Maryland
Department of the Environment

Larry Hogan, Governor
Boyd K. Rutherford, Lt. Governor

Ben Grumbles, Secretary
Horacio Tablada, Deputy Secretary

September 20, 2019

The Honorable Thomas V. Mike Miller, Jr.
President
Senate of Maryland
State House, H-107
Annapolis MD 21401-1991

The Honorable Adrienne Jones
Speaker
House of Delegates
State House, H-101
Annapolis, MD 21401-1991

Re: FY 2019 Yard Waste, Food Residuals, and Other Organic Materials Diversion and Interim Report

Dear President Miller and Speaker Jones:

As required in Chapter 384, Acts of 2017, I am enclosing a copy of the 2019 Yard Waste, Food Residuals, and Other Organic Materials Diversion and Infrastructure Study Group Interim Report.

If you need additional information, please contact Ms. Kaley Laleker, Director of the Land and Materials Administration, at 410-537-3304 or email at *kaley.laleker@maryland.gov*.

Sincerely,

Ben Grumbles
Secretary

Enclosures

cc: Kaley Laleker, Director, Land and Materials Administration
Sarah Albert, Maryland Department of Legislative Services

YARD WASTE, FOOD RESIDUALS, and OTHER ORGANIC MATERIALS DIVERSION AND INFRASTRUCTURE STUDY GROUP

– FINAL REPORT –
July 2019

Prepared by:
Land and Materials Administration
Resource Management Program

Prepared for:

Thomas V. Mike Miller, Jr., Senate President
Maryland General Assembly

Adrienne A. Jones, Speaker of the House
Maryland General Assembly

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Executive Summary

Background

On May 4, 2017, Governor Larry Hogan signed House Bill 171 (the bill) entitled *Yard Waste, Food Residuals, and Other Organic Materials Diversion and Infrastructure – Study*, Chapter 384, Acts of 2017 (see Appendix A for a copy of the bill). The bill became effective July 1, 2017, and required the Maryland Department of the Environment (the Department or MDE) to study, review, explore, identify, and make recommendations regarding specified matters related to the diversion of yard waste (henceforth yard trimmings), food residuals, and other organic materials from refuse disposal facilities; and to evaluate the status of infrastructure in the State.

The bill required the Department to consult with multiple stakeholders to conduct the study. These stakeholders included: several State agencies; the University of Maryland; Johns Hopkins University's Center for a Livable Future; farm industry and environmental nonprofits; food service trade groups; the Maryland Food Bank; organic materials recycling businesses and trade groups; and other stakeholders in Maryland's organic materials recovery industry, herein known as the "study group" (see Appendix B for a list of study group members). As study group members requested information or feedback from parties not involved in the study group, subject matter experts were invited to the meetings to present. A total of 10 public meetings were held, with participation and input from other interested parties (see Appendix C meeting announcements, meeting minutes, and meeting sign-in sheets).

Information on the activities of the study group is posted on the Department's *Organics Diversion and Composting* webpage.[1]

Discussion

The bill's study topics cover multiple aspects of organic materials diversion in Maryland. White papers and presentations were created to provide study group members with applicable background material, and to inform meeting discussions. Copies of all white papers and presentations can be viewed in the appendices. To conduct targeted discussions and to draft preliminary recommendations, three subgroup meetings were held. The subgroup meetings held focused on source reduction/food donations, composting, and anaerobic digestion (see Appendix B for a list of subgroup members).

In conducting the study, the bill required the Department to do the following:

1. Study the diversion of yard trimmings, food residuals, and other organic materials from refuse disposal facilities in Maryland, including any state laws or regulations governing the diversion of these materials;
2. Study the laws and regulations of other states, including the laws and regulations of Massachusetts, Connecticut, Vermont, California, and Rhode Island, that govern the diversion of yard trimmings, food residuals, or other organic materials;

[1] *See* the Department's *Organics Diversion and Composting* webpage at mde.maryland.gov/composting.

3. Review the status of organic materials diversion infrastructure in the State and other states listed above, including the availability of infrastructure in relation to:
    i. Large generators of food residuals identified by type, quantity of food residuals generated per entity, and geographic distribution in the State; and
    ii. Organizations that use diverted edible food identified by their type and geographic distribution in the State;
4. Explore ways to promote composting of yard trimmings and food residuals as well as other methods of organic materials reduction and diversion, including ways to encourage:
    i. A decentralized and diverse infrastructure; and
    ii. The prevention or source reduction of organic materials generation;
5. Identify the infrastructure needs and challenges related to yard trimmings, food residuals, and other organic materials diversion that are unique to the different geographic regions of Maryland;
6. Identify means to encourage investment into infrastructure and to provide economic incentives to expand capacity of organic materials diversion in the State, including:
    i. The development of, in consultation with local governments, model guidelines and best practices for the local identification of properties or development zones where diversion infrastructure may be developed; and
    ii. The identification of any tax, grant, or other incentives that already exist to encourage and support infrastructure and economic development;
7. Identify any applicable sanitary and public health concerns related to yard trimmings, food residuals, and other organic materials composting and diversion;
8. Identify the current process for permitting anaerobic digestion facilities and recommend improvements that should be made to the anaerobic digestion permitting process;
9. Recommend measures to promote the diversion of yard trimmings, and food residuals, and other organic materials in the State, including any necessary programmatic, legislative, or regulatory changes; and
10. Subject to the approval of the affected local governments, recommend a pilot program for the region in which Elkridge and Jessup are located to prioritize infrastructure development and food waste recovery from large food residuals generators.

Recommendations

Based upon the results of research into the study topics and discussion with the study group, the Department offers the following recommendations.

Legislative Recommendations

1. **Expand the liability protections in Maryland's "Good Samaritan" food donation law.**[2] Similar to federal law, Maryland's law only provides liability protection for donations where the food will be provided for free to the end recipient by a nonprofit. It does not protect donations of food provided to persons in need at a reduced cost. It also does not provide protection where donors distribute food directly to the end recipient, without first passing through a nonprofit. The law should be expanded to protect donations of wholesome food at reduced cost to those in need, as well as direct donations by farmers.

[2] Health – General Article, § 21-322 and Courts and Judicial Proceedings Article, § 5-634.

Additionally, the Department and the Maryland Department of Health (MDH) should consider whether and how direct donations by food service facilities other than farms should be protected. Liability protection should continue to apply only to donations made in good faith where there is no "gross negligence or willful and wanton misconduct." Concurrent with a change in the law, the Department should work with other state and local agencies and food banks to promote the law to potential donors.

2. **Expand the Farm Food Donation Tax Credit Pilot Program (accomplished by Chapter 361 of 2019).** Section 10-745 of the Tax-General Article, Annotated Code of Maryland, and COMAR 15.01.12 provide tax credits for certain food donations made by farms. The Department and the study group suggested that Maryland should extend this program beyond tax year 2019, and to all counties. Farmers should self-certify the value of the donated agricultural products as they are in the best position to assess this. Additionally, the Maryland Department of Agriculture (MDA) should work to promote the Farm Food Donation Tax Credit and create guidance materials for how to use standard-sized containers and weight conversion tables as an option to determining value of food donations.

   Following study group discussions, legislation passed during the 2019 legislative session that moves toward implementing this recommendation. Chapter 361 extended the tax credit to all counties and extended the program through tax year 2021. The effective date of the bill is July 1, 2019.

Regulatory Recommendations

3. **Develop solid waste permit exemptions for certain anaerobic digestion facilities.** The Department is currently developing regulations governing recycling facilities under Chapter 376 of 2017. These regulations will include exemptions from the requirement to obtain a refuse disposal permit for certain types of recycling facilities. The Department should incorporate a regulation on anaerobic digestion facilities to clarify the regulatory requirements with respect to solid waste and recycling. The regulation should establish basic design and operational requirements to protect the environment and public health, and should include permit exemptions for lower-risk facilities. The regulation should also specifically address and facilitate decentralized, onsite anaerobic digestion systems.

Programmatic Recommendations

4. **Collaborate on research and development.** State agency partners, including the Department, Maryland Department of Transportation Maryland Port Administration (MPA), Maryland Environmental Service (MES), and MDA, should identify research and development opportunities around the use of dredged materials, compost, and digestate for different uses and to conduct an analysis to identify existing markets for these materials.

5. **Publish comprehensive permitting guidance for anaerobic digestion facilities.** Prospective anaerobic digester operators must navigate State environmental permitting regulations related to air, water, and (potentially) solid waste, in addition to potential local and other State agency requirements. The Department should develop an anaerobic digestion regulatory guidance document to guide an operator through the process.

6. **Conduct targeted education and outreach to reduce barriers to food donation.**
   a. Develop and promote outreach materials on federal and State "Good Samaritan" laws, including a Maryland-specific fact sheet that can be placed on the Department's and MDA's website, distributed to food banks to pass along to potential donors, and distributed to other businesses and institutions that may generate surplus food.
   b. In consultation with the Maryland State Department of Education (MSDE), develop a toolkit for K-12 schools on reducing food waste, including through source reduction, donation, and onsite composting or anaerobic digestion. Many useful materials in this area have already been developed in other states and local jurisdictions within Maryland; to the extent they are available, the toolkit should adopt or adapt the best of these existing resources. Hold an in-person training for local school systems, teachers, and administrators to present the toolkit and answer questions.

7. **Improve access to information on economic incentives for organics recycling.** Though economic incentives may be available to developers of proposed organics recycling facilities, it can be difficult to locate incentives from multiple sources, and determine eligibility for particular projects. Working with the Department of Commerce and the Maryland Energy Administration, the Department should build off of the information presented to the study group to create a sector-specific publication listing economic incentives and assistance potentially applicable to organics recycling projects, as well as contact information for more assistance.

8. **Create a recognition program for businesses, schools, and farms that recover food.** In conjunction with the new, streamlined online reporting system for business recycling, the Department should provide the opportunity for businesses, schools, and farms to report food recovery activities to the Department; the Department should select one or more entities to recognize each year for their efforts through an article and press release. The program should be developed in coordination with the Maryland Green Registry. A badge or other symbol of participation in food recovery efforts should be developed for entities to include on websites and promotional materials.

9. **Explore the use of State land for composting and anaerobic digestion facilities.** One of the most frequently cited challenges to expanding organics recycling capacity in Maryland is the difficulty of identifying and obtaining a suitable location for a new facility. Opportunities may exist to identify State properties conducive to use for private composting or anaerobic digestion facilities. The Department should work with the Departments of Natural Resources and General Services to evaluate this possibility.

10. **Establish guidance on food safety related to donations.** The Harvard Food Law and Policy Clinic did a survey of all states about laws, regulations, and guidance on food safety specific to donation. A lack of comfort with food safety is a major barrier to more food donations. Maryland should publish guidance on property safety procedures for food donors and food banks. Food safety inspectors should be trained on the guidance so that it can be used as an outreach tool in their interactions with food establishments.[3]

[3] See HFLPC, chlpi.org/wp-content/uploads/2013/12/50-State-Food-Regs_March-2018_V2.pdf.

11. **Support national initiatives for more consistent date labeling.** Maryland should support initiatives to create consistent labeling at a national level. The Grocery Manufacturers Association (GMA) Product Code Dating Initiative, for example, is a voluntary industry initiative to use the codes "BEST IF USED BY" to indicate product taste/texture, and "USE BY" to indicate product safety. Because many products are sold across multiple states, a date labeling solution should ideally be consistent throughout the U.S.

12. **Update the MDA Compost Operator Exam to include health and safety topics.** MDA, in consultation with United States Composting Council (USCC), the Solid Waste Association of North America (SWANA), and University of Maryland Extension (UME) should explore how to add relevant health and safety topics uniformly in third-party composting training programs.

13. **Create an outreach campaign to educate the public, local governments, and others on composting and anaerobic digestion.**
    a. The campaign may include fact sheets and other written materials, webinars, and training.
    b. A series of fact sheets should seek to improve public awareness on composting and anaerobic digestion through plain language information on the following topics:
        i. The Department's permitting process and environmental safeguards for composting facilities;
        ii. "Myths and facts" about composting and anaerobic digestion;
        iii. Benefits of composting and anaerobic digestion;
        iv. Developing a diverse and decentralized organics' infrastructure;
        v. The benefits of composting and anaerobic digestion, including uses of compost and digestate; and
        vi. Maryland Department of Transportation State Highway Administration (SHA) compost specifications;
    c. K-12 fact sheets should be created to include resources from the Maryland Association for Environmental and Outdoor Education.
    d. MDE, MDA, UME, and local governments should work together to conduct education and outreach on diverse and decentralized organics recycling infrastructure, including organics recycling on site at residences, community gardens, schools, institutions, farms, and businesses. The Maryland Agricultural Education Foundation and UME should be used as resources for composting education and best practices.

14. **Partner with MDA and the Maryland's horse industry to provide outreach to operators of horse farms regarding composting of horse manure.** This outreach may take the form of a training session or workshop.

15. **Simplify reporting of organics diversion and incorporate voluntary reporting of food donation and animal feed.** Currently, businesses, processors of recyclables, and counties all have different reporting forms for reporting annual recycling and waste disposed totals. All surveys are provided in Microsoft Excel or Word format. Maryland should convert all annual surveys to an online reporting system to facilitate voluntary reporting of commercial

organics recycling activities. Currently the Department collects only information on recycling of organics; online reporting forms should also enable businesses to report quantities of food donated or used for animal feed. Current plans are to have county reporting operational for calendar year 2018 reporting while businesses and processors should be operating for calendar year 2019 reporting.

16. **Clarify in guidance that anaerobic digestion is considered recycling in meeting counties' Maryland Recycling Act (MRA) recycling rates.** Recyclable materials are defined as those materials that would otherwise become solid waste for disposal in a refuse disposal system and may be collected, separated, or processed and returned to the marketplace in the form of raw materials or products. Anaerobically digested material meets the definition provided the digested material is returned to the marketplace. MRA materials anaerobically digested will count towards a county's MRA recycling rate. Credit will be issued based upon the%age of digested material returned to the marketplace (*e.g.*, if 80% of digested material is returned to the marketplace, 80% of the tons sent to the anaerobic digester facility will count as recycled).

17. **Update Maryland's Source Reduction (SR) Credit System to include food reduction activities.** Maryland's Source Reduction Credit System has remained unchanged since it was first introduced in 2000. Maryland should create a "living" SR Credit System where changes can be made to introduce new activities shown to reduce that amount of waste generated. Currently Maryland is in the process of instituting this recommendation. The first revised SR checklist is expected for calendar year 2018 activities.

18. **Promote a food recovery hierarchy**, including in outreach materials developed through the other recommendations listed above. The hierarchy should encourage (in order of preference) source reduction, feeding hungry people, feeding animals, and composting and anaerobic digestion, with disposal as a last resort.

Introduction

Organic material plays an important role in Maryland's efforts to sustainably manage materials, reduce greenhouse gas (GHG) emissions, improve soils, ensure access to healthy food, and support a vibrant and sustainable economy. Organics comprise 24% of the material currently being disposed in Maryland, yet other options for organics exist, including waste prevention, food donation and use for animal feed, composting, and anaerobic digestion.[4] In addition to saving landfill space, diverting organics from disposal reduces the amount of GHG produced.[5] Recycling of organics through composting or anaerobic digestion produces a soil amendment that:

- Enriches the soil with beneficial nutrients and organic material thus reducing the need for chemical fertilizers;
- Helps the soil retain moisture or drain better (depending upon the type of soil);
- Encourages the creation of humus; and
- Limits garden pests thus reducing the need for chemical pesticides.

The following sections present the findings of the *Yard Waste, Food Residuals, and Other Organic Materials Diversion and Infrastructure Study*, required under Chapter 384 of 2017 (see Appendix A for a copy of the bill). The bill required the Department, in consultation with a stakeholder study group, to study, explore, and identify various topics related to the diversion of organic materials from disposal. Based on the information collected through the study, the bill also required the Department to make recommendations to promote the diversion of organic materials in the State.

The "Study Results" section summarizes and references information researched and presented to the study group to fulfill the bill's requirements to study, explore, and identify various items. During the study, information was compiled into a series of white papers and presentations, which were delivered to the study group for discussion. The "Study Results" section largely references these white papers and presentations, which are incorporated into this report as appendices.

The "Discussion and Recommendations" section describes considerations offered by the Department and other study group members during the 10 study group meetings. Finally, it contains the Department's recommendations. This section fulfills the bill's requirement to recommend measures to promote the diversion of organic materials in the state.

The study group discussed several definitional issues that are useful to mention at the outset of this final report. When used in this report, the following terms have the meanings indicated.

- Organic materials include yard trimmings (referred to in the statute as "yard waste"), food residuals, animal manure, and other source-separated organic materials that are capable of being composted, digested, or otherwise reused or recycled.
- Diverted means prevented from being disposed through source reduction (waste prevention), food donation, or recycling.

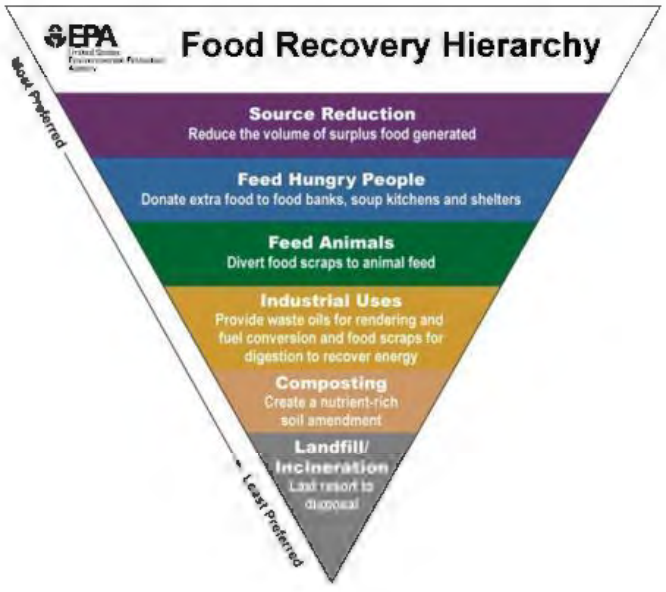
[4] MDE, 2016 Maryland Statewide Waste Characterization Study, mde.maryland.gov/programs/LAND/SolidWaste/Documents/2016%20Maryland%20Statewide%20WCS%20Study.pdf

[5] EPA, Waste Reduction Model (WARM), epa.gov/warm

- Recycling includes any method in which a recyclable material is collected, processed, and returned to the marketplace in the form of a raw material or product, including composting, mulching, and anaerobic digestion.
- Food residuals include source-separated food residuals from both residential sources and non-residential sources, including pre-consumer and post-consumer sources. This broad definition encompasses food loss at the grower or producer levels, edible food wasted at the retail and consumer levels, and food peelings or byproducts created during food preparation that are not suitable for human consumption.
- Yard trimmings means "organic plant waste derived from gardening, landscaping, and tree trimming activities," including "leaves, garden waste, lawn cuttings, weeds, and prunings."[6]

Another important introductory consideration discussed by the study group is the preference assigned to various methods of managing organic materials. A materials management hierarchy is a graphical depiction of the order of preference for different methods of managing materials to achieve an optimal environmental outcome. The U.S. Environmental Protection Agency (EPA), state and local governments, and nonprofits have adopted various materials management hierarchies. These hierarchies can be useful to provide general guidance in decision making when there are multiple potential ways of addressing a particular material stream. The study group discussed existing hierarchies, focusing in particular on food residuals hierarchies. Figures 1, 2, and 3 below depict three hierarchies from the EPA, Vermont, and the Institute for Local Self-Reliance (ILSR), respectively.

Figure 1: EPA Food Recovery Hierarchy



[6] Md. Code Ann. § 9-1701(t).

Figure 2: Vermont Food Recovery Hierarchy

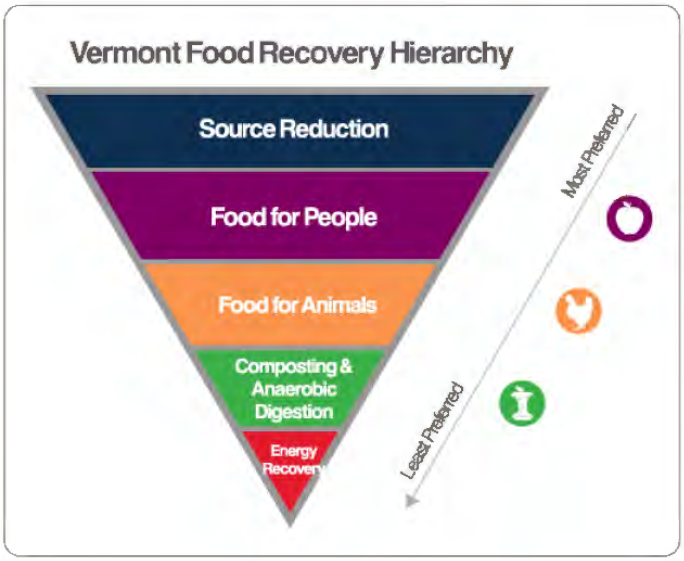


Figure 3: ILSR Food Recovery Hierarchy

All three hierarchies prefer source reduction to all other options, followed by feeding people and animals. The EPA hierarchy prefers "industrial uses" next, which would include rendering and anaerobic digestion. Composting follows industrial uses, with disposal as a last resort. The Vermont hierarchy places anaerobic digestion and composting on the same level, with energy recovery (presumably meaning incineration as opposed to energy recovery through anaerobic digestion) as a last resort. The ILSR hierarchy prioritizes composting and anaerobic digestion based upon the level of decentralization, with decentralized home composting receiving the highest

priority, and successively larger scale composting and anaerobic digestion following. Mechanical biological treatment of mixed waste,[7] followed by disposal, are last resorts.

Study group members offered diverse perspectives on the three hierarchies. Some members did not agree with the EPA hierarchy's placement of anaerobic digestion at a higher preference than composting, and preferred the ILSR hierarchy's distinction by level of decentralization and by source-separated material versus mixed waste. Others noted that in reality, while a hierarchy can be useful as a generality, to achieve optimal diversion, all methods and scales of diversion will need to occur. For example, small scale composting may be ideal to reach a particular material stream, while larger scale, commercial anaerobic digestion may work well in another setting. These nuances aside, there was agreement among the study group and the Department that in general, source reduction, feeding people and animals, and recycling through both composting and anaerobic digestion, are preferred (in that order) to disposal.

Study Results

Maryland laws and regulations governing the diversion of organic materials

The full findings for this topic are presented in a white paper in Appendix D.

The MRA serves as the primary law governing waste diversion in Maryland. It requires each county and Baltimore City to recycle either 20% or 35% of its waste depending on population size. Recycling of organic materials, such as composting of yard trimmings and food residuals, counts toward counties' MRA recycling rates. The law also establishes a voluntary statewide waste diversion goal of 60% and recycling goal of 55% by the year 2020.[8] It requires the Department to review and approve county recycling plans, enforce mandated county recycling rates, and facilitate a State government recycling program. Maryland law prohibits the disposal of separately collected yard waste at a refuse disposal facility, unless the facility offers organics recycling services. Recently, Chapter 366 of 2019 was enacted, banning the final disposal of separately collected food residuals at refuse disposal facility unless the facility offers organics recycling services such as composting or anaerobic digestion.

With the passage of Senate Joint Resolution 6 of 2000, Maryland established a voluntary statewide waste diversion rate goal defined as the sum of the MRA recycling rate plus a source reduction credit of up to 5%. The Department has established criteria for being awarded the source reduction credit and developed a voluntary Source Reduction Checklist to be submitted annually along with the counties' Recycling Tonnage Reporting Surveys. Activities related to reducing yard trimmings generation may be claimed for up to 2% credit (1 credit each) and all other activities, of which several are related to the reduction of organic materials, may be claimed for up to 3% credit.

[7] Mechanical biological treatment involves mechanical separation of mixed waste to remove recyclables, biological treatment to recover energy through anaerobic digestion, with the residual material typically being disposed.

[8] Md. Code Ann., Envir. §§ 9-505, 9-1703 and 9-1706.1.

In a move to reaffirm Maryland's commitment to waste reduction, Governor Larry Hogan signed Executive Order 01.01.2017.13 (the Order) in 2017.[9] The order establishes a sustainable materials management policy that takes into account both the volume (tonnage) and environmental impact of materials managed. It directs the Department to consult with stakeholders on the methodology for tracking waste generation, recycling, and source reduction, and to recommend to the governor improved metrics and goals to encourage continuous improvement in sustainable materials management. In accordance with the order, the Department has consulted with counties, businesses, and associations to develop "Waste Reduction and Resource Recovery Plan Goals and Metrics Recommendations." The recommendations establish voluntary goals to reduce per capita waste generation, statewide GHG emissions and energy usage related to materials management, and material-specific recycling rates.[10] The order also calls for partnerships with various State agencies and the private sector to promote sustainable materials management, including through outreach on target materials. Relevant to organics, the Department has focused on outreach related to food residuals diversion; recently the Department partnered with Bowie State University in 2018 to hold a Food Recovery Summit.

The Department regulates the operation and construction of composting facilities and natural wood waste (NWW) recycling facilities. In 2013, the statute was amended to authorize the Department to develop regulations specific to composting facilities.[11] These regulations, developed through a stakeholder workgroup and adopted in 2015, clarified the permits and requirements applicable to various types of composting and NWW recycling activities. The Department issued detailed permitting guidance to accompany the new regulations.

The laws and regulations mentioned above establish a framework for waste diversion in Maryland, including organics diversion. Other State laws and regulations in the areas of energy, agriculture, state procurement, and health also play a role in encouraging organics diversion. For example:

- The Maryland Greenhouse Gas Emissions Reduction Act (GGRA) establishes a statewide goal to reduce, from 2006 levels, GHG emissions 25% by 2020 and 40% by 2030.[12] Source reduction and diversion are incorporated into the GGRA plan as strategies to reduce GHG emissions through materials management.
- Maryland's Renewable Portfolio Standard (RPS) requires that an increasing percentage of electricity suppliers' retail sales be derived from renewable energy sources, reaching 25% by 2020. The RPS is implemented through the creation, transfer, and retirement of renewable energy credits (RECs).[13] Qualifying biomass and biomethane produced at a landfill or wastewater treatment plant are eligible to generate RECs.
- Maryland law provides civil liability protection for a person who donates, prepares, dispenses, or serves food for use or distribution by a nonprofit corporation, organization,

[9] The text of the *Waste Reduction and Resource Recovery Plan Executive Order,* along with the Department initiatives towards implementing the Order are available at mde.state.md.us/programs/Land/RecyclingandOperationsprogram/Pages/Waste-Reduction-and-Resource-Recovery-Executive-Order.aspx.

[10] *See* the draft *Goals and Measurements Draft Recommendations* document at mde.maryland.gov/programs/LAND/RecyclingandOperationsprogram/Documents/EO%20recommendations.pdf.

[11] Md. Code Ann. Envir. §§ 9-1701, and 9–1725 – 9-1726.

[12] Chapters 171 and 172 of 2009 and Chapter 11 of 2016.

[13] Md. Code Ann., Public Utilities §§ 7-701 - 7-713.

or association.[14] Liability protection extends only to provision of food in good faith where there is no willful act of negligence or misconduct.

- Chapter 637 of 2016 permits county boards of education to develop and implement food donation programs for leftover or excess food in public schools, as well as to apply for recognition of their food recovery programs under any food recovery certification program.
- Maryland requires State agencies responsible for maintaining public land using public funds to give preference to the use of compost.[15]
- Chapter 430 of 2014 established the use of compost in highway construction projects as a best management practice (BMP) for erosion and sediment control, and post-construction stormwater management.

MPA presented information on State policies for the reuse of dredged materials. The Port of Baltimore, a significant economic asset to the state, relies upon dredging and management of dredged material. Every year, 136 miles of shipping channels are dredged, resulting in 4.7 million cubic yards of dredged materials. Of this, 1 million cubic yards is Baltimore Harbor channel material. MPA has a long-term goal of recycling or reusing 500,000 cubic yards per year of Harbor channel sediment. Maryland's Dredged Material Management Act lays out definitions of innovative reuse and beneficial use of dredged materials.[16] In 2017, the Department, in collaboration with MPA, published a guidance document to outline a technical and regulatory framework for the environmentally responsible innovative reuse and beneficial use of dredged material. The document focuses on several uses, including the use of dredged material as engineered soil or fill material and landfill cap material. It lays out a rigorous, risk-based approach to determining where and how dredged material may be reused, taking into account chemical concentrations of the materials and the land use considerations.

Since the guidance document was published, MPA has worked internally and with partners to conduct studies, field demonstrations and pilot projects to explore the uses of dredged materials. These projects include the use as alternative daily cover at a landfill, engineered fill on MPA property, a test nursery to evaluate the growth of grass in dredged material, and studies of potential SHA uses, including topsoil and embankment material. Additional information is available in MPA's presentation in Appendix D.

Status of Maryland's and other states' infrastructure for the diversion of organic materials

The full findings for this topic, including maps and tables, are presented in a white paper in Appendix E.

[14] Md. Code Ann., Cts. & Jud. Proc. §5-634.

[15] Md. Code Ann., State Fin. & Proc. § 14-409.

[16] Innovative reuse includes the "use of dredged material in the development or manufacturing of commercial, industrial, horticultural, agricultural or other products." Beneficial use includes in-water uses of dredged material, such as the restoration of underwater grasses or islands; the stabilization of eroding shorelines; the creation or restoration of wetlands; and the creation, restoration, or enhancement of fish or shellfish habitats." Md. Code Ann., Envir. §5-1101.

Yard Trimmings and Natural Wood Waste (NWW) Infrastructure in Maryland

In 2016, Maryland recycled 645,197 (85%) of the 756,768 tons of yard trimmings generated.[17]Diversion of yard trimmings can occur through management onsite, such as backyard or on-farm composting, or offsite at a centralized facility. 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.[18] However, a composting facility permit is not required for mulching of yard trimmings with no active composting in process.

Where yard trimmings are recycled at centralized facilities, collection infrastructure consists of dropoff centers, curbside collection programs, and direct hauling to permitted landfills, transfer stations, or composting facilities. Yard trimmings accepted at landfills may be processed by mulching or composting and distributed to the public or used for the landfill construction projects. Anne Arundel, Baltimore, Charles, Harford, Howard, Montgomery, and Prince George's counties and Baltimore City offer some form of residential curbside pickup of yard trimmings. Some municipalities or homeowner associations also offer curbside pickup of yard trimmings.

In 2016, there were 15 permitted and operational composting facilities, and six landfills permitted to compost yard trimmings. Total yard trimmings composting capacity was approximately 366,100 tons per year with 226,780 tons of yard trimmings accepted. There are four planned composting facilities that are permitted by the Department and are anticipated to be operational in 2019, provided that the facilities obtain all applicable local permits and approvals. The combined composting capacity of these proposed facilities is 69,250 tons, increasing the State's total projected capacity to 435,350 tons per year.

NWW includes tree stumps, brush and limbs, root mats, logs, and other natural vegetative materials. Maryland has a comprehensive and stable system for the collection and recycling of NWW. In 2016, 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.

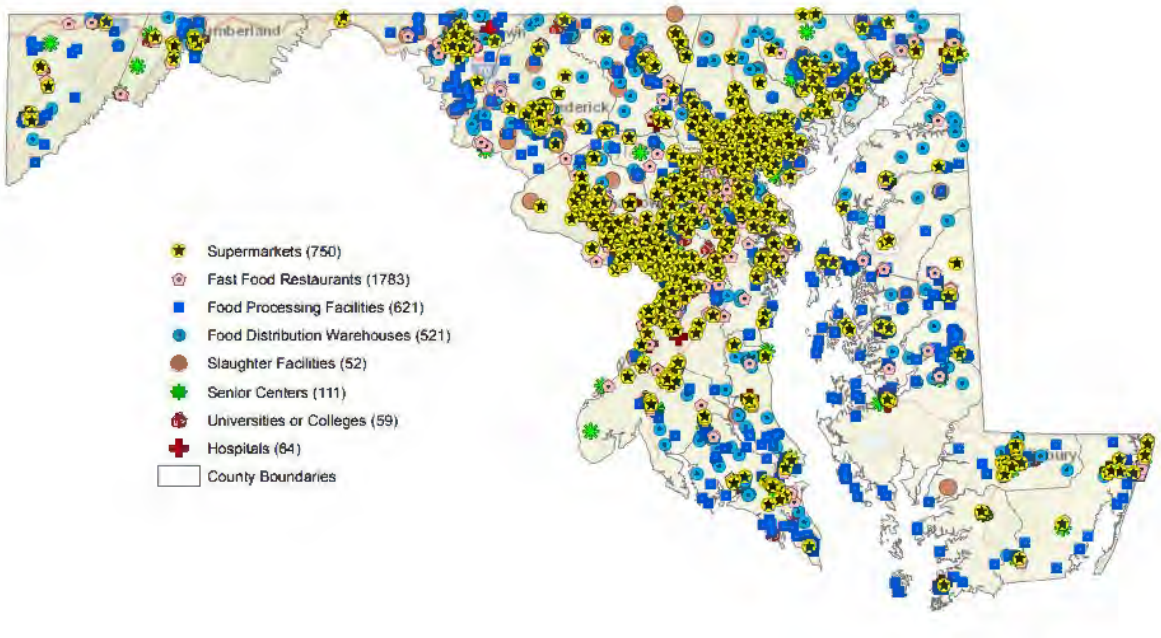
Food Residuals and Animal Manure Infrastructure in Maryland

In 2016, 18%, or an estimated 713,257 tons, of the municipal solid waste disposed of in Maryland was food residuals. Maryland residents and businesses generated an estimated 839,505 tons of food residuals in 2016. The Department does not receive data from individual businesses on the quantity of food residuals generated. Based upon definitions of large food scrap generators (LFSGs) in other states' laws, the Department used 52 tons of food residuals per year or more as the threshold for LFSG status when identifying the locations of LFSGs in Maryland (see Table 6 in Appendix E).

[17] *See* the Department's 2017 *Maryland Solid Waste Management and Diversion Report (CY 2016 data)* at mde.maryland.gov/programs/LAND/AnalyticsReports/MSWMR%20%2717.pdf.
[18] COMAR 26.04.11.05.

The Johns Hopkins Center for a Livable Future (CLF) collaborated with the Department and identified approximately 3,961 LFSGs located across Maryland.[19] Massachusetts has developed estimates of the average food residuals generation for each category of LFSG. The Department used the average food scrap generation rates developed in a 2002 Massachusetts study to calculate food scrap generation estimates for Maryland LFSGs.[20] Assuming the generation estimates are reasonably accurate, approximately 736,518 tons of food residuals generated in Maryland were generated by LFSG types identified by the CLF. As shown in Figure 4, LFSG are located throughout the state, with higher density in the more heavily populated central areas of the state (see Appendix E for additional maps and tables).

Figure 4: Large Food Scrap Generators in Maryland



In 2016, five composting facilities were permitted to accept food residuals. Collection infrastructure for residential food residuals is currently limited in Maryland. Howard County offers curbside food residual collection in part of the county. Within Maryland, commercial food residuals collection occurs through contracts with private haulers or the destination facility.

Three of the five composting facilities permitted to accept food residuals also accept animal manure. While a small portion of animal manure is composted, the primary use of animal manure is land application to add nutrients to crop fields, which must be must be done in accordance with a nutrient management plan (NMP).[21] Maryland farms that generate manure include animal feeding operations, predominantly poultry farms, as well as horse farms. The Department does not have data on the total quantity of manure generated in Maryland or the quantity of manure reused

[19] These LFSGs identified include supermarkets, food and beverage manufacturers and slaughter facilities, food warehouses/importers/distributors, fast food restaurants, colleges and universities, hospitals, and senior centers.

[20] 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 mass.gov/eea/docs/dep/recycle/priorities/foodwast.pdf

[21] COMAR 15.20.07.04.

or recycled outside of permitted composting facilities (i.e., by land application or composting at non-permitted sites). This data will become more widely available beginning in 2020, at which time MDA will be required under Chapter 760 of 2019 to report to the governor and General Assembly data on the production and use of animal manure by farm operations covered by NMPs during the previous year.

In 2016, food residuals and manure composting capacity at permitted operational facilities was approximately 59,120 tons per year. There are three planned composting facilities and the Department anticipates these facilities will be constructed in 2019 provided they obtain local permits and approvals. The combined composting capacity of these planned facilities is 38,000 tons per year, which will bring the total food residuals/manure composting capacity to 97,120 tons per year.

In 2016, Maryland had three active anaerobic digestion operations. There are also two planned operations, and one inactive operation being upgraded. There are nine Wastewater Treatment Plants (WWTPs) in Maryland that have anaerobic digesters that process sewage materials. However, the current design of these anaerobic digesters would need to be upgraded to process food residuals. Therefore, digesters at WWTPs can only be viewed as potential organic materials diversion infrastructure.

Conclusions Regarding Regional Infrastructure Capacity in Maryland

Yard trimmings are widely recycled, though mostly through means other than composting at permitted composting facilities, such as mulching. 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 dropoffsites or encouraging onsite management. Surplus composting capacity for yard trimmings is available in all regions except for the Eastern Shore, which has only one yard trimmings composting facility. Overall, in 2016, only 52% of the existing yard trimmings composting capacity was utilized.

In 2016, only 40% of the available composting capacity for food scraps and animal manure was utilized. However, Maryland food composting capacity was less than 12% of the total needed to compost all food scraps (see Table 1). There are currently no operational composting facilities in western Maryland, though one is planned.

Table 1. Summary of Food/Manure Composting Facilities and Processing Capacity in Tons by Region

Region	Population	No. of Facilities	Capacity in 2016	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 Maryland	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 is currently limited to three small-scale digesters, two of which process only onsite materials, but two commercial facilities are planned. 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. More information is needed to accurately assess the infrastructure capacity for food donation, including collection and distribution infrastructure. See Appendix E for details of capacities.

Other States' Organic Materials Diversion Infrastructure

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

Table 2. Comparison of Organics Diversion Activities of Other States with Maryland*

Population	Organic Materials Processed	Permitted Composting Facilities		Anaerobic Digestion Facilities	Food Disposal Ban
		Yard Trimmings	Food Residuals/ Manure		
California					
39,776,830	4 million tons of food scrap/ yard trimmings	30	43	27	Yes
Connecticut (2014)					
3,588,683	271,855 tons food scrap/yard trimmings	114	6	1	Yes
Massachusetts					
6,895,917	260,000 tons of food residuals diverted. Yard trimmings data is not available.	178	40	5	Yes
Maryland					
6,016,447	126,248 tons of food residuals, 645,197 tons of yard trimmings, and 484,079 tons of NWW.	15	5	2	No
Pennsylvania (2015)					
12,823,989	610,276 tons of yard trimmings and 311,302 tons of food residuals.	45	16	28	No
Vermont					
623,960	44,383 tons of food residuals/yard trimmings was composted.	--	12 (includes yard trimmings)	16	Yes

* Unless otherwise noted data is for calendar year 2016.

Laws and regulations of other states governing the diversion of organic materials

The full findings for this topic are presented in a white paper in Appendix F.

The Department researched laws and regulations of other states that require or promote source reduction, reuse (*i.e.*, food donation), and recycling of yard trimmings, food residuals, and other organic materials. As required by the bill, laws and regulations were examined for Massachusetts, Connecticut, Vermont, California, and Rhode Island. Where other states provided good examples of specific organics diversion policies, those were investigated as well.

