

VIRGINIA ANNUAL RECYCLING SUMMARY REPORT

Calendar Year 2016



October 2017

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Virginia's State Recycling Summary Report for Calendar Year 2016

Executive Summary

For calendar year 2016, all of Virginia's 71 Solid Waste Planning Units (SWPUs) were required to submit recycling information. The 71 SWPUs represent 324 Virginia cities, counties and towns. This summary report was compiled from the recycling data submitted by 70 of the 71 solid waste planning units. Based on the reporting 70 SWPUs, the calculated recycling rate for Virginia for CY2016 is 42.6 percent. This calculation included credits for solid waste reused, non-municipal solid waste recycled, and recycling residues.

Seventeen SWPUs have populations above 100,000. These SWPUs report on an annual basis and are summarized on pages 9 and 10.

Introduction

Virginia Code § 10.1-1411 was amended in 2012 and requires annual recycling rate reporting by each SWPU or locality with a population of greater than 100,000 persons according to the most recent U. S. Census. Each SWPU or locality with a population of 100,00 or less according to the most recent U. S. Census must submit a recycling survey report once every four years. Planning units in the latter category were required to report in 2017 for calendar year 2016.

Pursuant to Virginia Code § 10.1-1411.D, each SWPU is required to achieve and maintain a minimum 25 percent annual recycling rate *unless*:

- Its population density rate is less than 100 persons per square mile, or
- Its civilian unemployment rate is 50 percent or greater than the state average.

SWPUs that meet these criteria are required to achieve and maintain a minimum 15 percent recycling rate.

Solid Waste Management Planning and Recycling Action Plans

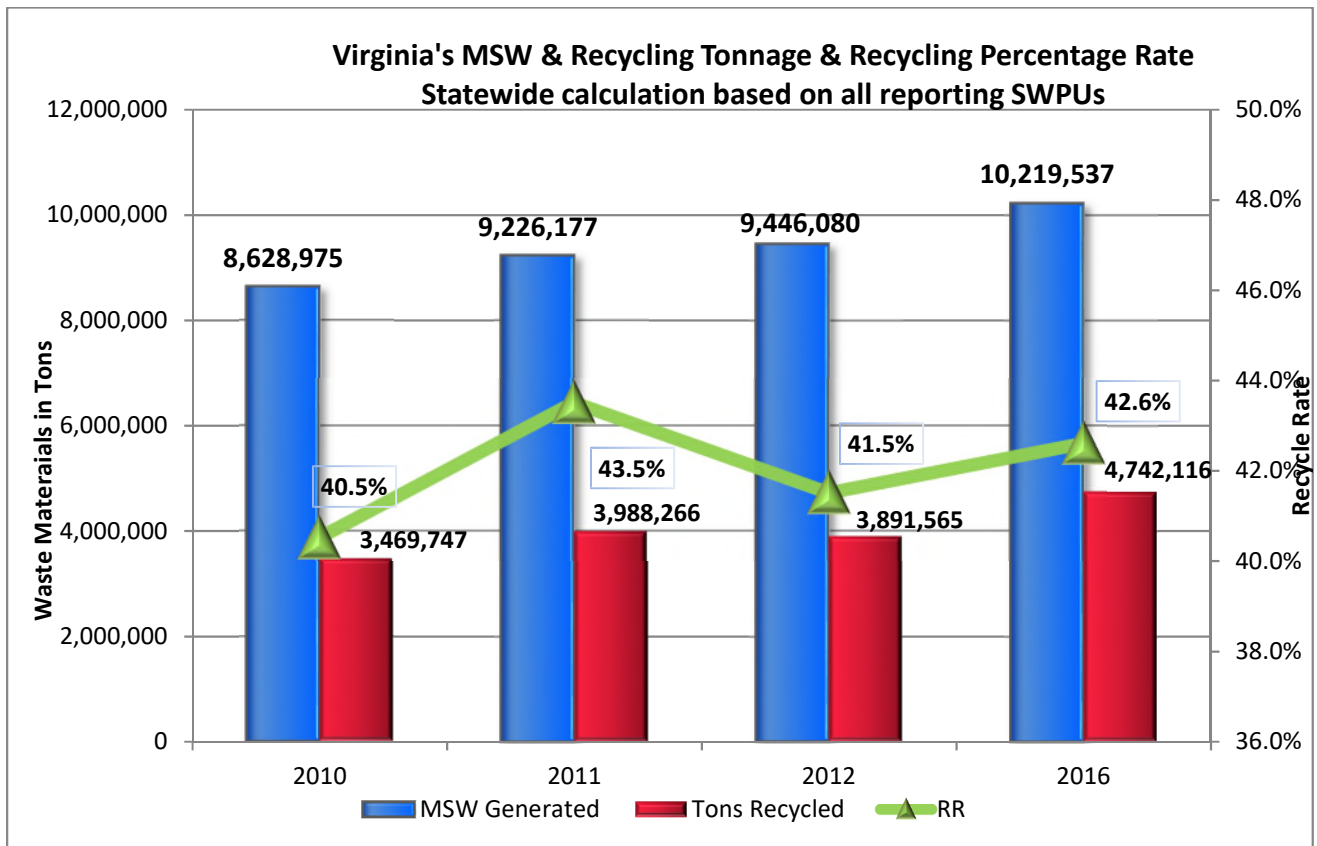
DEQ continues to review the required solid waste management plans and any updates submitted by the SWPUs for completeness, including locality or regional recycling program information. All SWPUs are required to maintain or exceed the mandated recycling rate for their jurisdiction(s). If at any time the SWPU reports less than the required 15 percent or 25 percent recycling rate, DEQ will require that a Recycling Action Plan be developed and submitted as an amendment to the SWPU's solid waste management plan. Visit the link below for additional information:

