

Memorandum

TO: Thomas Jefferson Planning District Commission
From: TJPDC Staff
Date: October 7, 2021
RE: 5-Year Update of the Regional Solid Waste Plan

Purpose: Provide background on the 5-year regional Solid Waste management plan update.

Background: The Thomas Jefferson Solid Waste Planning Unit (TJSWPU) includes the Counties of Albemarle, Fluvanna and Green, the City of Charlottesville, and the Towns of Stanardsville, and Scottsville. Under Virginia's solid waste regulations (9VAC20-130-120), the TJSWPU is responsible for maintaining the regional solid waste management plans. Under Virginia solid waste regulations these plans are reviewed updated every 5-years. The 2021 plan update ensures that the region remains in compliance with Virginia solid waste management regulations.

Discussion: The 2021 plan provides information about the current solid waste landscape and makes forecasts on waste generation and disposal through 2045. The plan finds that there is adequate transfer station and materials recovery facility capacity to meet the current and future disposal needs of the SWPU. Most solid waste in the region is now handled by the private sector haulers and transfer stations. Greene operates its own transfer station, while Albemarle and Charlottesville provide transfer station and recycling convenience center services through the Rivanna Solid Waste Authority. Fluvanna operates a convenience center that provided recycling and trash disposal services to residents.

The 2021 plan update was guided by the Regional solid waste committee, which includes staff from local governments and the Planning District Commission. Outreach to the private sector was done as part of the planning process

Key Findings:

- There is adequate permitted capacity at area transfer stations to meet 2045 projected capacity requirements.
- No active landfills in the SWPU means that all waste is handled by transfer stations, convenience centers, or materials recovery facilities. Waste is transported outside of the region for disposal and recycling
- Of the waste that's generated 65% is landfilled and 35% is recycled

Actions: Staff are requesting that Commissioners review and approve the 2021 Solid Waste Management Plan update. Copies of the draft plan are available at <https://tjpd.org/our-work/solid-waste/> Commissioners who have questions about the solid waste plan, please contact TJPDC staff at sfranklin@tjpd.org or (434)422-4080.



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collaborative leadership and professional service to develop effective solutions.*

RESOLUTION FOR ADOPTING THE TJSWPU SOLID WASTE MANAGEMENT PLAN OCTOBER 2021 REVISION

WHEREAS, the Thomas Jefferson Planning District Commission (the Commission) provides regional solid waste planning activities for the jurisdictions of Albemarle, Charlottesville, Fluvanna, and Greene through the Thomas Jefferson Solid Waste Planning Unit (TJSWPU).

WHEREAS, The SWPU conducts regional solid waste planning and recycling rate reporting on behalf of the SWPU members.

WHEREAS, every five years the SWPU must submit to the Department of Environmental Quality an updated regional solid waste management plan.

WHEREAS, PDC staff worked with localities to review and update the 2021 solid waste plan.

WHEREAS, the 2021 plan finds adequate solid waste infrastructure and disposal capacity to meet the regions solid waste needs through 2045 and that the regional recycling rate of 35% is in excess of the state mandated rate of 25%.

WHEREAS, it is in the best interests of the Thomas Jefferson Planning District Commission, Albemarle County, Greene County, Fluvanna County, and the City of Charlottesville to approve the 2021 plan update and forward it to the Department of Environmental Quality for approval.

NOW, THEREFORE, BE IT RESOLVED that the Thomas Jefferson Planning District Commission adopts the 2021 5-year update to the Regional Solid Waste Management Plan:

ADOPTED this 7st day of October, 2021 by the Thomas Jefferson Planning District Commission being duly assembled.

ATTESTED:

Christine Jacobs
Executive Director

Jesse Rutherford
Commission Chair

Date

Date

Solid Waste Management Plan

October 2021 Revision



A Product of the Thomas Jefferson Planning District Commission

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Executive Summary

This document is an update to the 2016-2021 Thomas Jefferson Solid Waste Management Plan. It includes a description of existing and projected solid waste needs and facilities and a plan for the management of the solid waste generated by residential, industrial, and commercial activities of the Thomas Jefferson Solid Waste Planning Unit (TJSWPU). This document serves as the regional plan for the TJSWPU, which is made up of the Counties of Albemarle, Greene, and Fluvanna, the City of Charlottesville, and the towns of Scottsville and Stanardsville. The plan meets the solid waste planning requirements of 9VAC20-130-120 for each locality participating in the planning unit by describing existing and proposed solid waste management systems that support the hierarchy of source reduction, reuse, recycling, resource recovery, incineration, and landfilling, as outlined in 9VAC20-130-30.

The committee of public sector representatives met regularly to amend this plan to satisfy the Virginia Department of Environmental Quality requirements and serve as a basis for strategic planning for solid waste in the longer term. The group reviewed data and trends on waste generation, recycling, reuse, and disposal, comparing it with data available about solid waste management systems capacity to determine future needs. While some elements of the plan will require additional study, the group recommends the following basic strategies which were developed during the 2008 plan process:

1. **Regional approach:** Regional efforts will yield better results than localized solutions, especially with high costs and capital needs for operations. Cooperative contracting, collection, disposal, and recycling operations can provide budget and resource savings and allow the region to join markets at a competitive level with larger cities.
2. **Increased recovery:** Recovery of a more significant percentage of valuable material, such as recyclables and organic matter, leads to a better balance sheet and longer disposal facility lifetimes.
3. **Reduce total waste:** Source reduction, reuse, and recycling decrease the need for landfilling, which is generally not considered a desirable option. In order to limit the negative environmental impacts caused by landfills, the total waste disposed of should be kept to a minimum.
4. **Increased outreach:** Increased recovery and reduced total waste can only be achieved by awareness among citizens, institutions, and the business community.

Summary of Findings

The 2021 update of the plan finds that the region complies with section 9 VAC 20-130 of the Virginia Solid Waste Planning and Recycling Regulations. The Solid Waste Planning Unit, which includes the jurisdictions of Albemarle, Charlottesville, Fluvanna, and Greene, has adequate disposal capacity to meet the region's solid waste and recycling needs through the year 2045. Under current conditions, solid waste generated in the region passes through one of four transfer stations or a materials recovery facility before waste ends up in a landfill (65% landfilled) or is shipped to recyclers (35% recycled) for further treatment. Currently, there is a combined permitted transfer station/MFR capacity of approximately 1,850 tons per day with a daily intake of 386 tons per day. The daily intake is forecasted to grow to 497 tons per day by the year 2045. The region has maintained a recycling rate over the 25% State mandated minimum, except in 2020. The 2020 Recycling Rate reporting period began around the same time as the Covid 19 Pandemic. The region continues to have a per capita waste generation rate higher than the national average; in most years, the per capita waste generation rate was 1.3 tons per household in 2015, whereas state and national per capita rates are closer to 0.9 tons per household.

Adoption & Amendment History

The Solid Waste Management Plan was adopted by the Thomas Jefferson Planning District Commission (TJPDC) on June 29, 2004. Further planning work was required beyond 2004 because the planning unit did not achieve the required 25% recycling rate. The plan was considered final by the DEQ in 2006 when the planning unit reached the required recycling rate. A progress log on the 2006 plan can be found in the Appendices. The required five-year update of the plan was adopted by the TJPDC on October 6, 2011 with a subsequent update and adoption by the TJPDC on October 6, 2016. The five-year update for 2021 is currently underway.

1 Introduction and Background

In 1990, the Virginia Department of Waste Management published regulations for the development of Solid Waste Management Plans. The regulations established minimum solid waste management standards and planning requirements applicable to all cities, counties, towns, or designated regions in the Commonwealth of Virginia.

The first regional solid waste plan undertaken by the Thomas Jefferson Planning District Commission (TJPDC) was adopted in 1983 in response to the Virginia Solid and Hazardous Waste Management Act of 1979. Another plan was developed and adopted by all member governments in 1989. The TJPDC adopted its first plan required under the new regulations in 1991. Amendments to Virginia's solid waste regulations required that the region submit a new plan in 2004 (the TJSWPU's was considered finalized by the DEQ in 2006) and update the plan every five years. At the time of the original plan, the Thomas Jefferson Planning District, Virginia Planning District 10, was designated as the "region" for purposes of solid waste management planning.

The Thomas Jefferson Solid Waste Planning Unit (TJSWPU) now includes the Counties of Albemarle, Fluvanna, and Greene, the City of Charlottesville, and the Towns of Stanardsville and Scottsville. The region has the same boundaries as the Thomas Jefferson Planning District (Planning District 10), excluding Louisa and Nelson Counties and the Towns of Louisa and Mineral. The City of Charlottesville and Albemarle County created the Rivanna Solid Waste Authority (RSWA) in 1990 for landfill and other waste management, operation, and reporting. The University of Virginia (UVA) is also located within the SWPU. RSWA and UVA maintain representation on the TJSWPU's committee to contribute to planning activities for the unit. Both contributed to the content of this plan. Louisa County and its towns have their own solid waste management plan. Nelson County takes part in the Region 2000 solid waste management plan.

This plan is designed to meet state planning requirements and assist member governments with planning and decision making for solid waste management issues over the next 20 years. It includes a summary of the findings and recommendations of a steering committee composed of local staff and members of the public appointed by localities and private sector individuals. In 2006, members of the committee recommended strategies to implement the goals and objectives related to solid waste management found in the 1998 Sustainability Accords, a document endorsed by all TJPDC localities that have served as a guide for the long-term viability of economic, environmental, and social resources and institutions in the region. Many of the strategies in the 2021 update carry over from the 2006, 2011, and 2016 plans and 2021 as ongoing activities. New strategies developed by the committee respond to other recent planning initiatives involving solid waste management and accomplishments and changes since 2016 that provide new opportunities to accomplish plan goals.

Feedback was incorporated into the updated plan through a review process that included the solid waste committee, and locality planning staff and administrators. Economic, environmental, social, transportation, and feasibility concerns were considered in developing the recommendations in the plan. Short- and long-term goals are included, as well as specific projects and timelines for implementation.

2 Profile of the Solid Waste Planning Unit

2.1 Population and Growth Projections

The Thomas Jefferson Planning District is located roughly in the geographic center of the Commonwealth. The Counties of Albemarle, Fluvanna, and Greene, the City of Charlottesville, and the incorporated towns of Scottsville and Stanardsville make up the Solid Waste Planning Unit. The City of Charlottesville and the urban portions of Albemarle County, including the University of Virginia, constitute the region's economic, educational, and cultural hub.

The following population figures show that the region has grown by approximately 6% from 2014 to 2019. Each locality has shown varying but steady growth, which is primarily forecasted to continue at a relatively steady rate till the year 2045.

TABLE 1. POPULATION HISTORY AND PROJECTIONS

Locality	2000	2010	2020	2030	2040	2045
Charlottesville	40,099	43,475	46,553	52,376	56,496	58,675
Albemarle	84,186	98,970	112,395	125,718	136,637	140,838
Fluvanna	20,047	25,691	27,249	30,258	32,638	33,897
Greene	15,244	18,403	20,552	22,669	24,452	25,395
SWPU	161,576	188,549	206,749	231,021	249,191	258,806

Source: US Census (1990 – 2019); Weldon Cooper Center 2025 – 2045 Projections

TABLE 2. NUMBER OF HOUSEHOLDS

Locality	2000	2010	2014	2019	% Change from 2014
Charlottesville	16,851	17,290	17,604	18,617	5.7%
Albemarle	31,876	38,157	38,537	41,496	7.6%
Fluvanna	7,387	9,449	9,787	9,923	1.4%
Greene	5,574	6,780	6,965	7,548	8.9%
Solid Waste Unit	63,688	72,174	72,893	77,584	6.4%

Source: US Census 2010; American Community Survey 2010-2014 and US Census Locality Quick Facts 2015-2019.

2.2 Development Patterns and Geographic Conditions

2021 census service-area data was not available to create a new population density map for the SWPU when this updated plan was written. Included in the plan is the population density map from the previous plan update. The City of Charlottesville and the surrounding urban ring in Albemarle County are home to roughly half the population of the SWPU. Between 2010 and 2020, Albemarle, Charlottesville, and Greene grew faster than average compared to other Virginia counties. The Route 29 corridor and the I-64/250 corridor are the primary residential, commercial, and industrial areas outside the city and small towns. Most localities have policies to persuade growth around existing centers and reduce the potential for sprawling development over time. Current population density numbers for localities are as follows: the city of Charlottesville 4,567 people per sq mile, Albemarle County 949 people per sq mile, Fluvanna County 93 people per sq mile, and Greene County 126 people per sq mile.