Source Reduction and Reuse

The U.S. Department of Agriculture (USDA) reports an estimated 31% of food available for human consumption in 2010 was lost at the retail and consumer levels, resulting in an estimated total retail loss of $161.6 billion.[22] Meanwhile, 10.1% of Maryland's 2.3 million families faced food insecurity from 2014 to 2016.[23] The majority of states have adopted food donation liability protection, food labeling, and food safety laws that mostly mirror federal laws. To the extent that these laws provide certainty about the foods that are safe to eat and legal to provide to others, they can direct more wholesome, edible food to its highest and best use, feeding people. A 2017 National Restaurant Association survey of food establishment operators revealed that only 22% of respondents donate food that would have otherwise been discarded to charitable organizations. The top three cited barriers to donating leftover food were liability or food safety concerns (54%), time and complexity (23%), and regulatory constraints (22%).[24]

Food Date Labeling

Food producers' and retailers' non-standardized use of food date labels, consumers' misinterpretation of date labels as an indication of food safety, and lack of consistency among states' date labeling requirements leads to apparently wholesome food being disposed.[25] At the federal level, the U.S. Food and Drug Administration (FDA) only regulates date labeling of infant formula and the USDA Food Safety and Inspection Service (FSIS) regulates the labeling of meat, poultry and egg products.[26] In an attempt to streamline the use of date label language, the USDA FSIS issued new guidance in 2016 recommending the use of the "Best if Used By" date labels on meat, poultry, and egg products.[27]

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[22] *See* Buzby, J., et al. *The Estimated Amount, Value, and Calories of Postharvest Food Losses at the Retail and Consumer Levels in the United States*. Economic Information Bulletin Number 121. Economic Research Service, United States Department of Agriculture. Feb. 2014.
ers.usda.gov/webdocs/publications/43833/43680_eib121.pdf.

[23] *The Food Insecurity in Households with Children: Prevalence, Severity, and Household Characteristics, 2010-11* and *Household Food Security in the United States in 2016* reports, along with accompanying data tables, is accessible at
ers.usda.gov/topics/food-nutrition-assistance/food-security-in-the-us/key-statistics-graphics/.

[24] The National Restaurant Association commissioned a telephonic survey to sample of 500 restaurant owners and operators nationwide in March of 2017. To review all survey results, sample demographics, and comprehensive sustainability discussion concerning the restaurant industry review *The State of Restaurant Sustainability- 2018 Edition* at
restaurant.org/getattachment/News-Research/Research/State-of-Restaurant-Sustainability/Sustainability_FINAL_pdf.pdf.

[25] A 2013 report from the National Resource Defense Council and Harvard University shared data from several surveys, including one survey that found more than 91% of consumers occasionally discard food products that have exceeded the "sell by" date due to concerns over food safety. The 2013 *The Dating Game: How Confusing Food Date Labels Lead to Food Waste in America* report is accessible at
nrdc.org/sites/default/files/dating-game-report.pdf.

[26] 21 CFR § 107.20; 9 CFR §§ 317.8 and 381.129.

[27] USDA FSIS regulations allow the voluntary use of date labels on regulated food products, provided that the labels are not false or misleading and comply with FSIS calendar date provisions. The "Food Product Dating" guidance document can be viewed at
regulations.gov/contentStreamer?documentId=FSIS-2016-0044-0001&contentType=pdf.

The majority of states studied regulate date labels of dairy products, eggs, and shellfish. Maryland law requires Grade A Milk to be labeled with a "sell by" date and prohibits its sale beyond this date, with the exception of several specified food service providers if sold within four days.[28] Two states studied provided examples of food labeling laws that may reduce the disposal of edible food in the retail sector. Massachusetts has comprehensive packaged food products labeling regulations that utilize the Best if Used By/Use By language. Vermont incorporates of food safety provisions in its labeling laws (see Table 3 for details on other states3 food date labeling laws).

Other than the federal and state regulations described above, date labeling is largely unregulated, leaving food producers to select labeling language. Within the private sector, the Food Marketing Institute and Grocery Manufacturers Association are spearheading a food retail industry-wide effort for the voluntary use of "Best if Used By" to communicate food quality and "Use By" to communicate food safety.[29] Efforts like these, if adopted widely and communicated clearly to consumers, could help avoid needless disposal of "out of date" but safe food.

Table 3. State Food Date Labeling Laws

Citation	Food Items Requiring Date Labels	Sale Past Date Label Prohibited
California		
Cal. Food & Agric. Code § 27644	Eggs	No
Cal. Food & Agric. Code § 36004; 3 CCR § 627	Dairy products	No
Cal. Health & Safety Code § 114039	Shellfish	No
Connecticut		
Conn. Gen. Stat. Ann. § 22-197b; Conn. Agencies Regs. §22-133-131	Dairy products	No
Conn. Gen. Stat. Ann. § 26-78a(c)[30]	Donated game meat	No
Massachusetts		
105 CMR 500.006	Prepackaged perishable or semi-perishable food products, with exemptions[31]	Yes, with exemptions
Maryland		
Md. Code Ann. Health—Gen. § 21-456; COMAR 10.15.06.10-.11	Grade A Milk	Yes, with exemptions[32]
Rhode Island		
R.I. Gen. Laws Ann. § 21-14-9	Shellfish	No
R.I. Gen. Laws Ann. § 21-33-2	Packaged baked goods	Yes, with exemptions

[28] The "Sell By" date is defined as 18 days from the date of processing. The exempted providers are food service facilities, hospitals, schools, institutions, and facilities where milk is consumed on the premises. COMAR 10.15.06.11.

[29] Please see the Grocery Manufacturers Association's 2017 news release for more details about food product date labeling initiative at gmaonline.org/news-events/newsroom/grocery-industry-launches-new-initiative-to-reduce-consumer-confusion-on-pr/.

[30] Charitable organizations must notify recipients the donated game meat was not and is not required to be inspected under Connecticut's food safety laws and the State is not liable for injury because of eating the meat, and meat should be labeled with the phrase "not for sale."

[31] The food products exempt from Massachusetts food labeling regulations include: fresh meat, poultry, fish, fruits and vegetables unpackaged or packaged in translucent containers; pre-packaged food products for retail sale weighing less than 1.05 ounces; and food products intended for sale outside of Massachusetts (105 CMR 500.006(B)(9)).

[32] Food service facilities, hospitals, schools, institutions, and place where milk is consumed on the premises can serve Grade A Milk for no more than four days past the sell-by-date (COMAR 10.15.06.11).

Vermont		
12-5 Vt. Code R. § 30:5-204	Shellfish	No
12-5 Vt. Code R. § 30:5-205	Ready-to-eat, potentially hazardous food	Yes

Food Donation Liability

The federal Bill Emerson Good Samaritan Food Donation Act (the "Emerson Act") offers a donor, gleaner, and recipient nonprofit organization liability protection when donating apparently wholesome food in good faith and at no cost to needy populations, except in incidences of gross negligence and/or intentional misconduct.[33] In addition, donated food must comply with federal, state, and local quality and labeling requirements even if the requirements are not safety-related. The law was enacted in 1996 to encourage the donation of food and grocery products to nonprofit organizations that service needy populations.[34] The Harvard Food Law and Policy Clinic examined the limitations of the Emerson Act and ways in which state laws may provide stronger liability protections. It noted the Emerson Act does not provide liability protection for food donations distributed at a nominal fee or directly from the donor to recipient. Nor does it protect donation of food products that have exceeded their "sell by/use by" date but are safe for human consumption, or edible food products donated for use as animal feed. [35] Maryland's Good Samaritan Law mirrors the federal liability protections, minus criminal liability protection.

Table 4. Good Samaritan Laws

Law Citation	Liability Protection		Distributors Covered		Nominal Fee Permitted	Past Shelf Date Covered
	Civil	Criminal	Nonprofit	Direct		
Federal 42 U.S. Code § 1791	X	X	X			
California Cal. Civ. Code § 1714.25; Cal. Food & Agric. Code § 58502; Cal. Health & Safety Code §§ 114432-114435	X	X	X	X		X
Connecticut Conn. Gen. Stat. Ann. §§ 52-557L-K; Conn. Gen. Stat. Ann. § 26-78a	X	X	X		X	
Maryland Md. Code Ann. Cts. & Jud. Proc. § 5-634; Md. Code Ann. Health—Gen. § 21-322	X		X			
Massachusetts Mass. Gen. Laws Ann. Ch. 94, § 328 [36]; 105 CMR 500.006(B)(4)	X		X		X	X
Rhode Island R.I. Gen. Laws Ann. § 21-34-1—2; R.I. Gen. Laws Ann. § 21-33-3[37]	X	X	X			Prepacked baked goods

[33] Pub. L 104-210 (1996).

[34] *See* the Feeding America's "Protecting Our Food Partners" webpage at feedingamerica.org/about-us/partners/become-a-product-partner/food-partners.html.

[35] Harvard Food Law and Policy Clinic, *Keeping Food Out of the Landfill: Policy Ideas for States and Localities*, p. 6. Oct. 2016. chlpi.org/wp-content/uploads/2013/12/Food-Waste-Toolkit_Oct-2016_smaller.pdf.

[36] A nonprofit organization's liability protection is contingent on the organization ensuring the food establishment that donated food is compliant with the permit and inspection requirements of the Department of Public Health and the local board of health.

[37] Rhode Island authorizes the sale of pre-packed baked goods after the "past date" as long as (1) its separated from products that have not and (2) is labeled as being offered for sale "past date."

Vermont VT. Stat. Ann. Tit. 12 §§ 5761-5762[38]	X	X	X	X		

Several of the states studied have enacted laws that address the limitations of the Emerson Act. For example, Vermont offers liability protection for direct donations, and Connecticut protects donations made at a nominal fee. To increase awareness of the federal and state liability protections, California passed a law requiring its Department of Public Health's Environmental Health Officers, as part of their inspection duties, to educate the owners and/or operators of food facilities about liability protections provided for good faith food donations.[39]

The FDA Food Code establishes national, uncodified, food safety standards for food establishments; however, these standards do not address handling of donated food.[40] Although the Comprehensive Resource for Food Recovery Programs is a federally recognized food donation guide for entities facilitating food recovery programs, it is not frequently updated and does not incorporate the FDA Food Code.[41] To fill this gap, Texas and Washington State have both adopted comprehensive food safety regulations geared towards food recovery programs.[42] At present, Maryland has not enacted food safety laws tailored for food recovery programs.

Even if states adopt food donation friendly laws and regulations, the costs associated with transporting, storing and handling donated food may serve as barriers to donation. States may offer tax incentives to offset the expenses related to a food recovery program. Table 5 summarizes tax incentives offered by other states examined that encourage the donation of food (only identified in California).

Table 5. Food Donation Tax Incentives

Citation	Tax Incentive	Tax Type	Description of Tax Incentive
Cal. Rev. & Tax. Code § 17053.88	Credit	Income	15% of the qualified value of fresh fruits or fresh vegetables donated by a farmer to a food bank until 2020.
Cal. Rev. & Tax. Code § 17053.12	Credit	Income	50% of the transportation costs incurred for the donation of agricultural product to a nonprofit charitable organization.
Cal. Rev. & Tax. Code §§ 18851-55	Donation	Income	A taxpayer can donate a portion of their income tax refund to the Emergency Food for Families Voluntary Tax Contribution Fund.

Reuse of Food as Animal Feed

The complexity of federal animal feed laws can discourage food producers from diverting food residuals for reuse as animal feed. Food residuals that are not suitable for human consumption such as brewery grains and produce peels can be used as animal feed. A human food facility may 1)

[38] Vermont does not extend liability protection for the donation of canned goods that are rusted, leaking, swollen or defective

[39] AB 1219 of 2017.

[40] *See* The FDA Food Code webpage at fda.gov/Food/GuidanceRegulation/RetailFoodProtection/FoodCode/.

[41] Food Recovery Committee. *Comprehensive Resource for Food Recovery Programs.* Apr. 2016, The Conference for Food Protection. foodprotect.org/media/guide/comprehensive-resource-for-food-recovery-2016-version.pdf.

[42] 25 Tex. Admin. Code § 228.83; Wash. Admin. Code § 246-215-09400 et seq.

process food residuals into animal feed onsite, 2) directly distribute residuals to an animal producer for feeding, or 3) distribute residuals to an animal feed production facility for further processing. Federal animal feeding laws, which center on preventing the spread of diseases, state that:

- Animal feed may not be adulterated or handled in unsanitary conditions nor may food labels be false or misleading; [43]
- Feeding of food residuals containing mammalian protein to ruminant animals (cattle, goats, etc.) is prohibited; and[44]
- A person may feed food residuals containing animal products to swine only if the person obtains a license and the food residuals are boiled prior to feeding.[45]

The FDA Food Safety Modernization Act's Preventive Controls Rules require certain facilities that produce animal feed from food residuals to implement additional planning and preventive control measures.[46] In addition, Maryland and the other states examined have swine feeding laws that exempt households from garbage treating licenses, and allow the feeding of untreated household garbage to swine on that household's premises.

Recycling

Food Scraps Disposal Bans

Massachusetts, Connecticut, Vermont, California, and Rhode Island have enacted laws that ban disposal of food residuals by covered generators that produce greater than a threshold quantity of organic materials. Some states' laws apply only to generators located within a threshold distance from an available composting or anaerobic digestion facility with capacity. Vermont's Universal Recycling Law is the most extensive of the organics disposal bans as it covers all generators, including residences. The Vermont law also incorporates waste management hierarchy language and parallel collection of food residuals by haulers and dropoff centers.[47]

Table 6. Organic Waste Disposal Bans and Mandatory Recycling Laws

Citation	Waste		Generation Threshold		Generators Covered			Distance Exemption
	Food	Yard			Residential	ICI	Gov't	
California								
Cal. Pub. Res. Code §§ 42649.81 - 42649.82 (2014)[48]	X	X	2016	8 yd^3/week		X		None
	X	X	2017	4 yd^3/week		X		None
	X	X	2019	4 yd^3/week[49]		X		None
	X	X	2020	2 yd^3/week [50]		X		None
Connecticut								
Conn. Gen. Stat. Ann. § 22a-208v (1993)		X	1998	None	X	X	X	None

[43] 21 USC §§ 342 – 343.

[44] 21 CFR § 589.2001.

[45] 9 CFR § 166 and 21 CFR § 589.2001.

[46] Id; 21 C.F.R. § 507.12;

[47] Vt. Stat. Ann. tit. 10, §§ 6605, 6605k, 6607a, and 6621a.

[48] Rural counties may adopt a resolution exempting the county from the mandatory recycling requirements.

[49] Beginning in 2019, a business that generates at least 4 yd^3/week of commercial solid waste must arrange for recycling services specifically for organic waste.

[50] If by 2020 the statewide organic waste disposal rate has not been reduced to 50% of the 2014 levels, covered generators reaching two cubic yards (yd^3) threshold will be required to recycle organic material.

Citation	Waste		Generation Threshold		Generators Covered			Distance Exemption
	Food	Yard			Residential	ICI	Gov't	
Conn. Gen. Stat. Ann. § 22a-226e (2013)	X		2014	104 tons/year		X		20 miles
	X		2020	52 tons/year		X		20 miles
Maryland								
Md. Code Ann., Envir., §§ 9-1701, 9-1723 and 9-1724 (1992 and 2019)[51]		X	1992	None	X	X	X	None
	X		2019	None	X	X	X	None
Massachusetts								
310 CMR 19.017[52]		X	1991	None		X	X	None
	X		2014	1 ton/week		X	X	None
Rhode Island								
R.I. Gen. Laws Ann. § 23-18.9-17 (2014)	X		2016	104 tons/year		X	X[53]	15 miles[54]
	X					X		15 miles
			2018	52 tons/year			X	
Vermont								
Vt. Stat. Ann. tit. 10, § 6621a (2012)		X	2016	None	X	X	X	None
Vt. Stat. Ann. tit. 10, § 6605k (2012 and 2018)	X		2014	104 tons/year	X	X	X	20 miles[55]
	X		2015	52 tons/year	X	X	X	20 miles
	X		2016	26 tons/year	X	X	X	20 miles
	X		2017	18 tons/year	X	X	X	20 miles
	X		2020	None	X	X	X	20 miles

The Department investigated the implementation and impacts of the disposal bans. Some states reported positive impacts from the laws. The Connecticut Department of Energy and Environmental Protection (DEEP) stated that it believed the increase in available feedstock encouraged the development of one operating anaerobic digestion facility, and the agency has approved the construction of three additional facilities. The Rhode Island Department of Environmental Management (DEM) believed that the certainty of organic material supply led to the construction of the state's first commercial anaerobic digester.[56] Also, a commercial scale composting facility and animal feeding operation have begun processing food residuals in Rhode Island.[57] A Massachusetts Department of Environmental Protection (MassDEP) economic impact analysis found that in 2016, the organics recovery industry added approximately $77 million to the gross state product and generated approximately $175 million in economic activity. In 2015, organic material haulers and processors managed six and eight times more food residuals, respectively, when compared to 2010. Vermont certified nine composting facilities to process food

[51] The ban only applies to the final disposal of separately collected yard trimmings and food residuals, and does not require that generators dispose of the yard trimmings and food residuals separately from other waste.

[52] A temporary disposal of restricted organic materials may be permitted if (1) the material is not acceptable for recycling or composting; and (2) or if a recycling facility is unable to accept material.

[53] Education facilities are also covered under the Rhode Island food waste ban, which if a public educational facility would mean that a government entity is covered under the ban.

[54] A waiver may be granted if a composting or anaerobic digestion facility tipping fee is greater than landfill or incinerator facility fee.

[55] Until June 30, 2020, a person who generates more than the threshold amount of food residuals that is located within 20 miles of an approved organics recycling facility with capacity must comply with the disposal ban. This 20-mile exemption does not extend beyond July 1, 2020.

[56] The Orbit Energy commercial anaerobic digestion facility is designed to accept up to 250 tons of food residuals daily. *See* Faulkner, T. (2017, May 8). *R.I.'s First Digester Expected to Take Food Scrap in June.* ecori.org/composting/2017/5/8/food-digester-taking-scrap-in-june.

[57] *See* "Rhode Island Wasted Food Stakeholder Engagement and Initial Findings" 2017 report by the Center for EcoTechnology at wastedfood.cetonline.org/wp-content/uploads/2018/03/AssessmentRI_112117_nomarks_nospread.pdf.

residuals and/or yard trimmings, and the Vermont Food Bank reported that 3,658 tons of food diverted was through food donation.[58]

The states did report a number of challenges in implementing the laws. One common finding was that the increase in organic material feedstock exceeded the available capacity of organic materials diversion facilities. California reported that the construction of new composting facilities has stalled and that the market for compost has been limited because the environmental value of compost has not translated to a comparable monetary value.[59] The Rhode Island DEM shared that commercial generators' interest in recycling their food residuals exceeds available infrastructure capacity, partially because the economics of food residual processing is presently is not strong enough to spur investment into new infrastructure.[60] The 2016 MassDEP economic impact analysis found that food residuals processors and haulers were concerned about building access to composting sites with capacity to process high volumes of material at a low enough cost.[61]

Besides insufficient organic materials diversion infrastructure, some states experienced other challenges related to implementing and complying with the disposal bans. The Connecticut DEEP found that it was a challenge to track activities of food residual generators and food donation organizations because these entities are not traditionally regulated by DEEP. Food residual processors surveyed in the MassDEP economic impact analysis reported food residuals, mainly materials generated by residents and schools, contain high levels of contaminants.[62] The California Department of Resources Recycling and Recovery reported that it has limited compliance tools to ensure that covered businesses comply with the law as enforcement is delegated to local jurisdictions, with some jurisdictions found to have significant program gaps related to implementing the state mandatory commercial recycling law.[63]

Regulation of Recycling Facilities for Organics

Maryland and other states studied have updated their solid waste and recycling regulations in recent years to alleviate regulatory and technical barriers to organic materials diversion infrastructure growth. Like Maryland, the other states studied have generally amended their regulations to include specific provisions for composting facilities and distinguish organic materials recycling facilities from refuse disposal facilities. Unlike Maryland, some of the states studied have also adopted regulations to specifically address anaerobic digestion or other technologies that divert organic materials from disposal. See Appendix F for a detailed description of other states' anaerobic digestion regulations.

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[58] The overall solid waste diversion rate was 36% and the overall disposal rate was 64%, which was the lowest rate achieved in Vermont since the late 1990s.

[59] *See* the *State of Disposal in California and State of Recycling in California Report* at calrecycle.ca.gov/publications/Documents/1612/2017%20State%20of%20Recycling%20and%20Disposal%20Report_01612.pdf.

[60] The Department reached out directly to Connecticut and Rhode Island respective environmental protection agencies for comments concerning the impact of their food residual bans.

[61] Commissioned by the Massachusetts Department of Environmental Protection (MassDEP), consultant firm ICF analyzed the economic impact the Commercial Food Waste Disposal Ban on the organics recovery industry. *See* the 2016 *Massachusetts Commercial Food Waste Ban Economic Impact Analysis* at mass.gov/files/documents/2016/12/nx/orgecon-study.pdf.

[62] Ibid.

[63] *See* the *State of Disposal in California and State of Recycling in California Report.*

Financial Incentives for Organics Recycling

The states studied used a variety of financial incentives that may promote organics recycling, food donation, or recycling generally. Table 7 shows the tax incentives identified in other states, which are focused primarily on renewable energy generation.

Table 7: State Tax Incentive Laws

Citation	Tax Incentive	Tax Affected	Provisions
Connecticut			
Conn. Gen. State. § 12-81ff	Exemption	Property	Authorizes local governments to provide a property tax exemption for equipment for recycling installed after October 2013. The exemption applies to the increased value of the property the first fifteen assessment years after installation.
Massachusetts			
Mass. Gen. Stat. ch. 64H, § 6(s)	Exemption	Sales	Exempts purchase of machinery used for agricultural production and producing electricity delivered to consumers through mains, lines, or pipes from the 6.25% sales tax.
Rhode Island			
R.I. Gen. Laws Ann § 44-3-3	Exemption	Property	Exempts qualifying renewable energy systems and associated equipment used in the residential and manufacturing sectors.
R.I. Gen Law §44-3-9	Stabilization	Property	Authorizes local governments to provide property tax stabilization agreements for renewable energy systems for up to 20 years.
Vermont			
Vt. Stat. Ann. tit. 32, § 9741	Exemption	Sales	Exempts purchase of anaerobic digestion equipment, with a capacity of 500 kilowatts (kW) that is available for distribution on grid-tied systems and off-grid systems, from the 6% sales tax.

In addition to tax incentives, states have a variety of grant, loan, and technical assistance programs related to recycling or renewable energy that may be used for organics recycling projects. A full listing is provided in Appendix F.

Maryland economic incentives to encourage investment in organics diversion infrastructure

The Maryland Department of Commerce (Commerce) provided a white paper, included as Appendix G, outlining its programs and how they would or may apply to organics-related projects. Additional information about Maryland economic incentives can be found in the white paper on Maryland laws and regulations in Appendix D.

Financial Incentives – Grants, Loans, and Tax Incentives

The development of organic materials diversion infrastructure can be stymied due to the cost of acquiring technology and equipment. Another barrier is a proposed project's inability to obtain financing through traditional lenders because of the lack of comparable recycling businesses to evaluate.[64] Tax incentives can reduce the tax liability of organics generators or recovery organizations by providing credits towards transportation, construction, and equipment expenses. Grants and loans can be used to offset or finance the startup costs of a new organics facility. At the conclusion of this section, Maryland financial assistance programs and tax incentives that may

[64] Kirckpatrick, D. "Financing Recycling Ventures: There are increasing financial resources for recycling start-ups and expansions." *Recycling Today*, Aug. 2001. recyclingtoday.com/article/financing-recycling-ventures/.

be available to proposed organic materials diversion infrastructure projects are summarized (see Appendices D and G for more detailed descriptions of these programs).

Many state government financing programs require that organic materials diversion projects are developed in geographic areas or sites targeted for development or rehabilitation. Commerce's Neighborhood Revitalization Mapper displays these areas in Maryland.[65]

Financial Incentives - Biomass Renewable Energy Generation

The development of organic materials diversion infrastructure can be encouraged through state policies that require a utility company to provide interconnection opportunities and incentives for renewable energy generators that utilize diverted organic materials as a renewable energy source. Under Maryland's RPS, Section 7-701 of the Public Utilities Article includes in the definition of Tier 1 renewable source qualifying biomass and methane from the anaerobic decomposition of organic materials in a landfill or WWTP.[66] Tier 1 renewable sources are eligible for REC generation. Qualifying biomass is defined as organic material that is available on a sustainable basis and separated from inorganic material. Biomass may be from several organic sources, including yard trimmings (excluding invasive exotic plant species) that are co-digested with manure or poultry litter to produce biogas, or a plant cultivated for use at a Tier 1 renewable source.

A utility company can use onsite generation or purchased RECs to satisfy its obligation under the RPS. However, the current definition of Tier 1 renewable source may exclude the participation of renewable energy generators that anaerobically digest food residuals and the digestion of organic materials outside of a sanitation facility. The Public Service Commission (PSC) has advised the Department that no such facility has yet applied to participate in the RPS; therefore, there is no PSC ruling that can provide a definitive answer as to whether an application would be approved.

Net metering systems allow residential and commercial renewable energy generators to sell surplus electricity back to a utility company, which in turn lowers their utility bills and distributes excess net energy to ratepayers.[67] A utility customer that owns/leases and operates a biomass electric generating system with a capacity no greater than 2 MW may be eligible to participate in Maryland's net metering program. The eligible biomass electric generating system must 1) generate electricity from qualifying biomass as defined in § 7-701; 2) be located on their property; 3) interconnect to the utility's electricity distribution system; and 4) have the primary purpose of offsetting the generator's electricity requirements.[68] The definition of qualifying biomass limits net metering eligibility to electric generating systems that produce electricity from the co-digestion of yard trimmings and animal waste.[69]

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[65] *See* the Neighborhood Revitalization Mapper at dhcd.state.md.us/GIS/revitalize/index.html.

[66] Md. Code Ann., Public Utilities. §7-701(1) and (r).

[67] *See* The National Conference of State Legislators "State Net Metering Policies" webpage at ncsl.org/research/energy/net-metering-policy-overview-and-state-legislative-updates.aspx.

[68] Md. Code Ann., Public Utilities §§ 7-306 et seq.

[69] In FY 18, there was 772,699 kW net-metering capacity installed in Maryland with 0.40% (3,105 kW) consisting of biomass net-metering capacity; this was a 16% increase from total net-metering capacity and a 10% increase of total biomass net-metering capacity installed in FY 17. The law caps statewide net-metering capacity at 1,500 MW

Current Process for Anaerobic Digestion Permitting

Presentations on permitting processes for anaerobic digestion from the Department's Air and Radiation, Water and Science, and Land and Materials Administrations (LMA) are included in Appendix H.

Anaerobic digestion uses microorganisms to break down organic material in an oxygen-free environment. The Department, at present, does not have separate anaerobic digestion facility regulations. As of the writing of this report, the Department is working with a stakeholder workgroup to develop regulations governing recycling generally under Chapter 376 of 2017. The discussions and recommendations of this study group will be used to inform the section of the new recycling facility regulations that addresses anaerobic digestion.

Table 8. Potential Requirements for Anaerobic Digestion Facility

Subject/Activity	Permits and Approvals Required	COMAR
Solid Waste and Recycling		
Solid Waste Acceptance Facility	Refuse Disposal Permit	26.04.07
Sewage Sludge Management	Sewage Sludge Utilization Permit	26.04.06
Water Quality Protection		
Industrial Stormwater Discharges	General Permit For Discharges from Stormwater Associated with Industrial Activities	26.08.04
Water and Sewerage Treatment Capital Construction	Water and Sewerage Construction Permit	26.03.12
Air Quality		
Sources of Air Pollution	Air Quality State Permit to Construct	26.11.02
	Air Quality State Permit to Operate	
Digestate Quality		
Distribute Digestate	Soil Conditioner or Fertilizer Registration	15.18.04
Renewable Energy Generation		
Construct Generating System	Certificate of Public Convenience and Necessity Exemption	20.79.01
Interconnection to Electricity Distribution System	Standard Small Generator Interconnection Agreement	20.50.09
Generate Renewable Energy Credits	Certification of a Renewable Energy Generating Facility	20.61.02
Trade Renewable Energy Credits	Renewable Energy Credit Account	

(1,500,000 kW). *See* PSC's 2018 *Report on the Status of Net Energy Metering In the State of Maryland* at psc.state.md.us/wp-content/uploads/FINAL-2018-Net-Metering-Report.pdf.

Table 9 – List of Grant and Loan Programs

CBT[70] - Community Engagement Mini Grant • **Eligible Applicants:** Non-profits; community associations; service and civic groups; local, state, and federal agencies. • **Type of Assistance**: Grant. • **Max Award Amount:** $5,000. • **Geographic Restriction:** N/A, Md. Code Ann., Nat. Res. § 8-1906.	**CBT – Environmental Education Grant and Mini Environmental Education Grant** • **Eligible Applicants:** State and local education agencies; institutes of higher educations; government agencies; non-profits. *Mini Grant*: non-profits; faith-based organizations; community associations; service, youth and civic groups; local, state, and federal agencies; soil and water conservation districts; RC&D Councils; forestry boards, and institutions of higher education.[71] • **Type of Assistance:** Grant. • **Max Award Amount:** $40,000. *Mini Grant*: $5,000. • **Geographic Restriction:** N/A. Md. Code Ann., Nat. Res. § 8-1906.	**CBT – Outdoor Learning Network Initiative** • **Eligible Applicants:** School district and non-profit partnerships. • **Type of Assistance:** Grant. • **Max Award Amount:** $100,000. • **Geographic Restriction:** N/A. Md. Code Ann., Nat. Res. § 8-1906.
CBT - Outreach and Restoration Grant Program • **Eligible Applicants:** Non-profits; faith-based organizations; community associations; service, youth and civic groups; local, state, and federal agencies; soil and water conservation districts; RC&D Councils; forestry boards, and institutions of higher education. • **Type of Assistance:** Grant.	**CBT – Pioneer Grant Program** • **Eligible Applicants:** Non-profits; local, state, and federal agencies; local government; cooperative extensions; soil and water conservation districts; RC&D Councils; forestry boards, and institutions of higher education. • **Type of Assistance:** Grant. • **Max Award Amount:** $75,000.	**CBT – Sponsorship Support** • **Eligible Applicants:** Non-profit organizations, community associations, faith-based organizations. • **Type of Assistance:** Grant. • **Max Award Amount:** $5,000.[73] • **Geographic Restriction:** N/A. Md. Code Ann., Nat. Res. § 8-1906.

[70] "CBT" means the Chesapeake Bay Trust, a non-profit organization established by the General Assembly in 1985 that issues grants to support K-12 environmental education, on-the-ground habitat and water quality restoration, and other community awareness and engagement projects.

[71] "RC&D Councils" means Resource Conservation and Development Councils, which are non-profit organizations focused on implementing natural resource, soil conservation, land management, and water quality projects, which address conversation issues in their local community. Learn more on the National Association of RC&D Councils webpage at http://narcdc.org/index.html.

[73] To allow the Chesapeake Bay Trust to consider a wide range of sponsorships, most sponsorships on average are $1,000 for programmatic support and $500 for marketing support.

• **Max Award Amount:** $75,000, depending on track.[72] • **Geographic Restriction:** N/A. Md. Code Ann., Nat. Res. § 8-1906.	• **Geographic Restriction:** N/A. Md. Code Ann., Nat. Res. § 8-1906.	
Commerce - Economic Development Opportunities Program Fund (Sunny Day) • **Eligible Applicants:** Large businesses.[74] • **Type of Assistance:** Loans. • **Max Award Amount:** $10 million or 20% of the fund balance, with a minimum of 5:1 capital investment by recipient business. • **Geographic Restriction:** PFAs and areas of high unemployment. Md. Code Ann., St. Fin. & Proc. § 7-314.	**Commerce – ExportMD** • **Eligible Applicants:** Small businesses exporting goods or services internationally. • **Type of Assistance:** Grants. • **Max Award Amount:** $5,000. • **Geographic Restriction:** Maryland-based companies. Md. Code Ann., Econ Dev. §§ 3-303 – 3-304.	**Commerce - Maryland Economic Adjustment Fund** • **Eligible Applicants:** Small businesses. • **Type of Assistance:** Loans. • **Max Award Amount:** $500,000.[75] • **Geographic Restriction:** PFAs. Md. Code Ann., Econ Dev. § 5-201 – 5-209.
Commerce - Maryland Economic Development Assistance Authority and Fund (MEDAAF) • **Eligible Applicants:** Businesses and local governments. • **Type of Assistance:** Grants and loans. • **Max Award Amount:** Dependent on the MEDAAF capability a project falls under.[76] • **Geographic Restriction:** PFAs. Md. Code Ann., Econ Dev. § 5-201 – 5-209.	**Commerce – Maryland Industrial Development Financing Authority** • **Eligible Applicants:** Commercial and industrial businesses. • **Type of Assistance:** Credit insurances and municipal bonds. • **Max Award Amount:** Dependent on assistance provided.[77] • **Geographic Restriction:** PFAs.	**Commerce - Maryland Small Business Development Financing Authority Programs.** • **Eligible Applicants:** Small businesses. • **Type of Assistance:** Loans, surety bonds, and equity investments. • **Max Award Amount:** Dependent on project and financing program. • **Geographic Restriction:** PFAs.

[72] There are three different tracks that an applicant may apply for: track 1 is "outreach" projects with awards between $30,000 and $50,000; track 2 is "restoration" implementation projects with awards up to §50,000; and track 3 is "outreach and restoration" projects with awards up to $75,000.

[74] The Sunny Day program provides financial assistance to large businesses, like the Marriott Hotel, that create "extraordinary" economic development opportunities and "significant" capital investments.

[75] The maximum award amount was last updated in October 2015, and may no longer be correct. *See* the Area Development "Maryland Direct Financial Incentives" article describing Maryland's economic development financial incentive programs at http://www.areadevelopment.com/stateResources/maryland/MD-Direct-Financial-Incentives.shtml.

[76] The MEDAAF program is administered under five capabilities that address appropriate economic development opportunities for both the business community and political jurisdictions. See Commerce's *Advantage Maryland (MEDAAF)* webpage for more information at http://commerce.maryland.gov/fund/programs-for-businesses/medaaf.

[77] *See* Commerce's MIDFA webpage for details of financial assistance available at http://commerce.maryland.gov/fund/programs-for-lending-institutions/midfa.

	Md. Code Ann., Econ Dev. §§ 5-401 to 5-466.	Md. Code Ann., Econ Dev. §§ 10-501 and 10-510.
Commerce - Military Personnel and Veteran-Owned Small Business No-Interest Loan Program • **Eligible Applicants:** Businesses owned by or employs reservist, veterans, National Guard personnel or small businesses that employs such persons. • **Type of Assistance:** Loans. • **Max Award Amount:** $50,000. • **Geographic Restriction:** PFAs. Md. Code Ann., Econ Dev. § 5-1001–5-1007.	**Commerce - Partnership for Workforce Quality** • **Eligible Applicants:** Maryland based small and mid-sized businesses.[78] • **Type of Assistance:** Grants. • **Max Award Amount:** $200,000 and up to 50% qualified projects costs. • **Geographic Restriction:** PFAs. Md. Code Ann., Econ Dev. §§ 3-401 – 3-412.	**Commerce - Small, Minority and Women-Owned Business Account, Video Lottery Terminal Fund** • **Eligible Applicants:** Small, minority and women-owned businesses. • **Type of Assistance:** Loans and capital investments. • **Max Award Amount:** Dependent on project and available funding. • **Geographic Restriction:** PFAs, prioritizes businesses located within a 10-mile radius of a casino. Md. Code Ann., Econ Dev. § 5-501. Md. Code Ann., State Gov't. § 9-1A-27.
DHCD - Baltimore Regional Neighborhood Initiative Program • **Eligible Applicants:** Non-profits with a revitalization strategy for communities in Baltimore City, or the inner-695 beltways of Baltimore and Anne Arundel Counties. • **Type of Assistance:** Grants and loans. • **Maximum Grant Amount:** Dependent of project and available funding.	**DHCD - Community Development Block Grant** • **Eligible Applicants:** Local governments. • **Type of Assistance:** Grants. • **Max Award Amount:** Dependent of project and available funding.[79] • **Geographic Restriction:** PFAs located in non-entitlement jurisdiction.[80]	**DHCD - Community Legacy Program** • **Eligible Applicants:** Local governments; non-profit community development organizations; certified community development financial institution (CDFI).[81] • **Type of Assistance:** Grants and loans. • **Max Award Amount:** $500,000 per project. • **Geographic Restriction:** SCs within PFAs.

[78] Eligible businesses must employ at least 10 full-time employees.

[79] *See* the DHCD "State of Maryland Community Development Block Grant Program Policies and Procedures Manual SFY 2019" for financial assistance details at https://dhcd.maryland.gov/Communities/Documents/cdbg/19ProgramPoliciesandProcedures.pdf.

[80] The U.S. Housing and Urban Development (HUD) defines non-entitlement area not directly receiving CDBG funds from HUD, as well as cities with populations of less than 50,000, unless a Metropolitan Statistical Area, and counties with populations of less than 200,000. *See* the HUD *State Community Development Block Grant Program* webpage at https://www.hudexchange.info/programs/cdbg-state/state-cdbg-program-eligibility-requirements/.

[81] According to 12 U.S.C. § 4702, a CDFI is a non-profit organizations whose a primary mission is promoting community development; serves an investment area or targeted population; provides development and financing services.

• **Geographic Restriction:** SCs in the Baltimore region. Md. Code Ann. Housing and Community Development §§ 6-501 – 6-510.	Md. Code Ann. Housing and Community Development § 6-608. 42 U.S.C. § 5307.	Md. Code Ann. Housing and Community Development §§ 6-201 – 6.213.
DHCD - Fresh Food Financing Program • **Eligible Applicants:** Non-profit organizations, small businesses, and micro-enterprises. • **Type of Assistance:** Loans. • **Max Award Amount:** $500,000. • **Geographic Restriction:** Designated food deserts in SCs. Md. Code Ann., Housing and Community Development § 6-305.8.	**DHCD - Local Government Infrastructure Financing Program** • **Eligible Applicants:** Local governments and municipalities; must obtain local legislative approval to incur the debt. • **Type of Assistance:** Bond funded loans. • **Max Award Amount:** Dependent of project and available funding. • **Geographic Restriction:** Redevelopment or designated for growth areas within a local jurisdiction. Md. Code Ann. Housing and Community Development §§ 4-225 – 4-233.	**DHCD - Technical Assistance Grants Program** • **Eligible Applicants:** Nonprofit organizations, local governments, local development agencies and local development corporations. • **Type of Assistance:** Grants. • **Max Award Amount:** Dependent of project and available funding. • **Geographic Restriction:** Special areas of focus include main street communities, transit oriented development, base realignment and closure zones, and sustainable or green initiatives. Md. Code Ann. Housing and Community Development § 4-211(a)(7).
MARBIDCO – MARBIDCO Financing Fund Loan • **Eligible Applicants:** Agricultural and resource-based businesses. • **Type of Assistance:** Loans. • **Max Award Amount:** 40% of costs, award amount dependent on project. A commercial lender financial commitment required.[82] • **Geographic Restriction:** N/A. Md. Code Ann., Econ Dev. §§ 10-501 and 10-510.	**MARBIDCO - Local Government Ag/RBI Project Cost Share Program** • **Eligible Applicants:** Local governments. • **Type of Assistance:** Grants. • Max Award Amount: $25,000 per local jurisdiction per fiscal year. • **Geographic Restriction:** N/A. Md. Code Ann., Econ Dev. §§ 10-501 and 10-510.	**MARBIDCO - Maryland Value-Added Producer Grant (MVAPG) Capital Assets Option** • **Eligible Applicants:** Agricultural and resource-based businesses. • **Type of Assistance:** Grants. • **Max Award Amount:** $10,000, matching funds required. • **Geographic Restriction:** N/A. Md. Code Ann., Econ Dev. §§ 10-501 and 10-510.
MARBIDCO – MVAPG USDA Option • **Eligible Applicants:** Agricultural and resource-based business awarded a USDA VAPG grant. • **Type of Assistance:** Grants.	**MARBIDCO - Rural Business Energy Efficiency Improvement Loan Fund** • **Eligible Applicants:** Agricultural and resource-based businesses.	**MEA - Jane E. Lawton Conservation State Loan Program**

[82] *See* the MARBIDCO Financing Fund Loan webpage at https://www.marbidco.org/_pages/programs_loans/loan_programs_mrbiff.htm.