<http://www.deq.virginia.gov/Programs/LandProtectionRevitalization/RecyclingandLitterPreventionPrograms/MandatoryRecyclingRates.aspx>.

State Recycling Rate Review

The Virginia Department of Environmental Quality (DEQ) has completed its review of the recycling rate data reported for calendar year 2016. DEQ has reviewed 70 submitted reports. The SWPUs reported recycling 3,306,451 tons of principal recyclable materials (PRMs), 1,435,665 tons of credits (includes recycling residue, reused solid waste, and non-MSW) and disposal of 5,477,421 tons of MSW. The state recycling rate for CY2016 is 42.6 percent.

The chart below represents those years for which all 71 SWPUs were required to report. SWPUs with populations less than 100,000 were not required to report for CY 2013, 2014 and 2015.



Recycling Rate Calculation – 2016

The table below summarizes data from the 70 SWPUs that reported for CY2016.

Principal Recyclable Materials (PRM) Tons	
PRM Material	Tons Recycled
Paper	700,302
Metal	726,925
Plastic	48,482
Glass	20,826
Commingled	577,556
Yard Waste	584,802
Waste Wood	309,452
Textiles	21,983
Waste Tires	56,538
Used Oil	52,333
Used Oil Filters	1,578
Used Antifreeze	5,618
Batteries	24,556
Electronics	8,881
Inoperative Motor Vehicles	1,865
Other	164,753
Total PRM in Tons	3,306,451

Credits	Tons Recycled
Recycling Residue	159,268
Solid Waste Reused	747,841
Non-MSW Recycled	528,556
TOTAL CREDITS	1,435,665

MSW Disposed Tons	
Household Waste	3,665,585
Commercial Waste	1,046,967
Institutional Waste	111,082
Other	653,787
Total MSW Tons	5,477,421

Source Reduction Credit	1.29% overall
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State Rate Calculation

$$((\text{PRM} + \text{Credits}) / (\text{PRM} + \text{Credits} + \text{MSW Disposed})) \times 100 + \text{Source Reduction Credit} \\ (4,742,116 / 10,219,537) \times 100 + 1.29\% = 42.6\%$$

