

## CHAPTER FOUR: ASSESSMENT OF SOLID WASTE MANAGEMENT NEEDS

The County balances a variety of demands to address its solid waste management needs. This chapter identifies County solid waste management needs and outlines a plan to address them. This chapter also provides an assessment of the solid waste facilities' constraints and describes existing programs to reduce disposal and increase diversion and recycling. Recycling rates cited in this chapter have been rounded up or down to the next whole number. This chapter is organized into the following subsections:

- 4.1 Municipal Solid Waste: Management Needs
- 4.2 Special Waste Streams: Management Needs
- 4.3 Assessments and Constraints on Current Acceptance Facilities
- 4.4 Constraints on New Solid Waste Acceptance Facilities

### 4.1 Municipal Solid Waste: Management Needs

As presented in Chapter 3, approximately 1,103,000 tons of MSW were generated in the County during CY 2017 (see Appendix B); this amount is expected to increase by approximately 1.25 percent by 2030. Ideally, with the enhancements to the current diversion and recycling programs stated in Chapter 5, the amounts of tons disposed will be minimized.

Education, technical assistance, and training programs are an essential component of the County's integrated solid waste management system. The County has dedicated considerable resources to solid waste education and outreach programs. Montgomery County residents and businesses receive information about their role in reducing waste, reusing items, recycling, and using their purchasing power to support demand for recycled materials and products to preserve valuable natural resources.

#### 4.1.1 Public Outreach and Consumer Education

**Current Conditions and Constraints:** Montgomery County has conducted public information and outreach activities for many solid waste programs. The County has developed an ongoing educational program to inform residents and businesses about waste reduction, reuse, recycling, and other solid waste management initiatives. These efforts include the following:

- Single-family curbside recycling;

- Multi-family waste reduction and recycling (by apartment, condominium, and co-op properties);
- Non-residential waste reduction and recycling (by businesses, organizations, both for-profit and non-profit, as well as government facilities);
- Reduction of Yard trim (composting and grasscycling);
- Food scraps recycling;
- Waste reduction;
- Reuse, including donation programs;
- Procurement of recycled and recyclable products; and
- HHW reduction and proper disposal.

Education, technical assistance, and training activities utilize various information dissemination techniques designed to deliver the message in the most educationally effective, cost-effective, and appropriate manner. Efforts include:

- Tours of solid waste facilities including, the Transfer Station, MRF, Yard Trim Composting Facility, and RRF;
- Brochures, flyers, and fact sheets specific to various programs (including commercial recycling, multi-family recycling, curbside recycling, grasscycling, composting, special materials drop-offs, and HHW);
- Comprehensive guide about waste reduction, reuse, recycling, and solid waste services distributed to single-family residents;
- Development and distribution of specialized handbooks and resource guides (including the Business Recycling Handbook, the Multi-Family Property Managers' Recycling Handbook, and the Handbook for Businesses Generating Small Quantities of Hazardous Waste);
- Video presentations regarding County laws governing recycling and solid waste, business recycling, single-family residential recycling, recycling in schools, multi-family recycling, waste reduction, buying recycled products and backyard composting and grasscycling;
- Cable television programs featuring current topics in solid waste management;
- Targeted direct mailings;
- Multi-media educational campaigns to increase recycling awareness;
- Presentations to civic groups, schools, chambers of commerce, business associations, condominium board meetings, tenant/resident association meetings, and at special events;
- Outreach through the DEP website and social media;
- Training of recycling volunteers to provide peer recycling outreach to citizen groups and increase the educational reach of staff;
- Educational materials and offerings in multiple languages, and utilizing graphics and illustrations to the maximum extent possible;

- Seminars and workshops on varied topics (including business and multi-family recycling and regulations and backyard/on-site composting techniques); and
- Incentives, including backyard compost bins at no additional charge, to promote grasscycling and backyard composting.

**Recycling Volunteer Program:** This program is intended to increase resident knowledge of and participation in County waste reduction, reuse, recycling, composting, grasscycling, and HHW programs through the effective use of community volunteers.

The County educates and trains members of the community to perform several functions, including: (1) giving speeches and making presentations to civic associations, service clubs, and other organizations requesting information regarding the County’s solid waste programs; (2) providing neighborhood-based waste reduction, reuse, recycling, grasscycling and backyard composting, and buying recycled products information to peers; and (3) staffing recycling booths and exhibits at special events, such as the Montgomery County Agricultural Fair.

Recycling volunteers augment County resources through grassroots efforts to increase participation in the County’s waste reduction, reuse, and recycling programs. The dedicated corps of recycling volunteers have contributed tens of thousands of hours of service and directly reached hundreds of thousands of people from its inception. The hours served by volunteers from 2008 are listed below.

Calendar Year	Hours Served by Volunteers
2008	1514
2009	1217
2010	1960
2011	1719
2012	1844
2013	1436
2014	1425
2015	1216
2016	1179
2017	1602
2018	1680

**SORRT:** The SORRT Program (Smart Organizations Reduce and Recycle Tons) serves as an information network promoting and supporting business waste reduction and recycling. Through SORRT, the County provides businesses, non-profit organizations, government agencies, and private institutions with technical support, education materials, seminars and workshops, training, and other guidance to advance waste reduction, reuse, recycling, and procurement of recycled content materials and products in the non-residential sector. SORRT provides this direct assistance to the owners, managers, employees, and customers/patrons of businesses and organizations. The SORRT Program reaches thousands of County businesses and organizations annually.

**TRRAC:** The TRRAC Program (Think Reduce and Recycle at Apartments and Condominiums) serves as an information network promoting and supporting waste reduction, reuse, and recycling at multi-family (apartment and condominium) properties. Through TRRAC, the County provides building owners, managers, on-site staff, and residents with technical support, education materials, seminars and workshops, training, and other guidance to advance waste reduction, reuse, recycling, and procurement of recycled content materials and products in multi-family residential buildings.

**Waste Reduction and Recycling Education in Public Schools:** DEP provides waste reduction, reuse, and recycling outreach and education upon request by schools, parent-teacher associations, sponsored clubs, or teachers. Also, DEP will support individual teachers who request assistance in developing, reviewing, updating, or using instructional materials on waste reduction and recycling. As mentioned in Chapter 1, all public agencies, including the public school system, must comply with all waste reduction and recycling requirements governing County businesses.

The Department evaluates the effectiveness of its education, technical assistance, training, and outreach strategies. It focuses its efforts on initiatives quantifiably demonstrated to have a measurable positive effect on recycling performance. The Department's annual submission for the County Executive's annual operating budget includes a summary of findings of participation studies, focus groups, surveys, and other research used to evaluate the effectiveness of the techniques used. The summary describes how these findings justify the specific outreach, education, training, and technical assistance proposed for funding in the upcoming fiscal year.

**Needs Assessment and Plan Direction:** As indicated in section 4.1.5, the County recycled over 56 percent of its MSW stream in CY 2017. This rate has been achieved by creating recycling programs and by encouraging residents and employees to participate. The County recognizes that ongoing outreach and education, technical assistance, and training efforts are critical elements in maintaining and expanding waste reduction, reuse, and recycling achievements.



#### **4.1.2 Recycled Goods Procurement**

**Current Conditions and Constraints:** Section 11B-56 of the Montgomery County Code includes the County goal that recycled paper and paper products should constitute at least 50 percent of the total dollar value of paper and paper products purchased by or for the County government. The same section of the County Code also mandates that County agencies either require the use of goods containing recycled materials or use of a percentage price preference (up to 10 percent) for recycled materials when purchasing goods. The Office of Procurement reviews all purchasing agreements to ensure compliance with the requirements of the County Code. DEP distributes information on the availability of products containing recycled materials to County businesses, organizations and government facilities, and municipalities to encourage them to purchase and use these materials.

**Needs Assessment and Plan Direction:** The Office of Procurement and DEP will take all practicable efforts to promote maximum use of recycled materials by County agencies.

#### **4.1.3 Waste Reduction**

Waste reduction is the preferred method in the County's solid waste management hierarchy. Reducing waste generation decreases the volume of material entering the system. The County's waste reduction plan includes the following elements:

##### **Per Capita and Per Employee Waste Generation**

DEP projects future waste generation based on M-NCPPC projections of future population and employment growth and the Department's best professional assessment of per capita and per employee waste generation trends.

The County must regularly and systematically monitor waste generation trends per capita and per employee to refine its waste generation projections. Ongoing monitoring and periodic revision of the waste generation rates will assist the County in evaluating solid waste programs and implementing program changes as needed. Based on the multi-year trend data analysis, the County will adjust its baseline per capita and per employee waste generation rate.

## **Waste Reduction Information and Programs**

The County promotes waste reduction through outreach, education, technical assistance, and training using various media. The central elements of this effort are the SORRT Program and the TRRAC Program and public outreach and education to residents of single-family homes and townhomes.

The County will continue to promote waste reduction through outreach, education, technical assistance, and training for single-family and multi-family residents, multi-family property owners and managers, business and organization owners and employees, and government facilities and managers.

## **Waste Reduction Opportunities in County Government**

The County adopted an Environmental Policy on July 29, 2003, promoting recycling, waste minimization, energy conservation, and environmentally responsible business practices for all its departments and agencies. In September 2009, the County Executive launched a paper and printing reduction initiative to reduce the government's impact on the environment and save tax dollars. In April 2010, the County Executive introduced a new "green policy" requiring departments and offices to post all newsletters and annual reports on the County's website unless printing was required due to legal requirements or under special circumstances approved by the Chief Administrative Officer.

In June 2011, the County Executive formalized the "green policy" by issuing Administrative Procedure 5-23, which directs County departments and offices to decrease their environmental impact by evaluating operational needs, initiating waste reduction efforts such as reducing paper use through two-sided printing, increasing use of email, and limited printing of meeting materials and handouts.

DEP advocates "Just in Time" ordering supplies, a "First-in First-out" use policy, and establishing inventory control procedures. Date-stamping of incoming materials, routing printed materials, posting employee notices, and using durable, reusable items such as cleaning cloths, ceramic mugs, durable water bottles, etc.

County Departments can be a model for the community by implementing Reduce, Reuse, and Recycle policies to perform their missions while producing less waste. The County will continue to look for waste reduction opportunities in County offices, schools, service centers, and public facilities.

## **Regional Waste Reduction Efforts**

The County participates in regional efforts to promote waste reduction, including the Metropolitan Washington Council of Governments (MWCOG), MDE, the Maryland Recyclers' Network, and other regional entities. The MDE County Solid Waste and Recycling Managers groups encourage the coordination of waste reduction efforts across the State. The County monitors and supports appropriate State and national legislative initiatives on waste reduction.

Large-scale waste reduction involves consumer and commercial behavior modifications beyond the County's boundaries and sphere of influence. A regional approach toward waste reduction will permit the leveraging of resources and increased effectiveness.

## **Waste Reduction Incentives**

The County provides education and technical assistance to all types of waste generators, emphasizing the economic and environmental benefits of waste reduction and increased recycling to lower waste disposal costs, preserve natural resources, and make our land, air, and water cleaner.

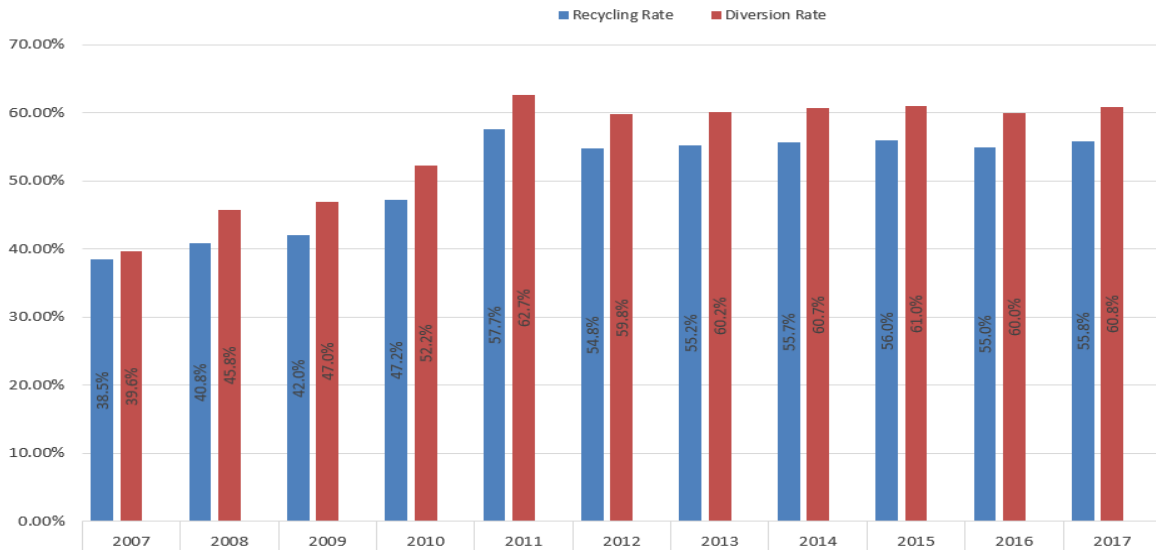
Refuse Tipping Fee avoidance provides an economic incentive for waste generators who pay a contractor for waste removal and disposal. Also, the *System Benefit Charge* financing method described in Chapter 5 provides financial incentives for the non-residential sector to reduce waste generation. Property owners who can document a lower than average waste generation rate for their land use type can be assessed a reduced base System Benefit Charge. Independent of the benefits of simply shifting waste from disposal to recycling, the County's Cooperative Collection Methods (See Section 4.1.8) should continue to emphasize these fiscal incentives for waste reduction.

