

Department of the Environment – Yard Waste, Food Residuals, and Other Organic Materials Diversion and Infrastructure Study

Study Topic 3: Review the status of infrastructure for the diversion of yard waste, food residuals, and other organic materials in the State and other states, including the availability of infrastructure in relation to:

1. Large generators of food waste, identified by type, quantity of food waste generated by entity, and geographic distribution; and
2. Organizations that use surplus food, identified by type, and geographic distribution.

Study Topic 4: Identify the infrastructure needs and challenges related to yard waste, food residuals, and other organics materials composting and diversion that are unique to the different geographic regions of the State.

March 2018

A. Introduction

Pursuant to Chapter 384 of 2017, *Yard Waste, Food Residuals, and Other Organic Materials Diversion and Infrastructure Study*, this document:

- Summarizes the current status of infrastructure for the diversion of yard waste, food residuals, and other organic materials in Maryland and other states; and
- Identifies the infrastructure needs and challenges related to yard waste and food residuals, and other organic materials diversion that are unique to the different geographic regions of the State.

Because the current infrastructure for managing organic materials in Maryland varies significantly by the type of material, this document is organized by material types. Section B provides the current status of yard trimmings diversion infrastructure, active and planned yard trimmings composting facilities in Maryland, and a regional analysis of yard trimmings composting capacities and challenges. Section C provides the current status of food scrap and manure diversion infrastructure, active and planned composting facilities, and a regional analysis of needs and challenges for food scrap and manure capacities. Sections D and E provide the current infrastructure for recycling of Natural Wood Waste and animal mortalities. Section F provides a comparison of the status of waste diversion infrastructure of other states with that of Maryland. For that comparison, the Department reviewed the status of the active organics diversion programs of California, Connecticut, Massachusetts, New Jersey, Pennsylvania, and Vermont.

B. Maryland Yard Trimmings Infrastructure

Introduction

Maryland law defines yard waste as “organic plant waste derived from gardening, landscaping, and tree trimming activities,” including “leaves, garden waste, lawn cuttings, weeds, and prunings.” Sources of yard trimmings include, for example, residences, businesses, schools, hospitals, golf courses, municipal parks and sports fields. In 2016, Maryland recycled 645,197 (85 percent) of the 756,768 tons of yard trimmings generated.¹ Maryland law currently prohibits a refuse disposal system, such as a landfill or incinerator, from disposing of separately collected loads of yard trimmings.²

Current Infrastructure.

Diversion of yard trimmings occurs through a combination of on-site management (including backyard composting), mulching, and composting. Yard trimmings that are accepted at landfills may be processed by mulching or composting and distributed to the public or used for the landfill construction projects. The Department only has detailed information on infrastructure for composting at permitted facilities, which makes up a relatively small share of all yard trimmings recycled (226,780 tons were accepted at permitted yard waste composting facilities, of a total of 645,197 tons of yard trimmings recycled in 2016). Subject to some exemptions for certain on-farm composting, a composting facility permit is generally required if a composting operation uses more than 5,000 square feet of area in support of composting. A composting facility permit is not required for mulching of yard trimmings only (e.g. shredding or grinding of yard trimmings for use as mulch, without an active composting process).

¹ Throughout this document, the quantities of yard trimmings and food scraps recycled are reported by the counties and by permitted composting facilities. The tons of yard trimmings and food scraps generated are based upon the total tons disposed, as reported by permitted solid waste acceptance facilities and the counties, and the portion of yard trimmings and food scraps in the disposed waste stream derived from the *2016 Maryland Statewide Waste Characterization Study* (2017), available at <http://mde.maryland.gov/programs/LAND/AnalyticsReports/2016%20Maryland%20Statewide%20WCS%20Study.pdf>

² Environment Article, § 9-1724, Annotated Code of Maryland.

Where yard trimmings are recycled at centralized facilities rather than on the site of generation, collection infrastructure consists of drop-off centers, curbside collection programs, and direct hauling to permitted landfills, transfer stations, or composting facilities. Anne Arundel, Baltimore, Charles, Harford, Howard, Montgomery, and Prince George's Counties, as well as Baltimore City, offer some form of residential curbside pickup of yard trimmings. Some municipalities or homeowners associations also offer curbside pickup of yard trimmings.