Calculated Recycling Rates for 2016

Solid Waste Planning Unit Recycling Rates and Data

Reporting Entity * 17 Solid Waste Planning Units required to report annually	2016 Recycling Rate (%)	2016 Total Recycled Tons (PRMs + Credits)	2016 Total MSW Generation Tons (PRMs + Credits + MSW disposed)
State Totals	42.6%	4,742,116	10,219,537
Accomack County SWPU	52.4%	65,044	90,825
*Alexandria (City) SWPU	49.3%	104,043	199,065
Alleghany County SWPU	59.6%	20,125	34,961
Amelia County SWPU	15.3%	1,243	8,561
Amherst County SWPU	20.1%	6,018	29,874
*Arlington County SWPU	46.8%	104,607	211,883
*Augusta-Staunton-Waynesboro SWPU	32.7%	46,667	142,813
Bath County SWPU	15.6%	632	4,647
Bedford County SWPU	42.1%	31,917	79,568
Botetourt County SWPU	18.1%	3,407	18,825
Bristol (City) SWPU	41.6%	8,026	20,282
Brunswick County SWPU	17.3%	2,067	13,520
Buckingham County SWPU	29.1%	2,733	10,092
Caroline County SWPU	24.4%	2,853	11,706
Carroll County SWPU	33.3%	14,165	41,766
*Central Virginia Waste Management Authority SWPU (Counties: Charles City, Chesterfield, Goochland, Hanover, Henrico, New Kent, Powhatan, Prince George; Cities: Richmond, Hopewell, Colonial Heights, Petersburg)	58.9%	677,563	1,114,255
Craig County SWPU	20.0%	496	2,752
Culpeper County SWPU	25.0%	17,179	53,444
Cumberland Plateau Regional Waste Management Authority SWPU (Counties: Buchanan, Dickenson, Russell)	25.4%	12,547	53,521
Danville (City) SWPU	42.6%	9,509	23,398
Fairfax (City) SWPU	50.6%	18,415	36,372
*Fairfax County SWPU	50.0%	595,597	1,233,401
Falls Church (City) SWPU	62.7%	8,694	13,871
Fauquier County SWPU	43.3%	38,065	87,266
Floyd County SWPU	16.0%	2,108	13,988
Franklin County SWPU	32.3%	15,367	50,684
Gloucester County SWPU	30.6%	9,930	34,386
Greater Rockingham SWPU	26.2%	19,096	78,817
Harrisonburg (City) SWPU	49.2%	28,134	59,633
Herndon (Town) SWPU	48.1%	12,096	26,247
Highland County SWPU	14.0%	227	1,618
King George County SWPU	56.3%	453,402	484,997
Lee County SWPU	24.5%	3,965	17,643

Solid Waste Planning Unit Recycling Rates and Data

Reporting Entity * 17 Solid Waste Planning Units required to report annually	2016 Recycling Rate (%)	2016 Total Recycled Tons (PRMs + Credits)	2016 Total MSW Generation Tons (PRMs + Credits + MSW disposed)
*Loudoun County SWPU	40.0%	179,780	403,053
Louisa County SWPU	15.7%	6,358	26,228
Lunenburg County SWPU	23.3%	2,840	9,258
Madison County SWPU	18.6%	1,040	5,591
Manassas (City) SWPU	47.2%	30,158	66,733
Manassas Park (City) SWPU	28.2%	5,021	15,666
Martinsville (City) SWPU (Counties: Henry; Cities: Martinsville)	70.0%	114,197	167,838
*Montgomery Regional Solid Waste Authority (Counties: Montgomery)	33.4%	29,318	92,668
*Mount Rogers Planning District (Counties: Bland, Smyth, Washington, Wythe)	15.3%	8,270	62,197
New River Resource Authority (Counties: Giles, Pulaski; Cities: Radford)	38.9%	37,599	94,071
*Newport News (City) SWPU	38.2%	171,994	280,299
Northampton County SWPU	29.3%	28,824	40,105
Northern Neck PDC (Counties: Lancaster, Northumberland, Richmond, Westmoreland)	26.2%	9,397	38,868
*Northern Shenandoah Valley Regional Commission (Counties: Clarke, Frederick, Page, Shenandoah, Warren; Cities: Winchester)	45.9%	124,979	272,355
Nottoway County SWPU	32.1%	6,767	21,055
Orange County SWPU	22.5%	5,483	26,709
Patrick County SWPU	86.5%	50,960	60,320
Pittsylvania County SWPU	33.3%	21,122	63,479
Prince Edward - Cumberland SWPU (Counties: Cumberland, Prince Edward)	22.8%	9,390	34,748
*Prince William County SWPU	36.8%	231,912	560,772
Rappahannock County SWPU			
*Rappahannock Regional Solid Waste Management Board (Counties: Stafford; Cities: Fredericksburg)	41.1%	70,237	179,416
*Region 2000 Services Authority (Counties: Appomattox, Campbell, Nelson; Cities: Lynchburg)	35.7%	116,052	319,247
Roanoke (City) SWPU	40.5%	24,245	63,034
Roanoke County SWPU	42.2%	26,946	67,053
Rockbridge County SWPU	33.7%	10,148	32,042

