Commonwealth of Virginia Locality Recycling Rate Report For Calendar Year 2016

Contact Information

Reporting Solid Waste Planning Unit: Virginia Tech

Person Completing This Form: Dennis C. Cochrane

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Summary: Virginia Tech, the Town of Blacksburg, the Town of Christiansburg, and Montgomery County are the four jurisdictional members of the Montgomery Regional Solid Waste Authority (MRSWA). Located in Christiansburg, Virginia, MRSWA operates a transfer facility that receives our recycling materials and municipal solid waste (trash). MRSWA and its jurisdictional members transitioned to a "Single Stream Recycling System" on July 1, 2015. With this system once recycling materials are weighed at MRSWA they are transported to "Recycling & Disposal Services (RDS) in Roanoke, Virginia, which serves as the recycling hub for the Roanoke and New River Valleys. Municipal solid waste is transported to the local landfill operated by the New River Resource Authority (NRRA) in Pulaski County. Virginia. Food waste for compositing is transported from our eleven dining facilities to an on campus storage facility for further transport to Royal Oak Farm (ROF) located outside of Lynchburg, Virginia. MRSWA prepares a consolidated recycling rate report for our region using this DEQ format. Virginia Tech uses this same format to record our data for calculating our recycling rate for our main campus in Blacksburg, Virginia.

Due to the complexity and difficulty in obtaining data, this report reflects the best efforts of the solid waste planning unit to represent its recycling efforts for **CY 2016**. Data in this report was collected from our recycling and solid waste facilities, and from other recycling sources, including non-governmental entities. I certify that I have personally examined and am familiar with the information submitted in this form and any attached documents, and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate, and complete. These records will be made available for auditing purposes, if requested.

Dennis C. Cochrane	Sustainability Program Manager	MARCH 28, 2017
Authorized Signature	Title	Date

Locality Recycling Rate Report — For Calendar Year 2016

PART A: Recycling Rate Calculation - Using the formulae provided below and the information reported on Pages 3, 4 and 5 to calculate your recycling rates.

Step 1: [(PRMs) / (PRMs + MSW Disposed)] X 100 = Base Recycling Rate %

1,904	/	1,904	+	3,867	X 100 =	33.0	%
TONS		TONS		TONS			

Step 2: CREDITS calculation

a. Total Recycling Residue	0 tons
b. Total Solid Waste Reused	10 tons
c. Total Non-MSW Recycled	1,541 tons
CREDITS	1,551 tons

Step 3: [(PRMs + CREDITS) / (PRMs + CREDITS + MSW Disposed)] X 100 = Adjusted Recycling Rate #1*

1,904	+	1,551	/	1,904	+	1,551	+	3,867	X 100 =	47.2	%
TONS		TONS		TONS		TONS		TONS		Waste Diversion Rate (Waste kept out of landfill)	

Step 4: ☐ **Source Reduction Credit does not apply; or**

☒ **Adjusted Recycling Rate #1 + 2% SRP Credit = Adjusted Recycling Rate #2***

47.2	%	+ 2%	=	49.2	%

Step 5: Final Recycling Rate* for Solid Waste Planning Unit = 38.0 %

*** Total credits resulting from Steps 3 and 4 may not exceed 5 percentage points above the Base Recycling Rate achieved by the Solid Waste Planning Unit.**

Locality Recycling Rate Report **For Calendar Year 2016**
PART B: DATA

Part I: Principal Recyclable Materials (PRMs): Report only PRM material generated within the reporting SWPU and recycled, NOT imported PRMs for recycling.

PRM TYPE	RECYCLED AMOUNT (TONS)	
Paper	444	(round to whole tons)
Metal	36	
Plastic	1	
Glass	0	
Commingled (also known as Single Stream)	503	
Yard Waste (composted or mulched)	250	
Waste wood (chipped or mulched)	150	
White Goods	0	
Tires	7	
Used Oil	11	
Used Oil Filters	1	
Used Antifreeze	0	
Batteries	9	
Electronics	24	
Food Waste Organic-Composting	416	
Waste Cooking Oil	38	
Fluorescent Lights/Bulbs & Ballasts	14	
TOTAL PRMs	**1,904**	**(PRMs)**
	(Enter Total on Page 2, Step 1)	

Listing of sources for PRM data ***(consider only Virginia generated waste material)***