There are fifteen (15) permitted composting facilities that accepted and composted yard trimmings in 2016. Six landfills are currently permitted to compost yard trimmings. In 2016, the yard trimmings composting capacity at the permitted facilities was approximately 366,100 tons per year, compared with 226,780 tons of yard trimmings accepted. Table 1 lists the permitted and active composting facilities as of 2016 and their processing capacities, with actual tons of feedstock accepted. A map showing the active yard trimmings composting facilities is provided in Figure 1.

Table 1 – Permitted Yard Trimmings Composting Facilities Operational in 2016

County	Facility Name	Facility Type	Yard Trimmings		
			Capacity (tons)	Accepted (tons)	Compost produced* (tons)
Anne Arundel	Millersville Landfill	Yard Trimmings	35,000	27,357	3,448
Baltimore County	Eastern Sanitary Landfill	Yard Trimmings	20,000	21,096	930
Carroll	Harvest RGI	Yard Trimmings	50,000	37,443	26,067
Cecil	Cecil County Central Landfill	Yard Trimmings	10,000	10,130	5,065
Charles	Calvert Wood Recycling	Yard Trimmings	5,000	791	1,587
Frederick	Reichs Ford Site B Landfill	Yard Trimmings	25,000	9,683	5,000
Harford	Harford Mulch and Compost Facility	Yard Trimmings	40,000	7,682	7,510
Howard	Alpha Ridge Landfill	Yard Trimmings /Food Scraps /Manure	6,000	5,750	2500
	Level Land Mulch Yard	Yard Trimmings	6,250	585	500
Montgomery	Montgomery County Yard Trim Composting Facility	Yard Trimmings	77,000	57,556	50,686
	ACME Biomass	Yard Trimmings	19,000	10,000	5000
	Aspen Nursery	Yard Trimmings	1250	563	300
Prince George's	Organics Composting facility	Yard Trimmings /Food Scraps	61,000	30,328	25,956
	City of College Park Composting Facility	Yard Trimmings	5,600	3,293	1,404
Washington	Forty West Landfill	Yard Trimmings	5,000	4,523	2,261
Total			366,100	226,780	138,214

* Compost produced tons may be greater than feedstock accepted tons because feedstock may be accepted in one year and not composted until the next year. For example, feedstock may be accepted in 2016, but not composted until 2017

Permitted Yard Trimmings Composting Facilities Planned for 2018

Table 2 lists four planned composting facilities which are already permitted by the Department. Three facilities are new and one is in the process of expanding its current composting operations. The Department anticipates that the planned facilities will be constructed in 2018 provided that the facilities obtain all applicable local permits and approvals. The combined composting capacity of these facilities is 69,250 tons, which will bring the State's total yard trimmings composting capacity to 435,350 tons per year.

Table 2 – Permitted Yard Waste Composting Facilities Planned for 2018

County	Facility Name	Facility Type	Yard Trimmings		
			Capacity (tons)	Year Permitted	Operation
Anne Arundel	Tolson & Associates	Yard Trimmings	25,000	2018	Planned
Howard	Alpha Ridge Landfill - Expansion	Yard Trimmings /Food Scraps /Manure	2,500	2017	Planned
Frederick	Comus Materials, LLC	Yard Trimmings Food Scraps	16,500	2017	Planned
Prince George's	Cedarville Holdings Composting	Yard Trimmings	25,250	2017	Planned
Total			69,250		

Regional Yard Trimming Infrastructure Needs and Challenges

Figure 2 maps the active and planned yard trimmings composting facilities relative to four geographical regions in Maryland. For purpose of this report, Maryland's regions are defined as follows:

- Western Maryland – Allegany, Frederick, Garrett, and Washington;
- Central Maryland – Baltimore, Baltimore City, Carroll, Harford, Howard, and Montgomery;
- Southern Maryland – Anne Arundel, Calvert, Charles, Prince George's, and St. Mary; and
- Easter Shore – Cecil, Caroline, Dorchester, Kent, Queen Anne, Somerset, Talbot, Wicomico, and Worcester.