### **4.1.4 Recycling Achievement, Opportunity, and Direction**

Figure 4.1 shows the County has achieved nearly continuous improvement in increasing waste diversion and recycling. As shown in Tables 3.1 and 4.1, Approximately 616,000 tons of MRA Materials were recycled in Calendar Year 2017. In recent years, an economic downturn resulted in less recyclable packaging associated with consumer purchasing, continued reductions in the mass of recyclables, and declining print media subscriptions, which created challenges for the County to continue to increase its recycling rate.

Many materials can be removed from the waste stream, but without markets, these materials are not recyclable. When markets can be developed for potentially recycled materials currently being disposed of, the County's recycling rate could increase dramatically.

**Figure 4.1 Annual Recycling/Diversion Rates in Montgomery County**



#### 4.1.5 Calculation of MSW Recycling Rate and Waste Diversion Rate

The MRA, Section 9-1705 of the Environment Article, Annotated Code of Maryland, requires each County to document their recycling rates. To assist the County in calculating its recycling rate, MDE developed the “Tonnage System Reporting Guidelines for CY 2017”<sup>1</sup>. The State may award an additional source reduction credit of up to 5% for specific source reduction activities to yield a higher combined recycling and diversion rate. Under the MRA, not all materials may count toward the County’s official recycling rate. For example, C & D materials are not considered MRA materials and do not count toward the official County recycling rate.

Montgomery County adopted the State’s accounting method for Recycling and Diversion Rate through Executive Regulation 7-12. Montgomery County’s 70 percent recycling goal includes the State’s 5 percent diversion credit. The County expects that the State will continue to award its full 5 percent Diversion Rate credit due to the County’s ongoing waste reduction efforts.

<sup>1</sup> [Maryland Recycling Act \(MRA\) Tonnage Reporting Survey Guidelines for CY 2017](#)

The tonnage projections provided in Table 4.1 envision the County reaching approximately 63 percent recycling rate in CY 2030. Since Montgomery County budgets on a fiscal year basis, fiscal year tonnage projections will vary from the calendar year data. Montgomery County’s system benefit charge rates for solid waste services are structured to cover the County’s cost to provide the various types of solid waste services.

**Table 4.1 Municipal Solid Waste Recycling and Diversion Rate CY2017 – CY2030**

	2017 (Actual)	2020	2023	2027	2030
<b>Total MSW Generated</b>	1,103,051	1,137,893	1,170,492	1,215,730	1,250,988
<b>Total Recycled</b>	616,732	668,653	714,900	760,602	787,346
MRA Materials Recycled	453,613	500,438	541,926	581,060	602,716
Ash Included Above	163,119	168,215	172,973	179,542	184,630
<b>Recycling Rate</b>	55.9%	58.8%	61.1%	62.6%	62.9%
<b>Diversion Rate</b>	60.9%	63.8%	66.1%	67.6%	67.9%

As a matter of prudent fiscal policy and process, the County’s tonnage projections published in any year may only include programs and initiatives proposed for the subject budget year. The County budget and planning process is on a fiscal year basis. The tonnage projections in this Plan are on a calendar year basis and may vary from those used in the County’s annual operating budget and fiscal planning. The County Executive approves a Six-Year Recommended Operating Budget and Fiscal Plan on March 15 of each year. The annual Fiscal Plan must be based on current recycling initiatives. It may not include any future-year recycling initiatives because they may require future year Council approval. Based on the current budget cycle, the tonnage projections in this Plan may vary slightly from the County’s FY17-30 Fiscal Plan.

The County maintains an ongoing recycling planning and implementation process. The County regularly publishes a “Recycling Plan Update.” The Update details how the County’s recycling goals are being pursued and reports on currently approved program achievements. The update may also include additional future programs and initiatives needed to meet its waste diversion and recycling goals. The Recycling Plan Update can be obtained by contacting DEP.

In FY 2017, the County conducted a study to determine the composition of the MSW received at the County’s Transfer Station. Statistical sampling was applied to the known tonnage of MSW received to estimate the composition of the MSW by material type. DEP applied the waste composition study data to develop an individualized recycling rate, or “Capture Rate,” for a specific type or group of material types. Table 4.2 was developed by applying the waste

composition data to the County's known disposal tonnages. It shows specific opportunities to increase recycling by material type in terms of tonnage potential and "capture rate." Table 4.2 shows food scraps (food waste) as a potential high-volume recycling opportunity with approximately 124,000 tons combined from the residential and non-residential sectors.

Table 4.2 provides numerous examples of current County program successes and opportunities for additional waste diversion and recycling.

- Glass Bottles and Jars from the Single-Family Sector
  - Seventy-eight percent, or 17,283 tons, were captured for recycling.
  - A 78 percent capture rate is remarkable, considering it was achieved solely through the independent behavior of Montgomery County residents.
- Non-Residential Paper
  - Sixty-two percent was captured in CY 2017.
  - Thirty-eight percent or 44,979 tons of recyclable paper were disposed.
  - This shows a large opportunity to increase recycling for materials the County has banned from disposal.
- Recyclables Banned from Disposal
  - Single-family capture rate of 77 percent (185,383 tons).
  - Twenty-three percent (55,023 tons) is included with refuse for disposal.
  - To increase the capture rate of these materials in the single-family sector, continuing outreach, education, and enforcement are needed.

**Table 4.2 Waste Recycling by Material Type: Achievement and Opportunity**

Basis: CY17 actual recycled tonnages plus composition of the disposed waste from FY17 "Tip&Sort" applied to CY17 disposed waste tonnages.		CY17 Actuals											Opportunity			Currently Disposed (Tons)	
		Single-Family			Multi-Family			Non-Residential			Aggregate Actual CY17			Disposed by Sector (tons)			
		Generated (tons)	Captured (tons)	Capture Rate %	Generated (tons)	Captured (tons)	Capture Rate %	Generated (tons)	Captured (tons)	Capture Rate %	Generated (tons)	Captured (tons)	Capture Rate %	Single-Family	Multi-Family		Non-Residential
Banned ER1-15	Subtotal, Banned Components	240,405	185,383	77.1%	32,065	7,640	23.8%	314,586	227,065	72.2%	587,056	420,088	71.6%	55,023	24,425	87,521	166,968
	Paper	81,690	52,651	64.5%	15,315	3,760	24.6%	117,497	72,518	61.7%	214,502	128,928	60.1%	29,039	11,555	44,979	85,574
	Glass	22,193	17,283	77.9%	2,529	637	25.2%	12,402	8,070	65.1%	37,125	25,990	70.0%	4,911	1,892	4,332	11,135
	Other Ferrous	11,016	10,199	92.6%	2,834	942	33.2%	94,142	86,701	92.1%	107,992	97,842	90.6%	817	1,892	7,441	10,150
	Yardwaste	104,682	97,701	93.3%	4,484	2,080	46.4%	64,557	57,537	89.1%	173,723	157,318	90.6%	6,981	2,404	7,020	16,405
	Narrow-Neck Plastics	9,699	4,169	43.0%	3,236	47	1.5%	13,090	209	1.6%	26,026	4,426	17.0%	5,530	3,189	12,881	21,600
	Ferrous/Bimetal Containers	4,059	2,648	65.2%	779	157	20.2%	2,125	1,819	85.6%	6,963	4,625	66.4%	1,411	622	306	2,338
	Aluminum Beverage Cans	1,562	582	37.3%	501	15	2.9%	1,082	203	18.7%	3,145	799	25.4%	980	486	879	2,345
	Plastic Tubs/ Lids	4,192	130	3.1%	1,614	1	0.1%	8,399	7	0.1%	14,206	138	1.0%	4,062	1,613	8,393	14,068
	Other Aluminum (Pans/ Foil)	390	20	5.2%	205	0	0.1%	1,257	1	0.1%	1,852	21	1.2%	370	205	1,256	1,830
Other Non-Ferrous Metal	922	-	-	567	-	-	34	-	-	1,523	-	-	922	567	34	1,523	
Potential and Encouraged	Food Waste	40,972	648	1.6%	15,861	11	0.1%	73,065	5,119	7.0%	129,898	5,778	4.4%	40,325	15,850	67,946	124,120
	Non-Recyclable Paper	18,143	-	-	7,169	-	-	26,787	-	-	52,098	-	-	18,143	7,169	26,787	52,098
	Manure	-	-	-	-	-	-	4,996	4,996	100.0%	4,996	4,996	100.0%	-	-	-	-
	Shopping Bags	1,804	-	-	677	-	-	2,327	46	2.0%	4,807	46	1.0%	1,804	677	2,281	4,762
	Other Film Plastic	12,796	-	-	5,331	-	-	24,342	480	2.0%	42,469	480	1.1%	12,796	5,331	23,863	41,990
	Other Rigid Plastic (inc. Flower Pots)	8,891	1,868	21.0%	2,933	248	8.5%	16,707	3,867	23.1%	28,531	5,982	21.0%	7,023	2,685	12,840	22,549
	Textiles/ Leather/ Carpets	11,318	72	0.6%	5,583	93	1.7%	24,574	5,842	23.8%	41,475	6,007	14.5%	11,246	5,489	18,733	35,469
	Wood Waste (inc. Pallets)	4,548	-	-	2,298	15	0.7%	17,042	3,685	21.6%	23,888	3,700	15.5%	4,548	2,283	13,357	20,189
	Whole Tires (as Rubber)	2,889	2,880	99.7%	1,253	720	57.5%	3,625	3,600	99.3%	7,767	7,201	92.7%	9	533	25	567
	Electronics	6,983	1,503	21.5%	2,649	17	0.6%	715	715	100.0%	10,347	2,235	21.6%	5,479	2,632	-	8,112
	Batteries	107	91	85.1%	5	3	60.4%	2,378	2,378	100.0%	2,490	2,472	99.3%	16	2	-	18
	Animal Protein	-	-	-	-	-	-	1,086	1,086	100.0%	1,086	1,086	100.0%	-	-	-	-
No Markets	Other Wood	5,247	-	-	180	-	-	18,711	-	-	24,138	-	-	-	-	-	-
	Other Glass	742	-	-	464	-	-	31	-	-	1,237	-	-	-	-	-	-
	Disposable Diapers	8,470	-	-	2,615	-	-	6,003	-	-	17,088	-	-	-	-	-	-
	Other Waste	46,673	293	-	19,228	3	-	57,776	286	-	123,677	583	-	-	-	-	-
	RRF Ash	-	63,814	-	-	19,468	-	72,798	-	-	156,080	-	-	-	-	-	-
<b>TOTAL</b>	<b>409,989</b>	<b>256,552</b>	<b>62.6%</b>	<b>98,312</b>	<b>28,218</b>	<b>28.7%</b>	<b>594,750</b>	<b>331,962</b>	<b>55.8%</b>	<b>1,103,052</b>	<b>616,733</b>	<b>55.9%</b>	<b>156,411</b>	<b>67,078</b>	<b>253,351</b>	<b>476,840</b>	

Notes:  
**Banned ER1-15:** These materials are required to be recycled under Executive Regulation 1-15, and are banned from disposal in waste from all sectors.  
**Potential and Encouraged:** Markets vary for these materials. Although not subject to the disposal ban, recycling is encouraged for all materials for which there are available markets.  
**No Markets:** No existing or anticipated markets for these materials.