1. Permitted solid waste facilities from which MSW disposed/recycled data was collected:
   a. Department of Facilities: Office of Sustainability
   b. Department of Facilities: Operations (Buildings and Grounds)
   c. Department of Facilities: University Design and Construction
   d. Department of Environmental Health and Safety
   e. Dining Services
   f. Fleet Services
   g. Department of Human Resources
   h. _____
   i. _____

2. Other facilities/operations (not included in #1 above) from which MSW disposed/recycled data was collected:
   a. Montgomery Regional Solid Waste Authority (MRSWA)
   b. YMCA at Virginia Tech
   c. _____
   d. _____
   e. _____
   f. _____
   g. _____
   h. _____
   i. _____

Part II: Credits by Category (see Credits Worksheet, Page 5)

A. Recycling Residue – "Recycling residue" means the (i) nonmetallic substances, including but not limited to plastic, rubber, and insulation, which remain after a shredder has separated for purposes of recycling the ferrous and nonferrous metal from a motor vehicle, appliance, or other discarded metallic item and (ii) organic waste remaining after removal of metals, glass, plastics and paper which are to be recycled as part of a resource recovery process for municipal solid waste resulting in the production of a refuse derived fuel. (§ 10.1-1400 of the *Code of Virginia*) (use only SWPU generation)

MATERIAL DESCRIPTION	FACILITY/OPERATION	(round to whole tons) TONS OF MATERIAL
_____	from _____	_____
_____	from _____	_____
_____	from _____	_____
	TOTAL RECYCLING RESIDUE	**0**

(Enter Total on Page 2, Step 2 a)

B. Solid Waste Re-Used

MATERIAL DESCRIPTION	REUSE METHOD	(round to whole tons) TONS OF MATERIAL
Furniture/Appliances	Ytoss 2016 (YMCA at VT & VT Recycling)	10
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
	TOTAL SOLID WASTE REUSED	**10**

(Enter Total on Page 2, Step 2 b)

C. Non-Municipal Solid Waste (MSW) Recycled

MATERIAL DESCRIPTION	RECYCLING METHOD	(round to whole tons) TONS OF MATERIAL
Construction Material	Concrete/Masonry (New Cadet/ New Class Bldg.)	1,485
EPDM Materials	Membrane and Roofing (Derring Hall)	6
Asphalt Material	Asphalt Removal (W. Campus Dr/Kent St)	50
_____	_____	_____
	TOTAL NON-MSW RECYCLED	**1,541**

(Enter Total on Page 2, Step 2 c)

D: A credit of two (2) percentage points may be added to the Adjusted Recycling Rate #1 if the Solid Waste Planning Unit has implemented a Source Reduction Program (SRP). Examples of SRPs include Grass-cycling, Home Composting, Clothing Reuse, Office Paper Reduction (duplexing), Multi-Use Pallets, or Paper Towel Reduction. The SRP must be included in the Solid Waste Management Plan on file with the Department:

SRP description: Dining Services continues to expand its Reusable To-Go Container Program using the 3 OZZI Machines with Card Reader feature. Funds approved for the purchase for 1 more OZZI with operation to begin summer 2017.

SRP description: University continues to replace non-operational and outdated water fountains with the extremely popular Water Bottle Refill Stations which saves water.

SRP description: University Design Standards contains specifications for outdoor and indoor Waste Stations for all new construction and major renovation projects.

(Certify on Page 2, Step 4)

Exclusions: **For the purposes of this report, the following materials are not considered solid wastes, and should not be included in any of the data categories utilized in calculating the recycling rate.**

1. **Biosolids –industrial sludge, animal manures; or, sewage sludge (unless composted)**
2. **Automobiles – unless part of the Inoperable Vehicle Program (DMV)**
3. **Leachate**
4. **Soils – contaminated soils, soil material from road maintenance**
5. **Household hazardous waste**
6. **Hazardous waste**
7. **Medical waste**
8. **Rocks or stone**
9. **Woody waste derived from land clearing for development, VDOT or easement tree trimming/clearing.**

Part III: Total Municipal Solid Waste (MSW) Disposed** - Report only MSW generated within the reporting jurisdiction(s), NOT imported wastes or industrial wastes.