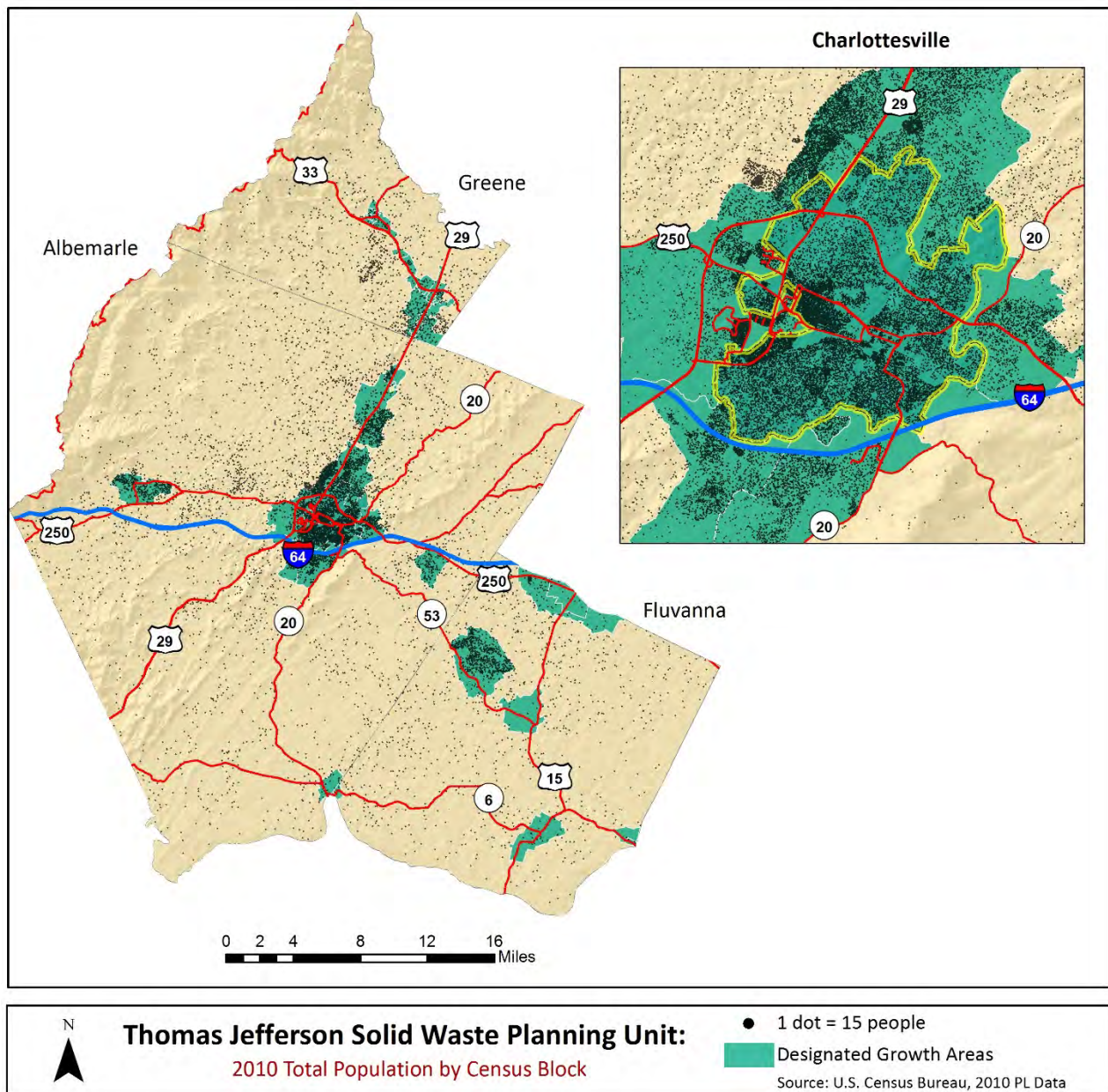


FIGURE 1. POPULATION DENSITY IN THE SWPALBEMARLE

Albemarle County has defined development areas around the City of Charlottesville and north of the City along the Route 29 corridor, in the area of Crozet to the west of Charlottesville, and along Route 250 to the east of Charlottesville. The western side of the County is bounded by the Blue Ridge Mountains and Shenandoah National Park. Outside the development areas, the remainder of the County is rolling Piedmont landscape dotted with a mix of residential, agricultural, and minor commercial uses. Residential growth has occurred both inside and outside of the development areas, but in recent years the balance has tipped to the development areas. The major commercial corridors are Route 29, particularly north of Charlottesville, and Route 250 east. The Town of Scottsville is located in the southeastern corner of Albemarle on the James River. A small portion of the town is in Fluvanna County.

CHARLOTTESVILLE

The City of Charlottesville is essentially “built-out” at this point, and most development activity is infill and redevelopment, although there are a limited number of vacant parcels of land that are yet to be developed. Most of the vacant parcels are residential lots, but there are a few subdivisions that are currently under construction. Most of the vacant tracks of land in Charlottesville are challenging to develop for various reasons such as topography, environmentally sensitive areas, limited access to existing public infrastructure, etc. Infill and redevelopment continue to be the primary avenue for growth and development activity within the City. The City is entirely surrounded by the County of Albemarle and can expand no further. Much of the City is residential, with major commercial areas located in the Main Street area (Business Route 250 and the downtown pedestrian mall) and along Route 29. The University of Virginia is the major employer in the City and straddles the City/County’s western border. The City features a rolling landscape and is bounded by the Rivanna River and Moore’s Creek on its east and south sides, respectively.

FLUVANNA

Fluvanna County experienced a high rate of population growth through the 1990s and maintained higher than average growth rates through the 2000s. Most of this growth was centered on the Lake Monticello development in the western portion of the county, to the northwest of the county seat of Palmyra, bringing minor amounts of commercial improvements to serve the residents. Since the Monticello development is near complete buildout in the mid-2010s, future residential and commercial development plans have shifted to the northeastern boundary of the county, near Zion Crossroads. This has brought minor commercial development to serve the residents; however, Fluvanna residents still largely commute to Charlottesville and Albemarle County for employment, goods, and services. Fluvanna County terrain is relatively flat compared to the counties to the west and becomes increasingly gentle as one moves east. The Rivanna River bisects the county running northwest to southeast, and the James River forms its southern boundary.

GREENE

Greene County has also experienced rapid growth, primarily in the southeast along the Route 29 corridor. The rapid residential growth in this area is primarily made up of commuters to Albemarle County and Charlottesville. Increasing employment opportunities coupled with rising housing costs in Albemarle have made Greene County an increasingly attractive option for potential homeowners. Some commercial development has occurred along the Route 29 corridor as well, but County residents still travel to Albemarle for many goods and services. Greene County is bounded on the west by the Blue Ridge Mountains and Shenandoah National Park. Similar to Albemarle, the terrain of Greene County falls away into foothills eastward from the Blue Ridge Mountains. The Town of Stanardsville serves as the County Seat and is a hub for residential development.

2.3 Economic Growth and Development

The Covid-19 pandemic had catastrophic effects on economic growth for the region. Those impacts were nationwide. Despite the pandemic, most localities and the region maintain lower unemployment rates than those of the state and nation. The one exception is the City of Charlottesville, exceeding the state's unemployment rate slightly.

TABLE 1. UNEMPLOYMENT RATE

Locality	2017	2018	2019	2020	Average
Charlottesville	3.1%	2.5%	2.3%	6.4%	3.6%
Albemarle	3.3%	2.6%	2.4%	5.4%	3.4%
Fluvanna	3.0%	2.5%	2.2%	5.3%	3.3%
Greene	3.0%	2.5%	2.3%	5.2%	3.2%
Solid Waste Unit	3.1%	2.0%	2.3%	5.6%	3.3%
Virginia	3.7%	2.9%	2.7%	6.2%	3.9%
National	4.4%	3.9%	3.7%	8.1%	5.0%

Source: Virginia Employment Commission

2.4 Transportation Conditions

Transportation within the SWPU revolves around Interstate 64 on the east-west axis and Route 29 on the primary north-south axis. Other major transportation corridors include Route 15 through Fluvanna County, which travels roughly north-south, and Route 6 passes through southern Fluvanna County and into northern Nelson County to the west. Route 33 cuts through Greene County on an east-west axis. Corridors other than Route 29 and Interstate 64 do not have the capacity for heavier volumes of traffic. Narrow roads and hilly conditions characterize rural areas that are traversed by county-owned, state-maintained secondary routes. The secondary system is more challenging for larger trucks to travel, and occasional snow in winter can cause transportation delays of several days at times. Rail service runs both north-south and east-west through the region, including through Charlottesville and many small towns.

2.5 Markets for the Reuse and Recycling of Materials

Reuse of household materials is common in the area, and markets for used clothing, sporting goods, furniture, and other household items include pawn shops, yard sales, rummage sales, online marketplaces, the Habitat ReStore, and other building supply recovery operations. Reuse of inert fill is generally accomplished locally. Non-profits accept donations of old cars, appliances, equipment, eyeglasses, and other useful items. Online options include Freecycle, Craigslist, and social media “Buy Nothing” initiatives, which all provide forums for items to be given away to be posted and claimed.

Most materials destined to be recycled are shipped out of the region since there are few local processors or markets. For example, many recyclable products are sold to brokers like Cycle Systems. Construction and demolition debris (CDD) and paper products are exceptions, however. The Van der Linde Recycling facility recycles local CDD. It recovers 76% of the materials it receives. Weyerhaeuser recycles a portion of the region's wastepaper. National markets affect pricing at the local level, and some materials, like glass, have been steadily losing national markets, and therefore value. The RS Processing fees for the separation of aluminum from steel affect the profitability of recycling metals. Gerdau and other scrap dealers accept metals to be recycled. Waste oil and antifreeze are collected for recycling by contractors that service the region.

Organic wastes are readily consumed by a number of public and private mulching operations. Public operations include Charlottesville's leaf collection and Christmas tree programs offered by Charlottesville and Albemarle. Food waste is collected at McIntire Recycling Center, the City Market, and a Residential 24/7 Compost Drop-Off Site (Charlottesville City residents only). Panorama Farms in Albemarle County accepts organic material from the City of Charlottesville curbside leaf collection program. Post-consumer food waste composting is provided by various private contractors, including Black Bear Composting and NOPE.

3 Current & Historical Solid Waste Management Systems

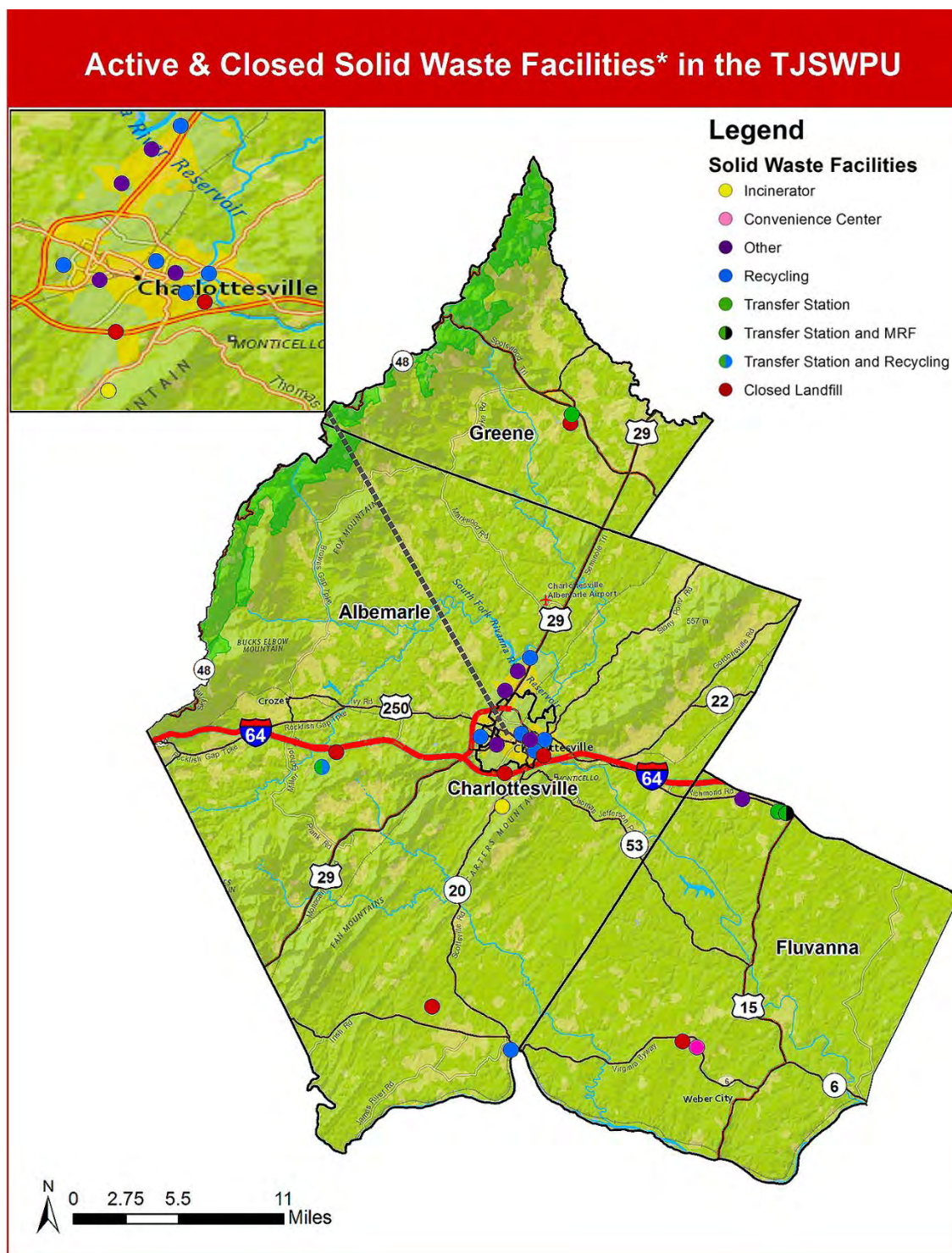


FIGURE 2. SOLID WASTE MANAGEMENT FACILITIES: ACTIVE AND CLOSED

The following table details the existing and closed waste management facilities in each locality. The table identifies those that have been permitted through the Virginia Department of Environmental Quality and does not provide a complete inventory of closed landfill sites that were either used

informally or were not permitted. The closed facilities identified on this table are those for which the locality or authority is responsible for any necessary remediation.