Revised: 10/10/2018



#### 4.1.6 Single-Family Residential Sector Recycling

As mandated by Executive Regulation 1-15, the County provides curbside collection of recyclable materials to approximately 220,000 single-family residences in the County's unincorporated areas. Field surveys have indicated that participation in the curbside recycling program has exceeded 80 percent of eligible households. Approximately 38,000 residents of single-family households located in incorporated municipalities receive arranged recycling services from their municipality.

##### Curbside Recycling Materials Timeline:

- **1992:** Glass, Plastic, Aluminum, and Ferrous containers and newspaper.
- **1994:** Yard Trim (grass, leaves, and brush).
- **1996:** Scrap Metal Items: Swing Sets, Iron Railings, Large Appliances, Disassembled Metal Sheds, etc.
- **2000:** Mixed Paper: including unwanted mail, catalogs, books, magazines, cardboard, newspaper, office paper, and telephone books.
- **2008:** Additional plastic items: plastic containers, jars, tubs, lids, cups, buckets, pails, and flowerpots.
- **2009:** non-hazardous aerosol cans, reusable, durable plastic containers and lids, coated paper, milk/juice cartons, frozen food boxes, wax-coated boxes, paper beverage cups, and drink/juice boxes.
- **2012:** #1 PET thermoform plastic packaging such as clamshell containers, trays, deli containers, lids, domes, and cups

In CY 2017, the single-family residential sector accounted for 35.7 percent of the total County municipal solid waste generation (MSW). The CY 2017 single-family recycling rate was 62.6 percent, and the Diversion Rate (Recycling rate with Source Reduction Credit) was 64.4 percent.

The County's Curbside Recycling Collection Program has been successful due to:

- Strong education and outreach programs.
- Properly sized containers for residential, mixed paper, and cardboard.
  - Single Family Homes: 65-gallon, heavy-duty, wheeled, and lidded carts.
  - Town Homes: The County may offer smaller containers for easier storage.
- Virtually all forms of clean, dry paper are accepted.



- County Executive Regulations 1-15 Appendix C and 18-04<sup>2</sup> ban the disposal of recyclables mixed in with disposable trash and any kind of paper that could otherwise be recycled if not clean or dry.

While many residents participate in the curbside recycling program, waste composition studies conducted at the Transfer Station reveal significant quantities of recyclable materials discarded with refuse. Increasing the capture rate of the current recyclables existing materials could increase the single-family residential recycling rate by several percentage points.

The County's single-family residential recycling system relies on each resident providing source separation of recyclable mixed paper, commingled containers, yard trim, and scrap metal. Source separation allows for more efficient reuse and marketing of recyclables. The waste composition studies have shown that outreach, education, and enforcement are essential in the single-family sector. The county-wide distribution of large lidded wheeled carts for recyclables in the single-family sector has proven effective in increasing recycling. To encourage increased recycling in townhouse communities, DEP will continue to provide carts and containers sized based on resident requests and monitor the results.

#### **4.1.7 Multi-Family Residential Sector Recycling**

Executive Regulation 1-15 mandates recycling of aluminum, bi-metal, steel, glass, plastic containers, mixed paper, cardboard, scrap metal, Christmas trees, and yard trim at all apartment and condominium properties. Property owners and managers of multi-family residences provide the collection of recyclables. The County provides technical assistance, education, and training regarding on-site collection alternatives and management of collection contracts to assist multi-family property owners and managers in complying with the mandated recycling. DEP also provides education and training to residents of multi-family properties.

The County enforces multi-family recycling regulations through mandatory reporting requirements and a combination of site investigations, on-site verification, and reports for non-compliance. Investigations of non-compliance issues are performed, and a program of judicious enforcement, progressive actions, and potential fines promote full compliance with County's regulations and increase recycling.

In CY 2017, the multi-family residential sector accounted for 9.5 percent of the total County waste generation with a multi-family Recycling Rate of 28.7 percent, and a Diversion Rate (Recycling Rate with Source Reduction Credit) was 29.1 percent. Waste composition studies

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<sup>2</sup> [Executive Regulation 18-04](#)

conducted at the Transfer Station reveal significant quantities of recyclable materials from multi-family residences discarded as refuse.

To increase recycling in the multi-family sector, DEP's primary strategy has been providing on-site technical assistance and conducting training and education to provide specific and tailored guidance to increase recycling participation and capture rates.

Also, DEP continues to investigate and evaluate collection systems for multi-family properties for opportunities to reduce the cost of recycling to create economic incentives for increased recycling. DEP consistently evaluates market conditions for recyclables in the region and makes recommendations for recycling other materials based on the availability of favorable markets relative to disposal.

#### **4.1.8 Non-Residential Sector Recycling**

Executive Regulation 1-15, enacted in 2015<sup>3</sup>, mandates recycling of glass, plastic, aluminum, ferrous containers, mixed paper, cardboard, scrap metal, Christmas trees, and yard trim by more than 33,000 organizations (non-residential sector). While commercial, industrial, and institutional property owners and managers provide for the collection of recyclables for their sites, the County provides technical assistance, education, and training regarding on-site collection alternatives and management of collection contracts. Education and training are provided to business owners, managers, and employees.

The County enforces non-residential recycling regulations through mandatory reporting requirements and a combination of site investigations, on-site verification, and fines for non-compliance.

In CY 2017, the non-residential sector accounted for 54.9 percent of the total County solid waste generation. The CY 2017 non-residential recycling rate was 55.8, and the diversion rate (Recycling rate with Source Reduction Credit) was 58.6 percent. Waste composition studies conducted at the Transfer Station reveal significant quantities of recyclable materials from the non-residential sector discarded as refuse.

Advancements are necessary to maximize recycling in the non-residential sector. Small businesses sometimes lack the resources, training, and experience to incorporate on-site recycling readily.

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<sup>3</sup> Executive Regulation 1-15 superseded Executive Regulation 15-04 AM which was enacted in 2005

Table 4.2 shows substantial opportunities to increase recycling in the non-residential sector. The primary strategy for increasing non-residential recycling is to conduct direct on-site technical assistance and training to provide specific and tailored guidance to promote full compliance with County regulations and enforcement actions. Also, DEP has studied the costs of recycling and waste disposal collection experienced by businesses and organizations. DEP also consistently evaluates market conditions in the region and recommends recycling other materials for which markets are available and favorable relative to disposal.

**Cooperative Collection Methods:** Small-scale business owners especially have expressed concerns over the years regarding the cost and availability of recycling and refuse collection services due to the relatively small amount of materials they generate. Businesses in more densely developed Central Business Districts (CBDs) regularly face space constraints when placing recycling and refuse collection containers outside their establishments. Small businesses face an often-disproportionate administrative burden when securing and contracting collection services on their own.

Because of these concerns, DEP has been conducting cooperative recycling and refuse collection study projects for small businesses in the Silver Spring CBD. This same scenario has been and is applicable in settings within the Bethesda and Wheaton CBDs. DEP support includes on-site waste analysis of each business' waste stream, determining the amount of recyclable material generated, practical advice for securing collection services, education, training, and follow-up. Through the Cooperative Collection Method Program, DEP investigates and evaluates the current costs of recycling and waste disposal collection for small-scale businesses and determines the feasibility of collection scenarios, which would successfully reduce the recycling costs to create economic incentives for increased recycling.

Based on the data collected, the implementation of cooperative recycling and refuse collection projects have reduced the cost of monthly refuse and recycling collection costs and their required administrative efforts in contracting for recycling and refuse collection services.

Participating businesses have been achieving a recycling rate exceeding the County's 70 percent recycling goal. DEP will continue to evaluate opportunities for expanded implementation to increase recycling by businesses.

#### **4.1.9 Investigation of Compliance Issues and Enforcement of Recycling Regulations**

Montgomery County Executive Regulation 1-15 mandates recycling in Montgomery County. To ensure multi-family and non-residential sector compliance with the County's recycling regulations, DEP has dedicated Recycling Investigators responsible for investigating non-

compliance issues and enforcing the County's recycling laws by applying the necessary and appropriate enforcement measures.

DEP uses a progressive method of ensuring compliance with the recycling regulation. Multi-family property or business owners, managers, and/or official representatives must initiate actions to correct violations and compliance deficiencies when notified by the County. Notifications may take the form of verbal warnings, Notices of Violation, and Citations. Fines are associated with citations. Depending on the nature of the violation or compliance deficiency, the County will provide a specific timeframe for rectifying the violation or deficiency. This process begins with DEP outreach and education to ensure awareness and understanding of the requirements. DEP uses technical assistance, training, and hands-on guidance and provides tailored and specific recommendations on how a multi-family (apartment and condominium) property, business, organization, or government facility can set up, maintain and expand their recycling program in compliance with the regulation. In instances where these techniques do not bring about compliance by a multi-family property or business, DEP has the authority, ability, and responsibility to use stronger means of enforcement to bring about compliance.

#### **4.1.10 Strategic Plan to Advance Composting, Compost Use, and Food Scraps Diversion in Montgomery**

Wasted food and food scraps represent a significant portion of the solid waste disposed in the County. The 2017 Waste Composition Study estimated food waste accounts for approximately 20 percent of the solid waste disposed in the County. Diverting food scraps from the waste stream would significantly increase the recycling rate and preserve the processing capacity at the RRF. As the County's annual MSW disposal tonnage continues to grow, implementing a food scraps recycling program will avoid the cost of by-pass if RRF capacity is reached.

Composting food scraps and other source-separated organics has many benefits. The composting process converts food scraps and other source-separated organics into a stable, hummus-like soil amendment. Using compost in agriculture, landscaping, and environmental remediation completes the recycling loop. Compost suppresses plant diseases and pests, reduces or eliminates the need for chemical fertilizers, promotes higher crop yields, and improves overall soil structure. Soils amended with compost have higher infiltration rates and increased moisture-holding capacity, providing a valuable stormwater management tool by reducing stormwater run-off.

County Council Bill 28-16<sup>4</sup> required DEP to develop a strategic plan to reduce wasted food, channel food in excess of a generator's needs to others with unmet needs, and increase the amount of food scraps and other acceptable organic materials to be composted. The Bill required DEP to identify legislative changes necessary to reduce food waste and promote food waste composting, models, and best practices used by other jurisdictions, challenges, potential sites for food waste composting operations, environmental and public health benefits, and more. The Bill also called upon DEP to include numerous specific considerations and required DEP to consult with a large group of various stakeholders, interested organizations, and the governing bodies of municipalities within the County.

To develop The Strategic Plan to Advance Composting, Compost Use, and Food Scraps Diversion in Montgomery County, Maryland, DEP staff created six focus areas to organize the planning process: Reducing Wasted Food/Channeling Food to Others; In-Home, Backyard, and Community-Scale Composting; On-Site Institutional and On-Site Business Composting; On-Farm Composting; Composting in Montgomery County; and Strategies to Maximize Food Scraps Collection at the Curb. DEP staff solicited and gained the perspective and expertise of more than 215 stakeholders that it had contacted to describe the Strategic Plan and requested their participation in the process. In addition, DEP further asked any interested stakeholders to assist in developing the Strategic Plan by becoming members of one of the six working groups DEP established to look more closely into one of the six focus areas. Forty-seven (47) of the 215 stakeholders became members of the six working groups. Chapter 5 provides the Plan of Action of the County on each of the six focus areas of the Strategic Plan:

### **Reducing Wasted Food/Channeling Food to Others**

According to the U.S. Census Bureau's 2018 American Community Survey, Montgomery County, Maryland, was ranked #12 of the 50 wealthiest counties in the U.S. According to Feeding America, the nation's largest domestic hunger-relief network, 6.3% of the County's population does not have consistent access to quality, nutritious food. Current practices for channeling quality, nutritious food to those in need can be modified through collaboration and coordination with other established groups to include donations of food that would otherwise be wasted or thrown away. Food labeling, specifically "use by...", "best by..." or other types of expiration dates, can affect food donations by residents, businesses, and multi-family properties in the County. Increasing food donations will help the County meet the objectives of the Strategic Plan to Advance Composting, Compost Use, and Food Scraps Diversion in Montgomery County and the Montgomery County Food Security Plan.

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<sup>4</sup> [https://www.montgomerycountymd.gov/SWS/Resources/Files/foodwaste/CB28-16\\_Signed.pdf](https://www.montgomerycountymd.gov/SWS/Resources/Files/foodwaste/CB28-16_Signed.pdf)

### **In-Home, Backyard, and Community-Scale Composting**

Through outreach, training, education, compost workshops, and demonstrations, and distribution of educational materials, DEP supports, encourages, and promotes residents, multi-family property owners, business and commercial property owners, and managers to manage yard trim on-site through grasscycling (leaving grass clippings on the lawn after mowing), and backyard and community-scale composting. The 2017 Waste Composition Study showed yard trim materials accounted for less than 2% of the waste disposed of in the County, documenting the long-term success of the education and training programs. Adding food scraps to in-home, backyard, and community-scale composting programs is an option for the County to consider diverting food scraps from the waste stream.

