findings; intent.

In furtherance of the determination long established in § 6450 of this title that "the reduction of solid waste disposal and recovery of usable materials from solid waste are matters of extreme importance in minimizing the environmental impact of solid waste disposal through landfilling" and that it "is in the public interest to develop a comprehensive statewide system of recycling and resource recovery which maximizes the quantity of solid waste materials which can be recovered, reused or converted to beneficial use" the General Assembly hereby makes the following findings and declares the following intent with respect to the establishment of this subchapter. In order to establish a comprehensive statewide system of recycling, wherein recycling is maximized and the necessary economies of scale are realized, every residence and business must have access to recycling programs that are both convenient and cost effective. It is the intent of the General Assembly, in full recognition that the establishment of a comprehensive statewide recycling program has long been sought, that said program shall be accomplished by modification of the existing beverage container law and the establishment of universal recycling inclusive of the prescribed recycling programs, requirements and goals that follow. As such, liberal interpretation in favor of accomplishing the stated goals and objectives shall be exercised.

[77 Del. Laws, c. 275, § 1.](#);

§ 6052. Definitions.

Notwithstanding any definitions in Chapter 60 or 64 of this title to the contrary, the following words and phrases shall have the meaning ascribed to them in this subchapter unless the context clearly indicates otherwise.

- (1) "Authority" means the Delaware Solid Waste Authority.
- (2) "Beverage" means any mineral waters (but not including naturally sparkling mineral waters), soda waters or any other carbonated beverage not containing alcohol that is commonly known as a "soft drink" and any beer, ale or other malt beverage containing alcohol.
- (3) "Beverage container" means any airtight non-aluminous container containing less than 2 quarts of a beverage under pressure of carbonation.
- (4) "Dealer" means any person who engages in the sale of beverages in beverage containers to a consumer and shall include groups of retailers or retail chains.
- (5) "Multi-family" means 3 or more attached structures, such as condominiums or apartments, generally intended for occupancy by individuals or families and where centralized community trash disposal and collection services are typically provided.
- (6) "Municipal solid waste" means wastes such as durable goods, nondurable goods, containers and packaging, food scraps, organic yard waste and miscellaneous inorganic waste from

residential (i.e. household), commercial, institutional and industrial sources such as appliances, automobile tires, old newspapers, clothing, disposal tableware, office and classroom paper, wood pallets, and cafeteria wastes. Municipal solid waste does not include solid wastes from other sources such as construction and demolition debris, auto bodies, municipal sludges, combustion ash and industrial process wastes.

(7) "On-premises sales" means sales transactions in which beverages are purchased by a consumer for immediate consumption within the area under the control of the dealer.

(8) "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.

(9) "Recyclable material" or "recyclables" means any material or group of materials that can be collected and sold or used for recycling.

(10) "Recycling" means the process by which solid wastes are separated for use as raw materials, products or replacement of products, including the reuse of organic yard waste, but does not include the incineration of materials for energy.

(11) "Residential waste" means the solid waste generated in occupied single-family and multi-family structures. Also referred to as "household waste".

(12) "Single stream" means a system in which all fibers (including but not limited to paper, cardboard, etc.) and containers (including but not limited to plastic, glass and metal) are commingled for collection into 1 container instead of being sorted into separate commodities and multiple containers.

(13) "Single-family" means either a detached structure (i.e. a house) surrounded by open space or attached structures, such as town or row homes, generally intended for occupancy by a family and where individual trash collection services are typically provided for each structure.

(14) "Source-separated" means recyclable materials, including single stream recyclables, are segregated at the point of generation and kept apart from the waste stream by the generator thereof for the purpose of collection and recycling.

[61 Del. Laws, c. 503, § 1; 63 Del. Laws, c. 385, § 1; 67 Del. Laws, c. 341, § 1; 71 Del. Laws, c. 74, § 2; 77 Del. Laws, c. 275, § 1;](#)

§ 6053. Universal recycling.

The goal of universal recycling is to create an economy of scale wherein a dramatic increase in Delaware's diversion of recyclables occurs in the most cost effective manner achievable while simultaneously creating job opportunities and significantly reducing Delaware's rate of waste disposal.

Universal recycling shall be implemented in accordance with the following provisions:

(1) Effective no later than September 15, 2011, the Authority shall cease providing curbside recycling services, including yard waste collection, and all persons providing solid waste collection services in the State shall also provide:

- a. Single-stream curbside recycling collection services to all of their Delaware single-family residential customers, including delivery of a container for the purpose of storage and collection of recyclables that is adequately sized for the customers use such that recycling is encouraged and disposal of recyclables is discouraged; and the recyclables collection service shall be provided at a frequency of not less than once every other week.
- b. Source-separated recycling collection services to dealers who provide on- premise sales, including delivery of a recyclables container that is adequately sized for the premise being served and a frequency of recyclables collection that shall preclude the recycling containers from overflowing and otherwise causing a nuisance.
- c. All single-family residential and on premise sales customers with a single charge for the collection of waste and recyclables on their "waste services" bill that is inclusive of the combined waste and recycling collection service costs. Local governments that do not presently bill separately for the costs of waste collection are exempt from this requirement.
- d. Notification to all customers that the single-stream recycling service will be provided and instructions on participation prior to September 15, 2011.

(2) Effective no later than January 1, 2013, all persons providing solid waste collection services in the State shall provide:

- a. Single-stream recycling collection services to all of their Delaware multi- family, residential customers, including providing the multi-family complex with an appropriately sized and centrally located recyclables collection container or containers for the complex being served and ideally in the same proximity as the complexes waste disposal containers. Local governments may require multi-family complex owners to provide their own recyclable collection containers consistent with local requirements.
- b. Notification to the multi-family complex management that the single-stream recycling service, including instructions on participation, will be provided.
- c. A frequency of recyclables collection that shall preclude the recycling containers from overflowing and otherwise causing a nuisance.
- d. Written justification to the Department for not providing multi-family, recycling collection services where the physical constraints of the site prevent the placement of both trash and recycling containers. Exclusion from multi-family recycling is subject to Department review and approval.