Table 3 provides a summary of existing and planned composting facilities and processing capacity by geographical region.

Table 3 – Summary of Yard Trimmings Composting Facilities and Processing Capacity by Region

Region	Population	# of Facilities	Capacity in 2016 (tons)	Additional Planned Capacity 2018 (tons)	Total Projected Capacity	Yard Trimmings Accepted in 2016 (tons)
Western Maryland	499,438	3	30,000	16,500	46,500	14,206
Central Maryland	3,225,474	8	219,500	2,500	222,000	140,675
Southern Maryland	1,837,938	6	106,600	50,250	156,850	61,769

Region	Population	# of Facilities	Capacity in 2016 (tons)	Additional Planned Capacity 2018 (tons)	Total Projected Capacity	Yard Trimmings Accepted in 2016 (tons)
Eastern Shore	453,597	1	10,000	0	10,000	10,130
Total	6,016,447	18	366,100	69,250	435,350	226,780

Summary of Yard Trimmings Infrastructure Findings

1. Yard trimmings are widely recycled, though mostly through means other than composting at permitted composting facilities, such as mulching.
2. Yard trimmings collection infrastructure varies by geographic region, with most of the more urban counties offering curbside residential collection, and the more rural counties offering drop-off sites or encouraging on-site management.
3. Surplus composting capacity for yard trimmings is available in all regions except for the Eastern Shore, which has only one yard trimmings composting facility.
4. Overall, in 2016, only 52 percent of the existing yard trimmings composting capacity was utilized.

C. Maryland Food Scraps and Animal Manure Infrastructure

Introduction

In 2016, organics were the second largest component of waste disposed in Maryland (next to paper), accounting for approximately 24 percent of the municipal solid waste disposed. Eight percent of the waste disposed, or an estimated 713,257 tons, was food scraps. Wasted food is a growing problem in the country. In the U.S., the quantity of wasted food per person has increased by 50 percent over the past 40 years. Approximately 40 percent of food produced in the U.S. goes to waste, or about 63 million tons annually.³ Because food scraps composting infrastructure overlaps in some cases with infrastructure for composting of animal manure, both materials are addressed in this section.

Food Scraps Generation

Maryland residents and businesses generated an estimated 839,505 tons of food scraps in 2016. The Department does not receive data from individual businesses on the quantity of food scraps generated. In order to determine the locations of large food scraps generators the Department looked at definitions of large food scraps generators (LFGs) used in other states. See Table 4 below. These thresholds are generally used for the purpose of determining applicability of the state's organics disposal ban or recycling requirement, except where otherwise noted. Based on the definitions in the other states, this document will use 52 tons of food scraps per year as the threshold for LFG status.

³ Massachusetts Food Policy Council, White Paper on Food Waste Reduction (July 2017), available at <http://www.mass.gov/eea/docs/agr/boards-commissions/white-paper-food-waste-reduction-july-2017.pdf>

Table 4 – Definitions of LFSGs in Other States

States	LFSG Definition
California ⁴	Entity producing 4 cubic yards of “organic waste” per week (includes food scraps and yard trimmings)
Connecticut ⁵	Entity producing 52 tons of food scraps per year
Massachusetts ⁶	Entity producing 52 tons of food scraps per year
Vermont ⁷	18 tons of food scraps per year (as of July 1, 2017)

The Johns Hopkins Center for a Livable Future (CLF) provided the number and locations of the following types of generators, which are the entities considered likely to be LFSGs:

- Supermarkets
- Food and Beverage Manufacturers and Slaughter Facilities
- Food Warehouses/Importers/Distributors
- Fast Food Restaurants
- Colleges & Universities
- Hospitals
- Senior Centers

Figure 3 provides a map of the LFSGs listed above.