TABLE 2. EXISTING SOLID WASTE MANAGEMENT FACILITIES IN THE TJSWPU: ACTIVE & CLOSED BY LOCALITY

Locality	Facility name	Type	Status	Permit Year
RSWA	Ivy Material Utilization Ctr.	Transfer Station	Active	1997
	Ivy Sanitary Landfill	Sanitary Landfill	Closed	1997
	RSWA Compost Facility	MSW Composting Facility	Closed (2001)	1998
Albemarle	Keene Sanitary Landfill	Sanitary Landfill	Closed	1974
Charlottesville	Eldercare Gardens	Regulated Medical Waste (RMW) Incineration	Permitted by Right (PBR) prior to 1994	
	HCMF Heritage Hall	RMW Storage Only	PBR prior to 1994	
	Martha Jefferson Hospital	RMW Incineration	PBR prior to 1994	
	University of Virginia	RMW Incineration	Closed	
	Virginia Ambulatory Surgery Center	RMW Storage only	Active	1998
	Old 5 th Street Landfill	Unlined landfill	Closed	1960's
Fluvanna	Republic Services Transfer Station	Materials Recovery Facility	Active	1995
	Fluvanna Correctional Unit#5	RMW Steam Sterilization	PBR prior to 1994	
	Fluvanna County Sanitary Landfill	Sanitary Landfill	Closed	1974
	Fluvanna County Sanitary Landfill	Sanitary Landfill	Closed	1983
	Zion Crossroads (MSW MRF)	Transfer Station	Active	2018
	Van der Linde Recycling (CDD)	Materials Recovery Facility	Active	CDD: 2007
Greene	Greene County MRF & Co - Compost	Materials Recovery Facility	Closed	1994
	Greene County Transfer Station	Transfer Station	Active	1994
	Greene County Sanitary Landfill	Sanitary Landfill	Closed	1974
	Greene County Sanitary Landfill	Sanitary Landfill	Closed	1978

Source: Virginia Department of Environmental Quality and local governments

3.1 Current Waste Generation Rates

The following table provides a breakdown of waste generated by type, as reported to the DEQ in 2020.
Table 3. TJPDC 2020 Current Waste Generation Rates (in tons)

	Charlottesville / Albemarle	Fluvanna	Greene	REGION
Municipal Solid Waste Disposed	28,680	1,577	28,968	59,225
Household	19,786	0	0	19,786
Commercial	8,894	1,577	28,968	39,440
Institutional	0	0	0	0
Other (non-industrial)	0	0	0	0
Primary Recyclable Materials	32,161	2,052	3,631	37,843
Paper	1,562	0	800	2,362
Metal	473	32	2,000	2,505
Plastic	132	0	0	132
Glass	497	0	0	497
Commingled	3,746	71	0	3,817
Yard Waste (composted or mulched)	613	0	812	1,425
Waste wood (chipped or mulched)	519	1,919	0	2,438
Textiles	0	0	0	0
Tires	9,545	4	16	9,565
Used Oil	28	20	2	50
Used Oil Filters	31	0	0	31
Used Antifreeze	1,644	0	1	1,645
Batteries	9,878	5	0	9,883
Electronics	2	0	0	2
Inoperative Motor Vehicles	15	0	0	15
Other - fat, bone, grease	0	0	0	0
Other - composed sludge	2,991	0	0	2,991
Other - Composted Food Waste	485	0	0	485
Solid Waste Reused	0	0	0	0
UVA MERCI	0			0
UVA Move Out	0			0
Non-MSW Recycled	1,091	0	0	1,091
VDL C&D Recycling				
UVA Ash	1,091			1,091
Base Recycling Rate	46%			
DEQ Approved Rate (With Credits)				
Total Waste Generated	61,932	3629	32,599	98,160
Population	159,992	27,202	20,323	207,517
Per capita	0.39	0.13	1.60	0.47

Source: Local facility operators; Weldon Cooper Center

^ Charlottesville and Albemarle are reported as one unit. In the past the RSWA provided the majority of solid waste services for Charlottesville and Albemarle. Currently, it provides services in a more limited capacity.

3.2 Existing & Planned Solid Waste Management Programs

Thomas Jefferson Solid Waste Planning Unit

The Thomas Jefferson Planning District Commission (TJPDC) acts as the central clearinghouse for solid waste planning and reporting on behalf of the local governments that make up the TJSWPU. TJPDC is the designated central archive for receiving and recording information on solid waste generation, recycling, facilities and calculates and submits the annual regional recycling rate report to the DEQ. The TJPDC is also responsible for the implementation of plan strategies. The TJPDC maintains a recycling website for the TJSWPU to serve as a centralized resource for citizens of the planning unit and participates in public education/outreach events to engage citizens.

Localities in the planning region use similar strategies to promote proper waste disposal, waste reduction, reuse, and recycling, with more densely populated localities offering additional services. In general, localities in the planning unit encourage citizens to reduce, reuse and recycle by charging for MSW disposal while providing recycling options free of charge. On-going litter control is provided by a combined effort of law enforcement, trash cans in public spaces, the Virginia Department of Transportation's Adopt-a-Highway program, and annual river clean-up events organized by the Rivanna Conservation Alliance and others.

Additionally, a number of recycling services are available to the region's residents from local retailers. Businesses such as Best Buy, Crutchfield, Home Depot, Carpet Plus, Target, and Goodwill Industries provide recycling for a number of special wastes on an ongoing basis. A 2011 planning initiative of partners in the region called the Local Climate Action Planning Process (LCAPP) made a series of recommendations for responsible solid waste management. The City of Charlottesville, Albemarle County, and UVA undertook the 18-month planning and public engagement process between 2009 and 2011 to address the role of energy and climate resiliency issues for their communities. The recommendations directly related to solid waste reduction are included as strategies in this Plan. In 2020, the County of Albemarle adopted a Climate Action Plan with strategies and actions related to sustainable waste management. The City of Charlottesville is currently conducting a Landfill Diversion Study and is in the process of developing a Climate Action Plan as well which will also address the emissions reduction opportunities related to materials and waste.

The following sections provide a comprehensive description of systems and programs administered in the TJSWPU that support and promote the solid waste hierarchy set forth in 9VAC20-130-30.

City of Charlottesville

COLLECTION AND TRANSPORTATION

Weekly residential curbside collection includes single-stream recycling and a separate collection for household trash. Both services are provided through contracts with a private contractor. Designated commercial corridors receive daily trash and recycling (newsprint, mixed paper, glass, metals, plastics, cardboard) pick-up. The program is a "pay as you throw" program, where trash stickers and decals are purchased by customers, and recycling is free for those that participate in the trash program. Curbside customers may choose to use private haulers who also collect from commercial and multifamily dumpsters. Private companies also service multi-unit residential buildings and commercial/retail businesses. Individuals can also drive to the Ivy Materials Utilization Center (MUC), McIntire Recycling Center, or any one of the privately operated transfer stations in the area. Each resident may request bulky item pick-ups for appliances, large branches, and other oversized items for \$35 for the first appointment, \$50 for the second appointment, and \$100 for all subsequent appointments within a 12-

month rolling year. Construction and demolition debris must be transported privately. Additionally, there are numerous street-side collection units throughout the City, many of which are provided at bus stops in the City. Seasonal operations consist of residential loose-leaf collection during November, December, and January. Christmas trees are also collected curbside each January. Both the loose-leaf collection and Christmas tree collection are performed by in-house resources and free to the residents of Charlottesville.

STORAGE, TREATMENT AND DISPOSAL

All MSW that is collected by City forces (Large Item, Street Sweeping and Litter Collection) goes to the Republic Services transfer station located at Zion Crossroads. MSW that is collected curbside by the City's contractor goes to the transfer station that is owned/operated by the contractor, which is also located at Zion Crossroads. All single-stream recycling that is collected curbside also goes to the transfer station that is owned/operated by the contractor, located at Zion Crossroads. The single-stream recyclables are then loaded and transferred to the Materials Recovery Facility (MRF), which is also owned/operated by the contractor. The MRF is located in Chester, VA, where it is processed and shipped to recycling markets.

All loose leaves from the fall collection efforts are taken to Panorama Farm in Earlysville, VA, where they are used for mulch and composting efforts. Christmas trees are ground into mulch, which is available free to citizens at Darden Towe Park.

WASTE REDUCTION AND REUSE

The City partially funds waste reduction and reuse initiatives administered by the Rivanna Solid Waste Authority (described below). The City encourages citizens to reduce waste by charging for trash removal by the bag while recycling pick up is free. Leaves are picked up in the fall in a special free program, and Christmas trees are also picked up free curbside citywide. Trash cans help reduce litter in the City, and recycling cans are colocated with trashcans on the pedestrian mall downtown. The City promotes composting by providing drop-off services for organics at the City Market and McIntire Recycling Center. The composting program has recently expanded in a pilot program to include curbside collection. How-to guides and other composting resources are also available on the City website to help encourage composting at home. To improve awareness and access to green initiatives, the City offers an interactive [City Green map](#) resource that details locations of sustainability efforts and links to recycling resources. Additionally, the City promotes proper disposal of household hazardous waste and electronics recycling on its website.

Albemarle County

COLLECTION AND TRANSPORTATION

Businesses, industries, and individuals are responsible for making their own waste collection and recycling arrangements, with curbside collection contracts available throughout the county. Self-delivery to the Ivy MUC, the McIntire Recycling Center, Van der Linde, or the two county newspaper/glossy paper bins (located in the parking lots of Roses at Pantops and the Community Center in Scottsville) are the only options for those in the rural areas and available to all others. The McIntire Recycling Center (described below) accepts a variety of recyclable materials. The Ivy MUC accepts MSW and limited reuse and recycling at the convenience center portion of the facility.

STORAGE, TREATMENT AND DISPOSAL

Private haulers deliver waste to one of several transfer stations in the region. The majority of waste is handled through the Van der Linde Zion Crossroads Recycling Center, Republic Services Transfer station,

and the RSWA's Ivy Materials Utilization Center (MUC). Sludge from the Rivanna Water and Sewer Authority is hauled to McGill Environmental, where it is composted and sold.

WASTE REDUCTION AND REUSE

The County partially funds waste reduction and reuse initiatives administered by the Rivanna Solid Waste Authority (described below). Additionally, two departments of the local government administer Environmental Management Systems programs that include source reduction and recycling components. The County offers mixed-paper recycling for its local government staff. The County also maintains a [Solid Waste Management page](#) on the County web site as a resource for residents.

ONGOING ACTIVITIES

In the spring of 2016, the Albemarle County Board of Supervisors established the Solid Waste Alternatives Advisory Committee. The committee is charged with reviewing the County's solid waste policies and practices. The Committee focuses its efforts on waste reduction, materials reuse, recycling, composting, and determining the County's future involvement with the RSWA at the Ivy Materials Utilization Center and Transfer Station.

Rivanna Solid Waste Authority (RSWA)

RSWA was established jointly by the City of Charlottesville and Albemarle County to administer solid waste services to the citizens of each.

COLLECTION AND TRANSPORTATION

RSWA offers no collection services. RSWA contracts with private haulers to transport wastes accumulated at the Ivy MUC and the McIntire Recycling Center to various final destinations.