Solid Waste Planning Unit Recycling Rates and Data

Reporting Entity * 17 Solid Waste Planning Units required to report annually	2016 Recycling Rate (%)	2016 Total Recycled Tons (PRMs + Credits)	2016 Total MSW Generation Tons (PRMs + Credits + MSW disposed)
Salem (City) SWPU	39.7%	10,064	26,662
Scott County SWPU	18.6%	2,287	13,801
*Southeastern Public Service Authority (Counties: Isle of Wight, Southampton; Cities: Chesapeake, Franklin, Norfolk, Portsmouth, Suffolk, Virginia Beach)	34.7%	666,137	1,793,529
Southern Crater Region (Counties: Dinwiddie, Greensville, Surry, Sussex; Cities: Emporia)	31.4%	1,421	4,831
Southside Regional Public Service Authority (Counties: Charlotte, Halifax, Mecklenburg)	33.8%	25,191	74,500
*Spotsylvania County SWPU	40.2%	78,691	186,888
Tazewell County SWPU	8.5%	3	45,049
*Thomas Jefferson Planning District (Counties: Albemarle, Fluvanna, Greene; Cities: Charlottesville)	32.8%	132,472	290,243
Vienna (Town) SWPU	56.0%	5,530	9,882
Vinton (Town) SWPU	53.7%	4,140	7,709
*Virginia Peninsulas Public Service Authority (Counties: Essex, James City, King and Queen, King William, Mathews, Middlesex, York; Cities: Hampton, Poquoson, Williamsburg)	34.6%	140,122	405,122
Wise County SWPU	26.0%	12,922	49,664

All data based on adjustments by DEQ for consistency with 9VAC-20-130-125, with a 5 percent maximum percentage allowed for credits to the base recycling rate calculated by a solid waste planning unit. A 2 percent source reduction credit has been added to the calculated recycling rates for those planning units with a documented source reduction program.

PRMs (principal recyclable materials): paper, metal, plastic, glass, commingled materials, yard waste, waste wood, textiles, waste tires, used oil, used oil filters, used antifreeze, inoperative automobiles, batteries, electronics and other.

Credits: recycling residues, solid waste reused non-MSW recycled (includes construction and demolition material, ash and debris), and source reduction initiatives. Source reduction initiatives must be documented as SWPU policy and promoted across the SWPU.

Municipal Solid Waste (MSW) disposed: Municipal solid waste delivered to sanitary landfills or incinerators for disposal.