According to the CLF, there are approximately 3,961 LFSGs located across Maryland. Massachusetts has developed quantitative estimates of food scraps generation for each type of LFSG category.⁸ The Department used the average food scrap generation rates from the Massachusetts study to calculate food scrap generation estimates for LFSGs in Maryland. Table 5 provides the estimates of food scrap generation from LFSGs. Assuming the generation estimates are reasonably accurate, Table 5 shows that the great majority of food scraps generated in Maryland were generated by LFSG types identified by the CLF.

Table 5 – Estimated Food Scraps Generation from LFSGs

Food Generator	Number of Sites by Region					Food Scraps Generation Per Site (tons/year)*	Total Food Scraps Generation (tons/year)
	Western	Central	Southern	Eastern	Total		
Supermarkets	68	398	239	45	750	133	99,750

⁴ California Public Resources Code, § 42649.81.

⁵ Connecticut General Statute Title 22a, Chapter 446d, Section 22a-226e.

⁶ Massachusetts Code of Regulations 310 CMR 19, Section 19,017.

⁷ 10 Vermont Statutes Annotated, § 6605k.

⁸ Draper/Lennon, Inc., Identification, Characterization, and Mapping of Food Waste and Food Waste Generators In Massachusetts p. 8 (Prepared for Massachusetts DEP, 2002), available at <http://www.mass.gov/eea/docs/dep/recycle/priorities/foodwast.pdf>

Food Generator	Number of Sites by Region					Food Scraps Generation Per Site (tons/year)*	Total Food Scraps Generation (tons/year)
	Western	Central	Southern	Eastern	Total		
Food/Beverage Manufacturers and Slaughter Facilities	100	305	122	146	673	656	441,488
Food Warehouses/Importers Distributors	83	242	136	60	521	147	76,587
Fast Food Restaurants	205	847	595	136	1,783	51	90,933
Colleges & Universities	7	36	11	5	59	242	14,278
Hospitals	6	39	10	9	64	117	7,488
Senior Centers	12	58	26	15	111	54	5,994
Total	481	1,925	1139	416	3,961		736,518

* Draper/Lennon, Inc., Identification, Characterization, and Mapping of Food Waste and Food Waste Generators in Massachusetts p. 8 (Prepared for Massachusetts DEP, 2002)

Food Scraps and Animal Manure Current Infrastructure

In 2016, approximately 126,248 of 839,505 tons of food scraps were diverted from disposal, or 15 percent of the food scraps generated. Of the diverted food scraps, a small quantity (less than 8,000 tons) was accepted at permitted composting facilities and the remainder was recycled through other methods. These other methods include use for animal feed or use as a soil amendment without composting. In 2016, five composting facilities were permitted to accept food scraps. Collection infrastructure for residential food scraps is currently limited; only one county, Howard County, currently offers curbside food scrap collection (in part of the county). Within Maryland commercial food scraps collection occurs through contracts with private haulers or with the destination facility.

Three of the five composting facilities permitted to accept food scraps also accept animal manure. Farms generate varying quantities of manure, depending on the number and type of animals housed. Typically, manure is stored on-site at the farm until it is used by the farmer or transported to another farm for use. The primary means of recycling animal manure is by land application in order to add nutrients to crop fields. Any nutrient application on a farm must be conducted under a nutrient management plan as required by the Maryland Department of Agriculture (MDA). MDA operates a manure matching service and manure transport program, which offers cost-share assistance up to \$20 per ton for animal producers with high soil phosphorus levels or inadequate land to spread their manure to transfer the manure to another location where it can be used. Animal manure may also be composted prior to use. Maryland composting regulations do not require a permit for the following types of animal manure composting on a farm:

- Composting of animal manure generated on site, with all the resulting compost used on site, up to any size; and

- Composting of animal manure generated on- or off-site, with the resulting compost used on- or off-site, if the area used for composting is limited to 40,000 square feet and the farmer has a nutrient management plan and soil conservation and water quality plan that addresses the composting.

The Department does not have data on the total quantity of manure generated in Maryland or the quantity of manure recycled outside of permitting composting facilities (e.g. by land application or by composting at non-permitted sites). Maryland farms that generate manure include animal feeding operations (predominately poultry farms), as well as horse farms. A map showing the locations of animal feeding operations and FSCAP-certified horse farms is contained in Figure 4.