STORAGE, TREATMENT AND DISPOSAL

The Ivy MUC operates a waste transfer station, vegetative (stumps, brush, etc.) waste mulching operation, collection centers for white goods, pallets, tires, and the Encore Shop for collection of reusable items. The citizens' convenience center, just outside the scales for the transfer station, includes easy drop-offs for trash in bags or receptacles and recyclable materials, including cardboard, newspaper, waste motor oils, and paint. The Ivy MUC is open weekdays from 7:30 a.m. to 4:00 p.m. and Saturdays from 8:30 a.m. to 4:00 p.m. Waste collected at the MUC that is not separated at the convenience center for recycling is sent to Amelia County for disposal in a permitted landfill.

The RSWA transfer station accepts municipal solid waste from private citizens and private haulers servicing Albemarle County and the surrounding area. Fees for Albemarle County Residents are \$66/ton, with a \$6 minimum, plus a service fee for each visit to the scales of \$1. Other area residents are charged a \$10 fee on each transaction. The same tonnage rates apply. Small pick-up trucks, 8-foot bed or equivalent, with CDD are also accepted for the same tipping fee. Larger loads of CDD will be directed to the other facilities in the area. Clean fill, stumps, and brush are accepted at the MUC as well. RSWA also provides confidential document destruction. Vegetative debris and wooden pallets are ground into chips/mulch for resale.

RSWA also operates the McIntire Recycling Center located on McIntire Road in Charlottesville. It is open for use by City and Albemarle County residents. The Center is open five days per week, Wednesday through Saturday, closing at 5:20 p.m. each day with varying opening times. The center accepts boxboard, file stock, corrugated cardboard, newspapers, glossy paper, phone books, glass, #1 and #2 plastics in separate bins, as well as #3 - #7 in comingled bins and metal and aluminum cans. RSWA contracts with Weyerhaeuser for the paper goods collected. Glass, metals, and plastics are sold to various buyers based on market conditions.

WASTE REDUCTION AND REUSE

The Encore Shop, part of the Ivy MUC, provides a protected area where people can leave reusable items and pick up items for re-use. Mulch from the grinding of stumps and brush is sold there as well. Household hazardous waste and amnesty days (furniture, mattresses, appliances, and tires) are held at the Ivy MUC during advertised special events. A book exchange is offered at the McIntire Recycling Center. Regular disposal is also available for household paint, motor oil, and antifreeze.

Fluvanna County

COLLECTION AND TRANSPORTATION

Individuals, businesses, and industries are generally responsible for waste hauling and recycling activities via either contract with a private firm or self-delivery to the convenience center located in Fork Union. The convenience center is open to the public Tuesday from 9:00am to 4:00pm, Thursday from 11:00am to 7:00pm, and Saturday - 8:00am to 5:00pm. It accepts newspaper, cardboard, telephone books, aluminum cans, plastic bottles, glass, and used motor oil free of charge, and MSW at \$57/ton, with an \$8 minimum. Tires and appliances are also accepted at a charge. The convenience center is closed to any commercial waste. The Van der Linde Zion Crossroads Recycling Center accepts construction and demolition debris and MSW. At Lake Monticello, a private hauler collects MSW; curbside recycling is included for plastics, glass, metal, and newspaper. County residents can also self-haul recyclable materials to the Van der Linde Zion Crossroads Recycling Center, which provides a convenience center type drop-off area at no charge.

STORAGE, TREATMENT AND DISPOSAL

The Republic Services private transfer station is located off of 250 at Zion Crossroads. Fluvanna County contracts with Republic to transfer convenience center waste to this facility, where recyclables are sent to a variety of markets, and MSW is hauled to the Amelia County landfill for disposal. This facility is not open to cash customers. The Zion Crossroads Recycling Center operates as a materials recovery facility, hauling processed materials to secondary market recyclers and unacceptable materials to the Amelia County landfill. RSWA has a contract with Fluvanna to bring its wood grinding operation to Fluvanna on an as-needed basis.

WASTE REDUCTION AND REUSE

Fluvanna encourages citizens to recycle by offering free recycling collection at the convenience center while charging for MSW collection. The County also oversees a low-maintenance reuse facility consisting of a covered lot where citizens can leave reusable items that others are free to pick up, free of charge.

Greene County

COLLECTION AND TRANSPORTATION

Individuals, businesses, and industries are generally responsible for waste hauling and recycling activities via either contract with a private firm or self-delivery. County residents may use the transfer station and recycling center located off Route 33 at 358 Mays Road, southeast of Stanardsville. The facility is open Monday through Saturday from 8 am to 4 pm. Recyclables collected include plastic, paper (newsprint, magazines, and phone books), metals, and corrugated cardboard. White goods, appliances, tires, furniture, and construction and demolition debris are also accepted. The transfer station accepts MSW from county residents, private haulers, and commercial sources.

In addition to MSW and recyclables generated within the County, the transfer station accepts residential and commercial MSW that originates in neighboring localities. Because MSW originating from outside

the County is not accounted for, the entire tonnage received at the transfer station is used to calculate Greene County's annual recycling rate. This results in an artificially low rate for recycling taking place in the County.

STORAGE, TREATMENT AND DISPOSAL

Recyclables accumulated at the transfer center are shipped to a variety of markets. The transfer station operator contracts with private haulers to transport accumulated MSW to the Amelia County landfill.

WASTE REDUCTION AND REUSE

A volunteer-run waste exchange program makes clothing and other re-usable items available to the public at no charge. A retailer periodically takes a truck to the County containing off-merchandise for people to take items free of charge. Trash cans help reduce litter in the Town of Stanardsville, and a major volunteer county-wide road cleanup is held every spring.

University of Virginia (UVA)

COLLECTION AND TRANSPORTATION

Facilities Management is responsible for all solid waste activities. A private company is under contract for the collection and shipping of MSW. Recyclables are collected in bins, and other systems in dorms and office areas are brought to a central collection point by the UVA Recycling employees and picked up by a private firm.

STORAGE, TREATMENT AND DISPOSAL

A portion of the MSW is transported to the Zion Crossroads Recycling Center for additional sorting and possible reclamation, and the remainder is taken to the Greene County Transfer Station. The Zion Crossroads Recycling Center sends any waste that is not recoverable for recycling to a permitted landfill in Amelia County. Hazardous and medical wastes are handled through the Office of Environmental Health and Safety and are either sent to a hazardous waste facility or sterilized (deemed "Special Waste") and hauled directly to a special waste cell at a regulated landfill. In March 2021, Virginia's Governor Ralph Northam signed Executive Order 77: Virginia Leading by Example to Reduce Plastic Pollution and Solid Waste. This requires all state agencies, including institutions of higher education, to cease buying, selling, and distributing single-use plastic and polystyrene food service containers, single-use plastic straws and cutlery, disposable plastic bags, and single-use plastic water bottles by July 21, 2021. The order also calls for agencies to phase out the use of all other single-use plastics by 2025. UVA's EO77 Working Group, led by the UVA Office for Sustainability and comprised of 40+ representatives, developed a single-use plastics reduction plan and are working on resources and trainings to help guide the University community toward achieving the EO77 goal. Additionally, inkjet/laser cartridges are collected by in-house staff and then collected by a local small business for recycling/refurbishment. Cell phones batteries, and small electronics are sent to recyclers.

WASTE REDUCTION AND REUSE

UVA administers several waste reduction and reuse initiatives that serve the campus community. They include:

- Hoo's Reuse: The collection of gently used items students donate to local nonprofits to help those less advantaged.
- MERCI: A program started and run by operating room nurses and volunteers to redeploy equipment back into the hospital and/or send to clinics, animal shelters, and 3rd world countries for use.

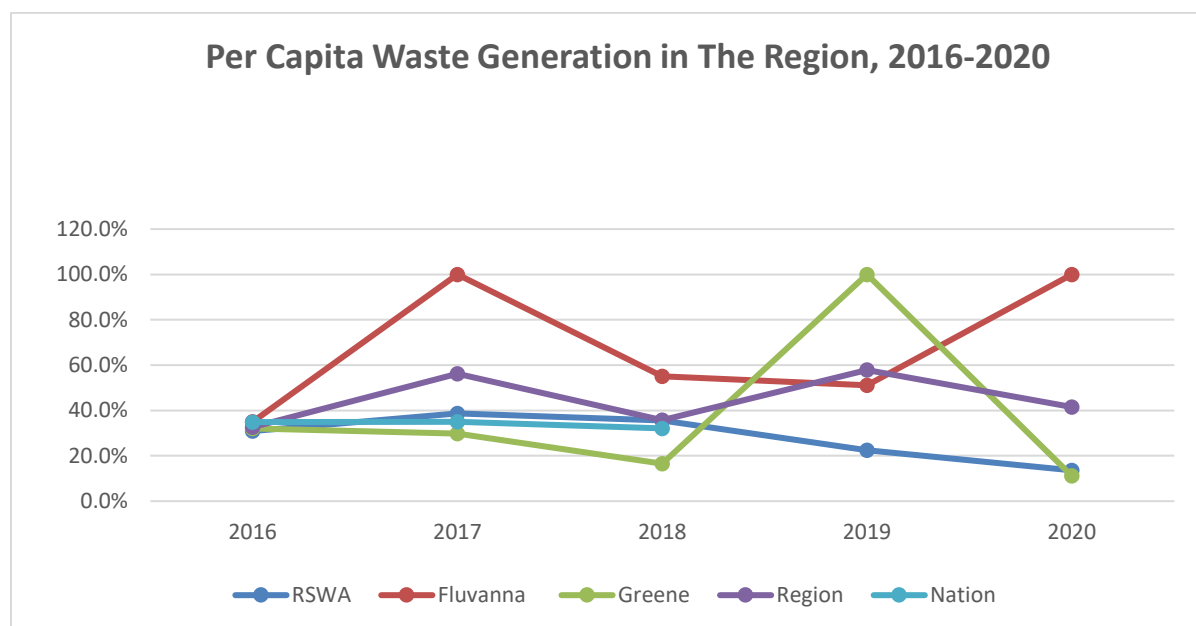
- Composting of food scraps, compostable to-go containers, and paper towels are used extensively in commercial kitchens, dining halls, and some dorms and department office kitchenettes. There is also more use of compostable products in Athletic venues. Many events are also moving toward “zero-waste.” Black Bear Composting processes the food scraps in Crimora, VA.
- Coal ash is collected and used as beneficial fill or sent to make cement/cinder blocks.
- UVA participated in the EPA-sponsored “Game Day Challenge Recyclemania” in an effort to show spectators of large sporting events (e.g., home football games, etc.) what is produced in the way of disposables by patrons. This is a national competition between colleges and universities held annually.
- All new construction and major renovation projects are committed to achieving LEED certification. CD&D is collected from even the smallest of projects and sent to a CD&D MRF and have received reports exceeding 90% reclamation/recycling rates.



FIGURE 3. REUSE FACILITY IN FLUVANNA COUNTY

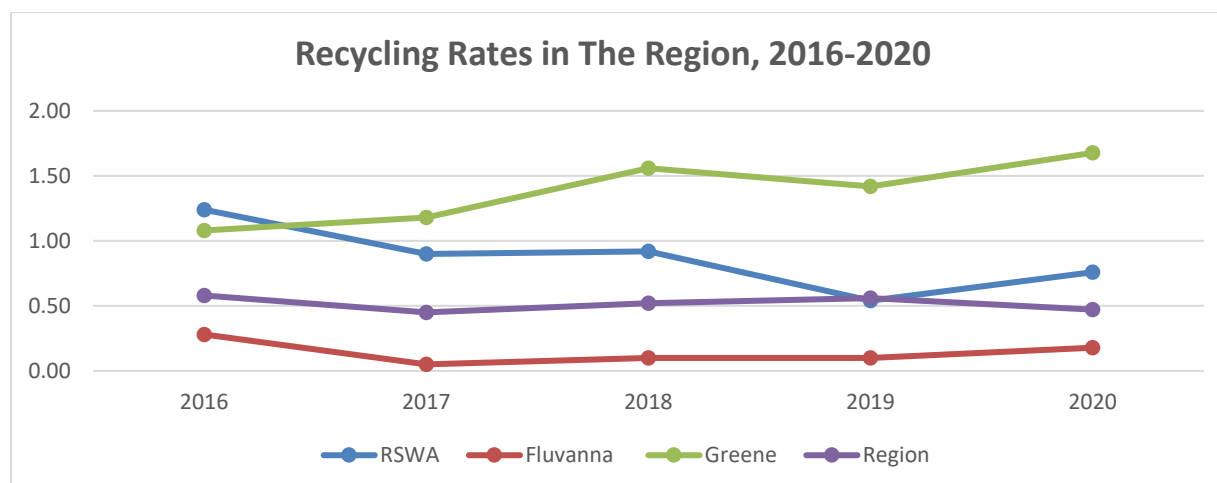
3.3 Historical Waste Generation

Historical waste generation rates are useful for tracking progress and can be used to predict future needs. The following figures and tables illustrate waste management data available from 2016 to 2020. Fluvanna and Greene County Recycling rates experienced dramatic ebbs and flow in the last five years. The rates collected for 2020 were for data during the height of the Covid-19 pandemic, which can explain why most of the localities' rates plummeted. Many people limited going to recycling centers, and facilities had diminished hours. For the most part, there has not been a significant change in the regional recycling rate over the last five years except in 2020. Figures 4 and 5 show trends in the recycling rate and per capita waste generation in the region over time.



source: Virginia DEQ, TJSWPU recycling rate reports

FIGURE 4. RECYCLING RATE TRENDS



source: Virginia DEQ, EPA & TJSWPU recycling rate reports

FIGURE 5. PER CAPITA WASTE GENERATION TRENDS

2016 Waste Generation by Type

The following figures are based on reports submitted by localities to DEQ in 2017.