### **On-Site Institutional and On-Site Business Composting**

According to the 2017 Waste Composition Study, businesses, organizations, and government facilities (non-residential sector) in the County disposed an estimated 68,000 tons of food scraps in CY2017.

DEP has identified a few businesses with on-site composting programs for food scraps and/or other organic materials recycled on-site. More businesses have implemented food scrap recycling collection services to collect source-separated food scraps and transport them to a commercial composting facility for processing.

### **On-Farm Composting**

The U.S. Department of Agriculture's 2012 Ag Census Report estimated 540 farms in Montgomery County, with an average size of 118 acres. Forty-two (42) percent are farmed as a primary occupation. In 1980, Montgomery County created a 93,000-acre Agricultural Reserve, zoned to encourage agricultural use. Animal manure and other agricultural by-products are routinely composted as part of sound agricultural practices. The finished compost is used on-site to build and maintain healthy soils. DEP is aware of some farms in the County that are receiving limited amounts of food scraps and other organic materials from off-site sources for composting and use on-site.

### **Composting Capacity to Serve Montgomery County**

The commercial sector generates over half of all waste generated in the County and disposes of approximately 68,000 tons of food scraps annually. Therefore, encouraging businesses to set up food scrap composting programs for their workplaces provides the County the opportunity to divert a significant amount of waste from the overall waste stream. According to data from CY2017 Annual Business Waste Reduction and Recycling Reports, thirty (30) businesses reported they source-separated food scraps for recycling collected by a

recycling collection company and transported to processing facilities. Numerous businesses have contacted DEP to express their interest in separating their food scraps for recycling.

DEP developed food scrap recycling collection programs for pre-consumer food scraps generated in cafeterias in three County facilities: The Executive Office Building, the Council Office Building, and the Public Safety Headquarters Building. DEP used these programs to develop educational materials and training and recommended best practices when implementing food scrap recycling programs. The lack of long-term, stable food scrap composting processing facilities to serve the region is a limiting factor in setting up food scrap recycling collection programs.

In 2020, DEP secured 4,000 tons annually of food scrap composting capacity, with an ability to negotiate for additional capacity at the Prince George's County Organics Compost Facility in Upper Marlboro, Maryland. DEP can now offer stable food scrap recycling capacity to large generators of food scraps in the County.

### **Strategies to Maximize Food Scraps Collection at the Curb**

DEP collects yard trim as part of its weekly curbside recycling collection service to approximately 220,000 single-family households in the County. Yard trim is transported to the County's Shady Grove Processing Facility and Transfer Station, where the yard trim is sorted, processed and loaded for transport to the Montgomery County Yard Trim Composting Facility. According to the 2017 Waste Composition Study estimates, the single-family sector disposes approximately 40,000 tons of food scraps each year. Diverting food scraps and other acceptable organic materials from the single-family sector would help the County achieve its ambitious waste diversion and recycling goals.

## **4.2 Special Waste Streams: Management Needs**

### **4.2.1 Land Clearing and Demolition**

As reported in Section 3.7.2, historically, the bulk of land clearing and demolition waste was handled almost exclusively by the private sector. The incoming volume of land clearing and demolition waste at the County's Transfer Station has increased in recent years. In addition to the Transfer Station, in CY 2017, more than 37 other facilities accepted land clearing and demolition waste generated in Montgomery County.

For planning purposes, the projected volumes of land clearing and demolition waste generated are linked to population and employment increases and the state of the economy. As the amount of developable land in the County falls, the composition of these materials is

expected to shift toward demolition materials from deconstruction and renovation of existing structures with reductions in the proportion of land clearing materials (e.g., large stumps and earth).

**Needs Assessment and Plan Direction:** With land clearing and demolition estimated at 20% of the waste stream, DEP does not believe additional County-owned disposal or recycling capacity is currently required.

To the maximum extent feasible, the County will utilize its out-of-County haul contract to recycle the land clearing and demolition material it receives at its transfer station. DEP will continue to explore the fiscal and operational feasibility of increased recycling for land clearing and demolition debris generated from County roadway construction projects.

C&D recycling does not influence the County's recycling rate calculation because C&D is not included in Municipal Solid Waste (MSW) and is not eligible for recycling credit under the Maryland Recycling Act.

Under the County's waste management hierarchy, recycling of wastes is preferred over disposal. DEP must plan to develop a diversion and recycling management strategy for C&D materials. Potential options to increase C&D recycling are covered in 5.6.5.

#### **4.2.2 Asbestos Disposal**

The County's solid waste facilities no longer accept Regulated Asbestos Containing Material (RACM) generated in the County. Generators of this type of waste contact licensed and permitted asbestos contractors experienced in the proper removal, handling, transportation, and disposal of RACM in a regulated disposal facility.

Non-friable asbestos, such as asbestos-containing floor tiles, shingles, and siding, may be included in the regular household trash. It must meet the requirements for home repair debris. DEP also accepts separated and double-bagged non-friable asbestos at the Shady Grove Processing Facility and Transfer Station.

**Needs Assessment and Plan Direction:** There is no need to change the existing County asbestos disposal policy.



### 4.2.3 Controlled Hazardous Substances

Controlled Hazardous Substances (CHS)<sup>5</sup>, as defined in COMAR 26.13.01, is a solid waste that, because of its quantity, concentrations, or chemical, or physical characteristics, poses a substantial present or potential hazard to humans health or the environment.

These waste materials must be source-separated from MSW and require special handling and disposal practices to protect public health and the environment. The management needs for hazardous waste and special medical waste were discussed in Chapter 3.1.3.

**Needs Assessment and Plan Direction:** No changes in the County's involvement in hazardous waste management are anticipated in the next decade.

### 4.2.4 Hazardous Waste Emergency Response

**Current Conditions and Constraints:** Under the County's Emergency Operations Plan, the Montgomery County Fire and Rescue Services (MCFRS) is the primary agency for Oil and Hazardous Materials Response. DEP supports MCFRS by providing limited detection, monitoring, sampling, and analysis operations by DEP Response Procedures for Hazardous Materials Spills. DEP is also responsible for providing support to manage hazardous material incident clean-up operations, including coordinating the County's efforts in decontaminating public and private properties and the environment.

DEP periodically updates a Response Procedures Manual to provide specific guidance dealing with releases of hazardous material. Items such as sewage releases are also included in the manual. When outside assistance is required, calls made to "911" within the County are referred to the County Emergency Communications Center. All spills are reported to MDE under the County's approved Storm Water Management Prevention Plans. The County MCFRS hazardous incident response team responds to spills of oil and other hazardous substances. Larger spills may require assistance from the MDE spill team and/or a private clean-up contractor. MCFRS is responsible for on-site materials containment and stabilization. Once MCFRS has rendered the incident site safe, the Division of Environmental Policy and Compliance (DEPC) coordinates for the removal of the hazardous materials.

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<sup>3</sup> For regulatory definition, see Section 7-201, the Environment Article of the Annotated Code of Maryland.

DEP can issue fines for illegal dumping on county roads, rights-of-way, streams, and storm drains under the County's Water Quality Protection Charge Ordinance (Montgomery County Code, Chapter 19, Section 19-35). Through the County's Water Quality Protection Charge Ordinance, DEP established specific procedural guidelines to address any illegal storm drain connections. If an unlawful storm drain connection is identified, DEPC may write a Notice of Violation to the responsible party and require corrective actions, including the clean-up of any spilled material and requiring a legal means of discharge. Enforcement of illegal connections is the responsibility of DEPC and WSSC Water.

**Needs Assessment and Plan Direction:** The hazardous waste spill response system adequately serves County needs. No major structural modifications to the system are envisioned during the next ten years.

#### 4.2.5 Special Medical Waste

**Current Conditions and Constraints:** Special medical waste is generated by hospitals, doctors' offices, medical and research laboratories. State regulations govern the transport and disposal of special medical waste. Special medical waste must be transported by state-licensed haulers and processed at permitted facilities under a State manifest reporting system. The Transfer Station accepts a limited quantity of special medical waste contained in a special bag designed for this type of waste (red bag) that has been previously autoclaved.

State law provides a residential use exemption (e.g., for home insulin users) for disposal of home medication material as MSW.

Special medical waste incinerators operate under State permits. At present, no permitted special medical waste incinerators operate in Montgomery County.

DEPC enforces air quality provisions of the County Code, reviews State installation and operating permits, and works with the County DPS to enforce compliance with the ventilation requirements of County building standards about any incinerator which operates in the County.

DEPC conducts investigations of improper disposal of special medical waste. If suspicious waste is identified at the Transfer Station, the facility manager contacts DEPC. DEPC investigates and supervises the removal of any improperly disposed special medical waste.

**Needs Assessment and Plan Direction:** Aside from the licensing and investigative efforts listed in the paragraphs above, the County does not participate in special medical waste management or regulation. Currently, all special medical waste generated in the County is processed at private facilities outside the County.

#### 4.2.6 Animal Carcass Waste (Dead Animals)

**Current Conditions and Constraints:** There are no animal carcass waste rendering facilities in the County. The two nearest rendering plants processing dead farm animals operated by Valley Proteins, Inc. are located near Baltimore, MD, and Winchester, VA. In addition, one privately owned pet crematorium operates under a State permit in the County.

**Needs Assessment and Plan Direction:** Rendering facilities primarily collect meat by-products from farms, restaurants, institutions, and grocery stores. Domestic pet carcass generators include the County Police Department Animal Services Division, the Montgomery County Animal Shelter, and pet crematoria. Given facility siting constraints, new rendering facilities and incinerators are unlikely to set up an operation in Montgomery County. Over the next ten years, County animal waste generators likely will remain dependent on out-of-County rendering facilities.

#### 4.2.7 Bulky Wastes

**Current Conditions and Constraints:** Bulky wastes include furniture, large household appliances (also known as white goods), other scrap metals, and building materials. Bulky items are directed to different areas of the Transfer Station for recycling or disposal, depending upon the type of materials. White goods and other scrap metals are sent to scrap metal dealers for recycling. Reusable building materials dropped off at the Transfer Station are picked up by non-profit organizations. Other bulky items that are unsuitable for disposal at the RRF are included with other non-processible waste sent for disposal at a private landfill under contract to the County.

**Needs Assessment and Plan Direction:** Existing facilities and programs appear sufficient to accommodate bulky waste materials. The frequency and availability of County provided curbside bulk material pick-up may be revised.

#### 4.2.8 Automobiles

**Current Conditions and Constraints:** Two automobile parts salvage companies operate in Montgomery County. However, no full-scale automobile recycling facilities exist within the County. Retired automobiles generally are hauled to auto recyclers located outside of the

County. The Montgomery County Police dispose of abandoned vehicles primarily through public auction. The police send approximately ten automobiles per year to scrap dealers.

**Needs Assessment and Plan Direction:** No further County involvement in automobile waste management appears warranted for the next decade.

#### 4.2.9 Vehicle Tires

**Current Conditions and Constraints:** The State of Maryland developed a scrap tire program for the management of scrap tires in Maryland. Many auto service centers in the County arrange for private recycling of their customers' tires at facilities outside the County. County residents may drop five or fewer scrap tires per year at the County's Transfer Station for recycling.

**Needs Assessment and Plan Direction:** The existing State scrap tire management system has sufficient capacity to recycle scrap tires generated in the County.

#### 4.2.10 Wastewater Treatment Biosolids

**Current Conditions and Constraints:** As explained in Chapter 3, the four WRRFs located in the County generate approximately 20 dry tons per day of biosolids.

Current practice in managing biosolids generated in Montgomery County's WRRF includes land applications on farmlands. Biosolids that are land applied are subject to the requirements of MDE sewage sludge utilization permits and nutrient management plans. Historically, these sites have been on the Maryland Eastern Shore, Frederick, Howard, Prince George's, and Montgomery counties, or Virginia. Currently, there are two active permitted land application sites for biosolids in Montgomery County located in the areas near Poolesville and Dickerson.

**Needs Assessment and Plan Direction:** WSSC Water completed a significant facility planning study in 2011, reviewing alternatives for processing biosolids produced at its WRRF's within both Montgomery and Prince George's counties in a manner that is environmentally beneficial and is also economically feasible.