• **Max Award Amount:** Up to 15% of the USDA matching requirement, $11,250 for planning grants and $25,000 for working capital grants. • **Geographic Restriction:** N/A. Md. Code Ann., Econ Dev. §§ 10-501 and 10-510. 7 U.S.C. 1632a.	• **Type of Assistance:** Loans and grants. • **Max Award Amount:** $30,000 loan and 10% of loan amount grant incentive. • **Geographic Restriction:** Rural community. Md. Code Ann., Econ Dev. §§ 10-501 and 10-510.	• **Eligible Applicants:** Non-profits; commercial businesses; state agencies; local governments.[83] • **Type of Assistance:** Loans. • **Max Award Amount:** $500,000, based on a financial need of up to 50 percent of project costs. • **Geographic Restriction:** Dependent of project and available funding. Md. Code Ann., State Gov't, 9-1A-35.
MEA - Maryland Smart Energy Communities (MSEC) • **Eligible Applicants:** Local governments. • **Type of Assistance:** Loans. • **Max Award Amount:** $75,000, dependent on jurisdiction's population size. • **Geographic Restriction:** Designated MSECs.[84] Md. Code Ann., State Gov't. § 9-20B-05(f).	**MEA - Animal Waste to Energy Grants** • **Eligible Applicants:** Commercial businesses; state and local government; non-profits. • **Type of Assistance:** Grants. • **Max Award Amount:** Dependent on project and available funding. • **Geographic Restriction:** N/A. Md. Code Ann., Argic. § 8-7A-02.	**MEA - Combined Heat and Power Program** • **Eligible Applicants:** Commercial; industrial, institution, and critical infrastructure facilities.[85] • **Type of Assistance:** Grants with tiered kW capacity payment structure. • **Max Award Amount:** $500,000. • **Geographic Restriction:** N/A. Md. Code Ann., State Gov't. § 9-20B-05(f).
MET – Environmental Education, Community Initiatives and Cleanup Grants Program. • **Eligible Applicants:** Non-profits, local governments, and schools. • **Type of Assistance:** Grants. • **Max Award Amount:** $1,000 to $5,000 depending on grant program. • **Geographic Restriction:** N/A.	**Maryland Heritage Trust (MHT) – Capital Grant and Loan Program** • **Eligible Applicants:** Non-profits, local governments, private individuals, and businesses. • **Type of Assistance:** Grants and loans. • **Max Award Amount:** $100,000 for grants, loan amount is dependent on project.[86]	**Maryland Department of Agriculture – Animal Waste Technology Fund** • **Eligible Applicants:** Non-profits, state and local government agencies, private individuals, and businesses. • **Type of Assistance:** Grants. • **Max Award Amount:** No maximum, subject to total funding amount.

[83] Chapter 135 of 2019 added state agencies as an eligible burrower and zero interest loans as available financial assistance, and expands the purposes of Jane E. Lawton Conservation State Loan Program to include the reduction in GHG emissions.

[84] Applicant local governments must voluntarily adopt energy policies in at least two of three policy areas: energy efficiency, renewable energy, or transportation petroleum reduction.

[85] The United States Department of Homeland Security defines critical infrastructure as "so vital to the United States that their incapacitation or destruction would have a debilitating effect on security, national economic security, national public health or safety, or any combination thereof." *See* an explanation at https://www.dhs.gov/critical-infrastructure-sectors.

[86] *See* the *MHT Capital Loan Program Guidelines* Document for details of financial assistance available https://mht.maryland.gov/documents/PDF/grants/MHT%20Capital%20Loans_Guidelines_9-15-17.pdf.

Md. Code Ann., Nat. Res. § 3-210.	• **Geographic Restriction:** Properties listed or eligible for listing on the National Register of Historic Places. Md. Code Ann., Financial Institutions. § 13-1113.	• **Geographic Restriction:** Located in Maryland. Md. Code Ann., Agriculture §§ 8-7A-01 et seq.

Table 10 – List of State Tax Incentives

Commerce - Biotechnology Investment Incentive Tax Credit • **Eligible Applicants:** Qualified investor.[87] • **Tax Effected:** Income tax. • **Credit Description:** 50%, up to $250,000, of an eligible investment in a Qualified Maryland Biotechnology Company. • **Duration:** One year. • **Geographic Restriction:** N/A. Md. Code Ann., Tax-Gen. § 10-725.	**Commerce - EZ Tax Credit** • **Eligible Applicants:** Businesses. • **Tax Effected:** Income and property taxes. • **Credit Description:** *Income Tax Credit* - §1,000 to §6,000 per employee, dependent on employee type.[88] *Property Tax Credit* – 80% of the incremental increase in taxes over the first five years, then decreasing 10% annually over the following five years. • **Duration:** *Income Tax Credit* - Three years. *Property Tax Credit* - 10 years. • **Geographic Restriction:** EZs. Md. Code Ann., Econ Dev. § 5-707. Md. Code Ann., Tax-Gen, § 10-702. Md. Code Ann., Tax-Prop. § 9-103.	**Commerce - Job Creation Tax Credit** • **Eligible Applicants:** Businesses with full-time positions that pay at least 150% of federal minimum wage in targeted industry sectors. • **Tax Effected:** Income tax • **Credit Description:** to $3,000 per job, or up to $5,000 per job in a "revitalization area."[89] • **Duration:** Credit year.[90] • **Geographic Restriction:** N/A. Md. Code Ann., Econ Dev. § 6-301 – 6-309.
Commerce - More Jobs for Marylanders Incentive Program for Manufacturers	**Commerce - One Maryland Tax Credit**	**Commerce - Research & Development (R&D) Tax Credit**

[87] Qualified investor is an individual or any entity that invests at least $25,000 in a Qualified Maryland Biotechnology Company and is required to file an income tax return in any non-tax haven jurisdiction.
[88] The income tax credit is a $1,000 credit per new employee. For economically disadvantaged employees, the credit increases to $6,000 per new employee over three years.
[89] Revitalization area is defined in § 6-301 of the Economic Development Article as a state EZ, federal empowerment zone, or DHCD SC.
[90] Credit year is defined in § 6-301 of the Economic Development Article as means the taxable year in which a qualified business entity claims the credit.

• **Eligible Applicants:** Manufacturing businesses, with a minimum job creation requirement. • **Tax Effected:** Income, property, sales and uses taxes, and the waiver fees charged by Department of Taxation. • **Credit Description:** Refundable credit against income taxes statewide, and additional refundable credits against certain state taxes if a new business in a Tier 1 county.[91] • **Duration:** 10 years. • **Geographic Restriction:** N/A. Md. Code Ann., Econ Dev. § 6-801 – 6-809.	• **Eligible Applicants:** Non- and for-profit businesses.[92] • **Tax Effected:** Income tax • **Credit Description:** *Project Tax Credit* - Up to $5.5 million. *Start-up Tax Credit* - Up to $500,000. • **Duration:** 14 years. • **Geographic Restriction:** PFAs located in designated qualified distressed county.[93] Md. Code Ann., Econ Dev. § 6-401 – 6-407.	• **Eligible Applicants:** Businesses with qualified R&D expenses.[94] • **Tax Effected:** Income tax. • **Credit Description:** *Basic R&D Tax Credit* - 3% credit of eligible R&D expenses that do not exceed the Maryland Base Amount.[95] *Growth R&D Tax Credit* - 10% credit of eligible R&D expenses in excess of the Maryland Base Amount. *Small Business Refund* – Credits are refundable for small businesses if the tax credits exceed the income tax liability. • **Duration:** Credit year.[96] • **Geographic Restriction:** N/A. Md. Code Ann., Tax-Gen. § 10-721.
Commerce – RISEZ Tax Credit • **Eligible Applicants:** Businesses linked to a qualified RISEZ institution. • **Tax Effected:** Income and property taxes.	**Commerce - Wineries and Vineyards Tax Credit** • **Eligible Applicants:** Winery or Vineyard. • **Tax Effected:** Income tax.	**Local Government - Urban Agriculture Tax Credit** • **Eligible Applicants:** Landowners of urban agricultural property.[97]

[91] Tier 1 Counties include Baltimore City and Allegany, Baltimore, Caroline, Dorchester, Garrett, Kent, Prince George's, Somerset, Washington, Wicomico, and Worcester counties. Tier 2 Counties include all other Maryland counties.

[92] To qualify for the state income credits, a business must create at least 25 new full-time jobs in targeted industry that pay at least 150 percent of federal minimum wage, and make capital expenditures.

[93] As of July 1, 2018, "qualified distressed counties" are Baltimore City and Allegany, Caroline, Dorchester, Garrett, Kent, Somerset, Washington, Wicomico, and Worcester counties. See Commerce's *One Maryland Tax Credit* webpage at http://commerce.maryland.gov/fund/programs-for-businesses/one-maryland-tax-credit.

[94] To qualify the business must incur qualified R&D expenses as defined by § 41(b) of the Internal Revenue Code.

[95] The Maryland base amount is defined as the average annual gross receipts of the business for the four preceding tax years multiplied by the Maryland base percentage, which is the percentage that Maryland R&D expenses for the preceding four tax years is of total gross receipts for those years.

[96] If the credit applied in any tax year by businesses exceeds the State income tax for that tax year, the credit will be prorated for succeeding taxable years until the excess credit is used or until the seven tax years after the R&D expenses were incurred.

[97] An urban agricultural property is a real property that is between one-eighth and five acres, located in a PFA, and is used for urban agricultural purposes such as community food donation or environmental mitigation activities.

• **Credit Description:** *Income Tax Credit* - §1,000 to §6,000 per employee, dependent on employee type. *Property Tax Credit* – 80% of the incremental increase in taxes over the first five years, then decreasing 10% annually over the following five years. • **Duration:** *Income Tax Credit* - Three years. *Property Tax Credit* - 10 years. • **Geographic Restriction:** RISEZ. Md. Code Ann., Econ Dev. § 5-1406. Md. Code Ann., Tax-Gen. § 10-702. Md. Code Ann., Tax-Prop. § 9-103.1.	• **Credit Description:** 25% of qualified capital expenses. • **Duration:** Credit year. • **Geographic Restriction:** N/A. Md. Code Ann., Tax-Gen. § 10-735.	• **Tax Effected:** Local property taxes. • **Credit Description:** Dependent on local government. • **Duration:** Dependent on local government. • Geographic Criteria: PFAs. Md. Code Ann., Tax-Prop. § 9-253. Baltimore, Md. Tax Code, § 10-19. Montgomery County Code, § 52-11. Prince George's County Code, §§ 10-235.22 – 10-235.25.
MDA - Food Donation Pilot Program[98] • **Eligible Applicants:** Farmers. • **Tax Effected:** State income tax. • **Credit Description:** 50% to 75% of the value of the donation.[99] • **Duration:** Five years.[100] • **Geographic Restriction:** N/A. Md. Code Ann., Tax-Gen. § 10-745.	**MEA - Clean Energy Incentive Tax Credit** • **Eligible Applicants:** Business generating electricity from qualified energy resources.[101] • **Tax Effected:** State income tax. • **Credit Description:** 0.85 cents per kWh generated. • **Duration:** Five years.[102] • **Geographic Restriction:** N/A. Md. Code Ann., Tax-Gen. § 10-720.	**MHT - Maryland Heritage Structure Rehabilitation Competitive Commercial Tax Credit** • **Eligible Applicants:** Non-profits, local governments, private individuals, and businesses. • **Tax Effected:** Income tax. • **Credit Description:** 20% of eligible rehabilitation expenses for substantial rehabilitation projects. Additional 5% credit for projects that achieve LEED Gold certification or equivalent. • **Duration:** Credit year.

[98] HB 403 of 2019 expanded qualified applicants to farmers statewide and extended the program to tax year 2021.
[99] The value of the credit is equal to 50% of the value of the eligible food donation, or 75% of the value for certified organic produce donations.
[100] Unused credits may be applied for up to five tax years or until full credit amount is expended, whichever occurs first.
[101] Qualified energy resources includes methane gases produced from the anaerobic digestion of organic materials from an agricultural operation or from a landfill or a wastewater treatment plant.
[102] MEA is prohibited by statute from issuing initial credit certificates after December 31, 2018.

		• Geographic Criteria: Properties listed or eligible for listing on the National Register of Historic Places. Md. Code Ann., Tax-Gen. § 10-704.5. Md. Code Ann., Financial Institutions. § 13-1113.

Maryland Department of the Environment Requirements

Solid Waste and Recycling Requirements

The Department's LMA issues refuse disposal facility permits that regulate the handling and disposal of solid waste, which includes recyclable materials not composted or recycled in accordance with the Department's recycling regulations (currently under development).[103]

Currently, under certain circumstances, a refuse disposal permit could be required for an anaerobic digestion facility. A refuse disposal permit is required for a facility whose primary purpose is to process solid waste. There are several types of solid waste acceptance facilities that require coverage under a refuse disposal permit, including a processing facility that changes the physical and chemical characteristics of solid waste.[104] An anaerobic digestion facility could be required to obtain a refuse disposal permit and be governed as a processing facility. However, the Department has generally determined that a refuse disposal permit is not required for an anaerobic digestion facility if the quantity of non-digestible solid waste accepted and generated at the facility remains at a *de minimis* level and the facility does not cause a nuisance, pollution, or other threats to the public health, safety, or comfort as required under COMAR 26.04.07.03.

An anaerobic digestion facility that digests sewage would require coverage under a Sewage Sludge Utilization Permit under COMAR 26.04.06. This includes the co-digestion of sewage with other organic materials such as food residuals.

Discharge Permit Requirements

Under federal and Maryland law, a facility whose primary operations falls within certain industrial activity categories, identified using Standard Industrial Classification (SIC) codes, is required to obtain coverage under the General Permit for Stormwater Discharges Associated with Industrial Activity. The Department's Water and Science Administration issues a combined State and federal National Pollutant Discharge Elimination System (NPDES) general industrial stormwater discharge permit designed to meet federal effluent guidelines and State water quality standards.[105] An anaerobic digestion facility may require coverage under this permit if the facility's primary activity is categorized under SIC code 4952 for treating domestic sewage, SIC codes 2873 and 2785 for manufacturing agricultural chemicals (i.e., high-quality digestate), or SIC code 2869 for manufacturing industrial organic chemicals (i.e., methane gas generation).[106]

If an anaerobic digestion facility is located at a site where other activities are taking place, such as agriculture, the applicant must determine if any of the abovementioned covered industrial activities are the primary activities occurring at the facility. In addition, anaerobic digestion facility designed

[103] Md. Code. Ann., Envir. §9-101(j).

[104] COMAR 26.04.07.02B(23).

[105] EPA can authorize States to administer NPDES permit programs under 33 U.S. Code § 1342. Learn more about Maryland's General Permit No. 12-SW at mde.state.md.us/programs/Water/wwp/Pages/IndustrialSurfaceDischargePermits.aspx.

[106] *See* a listing of covered industry specific sectors at mde.maryland.gov/programs/Permits/WaterManagementPermits/Documents/GDP%20Stormwater/12_SW_AppendixA_Final.pdf.

and operated in a manner that prevents exposure of industrial materials to precipitation facility-wide may apply for a "No Exposure Certification" in lieu of permit coverage.[107]

Water and Sewerage Treatment Capital Construction Requirements

The Department's Engineering and Capital Projects Program reviews and issues Water and Sewerage Construction Permits for the development of major water and wastewater systems infrastructure.[108] These permits are designed to ensure that water quality infrastructure projects meet certain engineering principles and comply with state design guidelines to protect Maryland's water quality and public health. A Water and Sewerage Construction Permit may be required for the construction or modification of a publicly or privately operated anaerobic digestion facility located within the service area of a major sewage treatment plant.[109] A proposed facility applying for coverage under this permit must:

- Be consistent with and included in the current County Water And Sewer Comprehensive Plan;
- Certify the facility will be operated either publicly or privately under a sound financial management plan; and
- Meet certain federal and State engineering standards and the Engineering and Capital Projects Program design guidelines.[110]

Air Quality Control Requirements

The Department's Air and Radiation Administration issues Permits to Construct and Operate to ensure sources of pollution are operated in continuous compliance with all applicable requirements of the federal Clean Air Act (CAA) and State air pollution control laws and regulations.[111] The anaerobic digestion process or the facility itself is not subject to air permitting; however, certain equipment involved in anaerobic digestion may require an air quality permit.

A Permit to Construct (PTC) is a one-time permit that must be obtained prior to the construction, installation, or modification of equipment or processes, including air pollution control equipment, that are considered a source of air pollution.[112] Equipment that may be used at an anaerobic digestion facility that would require a PTC includes boilers/process heaters, screening systems, grinding/shredding machinery, drying equipment, and stationary internal combustion engine powered equipment with an output greater than or equal to 500 brake horsepower (BHP). Since a PTC applies to an individual unit or process line, a facility may require multiple PTCs. COMAR

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[107] *See* the *Guidance Manual for Conditional Exclusion from MDE's Stormwater Permitting (12SW) Based On "No Exposure" of Industrial Activities to Stormwater* at mde.maryland.gov/programs/Water/wwp/Documents/Guidance%20Manual%20for%20No%20Exposure.pdf.

[108] The Engineering and Capital Projects Program manages special federal appropriation grants and state revolving loan and grants awarded through the Department's Water Quality Financing Administration for water quality and drinking water infrastructure projects.

[109] COMAR 26.03.12.02(B)(6) defines a major sewerage system as a system that includes structures and equipment that collects, conveys and treats wastewaters generated from domestic, industrial, and commercial establishments.

[110] An overview of application requirements for a Water and Sewage Construction Permit is available at mde.maryland.gov/programs/Permits/Documents/2008permitguide/WMA/3.07.pdf.

[111] Md. Code. Ann., Envir. § 2-401; and COMAR 26.11.02.14(C).

[112] COMAR 26.11.02.02(B)(1).

26.11.02.10 exempts several air pollution sources from a PTC, such as burning equipment less than 1 million British thermal units and internal combustion engines less than 500 BHP.[113]

Under federal authority, Maryland requires a source of air pollution with the potential to significantly affect air quality to obtain a Permit to Operate (PTO).[114] The Department issues a PTO once it determines an operation complies with all applicable air quality requirements. Sources of air pollution at an anaerobic digestion facility that would require coverage under a PTO include stationary internal combustion engines that are powered by digester gas, crushing equipment, and any installation that the Department determines has the potential to have a significant impact on air quality.[115] The Department typically issues a single PTO for several installations or processes located at a single facility.

Maryland Department of Agriculture Requirements

MDA's State Chemist Section regulates the sale and distribution of fertilizers and soil conditioners in Maryland. Digestate is the nutrient-rich byproduct of the anaerobic digestion process that can be land applied or dewatered for use as livestock bedding.[116] Anaerobic digestion operators that plan to distribute or sell digestate as a fertilizer or soil conditioner must adhere to MDA State Chemist regulations. Section 6-207 of the Agriculture Article requires distributors to annually register each brand and grade of commercial fertilizer and each product name of the soil conditioner prior to their distribution.[117] If a producer registers digestate as a commercial fertilizer, it must make a legal claim of the minimum percentagesages of plant nutrients (nitrogen, phosphate, potassium, and other nutrients) in the digestate and these percentages cannot change after registration.[118] If digestate is instead registered as a soil conditioner, the registration includes a statement of digestate composition. MDA regulations also include lab testing, classification, labeling, reporting, and recordkeeping requirements. During the 2019 legislative session, Chapter 367 was enacted. It changed the definition of "soil conditioner" to explicitly include digestate produced by anaerobic digestion that is incorporated into the soil.

Maryland Public Service Commission Requirements

The PSC is an independent executive agency that regulates electric utilities operating in Maryland, sets tariff rates for electricity distribution, approves the construction of electric generating stations, and licenses electric suppliers. Biogas, consisting primarily of methane and carbon dioxide, is a renewable energy source produced during anaerobic digestion and can be combusted to generate electricity. An anaerobic digestion facility proposing to generate and distribute electricity in Maryland, as well as participate in the RPS, will be subject to PSC regulations and approval requirements.

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[113] Electric powered mobile sources equipment do not require a PTC.

[114] COMAR 26.11.02.13.

[115] The regulations do allow the Department to exempt a source from a PTO based on evidence that the source has a limited potential to cause air pollution.

[116] *See* EPA's *Basic Information about Anaerobic Digestion (AD)* webpage at epa.gov/anaerobic-digestion/basic-information-about-anaerobic-digestion-ad.

[117] COMAR 15.18.03.02.

[118] Md. Code Ann., Agri. §§ 6-201(k) and 6-213.

An anaerobic digestion facility that proposes to construct or modify a small electricity generating station must apply to the PSC in order to obtain an exemption from the requirement for a Certificate of Public Convenience and Necessity (CPCN). To be eligible for an exemption, the system must meet one of the following: (1) it produces onsite generated electricity; the capacity of the generating station does not exceed 70 megawatts; and less than 20% of the annual energy generated is exported or sold on the wholesale market; or (2) the capacity of the generating station does not exceed 25 megawatts; and at least 10% of the electricity generated at the generating station each year is consumed onsite.[119] A CPCN exemption is not required for generating systems with a capacity less than or equal to 2 MW.[120] In addition, applicants are required to apply for and obtain applicable air quality permits prior to constructing or operating the generator.

PSC's standard small generator interconnection regulations define a small generator facility as the equipment used to generate or store electricity that operates in parallel with the electric distribution system.[121] These regulations establish technical and application requirements for small generator facilities requesting interconnection and the electric distribution company reviewing the request. A small generator facility that is subject to the interconnection requirements of PJM Interconnection, a regional transmission organization, is not subject to PSC's standard small generator interconnection agreement regulations.[122]

Sanitary and public health concerns related to organic materials composting and diversion

The Department and the MDH presented information to the study group on potential health and safety impacts related to mulching and recycling of NWW, and the composting of yard trimmings, food residuals and other organic material. The Departments' presentations are included as Appendix I.

The Departments focused on potential sanitary and public health impacts related to mulching and composting that have been most frequently raised by stakeholders. These include:

- Air-related issues - Generation of particulate matter and volatile organic compounds , wood dust from grinding wood, and mold and spores generated during decomposition of organic materials that may potentially spread during pile turning or other handling.
- Water contamination - Leaching of "contact water" that contains nutrients and other pollutants, and the production of natural organic acids that liberate metals present in soil into groundwater and surface water.
- Other impacts - Exposure to pathogens in organic feedstock and harborage of disease vectors in a composting pile; fires.

The Departments provided an overview of existing regulatory requirements for NWW recycling facilities and composting facilities. NWW recycling facilities and composting facilities are subject to separate sets of regulations at COMAR 26.04.09 and 26.04.11, respectively. Composting

[119] Md. Code Ann., Public Utilities §7-207.1.

[120] COMAR 20.79.01.02 excludes an integral plant or unit with a capacity less than or equal to 2 MW from the definition of generating system.

[121] COMAR 20.50.09.02.

[122] COMAR 20.50.09.01.

facilities are divided into "tiers," based on the feedstock type managed. Tier 1 facilities compost only yard trimmings and similar materials, while Tier 2 facilities may also compost other materials, including food residuals and animal manure. All types of composting facilities and NWW recycling facilities are subject to "General Restrictions and Specifically Prohibited Acts," designed to prevent nuisances and protect public and environmental health. NWW and composting facility regulations contain facility design and operation provisions. These include setbacks between certain areas of a facility and neighboring properties. A facility must prepare an emergency preparedness plan for preventing and responding to fires, as well as an operational plan for preventing or controlling ground or surface water pollution, odors, dust, vectors, and other nuisances. There are also feedstock limitation and handling requirements, and composting facility operators must implement plans for pathogen and vector attraction reduction.

The regulations also include provisions to protect against discharges to groundwater and surface water. A composting facility must comply with siting and design criteria related to 1) the vertical distance from a groundwater table, 2) slope of surfaces to prevent ponding, 3) composting pad requirements, and 4) structures to prevent run-on of stormwater onto processing areas. The Department may require a composting facility to install monitoring wells and conduct groundwater monitoring if located in a karst terrain or wellhead protection area, or if otherwise necessary to protect groundwater. In addition, a composting facility must be designed to manage contact water and any stormwater discharges associated with industrial activity.[123]

The Department reports that although most permitted NWW recycling facilities and composting facilities do not have groundwater monitoring systems, at facilities located at sites with monitoring systems, the majority do not have evidence of impact to water quality. The last five years of NPDES discharge permit monitoring data for two large yard trimmings composting facilities operated by MES indicate these facilities are in compliance with discharge limits. Of the 13 composting facilities located at landfills with monitoring systems, two sites have detectable salt and iron impacts to water quality that could potentially be related to composting activities.[124] However, the relationship between composting and these impacts has not been confirmed and is still being investigated. There has been no known impact by a composting facility on any domestic water supply. However, the Department acknowledges incidences of groundwater impacts that were historically observed at private facilities that pre-date the adoption of the Department's composting facility regulations.

The Department also provided an overview of a Suffolk County Department of Health Services report that involved a study of groundwater samples taken from monitoring and drinking wells at 11 different sites where large scale vegetative materials composting had occurred in Suffolk County, New York.[125] The Suffolk study was designed to help regulators evaluate the impact to groundwater sources located down-gradient of vegetative material composting facilities, and

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[123] 40 CFR § 122.26(b)(14).

[124] The impact at these two composting facilities is still under investigation and has not been confirmed. These facilities have experienced large fires that could have contributed to the release of salts and metals faster than by natural decomposition of wood material.

[125] *See* the *Investigation of the Impacts to Groundwater Quality from Compost/Vegetative Organic Waste Management Facilities in Suffolk County* at static1.squarespace.com/static/58a74ddce3df282ccda2d0b4/t/58a8f1bd86e6c0c373936ce4/1487467007330/Final+SCDHS+VOWM+Investigation+Report.pdf.

determine whether they needed to require groundwater monitoring at these facilities. It was not intended to be an in-depth study of the groundwater around these facilities, but rather to provide a short-term assessment of groundwater quality down-gradient of these facilities. The study confirmed levels of metals in monitoring and private wells that were significantly elevated when compared to typical Suffolk County water quality, and/or exceeded groundwater/drinking water standards.[126] The study identified other possible sources for salts and metals in several cases, including historical use as a scrapyard, an adjacent landfill, and possible influence by the highway. The study also discovered "septage" related compounds such as cosmetics and medications, at nearly every site, which demonstrates the extreme interconnectivity of the aquifer to surface and shallow-groundwater contaminant sources.

The study is informative, but was done for and by regulators who were familiar with the geology of the area, so the geology is not addressed in detail. Significant differences exist between the geology of the area studied and that of Maryland. Flowing water from melting glaciers, beginning at least 10,000 years ago, on Long Island carried and deposited sandy material in the area of Suffolk County, creating outwash plains or flat plains of sandy sediment that has a high permeability. Over most of the southern portion of Long Island, the outwash sediments are hydraulically connected with an aquifer whose confining unit is 1,000 feet down; therefore, discharged pollutants can migrate with a deep well over time.[127] The geology of Long Island is most similar to the Paleochannel sand and gravel deposits, left by an ancient portion of the Susquehanna River, on Maryland's lower Eastern Shore; it is significantly different from the geology in most of Maryland.

MDH's Environmental Health Bureau presented on the potential health impacts from exposure to bioaerosols from NWW recycling facilities or composting facilities. It was pointed out that to date there is limited scholarly literature evaluating direct human exposure or health effects data related to composting. Asthma emergency discharge rates by Maryland zip code, tracked by MDH, do not reveal a correlation between these emergencies and proximity to composting facilities.

MDH shared the results of two meta-analyses that evaluated several studies that used air quality dispersion modeling to estimate the concentration of bioaerosols downwind from emission sources at composting facilities. A study conducted by the Imperial College of London reported that occupational exposure studies found that concentrations were highest, but not always exceeding exposure standards, onsite during the agitation of the feedstock or compost. Community exposure studies found high concentrations immediately downwind of facilities, but these concentrations decreased on dispersion and generally returned to background levels by the property line setback recommended by the European Environment Agency.[128, 129] A University of Illinois at Chicago study reported onsite concentrations of bioaerosols halved in concentration as distance from the

[126] Out of the 11 sites investigated, one site is linked to contamination of four private wells. Manganese exceeded the groundwater/drinking water standard most consistently in tested samples (34%) and at significant concentrations.

[127] According to the US Geological Survey, a confining unit is "a relatively low permeability geologic unit that impedes the vertical movement of water," *see* pubs.usgs.gov/ha/ha747/pdf/definition.pdf.

[128] Pearson C, et al. Exposures and health outcomes in relation to bioaerosol emissions from composting facilities: a systematic review of occupational and community studies. J Toxicol Environ Health B Crit Rev. 2015;18(1):43-69.

[129] The European Environment Agency recommended set boundary is 250 meters.

composting site increased, and the average concentrations of bioaerosols, both on and offsite, were significantly higher during periods of activity.[130]

Discussion and Recommendations

The following summarizes discussions by the study group. While there is some overlap, study group discussions can be roughly categorized into two broad topics: source reduction and donation; and organics recycling. For each topic, study group members identified potential barriers and discussed information presented throughout the study to develop solutions to the barriers where possible.

Discussions on Source Reduction and Food Donation

Barriers to Source Reduction and Food Donation

The following obstacles were identified as significant barriers to source reduction and food donation:

- The lack of standardized food date labeling requirements;
- Concerns over food safety and liability protection for the donor or charitable organization;
- Cost of transportation or the need for refrigerated vehicles to transport donated food;
- Workforce support for gleaning or processing donated food;
- Challenges in quickly connecting farmers, food producers, and food retailers with organizations that accept and distribute donated food;
- Cost and labor to transport and process food for use as animal feed (i.e., removing packing);
- Lack of public knowledge about food donation as a waste reduction opportunity and liability protections under federal and state laws; and
- Lack of data collection from large food residuals generators and food donation organizations concerning their food recovery activities.

Obtaining Better Source Reduction and Donation Data

The statewide and county recycling rates tracked by the Department focus on end-of-life management of materials. Under the MRA, a material is recycled if it is collected, separated, processed and returned to the marketplace.[131] Processes that prevent organic waste generation from occurring are not captured in the MRA recycling rates or required to be reported to the Department. It is therefore difficult to identify how much organic material is being diverted through source reduction and donation. Because the Department lacks comprehensive information on food donation infrastructure, it is also more difficult to assess infrastructure capacity gaps quantitatively.

The existing source reduction credit system allows the Department to capture qualitative waste prevention data from counties to calculate MRA diversion rates. The study group discussed that

[130] Hryhorczuk D, Curtis L, Scheff P, Chung J, Rizzo M, Lewis C, Keys N, Moomey M. Bioaerosol emissions from a suburban yard waste composting facility. Ann Agric Environ Med. 2001;8(2):177-85.
[131] Md. Code. Ann., Envir. § 9-1701(n).

the existing source reduction checklist includes several items related to source reduction of yard trimmings, but food residuals activities are afforded less credit. The group recommended adding additional food residual prevention activities to the source reduction checklist, and for these activities to be weighted the same as yard trimmings reduction activities.

It was acknowledged that State government investment into online-based reporting tools and databases is needed to increase the collection of food recovery data. However, increased data collection requires increased voluntary reporting from organizations not traditionally regulated by the Department. Some study group members were concerned that if separate voluntary surveys or reports were distributed by the Department, in addition to other state government mandated reports, there would be low participation by food recovery stakeholders. One suggestion was that the Department collaborate with MDA and MDH to include food recovery questions to their mandated reports completed by farms, food producers, and food service establishments. This method would increase the collection of food recovery data without increasing the recipients' workload related to completing multiple state reports. The Department also outlined plans, currently underway, to create a streamlined online reporting system for both counties and businesses to report recycling activities. This system will have the ability to collect information on food donation and other organics source reduction information at the same time that recycling information is collected for the purpose of the MRA recycling rate.

Liability and Food Safety Concerns

The study group discussed potential methods for the state to alleviate farmers', food producers', and food service establishments' concerns about liability and food safety related to food donation and animal feeding. Members noted that the perception of risk and liability is a significant factor in limiting food donation activities by the commercial sector. Food businesses may be unaware of existing liability protections or may find them to be insufficient to alleviate risk. At an individual consumer level, unclear labeling can lead to disposal of food that is still safe to eat. The following ideas were discussed:

- Amending the Maryland Good Samaritan law to add criminal liability protection and protection for direct food donations, to cover donations made or distributed for a nominal fee, and to allow the donation of apparently wholesome food that has exceeded its sell-by/used-by date;
- A state outreach initiative to educate owners and operators of farms, food producers, grocers, and food service establishments about federal and state liability protection laws;
- State promotion of the voluntary use of "Best if Used By" and "Use By" terminology for date labeling, and use of biodegradable/edible country of origin produce labels; and
- State sponsored food safety guidance or training tailored for a food donation program.

As to expansion of the Maryland Good Samaritan law, study group members were broadly supportive of the Department's ultimate recommendation. This recommendation, made after consultation with MDH, is to protect donations of wholesome food provided at reduced cost to feed those in need,[132] as well as direct donations by farmers, and to consider in the future whether and how direct donations by food service facilities other than farms should be protected. A study group member also recommended additional expansions to: (1) protect donations regardless of

[132] This may include a shared maintenance fee by a food pantry to a food bank to cover storage and transportation costs, or a nominal fee paid by a recipient to offset costs to prepare and provide food.

compliance with non-safety related labeling requirements; and (2) clearly provide liability protection for past-date food. The Department notes that these items are worthy of further consideration, but that additional consultation with MDH and other stakeholders is necessary to ensure that any additional expansions of liability protection are appropriately stated and communicated to protect public health and avoid confusion.

Financial Assistance

Another aspect of promoting food waste reduction statewide is the state's role in offering financial assistance to offset the costs of implementing a food recovery program. The purchase of refrigerators and refrigerated trucks, fuel costs for transporting donated food, and salaries of staff to glean or process donated food may discourage would-be donors and charitable organizations from establishing food donation programs. Feedback from the study group revealed that tax incentives have proven to be difficult to claim by food industry stakeholders, and that larger restaurant chains prioritize grant or loan assistance with transportation costs and hiring staff to carry out food recovery activities over the availability of tax incentives. Therefore, there is a need for grant and loan programs to offset cost associated with implementing a food donation program.

The study group discussed the existing Maryland Food Donation Tax Credit, which allows for the issuance of tax credits to farmers in certain counties who donate surplus produce. At the time of study group discussions, the program was set to sunset after the 2019 tax year. The study group discussed whether the credit should be extended beyond tax year 2019 and to include more than the current six Maryland counties. The law requires participating charitable organizations to be approved by MDA as the Tax Credit Certificate Administrator, responsible for issuing tax credit certificates to farmers. A March 2018 post from Manna Food Center's Community Food Rescue, shared with the study group, noted that the method used to calculate the value of donated food may prevent farmers from applying for the credit. Charitable organizations must weigh donations using a state-certified scale, which may increase costs and time spent transporting donations to a central weighing station or result in donations spoiling. Manna Food Center suggested that Tax Credit Certificate Administrators should be allowed to use standard-sized containers with weight conversion tables to calculate the value of donated produce in lieu of state-certified scales.[133] The study group agreed with this suggestion.

During the 2019 legislative session, Chapter 361 passed, expanding the tax credit to all counties and extending the program to 2021. The effective date of the bill is July 1, 2019.

Partnerships and Outreach

A recurring topic in study group discussions was the need to forge partnerships across the various entities and sectors involved in food recovery. These partnerships are important to disseminate information on best practices and strategies, dispel any misperceptions that may pose barriers to food donation, and pool resources and outreach materials. In particular, the study group discussed the need for the state to facilitate partnerships between schools, farms, and food recovery networks. Presently, Montgomery County Public Schools donates recovered food products through the Manna Food Center's Community Food Rescue to other county public and private schools that

[133] *See* the Community Food Rescue post "Farmers, It Pays Not to Waste Food!" discussing the Farm Food Donation Tax Credit at communityfoodrescue.org/farmers-it-pays-not-to-waste-food/.

serve as donation centers. The study group considered whether the establishment of green school coordinator position responsible for executing in-school food recovery and other waste prevention programs would increase Maryland school's implementation of food recovery programs.

An outreach program administered by a state agency could provide businesses, schools, farmers, and charitable organizations with resources to aid in the development of a food recovery programs. A food recovery outreach program could offer stakeholders the following:

- Education concerning federal and State liability protection and applicable food safety laws, along with any guidance documents on how to comply with these laws;
- Connections between donors and local charitable food donation organizations or food bank distribution centers;
- Toolkits, curriculums, or activities geared towards teaching kindergarten to grade 12 students on food waste reduction and food donation; and
- Information on existing state or private economic incentives available to food recovery programs.

While discussed here in the context of source reduction and food donation, any outreach program targeted to a particular sector may also include information regarding other diversion methods, such as composting and anaerobic digestion, for material that cannot be avoided or donated.

Discussions on Organic Materials Recycling

Barriers to Organics Recycling

The following obstacles were identified as barriers to organic materials recycling in Maryland:

- The lack of clear permitting and regulatory guidance for anaerobic digestion facilities;
- Challenges in siting new facilities, including identifying suitable locations and financing start-up costs;
- Contamination of feedstocks with non-compostable or non-digestible materials;
- Lack of public awareness around organic materials diversion relative to other types of recycling;
- Identifying strong and consistent markets for compost and digestate; and
- Lack of technical assistance for organic materials generators and processing facilities.

Availability of Data on Organic Materials Diversion

The data presented through this study provided useful information regarding the approximate quantities of organic materials that must be managed in the state and limitations in recycling capacity for organics in different regions of the state. However, the study group also discussed at length the limitations on available data that make it difficult to obtain a complete picture of the adequacy of infrastructure in the State. Some of the potential gaps or limitations in information include:

- **Methods of yard trimmings recycling.** Counties report on their "MRA Tonnage Reporting Survey" the type of recycling facility that received and managed recyclable material, the tonnage of material recycled in the reporting period, and whether the source of the material was commercial or residential. The recycling reports do not request the

method of recycling, so it is not always apparent whether recycling occurred through composting or another method (*e.g.*, leaf mulching).

- **Information on small-scale, decentralized composting facilities.** These potentially include farms, universities, and other sites with onsite composting facilities (e.g., the facility at Frostburg State University). Since these facilities usually do not require composting permits there is no mechanism for collecting information on small scale composting.
- **The destination of compost produced at permitted composting facilities**. Permitted composting facilities are required by regulation to report the weight and type of received feedstock by country of origin, and the classification and weight of compost generated and distributed. However, the Department does not collect data on how the compost is marketed or where compost is distributed or sold.
- **Comprehensive data on certain types of LFSGs.** Study group members suggested that schools, hospitality businesses (e.g., conference centers, banquet halls, and hotels), and restaurants should be included LFSGs identified and mapped as part of this study. However, the Department lacks access to information on these generators. The Department contacted the MSDE regarding food residuals generation from public schools and learned that each jurisdiction has individual food preparation facilities and that these facilities may not have food residual generation data. The Department reached out to the Restaurant Association of Maryland and the State Comptroller's office in an attempt to obtain geographical data on restaurants, but learned they do not have this information.

Given these data limitations, the study group discussed the need for investment into online-based reporting and databases. A private composting facility operator noted that from the perspective of facility operators, additional reporting can be burdensome. There was further concern that collecting and sharing information regarding a composting facility marketing strategy (*e.g.,* could result in proprietary information being shared with competitors). The consensus of the workgroup was that additional data collection should be conducted as part of existing reporting mechanisms to reduce additional reporting burdens, such as through the Composting Facility Permit Annual Reporting Surveys distributed to permitted facilities.