TABLE 4. TJPDC 2016 WASTE GENERATION RATES (IN TONS)

	Charlottesville /Albemarle	Fluvanna	Greene	REGION
Municipal Solid Waste Disposed	226	4,760	14,143	19,129
Household	226	4,760	14,143	19,129
Commercial	0	0	0	0
Institutional	0	0	0	0
Other (non-industrial)	0	0	0	0
Primary Recyclable Materials	15,718	2,532	6,535	24,785
Paper	1,968	0	2,900	4,868
Metal	486	40	2,400	2,926
Plastic	80.69	0	900	981
Glass	240.36	0	25	265
Commingled	5,752	1,279	0	7,031
Yard Waste (composted or mulched)	3,874	0	0	3,874
Waste wood (chipped or mulched)	118.45	1,200	259	1,577
Textiles	0	0	8	8
Tires	161.08	1.8	22	185
Used Oil	42.26	10.3	15	68
Used Oil Filters	4.47	0	0	4
Used Antifreeze	3.34	0	6	9
Batteries	0.48	0.45	0	1
Electronics	22.5	0	0	23
Inoperative Motor Vehicles	0	0	0	0
Other - fat, bone, grease	0	0	0	0
Other - composed sludge	2,912	0	0	2,912
Other- Composted Food Waste	52.29	0	0	52
Solid Waste Reused	30	0	0	30
UVA MERCI	16			16
UVA Move Out	14			14
Non-MSW Recycled	71,710	0	0	71,710
VDL C&D Recycling	67,870			67,870
UVA Ash	3,840			3,840
Base Recycling Rate	31%	35%	32%	33%
DEQ Approved Rate (With Credits)				33%
Total Waste Generated	87,684	7,291	20,678	115,654
Population	153,374	26,187	19,309	198,870
Per capita	0.571703613	0.278434	1.0709	0.581555

Source: Local facility operators; DEQ; Weldon Cooper Center

*The Rivanna Solid Waste Authority reports the recycling numbers for Albemarle County, the City of Charlottesville, and Town of Scottsville as a combined number.

2017 Waste Generation by Type

The following figures are based on reports submitted by localities to DEQ in 2018.

TABLE 5. TJPDC 2017 WASTE GENERATION RATES (IN TONS)

	Charlottesville /Albemarle	Fluvanna	Greene	REGION
Municipal Solid Waste Disposed	54,158	0	16,781	70,939
Household	54,158	0	14,809	68,967
Commercial	0	0	1,972	1,972
Institutional	0	0	0	0
Other (non-industrial)	0	0	0	0
Primary Recyclable Materials	13,497	1,468	6,299	21,263
Paper	636	0	2,800	3,436
Metal	862	54	2,550	3,466
Plastic	15	0	700	715
Glass	216	0	0	216
Commingled	4,017	0	0	4,017
Yard Waste (composted or mulched)	3,648	0	200	3,848
Waste wood (chipped or mulched)	427	1,400	0	1,827
Textiles	0	0	9	9
Tires	99	3	22	123
Used Oil	20	11	13	44
Used Oil Filters	5	0	0	5
Used Antifreeze	1	0	5	6
Batteries	3	1	0	4
Electronics	0	0	0	0
Inoperative Motor Vehicles	0	0	0	0
Other - fat, bone, grease	0	0	0	0
Other - composed sludge	3,041	0	0	3,041
Other- Composted Food Waste	509	0	0	509
Solid Waste Reused	0	0	0	0
UVA MERCI	0			0
UVA Move Out	0			0
Non-MSW Recycled	71,710	0	0	0
VDL C&D Recycling	67,870			
UVA Ash	3,840			
Base Recycling Rate	39%	100%	30%	56%
DEQ Approved Rate (With Credits)				36,6%
Total Waste Generated	139,365	1,468	23,080	92,202
Population	155,231	26,480	19,593	201,304
Per capita	0.89778865	0.05542	1.177972	0.458024

Source: Local facility operators; DEQ; Weldon Cooper Center

*The Rivanna Solid Waste Authority reports the recycling numbers for Albemarle County, the City of Charlottesville, and Town of Scottsville as a combined number.

2018 Waste Generation by Type

The following figures are based on reports submitted by localities to DEQ in 2017.

TABLE 6. TJPDC 2018 WASTE GENERATION RATES (IN TONS)

	Charlottesville /Albemarle	Fluvanna	Greene	REGION
Municipal Solid Waste Disposed	51,635	1,241	25,610	78,486
Household	51,635	1,241	22,177	75,053
Commercial			3433	3,433
Institutional				0
Other (non-industrial)				0
Primary Recyclable Materials	20,632	1,521	5,113	27,266
Paper	1,529	0	1,800	3,329
Metal	104	57	2,800	2,962
Plastic	149	0	100	249
Glass	319	0	0	319
Commingled	10,006	0	0	10,006
Yard Waste (composted or mulched)	3,732	0	377	4,109
Waste wood (chipped or mulched)	727	1,450	0	2,177
Textiles	0	0	10	10
Tires	98	0	14	113
Used Oil	33	12	10	55
Used Oil Filters	0	0	0	0
Used Antifreeze	3	0	2	5
Batteries	3	1	0	4
Electronics	14	0	0	14
Inoperative Motor Vehicles	0	0	0	0
Other - fat, bone, grease	0	0	0	0
Other - composed sludge	3,468	0	0	3,468
Other- Composted Food Waste	445	0	0	445
Solid Waste Reused	0	0	0	0
UVA MERCI	0			0
UVA Move Out	0			0
Non-MSW Recycled	71,884	0	0	0
VDL C&D Recycling	68,044			
UVA Ash	3,840			
Base Recycling Rate	36%	55%	17%	36%
DEQ Approved Rate (With Credits)				37%
Total Waste Generated	144,151	2,761	30,723	105,751
Population	155,883	26,898	19,692	202,473
Per capita	0.92473849	0.102662	1.560177	0.522299

Source: Local facility operators; DEQ; Weldon Cooper Center

*The Rivanna Solid Waste Authority reports the recycling numbers for Albemarle County, the City of Charlottesville, and Town of Scottsville as a combined number.

2019 Waste Generation by Type

The following figures are based on reports submitted by localities to DEQ in 2018.

TABLE 7. TJPDC 2018 WASTE GENERATION RATES (IN TONS)

	Charlottesville /Albemarle	Fluvanna	Greene	REGION
Municipal Solid Waste Disposed	53,399	1,336	23,960	78,695
Household	53,399	1,336	23,960	78,695
Commercial				0
Institutional				0
Other (non-industrial)				0
Primary Recyclable Materials	27,436	1,396	4,194	33,026
Paper	11,038	0	1,200	12,238
Metal	195	93	2,500	2,788
Plastic	17	0	50	67
Glass	444	0	0	444
Commingled	6,511	79	0	6,590
Yard Waste (composted or mulched)	5,242	0	435	5,677
Waste wood (chipped or mulched)	319	1,200	0	1,519
Textiles	0	0	0	0
Tires	214	4	7	225
Used Oil	32	20	0	52
Used Oil Filters	1	0	0	1
Used Antifreeze	4	0	2	6
Batteries	29	1	0	30
Electronics	2	0	0	2
Inoperative Motor Vehicles	0	0	0	0
Other - fat, bone, grease	206	0	0	206
Other - composed sludge	2,900	0	0	2,900
Other- Composted Food Waste	282	0	0	282
Solid Waste Reused	0	0	0	0
UVA MERCI	0			0
UVA Move Out	0			0
Non-MSW Recycled	3,538	0	0	3,538
VDL C&D Recycling				
UVA Ash	3,538			3,538
Base Recycling Rate	22%	51%	100%	58%
DEQ Approved Rate (With Credits)				34%
Total Waste Generated	84,373	2,732	28,154	115,259
Population	156,596	27,270	19,819	203,685
Per capita	0.538795435	0.100184	1.420556	0.56587

Source: Local facility operators; DEQ; Weldon Cooper Center

*The Rivanna Solid Waste Authority reports the recycling numbers for Albemarle County, the City of Charlottesville, and Town of Scottsville as a combined number.

2020 Waste Generation by Type

The following figures are based on reports submitted by localities to DEQ in 2019.

TABLE 8. TJPDC 2019 WASTE GENERATION RATES (IN TONS)

	Charlottesville /Albemarle	Fluvanna	Greene	REGION
Municipal Solid Waste Disposed	28,680	1,577	28,968	59,225
Household	19,786	0	0	19,786
Commercial	8,894	1,577	28,968	39,440
Institutional	0	0	0	0
Other (non-industrial)	0	0	0	0
Primary Recyclable Materials	32,161	2,052	3,631	37,843
Paper	1,562	0	800	2,362
Metal	473	32	2,000	2,505
Plastic	132	0	0	132
Glass	497	0	0	497
Commingled	3,746	71	0	3,817
Yard Waste (composted or mulched)	613	0	812	1,425
Waste wood (chipped or mulched)	519	1,919	0	2,438
Textiles	0	0	0	0
Tires	9,545	4	16	9,565
Used Oil	28	20	2	50
Used Oil Filters	31	0	0	31
Used Antifreeze	1,644	0	1	1,645
Batteries	9,878	5	0	9,883
Electronics	2	0	0	2
Inoperative Motor Vehicles	15	0	0	15
Other - fat, bone, grease	0	0	0	0
Other - composed sludge	2,991	0	0	2,991
Other- Composted Food Waste	485	0	0	485
Solid Waste Reused	0	0	0	0
UVA MERCI	0			0
UVA Move Out	0			0
Non-MSW Recycled	1,091	0	0	1,091
VDL C&D Recycling				
UVA Ash	1,091			1,091
Base Recycling Rate	14%	100%	11%	42%
DEQ Approved Rate (With Credits)				N/A
Total Waste Generated	61,932	3629	32,599	98,160
Population	158,948	27,249	20,552	206,749
Per capita	0.39	0.13	1.59	0.47

Source: Local facility operators; DEQ; Weldon Cooper Center

*The Rivanna Solid Waste Authority reports the recycling numbers for Albemarle County, the City of Charlottesville, and Town of Scottsville as a combined number.

4.0 Future Solid Waste Management System

4.1 Estimates of Future Needs

2045 PROJECTED WASTE GENERATION BY TYPE

Estimates in Table 21 are based on reported 2016-2020 totals averaged and multiplied by the projected population growth rate of approximately 1% between 2020 and 2045. Adjusted 2045 populations, as described in Table 1, were used to estimate future needs.