- (3) Owners of multi-family complexes must, at least once per calendar year, provide residents with instructions on participating in the complex's recycling program.
- (4) The Recycling Public Advisory Council shall issue a report to the Governor and the General Assembly no later than November 1, 2012, with recommendations regarding the implementation of universal recycling in the commercial sector. It is the express requirement of this legislation that universal recycling be adopted by the commercial sector and that all commercial businesses actively participate in a comprehensive recycling program no later than January 1, 2014.
- (5) Persons who choose to transport and deliver the solid waste and recyclables generated on their own property for proper disposal or to a recycling facility of their choice respectively shall not be affected by this subchapter and may continue in this practice.

(6) Nothing shall impair the ownership of recyclable materials by the generator unless and until such materials are placed at curbside or similar location for collection and recycling, and nothing in this chapter shall be construed to prevent any person from collecting, transporting, processing, and marketing recyclable materials in competition with other persons in the same business, including the Authority, provided that the requirements of this subchapter are satisfied.

(7) Persons engaging in the collection, transportation, processing, or marketing of source separated recyclable materials shall conduct such activities in a manner that the source separated recyclable materials enter the marketplace and are otherwise not disposed via a landfill or by incineration.

[77 Del. Laws, c. 275, § 1.](#);

§ 6054. Delaware Recycling Fund.

(a) There shall be established in the State Treasury and in the accounting system of the State a special fund to be known as the Delaware Recycling Fund ("the Fund").

(b) The following revenue shall be deposited into the Fund:

- (1) As specified in § 2912 of Title 30, the recycling fee on the sale of beverage containers;
- (2) On the last day of each month, the State Treasurer shall credit the Fund with interest on the average balance in the Fund for the preceding month. The interest to be paid to the Fund shall be that proportionate share, during such preceding month, of interest to the State as the Fund's and the State's average balance is to the total State's average balance;
- (3) Any other revenue appropriated or transferred to the account by the General Assembly; and
- (4) Repayment of low interest loans.

(c) The Fund shall be used by the Secretary for the exclusive purpose of funding specific activities designed to enhance the State's recycling rate and the diversion of recyclables that would otherwise be land disposed. The Fund may be expended only:

- (1) To fund the Recycling Grants and Low Interest Loan Program referenced in § 6055 of this title. Annual funding for the Recycling Grants and Low Interest Loan Program shall be dependent on revenue generated by the Fund;
- (2) To pay the limited and reasonable cost of the Department and the Recycling Public Advisory Council to study, evaluate and report on the status and potential for recycling various components of the solid waste stream, with emphasis on those aspects of municipal solid waste and commercial waste necessary to achieve the diversion goals established in § 6056 of this title;
- (3) To pay the Department's limited and reasonable costs for administering this subchapter. No greater than 10% of the revenue deposited into the Fund shall be used by the Department for administering this subchapter without approval of the Joint Finance Committee and shall include but not be limited to: promoting the Recycling Grants and Low Interest Loan Program, universal recycling, zero waste principles, development of reporting requirements and related recycling initiatives; and
- (4) To pay the Division of Revenue for the costs of administering § 2912 of Title 30.

(d) The Department shall commence the Recycling Grants and Low Interest Loan Program in calendar year 2011 and offer the Program at least annually thereafter until 2014.

(e) The revenue from the Fund and its disbursement via the Recycling Grants and Low Interest Loan Program shall be subject to audit and the recipient of any such funding shall agree to the audit and cooperate with the auditor as a condition of receiving funding.

(f) No expenditures shall be made from the Fund for any grants or loans pursuant to § 6055 of this title without the approval by the Controller General and Director of the Office of Management and Budget of a plan for revenues and expenditures for the period between December 1, 2010, and September 15, 2011.

[77 Del. Laws, c. 275, § 1.](#);

§ 6055. Recycling Grants and Low Interest Loan Program.

(a) There is hereby established a competitive Recycling Grants and Low Interest Loan Program (the "Program") to assist persons engaged in the business of collecting, transporting, processing, or marketing recyclable materials with the implementation of:

- (1) Source-separated recyclables collection and processing programs with emphasis on start-up costs for residential single-stream recyclables collection; and
- (2) Start-up costs for initiatives which result in the recycling of solid waste materials, which would otherwise be land disposed, with emphasis on commercial waste.

The Program shall be administered by the Department, and monies from the Program shall be paid based on approved grant and loan requests. The Department shall be entitled to disburse grant and loan monies for the documented costs of implementing the collection or processing of 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 § 6054 of this title. Such procedures shall include provisions for repayment of loans to the Department and may include a rebate program for costs based on, including but not limited to, a prorated share of household customers in a recycling program that may have been in existence prior to creation of this law. The Department shall solicit the commentary of the grant eligible stakeholders during development of the grant guidelines and procedures. The Program shall be funded by monies made available under the provisions of § 6054 of this title.

(b) The Recycling Public Advisory Council, after the receipt of comments by grant and loan eligible stakeholders, shall make recommendations annually to the Department regarding the programmatic priorities for awarding Program funds under this subchapter. The Recycling Public Advisory Council shall provide recommendations regarding the categories and priorities for grants and loans 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 balancing current needs with those of future generations.

(c) The Department shall review all grant and loan applications and award grants and loans 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.

(d) Any person providing solid waste collection services that is a recipient of a grant or low interest loan from the Delaware Recycling Fund shall not, as a result of implementation of universal recycling, increase rates charged for solid waste collection between such times as they make application for the grant until March 15, 2013.