Promoting New Organics Recycling Capacity –Disposal Bans

Since the data presented on organics generation and recycling capacity revealed a shortfall in capacity (for food residuals, in particular), the study group discussed initiatives that may promote the development of new composting and anaerobic digestion capacity.

One of the initiatives employed in the other states studied is a ban on disposal of organics by large generators. (For information on other states' disposal bans and results of implementation, see Appendix F). If effective, a disposal ban creates an increased demand for organics recycling services and a steady and certain supply of feedstocks. This can in turn improve the economics for prospective composting and anaerobic digestion facilities and organics haulers and spur investment in new infrastructure. Some study group members strongly favored such an approach in Maryland. The study group also discussed challenges that other states have faced in realizing infrastructure growth following the passage of disposal bans. Some states reported that insufficient processing infrastructure capacity has persisted, and Vermont in 2018 delayed the requirement for haulers to collect food residuals. These experiences suggest that increased feedstock availability resulting from a disposal ban may not always lead to a proportionate increase of investment into

processing infrastructure, at least not immediately or in the absence of other infrastructure-supporting policies. The operator of a private composting facility in Maryland observed that disposal bans adopted in other states have led to greater investment into anaerobic digestion infrastructure than composting infrastructure. One study group member had concerns about the availability of organics haulers and the costs for businesses to comply, and suggested that continued evaluation is needed before a recommendation for a disposal ban should be made.

The study group also discussed the existing disposal ban on separately collected yard trimmings and whether that law should be strengthened or expanded. The law does not require yard trimmings to be separated for recycling; it only provides that once the materials are collected separately, they may not be disposed in a refuse disposal system. The study group discussed some of the enforcement challenges inherent in a law that would require individual generators of yard trimmings (including residences) to separate their yard trimmings for recycling. The study group also noted that an expanded yard trimmings disposal ban may need exceptions or specific provisions for the management of material that may be undesirable for composting, such as invasive species, diseased plants, and poison ivy. Finally, the study group discussed the fact that, with a disposal ban on either yard trimmings or food scraps, there should be a means of ensuring that haulers purporting to collect organics for recycling are transporting those materials only to authorized recycling facilities for processing.

Ultimately, the Department did not include in this report a recommendation to adopt a new or expanded disposal ban on organics. The Department will continue to periodically evaluate the effects of disposal bans adopted in other states on infrastructure growth, tons of material diverted, and costs of organics management. During the 2019 legislative session, Chapter 366 passed. The bill prohibits an owner or operator of a refuse disposal system from accepting truckloads of separately collected yard or food waste for final disposal unless the owner or operator provides for composting or mulching of the material.

Promoting New Organics Recycling Capacity – Siting

Aside from increasing demand for recycling services through a disposal ban, another approach is to reduce the cost or other barriers to constructing new facilities. Throughout the study group meetings, a recurring topic was the challenge of identifying suitable locations for composting and anaerobic digestion facilities. Facilities must be relatively close to feedstock sources, but public perceptions and zoning limitations may complicate the location of facilities in densely populated areas. The study group discussed the role of State and local governments in land use and zoning issues that affect prospective organics recyclers. In Maryland, zoning decisions are made at the local government level. Impediments to the siting of new facilities may arise during local zoning hearings, including in the form of environmental, health, or nuisance concerns among community members. The study group discussed that a set of outreach materials may be useful to local governments and the public when considering the impacts of new organics recycling facilities. These materials could include information on composting and anaerobic digestion processes, the Department's existing environmental controls for organics recycling facilities, and the environmental benefits of the diversion of organic materials from disposal, including the uses of finished products.

Aside from zoning and land use issues, the study group discussed what makes a good location for a new organics recycling facility. Access to water and sewer infrastructure, proximity to large

organic feedstock generators, adequate space, and location within areas eligible for redevelopment or financial incentives should be considered. The study group suggested that the Department should work with State agencies offering financing and tax incentive programs to plot on a GIS map the location of potential redevelopment areas in relation to large organic feedstock generators. As a means to increase available sites for organic materials diversion infrastructure, the study group also suggested that the state identify State-owned land appropriate for organics infrastructure that is available for leasing.

Promoting New Organics Recycling Capacity - Financial Incentives for Organics Recycling

In addition to creating market demand and reducing barriers to siting new facilities, financial incentives were discussed as a means of encouraging infrastructure growth. The study group discussed the existing financial incentive programs offered by Commerce and other agencies. Many of the existing Commerce programs could be suitable for large-scale commercial and industrial organic materials diversion infrastructure, but are less applicable to on-farm and community-scale infrastructure. Commerce programs focus on financing for-profit businesses with a product for market. However, in certain situations, small and community-scale and on-farm organic materials diversion businesses can receive financing from MDA, MEA, Maryland Agriculture & Resource-Based Industry Development Corporation (MARBIDCO), and DHCD. While many programs may not be specifically focused on organics recycling, these projects may fall within the eligibility criteria for broader programs. The Department stated it will work with these state agencies to identify all financing programs available to organic materials diversion businesses and place links to the programs on the Department's *Organics Diversion and Composting* webpage. Study group members also suggested that the State should initiate an outreach effort that educates financial lenders on the capital needs of an organic materials diversion business and helps them understand the organic materials diversion technology in hopes to increase investments into the industry.

Some members offered that grants are more beneficial than tax incentives when starting up a new organic materials diversion business. In addition, it was suggested that the state should establish a financial assistance program that provides funding tailored for organic materials diversion businesses. It was pointed out that financing and tax incentives for workforce development are also important. The operator of a private composting facility shared that often costs are incurred related to training new employees for one to two months. A lack of a trained workforce or the funding to train employees can serve as a barrier to new organic materials diversion businesses.

Aside from state grant, loan, and tax incentive programs, other assistance programs may be used to facilitate new organics recycling facilities or hauling infrastructure. MDA administers the Manure Transport Program that offers cost-share assistance to cover transportation costs of operations that receive excess animal waste from animal producers for land application or for use at an approved alternative use facility.[134] MDA also provides a Manure Matching Service that connects farmers with excess manure to nearby operations looking to receive the material.[135] Private, nonprofit grant programs may also be leveraged to assist with outreach or other initiatives

[134] Md. Ann. Code. Agri. § 8-704.2; COMAR 15.20.05. Alternative uses for the animal waste include the production of fertilizer, composting, and manure-to-energy projects.

[135] Md. Ann. Code. Agri. § 8-704.1. *See* the MDA *Maryland's Manure Matching Service* brochure at mda.maryland.gov/resource_conservation/Documents/MDAmatchingreprnt305-2.pdf.

that support organics diversion more generally. For example, the Keep Maryland Beautiful's Environmental Education, Community Initiatives and Clean Up Grants offer funding to nonprofits, schools and municipalities that conduct environmental education projects, community engagement and neighborhood greening initiatives.[136]

Promoting New Organics Recycling Capacity – Decentralized and Diverse Infrastructure

The law creating this study specifically directed the Department to explore ways to "promote a decentralized and diverse infrastructure" for organics diversion. In order to make meaningful progress in organics diversion, food donation and organics recycling capacity will need to be created to serve a variety of scales and settings. What works in one sector or community may not be the most efficient option in another. Therefore decentralized and smaller scale infrastructure is an important component of an overall organics diversion system and should not be overlooked.

Throughout the study, the study group discussed examples of small-scale, decentralized models for organics diversion. Schools may serve as both decentralized and diverse organic materials diversion infrastructure. They play several important roles within the food system, including preparing and serving food, managing surplus food, and (potentially) using compost for landscaping and gardening. They can distribute recovered food to local food insecure families or host community composting projects. Maryland permits a county board of education to develop and implement food recovery program to donate leftover or excess food in public schools to local food banks or other nonprofits, as well as to apply for recognition under any food recovery certification program.[137] Schools are already collaborating with food banks to distribute recovered food in Maryland. The Maryland Food Bank reported in 2016 that its School Pantry program consisted of 227 Maryland public school pantry sites and distributed 4 million meals to food insecure families.[138] Connecticut offers eligible K-12 schools funding through its Recycle CT Foundation School Grant Program to implement projects that educate and encourage reduction, reuse, recycling, composting and/or anaerobic digestion.[139] The Maryland Food Bank stated that although it partners with schools through their School Pantry Program, these pantries only distribute food purchased by the Maryland Food Bank due to food safety concerns. Therefore, large amounts of edible leftover meals and products are not diverted to feed food insecure families. As a remedy, the Maryland Food Bank suggested the state collaborate with Feeding America and the National Restaurant Association to develop an abbreviated *ServSafe Food Handling Guide for Food Banking* training for school food recovery programs.[140] It was agreed that any state sponsored training should also include how to reduce plate waste.

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[136] Md. Ann. Code, Natl. Res. § 3-210. The Maryland Environmental Trust in partnership with the Maryland Department of Transportation and the Maryland Department of Housing and Community Development provides financial assistance through the Keep Maryland Beautiful grants.

[137] House Bill 983 of 2016.

[138] To learn more about the Maryland Food Bank School Pantry Program visit mdfoodbank.org/our-programs/school-pantry/.

[139] Conn. Gen. Stat. Ann. § 22a-228a.

[140] A partnership between Feeding America and the National Restaurant Association's ServSafe program led to the development of the *ServSafe Food Handling Guide for Food Banking* to provide comprehensive food handler training tailored for Feeding America's network food banks and agencies.

It may be difficult for rural areas to support large, centralized organics recycling facilities. The Northeast Recycling Council (NERC) obtained USDA grant funding to conduct technical assistance to local governments in Cecil and Allegany Counties to improve organics diversion through home composting, and school diversion programs.

Farms can serve as a form of decentralized infrastructure as well. MARBIDCO, a quasi-public economic development organization, provides funding to small-scale agricultural and resources based-industry businesses in rural areas seeking to expand their businesses through the production of value-added products or renewable energy.[141] The study group recommended that the state promote on-farm composting and anaerobic digestion. Efficiencies may be gained by combining organic materials such as food residuals with manure that already requires management on farms. The study group suggested that the Department, UME, Soil Conservation Districts, and MDA collaborate to educate farmers on the benefits of composting and anaerobic digestion and practices to conduct these activities in an environmentally responsible manner.

Another method of promoting decentralized infrastructure is to leverage existing facilities that might be adapted to process organics. The City of Philadelphia Water Department used the city government procurement process to encourage diverse infrastructure. A Request for Information (RFI) was issued to solicit business plans from vendors that could collect and preprocess food residuals and transport the liquefied food residuals for anaerobic digestion at the city-owned WWTP.[142] The Philadelphia Water Department noted the RFI encouraged organic materials diversion businesses that offer pre-processing services to invest in Philadelphia.

Members of the study group pointed out the importance of encouraging investment into decentralized and small-scale organic processing infrastructure where large-scale centralized organic processing infrastructure does not exist. Programs similar to the Animal Waste Technology Grant and MARBIDCO financial assistance programs could incentivize agricultural and rural operations to reduce their waste streams while investing in emerging technologies. Additional outreach, possibly modeled on the NERC project in Cecil and Allegany counties, could provide regulatory and technical assistance materials to smaller scale proposed food recovery projects, composting facilities, and anaerobic digestion facilities. An outreach program should educate organic material generators how to process organic materials onsite if centralized composting or anaerobic digestion facilities are accessible or lack available capacity. The study group discussed establishing a state recognition program to encourage organic materials diversion and advertise businesses that recycle organic materials and/or sell post-processed commodities. The state could either establish a new recognition program or add organic materials diversion as an eligible project under an existing state recognition program. Existing state programs that provide positive recognition and press for businesses and institutions implementing solid waste

[141] Md. Code Ann., Econ Dev. §§ 10-501 et seq. The MARBIDCO website defines "value-added" as incremental value earned from a change in physical state, differentiated production or marketing, product segregation, and/or farm or rural community-based biomass energy operations. *See* the MARBIDCO website and mission statement at marbidco.org.

[142] The RFI resulted in 12 responses confirming the viability of Philadelphia Water Department's business strategy for pre-processing food residuals, and encouraged private investment into the city's organic materials diversion infrastructure. *See* the "draft SWRAC meeting minutes 9-28-17 final" from the City of Philadelphia Solid Waste and Recycling Advisory Committee meeting at philadelphiastreets.com/images/uploads/documents/draft_SWRAC_meeting_minutes_9-28-17_final.pdf.

reduction practices include the Department's Green Registry Leadership Awards, MSDE's Green Schools Award Program, and MDA's Farm Stewardship Certification and Assessment Program.

Some study group members noted that currently, local government composting facilities dominate the organic materials diversion industry in Maryland. From these members' perspective, municipal facilities distribute their compost at nominal costs and below market rate tipping fees because they are primarily focused on achieving waste diversion and providing service to residents rather than making a profit. To avoid disadvantaging private composting operators, some members were in favor of requiring a permitted municipal composting facility to conduct periodic market analyses of its pricing.

Regulation of Anaerobic Digestion

Since the work group established under Chapter 376 of 2017 will recommend new recycling facility regulations, to include anaerobic digestion, this study group decided that the Department should develop a permitting guidance document that will outline the current state permit and regulatory requirements for proposed anaerobic digestion facilities.[143] This guidance document can also inform a proposed facility's discussions with county government concerning zoning approvals and land use permits. It was acknowledged that a delay in project development and facility construction could result from a county government and applicant being unsure if all State regulatory requirements have been met.

Draft conceptual recycling facility regulations developed so far by the recycling regulations work group were shared with the study group. A regulation similar to COMAR 26.04.07.03, General Restrictions and Specifically Prohibited Acts, will serve as the minimum requirement any recycling facility would be subject to in order to prevent nuisances and protect the environment. The draft regulations would require an anaerobic digestion facility to notify the Department of its operations and follow basic operational requirements, including feedstock and byproduct handling requirements designed to reduce the generation of more than a *de minimis* amount of solid waste. Overall, the work group is expected to propose operational and technical regulations applicable to anaerobic digestion facilities rather than establishing a new anaerobic digestion facility permit.

The study group also discussed how the MRA recycling rate would account for anaerobic digestion. Some study group members were concerned that anaerobic digestion would not be counted toward the MRA recycling rate, but would instead be treated the same as disposal by incineration. Conversely, at least one study group member was opposed to the inclusion of anaerobic digestion as MRA recycling, believing that it should not be counted on par with composting.

The Department's interpretation is as follows. The MRA requires a county to achieve a certain reduction in the solid waste stream through recycling.[144] Recycling is defined as "any process in which recyclable materials are collected, separated, or processed and returned to the marketplace

[143] This proposed permitting guidance document will be modeled after the 2015 *Permitting Guidance for Maryland Composting Facilities*, available at mde.maryland.gov/programs/LAND/RecyclingandOperationsprogram/Documents/Permitting%20Guidance%20-%20Final%206.12.15.pdf.

[144] Md. Code Ann., Envir. §§9-505(a)(18),(19); 9-1703(b)(1)

in the form of raw materials or products."[145] The solid waste stream consists of "garbage or refuse that would, unless recycled, be disposed of in a refuse disposal system."[146] It excludes certain listed materials that were considered outside the scope of the municipal solid waste stream at the time the MRA was passed and waste generated by a single individual or business and disposed of in a facility dedicated solely for that entity's waste. Based on the above definitions, in order for anaerobic digestion to contribute to a county's MRA recycling rate, it must process material that is considered part of the MRA solid waste stream and it must return the material to the marketplace in the form of a raw material or product.

Anaerobic digestion generates two outputs: biogas and digestate. In order to be considered recycling, digestate must be returned to the marketplace as a raw material (e.g., a feedstock in an aerobic composting process) or product (e.g., a soil amendment or animal bedding). The Department does not consider fuel or energy production in itself to constitute recycling. If a digester accepts MRA material, then that material would be counted as MRA recycling to the extent that the digestate is returned to the market. Credit will be issued based upon the percentageof digested material returned to the marketplace (*e.g.*, if 80% of digested material is returned to the marketplace, 80% of the tons sent to the anaerobic digester facility will count as recycled).

Regulation and Use of Compost and Digestate

The study group discussed the existing MDA State Chemist regulations.[147] The Department invited MDA's State Chemist, Registration Supervisor to describe the registration process for digestate products, which compost operations are exempt from the regulations, and the compost operator certification process. It was explained that compost produced on a residential property or on a farm is exempt from the registration and regulations, as long as the compost was produced for use on the property and is not distributed offsite.[148] Some study group members discussed whether the state should repeal or reduce the soil conditioner/fertilizer/compost semi-annual inspection fee to encourage more businesses to enter the compost market.[149] It was explained that funds from these fees are deposited into the State Chemist Fund to administer the State Chemist Program; the fees and use of the revenues are authorized in the statute. There was some discussion of whether a community or on-farm compost operation that wants to distribute compost at zero or nominal cost to the surrounding community should also be exempt from the fee. During the 2019 legislative session Chapter 178 passed. The bill prohibits regulations adopted in accordance with § 9–221 of the Agriculture Article from establishing or imposing a per ton inspection fee on commercial compost distributed by a private entity in the state.

[145] §9-1701(n).

[146] §9-1701(q).

[147] The MDA State Chemist Section regulates the sale and distribution of pesticides, animal feed, pet food, fertilizer, compost, soil conditioners, and agricultural liming products to protect human, animal, and environmental health and ensure competitive marketplaces for these materials. Learn more at mda.maryland.gov/plants-pests/Pages/state_chemist.aspx.

[148] COMAR 15.18.04.02.

[149] MD Code Ann., Agri. § 6-501. The inspection fee of $0.25 per ton distributed is owed when an operator submits their semi-annual Tonnage Report to MDA. The funds from the fee are deposited into the State Chemist Fund to administer the State Chemist Program, offset the cost of inspection, sampling, analysis, data collection, and reporting related to pesticides and soil amendments.

A study group member noted that MDA and SHA both have classification systems or specifications for compost, and stated that those should be standardized. MDA regulations contain classifications for general, limited, and restricted compost, which are based on factors such as heavy metal content. SHA compost specifications deal primarily with ensuring compost is effective for particular uses, such as establishing vegetation on disturbed land, and soil erosion and sediment control.

MDA's State Chemist Office reminded study group members that registering digestate as a fertilizer is a legal claim to the percentage of plant nutrients. Although registering digestate as soil conditioner does not require this legal claim, a distributor is required to ensure batch consistency. MDA is authorized to inspect distributed digestate to determine a distributor is complying with MDA's fertilizer and soil conditioner quality standards. A representative of the American Biogas Council added that the organization has developed a voluntary digestate certification program that outlines the minimum quality standards for digestate to be distributed for use as a soil amendment or a feedstock in manufacturing.[150] During the 2019 legislative session, Chapter 367 passed. The bill changed the definition of "soil conditioner" to include digestate produced by anaerobic digestion that is incorporated into the soil.

The study group also discussed compost quality and the presence of persistent herbicides in the finished product. It was explained that MDA's Office of Plant Industries and Pest Management regulates the sale and distribution of pesticides and soil amendments, as well as pesticide application.[151] A study group member indicated that MDA regulations do not address persistent herbicides and curling, stunted growth, and germination problems that can result from their contamination in soil amendments. Also, MDA does not test soil amendments for the presence of herbicides, and there are a limited number of laboratories in Maryland capable of testing for persistent herbicides in compost at levels of parts per billion. Some study group members were in favor of establishing a "cradle-to grave" accountability system to curb persistent herbicide contamination in compost.

In considering ways to promote strong markets for finished compost and digestate, the study group explored potential roles for State government. With the recognition that the state government is a large landowner, the study group endorsed promoting the use of digestate and compost usage in state capital environmental restoration projects and landscaping of state-owned properties. Maryland requires state agencies responsible for maintaining public land using public funds to give preference to the use of compost.[152] The law also established a goal for the Department of General Services (DGS) to increasingly compost landscape trimmings on DGS operated properties for subsequent land application. DGS informed the Department that it does not use compost as fertilizer on turf because it would exceed the amount of plant nutrients that may be applied on turf

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[150] Learn more at the American Biogas Council's Digestate Certification Program be reviewing the program website (digestate.org/) and the draft *American Biogas Council Digestate Standard, Certification & Testing Protocol Program* planning document (americanbiogascouncil.org/workshops/American%20Biogas%20Council%20Digestate%20Standard%20DRAFT.pdf).

[151] Learn more about the Office of Plant Industries and Pest Management, which include the State Chemist Section, on MDA's website at mda.maryland.gov/plants-pests/Pages/default.aspx.

[152] Md. Code Ann., State Fin. & Proc. § 14-409.

as outlined in the Maryland Lawn Fertilizer Law.[153] Chapter 430 of 2014 established the use of compost in highway construction projects as BMP for erosion and sediment control, and post-construction stormwater management. As required by the law, the SHA developed specifications for compost-based products marketed for use in highway construction projects and maintains a list of compost producers qualified for sourcing.[154] SHA reported to the General Assembly in 2016 that 4,702 cubic yards of compost as a topsoil additive was used in highway construction projects.[155]

Lastly, the study group stated that the use of compost and digestate should be promoted as a method to improve the biological activity and carbon sequestration of soil under the Maryland Healthy Soils Program.[156]

Energy and Greenhouse Gas (GHG) Emissions

The majority of the study group was familiar with Maryland's GGRA plan and the RPS. The study group noted that the scope of this study was primarily focused on enhancing infrastructure to collect and process more organic materials for diversion. The detailed mechanics of operating energy generation systems and selling energy are complex and outside the scope of this study. However, the members agreed that the state should continue to emphasize the connection between organic materials diversion efforts, GHG emissions reductions, and renewable energy policies.

One area of future exploration may be the clarification of the status of food residuals anaerobic digestion in the RPS. The PSC advised that no such facility has yet applied to participate in the RPS; therefore, there is no PSC ruling that can provide a definitive answer as to whether anaerobic digestion of food outside of a WWTP would be considered a Tier 1 renewable energy source. A study group noted that in the past anaerobic digestion in the U.S. has been considered more in the context of manure management than as a waste diversion and energy generation strategy. The expansion of the latter use may require clarification in a variety of policies.

Health and Safety

The study group discussed the presentations from the Department and MDH regarding potential health and safety risks related to composting and other organics recycling. It was noted that for air emissions, the most relevant consideration is occupational exposure of those working at the facility, according to the literature surveyed. This is because the literature shows that offsite detection of air pollutants from composting facilities reaches baseline air quality levels quickly as distance from the facility increases. The potential impacts may vary based upon the organic material being composted.

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[153] Fertilizer applied to turf/lawns must be applied following the Maryland Lawn Fertilizer Law (Md. Code Ann., Agri. §§ 8-801 et seq.) and regulations (COMAR 15.20.10). The law and regulations require both homeowners and professionals to adhere to the University of Maryland's fertilizer recommendations and to use BMP when applying fertilizer to lawns. Although a 2018 amendment to the law removed the requirement that organic fertilizer products be "low phosphate," nitrogen requirements still prevent the use of compost on public lands.

[154] Changes to SHA's soil erosion and sediment control practices are described in *A Report to the Maryland General Assembly regarding Compost and Compost-Based Products on State Highway Administration and Construction Projects* dlslibrary.state.md.us/publications/Exec/MDOT/SHA/TR8-609.3(d)_2016.pdf.

[155] MDA's compost-based product regulations must be adhered to as well as SHA requirements.

[156] House Bill 1063 of 2017.

The study group asked whether the MDA State Chemist requirements, which regulate compost operators, address any of the potential sanitary and public health impacts from composting. MDA's State Chemist Office noted that the Compost Facility Operator Exam is designed to demonstrate an operator's competency with the composting process, producing quality compost, and the proper management of a composting facility to prevent discharge of pollutants. MDA requires an applicant to read the Northeast Regional Agricultural Engineering Service (NRAES) *On-Farm Composting Handbook* in preparation for the exam. Also, to become recertified after three years the operator must either participate in a third-party administered composting operations training course or retake the Compost Facility Operator Exam.[157] The exam and the NRAES handbook has not been updated in several years. However, current third-party training and the NRAES handbook both include some safety related provisions, including the use of personal protection equipment such as dust masks.

There was concern that operators may choose to retake the exam, which is free, in lieu of taking composting operations training course. The costs of composting operations training courses may disincentivize operators to continue learning the most recent BMPs that could reduce health impacts related to composting. The study group suggested that exam or study materials could be updated to include current composting industry BMPs related to reducing occupational exposure to onsite air emissions and other risks from composting. The MDA State Chemist noted that the addition of occupational safety regulations would require the participation of MOSH.

Pilot Program for the Elkridge and Jessup Area

In an effort to demonstrate the viability of organics recovery, the bill called for a pilot program for the Elkridge and Jessup area of Maryland, which are home to a concentration of food processing and distribution businesses. In the time since the bill passed, MES has entered into an agreement with BTS Bioenergy under the terms of which the company will operate an anaerobic digester on a 400-acre industrial park at the Maryland Food Center Authority in Howard County where food is processed. The construction and operation of this facility will serve the purpose of a pilot program in the Elkridge and Jessup areas.

BTS Bioenergy presented to the study group on its planned facility. The presentation is included as Appendix J. The anaerobic digester will be BTS Bioenergy's first venture in North America and will result in up to a $40 million investment and the creation of as many as 20 jobs in Howard County. The facility will have a capacity of 100,000 tons a year and be able to produce 3.5 MW of power. The plant is modular and can be scaled up or down.

As the first anaerobic digestion facility of its scale in the state, the facility will provide useful information on how new infrastructure in an area can support the growth of organics recovery programs. So far, BTS Bioenergy has gained experience in what is needed initially to get a new

[157] *See* NRAES-54. On-Farm Composting. Handbook. Editor: Robert Rynk. Maarten van de Kamp. George B. Willson. Mark E. Singley. Tom L. Richard. This handbook was developed approximately 30 years ago through a collaborative effort of the USDA, New York State government and Cornell University. An on-line copy of the handbook is available at campus.extension.org/pluginfile.php/48384/course/section/7167/NRAES%20FarmCompost%20manual%201992.pdf.

facility through the project development and permitting stage. Clarity of permitting, including state and local requirements, and clarity of the potential uses for digestate are vital to the success of the venture, along with consistent feedstock supplies and training for operators.

Recommendations

Based upon the foregoing research and discussions, the Department offers the following recommendations to promote the diversion of yard trimmings, and food residuals, and other organic materials in the state.

Legislative Recommendations

1. **Expand the liability protections in Maryland's "Good Samaritan" food donation law.**[158] Similar to federal law, Maryland's law only provides liability protection for donations where the food will be provided for free to the end recipient by a nonprofit. It does not protect donations of food provided to persons in need at a reduced cost. It also does not provide protection where donors distribute food directly to the end recipient, without first passing through a nonprofit. The law should be expanded to protect donations of wholesome food at reduced cost to those in need, as well as direct donations by farmers. Additionally, the Department and the MDH should consider whether and how direct donations by food service facilities other than farms should be protected. Liability protection should continue to apply only to donations made in good faith where there is no "gross negligence or willful and wanton misconduct." Concurrent with a change in the law, the Department should work with other state and local agencies and food banks to promote the law to potential donors.

2. **Expand the Farm Food Donation Tax Credit Pilot Program (accomplished by Chapter 361 of 2019).** Section 10-745 of the Tax-General Article, Annotated Code of Maryland, and COMAR 15.01.12 provide tax credits for certain food donations made by farms. The Department and the study group suggested that Maryland should extend this program beyond tax year 2019 and to all counties. Farmers should self-certify the value of the donated agricultural products as they are in the best position to assess this. Additionally, The Maryland Department of Agriculture (MDA) should work to promote the Farm Food Donation Tax Credit and to create guidance materials for how to use standard-sized containers and weight conversion tables as an option to determining value of food donations.

   Following study group discussions, legislation passed during the 2019 legislative session that moves toward implementing this recommendation. Chapter 361 extended the tax credit to all counties and extended the program through tax year 2021. The effective date of the bill is July 1, 2019.

Regulatory Recommendations

3. **Develop solid waste permit exemptions for certain anaerobic digestion facilities.** The Department is currently developing regulations governing recycling facilities under Chapter 376 of 2017. These regulations will include exemptions from the requirement to

[158] Health – General Article, § 21-322 and Courts and Judicial Proceedings Article, § 5-634.

obtain a refuse disposal permit for certain types of recycling facilities. The Department should incorporate a regulation on anaerobic digestion facilities to clarify the regulatory requirements with respect to solid waste and recycling. The regulation should establish basic design and operational requirements to protect the environment and public health, and should include permit exemptions for lower-risk facilities. The regulation should also specifically address and facilitate decentralized, onsite anaerobic digestion systems.

Programmatic Recommendations

4. **Collaborate on research and development.** State agency partners, including the Department, MPA, MES and MDA, should identify research and development opportunities around the use of dredged materials, compost, and digestate for different uses and to conduct an analysis to identify existing markets for these materials.

5. **Publish comprehensive permitting guidance for anaerobic digestion facilities.** Prospective anaerobic digester operators must navigate state environmental permitting regulations related to air, water, and (potentially) solid waste, in addition to potential local and other state agency requirements. The Department should develop an anaerobic digestion regulatory guidance document to guide an operator through the process.

6. **Conduct targeted education and outreach to reduce barriers to food donation.**
   a. Develop and promote outreach materials on federal and state "Good Samaritan" laws, including a Maryland-specific fact sheet that can be placed on the Department's website and the Maryland Department of Agriculture website, distributed to food banks to pass along to potential donors, and distributed to other businesses and institutions that may generate surplus food.
   b. In consultation with the MSDE, develop a toolkit for K-12 schools on reducing food waste, including through source reduction, donation, and onsite composting or anaerobic digestion. Many useful materials in this area have already been developed in other states and local jurisdictions within Maryland; to the extent they are available, the toolkit should adopt or adapt the best of these existing resources. Hold an in-person training for local school systems, teachers, and administrators to present the toolkit and answer questions.

7. **Improve access to information on economic incentives for organics recycling.** Though economic incentives may be available to developers of proposed organics recycling facilities, it can be difficult to locate incentives from multiple sources and determine eligibility for particular projects. Working with the Department of Commerce and the Maryland Energy Administration, the Department should build off of the information presented to the study group to create a sector-specific publication listing economic incentives and assistance potentially applicable to organics recycling projects, as well as contact information for more assistance.

8. **Create a recognition program for businesses, schools, and farms that recover food.** In conjunction with the new, streamlined online reporting system for business recycling, the Department should provide the opportunity for businesses, schools, and farms to report food recovery activities to the Department; the Department should select one or more entities to recognize each year for their efforts through an article and press release. The

program should be developed in coordination with the Maryland Green Registry. A badge or other symbol of participation in food recovery efforts should be developed for entities to include on websites and promotional materials.

9. **Explore the use of state land for composting and anaerobic digestion facilities.** One of the most frequently cited challenges to expanding organics recycling capacity in Maryland is the difficulty of identifying and obtaining a suitable location for a new facility. Opportunities may exist to identify state properties conducive to use for private composting or anaerobic digestion facilities. The Department should work with the Departments of Natural Resources and General Services to evaluate this possibility.

10. **Establish guidance on food safety related to donations.** The Harvard Food Law and Policy Clinic did a survey of all states about laws, regulations, and guidance on food safety specific to donation. A lack of comfort with food safety is a major barrier to more food donations. Maryland should publish guidance on property safety procedures for food donors and food banks. Food safety inspectors should be trained on the guidance so that it can be used as an outreach tool in their interactions with food establishments.[159]

11. **Support national initiatives for more consistent date labeling.** Maryland should support initiatives to create consistent labeling at a national level. The Grocery Manufacturers Association (GMA) Product Code Dating Initiative, for example, is a voluntary industry initiative to use the codes "BEST IF USED BY" to indicate product taste/texture, and "USE BY" to indicate product safety. Because many products are sold across multiple states, a date labeling solution should ideally be consistent throughout the U.S.

12. **Update the MDA Compost Operator Exam to include health and safety topics.** MDA, in consultation with United States Composting Council (USCC), the Solid Waste Association of North America (SWANA), and University of Maryland Extension (UME), should explore how to add relevant health and safety topics uniformly in third-party composting training programs.

13. **Create an outreach campaign to educate the public, local governments, and others on composting and anaerobic digestion.**
    a. The campaign may include fact sheets and other written materials, webinars, and training.
    b. A series of fact sheets should seek to improve public awareness on composting and anaerobic digestion through plain language information on the following topics:
        i. The Department's permitting process and environmental safeguards for composting facilities;
        ii. "Myths and facts" about composting and anaerobic digestion;
        iii. Benefits of composting and anaerobic digestion;
        iv. Developing a diverse and decentralized organics' infrastructure;
        v. The benefits of composting and anaerobic digestion, including uses of compost and digestate; and

[159] See HFLPC, chlpi.org/wp-content/uploads/2013/12/50-State-Food-Regs_March-2018_V2.pdf.

vi. SHA compost specifications;

c. K-12 fact sheets should be created to include resources from the Maryland Association for Environmental and Outdoor Education.

d. MDE, MDA, UME, and local governments should work together to conduct education and outreach on diverse and decentralized organics recycling infrastructure, including organics recycling on site at residences, community gardens, schools, institutions, farms, and businesses. The Maryland Agricultural Education Foundation and UME should be used as resources for composting education and best practices.

14. **Partner with MDA and the Maryland's horse industry to provide outreach to operators of horse farms regarding composting of horse manure.** This outreach may take the form of a training session or workshop.

15. **Simplify reporting of organics diversion and incorporate voluntary reporting of food donation and animal feed.** Currently, businesses, processors of recyclables, and counties all have different reporting forms for reporting annual recycling and waste disposed totals. All surveys are provided in Microsoft Excel or Word format. Maryland should convert all annual surveys to an online reporting system to facilitate voluntary reporting of commercial organics recycling activities. Currently the Department collects only information on recycling of organics; online reporting forms should also enable businesses to report quantities of food donated or used for animal feed. Current plans are to have county reporting operational for calendar year 2018 reporting while businesses and processors should be operating for calendar year 2019 reporting.

16. **Clarify in guidance that anaerobic digestion is considered recycling in meeting counties' MRA recycling rates.** Recyclable materials are defined as those materials that would otherwise become solid waste for disposal in a refuse disposal system and may be collected, separated, or processed and returned to the marketplace in the form of raw materials or products. Anaerobically digested material meets the definition provided the digested material is returned to the marketplace. MRA materials anaerobically digested will count towards a county's MRA recycling rate. Credit will be issued based upon the%age of digested material returned to the marketplace (*e.g.*, if 80% of digested material is returned to the marketplace, 80% of the tons sent to the anaerobic digester facility will count as recycled).

17. **Update Maryland's Source Reduction (SR) Credit System to include food reduction activities.** Maryland's Source Reduction Credit System has remained unchanged since it was first introduced in 2000. Maryland should create a "living" SR Credit System where changes can be made to introduce new activities shown to reduce that amount of waste generated. Currently Maryland is in the process of instituting this recommendation. The first revised SR checklist is expected for calendar year 2018 activities.

18. **Promote a food recovery hierarchy**, including in outreach materials developed through the other recommendations listed above. The hierarchy should encourage (in order of preference) source reduction, feeding hungry people, feeding animals, and composting and anaerobic digestion, with disposal as a last resort.

APPENDIX A

Appendix A: House Bill 171 – 2017

Chapter 384

(House Bill 171)

AN ACT concerning

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

FOR the purpose of requiring the Department of the Environment, in consultation with certain persons, to study, review, explore, identify, and make recommendations regarding certain matters that relate to the diversion of yard waste, food residuals, and other organic materials from refuse disposal facilities, including certain infrastructure; requiring the Department to report its interim and final findings and recommendations to the Governor and the General Assembly on or before certain dates; and generally relating to yard waste, ~~and~~ food residuals, and other organic materials diversion and infrastructure.

SECTION 1. BE IT ENACTED BY THE GENERAL ASSEMBLY OF MARYLAND, That:

(a) The Department of the Environment shall:

(1) study the diversion of yard waste, ~~and~~ food residuals, and other organic materials from refuse disposal facilities in the State, including any State laws or regulations governing the diversion of yard waste, ~~or~~ food residuals, or other organic materials;

(2) study the laws and regulations of other states, including the laws and regulations of Massachusetts, Connecticut, Vermont, California, and Rhode Island, governing the diversion of yard waste, ~~or~~ food residuals, or other organic materials;

(3) review the status of infrastructure for the diversion of yard waste, ~~and~~ food residuals, and other organic materials in the State and other states, including the availability of infrastructure in relation to:

(i) large generators of food waste, identified by type, quantity of food waste generated by entity, and geographic distribution; and

(ii) organizations that use surplus food, identified by type and geographic distribution;

(4) explore ways to promote composting of yard waste and food residuals and other methods of organic waste reduction and diversion, including ways to encourage:

(i) a decentralized and diverse infrastructure; and

(ii) the prevention of organic waste generation;

(5) identify the infrastructure needs and challenges related to yard waste, food residuals, and other organic materials composting and diversion that are unique to the different geographic regions of the State;

~~(5)~~ (6) identify means to encourage investment in infrastructure and provide economic incentives to expand capacity for yard waste, ~~and~~ food residuals, and other organic materials diversion in the State, including ~~identification of~~:

(i) the development of, in consultation with local governments, model guidelines and best practices for the local identification of properties or development zones where diversion infrastructure may be developed; and

(ii) the identification of any tax, grant, or other incentives that already exist to encourage and support infrastructure and economic development;

(7) identify any applicable sanitary and public health concerns related to yard waste, food residuals, and other organic materials composting and diversion;

~~(6) recommend a refuse disposal fee to finance a grant program that provides financial assistance to develop infrastructure and expand capacity for yard waste and food residuals diversion in the State;~~

(8) identify the current process for permitting anaerobic digestion facilities and recommend improvements that should be made to the anaerobic digestion permitting process;

~~(7)~~ (9) recommend measures to promote the diversion of yard waste, ~~and~~ food residuals, and other organic materials in the State, including any necessary programmatic, legislative, or regulatory changes; and

~~(8)~~ (10) subject to the approval of the affected local governments, recommend a pilot program for the region in which Elkridge and Jessup are located to prioritize infrastructure development and food waste recovery from large food waste generators.

(b) In conducting the activities required under subsection (a) of this section, the Department shall consult with:

(1) the Department of Agriculture;

(2) ~~the Department of Natural Resources;~~

~~(3)~~ the Department of Commerce;

~~(3)~~ ~~(1)~~ *(3)* the Maryland Environmental Service;

~~(4)~~ ~~(5)~~ *(4)* the MD–DC Compost Council;

~~(5)~~ ~~(6)~~ *(5)* the American Biogas Council;

~~(6)~~ ~~(7)~~ *(6)* the Restaurant Association of Maryland;

~~(7)~~ ~~(8)~~ *(7)* the Maryland Retailers Association;

~~(8)~~ ~~(9)~~ *(8)* the Maryland Food Bank;

~~(9)~~ ~~(10)~~ *(9)* the Institute for Local Self–Reliance;

~~(10)~~ ~~(11)~~ *(10)* the Maryland Recycling Network;

~~(11)~~ ~~(12)~~ *(11)* the Maryland Farm Bureau;

~~(12)~~ ~~(13)~~ *(12)* the Maryland–Delaware Solid Waste Association;

~~(13)~~ ~~(14)~~ *(13)* the Chesapeake Foodshed Network;

~~(14)~~ ~~(15)~~ *(14)* the Maryland Horse Council;

~~(15)~~ ~~(16)~~ *(15)* the Johns Hopkins University Center for a Livable Future;

~~(16)~~ ~~(17)~~ *(16)* the Future Harvest/Chesapeake Alliance for Sustainable Agriculture;

~~(17)~~ ~~(18)~~ *(17)* the Maryland Association of Counties;

~~(18)~~ ~~(19)~~ *(18)* the Maryland Municipal League; ~~and~~

~~(19)~~ ~~(20)~~ *(19)* the Chesapeake Sustainable Business Council;

~~(20)~~ ~~(21)~~ *(20)* the University of Maryland, College Park;

~~(21)~~ ~~(22)~~ *(21)* the Chesapeake Bay Foundation;

~~(22)~~ ~~(23)~~ *(22)* the Food Waste *Reduction* Alliance;

~~(23)~~ ~~(24)~~ *(23)* other environmental organizations; and

~~(19)~~ ~~(24)~~ ~~(25)~~ *(21)* a private business based in the State that provides food waste collection services.