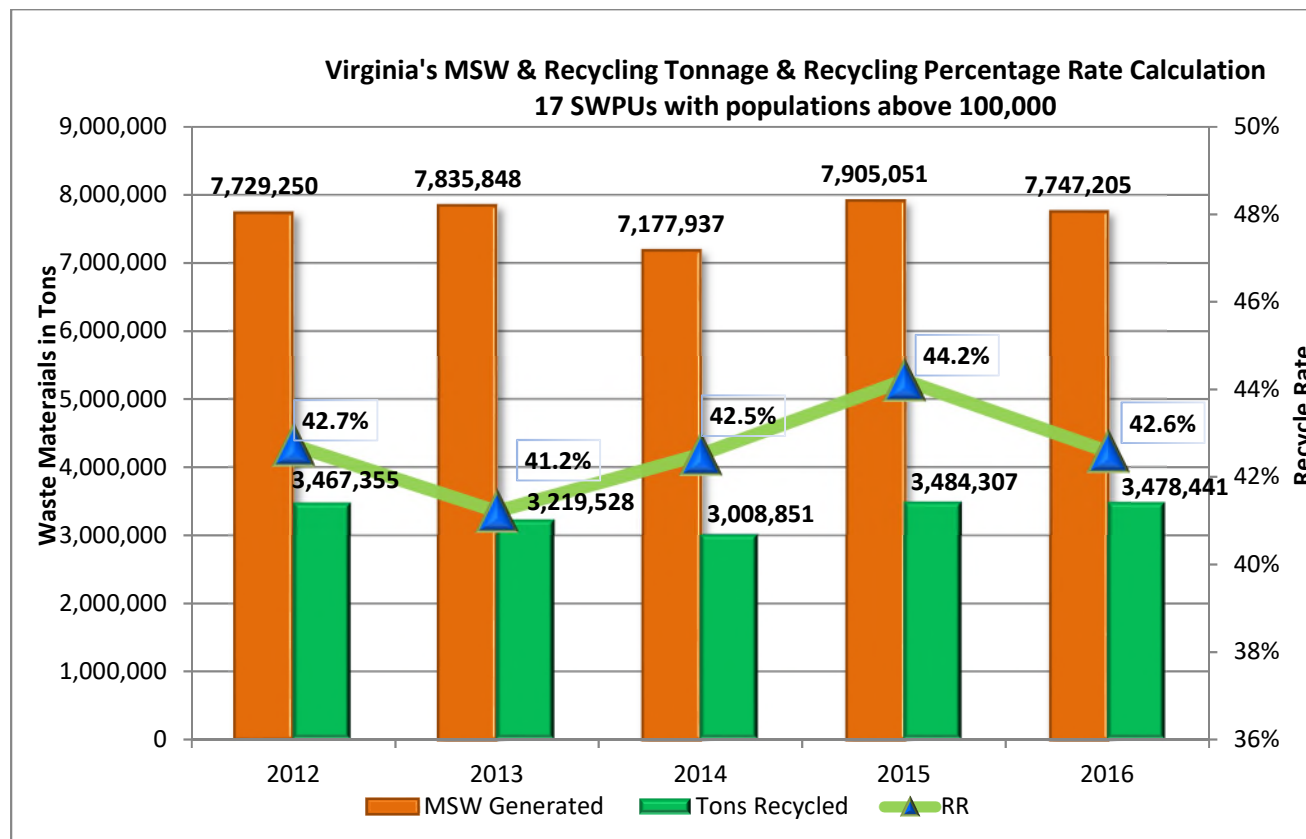
Areas Reporting Highest Rates

Historically, higher recycling rates have been reported in the more densely populated regions of the state (which generally include the 17 SWPUs with populations over 100,000 persons). These regions include:

Region	Estimated Population	Estimated Population Density	Estimated % of VA Population	PRM Total Tons	Credits Total Tons	MSW Total Tons	Final Recycle Rate %
Augusta - Staunton-Waynesboro Counties: Augusta Cities: Staunton, Waynesboro	121,099	120	1.5%	38,571	8,096	96,146	32.7%
Central Virginia/Richmond Counties: Charles City, Chesterfield, Goochland, Hanover, Henrico, New Kent, Powhatan, Prince George Cities: Richmond, Colonial Heights, Hopewell, Petersburg	1,170,128	464	14.1%	511,463	166,100	436,692	58.9%
Fredericksburg Counties: King George, Spotsylvania, Stafford Cities: Fredericksburg	325,319	351	3.9%	166,214	23,453	248,972	44.5%
Hampton Roads/Tidewater Counties: Essex, Gloucester, Isle of Wight, James City, King and Queen, King William, Mathews, Middlesex, Southampton, York Cities: Chesapeake, Franklin, Hampton, Newport News, Norfolk, Poquoson, Portsmouth, Suffolk, Virginia Beach, Williamsburg	1,775,127	406	21.3%	651,552	336,631	1,525,152	34.9%
Lynchburg Counties: Appamattox, Campbell, Nelson Cities: Lynchburg	160,403	54	1.9%	89,916	26,136	203,195	35.7%
Mount Rogers Counties: Bland, Smyth, Washington, Wythe	120,805	66	1.5%	8,270	0	53,927	15.3%
Northern Virginia Counties: Arlington, Fairfax, Loudoun, Prince William Cities: Alexandria, Fairfax, Falls Church, Manassas, Manassas Park Towns: Herndon, Vienna	2,494,346	1,192	30.0%	1,025,733	270,120	1,481,091	45.9%
Northern Shenandoah Counties: Clarke, Frederick, Page, Shenandoah, Warren Cities: Winchester	204,779	124	2.5%	117,470	7,509	147,376	45.9%
Roanoke Counties: Botetourt, Montgomery, Roanoke Cities: Roanoke, Salem	426,349	218	5.1%	122,815	12,904	234,304	39.4%
Thomas Jefferson Counties: Albemarle, Fluvanna, Greene Cities: Charlottesville	200,704	170	2.4%	60,732	71,740	157,770	32.8%