§ 6056. Adopting diversion goals and reporting requirements [Effective Dec. 1, 2010]

It is the intent of the General Assembly that implementation of the requirements of this subchapter reduce the amount of nonhazardous solid waste currently deposited in landfills in this State by maximizing the recovery of recyclable materials. In order to do so, it will be necessary for the State to embrace the Zero Waste Principles of designing and managing products and processes to systematically avoid and eliminate the volume and toxicity of waste and materials, conserve and recover all resources, and not incinerate or bury them. In that spirit, the following Interim Waste Diversion Goals are established with the understanding that as more data and information regarding the implementation of universal recycling become available, the goals leading up to January 1, 2020 may be modified by the Department as circumstances dictate; however, the January 1, 2020, goals may not be modified without the approval of the General Assembly:

Table 1. Interim Zero Waste Diversion Goals (1)		
Date by which goal is to be achieved	Solid Waste Diverted from disposal	Municipal Solid Waste Diverted from disposal
January 1, 2015	72%	50%
January 1, 2020	85%	60%
(1) By weight		

(1) In order to effectively measure the diversion rates being achieved, all persons, including persons who collect, process or market recyclables, with the exception of those specified in § 6053(5) of this title, must report to the Department on a calendar year basis, no later than February 15 of the following year, the type and quantity of recyclables managed, the method of recycling collection used (single or multiple streams), and the location of the recycling facilities used pursuant to reporting guidance developed by the Department and the Recycling Public Advisory Council. Said reporting guidance shall be developed pursuant to the solicitation of stakeholders responsible for reporting, shall take into account the need for confidentiality of the information reported and shall be finalized no later than December 1, 2010. The first recycling report shall cover calendar year 2011 and shall be due no later than February 15, 2012.

(2) In order to ensure that the waste diversion goals specified in Table 1 of this section above are achieved by the dates specified, the Department, in cooperation with the Recycling Public Advisory Council [RPAC], shall assess progress and recommend to the Governor and General Assembly any additional mechanisms necessary including but not limited to: which waste streams must be diverted from disposal; the parties responsible for ensuring the identified waste streams are diverted from disposal; the date by which the diverted waste streams must be diverted from disposal; implementation of Pay As You Throw; Extended Producer Responsibility; incentive based recycling; waste bans and related requirements. Such assessment shall be completed, inclusive of any draft legislation determined necessary, and submitted to the General Assembly no later than November 1, 2014, as part of the RPAC annual report.

§ 6057. Beverage containers -- Findings, intent, prohibitions.

(a) The General Assembly hereby finds that beverage containers are a valuable recyclable material and a major source of non-degradable litter in this State and that the collection and disposal of this litter and solid waste constitutes a great financial burden for the citizens of this State; and that, in addition

to this unnecessary expenditure of tax moneys, such litter unreasonably interferes with the enjoyment of life and property by our citizens; and that the practice of littering and disposal of a recyclable material is not compatible with previously adopted policies of the State in regard to proper use and protection of our natural resources.

(b) It is the intent of the General Assembly to increase recycling significantly, inclusive of Beverage containers, thereby conserving valuable natural resources, removing the blight of litter on the landscape of the State caused by the disposal of beverage containers and other packaging, and reduce the increasing costs of litter collection and disposal.

(c) Prohibitions. -- No beverage shall be sold or offered for sale in this State:

- (1) In containers connected to each other with plastic rings or similar devices which are not classified by the Department as biodegradable, photodegradable or recyclable.
- (2) In a beverage container which is not recyclable or refillable.

[61 Del. Laws, c. 503, § 1; 64 Del. Laws, c. 57, § 1; 67 Del. Laws, c. 341, § 2; 77 Del. Laws, c. 275, § 1.](#)

§ 6058. Establishment, composition and responsibility of the Recycling Public Advisory Council.

(a) There is hereby established a Recycling Public Advisory Council (the "Council"). The Council shall be composed of 16 members who shall be appointed by the Governor as follows:

- (1) One member from the Department;
- (2) One member from the Authority;
- (3) One member representing county governments, with such member being recommended by the Delaware Association of Counties;
- (4) One member representing municipal governments, with such member being recommended by the Delaware League of Local Governments;
- (5) One member representing the recycling industry;
- (6) One member representing the waste hauling industry;
- (7) Two members, 1 representing the soft drink industry and 1 representing the alcohol beverage industry, representing the beverage industry;
- (8) One member representing the Delaware State Chamber of Commerce;
- (9) One member representing the Delaware restaurant industry; and
- (10) Five members representing community-based or public-interest groups.
- (11) One member representing the Delaware Food Industry Council.

(b) Members of the Council, except for those appointed pursuant to paragraphs (a) (1) and (2) of this section above, shall serve for terms up to 3 years and may not serve more than 2 consecutive terms but may again serve after 1 year off of the Council. Members shall be appointed for staggered terms so that no more than 5 appointments shall expire in any 1 calendar year. Members may be reimbursed for travel to and from meetings. The Governor shall appoint a Chairman from among the 16 members. Actions of the Council shall be approved by a majority vote of the Council. At least 9 members of the Council shall constitute a quorum. The Council may adopt bylaws as it deems appropriate to serve the purposes of this subchapter.

(c) The Recycling Public Advisory Council shall:

- (1) Advise the Department and the Authority on all aspects of recycling;
- (2) Advise the Department in developing criteria for the Recycling Grants and Low Interest Loan Program and selection of applications as well as provide an annual assessment of the revenue needed to satisfy the grant requirements;

- (3) Maintain, in conjunction with the Department and the Authority, a methodology for measuring recycling rates;
- (4) Provide advice and recommendations regarding the recycling outreach and education programs conducted by the Authority and/or the Department;
- (5) Report to the Governor and the General Assembly annually by November 1 of each year on the status of recycling activities in Delaware. Said report shall include, but not be limited to the following:
 - a. Status of attainment of the recycling goals specified in § 6056 of this title;
 - b. An accounting of the recycling grants and loan program and any recommendations for future funding of the grants and loan program;
 - c. An assessment of the activities of both the Department and the Authority in achieving the recycling goals specified in § 6056 of this title;
 - d. An objective, auditable accounting of recycling rates for total solid waste, municipal solid waste, and residential solid waste;
 - e. Such other recommendations as the Council shall deem appropriate; and
 - 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.
- (6) Council. [77 Del. Laws, c. 275, § 1.](#);

§ 6059. Enforcement, civil and administrative penalties.