(c) On or before July 1, 2018, the Department shall report its interim findings and recommendations to the Governor and, in accordance with § 2–1246 of the State Government Article, the General Assembly.

(d) On or before July 1, 2019, the Department shall report its final findings and recommendations to the Governor and, in accordance with § 2–1246 of the State Government Article, the General Assembly.

SECTION 2. AND BE IT FURTHER ENACTED, That this Act shall take effect July 1, 2017.

Approved by the Governor, May 4, 2017.

APPENDIX B

Appendix B: House Bill 171 Study Group Members

2017 HOUSE BILL 171

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

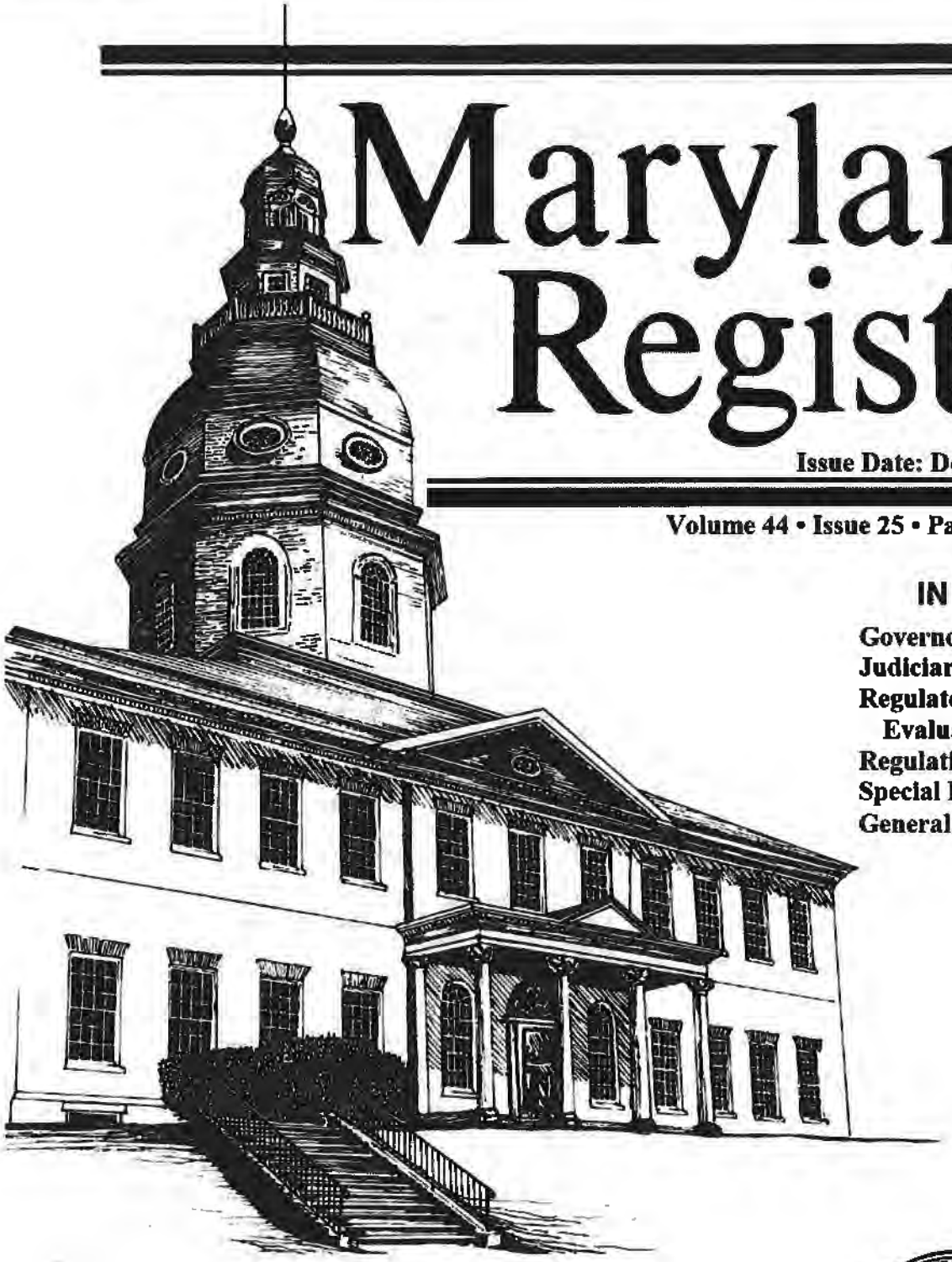
Study Group Members

Mr. Hans W. Schmidt – Maryland Department of Agriculture
Mr. James Palma – Maryland Department of Commerce
Mr. Steven Birchfield – Maryland Environmental Service
Ms. Gemma Evans – MD-DC Compost Council
Mr. Patrick Serfass – American Biogas Council
Mr. Melvin R. Thompson – Restaurant Association of Maryland
Ms. Cailey Locklair Tolle – Maryland Retailers Association
Ms. Adria Aceto – Maryland Food Bank
Ms. Brenda Platt – Institute for Local Self-Reliance
Mr. Peter Houstle – Maryland Recycling Network
Mr. Chaz Miller – Maryland Recycling Network
Mr. J. Zack Brendel – Maryland Farm Bureau
Ms. Pamela Metz Kasemeyer – Maryland-Deleware Solid Waste Association
Ms. Susan Dalandan – Chesapeake Foodshed Network
Ms. Jane Thery – Maryland Horse Council
Dr. Roni Neff – Johns Hopkins University Center for a Livable Future
Ms. Dena Leibman – Future Harvest Chesapeake Alliance for Sustainable Agriculture
Ms. Julie Paluda – Maryland Association of Counties
Ms. Daryl Braithwaite – Maryland Municipal League
Mr. Stephen Shaff – Chesapeake Sustainable Business Council
Mr. Gary Felton – University of Maryland, College Park
Mr. Doug R. Myers – Chesapeake Bay Foundation
Mr. Ben Fischler – Environmental Organizations (Sierra Club)
Ms. Laura Cattell Noll – Environmental Organizations (Alice Ferguson Foundation)
Mr. Keith Losoya – Private Food Waste Collection Service (Waste Neutral Group)
Delegate Andrew Cassilly
Mr. Garry Aime – Maryland Energy Administration
Mr. Christopher Rice – Maryland Energy Administration
Ms. Christy Bujnovszky – Maryland Department of the Environment
Ms. Erica Chapman – Maryland Department of the Environment
Ms. Kaley Laleker – Maryland Department of the Environment
Mr. Tariq Masood – Maryland Department of the Environment
Ms. Julia Mooney – Maryland Department of the Environment
Mr. Dave Mrgich – Maryland Department of the Environment
Mr. John Sullivan – Maryland Department of the Environment

APPENDIX C

Appendix C: House Bill 171 meeting announcements, minutes, and sign-in sheets

January 24, 2018, Study Group Meeting



Maryland Register

Issue Date: December 8, 2017

Volume 44 • Issue 25 • Pages 1171—1202

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Regulatory Review and Evaluation
Regulations
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General Notices

Pursuant to State Government Article, §7-206, Annotated Code of Maryland, this issue contains all previously unpublished documents required to be published, and filed on or before November 20, 2017, 5 p.m.

Pursuant to State Government Article, §7-206, Annotated Code of Maryland, I hereby certify that this issue contains all documents required to be codified as of November 20, 2017.

Gail S. Klakring
Administrator, Division of State Documents
Office of the Secretary of State

Information About the Maryland Register and COMAR

MARYLAND REGISTER

The Maryland Register is an official State publication published every other week throughout the year. A cumulative index is published quarterly.

The Maryland Register is the temporary supplement to the Code of Maryland Regulations. Any change to the text of regulations published in COMAR, whether by adoption, amendment, repeal, or emergency action, must first be published in the Register.

The following information is also published regularly in the Register:

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- Open Meetings Compliance Board Opinions in full text
- State Ethics Commission Opinions in full text
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CITATION TO THE MARYLAND REGISTER

The Maryland Register is cited by volume, issue, page number, and date. Example:

• 19:8 Md. R. 815—817 (April 17, 1992) refers to Volume 19, Issue 8, pages 815—817 of the Maryland Register issued on April 17, 1992.

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COMAR is the official compilation of all regulations issued by agencies of the State of Maryland. The Maryland Register is COMAR's temporary supplement, printing all changes to regulations as soon as they occur. At least once annually, the changes to regulations printed in the Maryland Register are incorporated into COMAR by means of permanent supplements.

CITATION TO COMAR REGULATIONS

COMAR regulations are cited by title number, subtitle number, chapter number, and regulation number. Example: COMAR 10.08.01.03 refers to Title 10, Subtitle 08, Chapter 01, Regulation 03.

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Incorporation by reference is a legal device by which a document is made part of COMAR simply by referring to it. While the text of an incorporated document does not appear in COMAR, the provisions of the incorporated document are as fully enforceable as any other COMAR regulation. Each regulation that proposes to incorporate a document is identified in the Maryland Register by an Editor's Note. The Cumulative Table of COMAR Regulations Adopted, Amended or Repealed, found online, also identifies each regulation incorporating a document. Documents incorporated by reference are available for inspection in various depository libraries located throughout the State and at the Division of State Documents. These depositories are listed in the first issue of the Maryland Register published each year. For further information, call 410-974-2486.

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Maryland citizens and other interested persons may participate in the process by which administrative regulations are adopted, amended, or repealed, and may also initiate the process by which the validity and applicability of regulations is determined. Listed below are some of the ways in which citizens may participate (references are to State Government Article (SG), Annotated Code of Maryland):

- By submitting data or views on proposed regulations either orally or in writing, to the proposing agency (see "Opportunity for Public Comment" at the beginning of all regulations appearing in the Proposed Action on Regulations section of the Maryland Register). (See SG, §10-112)
- By petitioning an agency to adopt, amend, or repeal regulations. The agency must respond to the petition. (See SG §10-123)
- By petitioning an agency to issue a declaratory ruling with respect to how any regulation, order, or statute enforced by the agency applies. (SG, Title 10, Subtitle 3)
- By petitioning the circuit court for a declaratory judgment on the validity of a regulation when it appears that the regulation interferes with or impairs the legal rights or privileges of the petitioner. (SG, §10-125)
- By inspecting a certified copy of any document filed with the Division of State Documents for publication in the Maryland Register. (See SG, §7-213)

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Lawrence J. Hogan, Jr., Governor; **John C. Wobensmith**, Secretary of State; **Gail S. Klakring**, Administrator; **Mary D. MacDonald**, Senior Editor, Maryland Register and COMAR; **Elizabeth Ramsey**, Editor, COMAR Online, and Subscription Manager; **Tami Cathell**, Help Desk, COMAR and Maryland Register Online.

Front cover: State House, Annapolis, MD, built 1772—79.

Illustrations by Carolyn Anderson, Dept. of General Services

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For additional information, visit www.dsd.state.md.us, Division of State Documents, or call us at (410) 974-2486 or 1 (800) 633-9657.

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Anyone wishing to receive "Maryland Documents" should write to: Legislative Sales, Maryland Department of Legislative Services, 90 State Circle, Annapolis, MD 21401.

CLOSING DATES AND ISSUE DATES through JULY 20, 2018

Issue Date	Emergency and Proposed Regulations 5 p.m.*	Final Regulations 10:30 a.m.	Notices, etc. 10:30 a.m.
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December 22	December 4	December 13	December 11
2018			
January 5**	December 18	December 27	December 22
January 19**	December 29	January 10	January 8
February 2**	January 12	January 24	January 22
February 16	January 29	February 7	February 5
March 2**	February 12	February 21	February 16
March 16	February 26	March 7	March 5
March 30	March 12	March 21	March 19
April 13	March 26	April 4	April 2
April 27	April 9	April 18	April 16
May 11	April 23	May 2	April 30
May 25	May 7	May 16	May 14
June 8**	May 21	May 30	May 25
June 22	June 4	June 13	June 11
July 6	June 18	June 27	June 25
July 20	July 2	July 11	July 9

* Due date for documents containing 8 to 18 pages — 48 hours before date shown; due date for documents exceeding 18 pages — 1 week before date shown

NOTE: ALL DOCUMENTS MUST BE SUBMITTED IN TIMES NEW ROMAN, 9-POINT, SINGLE-SPACED FORMAT. THE REVISED PAGE COUNT REFLECTS THIS FORMATTING.

** Note closing date changes

*** Note issue date and closing date changes

The regular closing date for Proposals and Emergencies is Monday.

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Under the COMAR codification system, every regulation is assigned a unique four-part codification number by which it may be identified. All regulations found in COMAR are arranged by title. Each title is divided into numbered subtitles, each subtitle is divided into numbered chapters, and each chapter into numbered regulations.

09.12.01.01D(2)(c)(iii)

Title | Subtitle | Chapter | Regulation | Section | Subsection | Paragraph | Subparagraph

A regulation may be divided into lettered sections, a section divided into numbered subsections, a subsection divided into lettered paragraphs, and a paragraph divided into numbered subparagraphs.

Cumulative Table of COMAR Regulations Adopted, Amended, or Repealed

This table, previously printed in the Maryland Register lists the regulations, by COMAR title, that have been adopted, amended, or repealed in the Maryland Register since the regulations were originally published or last supplemented in the Code of Maryland Regulations (COMAR). The table is no longer printed here but may be found on the Division of State Documents website at www.dsd.state.md.us.

Table of Pending Proposals

The table below lists proposed changes to COMAR regulations. The proposed changes are listed by their COMAR number, followed by a citation to that issue of the Maryland Register in which the proposal appeared. Errata pertaining to proposed regulations are listed, followed by "(err)". Regulations referencing a document incorporated by reference are followed by "(ibr)". None of the proposals listed in this table have been adopted. A list of adopted proposals appears in the Cumulative Table of COMAR Regulations Adopted, Amended, or Repealed.

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09.10.03.01-1 • 44:23 Md. R. 1083 (11-13-17)
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10 DEPARTMENT OF HEALTH AND MENTAL HYGIENE

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10.09.36.03-1 • 44:21 Md. R. 1002 (10-13-17)
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34 DEPARTMENT OF PLANNING

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General Notices

Notice of ADA Compliance

The State of Maryland is committed to ensuring that individuals with disabilities are able to fully participate in public meetings. Anyone planning to attend a meeting announced below who wishes to receive auxiliary aids, services, or accommodations is invited to contact the agency representative at least 48 hours in advance, at the telephone number listed in the notice or through Maryland Relay.

CRIMINAL JUSTICE INFORMATION ADVISORY BOARD

Subject: Public Meeting
Date and Time: December 18, 2017, 1 — 3 p.m.
Place: Judicial Training Center, 2009-D Commerce Park Dr., Annapolis, MD
Contact: Robyn Lyles (410) 585-3185
[17-25-06]

DEPARTMENT OF THE ENVIRONMENT/LAND AND MATERIALS ADMINISTRATION

Subject: Public Meeting
Date and Time: January 4, 2018, 1 — 3 p.m.
Place: MD Dept. of the Environment, 1800 Washington Blvd., Baltimore, MD
Add'L Info: The Maryland Department of the Environment (the Department) has scheduled a meeting of the study group required by House Bill 171 — Department of the Environment — Yard Waste, Food Residuals, and Other Organic Materials Diversion and Infrastructure — Study. The bill requires the Department, in consultation with certain persons, to study and make recommendations regarding specified matters that relate to the diversion of yard waste, food residuals, and other organic materials from refuse disposal facilities, including the status of infrastructure in the State. The complete text of the bill is available at bttp://mgaleg.maryland.gov/2017RS/Chapters_noln/CH_384_hb0171e.pdf.

This is the first meeting of the study group. As soon as available, an agenda will be posted on the Department's Organics Diversion and Composting web page at www.mde.maryland.gov/composting.

Meetings are tentatively scheduled to occur every other month in 2017. If necessary, more frequent meetings will be scheduled. However, it is anticipated that, even if additional meetings are necessary, study group meetings will take place no more than once per month. Future meeting notices will be posted on the Department's webpage at http://mde.maryland.gov/Pages/Calendar.aspx and www.mde.maryland.gov/composting.
Contact: David Mrgich (410) 537-3314
[17-25-10]

MARYLAND STATE LOTTERY AND GAMING CONTROL COMMISSION

Subject: Public Meeting
Date and Time: December 21, 2017, 10 a.m. — 12 p.m.
Place: Montgomery Park Business Center, 1800 Washington Blvd., Ste. 330, Baltimore, MD
Contact: Kathy L. Lingo (410) 230-8790
[17-25-08]

MARYLAND HEALTH CARE COMMISSION

Subject: Public Meeting
Date and Time: December 21, 2017, 1 — 4 p.m.
Place: 4160 Patterson Ave., Rm. 100, Baltimore, MD
Contact: Valerie Wooding (410) 764-3570
[17-25-04]

MARYLAND HEALTH CARE COMMISSION

Subject: Public Meeting
Date and Time: January 18, 2018, 1 — 4 p.m.
Place: 4160 Patterson Ave., Rm. 100, Baltimore, MD
Contact: Valerie Wooding (410) 764-3570
[17-25-05]

MARYLAND HEALTH CARE COMMISSION

Subject: Receipt of Application
Add'l. Info: On November 13, 2017 the Maryland Health Care Commission (MHCC) received a Certificate of Need application submitted by:

Sacred Heart Home — (Prince George's County) — Matter No. 17-16-2411; Construction of a replacement facility on the present campus to house the facilities 102 comprehensive care beds; Proposed Cost: $15,549,702.

The MHCC shall review the application under Health-General Article, §19-101 et seq., Annotated Code of Maryland, and COMAR 10.24.01.

Any affected person may make a written request to the Commission to receive copies of relevant notices concerning the application. All further notices of proceedings on the application will be sent only to affected persons who have registered as interested parties.

Please refer to the Matter No. listed above in any correspondence on the application. A copy of the application is available, for review, in the office of the MHCC, during regular business hours by appointment, or on the Commission's website at www.mhcc.maryland.gov.

All correspondence should be addressed to Paul Parker, Deputy Director, Center for Health Care Facilities Planning and Development, MHCC, 4160 Patterson Avenue, Baltimore, Maryland 21215.
Contact: Ruby Potter (410) 764-3276
[17-25-13]

MARYLAND HEALTH CARE COMMISSION

Subject: Receipt of Application
Add'L Info: On November 17, 2017 the Maryland Health Care Commission (MHCC) received a Certificate of Need application submitted by:

Joseph Richey House t/a Gilchrist Center Baltimore — (Baltimore City) — Matter No. 17-24-2412 — Relocation of 30 inpatient and residential hospice beds from the Joseph Richey House at 828 E. Eutaw Street to a new location at Stadium Place on 33rd Street, Baltimore.

The MHCC shall review the application under Health-General Article, §19-101 et seq., Annotated Code of Maryland, and COMAR 10.24.01.

Any affected person may make a written request to the Commission to receive copies of relevant notices concerning the application. All further notices of proceedings on the application will be sent only to affected persons who have registered as interested parties.

Please refer to the Matter No. listed above in any correspondence on the application. A copy of the applications are available, for review, in the office of the MHCC, during regular business hours by appointment, or on the Commission's website at www.mhcc.maryland.gov.

All correspondence should be addressed to Paul Parker, Deputy Director, Center for Health Care Facilities Planning and Development, MHCC, 4160 Patterson Avenue, Baltimore, Maryland 21215.
Contact: Ruby Potter (410) 764-3276
[17-25-21]

MARYLAND HEALTH CARE COMMISSION

Subject: Notice of Receipt of a Letter of Intent and Review for Track Two Alcoholism and Drug Abuse Intermediate Care Facility
Add'l. Info: On November 15, 2017, the MHCC received a Letter of Intent from:

Addiction Recovery, Inc. d/b/a Hope House Treatment Centers — Establish a Track Two Alcoholism and Drug Abuse Intermediate Care Facility with 22 medically monitored detox beds to be located at 429 Main Street, Laurel, Maryland 21090, Prince George's County.

Pursuant to COMAR 10.24.01.08A(3), the Commission hereby initiates a 30-day period in which additional Letters of Intent to apply for a Certificate of Need may be submitted to establish a Track Two Alcoholism and Drug Abuse Treatment Facility in Southern Maryland (St. Mary's, Calvert, Charles, and Prince George's Counties).

Additional Letters of Intent should be submitted to the MHCC, 4160 Patterson Avenue, Baltimore, Maryland 21215, and are due by the close of business, January 8, 2018.
Contact: Ruby Potter (410) 764-3276
[17-25-14]

MARYLAND HEALTH CARE COMMISSION

Subject: Formal Start of Review
Add'l. Info: The Maryland Health Care Commission (MHCC) hereby gives notice of docketing of the following application for Certificate of Need:

VNA of Maryland — Docket No. 17-R4-2407 — Expand an Existing Home Health Agency into the lower eastern shore and provide home health services in Dorchester, Somerset, Wicomico and Worcester Counties; Proposed Cost: $34,000.

MHCC shall review the application under Health-General Article, §19-101 et seq., Annotated Code of Maryland, COMAR 10.24.01, and the applicable State Health Plan standards.

Any affected person may make a written request to the Commission to receive copies of relevant notices concerning the application. All further notices of proceedings on the application will be sent only to affected persons who have registered as interested parties.

Persons desiring to become interested parties in the Commission's review of the above-referenced application must meet the requirements of COMAR 10.24.01.01B(2) and (20) and must also submit written comments to the Commission no later than close of business January 8, 2018. These comments must state with particularity the State Health Plan standards or review criteria that you believe have not been met by the applicant as stated in COMAR 10.24.01.08F.

Please refer to the Docket Number listed above in any correspondence on the application. Copies of the applications are available for review in the office of MHCC during regular business hours by appointment. All correspondence should be addressed to Paul E. Parker, Director, Center for Health Care Facilities Planning and Development, Maryland Health Care Commission, 4160 Patterson Avenue, Baltimore, Maryland 21215.
Contact: Ruby Potter (410) 764-3276
[17-25-20]

MARYLAND HEALTH CARE COMMISSION

Subject: Formal Start of Review
Add'l. Info: The Maryland Health Care Commission (MHCC) hereby gives notice of docketing of the following application for Certificate of Need:

Broadmead — Docket No. 17-03-2394 — New Construction and renovations to the existing facility. No addition of beds; Proposed Cost: $14,723,000.

MHCC shall review the application under Health-General Article, §19-101 et seq., Annotated Code of Maryland, COMAR 10.24.01, and the applicable State Health Plan standards.

Any affected person may make a written request to the Commission to receive copies of relevant notices concerning the application. All further notices of proceedings on the application will be sent only to affected persons who have registered as interested parties.

Persons desiring to become interested parties in the Commission's review of the above-referenced application must meet the requirements of COMAR 10.24.01.01B(2) and (20) and must also submit written comments to the Commission no later than close of business January 8, 2018. These comments must state with particularity the State Health Plan standards or review criteria that you believe have not been met by the applicant as stated in COMAR 10.24.01.08F.

Please refer to the Docket Number listed above in any correspondence on the application. Copies of the applications are available for review in the office of MHCC during regular business hours by appointment. All correspondence should be addressed to Paul E. Parker, Director, Center for Health Care Facilities Planning and Development, Maryland Health Care Commission, 4160 Patterson Avenue, Baltimore, Maryland 21215.
Contact: Ruby Potter (410) 764-3276
[17-25-23]

MARYLAND HEALTH CARE COMMISSION

Subject: Formal Start of Review
Add'l. Info: The Maryland Health Care Commission (MHCC) hereby gives notice of docketing of the following application for Certificate of Need:

UM-Upper Chesapeake Health System – Matter No. 17-12-2403 — Construction of a new 40-bed special psychiatric hospital on 32 acres located at 210 Baker Lane, Havre de Grace, Harford County; Proposed Cost: $52,421,120.

MHCC shall review the application under Health-General Article, §19-101 et seq., Annotated Code of Maryland, COMAR 10.24.01, and the applicable State Health Plan standards.

Any affected person may make a written request to the Commission to receive copies of relevant notices concerning the application. All further notices of proceedings on the application will be sent only to affected persons who have registered as interested parties.

Persons desiring to become interested parties in the Commission's review of the above-referenced application must meet the requirements of COMAR 10.24.01.01B(2) and (20) and must also submit written comments to the Commission no later than close of business January 8, 2018. These comments must state with particularity the State Health Plan standards or review criteria that you believe have not been met by the applicant as stated in COMAR 10.24.01.08F.

Please refer to the Docket Number listed above in any correspondence on the application. Copies of the applications are available for review in the office of MHCC during regular business hours by appointment. All correspondence should be addressed to Paul E. Parker, Director, Center for Health Care Facilities Planning and Development, Maryland Health Care Commission, 4160 Patterson Avenue, Baltimore, Maryland 21215.
Contact: Ruby Potter (410) 764-3276
[17-25-25]

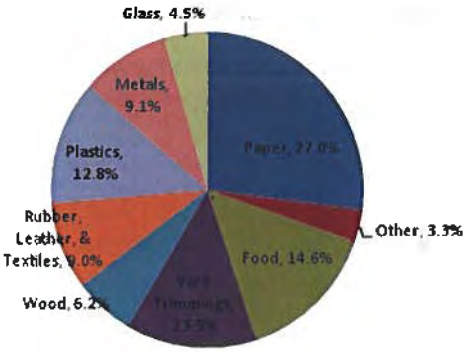
Organics Diversion and Composting

Compostable materials such as food scraps and yard trimmings make up nearly 30% of all municipal solid waste generated in the U.S. Instead of disposing of this material in landfills and incinerators, composting uses organic material to create a valuable product with environmental and economic benefits, including greenhouse gas emissions reductions and green jobs.

Recycling of some organic materials, such as yard trimmings and manure, is widespread in Maryland. One area of growing interest is food scraps diversion. Though only an estimated 9.6% of food scraps was recycled in Maryland in 2014, much of the remaining material could be prevented, used to feed humans or animals, or composted.

For additional information on Food Scraps Management in Maryland visit the Department's Food Scraps Management web page.

Waste Generated in U.S. in 2013



Announcements

House Bill 171 – Department of the Environment – Yard Waste, Food Residuals, and Other Organic Materials Diversion and Infrastructure – Study

Subject: Public Meeting

Date and Time: ~~January 4, 2018; 1 PM to 3 PM~~ Rescheduled -- January 24, 2018; 1:30 PM to 3:30 PM New!

Future meetings will be canceled and rescheduled if State offices are on liberal leave or are closed. Details on State closings are available on the Department of Budgement and Management's Special Closings of State Buildings, Liberal Leave and Emergency Information web page.

Makeup date of January 30, 2018, from 1 PM to 3 PM, if January 24, 2018 meeting is canceled.

Parking: Study Group members ONLY may park in the Red Lot (until full -- then the blue lot). The Red Lot is directly in front of the building.

Interested parties will need to park in the Blue Lot and enter the building through the tunnel (located at the back right corner as entering the blue lot). The Blue Lot is on the left, prior to the railroad tracks if approaching from 83 or traveling north on Washington Blvd. Or on the right, after the Red Lot and the railroad tracks if approaching from Baltimore City or Monroe St.

Call-In: The Department's 410-537-4281 Mulit-Party Conference line accomdates up to 14 people.

Place: Maryland Department of the Environment, 1800 Washington Blvd., Baltimore, MD 21230

Documents: Documents for the meeting are available in the House Bill (HB) 171 Study Group section, below.

Add'l Info: The Maryland Department of the Environment (the "Department") has scheduled a meeting of the study group required by House Bill 171 – Department of the Environment – Yard Waste, Food Residuals, and Other Organic Materials Diversion and Infrastructure – Study. The bill requires the Maryland Department of the Environment (the "Department"), in consultation with certain persons, to study and make recommendations regarding specified matters that relate to the diversion of yard waste, food residuals, and other organic materials from refuse disposal facilities, including the status of infrastructure in the State. The complete text of the bill is available at http://mgaleg.maryland.gov/2017RS/Chapters_noln/CH_384_hb0171e.pdf.

Meetings are tentatively scheduled to occur every other month in 2017. If necessary, more frequent meetings will be scheduled. However, it is anticipated that, even if additional meetings are necessary, study group meetings will take place no more than once per month. Future meeting notices will be posted here and on the Department's Public Meeting Calendar web page.

Contact: David Mrgich, 410-537-3314

FY18 Animal Waste to Energy Grant Program
The Maryland Energy Administration (MEA) is excited to announce the opening of the FY18 Animal Waste to Energy Grant Program (AWE Grant Program). MEA has made $3,500,000 available in two Areas of Interest (AOI) - on-farm/pilot scale and a community/regional scele. For details regarding the grant program requirements and restrictions, please see the FY18 AWE Grant Program Funding Opportunity Announcement (FOA).

House Bill (HB) 171 Study Group

HB 171 Study Points. This document lists the tentative order for study topics to be addressed by the Study Group.
January 24, 2018 HB 171 Study Group Meeting Agenda
January 24, 2018, Topic 1 HB 171 White Paper. Diversion of organic materials from refuse disposal facilities in the State, including State laws or regulations governing the diversion of organics.

Composting Facility Permits

The Maryland Department of the Environment (the Department) has published a final General Composting Facility Permit (GCFP) as provided under Environment Article, §9-1725, Annotated Code of Maryland, and Code of Maryland Regulations (COMAR) 26.04.11.11.

- GCFP
- GCFP Notice of Intent (*i.e.*, application)
- Individual Composting Facility Permit Application Form
- Composting Facility Operations Plan Checklist
- Composting Facility Permitting Requirements by Facility Type

The Department's review of submitted comments and a response to these comments are available in the Response to Comments on Draft General Composting Facility Permit March 28, 2016 summary.

Certain water related permits may be applicable to a composting facility. See the *Contacts* section below, for groundwater and stormwater discharge contact information.

Composting Facilities

As of December 1, 2017, the Department has reviewed 20 applications for composting permits. As a result of the reviews, the Department has issued 15 certificates for coverage under the General Permit, modified 4 landfill refuse disposal permits to include composting, and issued 1 Individual Composting Facility Permit.

Fourteen (14) of the facilities compost yard waste, 3 compost both food and yard waste, 2 compost food waste and manure, and 1 composts hay, straw, and manure.

MARYLAND DEPARTMENT OF THE ENVIRONMENT
Land and Materials Administration • Resource Management Program
1800 Washington Boulevard • Suite 610 • Baltimore Maryland 21230-1719
410-537-3314 • 800-633-6101 x3314 • www.mde.maryland.gov/composting

HB 171 – Yard Waste, Food Residuals, and Other Organic Materials Diversion and Infrastructure Study

Study Group Meeting
January 24, 2018 1:00 PM – 3:00 PM

Minutes

Attendance: Justin Brendel, Kaley Laleker, James Palma, Mike Taylor, Justin Burch, Andrew Cassilly, Keith Losoya, Melvin Thompson, Pam Kasemeyer, Jeffrey Dannis, Gemma Evans, Mike Toole, Peter Houstle, Chris Skaggs, Chaz Miller, John Sullivan, David Mrgich, Gary Felton, Laura Cattell Noll, Rhody Holthaus, Steven Birchfield, Christine Bergmark, Alan Pultyniewicz, Doug Meyers, Susan Eisendrath, Meg McDonald, Chris Clark, Roni Neff, Shane Bauer, Tariq Masood, Zack Brendel, Erica Chapman, Alan Wilcom, Eileen Kao, Beth Leamoud, David Brosch, Bill Teter, Lori Finafrock, Christy Bujnovszky, Julia Mooney

On the phone: Jane Thery, Pat Serfass, Shelby Kalm, Ben Fischler

Introduction

Dave Mrgich provided an overview of the HB 171and the study topics, discussed the scope of work for the study group, and established how the study group will operate. Study Topic 1: Diversion of organic materials from refuse disposal facilities in the State, including State laws or regulations governing the diversion of organics was addressed at this meeting.

Current Status of Organics Diversion in Maryland

- Doug Meyers asked if the definition of other organic materials included animal manure and if the intent is for infrastructure that generates manures.
- Jane Thery added concern for the requirements and needs for the horse community and uses of horse manure.
- Tariq Masood and Kaley Laleker noted that the intent is to include animal manure diversion strategies like composting to pull other organic materials.
- Chris Clarke added animal waste-to-energy grants target poultry litter but is open to others. Maryland Department of Agriculture (MDA) funds Animal Waste Technology Grants.
- Mike Toole asked if there were any position statements in advance. The response was no because the law is very specific to the topics.
- Brenda Platt (provided in writing and voiced by Julia Mooney) proposed that study topics #7 and #8 are used as principles to guide all the study group topics and #10 is captured as we go. Kaley Laleker agreed that we will summarize when we get to those topics.
- James Palma asked if there is a history of what used to be done. Further, if there was more separation between garbage and trash. Dave Mrgich responded that Maryland's compost regulations are relatively new and all regulations for composting were developed at that point. Composting facility permitting regulations were developed.
- Dave Mrgich added that waste sort statistics and breakdowns show a close but noticeable difference between Maryland and the national average.
    - 54.2% compostables were composted (85% yard trimmings, 15% food scraps)

- Roni Neff asked what the final product from this study group will be. Dave Mrgich explained there will be 2 reports. The first report is due June 2018 and will be an overview. The final report is due July 1, 2019 and will detail discussions and recommendations that might be good for Maryland.
- Dave Mrgich added that the meeting scheduled for March 1st will be changed to March 20th. Andrew Cassilly encouraged a Monday meeting due to the legislative session. Dave Mrgich will look to reschedule to a Monday in March. The meeting will be held March 19, 2018.
- Patrick Serfass had to leave the meeting but will call in.
- Jane Thery asked if written questions be addressed ahead of time and the response was yes.

Source Reduction Credit System
- Dave Mrgich recited an overview and explained the Source Reduction Credit System in Maryland allows each county to earn up to 5% SR credit. Part 1 is yard trimmings and Part 2 is general. The system is under review by the EO. Information available on MDE's webpage.
- No comments were made by the study group.

Greenhouse Gas Reduction Act (GGRA)
- Dave Mrgich recited an overview and added that waste diversion is a component of the Greenhouse Gas Reduction Act. A new plan is being drafted to go through 2030.
- No comments were made by the study group.

Waste Reduction and Resource Recovery Plan Executive Order
- Brenda Platt (provided in writing and voiced by Julia Mooney) asked what is happening with the Executive Order. Status? Dave Mrgich responded that the EO signed in 2017 emphasizes source reduction, quantifying and tracking information.

Liability Protection for Food Donation
- Dave Mrgich recited an overview. No comment from the study group.

Food Recovery in Schools
- Brenda Platt (provided in writing and voiced by Julia Mooney) noted ILSR was unfamiliar with the policy allowing county boards of education to develop and implement food donation programs for leftover or excess food in public schools. Do schools know about this? How many are doing this? What is happening? What can MDE do to have every school district in state developing and implementing such a program? Dave Mrgich responded that MDE does not know and can look into what schools, if any, are participating. It was recommended that MDE promote school food recovery programs and explore a better partnership between MD Food Bank and schools.
- It was noted that the law concerning schools working with the MD Food Bank is not enacted but might be by the end of this study group.
- MD Food Bank has pantry sites and can potentially get food out of schools that is not impacted by school lunch. Schools can be used as both a collection and distribution point for food and MDE should explore this as part of recommendations to build a better partnership with schools.
- Susan Eisendrath added that the Community Food Rescue would be a good source to check in with.

Farm Food Donation Tax Credit
- Dave Mrgich recited an overview. No comment from the study group.

Urban Agriculture Tax Credit
- The group asked Eileen if Montgomery County is participating in the tax credit but it is unknown.

Date Labeling on Food Products

- Brenda Platt noted (provided in writing, voiced by Julia Mooney) DC Councilwoman Mary Cheh has introduced a bill that might be worth looking at. Other states have as well. There is a lot of good information on this now.

Animal Feed from Food Residuals

- Is animal feed included in the 15 % composted food scraps mentioned in the beginning? Food scraps include grain, yeast and animal renderings. It was also added that counties may not know about activity or counties may not report. If it is reported, it is included but liquids are specifically excluded.
- Kaley Laleker added that local governments have restrictions beyond state requirements.

Mandatory MRA Recycling Rates

- Dave Mrgich recited an overview. No comment from the study group.

Yard Trimmings Disposal Ban

- Brenda Platt (provided in writing and voiced by Julia Mooney) Maryland's law is very weak compared to other states in that it allows yard waste to be mixed with trash and disposed (the law only applies to loads of separated yard waste). What has been the impact of this law? How much yard waste is being disposed at facilities? Has MD ever done any spot checking of loads coming into disposal facilities to assess yard waste in them?
- MDE noted to recommend a general ban on yard trimmings.

Composting Educational Information and Study

- Jane Thery asked that composting of horse manure on hay fields be included in the discussion and promote the discussion of sale.
- It was added that on farm composting does not count toward the recycling rate. Dave Mrgich explained that recycling does not count toward the recycling rate if it's a private facility. The facility must collect from the entire county. Example: Fort Detrick has its own landfill but only accepts waste they produce. Sparrows Point did a lot of recycling but only gets credit for about 5%. A lot of policies go beyond that rate.
- There are other laws that apply to on farm composting and use laws to promote on farm composting even if it is not counted toward MRA.
- Jane Thery provided an example: A farmer creates high quality compost and wants to sell it. The farmer wants to accept manure from neighbors but is not allowed to sell.
    - It was added that there are local composting and state level laws but that this is not a problem with the state.
- There are attempts to get the state chemist to approve compost from horse manure and wood material.
- It was noted that there are exemptions built into the composting laws for on farm composting.
- Jane Thery suggested that regulations should be more user friendly to what a horse farm is (not a landfill) and that rules and regulations for being regulated as a composting facility need to be easier for horse farms.
    - Kaley Laleker added that public outreach to farms regarding composting regulations need to be better.
- Pat Serfass asked what counts as recycling. Specifically, on farm anaerobic digestion.
    - Kaley Laleker responded that anaerobic digestion product is recycled and does count as recycling. She added that another study group has been directed to look at anaerobic digestion as nothing currently applies.
    - Recommendations can be made to Maryland concerning anaerobic digestion and we should look at what other states are doing.

- Permitting for anaerobic digestion is needed and not specific to just organics
- Manure is generated on a farm and digested. The digestate used is considered recycling if all other wastes are sent to another facility.
- Jane Thery notes that a lot of materials are not captures.
- The county is responsible to contact local businesses to collect data.
    - Montgomery County added that they put in a lot of effort.
    - Howard County added that they don't have many farms but does not put in a lot of effort. Calvert County reaches out but it is not mandatory to report.
    - Anne Arundel County has about 2% reporting rate from businesses.
    - Business reporting is voluntary so many businesses don't participate and the counties are lucky to get 25% reporting.
- Jeff Dannis added that farms with composting permits are asked to do reports but told the county to contact that state under the Freedom of Information Act.
- Nutrient Management Plans are secret but would include composting and nutrient spread information. It can be reported as a conglomerate.
- Counties have reached out to trade organizations to help get reports on newsprint.
- The Maryland Horse Council has a survey for manure use on their website but it is anecdotal of what people are really doing.
- A general consensus indicates that counties would love to have the data but have no resources to get the data. They would like more data and more requested forms.
- Pat Serfass stated that there is a large volume of material that has to be dealt with including food waste. He recommended at the recycling stage to make confusing composting and anaerobic digestion parts easier, huge volume of material, easier economically for infrastructure.
- John added that invasive species can be prohibited at compost piles. Mike Toole noted that persistent herbicide complicates things.
- There are cross postings on MDE's recycling page and Department of Commerce (changed and moving to DLLR) for natural wood waste, composting permitting and information on starting a business.
- Pat Serfass requested to add stuff on website about anaerobic digestion (versus compost).
- Mike Toole added that compost is now part of recycling and does not include anaerobic digestion.