TABLE 9. TJPDC 2045 ESTIMATED FUTURE WASTE GENERATION RATES (IN TONS)

	Charlottesville Albemarle	Fluvanna	Greene	REGION
Municipal Solid Waste Disposed	37,619.73	1,782.66	2,253.31	41,655.70
Household	35,840.83	1,467.23	1,854.61	39,162.67
Commercial	1,778.9	315.4	398.71	2,493.03
Institutional	0.00	0.00	0.00	0.00
Other (non-industrial)	0.0	0.0	0.00	0.00
Primary Recyclable Materials	21,888.72	1,793.55	5,154.40	28,836.68
Paper	3,346.62	0.0	1,900.00	5,246.62
Metal	424.06	55.3	2,450.00	2,929.32
Plastic	78.83	0.0	350.00	428.83
Glass	343.26	0.0	5.00	348.26
Commingled	6,006.46	285.7	0.00	6,292.20
Yard Waste (composted or mulched)	3,421.83	0.0	364.80	3,786.63
Waste wood (chipped or mulched)	422.12	1,433.8	51.80	1,907.72
Textiles	0.00	0.0	5.40	5.40
Tires	2,023.44	2.5	16.20	2,042.10
Used Oil	31.08	14.7	8.00	53.78
Used Oil Filters	8.09	0.0	0.00	8.09
Used Antifreeze	330.91	0.0	3.20	334.11
Batteries	1,982.65	1.6	0.00	1,984.25
Electronics	8.08	0.0	0.00	8.08
Inoperative Motor Vehicles	3.07	0.0	0.00	3.07
Other - fat, bone, grease	41.20	0.0	0.00	41.20
Other - composed sludge	3,062.24	0.0	0.00	3,062.24
Other- Auction Waste	354.78	0.0	0.00	354.78
Solid Waste Reused	6.0	0	0	6
Non-MSW Recycled	43,986.6	0	0	43,986.60
MERCI	40,756.80	-	-	40,756.80
UVA Ash	3,229.80	-	-	3,229.80
Base Recycling Rate	45%	68%	38%	50%
Total Waste Generated	103,501.05	3,576.21	7,407.71	114,484.98
Population	156,006.40	26,816.80	19,793.00	202,616.20
Per capita	0.66	0.13	0.37	0.57
Expected Waste	118,564.86	20,380.77	15,042.68	153,988.31

Source: Local facility operators: US Census, Weldon Cooper Center

	Cville+ Albemarle		Fluvanna		Greene		TJ-SWPU Area	
	2016-2020 Average	2045 Projection	2015-2020 Average	2045 Projection	2015-2020 Average	2045 Projection	2016-2020 Average	2045 Projection
Municipal Solid Waste Disposed	37,619.7	48,111.0	1,782.7	2,253.3	21,892.4	28,088.6	61,294.8	78,293.1
Household	35,840.8	45,836.0	1,467.2	1,854.6	15,017.8	19,268.3	52,325.9	66,836.9
Commercial	1,778.9	2,275.0	315.4	398.7	6,874.6	8,820.3	8,968.9	11,456.2
Institutional	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Other (non-industrial)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Primary Recyclable Materials	21,888.7	27,993.0	1,793.6	2,267.1	5,154.4	6,613.2	28,836.7	36,833.7
Paper	3,346.6	4,279.9	0.0	0.0	1,900.0	2,437.8	5,246.6	6,701.6
Metal	424.1	542.3	55.3	69.8	2,450.0	3,143.4	2,929.3	3,741.7
Plastic	78.8	100.8	0.0	0.0	350.0	449.1	428.8	547.8
Glass	343.3	439.0	0.0	0.0	5.0	6.4	348.3	444.8
Commingled	6,006.5	7,681.5	285.7	361.2	0.0	0.0	6,292.2	8,037.2
Yard Waste (composted or mulched)	3,421.8	4,376.1	0.0	0.0	364.8	468.0	3,786.6	4,836.7
Waste wood (chipped or mulched)	422.1	539.8	1,433.8	1,812.4	51.8	66.5	1,907.7	2,436.8
Textiles	0.0	0.0	0.0	0.0	5.4	6.9	5.4	6.9
Tires	2,023.4	2,587.7	2.5	3.1	16.2	20.8	2,042.1	2,608.4
Used Oil	31.1	39.8	14.7	18.6	8.0	10.3	53.8	68.7
Used Oil Filters	8.1	10.3	0.0	0.0	0.0	0.0	8.1	10.3
Used Antifreeze	330.9	423.2	0.0	0.0	3.2	4.1	334.1	426.8
Batteries	1,982.6	2,535.6	1.6	2.0	0.0	0.0	1,984.2	2,534.5
Electronics	8.1	10.3	0.0	0.0	0.0	0.0	8.1	10.3
Inoperative Motor Vehicles	3.1	3.9	0.0	0.0	0.0	0.0	3.1	3.9
Other - fat, bone, grease	41.2	52.7	0.0	0.0	0.0	0.0	41.2	52.6
Other - composed sludge	3,062.2	3,916.2	0.0	0.0	0.0	0.0	3,062.2	3,911.5
Other- Auction Waste	354.8	453.7	0.0	0.0	0.0	0.0	354.8	453.2
Solid Waste Reused	6.0	7.7	0.0	0.0	0.0	0.0	6.0	7.7
	3.2	4.1	0.0	0.0	0.0	0.0	3.2	4.1
	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	2.8	3.6	0.0	0.0	0.0	0.0	2.8	3.6
Non-MSW Recycled	43,986.6	56,253.5	0.0	0.0	0.0	0.0	15,267.8	19,501.9
MERCI	40,756.8	52,122.9	0.0	0.0	0.0	0.0	13,574.0	17,338.4
UVA Ash	3,229.8	4,130.5	0.0	0.0	0.0	0.0	1,693.8	2,163.5
Base Recycling Rate	28%		68%		38%		0%	45%
Total Waste Generated	103,501.1	132,365.1	3,576.2	4,520.4	27,046.8	34,701.8	105,405.3	134,636.4
Population	156,006	199,513	26,817	33,897	19,793	25,395	202,616	258,806
Per capita	0.66	0.66	0.13	0.13	1.37	1.37	0.52	0.5
Expected Waste	118,564.86	151,629.88	20,380.77	25,761.72	15,042.68	19,300.20	153,988.31	196,692.56

Growth will impact solid waste generation in the region. Since predominantly residential growth is expected, MSW associated with residential development, as well as commercial and institutional growth that serve residential growth is expected to grow congruently. Figure 6 shows the components of MSW as fractions of the entire waste stream. Recommendations in this plan seek to make solid waste management in the region more efficient and sustainable by exploring avenues of cost avoidance and revenue that support the diversion of materials from the MSW stream.

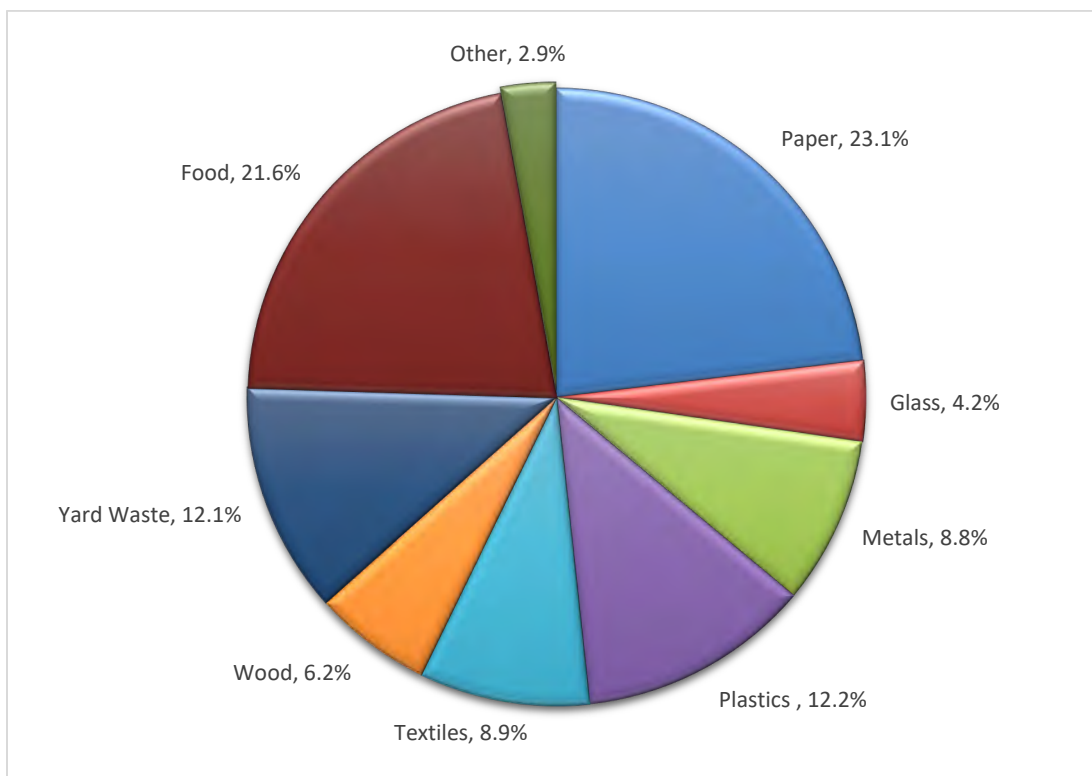


FIGURE 6. THE ESTIMATED COMPONENT PARTS OF THE NATIONAL MSW STREAM

Source: Environmental Protection Agency 2018

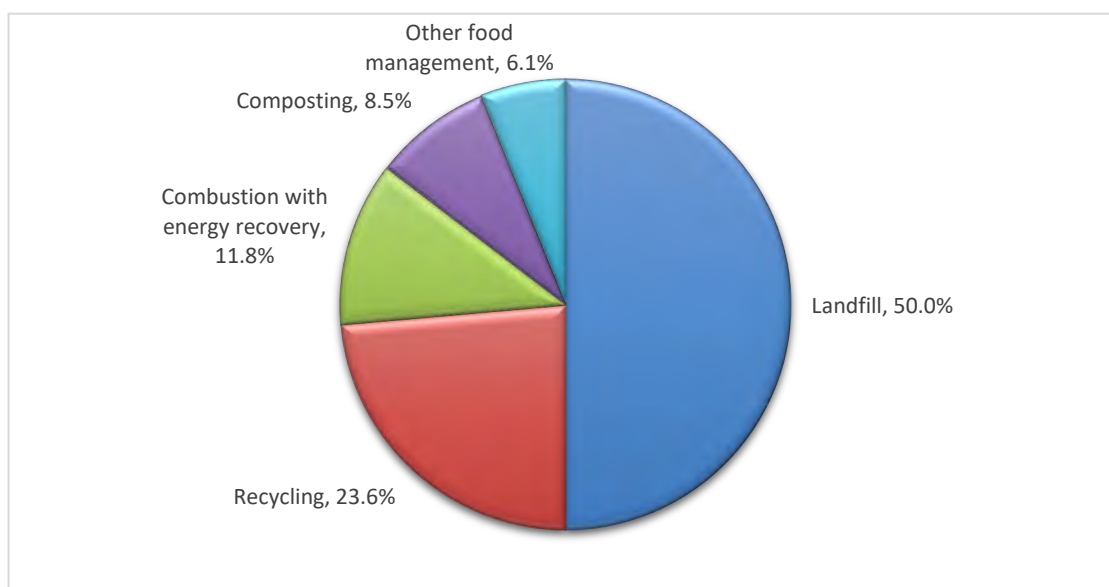


FIGURE 7. DISTRIBUTION OF MUNICIPAL SOLID WASTE DISPOSAL NATIONALLY IN 2018, BY METHOD

Source: Statista 2021

With future land development, vegetative waste from land clearing and residential landscape maintenance will increase, adding to annual vegetative waste generation. Land clearing debris may be burned on-site with a permit issued by the Department of Environmental Quality (DEQ). There are also composting and mulching operations in the region to handle this waste stream. Construction and demolition debris (CDD) will also increase as a result of land development. As previously mentioned, the Van der Linde Zion Crossroads Recycling Center recycles CDD about 90%, which reduces this waste stream very effectively.

Electronics are a major part of the information industry in the region, and a higher than normal amount of this waste is expected, particularly in the urban and university area. This unique waste stream has been difficult and expensive to divert from the landfill, and tight budget conditions have reduced the availability of publicly funded recycling options for electronics, batteries, and other special wastes. However, inexpensive and free options are now being offered by some retailers to individuals for recycling of computers, electronics, batteries, compact fluorescent lights, and cell phones. Recommendations in this plan seek to make the public aware of these options.

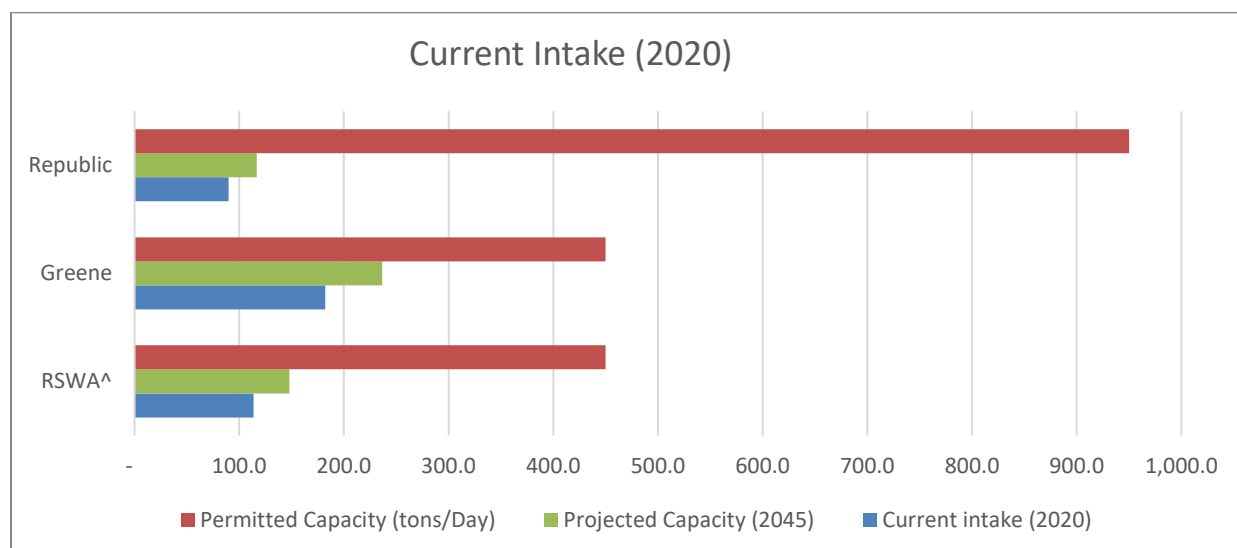
4.2 System Capacity for the 20-Year Planning Period

TABLE 10. SOLID WASTE MANAGEMENT SYSTEM CAPACITY

Facility Name	Permitted Capacity (tons/day)	Current Daily intake (2020) (tons/day)	Current Annual intake (2020)	% of Daily Permitted Capacity used (2020)	Projected Capacity (Tons per Day) (2045)*	Projected Percent Capacity used (2045)
RSWA Ivy MCU^	450	114	41,503	25%	143	32%
Greene County MRF	450	182	66,453	41%	237	53%
Republic Services Fluvanna County	950	90	32,759	9%	117	12%

Source: Weldon Cooper Center & Facility Operators

The Fluvanna County Convenience Center is not a permitted facility, and its capacity is constrained only by physical space at the facility. Fluvanna County estimates that between 3 and 4 tons of waste is handled at the convenience center daily. The Republic Services Transfer Station and the Zion Crossroads Recycling Center also receive waste from the TJSWPU. However, waste received from this planning unit constitutes only a fraction of the waste handled by these facilities. Thus, it is not possible to calculate the capacity of those facilities based on waste received from this region. Table 22 describes information available about the capacity and TJSWPU waste handled by these facilities.