- (a) Whoever violates this subchapter, or any rule or regulation promulgated there under, or any order of the Secretary, shall:
 - (1) For the first conviction, be fined not less than \$100 nor more than \$500 for each day of violation;
 - a. For each subsequent conviction for the same offense within a 10-year period, be fined not less than \$500 nor more than \$1,500 for each day of violation;

In the Secretary's discretion, the Secretary may endeavor by conciliation to obtain compliance with all requirements of this subchapter. Conciliation shall be giving written notice to the responsible party:

- a. Specifying the complaint;
- b. Proposing a reasonable time for its correction;
- c. Advising that a hearing on the complaint may be had if requested by a date stated in the notice; and
- d. Notifying that a proposed correction date will be ordered unless a hearing is requested.

If no hearing is requested on or before the date stated in the notice, the Secretary may order that the correction be fully implemented by the proposed date or may, on the Secretary's own initiative, convene a hearing, in which the Secretary shall publicly hear and consider any relevant submission from the responsible party as provided in § 6006 of this title.

Any person whose interest is substantially affected by any action of the Secretary may appeal to the Environmental Appeals Board, in accordance with § 6008 of this title.

Appendix B.

Recycling Public Advisory Council Members (RPAC)

CURRENT RPAC MEMBERS:

Stan Mills, RPAC Chairman. Commissioner, City of Rehoboth Beach.
—Representing the Delaware League of Local Governments.

Marjorie A. Crofts. Director, Division of Waste and Hazardous Substances, DNREC
—Representing the Department of Natural Resources and Environmental Control.

Michael D. Parkowski. Chief of Business and Governmental Services, Delaware Solid Waste Authority.
—Representing the Delaware Solid Waste Authority.

Richard C. Cecil. Executive Director, Delaware Association of Counties
—Representing the Delaware Association of Counties.

Paul R. Bickhart. President, Recycling Express of Delaware, Inc.
—Representing the recycling industry.

Steve Masterson. Waste Masters Solutions.
—Representing the Waste hauling industry

Sewall McCabe. Pepsi Bottling Ventures.
—Representing the soft-drink industry

Michael Fusca. Delaware Alcohol Wholesalers Association.
—Representing the alcohol beverage industry

Rustyn Stoops. Executive Director, Delaware Manufacturing Extension Partnership.
—Representing the Delaware Chamber of Commerce

Adam Webster. Grotto Pizza, Inc.
—Representing the restaurant industry

Marianne Cinaglia.
—Representing community-based or public-interest group (one of five seats)

Coralie Pryde. League of Women Voters.
—Representing community-based or public-interest group (one of five seats)

Wendy Turner. Educator, Brandywine School District
—Representing community-based or public-interest group (one of five seats)

Vikram Krishnamurthy. Executive Director, Delaware Center for Horticulture
—Representing community-based or public-interest group (one of five seats)

Vacant.
—Representing community-based or public-interest group (one of five seats)

Julie Miro Wenger. Executive Director, DE Food Industry Council.
—Representing the Delaware Food Industry Council

RPAC wishes to acknowledge those members that recently retired from the RPAC: B.J. Vinton, past Chair; Robert Ziegler; Charles Campbell-King, George Danneman and Brian Nixon. Thanks B.J., Bob, Charles, George and Brian for your years of service and your efforts progressing recycling in Delaware!

Appendix C.

DSM Measurement Report

FINAL REPORT
August 2017

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

State of Delaware Assessment of Municipal Solid Waste Recycling For Calendar Year 2016



Prepared by:
DSM Environmental Services, Inc.
PO Box 2
Windsor, VT 05089-0002
www.dsmenvironmental.com

Introduction

This is the sixth year that the State of Delaware Universal Recycling Law has mandated reporting on recycling activity. Every year since this mandate, DSM receives more complete data from those that have been reporting for many years as well as receives reports from some first-time reporters.

As in the previous assessments, DSM has attempted to both identify any new recyclers in Delaware to include in the survey and disaggregate recycling by residential versus commercial sources.

As in previous years, the results are only as good as the data provided. DSM relies on reporters to submit accurate data on the types and volume of materials recycled, and on the end users of their material to ensure all materials generated in Delaware that are recycled are counted but that materials are not double counted.

Residential versus Commercial Recycling Categories

While DSM attempts to distinguish between household (residential) and commercial (business, industry and institutional) recycling, in some cases (where it is not clear), materials have been allocated to residential or commercial based on previous decisions made by the M&R Subcommittee. These decisions have been carried forward for CY 2016 to maintain consistency in reporting, with the exception of trees and branches, where DSM made a change in allocation consistent with the findings from the 2015 Yard Waste Study.

The resulting report is intended to provide baseline, CY 2016 data on all residential and commercial materials being recycled from Delaware generators that meet the US EPA definition of MSW.

Disposal Estimates

This report includes MSW disposal estimates for CY 2016. DSM has reviewed detailed data from DSWA on incoming vehicles and waste classifications. These data are used to estimate total residential, commercial and C&D waste deliveries for disposal for CY 2016. In addition, DSM has attempted to identify any MSW disposed out of state, including whether it comes from residential or commercial sources. These totals enable a CY 2016 MSW recycling rate calculation to be made for Delaware for use by RPAC in measuring progress toward State goals.