The approved alternative includes the design and construction of a central bio-energy project comprised of Thermal Hydrolysis, Mesophilic Anaerobic Digestion, and Combined Heat and Power facilities. This project was added to the WSSC Water Capital Improvements Program

in FY15 and is currently under construction with an expected completion date of November 2024. When complete, some of the expected environmental and economic benefits will include:

- Significant reduction in biosolids quantity.
- Production of digester gas as renewable fuel which will be used to produce heat and electric power.
- Production of high-quality (Class-A) biosolids which can be used more widely than the Class-B biosolids currently produced.

#### **4.2.11 Septage**

**Current Conditions and Constraints:** In the more rural, less-densely populated parts of Montgomery County, approximately 20,000 single residential properties depend primarily on individual septic systems for their wastewater disposal needs. For proper maintenance, septic systems are periodically pumped out by private haulers permitted by the County. Pumped wastewater from these septic systems and other sources is transported and discharged into one of several WSSC's septage discharge facilities within the WSSC Water service area.

Currently, the Muddy Branch Road Disposal Site is the only location in Montgomery County accepting wastewater collected from septic tank pump out, waste holding tank discharge, bus holding tank discharge, and other similar sources. All the wastewater discharged at the Muddy Branch Road Disposal Site is conveyed through sewerage systems to the Blue Plains WRRF in Washington DC for treatment.

**Needs Assessment and Plan Direction:** In response to concerns about community safety, environmental protection, and security concerns at Muddy Branch Road Disposal Site, WSSC Water, with coordination with DEP, recently completed an extensive septage management study to evaluate alternatives to relocate the Muddy Branch Road Disposal Site.

Based on this evaluation, the current abandoned Rock Creek WWTP was carefully chosen as the best location for constructing a new septage receiving station facility. The construction of a new septage receiving station at the abandoned Rock Creek WWTP is currently under the final design phase. All the wastewater discharged into the new septage receiving station would also be conveyed to the Blue Plains WRRF in Washington DC for treatment. The completed facility would be capable of receiving septage from about 100 to 120 vehicles per day.

#### 4.2.12 Other Wastes

**Current Conditions and Constraints:** As stated in Chapter 3, Montgomery County generates insignificant agricultural wastes and mining wastes.

- Ferrous metals are extracted from the RRF ash and recycled for beneficial use.
- Litter is considered MSW and is processed along with all other MSW received at County facilities.
- Street sweepings are blended with MSW and sent to the RRF.
- Residue coming from the Recycling Center and Paper Facility is shipped with other waste to the RRF.

**Needs Assessment and Plan Direction:** The County has established appropriate and sufficient facilities and programs for the management of agricultural wastes, mining wastes, litter, recreational wastes, and street sweepings. No significant change in the management of these wastes appears warranted during the life of this Plan.

### 4.3 Assessments of Constrains of Current Solid Waste Acceptance Facilities

The assessment carried out by RRMD in 2019 of all County-owned solid waste acceptance facilities identified a list of operational and physical improvements needed in County facilities over the planning period as follows:

County facilities with sufficient capacity and useful life beyond the term of this Plan:

- Resource Recovery Facility (RRF)
- Yard Trim Composting Facility

County facilities needing increment in processing capacity during the term of this Plan:

- Shady Grove Processing Facility (TS)
- Materials Recovery Facility (MRF)
- Paper Processing Facility (PPF)

New Facilities needed (located in or out of the County):

- Food Waste Processing

Available in-County land to develop infrastructure:

- 820 acres parcel known as (Site 2), located along Wasche Road near Dickerson, Maryland
- 118 acres in Dickerson where Montgomery County Yard Trim Composting Facility is sited.

#### **4.3.1 Shady Grove Processing Facility and Transfer Station**

There has been an increase in Construction and Demolition (C&D) material (shingles, roofing, and sheetrock). This material has increased at a rapid rate. It is not processible at the RRF without first screening out dirt, asphalt, and concrete hauled to a permitted disposal facility. The transfer station typically receives about 15,000 tons of shingles and sheetrock C&D material annually; however, in 2018, 40,000 tons were received. It is believed that the increase can be attributed to an increase in County waste as well as local roof replacement projects and a windstorm in March 2018.

Residential collection and commercial vehicles containing solid waste or yard trim and natural wood materials enter the Transfer Station at the same commercial vehicle entrance on Shady Grove Road. During the fiscal year 2019, MES reported 157,942 commercial and residential vehicles delivering yard trim.

To reduce the risk of accident or injury, the County's contract Transfer Station operator implemented changes and improvements to the unloading area inside the tipping building. These include angled tipping lanes, gates to regulate vehicle access to the tipping floor, and improved lighting.

#### **4.3.2 Materials Recovery Facility (MRF)**

The current facility was built 28 years ago and retrofitted 17 years ago. Many of the key components of the current commingled processing system are obsolete or have reached the end of their useful life. Parts availability is extremely limited, often requiring parts to be reverse-engineered or fabricated in-house, increasing downtime and costs. The current processing system lacks redundancy. If one component fails, the entire processing line is down.

The existing commingled system is not capable of processing the current incoming volume. A consultant's report determined the commingled system needs to process at least 170 TPD reliably. The report also stated replacing or upgrading specific components of the current commingled system is impractical due to the current system configuration, the age of the existing equipment, and advancements in sorting methods and technologies. To process at least 170 TPD, the consultant recommended a complete retrofit of the commingled processing system with improvements to the commingled building.

In May 2021, the County Council approved a capital project to upgrade and increase the capacity of the MRF.

### **4.3.3 Mixed Paper Processing Facility (PPF)**

Although the PPF equipment is new, it was designed to process up to 25 tons per hour. It cannot handle the volume of incoming mixed paper material received on peak days due to ongoing system limitations addressed with the vendor. There are several processing limitations: The Paper Receiving Building is undersized to accommodate the current incoming mixed paper material. This building was initially designed for yard trim operations but was converted for commingled bale storage after the opening of the MRF. As part of the paper processing upgrade, the building was again repurposed for incoming paper material storage when the new PPF was constructed in 2017. This facility is located on the MRF site.

### **4.3.4 Yard Trim Composting Facility**

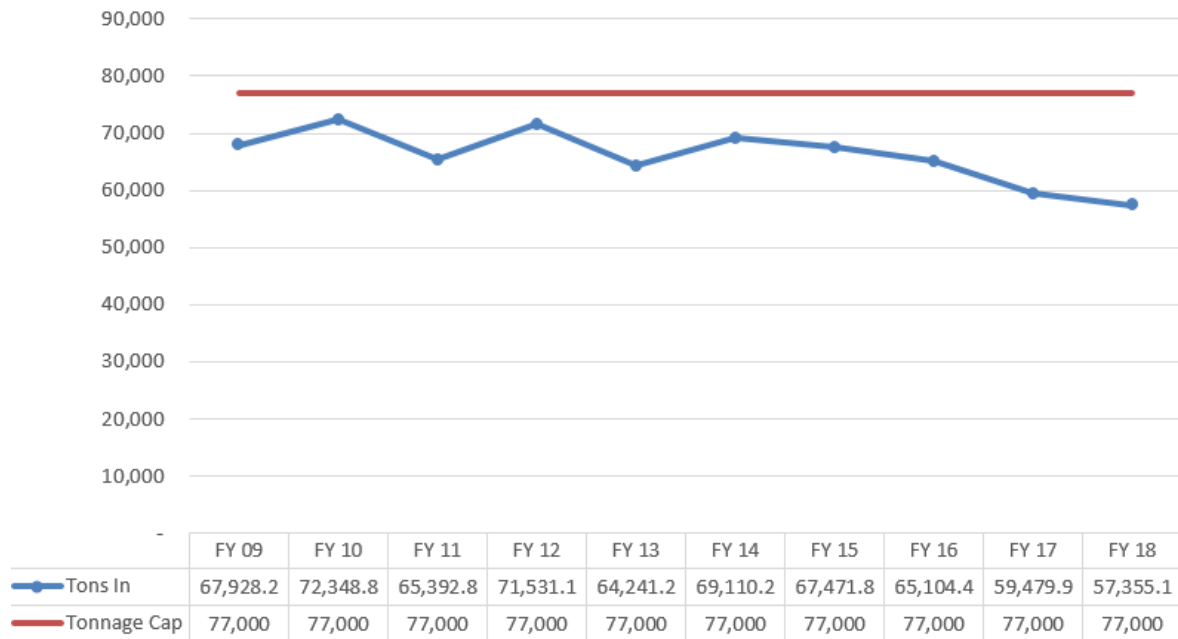
Figure 4.2 below illustrates the resulting slightly downward trend in the amount of material received for processing at the County's Composting Facility. Based on the data and before accounting for County growth, incoming tonnage needed to be composted during the planning period would not be expected to exceed the SCA annual tonnage limit. Still, historical tonnages suggest that weather and other factors can influence capacity needs in any year, more than might be expected. Therefore, the County requires the yard trim hauler to maintain a backup contract for composting capacity as a good management practice.

The 2019 Facility Evaluation study states that *"it would be expected that the Yard Trim Compost Facility should be capable of continuing to process materials beyond the 10-year planning period"*.

As required by Section 9-1703(b)(7) of the Environmental Article, the RRMD evaluated the feasibility of solid waste composting and determined the County has no plan to include a solid waste composting facility during the planning period.



**Figure 4.2 Tonnages of Leaves and Grass Received for Composting FY09 - 18**



#### 4.3.5 Resource Recovery Facility (RRF)

The RRF processes waste at a nominal 1,800 TPD with a higher heating value of 5,500 BTU/lbs. It is physically capable, and it is the County’s practice to process at a higher rate during peak periods of delivery and when waste has a higher heating value of less than 5,500 BTU/lbs. There is a strong seasonality to waste deliveries. Annually, the peak month is typically June. If by-pass were to occur, it would most likely be during a period when a unit is in an outage for maintenance or repair or during such peak delivery months. The County’s first strategy for avoiding by-pass is to run the RRF at its physical limit and schedule outages during none peak delivery times of the year.

In the event of any failure or cessation of operation of the RRF or need to by-pass waste, waste materials normally processed by the RRF will be processed in a permitted alternative facility. The Service Agreement provides for receipt of by-pass and non-processible waste and of all waste if the RRF is unavailable for any reason. Additionally, if RRF ash ever fails a toxicity test, the ash will be transported to a properly permitted facility. A controlled by-pass of processible waste may also accompany changes in tip fees.

#### **4.3.6 Land Reserved for Potential Future In-County Landfill**

The County has approximately 820 acres between Martinsburg Road and Wasche Road near Dickerson, Maryland, known as “Site 2”. This land is held in reserve for use if economic conditions, changes in the law, or other circumstances render out-of-county waste disposal infeasible. Should a waste disposal facility be constructed at this site, the landfill's footprint would consist of approximately 125 acres.

The County continues to allow Site 2 to be used for agriculture purposes until a landfill is needed. The County has an MDE permit to build and operate a landfill at Site 2. The County could commence construction of the landfill by giving a notice to proceed at least one year in advance of the anticipated construction start date by the terms and conditions of *Letter of Understanding* signed by the County and SCA.

#### **4.3.7 Composting Facilities Accepting Food Waste in MD and VA**

The lack of food waste processing capacity is the major obstacle in expanding food scraps recycling. As shown in Table 3.7, the lack of nearby food scrap processing facilities limits immediate expectations for vastly increased food scraps recycling. There is limited capacity at reliable processing facilities within a 50-mile radius from the Transfer Station. Chapter 5 describes the County's strategy to obtain access to a food scrap processing capacity.

As required by Section 9-1703(b)(7) of the Environmental Article, the RRMD evaluated the feasibility of solid waste composting and determined the County has no plan to include a solid waste composting facility during the planning period.