Composting and Natural Wood Waste Recycling Facility Requirements

- Dave Mrgich briefly reviewed. No comment from the study group.

Regulation of Soil Conditioners and Compost

- Dave Mrgich briefly reviewed. No comment from the study group.

Compost Use

- Dave Mrgich briefly reviewed. No comment from the study group.

Animal Waste Technology Grants

- Chris Clarke explained that Maryland Energy Administration has a MOU with the Maryland Department of Agriculture to provide funding. The money has to go towards any process that goes to generate electricity or energy production. There is 3.5 million total. He noted that research is really more implementation.
    - 1/3 of money goes to composting
    - New technology
    - There is less emphasis on the word innovative

Regulation of Anaerobic Digestion Facilities

- Dave Mrgich briefly reviewed. No comment from the study group.

Clean Energy Incentive Tax Credit

- Dave Mrgich briefly reviewed. No comment from the study group.

Animal Waste to Energy Grant Program

- Dave Mrgich briefly reviewed. No comment from the study group.

Anaerobic Digestion of Animal Manure on Land Subject to Agricultural Land Preservation Easements

- Pat Serfass asked if food waste included. This is focused on agriculture activities and wastes. Pat wants to add discussion to include food waste.
- It was added that horse farms cannot do winter spreading.
- There is a separate workgroup also discussing anaerobic digestion beginning in 2018. Ed Dexter with MDE is leading that workgroup and a link is available for more information on MDE's webpage.
- Chris Clarke noted that the Clean Environment Tax Credit totaling $25 million was expended and MEA does not anticipate any more funding. Delegate confirmed.

Renewable Portfolio Standard

- Dave Mrgich briefly reviewed. No comment from the study group.

Biofuels

- Note that the tax credit is set to expire in CY 2017.
- Andrew Cassilly asked how successful the program was. Chris Clarke stated that is was administrative heavy with little benefits.

Summary

- Dave Mrgich provided a summary of recommendations:
    - Partner with schools and Department of Education and organizations for food recovery in schools
    - Simplify on farm composting
    - Establish a general ban on yard trimmings
    - Anaerobic digestion changes to law to promote, integration and outreach
    - Further encourage composting from a financial stand point because it is not cost effective.
    - Promote use of AD digestates. Pat Serfass will email information.
- Information is available about utilizing compost on turf.
- Jeff Dannis noted that MDA, SHA, MDE composting regulations are not consistent
- Andrew Cassilly identified an overarching goal to identify obstacles grading quality of compost product. He noted that each level has a use. He suggested finding an easy way to collect data and survey commercial composting. Identify benefits and advantages. He posed the question: what changes to legislation will help frontline be more effective? Additionally he made a recommendation for an online reporting system.
- Backyard composting is considered part of this. It is part of the survey of activities for the county to earn source reduction credits.
- It was recommended to post benefits of composting on MDE's website including information by organizations that compost.
- It was added to think of compost as a resource and keep it on site.

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Sign-In Sheet
House Bill 171 Study Group Meeting
Aqua, Aeris and Terra Conference Rooms
1:00PM – 4:00PM
January 24, 2018

Print Name	Signature	Organization	Email Address
Justin Brendel		LevelLandInc.	justin@levellandinc.com
Kaley Lalekar		MDE/LMA	Kaley.Lalekar@maryland.gov
James Palma		Commerce	james.palma@maryland.gov
Mike Taylor		WASTE MANAGEMENT	MTAYLOR@WM.COM
Justin Burch		Harvest	jburch@harvestpower.com
Andrew Cassilly		Delaware Dist 35B	AndrewCassilly@gmail.com
KEITH LOSOYA		WASTE NEUTRAL	KEITH@WASTENEUTRAL.COM
Melvin Thompson		Restaurant Assoc of MD	mthompson@marylandrestaurants.com
Pam Kasemeyer		MWRA/Kasemeyer Associates	pmetz@smwpa.com
Jeffrey Dannis		Howard County MD	

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1:00PM – 4:00PM
January 24, 2018

Print Name	Signature	Organization	Email Address
Gemma Evans		Howard County	gevans@howardcountymd.gov
Mike Foore		MD-DC Compost Committee	mikefoore@attbi.com
Brook Houston		MRN	bhouston@marylandrecycles.org
PETER ETTINGER		BTS BIO-ENERGY	PETTINGER@BTS-BIOGAS.COM
Chris Skaggs		NMWDA	cskaggs@nmwda.org
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John Sullivan			
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January 24, 2018

Print Name	Signature	Organization	Email Address
Rhody Holtnaus		Anne Arundel County	PWHOLT23@aacounty.org
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Christine Bergmark		db advising	christine@evenstarfarm.org
Alan Pultyniewicz		montgomery county	alan.pultyniewicz@montgomerycountymd.gov
Doug Myers		Chesapeake Bay Foundation	dmyers@cbf.org
Susan Eisendrath		Mont. Cnty Sierra Club, Mont-Cnty Food Council	susan.eisendrath@gmail.com
SUSAN KORNACKI		Mont. Co. DEP and Mont. Co. FOOD COUNCIL	SUSAN.KORNACKI@MONTGOMERYCOUNTYMD.GOV
Meg McDonald		Food & Beverage Consulting Group	FBConsultingGrp@gmail.com
Chris Clark		MEA	CHRIS.CLARK1@maryland.gov
Roni Neff		JHU Center for a Livable Future	Rneff1@jhu.edu

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1:00PM – 4:00PM
January 24, 2018

Print Name	Signature	Organization	Email Address
Shane Bauer		Nestle USA	shane.bauer@us.nestle.com
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Zack Brendel		Maryland Farm Bureau	Zack@levellandscape.com
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Eileen KAO		Montgomery County	eileen.kao@montgomerycountymd.gov
Beth LeaMond		Greenbelt	bleamond@gmail.com
DAVID BROSCH		University Park	davidcbrosch@comcast.net
Bill Tefer		Calvert County	William.Tefer@calvertcountymd.gov
Lori Finafrock		Frederick County	lfinafrock@frederickcountymd.gov
Christy Bujnovszky		MDE	
Julia Maney		MDE	

March 19, 2018, Study Group Meeting

Environment Events Calendar for Maryland

Event Details

Study Group Meeting to discuss House Bill 171 Yard Waste, Food Residuals, and Other Organic Material

Start Date: 3/19/2018 **Start Time:** 10:00 AM
End Date: 3/19/2018 **End Time:** 12:00 PM

State Agency(s)
Environment

Event Description:
Study Group Meeting to discuss House Bill 171 Yard Waste, Food Residuals, and Other Organic Materials Diversion and Infrastructure.
The bill requires the Department, in consultation with certain persons, to study and make recommendations regarding specified matters that relate to the diversion of yard waste, food residuals, and other organic materials from refuse disposal facilities, including the status of infrastructure in the State.

Location Information:
Maryland Department of the Environment
1800 Washington Blvd
First Floor Conference Rooms
Baltimore, MD 21230

Contact Information:
Name: David Mgrich
Phone: 410-537-3314

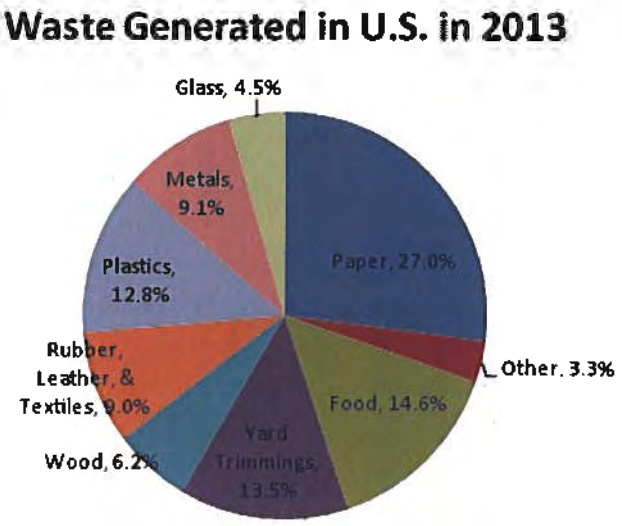
Announcements

House Bill 171 – Department of the Environment – Yard Waste, Food Residuals, and Other Organic Materials Diversion and Infrastructure – Study

Subject: Public Meeting

Date and Time: March 19, 2018; 10:00 AM to 12:00 PM **New!**

Future meetings will be canceled and rescheduled if State offices are on liberal leave or are closed. Details on State closings are available on the Department of Budgement and Management's Special Closings of State Buildings, Liberal Leave and Emergency Information web page.



Parking: Study Group members ONLY may park in the Red Lot (until full -- then the blue lot). The Red Lot is directly in front of the building.

Interested parties will need to park in the Blue Lot and enter the building through the tunnel (located at the back right corner as entering the blue lot). The Blue Lot is on the left, prior to the railroad tracks if approaching from 83 or traveling north on Washington Blvd. Or on the right, after the Red Lot and the railroad tracks if approaching from Baltimore City or Monroe St.

Call-In: The Department's 410-537-4281 Mulit-Party Conference line accomdates up to 14 people.

Place: Maryland Department of the Environment, 1800 Washington Blvd., Baltimore, MD 21230

Documents: Documents for the meeting are available in the House Bill (HB) 171 Study Group section, below.

Add'l Info: The Maryland Department of the Environment (the "Department") has scheduled a meeting of the study group required by House Bill 171 – Department of the Environment – Yard Waste, Food Residuals, and Other Organic Materials Diversion and Infrastructure – Study. The bill requires the Maryland Department of the Environment (the "Department"), in consultation with certain persons, to study and make recommendations regarding specified matters that relate to the diversion of yard waste, food residuals, and other organic materials from refuse disposal facilities, including the status of infrastructure in the State. The complete text of the bill is available at http://mgaleg.maryland.gov/2017RS/Chapters_noln/CH_384_hb0171e.pdf.

Meetings are tentatively scheduled to occur every other month in 2018. If necessary, more frequent meetings will be scheduled. However, it is anticipated that, even if additional meetings are necessary, study group meetings will take place no more than once per month. Future meeting notices will be posted here and on the Department's Public Meeting Calendar web page.

Contact: David Mrgich, 410-537-3314

FY18 Animal Waste to Energy Grant Program

The Maryland Energy Administration (MEA) is excited to announce the opening of the FY18 Animal Waste to Energy Grant Program (AWE Grant Program). MEA has made $3,500,000 available in two Areas of Interest

MARYLAND DEPARTMENT OF THE ENVIRONMENT
Land and Materials Administration • Resource Management Program
1800 Washington Boulevard • Suite 610 • Baltimore Maryland 21230-1719
410-537-3314 • 800-633-6101 x3314 • www.mde.maryland.gov

HB 171 – Yard Waste, Food Residuals, and Other Organic Materials Diversion and Infrastructure Study

Study Group Meeting
March 19, 2018 10:00 AM – 12:00 PM

Minutes

Attendance: Keith Ohlinger, Maria Myers, Christy Bujnovszky, Lisa Kardell, Mark Mhley, Linnea Boogades, Rhody Holtahus, Brenda Platt, Peter Houstle, Patrick Serfass, Peter Ettinger, Roni Neff, Ben Fischler, Taylor McCandless, Gemma Evans, Jeff Dannis, John Sullivan, David Mrgich, Mike Ensor, Steven Birchfield, Laura Catell Noll, James Ley, Frederick Strye, Alan Pultyniewicz, Lori Finafrock, Doug Meyers, Tariq Masood, Gary Felton, Julia Mooney, Kaley Laleker.

On the phone: Susan Wexler, Chris Clark, Jane Thery, Mary (last name unknown)

Introduction

Workgroup Members briefly introduced themselves. Keith Ohlinger is representing the Maryland Farm Bureau.

Dave Mrgich provided an overview of changes to the structure and logistics of the meetings. He also added that there have been changes to the original order of study topics to be covered. The next meetings are tentatively scheduled.

Dave asked for approval of the January Meeting Minutes. Ben Fischler noted that he was on the phone for the January meeting. Eileen Kao (in writing) corrected a statement that was incorrectly attributed to her regarding utilizing compost on turf fields. Julia Mooney will make the changes to the official minutes. The minutes from the January meeting are approved.

Dave presented research (via PowerPoint Presentation) compiled by Tariq Masood on the current status of infrastructure for diversion of yard trimmings, food scraps, and other organics. The presentation and materials are available online. The maps were provided by Johns Hopkins University Center for a Livable Future.

Yard Trimmings

The following comments were made on the yard trimmings infrastructure portion of the presentation.

- It was noted that the composting facility located at Alpha Ridge Landfill is expanding.
- Tariq Masood added that all facilities in Table 2 of the issue paper are permitted and will hopefully be in operation in 2018.

- Peter Houstle asked the extent to which all facilities will accept materials outside of their jurisdiction. Tariq responded that we do not know but we can gather that data. Peter added that Maryland Recycles Network (MRN) is getting a lot of inquiries concerning where materials can be taken.
- Patrick Serfass explained that there are two kinds of anaerobic digestion (AD) systems: wet and dry. Wet systems process material with a soup-like consistency and dry systems are airtight, sealed and accept yard trimmings. There are a dozen dry anaerobic digestion facilities in the U.S. They are easier to manage. Patrick recommended using generic terms that will include processes besides composting and mulching, such as recycling organics, recycling food scraps or recycling yard trimmings.
- Jane Thery seconded the idea.
- Brenda Platt noted that the eastern shore region is underserved with organics processing capacity. She asked where the yard trimmings in that region are going. Dave responded that we do not have that information and we would need to contact the counties. Brenda asked if there is a disconnect between what is reported and what is going to the facilities. Dave responded that the recycling reports submitted by the counties do not include the method of recycling. He added that the material does have to be processed to count as recycling (e.g. mulch).
  - Dave suggested surveying all counties to see how organics are being recycled.
- Gary Felton added that poultry litter is going into a facility in Delaware.
- Doug Meyers asked where compost goes after it is made. He added that there have been concerns of persistent herbicides in the finished compost. He asked if there are safeguards in place for herbicide levels when compost is spread.
  - It was added that the Department of Agriculture requires registration of compost and other soil amendments that are distributed in Maryland.
  - It was noted that there are fewer restrictions for compost that is used on site.
  - Cradle to grave accountability was suggested.
  - Brenda Platt added that it was her understanding that MDA does not test for herbicides. Curling, stunted growth and germination problems should be looked for. It was noted that there were problems in Vermont at parts per billion levels. There are only a few labs that can test for persistent herbicides at those levels. Jane Thery added that composted horse manure had no problems.
  - Keith Ohlinger noted there is a form that needs to be signed by those providing feedstocks for composting to ensure certain products that could affect compost quality are not being used.
- Questions concerning the market for compost products were brought up again. Steve Birchfield added that compost is being distributed all over Maryland. MES facilities accept feedstock from multiple jurisdictions. Steve noted that the website for MES-produced compost is www.leafgro.com and the compost is being sold in PA, MD and VA.
- Roni Neff asked about public information for drop-off sites. She asked where she could bring yard trimmings for recycling in Baltimore City because she was told that the material it is taken to the landfill. Dave Mrgich stated that the city / county webpages typically list drop-off locations for various materials; links to each jurisdiction's website is listed on MDE's waste diversion website. It was noted that some landfills may also serve as drop-off or citizen convenience centers. It was also noted that only "separately collected" yard trimmings are prohibited from being disposed.

Food Scraps and Animal Manure

The following comments were made on the food scraps and animal manure infrastructure portion of the presentation.

- Patrick Serfass asked if food / beverage manufacturers' and slaughter facilities' waste was considered industrial waste.
  - Dave Mrgich explained that industrial waste is counted as commercial waste for the purpose of calculating the Maryland Recycling Act recycling rate as long as the waste goes to a public facility for disposal or recycling.
- Laura Noll noted that grade schools were not on the list of large food scrap generators.
  - Tariq Masood responded that grade schools are not considered major generators of food scraps. Laura added that they may not generate significant quantities of food scraps individually but collectively they could be considered a major generator.
- Patrick Serfass asked why the hospitality industry (e.g. hotels) was not included and stated that this seems like a major category.
- Peter Houstle added that there is a lot of interest in food scraps diversion among hotels, but it is constrained by health regulations.
- Patrick asked if the hospitality category can be captured on the large food scrap generator maps. MDE noted that we do not have the data but we can look for statistics.
- It was suggested to ask Melvin Thompson with the Restaurant Association of Maryland for data. Laura Abshire with the National Restaurant Association was also suggested as a contact to gather this data. It was noted that these are restaurant contacts but they might have information for hotels as well.
- Steven Birchfield wrote (via email): I was interested in seeing the food pantry free meal site points AND the composting facilities that accept food scraps as a feedstock on the same map. I think combining the data will beter show or represent where the current food waste/ or wasted food is going? It also may help show areas where ether type of infrastructure is most needed. I was also suggesting that public schools be considered as part of the LFSG group. It has been my experience that public schools can produce nearly 2 tons of food scraps per week per school. I base the school tonnage amount off of what DC public schools have hauled to us over the past 2 years. According to Maryland.gov there are 1447 schools in the state of Maryland as of 2015. You would be looking at 2894 potential tons per week if every school had a SSO or food scraps collection program. That's 104,184 potential tons over the 180 day school calendar year. It would make Maryland schools the second largest generator on the list. These schools could also play a major role in food donations if programs were put in place to make that food available for food pantries and free meal sites.
- Roni Neff suggested that there should be a standard definition of food scraps for the purpose of this study. Otherwise, the term "food scraps" may be interpreted to include only food that is wasted before it reaches the consumer. Others noted that sometimes more specific terms are used to distinguish food that is wasted at different points along the supply chain. For example, sometimes food loss is distinguished from food waste and sometimes pre-consumer food waste is distinguished from post-consumer food waste.
- Brenda Platt added that K-12 school food is prepared at a Gaithersburg food preparation center and noted that food waste data might be captured where the food is prepared.

- Doug Meyers suggested a mass balance exercise looking at where manure is produced and where it is going. He noted the Delmarva Land and Litter Challenge. Information can be found here: https://delmarvalandandlitter.net/
- Jane Thery mentioned the mushroom industry in Pennsylvania.
- Patrick Serfass asked about data for the amount of manure per animal. He added that information and statistics might be available through USDA Agricultural Research Service.
- Patrick Serfass noted that Figure 5 of the issue paper does not show the 11 wastewater treatment facilities that have digesters. He noted that these need discussion and should be considered as existing infrastructure with the potential to handle food scraps. He added that data for biogas facilities is available at www.biogasdata.org.
- It was noted that an existing digester at a Cecil County dairy may have suspended operations. Brenda Platt noted that on-site composting is not reflected on the maps, including composting at Frostburg University, Howard County's Jessup Detention Center, etc. She recommended that other small scale, decentralized operations are important and should be a part of the infrastructure discussion.
- Doug Meyers added that on-site facilities are often struggling to reach a certain threshold at which they can be economically viable. He asked where the product from these on-site facilities goes. He suggested adding value to existing facilities to make them successful.

Recommended Discussion Topics

Dave Mrgich provided a brief overview of the Waste Diversion Infrastructure Recommendations Discussion handout. The study group discussed potential recommendations for increasing infrastructure for organics diversion based on the information presented in the issue paper. The following comments were offered:

- Patrick Serfass suggested increasing AD capacity. He added that markets need to be identified for compost products and digestates and the availability of markets will help AD facilities come online.
- Peter Houstle added that we cannot increase capacity without a market for the product. Generators, processors, and markets are all needed to make organics diversion work.
    - Jane Thery seconded Peter's idea. She noted that Oregon and Washington have marketing programs for organic products.
- Brenda Platt added that Maryland's State Highway Administration (SHA) has specifications for compost and compost-based products and that a law requiring SHA to establish specifications for compost-related materials has been partially implemented.
- Brenda added that waste prevention should be a focus because if wastes are reduced there is no need for increased capacity and infrastructure.
    - Kaley noted that we need better data for infrastructure gaps regarding food donation. Brenda concurred.
    - Brenda added that we should build decentralized, small scale composting because it is always feasible. She noted, for example, that all schools could have small scale composting on site.
- Doug Meyers expressed concerns for the transportation costs of moving products that weigh a lot and suggested that on-site composting is best. He added that digestion reduces the weight of the material and the final product is much lighter.

- Peter Houstle mentioned marketing and education to help people be more aware of how to use food more efficiently. He noted that it costs more to manage wasted food at the back end versus manage the food efficiently at front end (before it is wasted).
- Roni Neff mentioned incentives for composting, like discounted bins, etc. and a place for entrepreneurs to get information.
- Patrick Serfass suggested that there should be more clarity on the permitting process for AD. He mentioned excess capacity available at wastewater treatment plants and added that data is available on the biogas website.
- Kaley Laleker suggested defining different components food scraps and defining which componenets are ideally managed through each type of recovery infrastructure (food banks, composting/AD facilities, etc.).
- Keith Ohlinger asked for help from the medical and environmental fields to examine and place in perspective potential health, safety, and other concerns regarding composting and mulching. He noted that perceived smells, truck traffic, etc. are holding up permitting facilities at the zoning and planning level.
- Gary Felton added that the costs to develop infrastructure are significant. He stated that the composting regulations are very stringent, and it costs 1 to 2 million to create a new AD site. The costs of infrastructure will be addressed in future meetings with Commerce and MEA.
- Mike Ensor noted that Ritchie Land Reclamation/Tolson is interested in mulching and composting. He noted the challenges include economic viability, sustainability of the end market, public perception and fear of investment.
- Keith Ohlinger stated that his farm had received bread donations as food for pigs and cattle. He spent 8 hours un-wrapping the food. He stated that he receives offers for canned food frequently but does not have the time or staff to open all of the cans. He also added that the food needs to be free from contaminants in order to feed the animals.

Public Comments

Dave Mrgich opened the discussion to non-Study group members.

- Susan Wexler mentioned improving food donation. She noted that seasonal produce surplus can be quickly made into applesauce or tomato sauce but there is a lack of refrigerator and freezer capacity.
- Lori Finafrock added that compost is tested regularly for persistent herbicides at the Reichs Ford Road Landfill.
- Mary (last name unknown, via telephone) mentioned MDA's regulations on spreading compost on lawns. It was added that Maryland's restrictions on past date fluid milk are strict compared to other states.

Summary/Conclusion

- Dave Mrgich concluded the meeting by noting that study group members and interested parties should check the website for additional details and meeting information. He also noted that the interim report for the study is due in July and that the next meetings are tentatively scheduled.
- Peter Houstle asked for more descriptive map titles on the webpage.

- Brenda Platt asked if there were any named members not participating. Dave responded that he has not heard from 5 or 6 groups and that will be noted in the report.

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Sign-In Sheet
House Bill 171 Study Group Meeting
Aqua, Aeris and Terra Conference Rooms
10:00AM – 12:00PM
March 19, 2018

Print Name	Signature	Organization	Email Address
Keith Ohlinger	Keith Ohlinger	Farm Bureau	Fohlinger05@verizon.net
MARIA MYERS	Maria Myers	Carroll County Md	MTMYERS@ccg.carr.org
Christy Burjnovsky	Christy Burjnovsky	MDE	
Lisa Kardell	Lisa Kardell	WM	LKardell@WM.com
Chris Skoggs	Chris Skoggs	MMWDA	cskoggs@mmwda.org
MARK MILEY	Mark Miley	FARM + ALCHEMY	MARK MILEY@GMAIL.com
Linnea Boogaches	Linnea Boogaches	AACo	pwboog22@aacounty.org
Rhody Holthaus		AACo	PWHOL23@aacounty.org
Brenda Platt	B Platt	ILSR	bplatt@ilsr.org
Becka Houston	Becka Houston	MPN	bhouston@marylandmanure.com

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House Bill 171 Study Group Meeting
Aqua, Aeris and Terra Conference Rooms
10:00AM – 12:00PM
March 19, 2018

Print Name	Signature	Organization	Email Address
PATRICK SERFASS		American Biogas Council	pserfass@ttcorp.com
Peter Ettinger		BTS	Pettinger@BTS-biogas.com
Roni Neff		Johns Hop. Center for a Liveable Future	
Ben Fischler		Sierra Club	benf57@yahoo.com
→ note: I participated in the January meeting via phone			
Taylor McCandless		Calvert Wood Recycling	tmccandless@cdsrecycling.com
Gemma Evans		Howard County	gevans@howardcountymd.gov
Jeff Dannis		"	jdannis@howardcountymd.gov
C John Sullivan III		MDE	
David Mayich		MDE	

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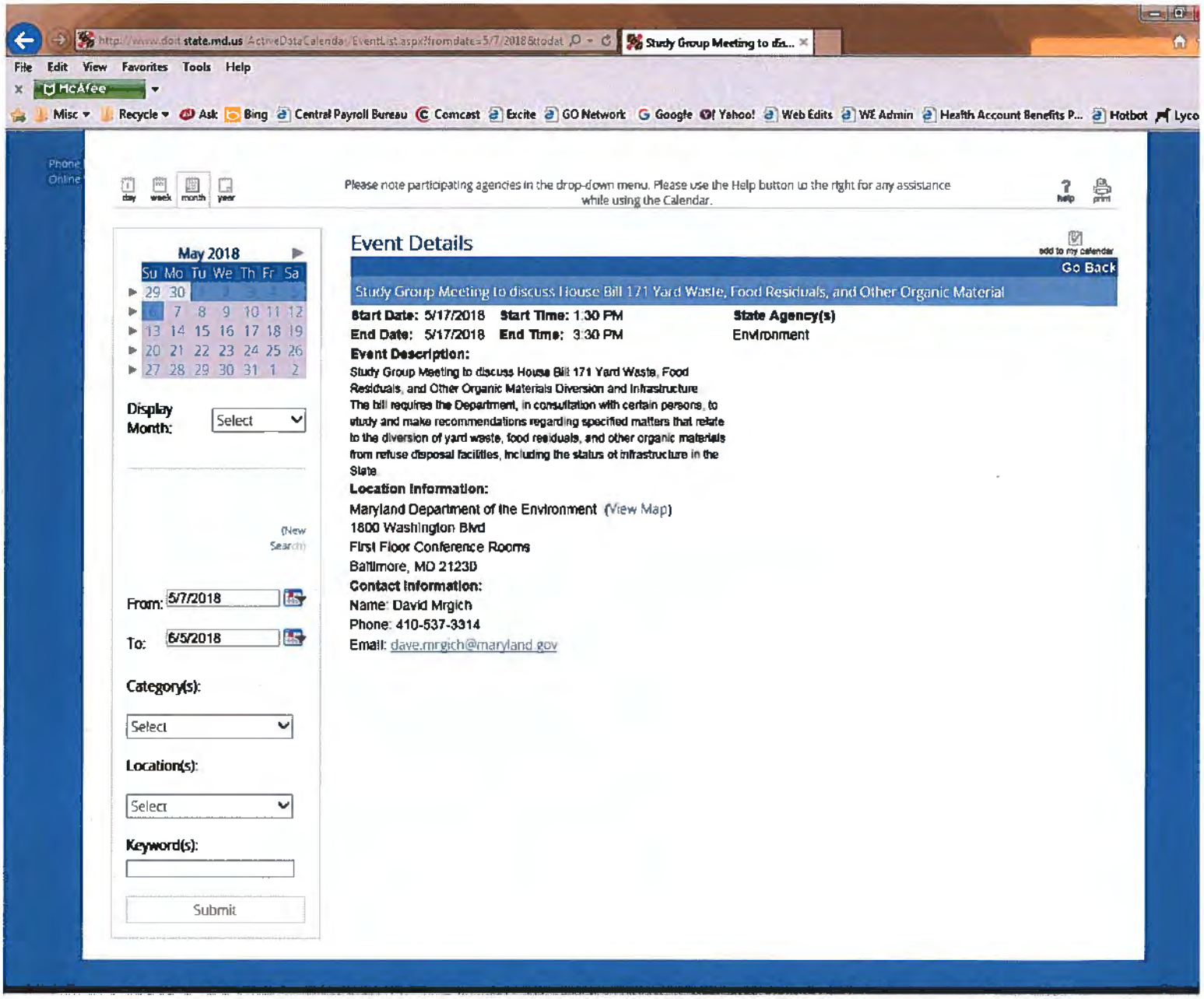
House Bill 171 Study Group Meeting
Aqua, Aeris and Terra Conference Rooms
10:00AM – 12:00PM
March 19, 2018

Print Name	Signature	Organization	Email Address
MIKE EPSOR		RITCHIE LAND RECLAMATION	MC@TCLANDS.ORG
Steven Birchfield		Maryland Environmental Service	SBIRC@MENV.com
Laura Catell Noll		Alice Ferguson Foundation	lcatellnoll@fergusonfoundation.org
JAMES COY		Compost Cab	james@compostcab.com
Frederick Stree		Compost Cab	
Alan Pultyniewicz		Montgomery County DEP/DSWS	alan.pultyniewicz@montgomerycountymd.gov
Lori Finafrock		Frederick County DSWM	lfinafrock@frederickcountymd.gov
Doug Myers		Chesapeake Bay Foundation	dmyers@cbf.org
TARIQ MASOOD		MDE	tmasood ~~tariq.masood@maryland.gov~~
GARY FELTON		U. MD	gfelton@umd.edu

May 17, 2018, Study Group Meeting


Study Group Meeting to dis...
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Please note participating agencies in the drop-down menu. Please use the Help button to the right for any assistance while using the Calendar.
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From: 5/7/2018
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Event Details
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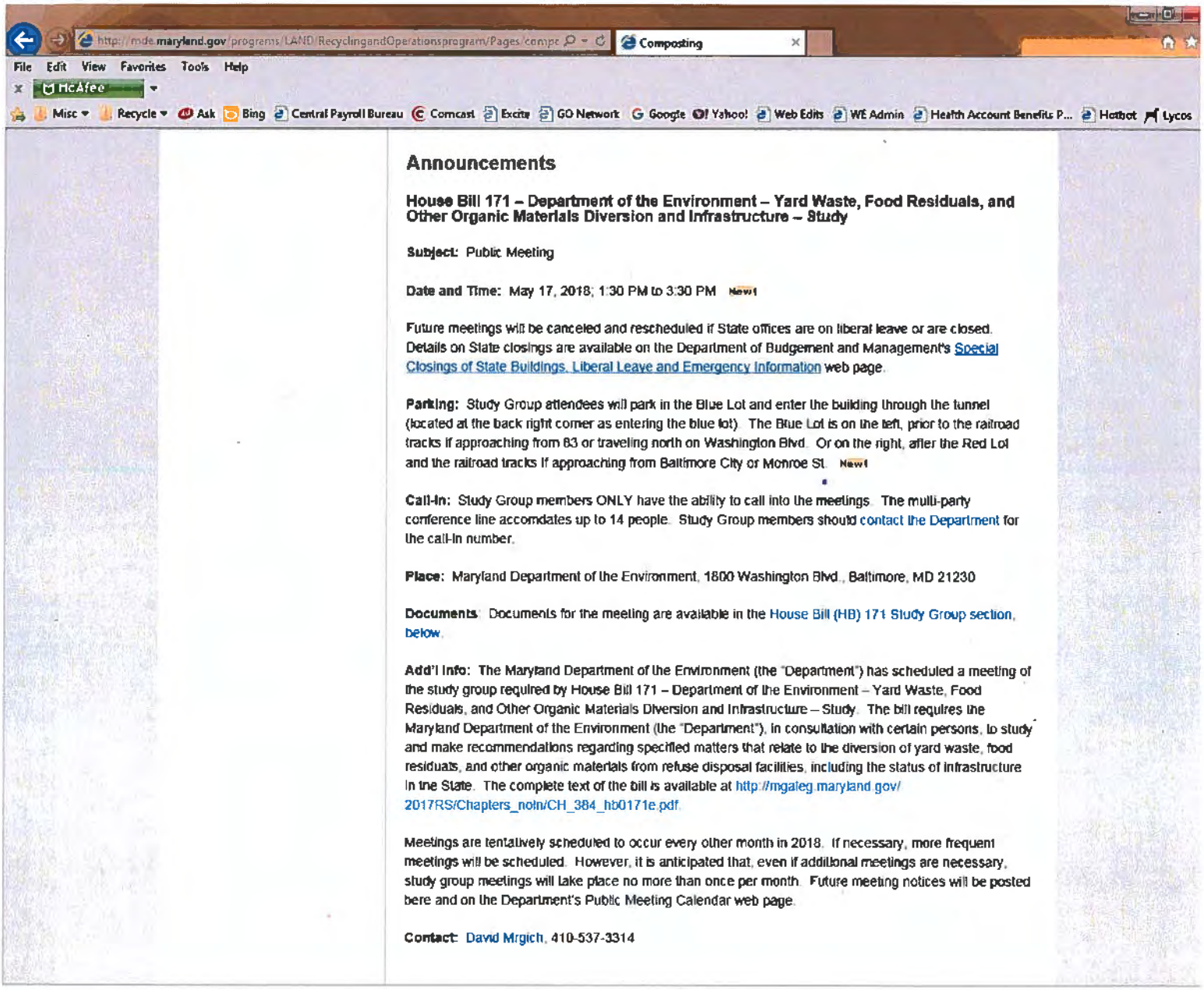
Study Group Meeting to discuss House Bill 171 Yard Waste, Food Residuals, and Other Organic Material
Start Date: 5/17/2018 Start Time: 1:30 PM
End Date: 5/17/2018 End Time: 3:30 PM
State Agency(s)
Environment
Event Description:
Study Group Meeting to discuss House Bill 171 Yard Waste, Food Residuals, and Other Organic Materials Diversion and Infrastructure
The bill requires the Department, in consultation with certain persons, to study and make recommendations regarding specified matters that relate to the diversion of yard waste, food residuals, and other organic materials from refuse disposal facilities, including the status of infrastructure in the State.
Location Information:
Maryland Department of the Environment (View Map)
1800 Washington Blvd
First Floor Conference Rooms
Baltimore, MD 21230
Contact Information:
Name: David Mrgich
Phone: 410-537-3314
Email: dave.mrgich@maryland.gov



Announcements

House Bill 171 – Department of the Environment – Yard Waste, Food Residuals, and Other Organic Materials Diversion and Infrastructure – Study

Subject: Public Meeting

Date and Time: May 17, 2018; 1:30 PM to 3:30 PM New!

Future meetings will be canceled and rescheduled if State offices are on liberal leave or are closed. Details on State closings are available on the Department of Budgement and Management's Special Closings of State Buildings, Liberal Leave and Emergency Information web page.

Parking: Study Group attendees will park in the Blue Lot and enter the building through the tunnel (located at the back right corner as entering the blue lot). The Blue Lot is on the left, prior to the railroad tracks if approaching from 83 or traveling north on Washington Blvd. Or on the right, after the Red Lot and the railroad tracks if approaching from Baltimore City or Monroe St. New!

Call-In: Study Group members ONLY have the ability to call into the meetings. The multi-party conference line accomdates up to 14 people. Study Group members should contact the Department for the call-in number.

Place: Maryland Department of the Environment, 1800 Washington Blvd., Baltimore, MD 21230

Documents: Documents for the meeting are available in the House Bill (HB) 171 Study Group section, below.

Add'l Info: The Maryland Department of the Environment (the "Department") has scheduled a meeting of the study group required by House Bill 171 – Department of the Environment – Yard Waste, Food Residuals, and Other Organic Materials Diversion and Infrastructure – Study. The bill requires the Maryland Department of the Environment (the "Department"), in consultation with certain persons, to study and make recommendations regarding specified matters that relate to the diversion of yard waste, food residuals, and other organic materials from refuse disposal facilities, including the status of infrastructure in the State. The complete text of the bill is available at http://mgaleg.maryland.gov/2017RS/Chapters_noln/CH_384_hb0171e.pdf.

Meetings are tentatively scheduled to occur every other month in 2018. If necessary, more frequent meetings will be scheduled. However, it is anticipated that, even if additional meetings are necessary, study group meetings will take place no more than once per month. Future meeting notices will be posted here and on the Department's Public Meeting Calendar web page.

Contact: David Mrgich, 410-537-3314

MARYLAND DEPARTMENT OF THE ENVIRONMENT
Land and Materials Administration • Resource Management Program
1800 Washington Boulevard • Suite 610 • Baltimore Maryland 21230-1719
410-537-3314 • 800-633-6101 x3314 • www.mde.maryland.gov

HB 171 – Yard Waste, Food Residuals, and Other Organic Materials Diversion and Infrastructure Study

Study Group Meeting
May 17, 2018 1:30 PM – 3:30 PM

Minutes

Attendance: Joseph Zach Brendel, Julie Paulda, James Palma, Matthew Tabisz, Keith Ohlinger, Tariq Masood, Chris Skaggs, Laura Noll, Linnea Boogades, Kenneth Clare, Godfrey Ampadu, Lori Finafrock, Edward Dexter, Walid Saffouri, Jennifer Nitsch, Adria Aceto, Melvin Thompson, Mark Mhley, Mario Cora, Jeff Han, Gemma Evans, Peter Houstle, Brenda Platt, Linda Bilsens, Gary Felton, Chris Clarke, Patrick Serfass, Pam Kasemeyer, Doug Myers, Peter Ettinger; Andrew Cassilly, Julia Mooney, Dave Mrgich, Kaley Laleker

On the phone: Jane Thery, Ben Fischler

Introduction

Dave Mrgich provided a brief introduction and overview of the meeting agenda. The March 19, 2018 meeting minutes were approved. The draft July 2018 Interim Report was approved.

Anaerobic Digestion (AD) Facilities and Water and Sewerage Construction Permit
Walid Saffouri, P.E., Program Administrator
Engineering and Capital Projects Program (ECPP)
Water and Science Administration
Maryland Department of the Environment

- The program manages special federal appropriation grants, state revolving loan and state grants for water quality and drinking water projects.
- It reviews proposed projects and issues Water and Sewerage Construction Permit for anaerobic digestion systems that are constructed as part of private and publicly owned sewage treatment plants.
- Walid Saffouri confirmed permitting includes direct and groundwater discharge.
- On-farm digesters are not permitted, only those at wastewater treatment plants.
- Patrick Serfass asked if brewery wastewater sent to a sewage treatment plant was considered industrial waste. Walid clarified that ECPP only reviews wastewater treatment plants treating their own sludge and the Department's Land and Materials Administration would be involved if sludge from other places were accepted.

Maryland's Air Quality Regulations Applicable to Anaerobic Digestion
Mario G. Cora, Regulatory Compliance Engineer
Air Quality Permits Program
Air and Radiation Administration

Maryland Department of the Environment

Permit to Construct

- Similar to the requirements for a Permit to Construct a composting facility.
- COMAR 26.11.02.09-.10 outlines sources that will require a Permit to Construct, and exempted installations.
    - Permits to Construct are issued for equipment, not a facility as a whole.
    - One facility may have multiple permits.
    - Composting is not exempted under COMAR 26.11.02.10.
- The process of anaerobic digestion is not defined as a source of pollution under COMAR 26.11.01.01(B)(2).
    - Brenda Platt asked if methane was considered an air pollutant. Mario explained methane, as a greenhouse gas, is not classified nor regulated as a "criteria pollutant" under the Clean Air Act's National Ambient Air Quality Standards or hazardous air pollutant definition.
    - Brenda asked if there was discussion that methane should be considered an air pollutant because it is a very potent greenhouse gas.