NOTES

^ includes IVY and Recycling Center

*2045 rates based on the average regional population growth rate of 1%.

FIGURE 8. CURRENT PERMITTED AND PROJECTED CAPACITIES OF AREA FACILITIES

Source: Weldon Cooper Center & Facility Operators

Long-Term Disposal Capacity

The Amelia County landfill currently receives most of the region's solid waste from transfer stations. According to the EPA in 2016, the Maplewood Landfill in Amelia County has significantly increased its capacity and can be expected to operate until 2164. The landfill's annual maximum intake is approximately 7,000 tons per day per its April 2021 Solid Waste and Recycling Plan.

The Amelia County landfill has sufficient capacity over the 20-year horizon of this Plan to accommodate solid waste from the TJSWPU

4.3 Strategic Plan & 20 Year Timeline

Introduction and Guiding Principles

The following 1 goal, and 5 objectives, and strategies address the waste management hierarchy of Source Reduction and Reuse, Recycling, Resource Recovery and Incineration, and Landfilling as defined by the Virginia DEQ. The 1998 Sustainability Accords, endorsed by the Thomas Jefferson Planning District Commission and its member localities: Albemarle, Charlottesville, Fluvanna, Greene, Louisa, and Nelson, address waste management with one broad goal and five measurable objectives. They are the guiding principles for this Plan.

Goal: The wasteful use of resources and the creation of non-recyclable waste by-products are reduced and, wherever possible, eliminated.

Objective 1: Increase recycling of usable materials.

Objective 2: Minimize the use and unsafe disposal of hazardous material.

Objective 3: Promote a sense of individual responsibility for limiting waste.

Objective 4: Increase individual and cooperative efforts to reduce waste.

Objective 5: Increase the understanding and practice of the six-step approach to waste reduction: rethink, reduce, reuse, buy recyclables, recycle, and material exchange.

Sustainability Accords

Retain the natural habitat

Ensure water quality and quantity are sufficient to support people and ecosystems

Optimize the use and re-use of developed land and promote clustering

Promote appropriate scale for land uses

Retain farm and forest land

Develop attractive and economical transportation alternatives

Conserve energy

Provide educational and employment opportunities

Increase individual participation in neighborhoods and communities

Strive for a size and distribute the human population in ways that preserve vital resources

Integrated Waste Management Framework & Implementation Plan

Each of the following 6 goals and objectives support the Sustainability Accords and strengthen them with a more in depth examination of how they may be achieved. The goals, objectives, and strategies in this plan were developed by the Solid Waste Committee, which is composed of representatives from each locality. Committee membership is listed in the Appendices. This update to the 2016 Solid Waste Management Plan is consistent with contemporary solid waste issues, and the local political and economic climate. Documentation of completed strategies can be found there. The table starting on page 38 shows the goals, objectives, and strategies that the TJSWPU will implement pursuant to the solid waste management hierarchy contained in 9VAC20-130-30. A 20-year implementation timeline is also included.

4.4 Meeting 25% Recycling Rate

Participating localities and the region shall attain or exceed a minimum recycling rate of 25% of the total municipal solid waste generated annually in accordance with Virginia regulations. This rate will be met through the continuation of existing programs and the implementation of the above strategies. Keys to meeting the regional rate include:

- ❑ Providing convenient drop off locations for citizens
- ❑ Public/private partnerships
- ❑ Business, school, and industry participation
- ❑ Regional contract cooperation
- ❑ Increased waste reduction, recycling, and reuse education and outreach
- ❑ Increased recycling of electronics and other nonconventional waste
- ❑ Commercial and home composting/mulching and yard waste management
- ❑ Increased or improved monitoring of sites where recyclables are collected
- ❑ Improved data collection and tracking of waste



FIGURE 7. GLASS RECYCLING IN FLUVANNA COUNTY (LEFT) & RECYCLING EVENT HELD IN 2009 (RIGHT)

4.5 Future Treatment Options

Current treatment activities expected to continue to include composting sludge, mulching vegetative wastes, and grinding wooden pallets. Other future treatment options include volume reduction actions, such as tire splitting and trash compaction.

State regulations have cleared the way for further utilization of organic waste. Post-consumer food waste can be composted at permitted facilities, clearing the way for major reductions in the MSW stream. As Figure 6 depicts, food waste constitutes 21.6% of MSW. Black Bear Composting has been

providing food waste composting services to institutions and the public since launching their operations in 2010.

Public/private partnerships are also expected to continue increasing in the future, as solid waste management has proven to be a profitable enterprise for entrepreneurs. Localities recognize the value of services provided by retailers such as Best Buy, Whole Foods, and Goodwill Industries, who offer recycling services to the public within the planning unit.

Albemarle County has established a Solid Waste Alternatives Advisory Committee whose focus is reviewing solid waste policies in Albemarle and making recommendations to the Board of Supervisors on solid waste activities and policy. This committee will be looking into ways that Albemarle can expand recycling options for residents and businesses.

4.6 Public Outreach Programs

Outreach programs in most localities generally include descriptions of waste management services available to residents on the website, in annual county services brochures, postings at the courthouse and county office buildings, and in ads and articles for special events (waste amnesty days, Christmas tree collection, etc.) in local newspapers. In the Charlottesville-Albemarle area, outreach also includes locality specific websites, public forums, flyers at the recycling centers and inserts in utility bills. The Piedmont Master Gardeners' Charlottesville chapter offers classes and written information regularly on food composting. General public service announcements on radio and television also help educate the public. Adopt-a-Street programs and highway signs promote litter control. The TJPDC also maintains a recycling resources of the solid waste planning unit, and displays solid waste reduction/reuse/recycling information and resources at fairs and other public events. The TJPDC also posts recycling and disposal related information on its Facebook page and in its monthly electronic newsletter.

Public participation in solid waste management and planning occurs at advertised meetings of public bodies that discuss and act on the issues. RSWA has a Citizens Advisory Committee, which meets regularly to discuss budgetary, operational, and environmental issues, and makes recommendations to the Board of Directors. Albemarle County has formed a solid waste committee to look at long-term disposal needs and options in the County. Charlottesville has the Charlottesville a Green City program which focuses on sustainability issues including solid waste. "Keep the County Clean" programs in Fluvanna and Greene promote recycling and waste reduction as well as periodic clean-up days. The TJSWPU is in the process of creating an advisory committee to maintain and implement the Solid Waste Management Plan. Citizen members of this committee provide vital input and feedback in development and implementation of the Plan.

4.7 Funding Arrangements & Options

EXISTING FUNDING ARRANGEMENTS

Each locality determines the ratio of general revenue funds and tipping fees used to fund solid waste management activities. Each locality has tipping fees for disposal at transfer stations or convenience centers. General revenue funds are often used to cover costs of additional facilities, including reuse facilities, and recycling centers. A portion of the cost of recycling is covered by revenue from sales of recyclable materials. Individual localities are also responsible for long-term liabilities, landfill closure, and post-closure costs, which must be built into locality budgets.

Transfer stations in the region operate with a tipping fee that covers much of the cost of collecting, transporting, disposing of wastes, and making up the cost of recycling programs at times when recycling

revenue fails to cover the cost of administration. General fund tax revenue is often used to cover costs above those that are covered by tipping fee revenue. In the City of Charlottesville, trash stickers must be purchased to participate in curbside pickup. RSWA sells trash stickers that citizens must use for self-delivery of MSW to the Ivy MUC. The income from trash stickers is used to help pay for operations and administration.

Recyclables are generally collected for free, and the locality may or may not break even on collection and distribution after receiving market value for the materials. Some materials are dealt with at little or no cost to the community, while the markets are less favorable for others. However, market fluctuation is common for all recyclable material. This is also true of re-use items. The Encore Shop at the Ivy MUC sells items for reuse at a low cost to help recover the time and resources needed to store and sell them.

Grants are another source of funding, and are often used for special waste events such as household hazardous waste and bulky waste amnesty days. State funds assist in tire cleanup and recycling.

FUTURE FACILITY DEVELOPMENT

Currently, transfer stations operate within permitted capacity, and none are under significant pressure of reaching capacity by 2045. The region has increasingly relied on private sector facilities to receive MSW and recyclables from private haulers, citizens, and locality contractors. As demand for recycled materials increases, private sector operations are expected to increase, further reducing expansion pressure on public facilities. If new facilities are needed, it is expected that localities will continue to use a mix of tipping fees and general funds to support them. Until the time that future recycling markets yield sufficient revenue to fully support recycling operations, local funds will subsidize these programs.

4.8 Solid Waste Systems Evaluation

PROGRAMS

Localities with permitted solid waste facilities and joint locality authorities prepare Solid Waste Information and Assessment reports and submit copies to the Department of Environmental Quality (DEQ) and TJPDC by March 31 of each year. Localities will also submit recycling rate reports to the PDC prior to the April 30 deadline for submission of a regional recycling rate report to DEQ, which the PDC will prepare and submit. The regional recycling rate is the figure used for the solid waste planning unit (all localities in the designated planning region), and is binding for the purposes of the recycling rate mandate and solid waste plans. As provided in §10.1-1411 of the Code of Virginia as amended in 2006, the mandatory recycling rate for the region is 25%. Should the mandatory recycling rate not be met, the PDC will prepare a Recycling Action Plan for the region.

The PDC is in the process of creating a committee of local designees, which meets quarterly, to review solid waste data collected to include in the above referenced reports, and compare it to growth trends, plan goals, and other relevant issues to monitor compliance with this plan and applicable codes, policies, and regulations. Committee members will report progress back to their elected officials annually.

COLLECTION

Two solid waste collection systems are available in the region: curbside collection by private haulers, and collection at the transfer stations and convenience centers from individuals who drop it off. Procedures for evaluating transfer stations include tracking the weight of material processed over time at each station in order to gauge usage by residents and to plan for additional permitted capacity, as needed. The data used for these evaluations is collected to draft annual Solid Waste Information and Assessment reports, and is therefore available to be reviewed annually.

The City of Charlottesville's curbside collection is provided by contract with the City and thus is available to all residents. Collection operations are evaluated over the course of the contract term, and new contracts reflect changes made as a result of the analysis. In evaluating efficiency, the County of Albemarle has concluded that a joint contract with the City may be desirable in urban areas of the County. Residents in the City and counties are free to use the private hauler of their choosing, or deliver their own solid waste to transfer stations individually.

5 Summary & Conclusion

The TJSWPU is committed to serving the citizens of the planning region with fiscally sound solid waste management systems that ensures sanitary conditions in our communities, proper disposal of waste, and seeks to further reduce the region's solid waste footprint on the environment. In this pursuit, the region will implement the strategies in this plan to build upon the consistent success in exceeding the mandated 25% recycling rate, and to support the goals of the Sustainability Accords. Implementation will continue to focus on regional cooperation, cost efficiency, and targeting easily recyclable or particularly environmentally damaging wastes. Another cornerstone strategy of the plan is to provide outreach, education, and resources to citizens and businesses to promote greater utilization of waste reduction, reuse, and recycling services available in the region. The Solid Waste Committee will continue to track progress on plan implementation and ensure that solid waste needs of the region are met.

Glossary

Agricultural Waste: solid waste produced from farming operations, or related commercial preparation of farm products for marketing.