The current food scraps and manure composting capacity at permitted facilities is approximately 59,120 tons per year. Table 6 provides a list of permitted and active composting facilities as of 2016 and their processing capacities with actual tons of feedstock accepted. A map showing the locations of the operational food scraps and manure composting facilities is contained in Figure 5.

Table 6 – Food Scraps/Manure Permitted Composting Facilities Operational in 2016

County	Facility Name	Facility Type	Capacity (tons)	Accepted (tons)	Compost produced* (tons)
Caroline	Twin Maple	Food/Manure	13,000	0	0
Cecil	West Coast Mushrooms	Hay/Straw/Manure	16,120	16,170	20,700
Harford	Veteran Compost	Food/Manure	20,000	1,800	1,435
Howard	Alpha Ridge Landfill	Food/Manure	2,000	1,950	1,335
Prince George's	Organics Composting Facility	Food/Yard Waste	8,000	4,062	6,490
Total			59,120	23,982	29,960

* Compost produced tons may be greater than feedstock accepted tons because feedstock may be accepted in one year and not composted until the next year. For example, feedstock may be accepted in 2016, but not composted until 2017.

Planned Food Scraps/Manure Composting Facilities

Table 7 provides a list of three planned composting facilities. Two facilities are new and one is in the process of expanding its current composting operations. The Department anticipates that the planned facilities will be constructed in 2018 provided that the facilities obtain all applicable local permits and approvals. The combined composting capacity of these facilities is 38,000 tons per year, which will bring the total State's food scraps/manure composting capacity to 97,120 tons per year.

Table 7 – Planned Permitted Food/Manure Composting Facilities for 2018

County	Facility Name	Facility Type	Capacity (tons)	Year Permitted	Operation
Anne Arundel	Veteran Compost-II*	Food/Manure	20,000	2018	Planned
Frederick	Comus Property LLC	Food/Yard Waste	16,500	2017	Planned
Howard	Alpha Ridge Landfill – Expansion	Food/Yard Waste/Manure	1,500	2017	Planned
Total			38,000		

* Veteran Compost is in the process of obtaining coverage under the general composting facility permit.

Regional Food/Manure Infrastructure Needs and Challenges

In Figure 6, the locations of active and planned permitted food/manure composting facilities are mapped relative to four geographical regions. Table 8 provides a summary of existing and planned composting facilities, and processing capacity by geographical region.

Table 8 – Summary of Food/Manure Composting Facilities and Processing Capacity by Region

Region	Population	# of Facilities	Capacity in 2016 (tons)	Planned Capacity 2018	Total Projected capacity	Food/Manure Accepted in 2016
Western Maryland	499,438	1	0	16,500	16,500	0
Central Maryland	3,225,474	2	22,000	1,500	23,500	3,750
Southern Maryland	1,837,938	2	8,000	20,000	28,000	4,062
Eastern Shore	453,597	2	29,120	0	29,120	16,170
Total	6,016,447	7	59,120	38,000	97,120	23,982

Anaerobic Digestion Infrastructure

According to the American Biogas Council, “anaerobic digestion is a series of biological processes in which microorganisms break down biodegradable material in the absence of oxygen.”⁹ Anaerobic digestion can be used to generate biogas from a variety of organic materials, including food scraps, animal manure, municipal wastewater and sewage sludge, and fats, oils, and grease. According to EPA, two anaerobic digesters are operating in Maryland; one of them is located at the Millennium Farm in Worcester County and the other one is located at the USDA/ARS Beltsville Agricultural Research Center (BARC) in Beltsville, Prince George’s County.¹⁰ Both sites only accept the organics generated on the premises. The Millennium Farm digester treats approximately 1,200 tons of poultry litter from Millennium annually. The BARC digester is installed to accept manure generated from 100 milking cows from the BARC research farm. A map showing the location of composting facilities and anaerobic digesters is contained in Figure 5.