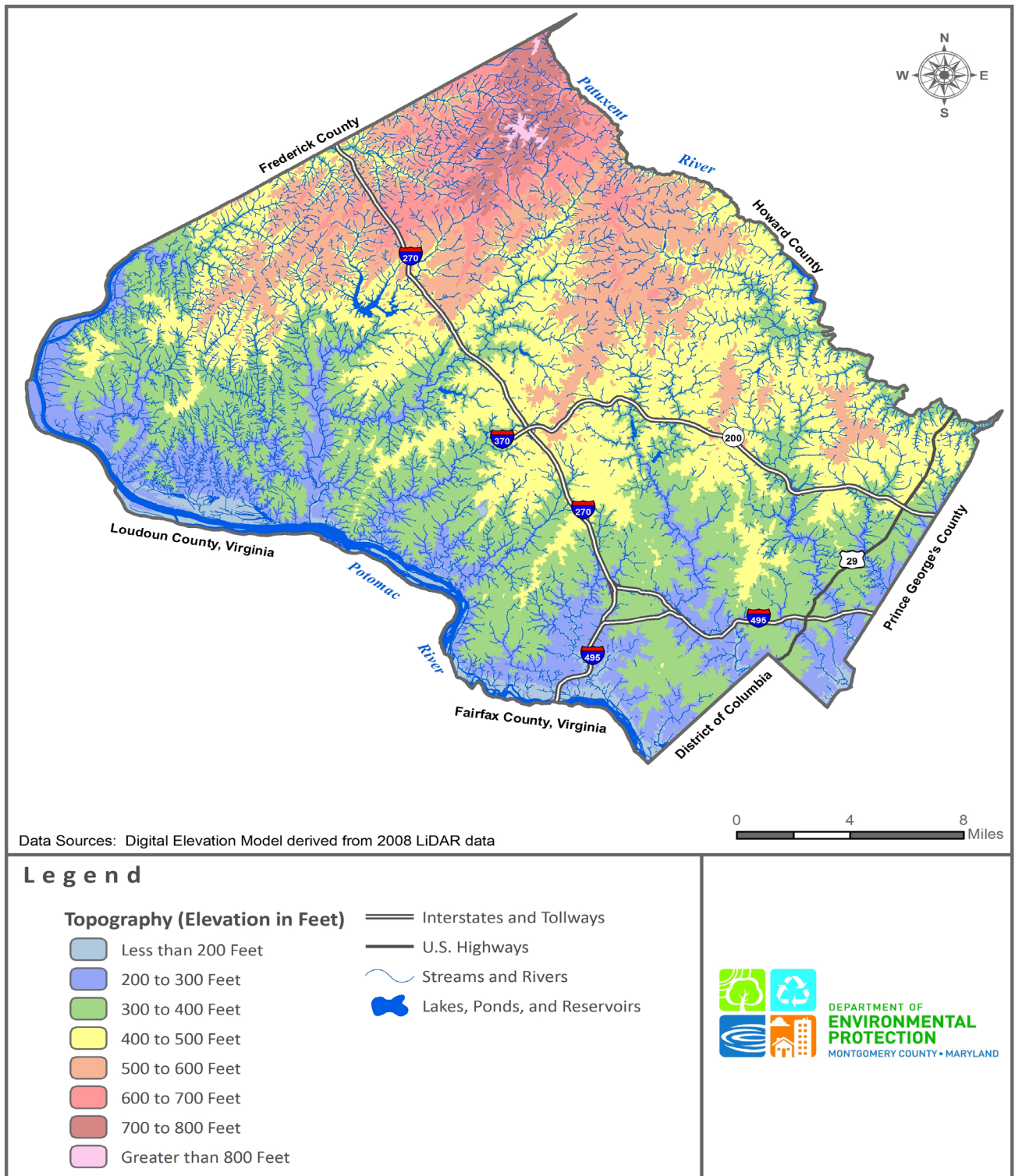
## 4.4 Constraints on New Solid Waste Acceptance Facilities

### 4.4.1 Physical Constraints on Waste Acceptance Facilities

**Current Conditions and Constraints:** Several physical characteristics of the land in Montgomery County influence the siting of new solid waste acceptance facilities. These constraints include topography, soil types, geologic conditions, aquifers, wetlands, and surface waters.

**A. Topography** – The general topography of Montgomery County is illustrated in Figure 4.3. The County is dominated by a rolling plain or “low hill” landscape. Hills are concentrated in the northern part of the County and adjacent to the major stream valleys. The highest point in the County is 873 feet above sea level; the lowest point in the County is 52 feet above sea level. The average elevation gradient is 29 feet per mile. In general, the effort and costs of site preparation for most solid waste facilities increase as the topographic variation increases.

Figure 4.3 County Topographic Map



**B. Soil Types** – A general description of Montgomery County soil types/groups and the areas where these soil types can be found in Table 4.3, and the locations of these soil types appear in Figure 4.4.

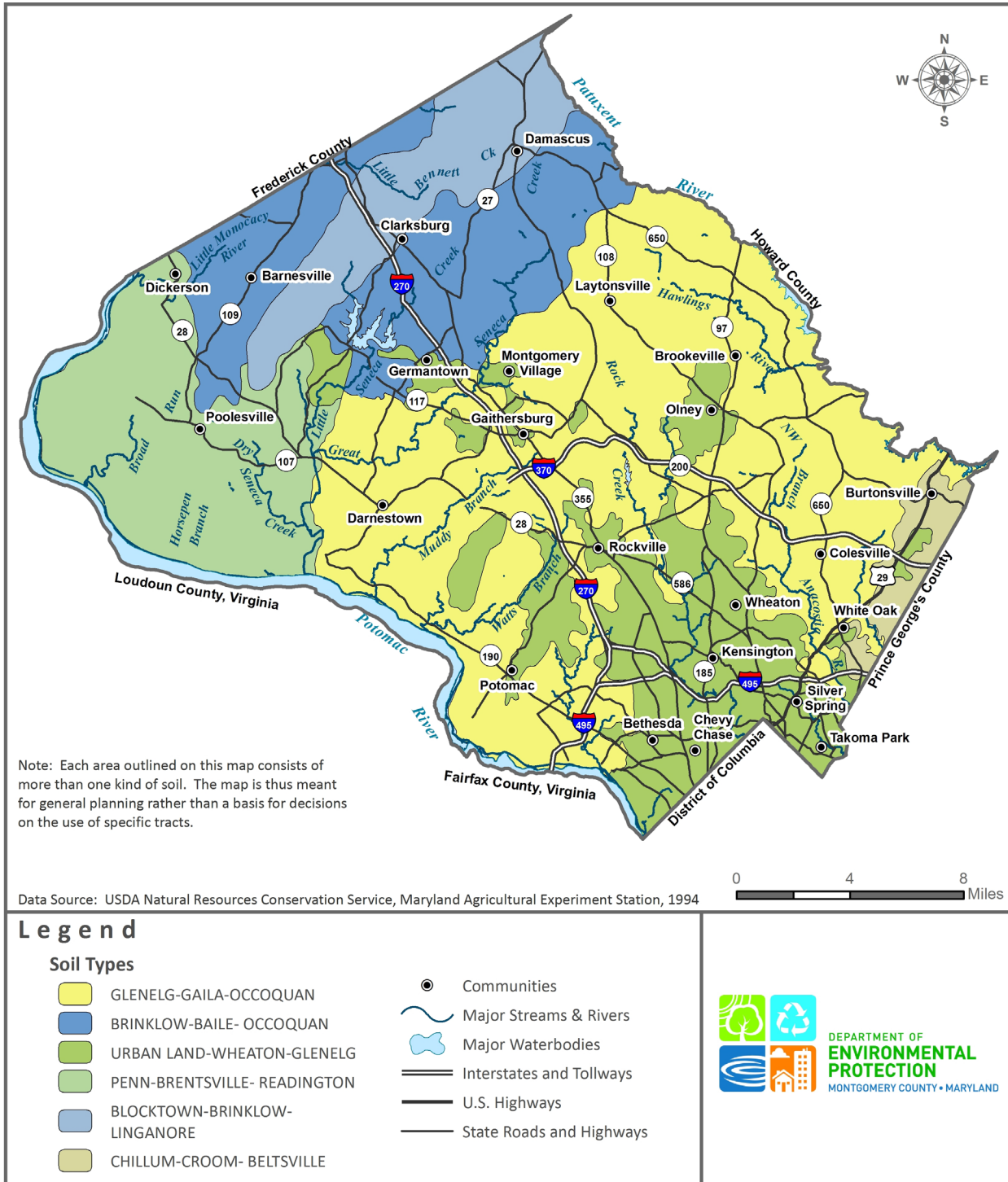
**Table 4.3 County Generalized Soils Descriptions**

Soil Groups	Area*	Description
Glenelg-Gaila-Occoquan	41%	Nearly level to strong sloping, well-drained, deep, and very deep soils that are loamy throughout. This soil type is found in the central part of the County and extends to the east and south. It is found on broad ridge-tops and side slopes.
Brinklow-Baile-Occoquan	16%	Nearly level to moderately steep, well and poorly drained, moderately deep soils that are loamy throughout. This soil type is found in the northern part of the County. It is found on broad ridge-tops and side slopes.
Urban land-Wheaton- Glenelg	16%	Nearly level to strongly sloping, well-drained, very deep soils that are loamy throughout. This soil type is found primarily in the Germantown area and in southern and eastern portions of the County. It is found on broad ridgetops and side slopes.
Penn-Brentsville-Readington	14%	Nearly level to steep, well and moderately well-drained, moderately deep and deep soils that are loamy throughout. This soil type is found in the western part of the County. It is found on broad ridge-tops and side slopes.
Blocktown-Brinklow-Linganore	10%	Gently sloping to steep, well-drained, and moderately deep soils that are loamy throughout. This soil type is found in the northern part of the County. It is found on broad ridge-tops and side slopes.
Chillum-Croom- Beltsville	3%	Nearly level to steep, well-drained and moderately well-drained, very deep soils. This soil type is found in the eastern part of the County along the Prince George’s County line. It is found on broad ridge-tops and side slopes.

\* Percent area of the County.

Source: <https://www.montgomerycountymd.gov/DEP/Resources/Files/Downloads/WS/2017-chapter2-draft.pdf>

**Figure 4.4 County General Soil Map**





**C. Geologic Conditions**<sup>6</sup> – The County lies almost entirely in the Piedmont physiographic province, where the bedrock consists predominantly of metamorphic rocks of the Paleozoic age. Consolidated sedimentary rocks of Early Triassic age occupy a down-faulted basin in the western part of the County. On hills and ridges along the eastern border, small erosional remnants of unconsolidated Cretaceous sedimentary rocks extend westward from the Coastal Plain in Prince George’s County (see Figure 4.5).

The bedrock in the eastern two-thirds of the Piedmont consists of rocks of the Wissahickon Group. The best example of these rocks is exposed in the quarry of Rockville Crushed Stone Company south of Hunting Hill. The serpentinite here is quarried for use as crushed stone aggregate. Quarries for building stone in the micaceous quartzite are located in several places of the western schist belt.

Fine-grained slaty rocks mapped as the Urbana (e.g., Harpers), Ijamsville, and Marburg phyllites occupy the Piedmont of Montgomery County west a line running north-northeast from Blockhouse Point on the Potomac River to a point on the Patuxent River due north of Etchison, at Annapolis Rock. Consolidated sedimentary rocks of the Triassic age underlie a large area in the western corner of the County. This represents a small portion of the large Culpepper Basin in neighboring Virginia. Red Triassic sandstone was quarried for building stone at several places along the bluffs north of the Potomac River during the 19th century.

The general trend of the bedrock units across Montgomery County and the strike of the foliation and cleavage are northeast-southwest. Still, no one particular lithology appears to have had significant control over the topography.