Material Categories

This assessment encompasses all material identified by the EPA as Municipal Solid Waste (MSW) and defined in the EPA document, *Measuring Recycling, A Guide for State and Local Governments* (September 1997) as:

“Wastes such as durable goods, nondurable goods, containers and packaging, food scraps, yard trimmings, and miscellaneous inorganic wastes from residential, commercial, institutional, and industrial sources such as appliances, automobile tires, old newspapers, clothing, disposable tableware, office and classroom paper, wood pallets and cafeteria wastes.” MSW “excludes solid waste from other sources, such as construction and demolition debris, auto bodies, municipal sludge, combustion ash, and industrial process wastes that might also be disposed of in MSW landfills or incinerators. (US EPA 1996b)”

The EPA guidance document further defines what is and what is not MSW (Table A, Appendix A of this report), and what counts as recycling and what does not count as recycling (Table B, Appendix A). While the EPA guidance document is helpful in delineating what materials to include in the measurement of MSW recycling, it is often the case that recycling generators, brokers and processors do not report, or keep records, sufficient to differentiate between materials that would be included or excluded from EPA's definition of recycling.

DSM's approach for this CY 2016 assessment is consistent with previous years' surveying and reporting on residential, commercial and industrial activities that would be expected to generate and recycle materials that fall into EPA's definition of MSW and recycling as shown in Table 1 below (in column 3 titled "EPA's MSW"). In some cases, it was necessary to survey generators or recyclers who manage both included and excluded materials, in which case the generator/recycler was asked to estimate the quantity of included material(s) only.

For example, DSM has asked scrap metal recyclers to only report on appliances, lead acid batteries and aluminum cans because it has been impossible for them to disaggregate durable goods made of metal that would be considered MSW from other scrap metal not considered to be MSW.²

Table 1 lists each material type included in the first column of Table 1 consistent with the way the EPA reports materials recycling. Check marks in Columns 3 (EPA's MSW), 4 (Industrial) and 5 (C&D) identify which waste (or recycling) stream the material is most likely to be generated from. In the case where a material is classified as both "EPA's MSW", and therefore included, and as "Industrial" (e.g. industrial process waste) or "C&D" (e.g. construction and demolition waste), and therefore excluded, the items excluded are noted in the second column.

DSM's survey and reporting methodology, including a description of all material categories, follows Table 1. This includes the assumptions associated with allocating these materials to excluded or included categories. The final recycling numbers reported for CY 2016 can be found in Table 2.

Finally, in the case of metals the checkmark is centered between columns indicating that in most cases there is no way of determining the source of the material. For this reason, metals except for appliances and packaging containers have been excluded from further consideration. This approach results in the calculation of a lower recycling rate than if metals (other than appliances) were counted toward MSW recycling but ensures cars and other vehicles as well as transportation materials and other construction metals are not counted toward the MSW recycling rate.

² While durable goods such as furniture and other household products could be counted toward the MSW recycling rate, scrap metal dealers do not track incoming or outgoing volumes by these categories and would not be able to make reliable estimates. Therefore, reports on all other types of scrap metal recycled are only requested once every five years when a report on all types of materials recycling, including non-MSW materials, is typically requested. For CY 2014, an additional 100,000 tons of scrap metal was reported as part of this 5-year, *Total Solid Waste Recycling* report.

The full report can be accessed at <http://www.dnrec.delaware.gov/dwhs/Info/Pages/RPAC.aspx>

Appendix D.

Outreach Examples

Figure D.1 – “Delaware Recycles” Logo, used to unify and brand outreach efforts



Figure D.2 – Website: www.recycling.delaware.gov



What's New

All commercial businesses in Delaware must take part in a comprehensive recycling program.

Universal, comprehensive recycling is required by Delaware state law. This includes for profit and not-for profit retail and wholesale stores, offices, food service establishments, warehouses, and other manufacturing, industrial, or processing activities. And it includes institutions such as social, charitable, educations, health care, professional, and government services. Waste haulers are required to provide single-stream recycling collection to both single and multi-family residential customers, and most bars and restaurants. The goal of the Universal Recycling Law is to maximize the convenience of recycling and minimize the amount of trash disposed in Delaware. Recycling keeps raw materials in the manufacturing sector, creates jobs, and promotes sustainability.

More Information

- [15th Annual Report of the Recycling Public Advisory Council \[PDF\]](#)
- [Recycling Info by Topic](#)
- [Contact Us](#)
- [DSWA List of Residential Waste Haulers](#)
- [What's Recyclable in Delaware](#)
- [Universal Recycling Legislation](#)
- [Bottle Fee Info for Retailers](#)
- [Yard Waste Information](#)
- [How to Recycle Guide \[PDF\]](#)

Figure D.3 – Facebook Page: [www.facebook.com/delawarerecycles](http://www.facebook.com/DelawareRecycles)