Organizations that Use Surplus Food

Maryland has two major food banks, the Maryland Food Bank (MFB) and the Capital Area Food Bank (CAFB). According to the MFB, 1 in 9 Marylanders suffers from food insecurity.¹¹ The MFB has locations in central Maryland (Baltimore City), Maryland’s Eastern Shore (Salisbury) and Western Maryland (Hagerstown). The MFB receives food from donors, including government, food retailers, wholesalers, manufacturers, distributors, farms,

⁹ American Biogas Council, “What is Anaerobic Digestion,” https://www.americanbiogascouncil.org/biogas_what.asp.

¹⁰ EPA, “AgStar Livestock Anaerobic Digester Database,” <https://www.epa.gov/agstar/livestock-anaerobic-digester-database>.

¹¹ Maryland Food Bank, <http://www.Mdfoodbank.org>.

and corporations. It distributes food through partner organizations, including local food banks and shelters. In 2017, the MFB collected and distributed approximately 12,888 tons of surplus food.

The CAFB operates in the Washington metropolitan area, including in Montgomery and Prince George’s Counties.¹² According to CAFB, in fiscal year 2015, 8,700 tons of food was distributed in Maryland through food assistance partners and direct distribution programs. Figure 7 provides a map of food pantry and free meal sites associated with the MFB and CAFB. Aside from the MFB and CAFB, additional food banks, pantries, soup kitchens, and other food aid sites exist throughout Maryland. One significant example is the Manna Food Center, which operates in Montgomery County and provides food to 32,000 individuals each year.¹³

Summary of Food Scraps and Manure Infrastructure Findings

1. In 2016, only 40 percent of the available composting capacity for food scraps and animal manure was utilized. However, Maryland food composting capacity is only 10% of the total needed to compost all food scraps.
2. There are currently no operational composting facilities in Western Maryland, though one is planned for 2018.
3. Anaerobic digestion is limited to two, small-scale digesters that process only on-site materials.
4. Collection infrastructure for food scraps composting, particularly for residential food scraps, is currently limited; this is likely partly a result of the limited processing capacity for food scraps.
5. More information is needed to accurately assess the infrastructure capacity for food donation, including collection and distribution infrastructure.

D. Maryland Natural Wood Waste (NWW) Infrastructure

NWW includes tree stumps, brush and limbs, root mats, logs, and other natural vegetative materials. Maryland has a comprehensive and stable system for collection and recycling of NWW. In 2016, forty-six (46) NWW recycling facilities were permitted by the Department to accept and process NWW. During the same year, these facilities accepted 484,079 tons of NWW and recycled 429,121 tons. Some Maryland landfills also accept and recycle NWW. The Department does not have data on the total quantity of NWW generated. Table 9 provides a list of permitted NWW facilities and Figure 8 provides a map showing the locations of these facilities.

Table 9 – Permitted Natural Wood Waste Facilities

County	Facility Name	NWW Accepted	NWW Recycled
Allegany	Braddock Construction, LLC.	12	8
Anne Arundel	A-A Recycle & Sand, Inc.	23,618	0
	Bronson Contracting, Inc.	0	0
	L and W Recycling	35,252	35,252
Baltimore County	King Mulch and Pallet	4,442	4,442
	Edrich Lumber, Inc.	19,164	19,164
	Northwest Recycling, LLC.	9,750	9,750
	Wirtz & Daughters, Inc.	16,796	16,796
	Hollins Organic Products, Inc.	14,118	14,118
	Hollins Organic Products, Inc. 2	0	0