Recycling Rate Review – 17 SWPUs with populations over 100,000

The recycling rate data in the chart below is based on the 17 SWPUS with populations over 100,000 for years 2012 through 2016.



Recycling Success Stories and Related Report Information

The information below was provided by localities or comes from web-based resources or other data sources.

The Rappahannock Regional Solid Waste Management Board (R-Board) - The R-Board instituted flow control measures as of May 1, 2016; however, an increase in MSW deliveries was experienced as early as January 2016. The MSW rates increased 49 percent, from 73,145 tons in 2015 to 109,179 tons in 2016.

The R-Board offers backyard composting classes in cooperation with Virginia Cooperative Extension, Stafford Unit. R-Board staff and Master Gardener volunteers teach the classes. Once a resident has completed the class the R-Board offers a compost bin to graduates. The bins are sold at cost.

The R-Board offers the opportunity for residents and area schools to recycle their fluorescent bulbs at no charge. In calendar year 2016 a total of 49,000 linear feet of bulbs was recycled through the R-Board's household hazardous waste vendor, MXI Environmental.

Central Virginia Waste Management Authority (CVWMA) - CVWMA, Hanover County and Yuk Old Paint partnered on a latex paint collection event. The April 29, 2017, event collected 240 gallons (or 1,920 pounds or 1 ton of paint waste) that was diverted from the landfill.

Newport News - The city of Newport News is now accepting cartons in the residential and municipal recycling programs. Examples of cartons that are recyclable include milk, juice, broth, soup, wine, etc. The city's contractor, Bay Disposal and Recycling, worked with the Carton Council to add carton sorting capability to the recyclables processing facility. Bay Disposal invested more than \$500,000 in equipment upgrades and added a new position for this purpose. For more information, visit www.nnva.gov/recycle.

Fairfax County - Fairfax County Crushes It: Glass Used in Construction and Gardening Applications. The county has launched glass crushing operations at its I-66 and I-95 solid waste management facilities operations. Glass recovered from on-site drop-off centers and selected private-sector sources will be processed into various recycled products that can be used as a substitute in paving, construction and landscaping applications. As an example, in paving projects the crushed glass can replace gravel to make "glassphalt." It also can be used to make concrete, or in drainage or stormwater control applications.

Electronics recycling - Although not included in the state recycling rate, computer manufacturers are required to report to DEQ the amount of electronics recovered through their recycling networks. For calendar year 2016 they reported 1,265,343 pounds (633 tons) of electronics recovered. For more information about this program, visit <http://www.deq.virginia.gov/Programs/LandProtectionRevitalization/RecyclingandLitterPreventionPrograms/ElectronicsRecycling/VirginiasComputerRecoveryandRecyclingAct.aspx>.

Private-sector reporting - Wal-Mart, Target and Best Buy provided recycling data for their Virginia stores to DEQ. This information was made available to all SWPUs on DEQ's recycling web page for inclusion in their recycling reporting. Visit their links on the following web page under Featured Topics: <http://www.deq.virginia.gov/Programs/LandProtectionRevitalization/RecyclingandLitterPreventionPrograms.aspx>.