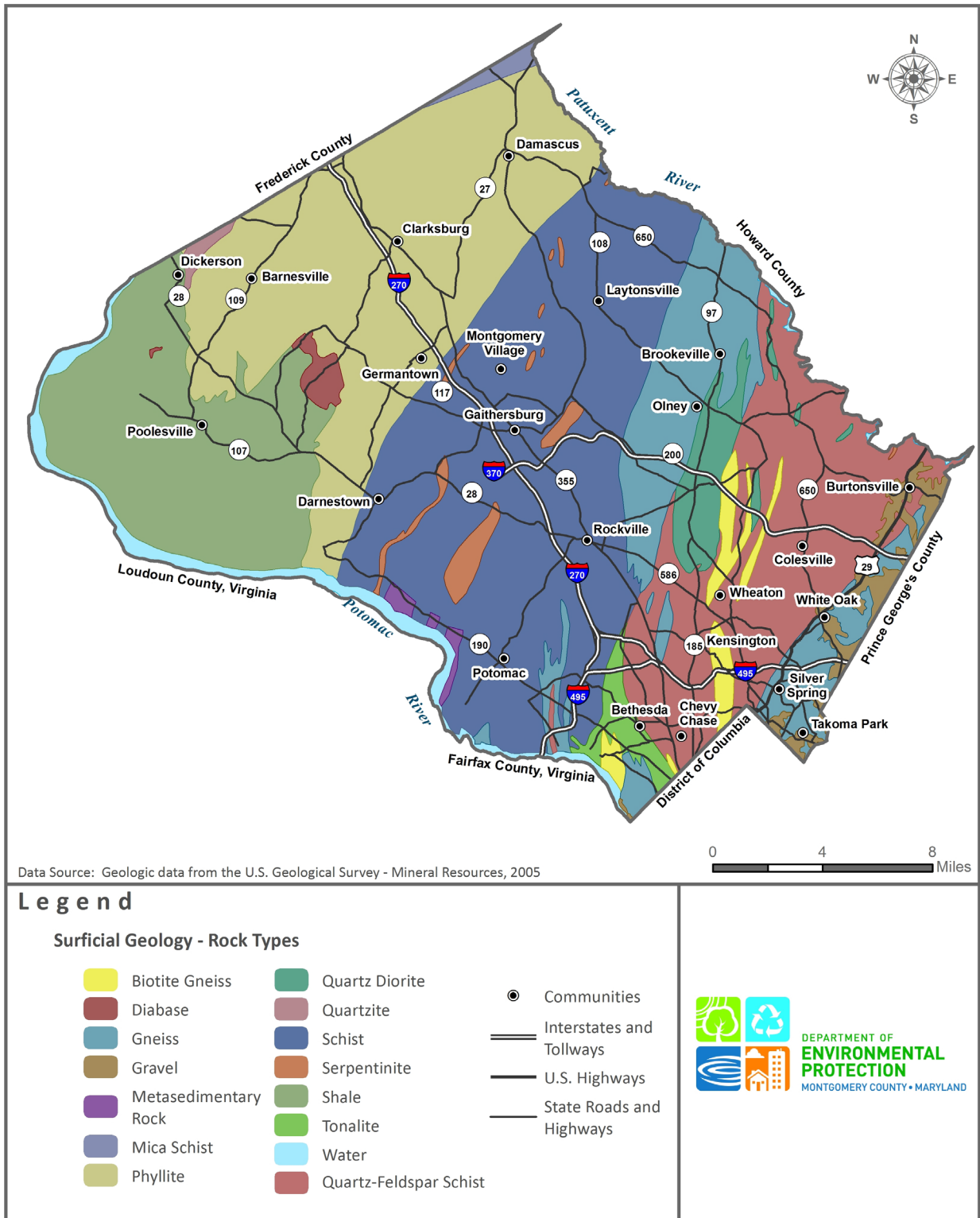
Alluvial deposits consisting of gravel, sand, silt, and clay of recent age are present along the Potomac River, particularly in the wide bottomlands in the area of Triassic rocks west of Seneca. This alluvial fill is much less developed where the river channel has been cut into hard metamorphic rocks such as along the Potomac east of Seneca, along the Patuxent River, and in the larger streams tributary to these rivers.

A large remnant of a high-level gravel terrace lies on Triassic bedrock between Martinsburg Road and Elmer School Road in the western part of the County. These gravels are floodplain deposits of the Potomac River when it flowed at a higher level in the late Tertiary or early Quaternary time before eroding to its present channel. Smaller patches of this same material occur to the south along the bluffs overlooking the floodplain of the Potomac River.

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<sup>6</sup>Source: "Bedrock Geology of Montgomery County," compiled by Jonathan Edwards, Jr., Maryland Geological Survey, Baltimore, MD. December 1992.

Figure 4.5 County Geologic Conditions Map





**D. Ground Water and Aquifers<sup>7</sup>** – The major hydrogeologic units in the County are shown in Figure 4.6. Most of the groundwater in these units occurred in the soil and weathered surface mantle, which has an average thickness of 20-50 feet. Another groundwater occurs in cracks and pores of the underlying rock.

The County's water resources affect many aspects of its water supply and wastewater disposal needs. Surface water flows, influenced by the underlying geology, have created the County's hills and valleys, establishing its watersheds. The resulting topography strongly influences the structure and alignment of wastewater collection systems and the need for various water supply pressure zones. Surface water resources provide the majority of the County's community water supply. Surface waters also receive treated flows from several WRRFs. Groundwater depth and availability strongly affect individual water and sewerage systems, municipal water systems dependent on wells (such as Poolesville), and provide the base flow to surface streams.

The average annual depth of the groundwater table in Montgomery County varies considerably from place to place, depending on the type of rock and the topographic situation as well as the annual rainfall. At an observation well at Fairland, in the Wissahickon schist of the eastern part of the County, the average annual depth to ground water is between 8 to 10 feet. The comparable depth at an observation well at Damascus in the Ijamsville phyllite and a more rugged topography is between 30-45 feet.

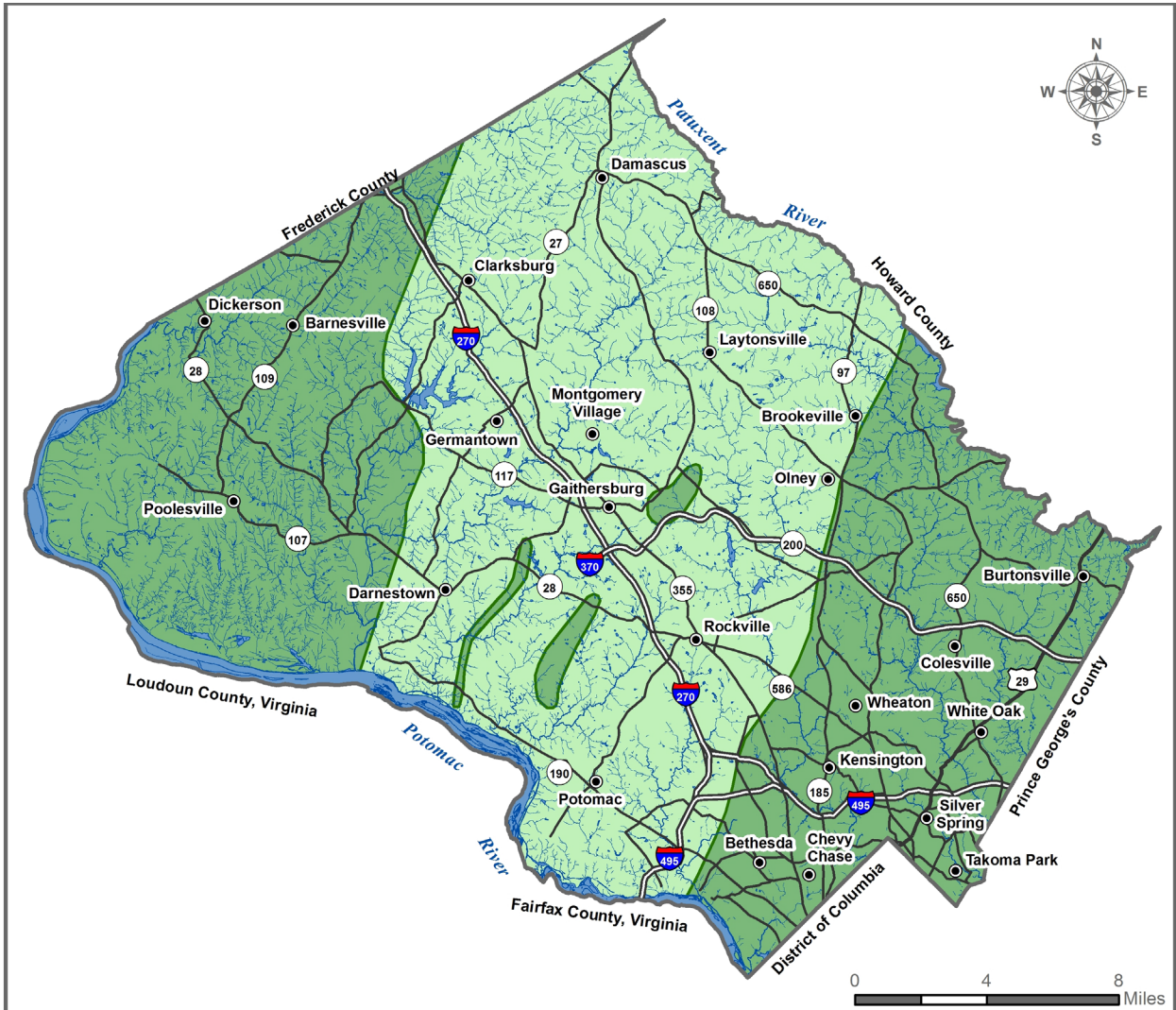
In the Manassas (New Oxford) siltstones and sandstones, the water table, as shown in scattered wells, lies at about 70-120 feet. However, this formation contains thin, saturated zones five to ten feet thick at lesser depths from which small quantities of water can be obtained. It is noteworthy that water at significantly greater depths in the Manassas formation has been reported adjacent to the Potomac River. However, the water in the ground lies chiefly in a surface zone about 150-250 feet thick.

The U.S. EPA designated parts of Montgomery, Frederick, Howard, and Carroll Counties as the Maryland Piedmont Aquifer. Areas in Montgomery County encompassed in this designation include the following drainage basins: Monocacy River, Little Seneca Creek above its confluence with Great Seneca Creek, and the Patuxent River above its confluence with Cabin Branch Creek. Most of these basins are underlain by crystalline igneous and metamorphic rocks of the Piedmont. However, small areas of Triassic sedimentary rocks are also included along the lower reach of Little Seneca Creek and near Dickerson.

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<sup>7</sup> Sources: 1986 Comprehensive Montgomery County Water Supply and Sewerage Systems Plan; U. S. EPA, FR57165-168 (1980), as per the Sole Source Aquifer Program, established under Section 1424(e) of the Safe Drinking Water Act of 1974.



Figure 4.6 County Hydrogeologic Units Map



Data Source: "The Quantity and Natural Quality of Groundwater in Maryland," - MD Dept. of Natural Resources, 1982.

**Legend**

**County Aquifer Units**

- 
**UNIT II**  
 The yields of wells in this unit range from less than 1 gallon per minute (gpm) to about 320 gpm. In this unit there is about a 6% chance of getting a yield of 50 or more gpm.
- 
**UNIT III**  
 The yields of wells in this unit range from less than 1 gpm to 200 gpm. In this unit there is only a 2% chance of getting a yield of 50 or more gpm.

-  Communities
-  Interstates and Tollways
-  U.S. Highways
-  State Roads and Highways
-  Streams and Rivers
-  Lakes, Ponds, and Reservoirs



In February 1998, the U.S. EPA determined that the Poolesville Area Aquifer System “is the sole source or principal source of drinking water for this area and if the aquifer system were contaminated would create a significant hazard to public health.” The sole source designation subjects all federally assisted projects to EPA review to ensure that the project’s design, construction, and operation will not contaminate the aquifer to create a significant hazard to public health.

**E. Wetlands** – Regulations regarding the definition of and allowable impacts to wetlands continue to evolve. Wetlands are defined by the Planning Board’s guidelines of February 1997 for Environmental Management of Development in Montgomery County as “an area that is inundated or saturated by surface water or groundwater at a frequency and duration sufficient to support, and that under normal circumstances does support, a prevalence of vegetation typically adapted for life in saturated soil conditions, commonly known as hydrophytic vegetation.”

Information on the location of major wetland areas in the County is available through National Fish and Wildlife Service maps. The County’s Department of Parks and Planning requires more accurate delineations of wetlands by a developer’s engineer during the development review process. Federal and state agencies also require this detailed delineation as a part of their wetland permit review processes.

In 1989, the Maryland Department of Natural Resources (DNR) prepared Nontidal Wetland Guidance Maps that showed the relative locations of large nontidal wetlands in Montgomery County. However, as stated in the instructions for using these maps, exact wetland boundaries and locations must be field determined utilizing the guidance provided by the Federal Government. Any new solid waste facility must address current federal and state wetlands requirements.