Commingled: refers to the collection of recyclable materials in a manner so that the producer does not have to separate the materials by type; this is done after collection.

Commercial Waste: solid waste generated by establishments engaged in business operations other than manufacturing or construction. This category includes, but is not limited to, stores, markets, offices buildings, restaurants, and shopping centers.

Compost: a stabilized organic product produced by the controlled aerobic decomposition of organic material so that the product can be handled, stored and applied to the land. Compost can be utilized in a number of different applications, allowing for the beneficial reuse of organic wastes.

Construction and Demolition Debris (CDD): solid waste produced during construction, remodeling, repair or destruction of pavements, houses, commercial buildings, and other structures. CDD includes, but is not limited to, lumber, wire, sheetrock, broken brick, shingles, glass, pipes, concrete, paving materials, and metals and plastics if they are part of the construction material or empty containers for such materials. Paints, coatings, solvents, asbestos-containing material, any liquid, compressed gases, or semisolids and garbage are not CDD.

Debris Waste: waste resulting from land clearing operations, including, but not limited to, stumps, wood, brush, leaves, soils and road spoils.

Domestic (or Household/Residential) Waste: any waste material, including garbage, trash and refuse from households, such as single and multiple residences, hotels, and motels.

Disposal: discharge, deposit, injection, dumping, spilling, leaking, or placing of any solid waste or hazardous waste into or on any land or water so that such solid waste or any constituent of it may enter the environment or be emitted into the air or discharged into any waters.

Hazardous Waste: is defined by the Virginia Hazardous Waste Management Regulation, 9VAC20-60-12 et seq.

Incineration: controlled combustion of solid waste for disposal.

Industrial Waste: any solid waste generated by manufacturing or industrial processes that is not a regulated hazardous waste, including waste from the following manufacturing processes: electric power generation; fertilizer/agriculture chemicals; food and related by-products; inorganic chemicals' iron and steel manufacturing; nonferrous metals/foundries; organic chemicals; plastics and resins; pulp and paper manufacturing; rubber; stone, glass, clay and concrete products; textile manufacturing; transportation equipment; and water treatment. Industrial waste does not include mining waste or oil or gas waste.

Inert Waste: solid waste that is physically, chemically, and biologically stable, including dirt, concrete, and rock, which are not regulated. Metal, construction debris, stumps, logs, and scrap lumber are regulated as of 1994 and must be disposed in a single-lined cell.

Integrated Solid Waste Management: the practice of managing solid waste using several complementary components, including source reduction, reuse, recycling, resource recovery, and incineration.

Landfill: an area of land where solid waste is buried.

Leachate: the liquid resulting from precipitation percolating through landfills and containing soluble or suspended degradation products of waste.

Litter: all non-biodegradable material discarded illegally on public or private land.

Materials Recovery Facility (MRF): a solid waste facility for the collection, processing and recovery of material such as metals from solid waste or for the production of fuel from solid waste.

Monitoring Well: a well point below the ground surface at a landfill site used for obtaining periodic water samples from groundwater for analysis.

Mulch: woody waste consisting of stumps, trees, limbs, branches, bark, leaves and other clean wood waste that has undergone size reduction by grinding, shredding, or chipping.

Municipal Solid Waste (MSW): waste that is normally composed of residential, commercial and institutional solid waste and residues derived from the combustion of these wastes.

Non-Regulated Landfill: a landfill accepting certain inert materials not regulated by the state, including rubble, concrete, broken bricks, and bricks and blocks.

Principal Recycled Material (PRM): paper, metal (except automobile bodies), plastic, glass, yard waste, wood, and textiles. This does not include large diameter tree stumps.

Recycling: the process of separating a given waste material from the waste stream and processing it so that it may be used again as a raw material for a product, which may or may not be similar to the original product. Recycling does not include processes that only involve size reduction.

Resource Recovery: the creation of usable energy from solid waste through the burning of solid waste to produce steam or electricity or other fuels.

Re-use: the practice of repeating use of a material rather than disposing of or recycling it.

Sanitary Landfill: an engineered land burial facility for the disposal of solid waste which is so located, designed, constructed and operated to contain and isolate the solid waste so that it does not pose a substantial present or potential hazard to human health or the environment.

Septage/Sludge: Any solid, semisolid, or liquid waste with similar characteristics and effects generated from a municipal, commercial, or industrial wastewater treatment plant, water supply treatment plant, air pollution control facility, or any other waste producing facility.

Solid Waste: any garbage, refuse, sludge, or other discarded material, including solid, liquid, semisolid, or contained gaseous material, resulting from industrial, commercial, mining and agricultural operations, and from community activities, but not including (i) solid or dissolved material in domestic sewage, (ii) solid or dissolved material in irrigation return flows or in industrial discharges which are sources subject to permit from the State Water Control Board, or (iii) source, special nuclear, or byproduct material as defined by the Federal Atomic Energy Act of 1954, as amended.

Solid Waste Management: Systematic administration of activities which provide for the collection, source reduction, storage, transportation, transfer, processing, treatment, and disposal of solid waste or resource recovery.

Source Reduction: reducing the amount of waste generated by an activity at the point of creation. This may occur through the design, manufacture, and sale of products and packaging with minimal volume and toxicity and longer lifetimes.

Source Separation: the segregation of various materials from the waste stream at the point of generation for recycling. For example, household glass and newsprint collection apart from trash.

Supplemental Recyclable Material (SRM): waste tires, used oil, used oil filters, used antifreeze, automobile bodies, construction waste, demolition waste, debris waste, batteries, ash, sludge or large diameter tree stumps.

Tipping Fee: a fee levied in the disposal of solid waste, generally at a landfill. The fee is usually on a per-ton basis, but can be on other units of measure, such as per-truck.

Transfer Station: any solid waste storage or collection facility at which solid waste is transferred from collection vehicles to haulage vehicles for transportation to a central solid waste management facility for disposal, incineration, or resource recovery.

Treatment: Process designed to change the physical, chemical, or biological nature or composition of any waste to render it more stable, safer for transport, or more amenable to use, reuse, reclamation, or recovery.

Vegetative Waste: decomposable materials generated by yard and lawn care or land-clearing activities and including, but not limited to, leaves, grass trimmings, and woody wastes such shrub and tree prunings, bark, limbs, roots, and stumps.

White Goods: stoves, refrigerators, water heaters, and other large appliances.

Yard Waste: decomposable waste materials generated by yard and lawn care and including leaves, grass trimmings, brush, wood chips, and shrub and tree trimmings. Yard waste shall not include roots or stumps that exceed six inches in diameter.

Terms not defined above have the meanings assigned to them by RCRA, EPA and/or DEQ.

Locality Recycling Rate Calculations

Example: 2015 Recycling Rate Report Calculation

Each year, the regional recycling rate is calculated using regional totals for Primary Recyclable Materials (PRMs), Municipal Solid Waste (MSW) Disposed, and credits from the categories described in Step 2, below. A 2% credit is given for source reduction programs (SRP), of which the TJSWPU has several. Credit may account for a maximum of 5 percentage points above the region's base recycling rate.

Step 1: $[(PRMs) / (PRMs + MSW Disposed)] \times 100 = \text{Base Recycling Rate } \%$

86,984	86,984	159,766	35%
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Step 2: CREDITS calculation:

- a. Total Recycling Residue 0 tons
- b. Total Solid Waste Reused 31 tons
- c. Total Non-MSW Recycled 71,429 tons

CREDITS 71,460 tons

Adjusted

Step 3: $[(PRMs + CREDITS) / (PRMs + CREDITS + MSW Disposed)] \times 100 = \text{Recycling Rate } \#1^*$

86,984	+	71,460	/	86,984	+	71,460	+	159,776	=	50%
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Step 4: ☒ Source Reduction Program (SRP) Credit does not apply; or

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

	+2%	=		%
--	-----	---	--	---

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

%

*** 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.**

2021 20-Year Goals and Strategies

Planning	Responsible Parties
Planning Goal 1: Maintain an efficient and effective solid waste management system.	
Objective 1: Coordinate and facilitate efficient coordinated and fiscally sound solid waste management contracts across localities.	
Use Request for Proposals (RFPs) when soliciting contracts when feasible instead of Invitations to Bid.	Localities
Include cooperative procurement language in contracts that would allow the other members of the SWPU to use the contract services under the same cost, terms, and conditions.	Localities
Encourage public-private partnerships for waste management when cost efficiencies can be achieved.	Localities
Maintain a regional centralized archive at the TJPDC for reporting to DEQ and cataloging all locality waste management contracts.	TJPDC
Objective 2: Promote planning district collaboration with localities in preparing for future system capacity needs.	
Review waste streams, markets, programs, and system capacity regularly.	TJPDC
Objective 3: Realize economies of scale through regional collection, disposal, and recycling opportunities.	
Identify and reduce barriers to regional coordination of contracts.	Localities
Coordinate contracts for special waste collection.	Localities
Jointly sponsor convenience centers for communities straddling jurisdictional lines or adjacent communities in separate jurisdictions.	Transfer Stations, Localities
Planning Goal 2: Source Reduction and Reuse Goal: To reduce the quantity of waste generated through source reduction, reuse, and other waste reduction techniques.	
Objective 1: Support the localities in expanding reuse infrastructure and culture in the region.	
Expand the reuse of building materials.	Transfer Stations, Localities
Promote online tools, such as Freecycle, Teracycle, and Craigslist that facilitates the reuse of materials before they enter the solid waste stream.	TJPDC
Educate the public on the importance of and services available source reduction, reuse, and recycling through various media: website, brochures, fair display, social media, etc.	TJPDC
Promote home composting through workshops when feasible and educational materials.	Piedmont Master Gardeners-Charlottesville

Planning	Responsible Parties
Support and expand organic waste collection.	Piedmont Master Gardeners- Charlottesville
Establish Environmental Management Systems or source reduction initiatives in localities where they do not currently exist.	Localities
Objective 2: Explore opportunities with the localities and their economic development departments on how reuse may contribute to the local economy.	
Assess opportunities to facilitate industrial symbiosis between existing public and private facilities or through recruitment of industries that can use waste generated in the region as raw material for production.	Localities
Recycling Goal 1: Continually improve recycling rate to meet the state-mandated rate and maintain a regional rate that is competitive with the national rate.	
Objective 1: Achieve a minimum 25% recycling rate in each participating locality while aiming for a minimum of 45% as a region.	
Maintain a map of all recycling facilities in the region. Identify services offered by each; make them available to the public.	TJPDC
Ensure local government comprehensive plans and ordinances consider issues related to siting of recycling facilities.	Localities
Promote electronics recycling opportunities available to the community.	Localities
Develop recycling programs in those schools where they do not currently exist	Locality Schoolboards
Objective 2: Assist haulers in providing annual recycling rates.	
Create a uniform reporting mechanism for haulers to use in reporting rates to localities.	TJPDC
Send out recycling-rate reporting mechanism once a quarter.	TJPDC
Objective 3: Divert increased yard waste and food scraps from the landfill.	
Continue to support and promote annual Christmas Tree leaf collection programs.	Localities
Support a commercial scale composter to serve the region.	Localities
Recycling Goal 2: Stimulate demand for a circular economy.	
Objective 1: Use local government purchasing power to increase demand for products manufactured with post-consumer recycled materials.	
Abide by environmentally preferable purchasing (EPP) guidelines whenever possible	Localities
Expand EPP guidance	Localities

Planning	Responsible Parties
Adopt EPP policies	Localities
Objective 2: Encourage the collection of clean recyclable commodities.	
Promote source-separation as a preferred method of recycling.	Local Convenience Centers
Create educational campaigns and materials for the public.	TJPDC, Localities
Promote and coordinate on regional marketing streams.	Private Sector
Objective 3: Promote the use of recycled material.	
Reuse construction demolition debris (CDD) for projects.	Localities
Use PSAs to inform the public (celebrate the local opportunities within the circular economy).	TJPDC
Resource Recovery and Waste Goal 1: Provide environmentally sound solid waste collection facilities that are convenient to the region's residents.	
Objective 1: Maximize the efficiency of, and anticipate the future need for, additional or expanded collection facilities.	
Use the recommended regular solid waste systems review to inform the creation of new transfer station capacity or other solid waste management facilities/programs.	Localities
Reduce demands on disposal and recycling infrastructure by promoting conscious consumerism.	TJPDC, Localities, NGOs
Objective 2: Plan carefully for convenience centers and minimize the need for future landfills.	
Engage many stakeholders in the planning and location of convenience centers.	Local Convenience Centers
Minimize the amount of waste generated by implementing the waste management hierarchy.	Localities
Resource and Recovery Waste Goal 2: Comply with Federal and State regulations Goal.	
Objective 1: Maintain compliance with state and federal regulations on closed landfills.	
Exceed or maintain compliance with Federal and State while improving upon spaces.	Localities