¹² Capital Area Food Bank, <https://www.capitalareafoodbank.org/about-cafb/>

¹³ Manna Food Center, <https://www.mannafood.org/>

County	Facility Name	NWW Accepted	NWW Recycled
Calvert	A & L Natural Wood Waste Facility	18,281	6,311
	231 Materials & Recycling Products, LLC.	0	0
Caroline	Cahall Construction, LLC	929	0
Carroll	C. J. Miller, LLC.	882	882
	Harvest RGI, LLC	19,054	21,777
	Hidey's Landscape Supply Yard	1,777	2,327
Cecil	Chesapeake Wood Recycling	690	680
	Mountain Mulch Elkton, LLC	5,605	5,639
Charles	Beuchert Excavating, Inc.	564	3,272
	Calvert Wood Recycling	7,460	7,371
	Mona Recycling	130	120
Frederick	Butler Wood Recycling	1,099	754
	Comus Stone-Woodsboro Operation	0	0
	Grant County Mulch	19,597	18,892
	Bussard Brothers Landscape	7,119	7,119
Harford	Harford Industrial Minerals, Inc.	0	0
	Heston's Mulch	329	329
	Brian Baker, Inc.	4,984	4,713
	Crouse Construction Company, Inc.	0	0
	Comer Construction, Inc.	6,049	5,497
Howard	RLO Contractors, Inc.	60,190	60,190
	Level Land Lisbon Mulch Yard	15,935	15,488
	Oak Ridge Farm	17	18
Kent	Sharp Lawn & Tree, Inc.	454	394
Montgomery	Allentuck Landscaping, Inc.	0	0
	Acme Biomass Reduction, Inc.	23,368	19,864
	Country Nursery	0	0
	Grant County Mulch Ground Covers	16,289	13,818
Prince George's	Grant County Mulch Facility	128,180	115,975
Queen Anne's	Baker Rubble Landfill	2,807	2,807
	Grange Hall Yard	2,976	0
	Pardoe's Lawn and Tree Service, Inc.	327	0
St. Mary's	Charlotte Hall Lumber Yard	10,548	10,443
Talbot	Dependable Sand and Gravel Company, Inc.	4,311	4,005
Washington	Hess Road Recycling Center	296	296
Wicomico	Dunn's Tractor Service, Inc.	680	680
Total		484,079	429,191

E. Animal Mortalities

During the course of growing animals for human consumption, a small percentage die. Many carcasses are managed on site in a facility designed to manage mortalities. Managing poultry mortalities on site helps to avoid the spread of diseases that could impact other animals. The mortality management facilities are built according to Natural Resource Conservation Service (NRCS) standards. For Animal Feeding Operations (AFOs) that require coverage under the Department's General Discharge Permit for AFOs, this is a requirement. Generally, the mortalities are composted according to a process designed to ensure complete conversion of the carcasses into compost which can be used as a soil amendment/fertilizer on the farm and/or mixed in with the manure generated on the farm. Transportation of animal carcasses off the farm prior to composting could cause biosecurity issues and therefore is generally avoided.

F. Status of Other States' Organics Diversion Infrastructure

The Department reviewed the status of the organics diversion programs in California, Connecticut, Massachusetts, Pennsylvania, and Vermont. The following is a summary of organics diversion infrastructure in each of those states in comparison with Maryland. Maryland generally has fewer composting facilities and anaerobic digestion facilities than the other states surveyed, proportionate to its population.

Table 10
Comparison of Organics Diversion Activities of Other States with Maryland*

State	Population	Organics Diversion	Permitted Yard Trimmings Composting Facilities	Permitted Food Scraps Manure Composting Facilities	Anaerobic Digestion Sites	Food Disposal Ban is in Effect
California	39,776,830	4 million tons of food scrap/yard trimmings Composted or mulching	30	43	27	Yes
Connecticut (2014)	3,588,683	271,855 tons food scrap/yard trimmings composted or processed	114	6	1	Yes
Massachusetts	6,895,917	260,000 tons of food scraps diverted. Yard trimmings data is not available.	178	40	5	Yes

State	Population	Organics Diversion	Permitted Yard Trimmings Composting Facilities	Permitted Food Scraps Manure Composting Facilities	Anaerobic Digestion Sites	Food Disposal Ban is in Effect
Maryland	6,016,447	126,248 tons of food scraps, 645,197 tons of yard trimmings, and 484,079 tons of Natural Wood Waste	15	5	2	No
Pennsylvania (2015)	12,823,989	610,276 tons of yard trimmings and 311,302 tons of food scraps	45	16	28	No
Vermont	623,960	44,383 tons of food scraps/yard trimmings was composted		12 (Include yard trimmings)	16	Yes

*Unless otherwise note data is for calendar year 2016