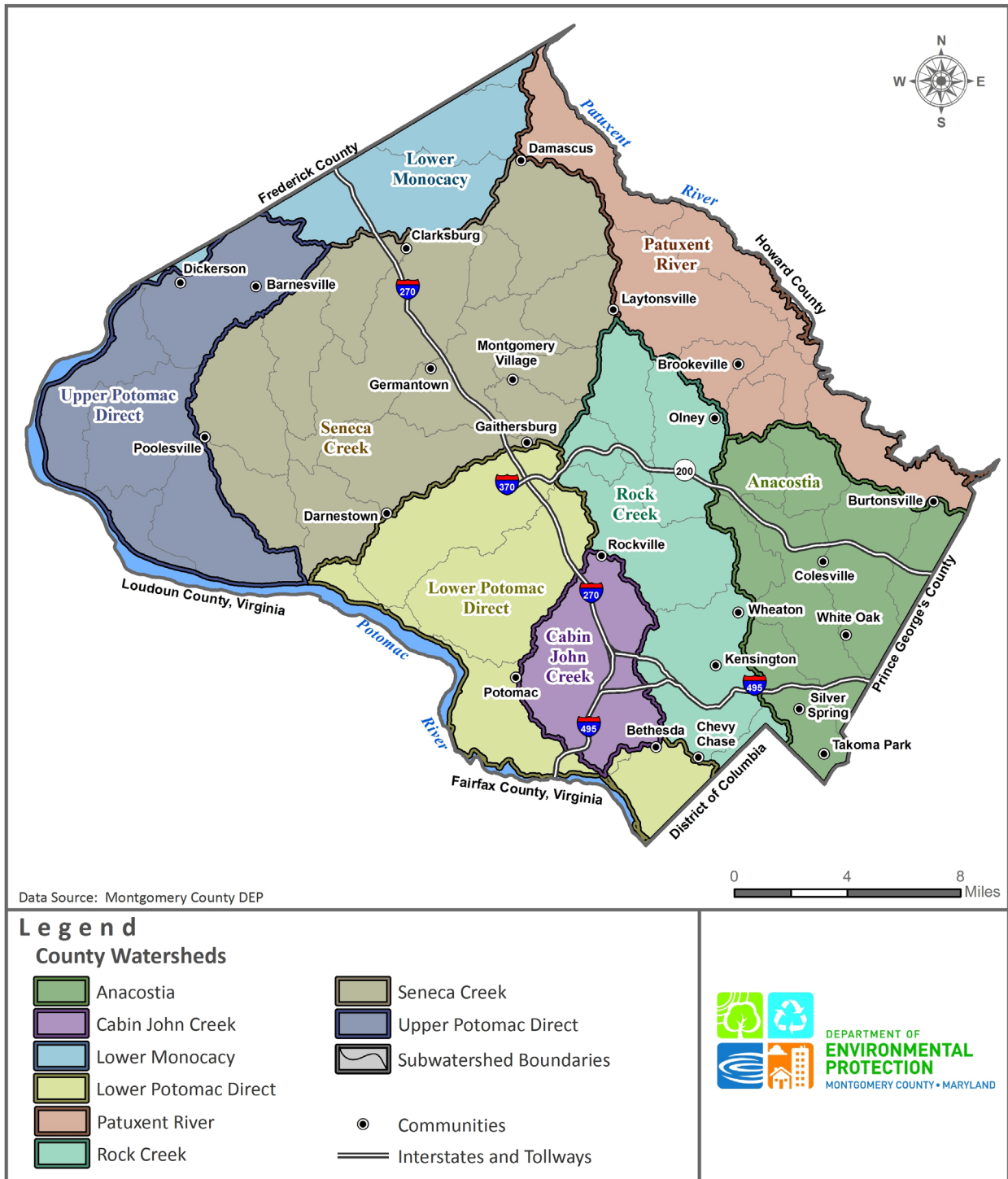
**F. Surface Waters, Floodplains, and Watersheds** – The County’s rivers, lakes, and streams provide drinking water, recreational opportunities, and wildlife habitat. Most of this surface water comes from naturally occurring run-off from rain and snow. All of the lakes in the County are human-made. The larger lakes were built for flood and sediment control and water supply. Some County waters also are used to receive treated sewage and excess stormwater run-off. Ultimately, all waterways flow into the Chesapeake Bay. The major surface drainage patterns are illustrated in Figure 4.7.

The County has 26 drainage basins flowing into four rivers. The County is bordered by two rivers, the Potomac and the Patuxent. Seventy percent of the County drains directly into the Potomac River and its major tributaries. Twelve percent of the County drains to the Anacostia River and then to the Potomac River. Six percent of the County north of Comus Road and MD 121 (east of I-270) drain toward the Monocacy River and onto the Potomac River via Bennett and

Little Bennett Creeks. The remaining twelve percent of the County along the Howard County line, northeast of Route 198 and New Hampshire Avenue, drains into the Patuxent River. The roads mentioned above generally follow ridgelines.

Montgomery County Subdivision Regulations prohibit building in a one-hundred-year flood plain, except for certain transportation structures. Flood plains comprise low-lying areas expected to be inundated by floods recurring every 100 years. The Department of Parks and Planning has flood plain maps for most streams in the County. The Federal Emergency Management Agency also publishes maps of flood plain zones for the purposes of federal flood insurance programs. Flood plain location can affect the design of solid waste facilities. Engineering studies to identify the extent of flood plains have been performed for the RRF site and the landfill property currently being held in reserve by the County.

Figure 4.7 Surface Drainage Patterns Map



**G. Existing Water Quality Designations** – MDE water quality standards identify water use designations for all surface waters in the County. Specific water quality criteria apply to each use designation. The use designation of County surface waters is listed below and shown in Figure 4.8.

Use I Water contact recreation and protection of aquatic life: Waters which are suitable for: water contact sports, play, and leisure time activities where the human body may come in direct contact with the surface water; fishing; the growth and propagation of fish (other than trout);

Other aquatic life and wildlife; agricultural water supply; and industrial water supply.

Use I-P Water contact recreation, protection of aquatic life, and public water supply: Waters suited for all uses identified in use I and are used as an available water supply.

Use III Natural trout waters: Waters suitable for the growth and propagation of trout and can support self-sustaining trout populations and their associated food organisms.

Use III-P Natural trout waters and public water supply: Waters that include all uses identified for Use III waters are used as a public water supply.

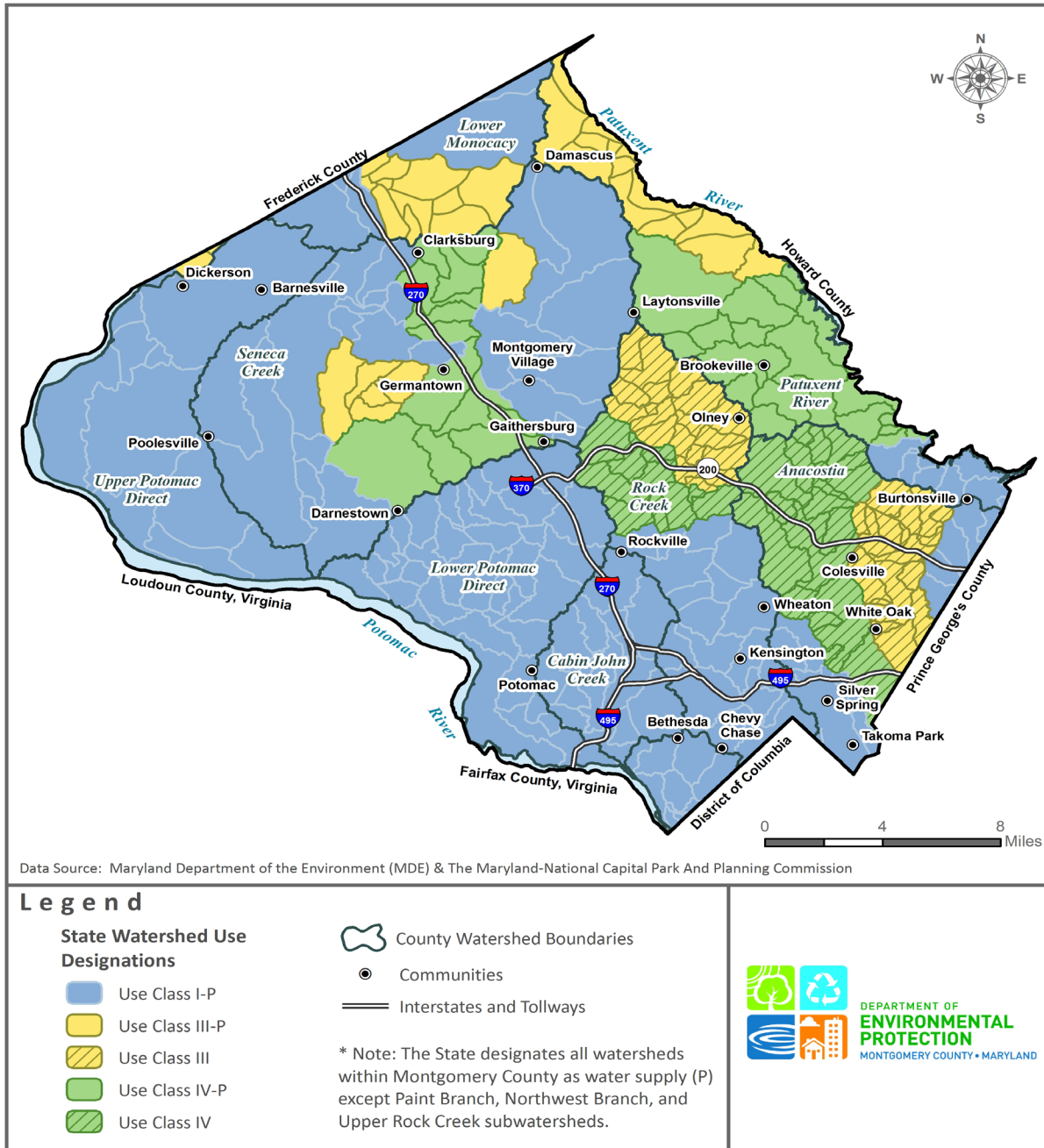
Use IV Recreational trout waters: Waters that can hold or support adult trout for put and take fishing are managed as a special fishery by periodic stocking and seasonal catching (cold or warm waters).

Use IV-P Recreational trout waters and public water supply: Waters that include all uses identified for Use IV waters are used as a public water supply.

**Needs Assessment and Plan Direction:** Limited sites remain in the County with physical characteristics suitable for developing large new solid waste facilities, particularly landfills. As described in the next section, both the physical characteristics of the land and previous land development patterns have reduced the availability of in-country locations appropriate for siting large new solid waste facilities. As such, the County has and will consider both in-County and out-of-County alternatives to meet its long-term solid waste facility needs (Chapter 5).



Figure 4.8 County Surface Water Use Designations Map



#### 4.4.2 Land Use Constraints

**Current Conditions and Constraints:** The County regulates the siting of solid waste facilities through provisions of this Plan, the County Code (primarily Chapter 48), and the Zoning Ordinance.

The County Zoning Ordinance includes standards for solid waste facilities.<sup>8</sup> The Zoning Ordinance restricts privately owned transfer stations, landfills, incinerators, and recycling facilities to select industrial zones. The County Zoning Ordinance expressly prohibits privately owned and operated incinerators in industrial zones.<sup>9</sup> Privately owned incinerators are allowed in industrial zones only if publicly operated.

The Zoning Ordinance limits privately owned transfer stations, landfills, and incinerators to the IH heavy industrial zone. Moreover, these facilities are permitted in the IH zone only if the County Board of Appeals grants a special exception determining that the specific IH parcel is suitable for a transfer station, landfill, or incinerator. At present, no privately owned MSW transfer station, landfill, or incinerator has satisfied both local land use requirements and MDE solid waste disposal facility permitting requirements. The County historically has reserved relatively small amounts of land for industrial uses. No more than seven vacant or re-developable (i.e., parcels where the value of the land exceeds the value of existing improvements) I-2 parcels of five acres or more exist in the County. The creation of new I-2 land seems unlikely during the life of this Plan, given existing land use patterns as well as County and State land development policies.

The Zoning Ordinance allows a construction debris recycling facility in a Rural Service Zone if the facility meets certain development standards outlined in Section 59-3.6.9 of the County Zoning Ordinance. These requirements set minimum standards for lot size, road frontage, distance to an interstate interchange, building setback, and on-site screening and landscaping. The facility also requires a construction debris recycling permit that satisfies the materials handling and reporting requirements of the County Zoning Ordinance.

Most of the southern and central portions of the County are unavailable for solid waste management uses given current development and land use patterns. Extensive areas throughout the County, primarily along rivers and streams, are dedicated to parks and conservation purposes. A large portion of the northern land area of the County is designated as an Agricultural Reserve, which is intended to preserve farmland and open spaces. The County Yard Trim Composting Facility, the RRF, and the land reserved for a potential future in-county landfill are located within the Agricultural Reserve and in an area identified by the EPA as a Sole Source Aquifer (SSA)

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<sup>8</sup> This plan shall not be used to create or enforce local land use and zoning requirements.

<sup>9</sup> See Section 59-3.6.9 of the County Zoning Ordinance.



system. This designation requires that federally assisted projects in this area are subject to EPA review to ensure that the project's design, construction, and operation will not contaminate the aquifer to create a significant hazard to public health. Although this would not apply to a County financed project, these solid waste processing facilities must comply with State design and permit requirements that provide a high standard of environmental and public health protection.