Figure D.4 – *How to Recycle* Guide, 2017 edition

How to RECYCLE

A Guide To Recycling In Delaware



**DELAWARE
RECYCLES**
It's second nature.

Figure D.5 – Composting Brochure

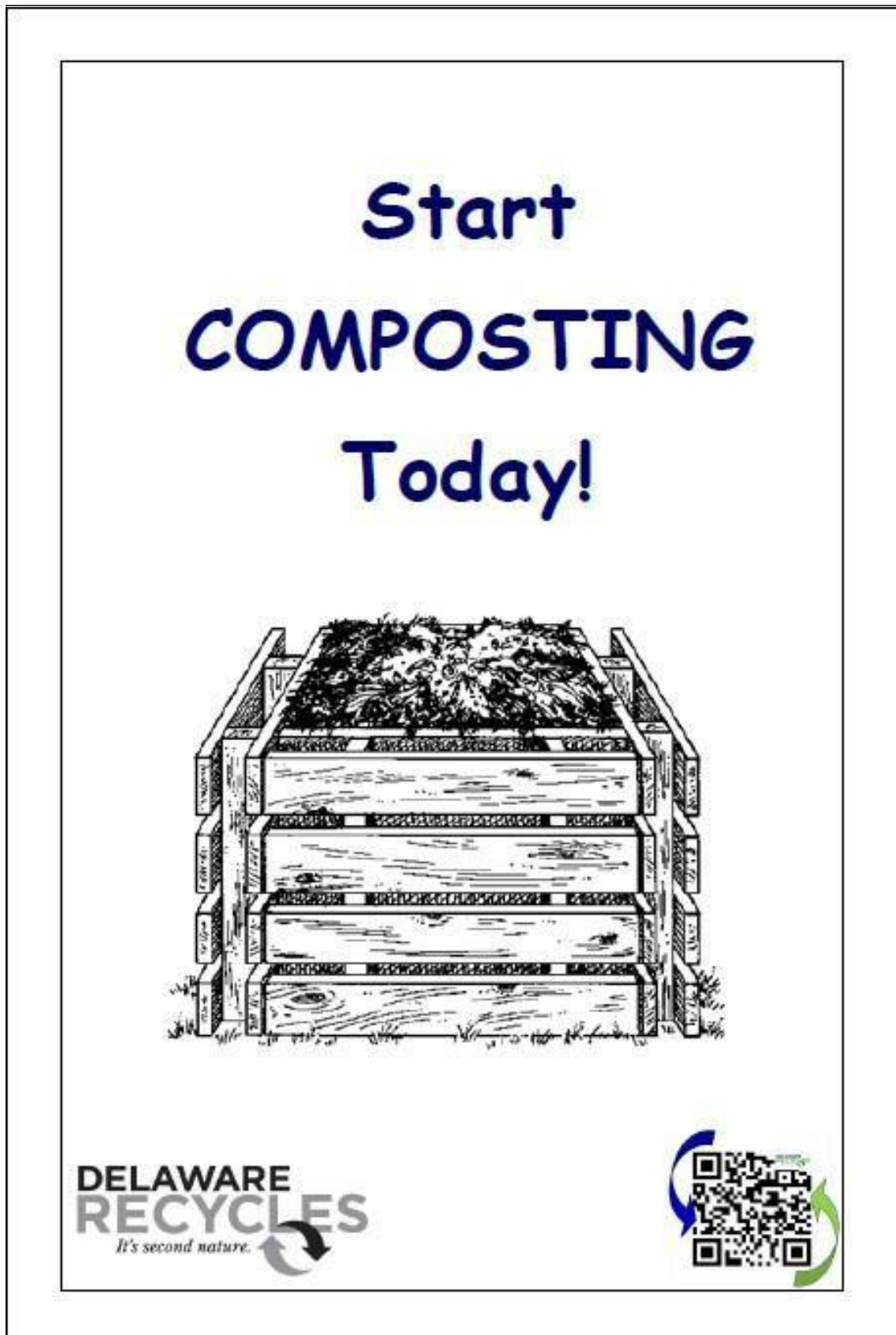


Figure D.6 Recycling Outreach and Education media campaign: September 2017– 2020

Print, Billboard and Social Media ads



Radio Station Advertisers



RecycleRightDE-Dave-60R.mp3



RecycleRightDE-Karl-60R.mp3



RecycleRightDE-Katie-60R.mp3

DELMARVA BROADCASTING

- WDEL – AM/FM
- WSTS-FM

iHEART RADIO

- WDSD

TV and Theater Outlets:

PSAs and TV Ads



esl.del.1017.221_DNR.MP4



esl.del.1017.220_DE R.MP4

- SCREENVISION – Movie Theater PSAs - Carmike Dover and Penn Wilmington
- WRDE – TV
- WMDT- TV
- OTHER TV – Comcast Cable select DE stations during NFL games

Billboards and Other Print Media Vendors:



DNREC25269_RecyclingCampaignBillboard



DNREC location list 9.18.17 thru 11.12.17



DNREC map 9.18.17 thru 11.12.17.pdf



DNREC25275_RecyclingCampaign_PrintA

- CLEAR CHANNEL
- WEB – Facebook, Social Media, Landing Page
- TSN *Out and About* Magazine – Social Media posts and ads (see ad below for *America Recycles Day* in Delaware)



Events

- **COAST DAY, October 1, 2017:** the interactive Recycling *Bin it to Win It* game unveiled
 - o **Press:**
 - Delaware Public Media (NPR): <http://delawarepublic.org/post/learn-how-clean-stream-sunday-coast-day-dnrec>

- *Cape Gazette*: <http://www.capegazette.com/article/dnrec-offers-bin-it-win-it-coast-day-oct-1/142861>
- Pictured below: DNREC with media campaign staff and the public



- **CITY OF MILFORD, October 20, 2017:** Dedication of public space recycling event

Pictured below are Milford Mayor Bryan Shupe, Sewall McCabe (RPAC member) and Deriece Pate Bennett of PepsiCo and Lauren Craig, Coca Cola Company standing by the dual Recycling/Trash stations which DNREC awarded 50% funding through a Cycle 7 Universal Recycling Grant.



- **CLAYTON INTERMEDIATE SCHOOL *Bin it to Win* Game, December 19, 2017:** DNREC staff and winning team members



- **POLYTECH HIGH SCHOOL *Bin it to Win* Game, January 30, 2018:** DNREC staff and students



Appendix E.

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 'RECYCLE DELAWARE' centers peaked at 170 sites collecting approximately 34,000 tons per year of recyclables and as of this year (2014) are down to 75 sites collecting approximately 19,000 tons per year. Recyclables collected include brown, green and clear glass bottles, plastic bottles, newspaper and magazines, aluminum and steel cans (including aerosols), 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 (82) which established the following:

1. A goal of thirty (30) percent diversion rate for recyclables from Delaware's residential solid waste stream.
2. Requirement for that the Department of Natural Resources and Environmental Control (DNREC), Division of Air and Waste Management (DAWM) 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, provide technical assistance to local entities to increase the recycling rate, and provide administrative support to the RPAC
3. 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 partnered with RecycleBank, a recycling company based in Philadelphia, to provide the service. RecycleBank provided wheeled recycling containers, retrofitted Wilmington's trucks to service the containers and weigh the material, and provided various data reports, and provided outreach and education about the program. Through the RecycleBank program, participating households earned up to \$35 per month in RecycleBank Dollars which could be redeemed at stores of the customer's choosing. The incentive encouraged residents to recycle and helped 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.