Permit to Operate

- COMAR 26.11.02.13, sources subject to Permit to Operate.
    - An anaerobic digestion facility serving as an electric generating system is subject to a Permit to Operate.
        - (A)(45) Stationary internal combustion engines located at natural gas pumping stations or electric generating stations;
        - (A)(61) Any other source that the Department determines has the potential to have a significant impact on air quality.
- Note: May require a Maryland Public Service Commission's Certificate of Public Convenience and Necessity if the generating system has a capacity more than 2,000 kW
    - Definition of a generating system is found at COMAR 20.79.01.02.

Current and Future Considerations Relating to Anaerobic Digestion Facility Permitting
Edward M. Dexter, P.G., Administrator
Solid Waste Program
Land Management Administration
Maryland Department of the Environment

- Ed Dexter noted that more information can be found on the Department's Solid Waste webpage. Additionally, he noted that AD recommendations made in this work group will be considered.
- Andrew Cassilly asked if recommendations for HB 124 rely on recommendations from HB 171. Ed Dexter said that is his intent dependent on the schedule and wants to share between the groups.
- Solid waste definition in § 9-101(j) of the Environment Article, Annotated Code of Maryland.
    - Does not exclude anaerobic digestion feedstock or resultant digestate from its Solid Waste definition.

- Anaerobic Digestion could require a Refuse Disposal Permit under present statute.

- However, the Department has not historically required a recycling facility to obtain refuse disposal permit if it does not accept and generate more than *de minimis* quantity of solid waste that requires disposal.
  - Single-stream organic feedstock is an issue because of potential contamination of solid waste that cannot be recycled.
  - Facilities receiving source-separated organic material usually receive a *de minimis* quantity of solid waste.
- HB124 Workgroup progress in discussing anaerobic digestion.
  - 26.04.07.03 (General Restrictions and Specifically Prohibited Acts) will serve as the minimum/baseline regulations that recycling facilities would be subject to (prohibits nuisances, air pollution, unpermitted discharges to waters of the State, etc).
  - Regulatory considerations may include the handling and storage of feedstock, and back-end, by-products and discharges.
    - May or may not regulate the amount of feedstock received, stored, and processed.
    - The Solid Waste Program is sticking to basic rules for now and seeking to address potential problems without requiring additional permits for categories of recycling facilities that are deemed not to warrant them.
  - Brenda Platt mentioned AD in terms of recycling. Is AD being considered as recycling? She added that other materials are regulated by MDA. Brenda asked if other states have more proactive AD permitting.
  - Patrick Serfass added that there is no clear process for permitting. Maryland's process is more straight forward than most but it is still not clear. There are not enough projects being developed. This is an opportunity to make things clear and streamlined. It is recommended that MDE draft a permitting guidance document. Patrick added that he thinks AD should count as recycling and noted the food recovery hierarchy ranks AD above combustion. He also noted that the solid waste hierarchy is outdated and that EPA is working to replace it.
  - Ed Dexter stated that they are looking at facilities not currently permitted and to establish baseline standards. He added that refuse disposal permits take significant time and many agencies are looking to make the process simpler.
  - Digestate sold or land applied will be regulated under the Maryland Department of Agriculture.

12-SW Permit for Stormwater Discharges Associated with Industrial Activity
Jennifer Nitsch
Wastewater Permits Program
Water and Science Administration (WSA)
Maryland Department of the Environment

- The General Industrial Stormwater Discharge Permit regulates stormwater discharges associated with industrial activities.
- Coverage under the permit is required for any facility whose Primary Activity fits within certain Standard Industrial Classification Codes (SIC Codes).
    - Sector C- Chemicals and Allied Products includes Anaerobic Digestion
    - Benchmark monitoring required for Sector C and all sectors require quarterly visual samples.
- Regulated entities require Stormwater Pollution Prevention Plans.
- WSA drafted a "Maryland Winery, Brewery, and Distillery Discharge Permit Guidance."
    - Provides an overview of discharge-related permits that may be required for a winery, brewery, and distillery operating in Maryland.
        - General Industrial Stormwater Discharge Permit
        - General Groundwater Discharge Permit - land application of wastewater for beneficial use or storage of processing wastewater offsite.
        - Composting Permit - non-farm composting operations over 5000 sq ft.
        - Individual Surface Waters Discharge Permit - discharging of wastewater into a stormwater sewer, ditches or other conveyance to surface waters.
- Steven Birchfield asked about benchmarks and who sets those limits. Are they site specific? The benchmarks are established by the permit writer and are not site specific under this permit. Jennifer noted this information can be found in Appendix D of the permit by sector.
- James Palma added that SIC codes are not used anymore.

Recommendations

- MDE should draft an AD permit guidance document.
    - Mirror guidance document after the WSA "Maryland Winery, Brewery and Distillery Discharge Permit Guidance" and LMA "Permitting Guidance for Maryland Composting Facilities."
    - Peter Ettinger commented on the Maryland Food Center Authority groundbreaking. He noted that a guidance document for the AD permitting process would be great. He added that there is a gap in the county perspective. Additionally, he added that there is a working document that shares the process of how they were permitted. Peter said they could share the process in the next few months and volunteered to be a contact for creating a guidance document.
        - Jane Thery asked if the new AD facility was accepting horse manure. It is dependent on transportation costs, how is it being used, where is it coming from, etc. She added that Maryland has the largest number of horses per square feet.
    - Patrick Serfass asked if a guidance document is a real possibility. Kaley Laleker added that the Department could start working on the document now and try to have something published with the final report.
        - Laura Noll asked what percent of AD facilities are submitting multiple permits. She noted that this could help form the guidance document.
- If the workgroup decides that stand alone AD regulations are required, the regulation should:
    - Regulate commingled organic waste and source-separated organic feedstock differently;
    - Provide exemptions for small-scale and on-farm anaerobic digestion facilities, similar to exemptions provided under the composting regulations.

- The workgroup should explore how to include organic waste recovery through AD as recycling under the Maryland Recycling Act.

Laws and regulations of other states, including Massachusetts, Connecticut; Vermont; California, and Rhode Island, governing the diversion of yard waste, food residuals and other organic materials
Erica Chapman
Office of the Director
Land and Materials Administration
Maryland Department of the Environment

- Erica provided an introductory overview of some research the Department has done on other states' laws and regulations regarding organics recovery.
- Adria Aceto added that fishing vessels are regulated by NOAA and generate organic materials that could be recovered.
- This presentation will be continued at the July meeting.

Comments

- Brenda Platt stated that the logical next step is to pull together the best pieces from each state to develop recommendations for Maryland. Dave Mrgich recommended that everyone look at the issue paper and make suggestions. Does Harvard Law Center have recommendations for state models?
- Adria Aceto noted that lack of standard labeling is driving food waste.
- James Palma asked how much food is wasted due to expiration dates. Adria Aceto stated 40% for grocery retailers. Erica added that USDA is looking at that but has trouble tracking at the household level. Adria stated she has a study that she could provide.
- Gemma Evans asked about grant programs and incentives. Which ones are working and are they effective? Erica noted that she did not include the grant programs if they were not used.
- An extension to review the interim report was requested. Dave Mrgich asked for feedback within the next week or two.
- Peter Houstle asked if Howard County has done any food scrap sampling. Howard County Schools are wasting 50 pounds per day per school. It was added that some schools have food recovery programs and some do not.

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House Bill 171 Study Group Meeting
Aqua, Aeris and Terra Conference Rooms
1:30PM – 3:30PM
May 17, 2018

Print Name	Signature	Organization	Email Address
Joseph Zack Brandel		Maryland Farm Bureau	Zack@levellandscape.com
Julie Palucka	B. Julie Palucka	Calvert County Gov't	julie.palucka@calvertcountymd.gov
Jon Palma		MD Commerce	jonas.palma@maryland.gov
Matthew Tabisz		Synagro	mtabisz@synagro.com
Keith Ohlinger		Farm Bureau, HSCD, CASA/FH MD Ag Commission SCC.	KOhlinger05@verizon.net
TARIQ MASOOD		MDE	tariq.Masood@maryland.gov
Chris Skaggs		NMWDA	cskaggs@nmwda.org
Laura Cattell NOW		Alice Ferguson Foundation	lcattell@fergusonfoundation.org
Linnea Bogaerts		AAC	pwboog22@aacounty.org
Kenneth A. Clare		Prince George's Cty Health Dept	kaclare@co.pg.md.us

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House Bill 171 Study Group Meeting
Aqua, Aeris and Terra Conference Rooms
1:30PM – 3:30PM
May 17, 2018

Print Name	Signature	Organization	Email Address
Godfrey Ampadu		Montgomery County	Godfrey.Ampadu@montgomerycountymd.gov
Lori Finafrock		Frederick County DSWM	lfinafrock@frederickcountymd.gov
Edward Dexter		MDE Solid Waste	ED.DEXTER@Maryland.gov
Walid Saffouri		MDE - ECPP	walid.saffouri@maryland.gov
Jennifer Nitsch		MDE	jennifer.nitsch@maryland.gov
Adela Aceto		MD Food Bank	AACETO@MDFoodBank.org
Melvin Thompson		Restaurant Assoc. of MD	mthompson@marylandrestaurants.com
Mark Mahley		Reformed Organics	MARKMAHLEY@REFORMED.com
Mario Cora		MDE ARA	MARIO.CORA@maryland.gov
Jeff Hau		—	Jabh@outlook.com

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1:30PM – 3:30PM
May 17, 2018

Print Name	Signature	Organization	Email Address
Gemma Evans		MD-DC Compost Council	gevans@howardcountymd.gov
Brian Houser		MRN	bhouser@mainemanagement.com
Brenda Platt	B Platt	ILSR	bplatt@ilsr.org
LINDA BILSENS		ILSR	lbilsens@ilsr.org
GARY FELTON		U. MD	
CHRIS CLARK		MEA	Chris.Clark1@maryland.gov
PATRICK SERFASS		ABC	pserfass@attcorp.com
Pam Kasemeyer		MWA / Schwartz Metzgers	pmetz@smwpa.com
Julie Roberts			
Doug Myers		Chesapeake Bay Foundation	dmyers@cbf.org

July 16, 2018, Study Group Meeting

Environment Events Calendar for Maryland

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Event Details

Study Group Meeting to discuss House Bill 171 Yard Waste, Food Residuals, and Other Organic Material

Start Date: 7/16/2018 **Start Time:** 1:00 PM
End Date: 7/16/2018 **End Time:** 3:00 PM

State Agency(s)
Environment

Event Description:
Study Group Meeting to discuss House Bill 171 Yard Waste, Food Residuals, and Other Organic Materials Diversion and Infrastructure
The bill requires the Department, in consultation with certain persons, to study and make recommendations regarding specified matters that relate to the diversion of yard waste, food residuals, and other organic materials from refuse disposal facilities, including the status of infrastructure in the State.

Location Information:
Maryland Department of the Environment
1800 Washington Blvd
First Floor Conference Rooms
Baltimore, MD 21230

Contact Information:
Name: David Mrgich
Phone: 410-537-3314
Email: dave.mrgich@maryland.gov

MARYLAND DEPARTMENT OF THE ENVIRONMENT

Land and Materials Administration • Resource Management Program
1800 Washington Boulevard • Suite 610 • Baltimore Maryland 21230-1719
410-537-3314 • 800-633-6101 x3314 • www.mde.maryland.gov/composting

HB 171 – Yard Waste, Food Residuals, and Other Organic Materials Diversion and Infrastructure Study

Study Group Meeting
July 16, 2018 1:00 PM – 3:00 PM

Minutes

Attendance: Julia Mooney*, Dave Mrgich*, Christy Bujnovszky*, Kaley Laleker*, Tariq Masood*, John Sullivan*, Stephanie Cobb-Williams*, Dwight Dotterer (for Hans Schmidt)*, Brenda Platt*, Maria Meyers, Steven Birchfield, Ben Fischler*, Erin Young, Adria Aleto*, Joana Pei, Kristyn Oldendorf, Andrew Cassilly*, Joseph Zach Brendel*, Gemma Evans*, Jeff Dannis, Chris Skaggs, Linnea Boogades, Darla Garrett, Abbey Roswell, Melvin Thompson*, Linda Norris Waldt, Susan Kornacki, Peter Ettinger, James Palma*, Pam Kasemeyer*, Doug Myers*, Alan Pultyniewicz, Keith Ohlinger

On the phone: Patrick Serfass*, Laura Cattell Knoll*, Jane Thery*, Julie Paluda*

*Study Group Member

Introduction

Dave Mrgich provided a brief introduction and overview of the meeting agenda. Information and study group resources are available on the webpage.

Gemma Evans pointed out a typo to be corrected in the May meeting minutes. Patrick Serfass added that the recommendation to develop a permitting guidance document for anaerobic digestion is not clearly stated in that section of the draft meeting minutes. The edits have been made and the May 17, 2018 meeting minutes are approved.

Laws and regulations of other states, including Massachusetts, Connecticut; Vermont; California, and Rhode Island, governing the diversion of yard waste, food residuals and other organic materials
Erica Chapman
Office of the Director
Land and Materials Administration
Maryland Department of the Environment

- Erica Chapman specified that the whitepaper has been updated since the previous meeting and that more information is available in the whitepaper than in the presentation.

- California
  - Brenda Platt asked if the recycling rate includes plastic, etc. Erica Chapman pointed out that food and yard waste is increasingly disposed because there is not enough composting and anaerobic digestion facilities to take it.

    - Patrick Serfass noted that green waste can be used as alternate daily cover, but it doesn't count as recycling. He asked if this use of green waste has impacted California's recycling rates since the law went into effect? Erica Chapman stated that there is not enough capacity to deal with the increase of green waste. She added that there isn't a full analysis yet because the law was enacted mid-2016, and this report included all 2016 waste generation data.
- Massachusetts
    - Massachusetts generators are mostly composting rather than food donation, in order to avoid food safety concerns of food donation and to allow for centralized waste management.
    - Study demonstrated overall the waste ban has increased organic waste and led to the growth in the organic waste industry.

- Vermont
    - Vermont haulers are having difficulty collecting food residuals and yard waste in rural areas.
    - Gemma Evans asked if the fast trash or bag-drop sites are offered at apartments and condos? No, fast trash or bag-drop sites are drop off centers for residences not serviced by curbside pickup. By law, waste haulers that operate fast trash or bag-drop sites must offer food waste and yard waste services at these sites.
    - Patrick Serfass noted that Vermont stands apart from other states organic waste bans, because it goes all the way down to generators on the residential level (below commercial). The incorporation of food recovery hierarchy language encourages building new recycling infrastructure down to the residential level. Everyone has to find a way to recycle food waste. It addresses need for new infrastructure.

- Rhode Island
    - Patrick Serfass noted that the tipping fee structure in Rhode Island would not work well in other states. He expressed concerns that a food waste recycling requirement would create an environment where composting facilities would be able to raise fees to their customers. He added that in Rhode Island there's an escape clause for generators. If they're afraid they're being charged too much in tipping fees in comparison to landfills, they can get an escape to not have to handle food waste. He noted that it works in Rhode Island because there is a control of pricing in Rhode Island government.

- Doug Myers asked how proficient are the laws meant to promote new infrastructure for citing new recycling facility space and noted that this will impact capacity.
- Gemma Evans asked if presentations will be available on the website. Dave Mrgich replied yes, the presentation will be available on the website.
- Patrick Serfass asked to add Colorado to the list of states with different tax fees and rates.

Yard Waste, Food Residuals, and Other Organic Materials Diversion and Infrastructure Study Applicability of Commerce Programs
James Palma, AlCP
Maryland Department of Commerce

- Economic Development Opportunities Program Fund (Sunny Day) can be used by any agency as long as it meets the guidelines.

- Darla Garrett clarified regarding Maryland Industrial Development Financing (MIDFA) that Commerce only ensures a portion of the commercial loan if something goes wrong. Offering collateral shortfall.

Recommendations Discussion

- Doug Myers noted that no state has the perfect program and believes that Maryland has the ability to pick the best parts. He wants to look at the whitepaper and put components together. He added that the geographic components are important for grants and funding and requested plotting a grants geographic restriction along with large generators using GIS to show what's available and where. He argued that facilities are planned around the source which might not be located in PFAs and limiting availability of grants, incentives and funding. He added that the location accounts for transportation costs, etc.
- Doug Myers asked if you can you apply for multiple State incentive programs? James Palma said yes and no. Darla Garrett clarified that you can stack some but not all. She noted that there are restrictions with tax credits and that you can ask for exceptions to PFAs.
- Dave Mrgich asked if the incentive programs are centrally located on the Commerce website so MDE can direct people to that information. James Palma said all resources are available on the web. MDE will place a link to current economic incentives on the Department's Organics Diversion and Composting webpage.
- James Palma added that when siting business location, water and sewer placement is necessary and that makes them likely located in PFAs.
- James Palma noted that there are other agencies with programs that are better suited but are not included in this workgroup.
- Jane Thery noted that on-farm composting is not included in the slides. Erica Chapman stated that Maryland already has composting regulations so she wanted to focus on regulations that Maryland doesn't have, but added that there is some discussion of on-farm composting programs in the whitepaper.
- Erica Chapman noted that California has Recycling Market Developmental Zones which are likely similar to PFAs. She added that California grant and loan programs are included in the whitepaper. She noted that there are provisions to create jobs, match funding, etc. California is not currently accepting new applications because they are back paying. She added that there is a lot of interest in the programs.
- Brenda Platt added that she agrees with Doug Myers that Maryland has the opportunity to pick and choose the best components. She noted that composting is not a focus in incentives, grants and funding discussions in the whitepaper. Erica Chapman responded that the grants discussed do include funding opportunities composting, source reduction and food recovery.
- Erica Chapman noted that you can't ban food waste if the infrastructure isn't in place to handle the food waste. Brenda Platt added that there is an opportunity to promote incentives, grants and funding for schools, food rescue and farmers on a small scale.
- It was added that Connecticut has three anaerobic digestion facilities that are approved but delayed due to financing. Erica Chapman clarified that the facilities have not secured agreements with power companies to buy biogas.
- Brenda Platt recommended that dedicated economic development incentive programs be developed and distributed to both big and small scale operations. Dave Mrgich believes that is outside of the Study Group's ability but the group can make recommendations for specific incentives.
- Erica Chapman will generate a list of her favorite incentives from other states.

- Brenda Platt asked: are there any programs in other states that we can do in Maryland? Are there any anaerobic digestion, composting, food rescue programs that are receiving any grants James mentioned? James Palma responded that Commerce deals with private for profit companies that are not farms (generally). James Palma suggested looking at all programs holistically and not just commerce. James Palma and Darla Garrett do not know of any composting, food waste, etc. that is being currently funded. There is no real dedicated funding for this kind of activity.
- Andrew Cassilly says the goals are broad: to keep food from being wasted, develop commercial composting, anaerobic digestion, etc. How do we target legislation that will assist in each area? What are the obstacles to get infrastructure in place? MDE requires a semi-annual report for composting (.25 cents per ton tax to report). That's tough on a new business. He suggested identifying obstacles like that and put together legislation to help.
- Erica Chapman noted California's GHG reduction grant: food waste prevention and rescue, organic grant program for composting, anaerobic digestion, GHG reduction loan program (all in whitepaper). She added that funds come from cap and trade, fees, etc. Erica stated that the programs look good, but there are a lot of repercussions and things going on in the background.
- Brenda Platt noted that funding is oriented toward single, specific projects that have the largest reduction of GHGs. She countered that small scale projects need to be included in funding and grants (not like California). She adds that the large scale projects are needed in Maryland but the small scale projects are needed too.
- Patrick Serfass agreed with Dave Mrgich's suggestion to dedicate a meeting to create recommendations from this group. He added seven things to the discussion:
    - Use a phased approach: start with low hanging fruit to more complex. Large generators to small generators.
    - Establish incentive for infrastructure to be built to handle all the material. He added that tax credits are good but grants are better.
    - Develop a clear permitting process. He suggested starting with defining the current permitting process. He then said to move forward with removing inefficient things and improve the process.
    - De-packaging equipment is necessary. If food waste is going to be diverted, there needs to be a way to handle it.
    - Do not mix food waste and green waste during collection.
    - If you do collect them separately, collect them in bags, preferably compostable. Couple organics recycling law with encouraging compostable bags everywhere: grocery stores, restaurants (plastic bags). Keeps cost of compostable bags down.
    - Create a market for compost and digestate. He noted that policy needs to find some way to encourage the purchase of materials. It creates revenue to go back. Encourage compost and digestate use in projects.
- Doug Myers thinks there should be an early set of recommendations of what we can do with existing state laws and incentives, and then followed by future legislation including power purchasing agreements.
- Andrew Cassilly noted that there is a task force looking at recycling as well and will put out recommendations. He believes they will be similar and we should work to make them verbatim. He adds that if the recommendations are exactly the same it shows their importance. Kaley Laleker added that she expects the product will be a set of regulations and not recommendations. She said there will be overlap with anaerobic digestion.
- Andrew Cassilly notes contamination in the recycling stream could be partly solved by removing organics from the waste stream and this would help the recycling process.

- Kaley Laleker said the timelines between the workgroups don't exactly line up, but maybe Ed Dexter can provide an update to what is happening in the recycling workgroup. She added that they do not have draft regulations yet, but he can provide an update of their discussions like incidental materials coming into the waste stream that they have to deal with.
- Kaley Laleker asked for opinions regarding the structure of the workgroup going forward. She noted that we currently present a lot of background information but as we get closer to recommendations she asked if it would it be helpful to have calls or meetings in between where we drill into specific topics that are then brought back to the full group? She added that it may be more efficient to get more details on specific topics.
    - Dave Mrgich added that health and safety is next presentation.
    - Doug Myers recommended a full group and break out meeting to concentrate on different issues. Kaley Laleker added that we can also do calls.
- Jane Thery would like to focus on composting and agricultural products including testing, registering and labeling. She recommended promoting Maryland compost as a proud, quality product.
- Gemma Evans added that it would be helpful to have whitepapers, meeting minutes, etc. more in advance of the meeting in order to prepare for the next meeting.

Comments

- Keith Ohlinger added that a local business with extra food, about 100 tons of material per year, was donating food to his farm for animals. He stated that the animals loved it and it was a great material but the employees wouldn't stop putting trash in the baskets like plastic gloves, bags, etc. The trash would harm the animals if they ate it so the extra food is landfilled. He noted that there is no law or financial incentive to encourage the food donation but it didn't work out.
- Zack Brendel noted that farms are looking for more money and to bring money in. He added that a lot of dairy farms are going out of business. He noted that a lot of farms already have area to put in these facilities and some already have equipment, however their uninformed surrounding communities push back.
- Pam Kasemeyer added that the infrastructure development piece will be the hardest to crack. She noted that recommendations need to be strong to get past local barriers.
- James Palma asked if there is a comprehensive list of what we're trying to look at. He asked if we can break it into pieces and the industries they fall under to see what applies.
    - Kaley Laleker noted that the bill laid out several study topics that involve several different stakeholders. She stated that if we want to separate it out, we need to think about what the subgroups will be, identify barriers and develop groups for smaller discussion. She added that a possible group could be markets for finished products.
- Maryland has open market for selling energy. Biogas would be available for energy credits. Possible recommendation would be to keep biogas energy as a Tier 1 resource in the renewable energy portfolio standard.
- Peter Houstle suggested determining how big the market is and finding what the real opportunities are.
- Keith Ohlinger added that some energy company wouldn't buy back energy from self-generating systems.
- Kaley Laleker stated that we'll send out small group suggestion topics to organize breakout sessions.

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Sign-In Sheet
House Bill 171 Study Group Meeting
Aqua, Aeris and Terra Conference Rooms
1:00PM – 3:00PM
July 16, 2018

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Kaley Lukens		MDE	
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Aqua, Aeris and Terra Conference Rooms
1:00PM – 3:00PM
July 16, 2018

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ANDREW CASSILLY		Delegate 35	

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Aqua, Aeris and Terra Conference Rooms
1:00PM – 3:00PM
July 16, 2018

Print Name	Signature	Organization	Email Address
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Alan Pultyniewicz		Montgomery County	alan.pultyniewicz@montgomerycountymd.gov

August 23, 2018, Composting Subgroup Meeting

Sub Group Meeting to discuss House Bill 171 - Composting

Start Date:	8/23/2018	**Start Time:**	9:30 AM
End Date:	8/23/2018	**End Time:**	10:30 AM

Event Description:.

This Subgroup meeting will discuss the obstacles/barriers to composting in Maryland and discuss the recommendations from the HB 171 Workgroup meetings.

Location Information:

Maryland Department of the Environment (View Map)
1800 Washington Blvd
First Floor Conference Rooms
Baltimore, MD 21230

Contact Information:

Name: John Sullivan
Phone: 410-537-3314
Email: john.sullivan1@maryland.gov

MARYLAND DEPARTMENT OF THE ENVIRONMENT
Land and Materials Administration • Resource Management Program
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HB 171 – Yard Waste, Food Residuals, and Other Organic Materials Diversion and Infrastructure Study

Composting Subgroup Meeting
August 23, 2018 9:30 AM – 10:30 AM

Meeting Minutes

Attendance: Adam Diamond, Alan Pultyniewicz, Andrew Cassilly, Brenda Platt, Christy Bujnovszky, Dave Mrgich, Doug Myers, Erica Chapman, Gemma Evans, James Pamela, Jeff Dannis, John Sullivan, Justen Garrity, Kaley Laleker, Linda Bilsens Brolis, Linnea Boogades, Peter Ettinger, Richard Tabuteau, Stephanie Cobb Williams, Steven Birchfield, Tariq Masood, and Vinnie Bevivino.

On the phone: Ben Fischler, Jane Thery, and Pam Kasemeyer

Introduction

John Sullivan provided a brief introduction.

Obstacles/Barriers to Composting in Maryland

John Sullivan described the top obstacles/barriers that had been identified during Study Group meeting discussions.

1. Availability of affordable carbon sources.
2. Capital/financing options for new facilities.
3. Siting/location challenges.
4. Contamination in feedstock
5. Education and outreach including the uses of compost.

Brenda Platt suggested the following additional obstacles/barriers to composting in Maryland:

6. Markets for compost and digestate.
7. Capital/financing options for existing locations.
8. Zoning challenges.
9. More clear regulatory pathway.
10. Technical Assistance

Discussion

The subgroup discussed the following topics and suggestions to increase composting.

1. Continue to identify obstacles regarding grading of compost; look into getting State Chemist approval to consider compost as a soil amendment; work with MDA to improve

outreach to equine industry; and provide training and conduct outreach on benefits of composting.

- Jane Thery recommended promotion, outreach, and marketing of quality compost products. She stated the University of Maryland Extension, Maryland Equine Industry, and Soil Conservation districts should all be involved in the development of an outreach program.
- Kaley Laleker added that MDE could work with MDA on these issues.
- Gemma Evans stated there needs to be improved communication between MDE and MDA to reduce regulatory challenges, facilitate new composting infrastructure, and to collaborate in marketing strategies.
- Doug Myers said MDE should collaborate with MDA to promote composting as a best management practice in the Maryland Healthy Soils Program. The program provides farmers with research, education, technical assistance and financial assistance to improve soil health on farms. Lastly, he pointed out that any marketing/outreach should stipulate the use of compost must be included in the site's Nutrient Management Plan.

2. Survey commercial composters and collect data; and develop online reporting.
   - Andrew Cassilly shared the importance of investments of funding into online data collection systems in order to increase collection of data, tracking and aggregation of data, and dissemination of data in a timely fashion.
   - Doug Myers asked what data or information a data collection system would manage. He stressed the need to build a data collection system around the data you want to collect and the decisions that will be made using the data. However, any data collection systems will increase reporting of organic waste generators and allow for better advocacy to stakeholders. He suggested developing a data collection system as a geodatabase, to allow sources of feedstock to be organized by geographic location.
   - Tariq Masood added that existing composting regulations require operating facilities to report feedstock by country of origin, tonnages of compost produced, and how the compost was marketed; but facilities are not required to report where compost product is sent. There is currently 18 composting facility in operation, and all have submitted reports to MDE.
   - Jane Thery recommended data concerning nutrient management plans of composting sites be incorporated when building a database. Also, it is important that data should be shared with the public.
   - Andrew Cassilly emphasized the need for an online database infrastructure.
   - Brenda Platt stated problems are that reporting is not streamlined and surveys should collect useful data such as 1) obstacles faced by composters, 2) feedstock permitted onsite, and 3) employees and job growth in the industry.
   - Tariq Masood noted that MDE has limited authority to require data submission from composters who are not registered with MDE (i.e. operations exempted under current law), so such requests would be voluntary.
   - Justen Garrity added he does not want to share any additional information outside of what is currently required in the annual reports.
   - Dave Mrgich said questions can be added to the annual reports to collect additional useful data.

- Andrew Cassilly asked why there are only a few commercial composting facilities that collect food waste. He stated Maryland generates more food waste than current facilities can process.
- The members of the subgroup agreed any information collected from an online data collection system needs to be shared with stakeholders in a timely manner.

3. Provide siting assistance.
   - Doug Myers asked whether the State is willing to testify at local zoning hearings to show the benefits of a regional composting facility. Does the State have the ability to participate on a local level?
   - Ben Fischler asked to what extent MDE can facilitate discussions amongst participants in local zoning hearings.
   - Kaley Laleker responded that MDE could and does provide information on how MDE evaluates a proposed composting facility from an environmental view and explain applicable regulations and the permit process. She suggested that MDE can also act as a provider of information such as the GIS maps compiled for this study group that illustrate feedstock availability in relation to composting facilities.
   - Pam Kasemeyer stated siting is the biggest obstacle and that proposed new facilities are shut down on a local level. She suggests there needs to be a coordinated effort between the State and non-profits.
   - Stephanie Cobb Williams responded that the State cannot advocate in local zoning and land use issues. Brenda Platt then asked can MDE do a fact sheet on the permit process and provide model regulatory language to be adopted on a local level. Stephanie Cobb Williams said yes, but we could not provide examples of regulatory language.
   - Pam Kasemeyer asked that the State draft a fact sheet about benefits of composting, the permitting process, and addresses myths and facts about composting. John Sullivan agreed that a fact sheet which can be shared publicly, including at local zoning hearings is a good idea.
   - Doug Myers asked whether the State can lease land to composting facilities.
   - Justen Garrity emphasized that siting and zoning are the biggest challenges that face composting in Maryland. He agreed that since the State is a large landowner, it should make properties available for lease or purchase. Also, he said counties should be encouraged to find space in their zoning codes for compost facilities.
   - Kaley responded we could reach out to other State agencies to find out about the possibilities for leasing or selling state land to composting facilities.
   - James Palma pointed out that if a composting facility is for profit it is still subject to local zoning and land use laws, even if located on State land.

4. Build small-scale composting infrastructure where larger facilities do not exist or are not economically feasible; and encourage expanded composting capacity in underserved areas of the State.
   - Brenda Platt noted the need for decentralized, small-scale composting operations where centralized large-scale composting operations do not exist. We need to conduct outreach to increase local understanding of composting to encourage residential composting sites. Also, we need to encourage generators to compost on-

site. The study group should promote the building of a diverse composting infrastructure in Maryland.

- Doug Myers added we should place special interest on facilitating composting operations in high-density urban neighborhoods. These areas have a lot of food waste with a lack of available space for large-scale composting operations.
- Brenda Platt responded that a solution to facilitating composting infrastructure in urban neighborhoods is a collaboration with local food markets. Also, the EPA hierarchy places anaerobic digestion above composting, but it should be local/small scale composting before large-scale anaerobic digestion or waste to energy. She added that a diverse infrastructure can prevent waste stream contamination which can occur at one large regional composting site and increase the chances of producing high-quality compost.
- Dave Mrgich suggested the EPA waste management hierarchy be discussed with the larger workgroup.

5. Consider whether the existing disposal ban on yard trimmings should be strengthened.
   - John Sullivan reminded attendees that invasive species and poison ivy is an issue at composting facilities. MDA and solid waste managers have informed MDE they do not want to handle these types of plants.
   - Brenda Platt added that Maryland Association of Counties was afraid handling invasive species through composting would be a burden, but invasive species can be properly handled at high temperatures.
   - Steven Birchfield stated that contamination in yard waste is an issue and the law needs to clarify permissible materials and should be strengthened.
   - Dave Mrgich what the group recommends, if anything, to be added to strengthen the existing yard waste law.
   - Jane Thery suggested addressing waste haulers and Pam Kasemeyer added haulers should not be held responsible for generators not complying with the yard waste disposal ban.
   - Kaley Laleker noted that we could look at how other states deal with collection in rural areas, as this has been a difficulty raised when disposal bans have been considered in the past.
   - Erica Chapman suggested having haulers attend a MDE Solid Waste Managers and Recycling Coordinators Meeting to discuss challenges in collecting yard waste.
   - Kaley Laleker noted that some other issues to consider regarding new or expanded disposal bans include how such bans would be enforced and whether they would apply to the generators, haulers, or the collection facility.
   - Andrew Cassilly responded that enforcement activities should focus on yard waste generators and that haulers can report a generator's violation to the MDE for follow up enforcement.
   - Erica Chapman shared that when Vermont enacted their Universal Recycling Law that they instituted a parallel collection, which required collection facilities to start accepting an organic waste at least one year prior to haulers being required to collect the material.

6. Integrate composting and AD into community economic development initiatives.

- James Palma asked if the endgame for composting and anaerobic digestion facilities is to create a product for profit, or is the goal to reduce landfilling of food waste and creating of compost for profit is a second benefit. He stated that small-scale facilities don't' be able to generate compost for profit.
- Andrew Cassilly stated the goal of the HB171 Workgroup is to provide recommendations that can lead to laws that promote both small and small-scale facilities and reduce barriers to development. He does not feel a law is needed to facilitate education.
- Brenda Platt asked whether it is possible to enact a surcharge at landfill facilities to raise revenues for outreach, grants, and loans for community small-scale and on-site facilities.
- James Palma explained that the Department of Commerce focuses on financing for-profit businesses with a product for market. Commerce does not traditionally finance non-profit, farms, community projects, or businesses in the energy sector. Commerce could finance farms that market products to commercial businesses. These businesses can receive financial assistance from MDA, Maryland Energy Administration, and Maryland Agricultural and Resource-Based Industry Development Corporation.
- The subgroup expressed the benefits of the Department of Commerce's financing assistance programs should not just benefit large scale composting facilities.
- Jane Thery stated that horse breeders composting manure are creating a product which serves as a soil amendment.
- Gemma Evans stated that grants are more beneficial than tax credits for starting up new organic waste processing infrastructure, and legislation should be enacted to establish new grant funding.
- Brenda Platt asked what other states offer as financing incentives, and shared she is aware that California administers several financial assistance programs for food waste processing, composting, and anaerobic digestion infrastructure.

7. Justen Garrity shared the following recommendations.
   - The per-ton fee on compost collected by MDA should be repealed. He is charged for every ton his business produces, and the tax does not encourage him to produce more compost.
   - Municipal compost facilities dominate the industry in Maryland because they distribute their compost at a nominal cost and their tipping fees are below market rate. He suggested that permitted municipal compost facilities should be required to conduct market analyses of their pricing every 1-2 years. He stated that fair compost pricing and tipping fees would allow private companies to stay in business and raise funds for taxpayers funding these sites.
   - Tax breaks or financial assistance from either Commerce or other workforce programs should be made available to assist compost operations in locating and training employees. He stated that there is a lack of a workforce for the composting industry and operators often spend 1-2 months training people at their own cost.
   - There should be a mechanism to inspect alleged organic waste collectors to confirm they are transporting materials to registered compost facilities. There are companies which claim to transport materials to composting facilities but these businesses do not

own or operate permitted composting facilities. He shared that registered composting operations lose business to these fraudulent operations.

- He recommended not enacting a food waste disposal ban as it would not create any new compost operations in Maryland. He stated in other states, food waste disposal bans led to an increase in anaerobic digestion facilities, but not composting facilities. There are plenty of food scraps available in the marketplace at this time without a ban.
- Persistent herbicides should be banned in Maryland; their use is holding back manure composting. As it currently stands if he accepts manure tainted with herbicides, he bears all of the risks that go along with that material. He believes the chemical companies should bear the risk. If a ban is not possible, then a product liability fund should be established by the chemical companies to protect companies like his from liability lawsuits.

Public Comments

Jeff Dannis, from the Howard County Government, provided the following comments:

- MDE's policy should be to participate in local zoning hearings.
- MDE needs to provide numbers and information to the counties related to MRA tonnages without a PIA request.
- MDA composting regulations are outdated and do not include the use of compost and mulch as a soil stabilization BMP. The State should use the national standards instead of the State Chemist requirements. Also, MDA and MDE need to collaborate on compost grading regulations.

HB 171- COMPOSTING SUBGROUP MEETING

MDE Headquarters, Baltimore

August 23, 2018

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Christy Bujnovszky	MDE	

August 24, 2018, Anaerobic Digestion Subgroup Meeting

Sub Group Meeting to discuss House Bill 171 – Anaerobic Digestion

Start Date:	8/24/2018	**Start Time:**	9:30 AM
End Date:	8/24/2018	**End Time:**	10:30 AM

Event Description:.
This Subgroup meeting will discuss the obstacles/barriers to anaerobic digestion in Maryland and discuss the recommendations from the HB 171 Workgroup meetings.

Location Information:
Maryland Department of the Environment (View Map)
1800 Washington Blvd
First Floor Conference Rooms
Baltimore, MD 21230

Contact Information:
Name: John Sullivan
Phone: 410-537-3314
Email: john.sullivan1@maryland.gov

MARYLAND DEPARTMENT OF THE ENVIRONMENT
Land and Materials Administration • Resource Management Program
1800 Washington Boulevard • Suite 610 • Baltimore Maryland 21230-1719
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HB 171 – Yard Waste, Food Residuals, and Other Organic Materials Diversion and Infrastructure Study

Anaerobic Digestion Subgroup Meeting
August 24, 2018 9:30 AM – 10:30 AM

Meeting Minutes

Attendance: Alan Pultyniewicz, Chris Clarke, Christy Bujnovszky, Dave Mrgich, Doug Myers, Erica Chapman, Gemma Evans, John Sullivan, Kaley Laleker, Patrick Serfass, Peter Ettinger, Stephanie Cobb Williams, Tariq Masood, and Vinnie Bevivino

On the phone: Ben Fischler, Brenda Platt, Chaz Miller, and Pam Kasemeyer

Introduction
John Sullivan provided a brief introduction.

Obstacles to Anaerobic Digestion in Maryland

John Sullivan went over the top obstacles/barriers that had been identified during Study Group meeting discussions.

1) Lack of financial incentives
2) Siting and location challenges
3) Lack of clear permitting and regulatory guidance
4) Access to capital/financing

Discussion

The subgroup discussed the following topics and suggestions related to Anaerobic Digestion (AD) that were raised in previous study group meetings.

1) Continue to identify obstacles regarding AD.
    - The Subgroup agreed the above are barriers to anaerobic digestion in Maryland, and also mentioned three additional obstacles/barriers:
        - Access to natural gas pipelines;
        - Lack of power purchasing agreements; and
        - Lack of digestate market.

2) Clarify regulatory requirements and identify markets for AD.
    - Doug Meyers requested addressing a comment made by Justen Garrity, owner of Veteran Compost, during the Composting Subgroup meeting that organics disposal bans traditionally benefit anaerobic digestion and not composting. He questioned if a ban was implemented what type of regulations would mutually benefit both anaerobic

digestion and composting. He also suggested that anaerobic digestion regulations address how to accept food scraps from surrounding states and District of Columbia.

- Patrick Serfass noted the importance of streamlining and shortening the anaerobic digestion permit process. He also requested the study group address the MDA cover crops cost-share program which restricts cover crops from being sold to anaerobic digestion facilities.
- Patrick Serfass suggested the following methods for identifying markets for anaerobic digestion:
    - Promoting anaerobic digestion as a nutrient management alternative for generators; and
    - Identifying existing State government markets for digestate, such as landscaping of State-owned land and State Highway Administration projects.