MSW TYPE	TOTAL AMOUNT of MSW DISPOSED (TONS)
Household	_____ (round to whole tons)
Commercial	_____
Institutional	3,867
Other (DO NOT INCLUDE INDUSTRIAL WASTES)	_____
TOTAL MSW DISPOSED	**3,867**

(Enter Total on Page 2, Step 1 and Step 3)

Note: MSW DISPOSED *for the purpose of this report means delivered to a permitted sanitary landfill, delivered to a waste-to-energy facility, or managed at a transfer station for transport to a landfill or waste-to-energy facility.*

Credits Worksheet

I. Reuse of any Solid Waste

√		Material description	Tons	
___	PRM			(round to whole tons)
___	PRM			
___	PRM			
___	Industrial			
___	Construction			
___	Demolition			
___	Debris			
_X_	Other	Res Hall used furniture/appliances	10	
___	Other			
___	Other			
		TOTAL TONS	**10**	**(enter data on Page 4, Solid Waste Re-Used)**

II. Recycling of any Non-Municipal Solid Waste

√		Material description	Tons	
_X_	Construction	Concrete/Masonry (New Cadet Hall)	1,171	(round to whole tons)
_X_	Construction	Concrete/Masonry (New Class Bldg.)	314	
_X_	Roofing	EPDM Materials (Derring Hall)	6	
_X_	Roadwork	Asphalt Removal (Kent Street & West Campus Drive))	50	
___	Other			
___	Other			
___	Other			
		TOTAL TONS	**1,541**	**(enter data on Page 4, Non-MSW Recycled)**

III. Inoperable Vehicles Removed and Demolished – include number of vehicles that the localities received reimbursement from DMV under §46.2-1207 of the Code of Virginia.

# of vehicles removed/reimbursement received		
Average tonnage per vehicle	X 1 Ton each	
Total Tons	**0**	**(enter data on Page 3, PRMs, Inoperative Motor Vehicle Program)**

NOTE: Check "Exclusions" on Page 5 to avoid listing of those materials on this worksheet and/or in the data fields of this report.

Part C: Recycling Rate Report Instructions

Amended Regulations for the Development of Solid Waste Management Plans (9 VAC 20-130-10 et seq.) require that Solid Waste Planning Units (SWPUs) in the Commonwealth develop complete, revised solid waste management plans. Section 9 VAC 20-130-120 B & C of the Regulations requires that a minimum recycling rate of the total municipal solid waste generated annually in each solid waste planning unit be maintained. It also requires that the plan describe how this rate shall be met or exceeded and requires that the calculation methodology be included in the plan. Section 9 VAC 20-130-165 D establishes that every solid waste management planning unit with populations over 100,000 shall submit to the department by April 30 of each year, the data and calculations required in 9 VAC 20-130-120 B & C for the preceding calendar year. SWPUs with populations of 100,000 or less are only required to report every 4 years (CY years 2016 and forward).

NOTE: ONLY RECYCLING RATE REPORTS FROM AN APPROVED SOLID WASTE PLANNING UNIT (SWPU) WILL BE ACCEPTED FOR PROCESSING. JURISDICTIONS WITHIN A SWPU MUST SUBMIT THEIR RECYCLING DATA TO THE SWPU FOR INCORPORATION INTO THE ANNUAL REPORT.

It is requested that all amounts included on the form be listed in **tons (2,000 pounds)**, rounded to the nearest whole ton. If actual weights are not known, volumes can be converted to weight estimates. To assist you with these estimates, a standardized volume-to-weight conversion table is attached.

Contact Information Section: Please provide information on the Reporting SWPU and information on the individual completing this form. Under Member Governments, please list the local governments identified in the applicable solid waste management plan.

Calculated Recycling Rate Section: Using the formulae provided, calculate your recycling rates for the reporting period from information identified in the Recycling Rate Calculations Section.

Signature Block Section: Please provide an authorized signature prior to submitting the completed form. Authorized signatories include Executive Officer, Administrator, or other legally designated representative of the SWPU reporting entity.

Recycling Rate Calculations Section: Please provide the requested information:

Part I: Principal Recyclable Material (PRM) - Report the amount in tons of each PRM collected for recycling in the named jurisdiction(s) during the reporting period. PRMs include paper, metal, plastic, container glass, commingled, yard waste, waste wood, textiles, tires, used oil, used oil filters, used antifreeze, batteries, electronics, and other materials approved by the Director taken from the Municipal Solid Waste (MSW) generation. A one ton credit may also be entered for each inoperable motor vehicle for which a locality receives reimbursement from the Virginia Department of Motor Vehicles under §46.2-1207 of the *Code of Virginia*. The total weight in **TONS** of all PRMs collected for recycling is represented as **PRMs** in the Recycling Rate Calculation. **New for CY 2015: Provide source information for the PRMs reported on the report (permitted and unpermitted facilities).**