In September of 2006 Governor Minner signed Executive Order 90, which replaced Executive Order 82 and re-established the RPAC. Executive Order 90 increased the membership of the RPAC by two public members. It also increased 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 dozens of community meetings, a legislatively mandated delay in the ban, and the opening of three community yard waste demonstration sites, DNREC and the DSWA began enforcement of the ban on January 24, 2008.

House Bill 159 (HB 159) was introduced in 2007 and would have encouraged recycling via a comprehensive recycling grants program while discouraging disposal via a \$3 per ton assessment on landfilling. In May of 2008, HB 159 passed in the House of Representatives but was defeated in the Senate in June of 2008.

Starting in January of 2008, Kent County provided single-stream recyclables collection to residents serviced in their trash districts. This increased the number of Delaware households participating in recycling by over 11,000.

In early 2008, the DSWA converted their recyclables collection programs to single-stream. Participants no longer needed to separate traditional recyclables (i.e. glass bottles, cans, plastic bottles, mixed papers) by material type. As a result, recycling became more convenient and easier for people to participate. Other entities, including some waste haulers, also began to offer single-stream recyclables collection service.

In June of 2009, House Bill 201 was passed by the General Assembly on the last day of session. It essentially repealed the Delaware Beverage Container Law (or Bottle Bill), and removed the deposit and redemption system related to beverage containers. Governor Markell vetoed House Bill 201 in July of 2009, on the grounds that it would have a negative impact on recycling and offered no viable alternative.

In December of 2009, Peninsula Compost Company, LLC completed construction of the Wilmington Organic Recycling Center near the Port of Wilmington. This composting facility is approved to accept and process up to 160,000 tons of yard waste, wood waste, food waste, hatchery waste, and animal bedding into compost annually. (See October 2014 statement)

In February 2010, Governor Markell signed Executive Order 18. This Executive Order set goals in the following categories for the executive branch of state government: energy conservation/efficiency, LEED green building practices, renewable energy, reduced transportation impacts, recycling diversion (75%), and environmentally preferable purchasing.

In April 2010, the DSWA updated its Statewide Solid Waste Management Plan (SSWMP). The SSWMP calls for many waste reduction strategies, several of which required action from government and businesses.

In May 2010, Blue Hen Organics opened a 46-acre composting facility in Frankford to the general public. This facility is approved to accept and process 57,000 tons of yard waste, wood waste, food waste, hatchery waste, and chicken litter into compost annually.

On June 8, 2010, Senate Bill 234 (the Universal Recycling Law) was signed into law. This legislation passed after significant input from many stakeholders and coordination from the Governor's Office. It transitioned Delaware out of a flawed beverage container deposit system into a comprehensive recycling system. It also legislatively created a reformed RPAC.

On January 1, 2011, the Central Solid Waste Management Center (Sandtown Landfill) and the Southern Solid Waste Management Center (Jones Crossroads Landfill) stopped accepting yard waste mixed with trash. DSWA and DNREC agreed to permit conditions that restricted yard waste in July of 2010. All three DSWA

landfills now ban yard waste.

By September 15, 2011, all single-family households with household trash collection, and many bars and restaurants, were provided with single stream, curbside recycling collection services.

In December, 2011, DSWA's Board of Directors approved staff to enter into agreements with the recycling company ReCommunity (to recycle municipal solid waste recyclables) and with Revolution Recovery (to recycle construction and demolition recyclables) at the Delaware Recycling Center (DRC) in New Castle.

In January, 2012, the DSWA, in partnership with Dart Container Corporation, began a pilot program to collect clean, #6 polystyrene foam (i.e. Styrofoam) for recycling at the DRC in New Castle. The program expanded to a second collection location at the Milford Transfer Station in February, 2012.

On March 1, 2012, Blue River Resources, LLC was granted a permit to operate a materials recovery facility (MRF) to separate paper, cardboard, plastic, metal, and glass for recycling. The facility is permitted to accept approximately 216,000 tons of recyclable waste materials per year. As of October 2012, the new MRF was 75% operational.

On March 17, 2012, non-profit organization Eden Delmarva launched the REPLENISH project with DNREC's assistance. The Sussex County-based project encourages the recovery of organic materials from 23 local restaurants to produce compost that is used at local farms. The compost fertilizes locally grown produce, which is then marketed back to the restaurants. In April 2012, Revolution Recovery began accepting construction and demolition materials for recycling at its 42,000-square foot facility at the DRC.

In May 2012, the DSWA announced a 20-year agreement with ReCommunity to operate an automated materials recycling facility (MRF) at the DRC. State-of-the art sorting equipment will be housed in an existing building, and will process recyclable aluminum, plastics, paper, cardboard, tin and glass collected from throughout Delaware.

Spring and summer 2012 showed increased activity and awareness of recycling issues within the General Assembly. Senate Joint Resolution 8 established a strategy committee to study carpet recycling, and to report back to the General Assembly with a 10-year carpet recycling strategic plan. Senate Resolution 24 called for DSWA, DNREC, and the Zero Waste Working Group develop a plan and proposed legislation to address single-use plastic shopping bags by January of 2013. Between May 1, 2012 and April 1, 2013 the multi-family grants were completed. The grants funds awarded were for the capital costs of providing multi-family collection equipment and outreach and education materials.

In June of 2013 the grant contracts awarded during the third cycle of grant funding were signed. This grant cycle focuses on commercial recycling and awarded nearly \$1.4 million to a mix of fifteen different municipalities, waste haulers, private businesses and not-for-profit entities.

On May 3, 2013 Carpet Recycling Strategy Committee issued its report called for under Senate Joint Resolution No. 8. In summary, the report concluded the Committee was unable to reach consensus on recommendations on how to increase carpet recycling in Delaware with a goal of having 100% of all carpet removed in Delaware be diverted to carpet recycling. When the full Recycling Public Advisory Committee (RPAC) reviewed this report, it suggested that Delaware revisit the status of carpet recycling in another two years. At this point, Delaware will have better data on carpet diversion and recycling due to the reporting requirements in the Universal Recycling Law and the RPAC will be moving its efforts from residential solid waste to construction and demolition waste.

Between July 2012 and January 2013 the Zero Waste Working Group, which included members that represented industry, retailers, DSWA, DNREC, recyclers, and several environmental groups, met monthly to discuss and to present draft legislation that would lead to more effective plastic bag management in Delaware. The group did achieve consensus on a number of points including: fugitive plastic bags are a problem for infrastructure and wildlife in Delaware and education will be a part of any plan to reduce plastic bag waste. However, the group had divergent views and did not agree on any legislative recommendations. Some members independently lobbied to introduce a bill to continue the At-Store recycling program. This bill passed the House last legislative session and is expected to be introduced to the Senate this coming session.

Between November 1, 2012 and October 31, 2013 nineteen outreach and education training events were held throughout the state in reference to grant opportunities, the implementation of commercial recycling and general recycling outreach and education. For a detailed list of these events see Table 7 in section 6 of this report.

On August 29, 2013 ReCommunity held its grand opening ceremony. The opening of a state-of-the-art Materials Recovery Facility marks a recycling milestone for the State of Delaware. With the opening of this facility Delaware now possesses the capability to separate and market its own recyclables. As a result, not only are the profitability of these valuable resources maximized, dozens of valuable local jobs are also created in the process, and \$15 million in construction costs were added to the local economy. This chapter in Delaware's recycling history is possible as a result of the high diversion of recyclables afforded by the state's Universal Recycling law. ReCommunity and DSWA should be commended for their partnering efforts. On January 1, 2014 the requirement for the commercial sector to implement comprehensive recycling programs began.

In March of 2014 the grant contracts for the fourth round of grant funding were signed. This cycle primarily funded recycling dumpsters, school dishware conversion, balers and outreach and education expenses. The awardees were a mix of municipalities, waste haulers, private businesses, schools and not-for-profit entities.

In May 2014 RPAC issued a letter to the Members of the 146th General Assembly enumerating several reasons why the legislature should consider requiring DNREC to close the Polly Drummond yard waste demonstration site. The letter cited substantive costs to maintain the site, impact to DNREC grant funds, statewide equity, and the fact that the site negatively impacts private management of this waste stream as sound reasons for closure.

On September 26, 2014 Revolution Recovery, a construction and demolition (C&D) waste recycler located at DSWA's Delaware Recycling Center in New Castle, Delaware, celebrated their grand opening. Revolution Recovery's presence in Delaware affords the opportunity to recycle C&D waste, as opposed to dispose of it, at pricing that is competitive with disposal. By doing so, Revolution Recovery contributes to both the states waste diversion rate by recycling a portion of the C&D waste stream and the state's employment rate by creating jobs.

On October 20, 2014 Peninsula Compost Company, LLC was issued a Secretary's Order requiring closure of its recycling facility. Peninsula Compost Company has placed an undue burden on the quality of life of residents in the City of Wilmington, parts of the City of New Castle and part of New Castle County – particularly those living in close proximity to the facility due to frequent uncontrolled odors. The company has been unable to maintain compliance with DNREC's Beneficial Use Determination permit and therefore required to close. The absence of a composting facility in northern Delaware will negatively impact the state's diversion rate going forward unless and until an alternative outlet for organics is made available.

In March of 2015 Blue Hen Composting closed its doors to accepting compostable materials due to concerns

over odors and will cease all composting activity by April 2016.

In June of 2015, in response to the closure of both of Delaware's composting facilities, members of 148th General Assembly issued Senate Concurrent Resolution 35 establishing the Organics Recycling Task Force. This group is charged with evaluating effective and efficient ways to recycle organic waste within Delaware, meeting monthly and presenting its findings to the Delaware House and Senate Natural Resources Committees and the Governor by March 1, 2016.

DNREC's Recycling Grants and Low Interest Loan Program is terminated and no longer offers grants to our schools, businesses and communities due to the State Legislature re-appropriating almost all remaining funds during FY 2016. The Program was self-funded through the \$0.04 bottle recycling fee which was sunset on December 1, 2014. The Grant funds were projected to carry the Recycling Grants Program through 2020 to ensure compliance with the State's Universal Recycling Law.

In December of 2016, Seaford AgriSoil, LLC (now Perdue AgriRecycle, LLC) was issued a Composting Permit for producing compost in Seaford. This composting facility is approved to accept and process up to 20,000 tons of hatchery waste, dissolved air floatation wastes, poultry litter, and ground wood waste into compost annually.

For calendar year 2016 Delaware reached its highest MSW recycling rate of 44.5%. While still under the 50% goal set in the Universal Recycling Law, 44.5% is significantly higher than the national average released by U.S. EPA.

In 2017, DNREC partnered with Responsive Management to develop a comprehensive recycling survey to assess the attitudes, perceptions, and behaviors of residents about recycling in Delaware. The survey was conducted via phone in September 2017 with 1,519 completed interviews to determine state resident's participation in recycling, their knowledge of recycling laws and regulations, and their opinions on recycling. The results will inform DNREC's education and outreach strategies and provide a baseline against which to measure their effectiveness by subsequent surveys, and will also indicate compliance among service and participation requirements of the Universal Recycling Law.

Also in 2017, The *Recycle Right DE* social marketing campaign (www.recyclerightde.org/) began airing across all media platforms throughout the state: print, TV, radio, billboard, web/social media and through public service announcements at select movie theaters. RPAC supports this effort and believes it will increase recycling in Delaware by reinforcing recycling "dos and don'ts" and by promoting recycling through a broad based education and information outreach campaign that reaches into our schools, homes and business sectors. The multi-media campaign has an effective date of August 2017 – July 2020 and is funded by the last of the State's Universal Recycling Grant Program monies.