Part II: Credits - Report the amount in **TONS** of each material for which recycling credit is authorized in §10.1-1411.C of the *Code of Virginia*: (i) one ton for each ton of recycling residue generated in Virginia and deposited in a landfill permitted under §10.1-1408.1 of the *Code of Virginia*; (ii) one ton for each ton of any solid waste material that is reused; and, (iii) one ton for each ton of any non-municipal solid waste that is recycled. The total weight in **TONS** of all material for which credits are authorized is represented as **CREDITS** in the Recycling Rate Calculation. A credit of two percentage points of the minimum recycling rate mandated for the Solid Waste Planning Unit (SWPU) may be taken for a source reduction program that is implemented and identified in its Solid Waste Management Plan. Total credits may not exceed five percentage points above the Base Recycling Rate achieved by the SWPU.

Part III: Total Municipal Solid Waste (MSW) Disposed: Report the total amount in **TONS** of MSW that was disposed of by the Solid Waste Planning Unit (SWPU) during the reporting period for each of the source categories (Household, Commercial, Institutional, and Other). For the purpose of this report, "disposed," means delivery to a permitted sanitary landfill or waste incinerator for disposal, and excludes industrial wastes. Industrial waste and by-products should not be included in the MSW or Recycling calculation. The total weight in tons of MSW disposed is represented as **MSW Disposed** in the Recycling Rate Calculation.

Locality Recycling Rate Report Volume to Weight Conversion Table

Material	Volume	Weight in Pounds
Metal		
Aluminum Cans, Whole	One cubic yard	50-74
Aluminum Cans, Flattened	One cubic yard	250
Aluminum Cans	One full grocery bag	1.5
Ferrous Cans, Whole	One cubic yard	150
Ferrous Cans, Flattened	One cubic yard	850
Automobile Bodies	One vehicle	2,000
Paper		
Newsprint, Loose	One cubic yard	360-800
Newsprint, Compacted	One cubic yard	720-1,000
Newsprint	12" stack	35
Corrugated Cardboard, Loose	One cubic yard	75-100
Corrugated Cardboard, Baled	One cubic yard	1,000-2,000
Plastic		
PETE, Whole, Loose	One cubic yard	30-40
PETE, Whole, Loose	Gaylord	40-53
PETE, Whole, Baled	30" x 62"	500
Film, Baled	30" x 42" x 48"	1,100
Film, Baled	Semi-Load	44,000
Film, Loose	Standard grocery bag	15
HDPE (Dairy Only), Whole, Loose	One cubic yard	24
HDPE (Dairy Only), Baled	32" x 60"	400-500
HDPE (Mixed), Baled	32" x 60"	900
Mixed PET & Dairy, Whole, Loose	One cubic yard	32
Mixed PET, Dairy & Other Rigid (Whole, Loose)	One cubic yard	38
Mixed Rigid, No Film	One cubic yard	49
Glass		
Glass, Whole Bottles	One cubic yard	600-1,000
Glass, Semi-Crushed	One cubic yard	1,000-1,800
Glass, Crushed (Mechanically)	One cubic yard	800-2,700
Glass, Whole Bottles	One full grocery bag	16
Glass, Uncrushed to Manually Broken	55 gallon drum	125-500
Arboreal		
Leaves, Uncompacted	One cubic yard	200-250
Leaves, Compacted	One cubic yard	300-450
Leaves, Vacuumed	One cubic yard	350
Wood Chips	One cubic yard	500
Grass Clippings	One cubic yard	400-1,500
Other		
Battery (Heavy Equipment)	One	60
Battery (Auto)	One	35.9
Used Motor Oil	One gallon	7.4
Used Oil Filters (Uncrushed)	55 gallon drum	66 Lbs./Used Oil + 110 Lbs./Ferrous Metal
Used Oil Filters (Crushed)	55 gallon drum	16.5 Lbs./Used Oil + 368 Lbs./Ferrous Metal
Tire - Passenger Car	One	20
Tire - Truck, Light	One	35
Tire - Semi	One	105
Antifreeze	One gallon	8.42
Food Waste, Solid & Liquid Fats	55 gallon drum	412
Electronics: CRT/CPU/LapTop/TV	Each (avg wt from NCER)	38/26/8/49 respectively
This Table For General Guidance Only.		