3) Draft an anaerobic digestion permit guidance document.
    - John Sullivan reminded attendees the larger Study Group recommends the creation of an Anaerobic Digestion Permit Guidance Document, modeled after the Composting Permit Guidance Document.
    - Patrick Serfass stated a guidance document would save time drafting project plans, which will ultimately save the project money.
    - Peter Ettinger shared that clarification of which State regulations apply and permits are required would help during a proposed facility's discussion with a county government concerning zoning approvals and land use permits. Project development and the facility's construction becomes delayed when county government and the applicant cannot conclude if the facility has complied with all applicable States requirements.

4) Provide permit exemptions for small-scale and on-farm anaerobic digestion similar to exemptions from composting regulations.
    - Doug Myers suggested permit exemptions for anaerobic digestion operations should include feedstock tonnage permitted, stipulate if water discharges are allowed, and specify any nutrient management requirements.
    - Chris Clark provided an example of an anaerobic digestion project that does not require water discharge permits. He stated a small scale or on-farm digester that uses most of its produced electricity to power the system, parasitic load, and has no effluent discharge may not require water discharge permits. An example is the Planet Found Energy Development Project located on Maryland's Eastern Shore which digests poultry litter. However, the storage of poultry litter and land application of digestate at the site requires a nutrient management plan.
    - Dave Mrgich asked the group what should be added to the statute or regulations as requirements under a permit exemption.
        - Doug Myers stated a requirement that the facility does not discharge to State waters and feedstock threshold.
        - Peter Ettinger responded that clarification of activities allowed or required under existing regulations and permits is more needed than permit exemptions.

    - Brenda Platt asked how other states regulations handle small scale and farm-based anaerobic digestion facilities.
    - Erica Chapman said most states have some type of permit exemption for these types of operations. She shared California's anaerobic digestion regulations permit tiers as an example, which may exempt a facility or require a facility to register or notify the state and local government of certain small-scale and farm-based anaerobic digestions operations. The tier a facility falls in is dependent on the amount of feedstock or end-product generated.
  - Brenda Platt asked if BTS Bioenergy facility is considered small scale. Vinnie Bevivino responded the facility will accept approximately 270 tons of food waste per day and is considered large scale.
  - Patrick Serfass added that along with exemptions, there should be an easier permitting pathway for decentralized site-specific containerized anaerobic digesters located at a commercial generator. A hotel with a containerized anaerobic digester in their parking lot is different from a centralized industrial-scale anaerobic digestion facility accepting regional organic waste.

5) Look into regulations regarding comingling food waste with agricultural waste.
  - Doug Myers shared he was not sure if there need to be regulations governing the comingling of food waste with agricultural waste.
  - Kaley Laleker stated that this recommendation may have stemmed from the discussion of whether an agricultural AD or composting operation could accept organic material generated off-site.
  - Patrick Serfass stated this issue should be handled at the local level.

6) Explore the possibility of co-digestion at wastewater treatment plants.
  - Tariq Masood shared that he reached out to Maryland wastewater treatment plants with anaerobic digesters, who all reported they do not co-digest sewage and food waste at their facilities. They said they would need to upgrade their systems to conduct co-digestion.
  - Erica Chapman said she confirmed with the Department's Water and Science Administration that no wastewater treatments plants have reported co-digestion at their facilities, and that their systems are not currently designed to process food waste.
  - Patrick Serfass proposed instead of recommending co-digestion of sewage and food waste at wastewater treatment plants, the final report discuss the potential co-digestion infrastructure possible if existing facilities undergo system upgrades and identify food waste collection and pre-processing (de-packing and liquefying) infrastructure.
  - Gemma Evans agreed the final report should educate legislators on state infrastructure that could process non-sewage organic waste if upgraded.

7) Consider stand-alone anaerobic digestion regulations and permit.
  - Kaley Laleker clarified that the House Bill 124 workgroup is working on regulations which will specify when a recycling facility does not require a refuse disposal permit. Also, the workgroup thus far is not looking into standalone anaerobic digestion

regulations or a separate permit, but that the recycling facility regulations being developed could include requirements specific to anaerobic digestion facilities as they do for a variety of other recycling facility types. She suggested that the recommended Anaerobic Digestion Permit Guidance Document be drafted using present State regulatory requirements and upgrade as needed.

- Brenda Platt asked if digestion of source separated and mixed waste feedstock will be addressed in the HB 124 workgroup proposed recycling facility regulations. She also asked if anaerobic digestion of mixed waste would be covered under any proposed regulations.
- Kaley Laleker responded there are already Department regulations for solid waste (mixed waste) processing and the HB 124 workgroup is focusing on source-separated feedstocks.

8) Establish an Agricultural AD Technical Assistance Program.
   - Erica Chapman shared the Vermont Cow Power Program's Agricultural Anaerobic Digestion Ombudsman that served as a consultant who assisted farmers in the development of a total of 16 anaerobic digestion projects.
   - Brenda Platt stated Maryland needs a technical assistance program with a paid position which provides assistance for both anaerobic digestion and composting projects.
   - Patrick Serfass added that a technical assistance program should also focus on organic waste generators to help them reduce waste and educate food scraps generators, like restaurants, on legal liability protections.
   - Doug Myers shared that the Chesapeake Bay Foundation, funded by the Chesapeake Bay Program's Innovative Nutrient and Sediment Reduction grants program, created a technical assistance position. The 3-years grant program funded a clean water expert provided technical assistance to Eastern Shore municipalities trying to reduce water pollution. He requested that an AD technical assistance program also help proposed organic recycling facility negotiate with banks for loans.
   - Gemma Evans asked if a technical assistance program could help a proposed organic recycling facility navigate local zoning requirements.
   - Brenda Platt added that a technical assistance program should include assistance for decentralized anaerobic digestion, composting, and site-specific operations. Also, it should include outreach to waste generators looking to reduce and recycle waste.

9) Consider how to include anaerobic digestion as recycling under the MRA.
   - Brenda Platt asked if anaerobic digestion is currently counted as recycling under the Maryland Recycling Act (MRA).
   - Dave Mrgich explained that anaerobic digestion is counted towards a county's MRA rate if recyclable feedstock inputted into an AD system and results in a recyclable byproduct. The production of energy, ash, or pellets does not count.
   - Gemma Evans asked if the MDE is concerned with both the input and output at an AD facility when calculating a MRA rate.
   - Dave Mrgich responded the MDE is concerned with both.
   - Brenda Platt stated that since AD can be used to process mixed solid waste, it should not be counted as recycling under the MRA. She believes that AD does not confer the

same waste recovery benefits as composting and is more similar to mixed waste incinerators.

- Dave Mrgich stated the MRA is specific on how to deal with solid waste incinerators. In regards to AD, if the byproduct is recycled then the material inputted into the system is counted as recycled under the MRA.
- Kaley Laleker explained the MRA is designed to encourage counties to divert solid waste from disposal; therefore we would count the feedstock being diverted from disposal through AD when calculating the MRA rate.
- Patrick Serfass added that there are examples of AD facilities where the primary purpose is to produce high-quality digestate and not energy. He agreed that AD facilities do need to deal with handling contaminated waste streams.
- Doug Myers asked whether the workgroup should encourage ammonia capturing as a co-benefit of AD since it reduces discharges into the Chesapeake Bay, or should ammonia capturing technologies be required in regulations.
- Brenda Platt responded that she wants to be sure any proposed AD regulations specify the input and output eligible as recyclable, as well as to go on record that she does not support mixed waste feedstocks used in AD as being considered a recyclable input under the MRA.

10) Explore economic incentives.

- Doug Myers suggested the study group address low local tipping fees which make it cheaper to dispose of recyclable waste.
- Brenda Platt recommended a statewide surcharge to fund grants programs for anaerobic digestion and composting projects.
- Peter Ettinger shared the need to educate proposed facilities and waste generators on economic incentives available to them.
- Doug Myers responded that Department of Legislative Services would be better equipped to identify all current State grant and loan programs by reaching out to all State executive agencies and departments.
- Patrick Serfass recommended promoting the Maryland Nutrient Trading Program to incentivize AD infrastructure.

HB 171- ANAEROBIC DIGESTION SUBGROUP MEETING

MDE Headquarters, Baltimore

August 24, 2018

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August 28, 2018, Food Donation/Source Reduction Subgroup Meeting

Sub Group Meeting to discuss House Bill 171 – Food Donation/Source Reduction

Start Date:	8/28/2018	**Start Time:**	9:30 AM
End Date:	8/28/2018	**End Time:**	10:30 AM

Event Description:

This Subgroup meeting will discuss the obstacles/barriers to food donation/source reduction in Maryland and discuss the recommendations from the HB 171 Workgroup meetings.

Location Information:

Maryland Department of the Environment (View Map)
1800 Washington Blvd
First Floor Conference Rooms
Baltimore, MD 21230

Contact Information:

Name: John Sullivan
Phone: 410-537-3314
Email: john.sullivan1@maryland.gov

MARYLAND DEPARTMENT OF THE ENVIRONMENT
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HB 171 – Yard Waste, Food Residuals, and Other Organic Materials Diversion and Infrastructure Study

Food Donation / Source Reduction Subgroup Meeting
August 28, 2018 9:30 AM – 10:30 AM

Meeting Minutes

Attendance: Alan Pultyniewicz, Delegate Andrew Cassilly, Christy Bujnovszky, Dave Mrgich, Dwight Dotterer, Erica Chapman, John Sullivan, Julia Mooney, Kathy Egon, Melvin Thompson, Michelle Wright, and Roni Neff.

On the phone: The conference call card was unavailable.

Introduction

John Sullivan provided a brief introduction.

Obstacles / Barriers to Food Donation / Source Reduction in Maryland

In addition to the barriers to food donation discussed in previous meetings, the following additional barriers were identified.

- Connecting food donors with places that accept food donations. Erica Chapman noted that there are generators that want to donate food but have trouble identifying places which will accept the food. She suggested a barrier is facilitating food recovery partnerships.
- Staff support for processing food for donation.

Discussion

The following potential suggestions and recommendations to increase food donation were discussed.

1) Continue to identify obstacles regarding Food Donation/Source Reduction; consider enhancements to existing liability protections and tax credits for donors are needed to improve participation in food donation programs; and expand the State Good Samaritan law to include liability protections for direct donations as well as donations at a nominal fee.

- Erica Chapman noted that California added a provision to its Good Samaritan Law that requires inspectors to educate facilities on the laws liability protections as a way to increase knowledge and encourage the donation of more food. She suggested a similar program that can be conducted by MDH inspectors at food facilities and MDA inspectors at farms.

- Erica Chapman noted that Maryland's Good Samaritan Law provides civil liability protection, but not criminal liability protection. She added that presently, a donation must pass through a non-profit before distribution to an end user free of cost in order to be protected when distributing food to the end user.
- Andrew Cassilly added that the challenge with donation surplus food from schools is that it has already been served. He stated that it is challenging and timely to prepare for donation previously served food. He believes we should focus on the commercial food generators (including farmers) and the school piece can be done through informal communication outside of legislative action.

2) Increase outreach and education on food donation opportunities; and increase education on and consistent implementation of public health regulations regarding food donation.

- Andrew Cassilly noted that he has talked to farmers and grocery stores. He agreed that there is a big fear of liability. He stressed that we underestimate barriers to using food waste for animal feed. He explained that there is not a one size fits all solution for farmers accepting food scraps as animal feed, and we need to stay generic enough to let counties piece it together.
- Erica Chapman suggested creating guidance for people who want to have a food donation program that specifies how to handle temperature sensitive food, transportation requirements, date labeling, storage requirements, a list of what foods programs should and should not accept. The guidance could be provided to food banks and schools. She noted that the guidance could be one small section in existing MDH food preparation regulations and should be simple.
- Andrew Cassilly reiterated that the fear of liability is a key component that we need to address.
- Kathy Egon added that the Food Bank provides ServSafe training, in conjunction with Feeding America, for food banks. She suggested approaching ServSafe and Feeding America to create an abbreviated training to food donation programs and to make available to schools.

3) Promote school food recovery programs and explore a better partnership between the Maryland Food Bank and Schools; and explore economic incentives.

- Kathy Egon noted that the Maryland Food Bank has 1,100 partners including some food pantries, soup kitchens, etc. The Maryland Food Bank asks that the partners abide by guidelines provided by Feeding America.
- Roni Neff added that there is a vast amount of plate waste. She noted that USDA has good modules for schools where they measure and train the kids about reducing waste. Education and measurement about reducing food waste should be included in the training.
- Melvin Thompson asked if this suggestion pertains to K-12 or higher education. Erica Chapman clarified that this corresponds to K-12 public and private schools, as well as universities.
- It was suggested to collect unserved food in school cafeterias to donate and divert uneaten food for composting. It was noted that large amounts of food scraps are generated because schools under the Nutrition Standards and National School Lunch and

Breakfast programs are required to serve balanced meals and specific food items even if the kids do not want them.

- Erica Chapman added that school cafeterias may order too much food and add to food waste.
- It was recommended to promote green schools programs and/or green coordinators to help in food recovery efforts.
- Roni Neff suggested creating grant programs to provide funding to establish green schools programs and/or paid green school coordinator positions. She encouraged the group to recommend food source reduction as part of a green school program. For example, she added that studies show kids eat more lunch when recess is before lunch.

4) Improve data collection regarding infrastructure gaps for food donation.
   - Andrew Cassilly said that there needs to be funding for collecting and analyzing data on food facilities' food recovery practices. Erica Chapman added that she contacted food banks, restaurants, and other food facilities to collect data on their food recovery programs but received limited response to her survey. Erica Chapman suggested adding food recovery questions to existing annual reports these generators complete to collect this information. Andrew Cassilly agreed and suggested developing an online platform to gather lots of data from generators.

5) Explore economic incentives.
   - Melvin Thompson believes there is a qualified farm tax credit. It is a pilot program through 2019 that allows qualified farms to claim an income tax credit for eligible produce donations. It is only in certain Maryland counties. He suggested looking at its success and possibly expanding and extending the program.
   - Andrew Cassilly asked how Good Will handles tax incentives. It was clarified that the donor completes the donation slip. Donors are allowed to claim up to a certain dollar amount without details or any monetary amount with detailed information about the donation as proof.
   - Kathy Egon noted that the Maryland Food Bank has two people who have a lot of information. She added that the Maryland Food Bank has a Farm to Food Bank program. She stated that they have contracts with farmers that are promised a certain amount of money for crops purchased by or gleaned and donated to Maryland Food Bank.
   - Roni Neff noted that the food recovery tax incentives are difficult to obtain logistically. She added that farmers are interested in help for packaging, gleaning, etc. in the donation process. They were also interested in recognition programs. Erica Chapman suggested a farmer spotlight that encourages food recovery activities of food banks, farmers, etc.
   - Andrew Cassilly believes that green school recognition is good motivation for schools.
   - It was asked if tax incentives are a high priority for the restaurant industry. Melvin Thompson is certain that some bigger chain restaurants would be interested in tax incentives but transportation and staffing challenges are high priorities for smaller restaurants. He also mentioned Food Donation Connection, which serves as a food donation consultant for food service facilities, as an example of an organization addressing these challenges.
   - Erica Chapman suggested sales and property tax incentives for purchasing refrigerators, cars, and other equipment used for food donations.

- Kathy Egon discussed sharing expenses of donated food transportation. She noted that the Maryland Food Bank is not allowed to charge anyone for donated food, but to cover the transportation, storage, and other processing of donated they have a shared maintenance fee paid by donated food distribution programs. For continuity in the Maryland food donation industry, she recommended using the same "shared maintenance fee" language instead of a "nominal fee."

6) Continue to identify obstacles regarding Food Donation/Source Reduction
   - Erica Chapman suggested encouraging local grocers not to use country of origins labels and PLU stickers on produce. Andrew Cassilly suggested making the labels biodegradable, or edible or both to give the manufacturer options.
   - It was noted that food labels, outside of date labeling, were not addressed in HB 171 study group.
   - Roni Neff added that there is a voluntary standard of "Best if Used By" and "Use By" for food date labeling.
   - It was recommended to add liability protection to food donated after the sell-by date, excluding certain foods.
   - Dwight Dotterer added that water runoff is an issue for composting on farms and there are concerns of odor and flies at composting sites. He added that there is a lot of demand for the waste by-products on farms, and farms have an existing structure to handle waste. Also, farms processing food waste on farms have to include composting operations in their Nutrient Management Plans.
   - Melvin Thompson believes he has model legislation for food donation tax incentives and will email it to Erica Chapman.
   - Chaz Miller (via email) noted that the recommendations from the subgroup are solid. He added that we should expand the list of barriers to include insufficient public knowledge of food donation and waste reduction opportunities. He added that the subgroup covers the most immediate and quickest way to reduce food waste and believes public involvement will expand with better knowledge of how to donate and reduce food.

7) Increase outreach and education on food donation opportunities.
   - Alan Pultyniewicz suggested providing technical assistance and resources for small business that would like to participate in food recovery programs.

HB 171- Food Donation/Source Reduction Subgroup Meeting

MDE Headquarters, Baltimore

August 28, 2018

Name	Affiliation	E-mail
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Christy Bujnovszky	MDE	
Dave Mrgich	MDE	
~~Joann Erica Chaporcan~~ Julia Mooney	~~MDE~~ MDE	

Name	Affiliation	E-mail

September 20, 2018, Study Group Meeting

Environment Events Calendar for Maryland

Event Details

Study Group Meeting to discuss House Bill 171 Yard Waste, Food Residuals, and Other Organic Material

Start Date: 9/20/2018 **Start Time:** 1:00 PM
End Date: 9/20/2018 **End Time:** 3:00 PM

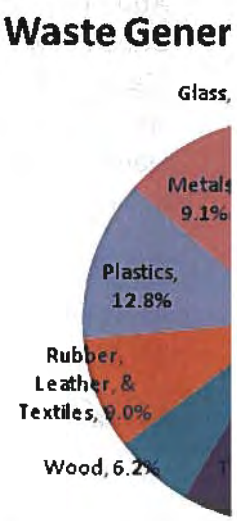
State Agency(s)
Environment

Event Description:
Study Group Meeting to discuss House Bill 171 Yard Waste, Food Residuals, and Other Organic Materials Diversion and Infrastructure.
The bill requires the Department, in consultation with certain persons, to study and make recommendations regarding specified matters that relate to the diversion of yard waste, food residuals, and other organic materials from refuse disposal facilities, including the status of infrastructure in the State.

Location Information:
Maryland Department of the Environment
1800 Washington Blvd
First Floor Conference Rooms
Baltimore, MD 21230

Contact Information:
Name: David Mrgich
Phone: 410-537-3314
Email: dave.mrgich@maryland.gov

Compostable materials such as food scraps and yard trimmings make up nearly 30% of all municipal solid waste generated in the U.S. Instead of disposing of this material in landfills and incinerators, composting uses organic material to create a valuable product with environmental and economic benefits, including greenhouse gas emissions reductions and green jobs.



Recycling of some organic materials, such as yard trimmings and manure, is widespread in Maryland. One area of growing interest is food scraps diversion. Though only an estimated 9.6% of food scraps was recycled in Maryland in 2014, much of the remaining material could be prevented, used to feed humans or animals, or composted.

For additional information on Food Scraps Management in Maryland visit the Department's Food Scraps Management web page.

Announcements

House Bill 171 – Department of the Environment – Yard Waste, Food Residuals, and Other Or and Infrastructure – Study

Subject: Public Meeting

Date and Time: Thursday, September 20, 2018; 1:00 PM to 3:00 PM New!

Future meetings will be canceled and rescheduled if State offices are on liberal leave or are closed. Details on State Department of Budgement and Management's Special Closings of State Buildings, Liberal Leave and Emergency Infc

Parking: Study Group attendees will park in the Blue Lot and enter the building through the tunnel (located at the bac lot). The Blue Lot is on the left, prior to the railroad tracks if approaching from 83 or traveling north on Washington Blv Lot and the railroad tracks if approaching from Baltimore City or Monroe St.

Call-In: Study Group members ONLY have the ability to call into the meetings. The multi-party conference line accor Group members should contact the Department for the call-in number.

Place: Maryland Department of the Environment, 1800 Washington Blvd., Baltimore, MD 21230

Documents: Documents for the meeting are available in the House Bill (HB) 171 Study Group section, below.

Add'l Info: The Maryland Department of the Environment (the "Department") has scheduled a meeting of the study gro Department of the Environment – Yard Waste, Food Residuals, and Other Organic Materials Diversion and Infrastructure Maryland Department of the Environment (the "Department"), in consultation with certain persons, to study and make rec specified matters that relate to the diversion of yard waste, food residuals, and other organic materials from refuse dispo status of infrastructure in the State. The complete text of the bill is available at http://mgaleg.maryland.gov/2017RS/Cha hb0171e.pdf.

Meetings are tentatively scheduled to occur every other month in 2018. If necessary, more frequent meetings will be sch anticipated that, even if additional meetings are necessary, study group meetings will take place no more than once per will be posted here and on the Department's Public Meeting Calendar web page.

Contact: David Mrgich, 410-537-3314

House Bill (HB) 171 Study Group

HB 171 text.

HB 171 Study Points. This April 16, 2018, revised document lists the tentative order for study topics to be addressed by

September 20, 2018, Study Group Meeting New!

September 20, 2018, HB 171 Agenda
September 20, 2018, HB 171 Topic 7 - Identify any applicable sanitary and public health concerns White Paper (Coming

July 16, 2018, Study Group Meeting

July 16, 2018, HB 171 Agenda
July 16, 2018, HB 171 Topic 2 - Other State Laws (con't) White Paper
July 16, 2018, HB 171 Topic 6 - Incentives Relevant to Organic Materials Diversion White Paper

July 16, 2018, HB 171 Meeting Minutes (Draft)

May 17, 2018, Study Group Meeting

MARYLAND DEPARTMENT OF THE ENVIRONMENT
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HB 171 – Yard Waste, Food Residuals, and Other Organic Materials Diversion and Infrastructure Study

Study Group Meeting
September 20, 2018 1:00 PM – 3:00 PM

Minutes

Attendance: Alan Pultyniewicz, Delegate Andrew Cassilly*, Bill Teter, Brenda Platt*, Charlie Reighart, Christy Bujnovszky*, Chris McCabe, Clifford Mitchell, Dave Mrgich*, Dwight Dotterer*, Ed Dexter, Erica Chapman*, Erin Young, Gemma Evans*, Jeff Dannis, Jeff Harp, John Sullivan*, Julia Mooney*, Kaley Laleker*, Keith Losoya*, Kevin Serron, Les Knapp, Linnea Boodgades, Melvin Thompson*, Patrick Serfass*, Perez Ettinger, Pichard Tabuteau, Phil Davidson, Steven Birchfield, Tariq Masood*, Taylor McCandless, and Wendy Doring.

On the phone: Ben Fischler* and Jane Thery*

*Study Group Member

Introduction

Dave Mrgich provided a brief introduction and overview of the meeting agenda. Information and study group resources are available on the webpage.

Phil Davidson with the Maryland Department of Agriculture (MDA), State Chemist briefly discussed registering digestate as soil conditioner or fertilizer. He noted that the same material can be registered as either a soil conditioner or a fertilizer. If a material is registered as a fertilizer it is a legal claim to the percentage of nutrients (nitrogen, phosphate, potassium, and other nutrients) in the digestate. He specified that the operator must be able to guarantee a batch consistency and that an applicant must submit lab testing and metals report. An alternate would be to register the digestate as a soil conditioner. He noted that this is an easier route and the material doesn't have guaranteed nutrient composition. Mr. Davidson stated that the MDA registers a lot of products as soil conditioners.

Mr. Davidson added that if you compost organic materials properly, the finished product will have no odor and people will want to land apply it. He noted that the problem with composting is leachate and lab reports required under MDA. He stated that testing is required for operators of composting facility to certify their competency to produce compost.

An email address for Phil Davidson is available if you have questions (philip.davidson@maryland.gov).

Brenda Platt had points for discussion with Phil Davidson:

1. How much is the fee that compost processors are charged to register the product? What is it used for? The fees are an annual registration fee and is a semi-annual tonnage inspection fee. The registration fee of 15 dollars or 30 dollars, depending on weight of packages distributed, is owed annually along with an inspection fee at the rate of 25 cents per ton distributed owed when the operator submits their semi-annual Tonnage Report to MDA. The funds from these fees are deposited into the State Chemist Fund to administer the State Chemist Program, offset the cost of inspection, sampling, analysis, data collection, and reporting related to pesticides and soil amendments (fertilizers, compost, and conditioners). Both the fees and use of the fees' revenues is authorized in the State statute.
2. Are there exemptions for small compost sites? Phil Davidson stated that small compost sites are exempt from the regulations as long the operation does not distribute their compost products offsite.

Patrick Serfass added that the American Biogas Council rolled out a standard for digestate quality (http://www.digestate.org/).

Health and Safety Concerns
David Mrgich, Division Chief
Waste Diversion Division
Maryland Department of the Environment

- David Mrgich presented the Health and Safety Concerns Presentation. The presentation is available online.
- Tariq Masood noted that there are 22 active composting facilities and four are permitted but not operational. There are five active facilities and two are being established as Tier 2 facilities.

Natural Wood Waste (NWW) Facilities; Existing Controls
Ed Dexter, Program Manager
Solid Waste Program
Maryland Department of the Environment

- Ed Dexter presented NWW facilities and existing controls used to protect against discharges into State waters. The presentation is available online.

Composting: Environmental Health Issues
Clifford S. Mitchell, Director
Environmental Health Bureau
Maryland Department of Health

- Clifford Mitchell presented environmental health issues associated with composting. The presentation presented results from studies related to occupational health effects as a result of workers' exposure to vapors, pathogens, and other residuals at composting facility. These studied as examined the health effects workers and not surrounding communities. Also, studies did not focus on exposure to odors.
- The presentation is available online.

Discussion

- Delegate Andrew Cassilly asked if the adverse health effects of being next to a composting facility are equal to living next to a state park. Clifford Mitchell is most concerned for people working at the compost facility. He added that you are biologically exposed to the same things at a state park that you are at a compost facility.
- Brenda Platt asked if the studies accounted for the type of composting facility. Clifford Mitchell responded that the analysis looked at many systems and at many different points in time. He added that the data has more literature from Europe than the U.S.
- Jane Thery added that the studies don't address on-farm composting. She feels that some of this discussion is missing composting of horse manure. Dr. Mitchell stated that he did not look specifically at horse manure and cannot say if horse manure was included in the studies presented.
- Dave Mrgich asked if you would find similar affects from commercial composting to small scale composting. Dr. Mitchell agrees, but stated there would be different health impacts from organic material versus natural wood waste composting.
- Brenda Platt added that the MDA Compost Operator training mentioned by Phil Davidson teaches operators how to avoid many of those concerns.
- Brenda Platt asked what the cost would be if we wanted to do a Maryland specific study. Dr. Mitchell said that it would not be cheap for a well-designed study. He noted that adequate sampling, statistical reliability would be required and will impact costs. He estimates that a good study of one facility would cost $100,000. He added that this is an estimate.
- Brenda Platt asked what Dr. Mitchell's recommendations are for the study group. He stated that he can provide a longer list of additional studies and more literature. He added that off-site detection reaches baseline air quality levels very quickly. He notes that occupational health is most concerning according to the literature.
- Brenda Platt mentioned a zoning battle in Howard County for on-farm composting and mulching. She added that the community won against the farmers by using data on health impacts and argued a composting facility would cause lots of problems. She added that the State needs to counter the protest, promote composting facilities and educate the public. Dr. Mitchell stated that there is data you could use to anticipate exposure that could be caused by a new facility.
- Dave Mrgich asked what the distance is until air quality goes back to ambient levels. Dr. Mitchell stated that Europe uses a reference standard of 250 meter setback for restoration to ambient levels, and noted he the data supports this setback.
- Brenda Platt asked if the Department of Health (MDH) offers similar health impacts for incinerators, Concentrated Animal Feeding Operations, etc. Dr. Mitchell stated that point source emissions are regulated by MDE or co-regulated with the MDH. He added that most regulated sites are constructed to minimize odors and other air pollutants. He stated that odors are an irritant and not a generally a health threat, but there may be individualized health impacts to people who suffer from respiratory conditions.
- Kaley Laleker noted that the scope of this group is to develop recommendations for outreach to promote composting, and identify public health and sanitary concerns. She

added that the study group can recommend the creation a public document that will hopefully alleviate concerns.

- Brenda Platt said she would like share the report, but to balance a summary of health impacts with the benefits of diverting the wastes versus sending to disposal.
- Delegate Andrew Cassilly restated that health effects are no greater than living next to a state park.
- Erica Chapman noted that European setback is more than American. Kaley Laleker said that in final report we will try to capture the presentations and we will run the report section by Dr. Mitchell to verify its accuracy.
- Dave Mrgich doesn't think a Maryland study is necessary and stated that the data is pretty consistent across the literature.
- Brenda Platt recommends looking at the MDA Compost Operator training exam and maybe incorporating it in the training to enhance operator knowledge (e.g. avoid dust, particulates, and volatile organic compounds).
- Kaley Laleker asked if there are sample questions from a past exam so we can see what information is covered.
- Jane Thery added that horse farms are not in the composting business and something for on-farm composting is needed.
- Gemma Evans asked when the test was last updated. Phil Davidson said the test was created in 1991 and noted that there are not regular updates. Gemma Evans said maybe we should recommend updating the exam and update resources provided.
- Jeff Harp read his comments on composting health concerns (a copy of Jeff's comments is available).
- Jeff Dannis stated that from an engineering point of view there is a significant difference between US standards and European standards. He noted that the numbers were elevated beyond the measured unit (250 m). He added that composting facilities have trucks that dump, operators pick up and grind material, drops again to ground, every time the pile flips the mold spores can be thrown into the air and this is not the same as a leaf hitting the ground in a state park. He noted that spores were measured downwind from composting facilities as far as 900 feet away. He suggested looking at setbacks and consider changing them. Jeff asked if we want to have setbacks for indoor composting facilities or do we need similar setbacks. Jeff additionally suggested personal protection equipment (PPE) for employees and noted that there's nothing in the regulations that talks about PPE for employees at these facilities.
- Brenda Platt added that she talked to US Composting Council and would forward an email on the study.

Dave Mrgich discussed the study group's next steps. He added that the minutes for the subgroups were drafted and expects them all to be sent out before the next meeting for everyone's feedback. He noted that the goal is to finish the remaining topics at the next meeting. MDE will draft the Final Report and distribute to study group members sometime in January 2019 for review and discussion. The report is due to the legislature by July 1, 2019.

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Sign-In Sheet
House Bill 171 Study Group Meeting
Aqua, Aeris and Terra Conference Rooms
1:00PM – 3:00PM
September 20, 2018

Print Name	Signature	Organization	Email Address
Kaley Lalcka		MDE	
Matthew Huda		JHU/EHD	
Clifford Mitchell		MDH	
Andrew Cassilly		~~MA~~ Rebgaka 25 b.	
TARIQ MASOOD		MDE	tariq.masood@maryland.gov
John Sullivan		MDE	
David Myers		MDE	
CHRIS MCCABE		PLANET FOOD CORP	cmccabe@pfcorp.com
MARK ROSEN		HEHD	
EDWARD DEXTER		MDE Solid Waste	ED.DEXTER@Maryland.gov
Kevin Servon		Prince George's County	kcrbsemork@co.pg.md.us

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Print Name	Signature	Organization	Email Address
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Jeff Harp		Citizen	Jabh@outlook.com
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Bill Tefer		Calvert County	William.tefer@calvertcountymd.gov
Erin Young		Harvest Mid-Atlantic	EYoung@HarvestPower.com
PATRICK SERFASS		American Biogas Council	pserfass@ttcorp.com
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Jeff Dennis		Howard County	jdennis@howardcountymd.gov
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Charlie Reighart		Baltimore County	creighart@baltimorecountymd.gov
Christy Bujnovszky	Christy Bujnovszky	MDE	cbujnovszky@maryland.gov
Wendy Dorsey		MES	wdori@menv.com

Print Name	Signature	Organization	Email Address
Linnea Boogades	Linnea Boogades	AACo DPW	pwboog22@aacounty.org

December 3, 2018, Study Group Meeting

Environment Events Calendar for Maryland

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Event Details

Study Group Meeting to discuss House Bill 171 Yard Waste, Food Residuals, and Other Organic Material

Start Date: 12/3/2018 **Start Time:** 10:00 AM
End Date: 12/3/2018 **End Time:** 12:00 PM
This event recurs on a custom schedule. Click here to see the series dates.

State Agency(s)
Environment

Event Description:
Study Group Meeting to discuss House Bill 171 Yard Waste, Food Residuals, and Other Organic Materials Diversion and Infrastructure.
The bill requires the Department, in consultation with certain persons, to study and make recommendations regarding specified matters that relate to the diversion of yard waste, food residuals, and other organic materials from refuse disposal facilities, including the status of infrastructure in the State.

Contact Information:
Name: David Mrgich
Phone: 410-537-3314
Email: dave.mrgich@maryland.gov

MARYLAND DEPARTMENT OF THE ENVIRONMENT
Land and Materials Administration • Resource Management Program
1800 Washington Boulevard • Suite 610 • Baltimore Maryland 21230-1719
410-537-3314 • 800-633-6101 x3314 • www.mde.maryland.gov/composting

HB 171 – Yard Waste, Food Residuals, and Other Organic Materials Diversion and Infrastructure Study

Study Group Meeting
December 3, 2018 10:00 AM – 12:00 PM

Minutes

Attendance: Alan Pultyniewicz, Delegate Andrew Cassilly*, Bill Teter*, Brenda Platt*, Christy Bujnovszky*, David Mason, Dave Mrgich*, Erica Chapman*, Gary Felton*, Gemma Evans*, James Palma*, Julia Mooney*, Kaley Laleker*, Keith Ohlinger*, Keith Roumfort, Kevin Serrona, Linda Norris – Waldt, Linnea Boogades, Lisa Kardell, Melvin Thompson*, Patrick Serfass*, Peter Houstle*, Richard Tabuteau, Stephanie Williams, Steven Birchfield*, Tony Drury

On the phone: Adria Aceto*,Ben Fischler*, Chaz Miller*, Doug Meyers*

*Study Group Member

Introduction

Gemma Evans provided written comments on the September 20, 2018 meeting minutes. The meeting minutes are approved for the September 20th meeting. The meeting minutes are approved for the three subgroup meetings.

Dredged Material Innovative Reuse
Kristen Keene
Maryland Port Authority

- What law removed dredge material? SHA 920 Top Soil specification.
- Patrick Serfass asked if the material was tested for heavy metals. Kristen Keene said yes, extensively. She added that before any reuse, MDE lays out what must be tested.
- Where does dredge material fit in to the discussion of soil conditioners versus soil fertilizers? Kaley noted that it is dependent on how the material is used or marketed. Phil Davidson added that the material that is registered and held to the claim. He also added that this type of bulk material has issues with batch consistencies and is better off being a soil conditioner because soil fertilizers are held to nutrient claims.
- Phil Davidson asked if poultry manure on the eastern shore can be mixed with the dredge material. Kristen Keene noted that they did work with different blends but the costs and transportation logistics were limiting factors. She added that there are additional studies that need to be done. Kristen Keene noted that the study done was premature and should be reevaluated base on new information.

- Kristen Keene stated that she can get information on the soil tests and the amount of phosphorus in the mixtures. Kristen provided an Excel sheet that will be emailed to the Study Group.
- Patrick Serfass noted that there were different blended ratios with lime, leafgro, etc. and asked if there was a combination that would qualify as topsoil. Kristen Keene noted that the additives don't include poultry litter or manure but compost, lime and gypsum are being used in the topsoil study.
- Gary Felton noted that store bought blends are poor quality. Kristen Keene noted that all the blends did well compared to the store bought.
- Brenda Platt asked what the alignment might be. Kaley Laleker stated there are possible pilot projects for uses. She also noted that MDE didn't have a specific recommendation but is open to thoughts. It was stated that dredge material is another organic component that can be managed.

HB124 Update
Ed Dexter, Program Manager
Solid Waste Program
Maryland Department of the Environment

- Gary Felton mentioned that most of the farms they're working with that do AD take in food waste to boost gas and generate sufficient energy. Ed Dexter stated that the regulations are draft at this point. He added that there are reporting requirements to tell the county how much is being recycled but that's it. The draft regulations are largely dependent on existing regulations for end products, discharge, etc. The main goal is to avoid nuisances.
- Patrick Serfass asked what Ed Dexter considers to be the biggest impact these regulations will have. Ed Dexter stated that these regulations are much less onerous than if you needed a refuse disposal permit. Ed added that these regulations ask to tell us the operation exists and the operators need to read the regulations and know they exist. Ed is hoping there is not a large impact. He added that AD is an excellent way of reducing food waste and MDE doesn't want to get in the way. The goal is to control environmental problems that might develop but give the industry more specificity. He noted that the AD is usually indoors in a sealed containment and doesn't seem to present problems that other facilities might.
- Ed Dexter added that he is taking comments by email.
- Brenda Platt expressed concerns that mixed waste going into an AD would count as recycling. It was noted that the regulations reserve the right to look at an individual facility and require other permits. It was also added that any recycling facility is going to get materials that don't fit their models, including MSW and they will have to deal with a certain amount of material that won't be digestible. The draft regulations mention de minimis quantities. Ed Dexter added that these regulations don't have a zoning and county plan prerequisite.

Food Waste Recovery Pilot Program in Elkridge/Jessup Region
Peter Ettinger
BTS BioEnergy

- It was asked if this can be scaled up or down. Peter Ettinger said yes, it's modular.
- Brenda Platt asked what BTS BioEnergy needs to assure this is a success and what would be helpful to make sure we include in the recommendations. Patrick Serfass added including future development. Peter Ettinger stated clarity of permitting, clarity on county involvement in tipping fee/disposal wars, clarity in terms of use of soils, soil amendments. He added regular substance consistency, training for operators and organizations.

Recommendations

- Patrick Serfass asked how to incentivize digestate and compost markets. He suggested creating requirements at the public level that require obtaining quotes to use digestates in public projects including landscaping after construction and highway projects. He noted that government entities would create an initial demand.
- Patrick Serfass requested training for operators and training for other target audiences to be added to the recommendations.
- Dave Mrgich asked if Maryland Port Authority would need to incentivize markets. Kristen Keene said that would certainly benefit the reuse of dredge material.
- Kaley Laleker asked for specificity on how when writing recommendations.
- Keith Ohlinger discussed the challenges in Howard County with agricultural preservation easements. He noted that there are several variations of the definition of easements and clarification at the state level would be helpful. Delegate Andrew Cassilly asked if this could be resolved if there was a single definition at the state level and Keith Ohlinger said he believes so. Kaley Laleker stated that MDE can look into specific state laws that applies to these preservation easements.
- Erica Chapman noted that she found a lot of incentive programs that had farm added value processing. Doug Meyers believes it might be easier with composting than AD. Keith Ohlinger stated that in the Howard County situation there are zoning requirements for value added. Kaley Laleker suggested a more general recommendation to do a survey of all relevant definitions throughout the state law to be sure they are not conflicting with each other.
- Brenda Platt suggested organizing the recommendations based on importance or prioritized as major or minor. She asked if we were recommending anything for the upcoming session. It was noted that the final report is due July 1 which is after the session. The draft report will be done earlier and may be picked up.
- Brenda Platt asked if we can push for some of our recommendations this session, for example expanding the Good Samaritan Food Donation law.
- Delegate Andrew Cassilly stated that he fully intends to drop legislation this year with or without the final draft. He added that legislation takes several years and he wants to get it in for familiarity. Early coordination on language was suggested.
- Brenda Platt recommended a program to create funding mechanisms, especially for small scale, decentralized, diverse structures (more than providing information). Erica Chapman added that she has reached out to the Department of Housing and Community Development and more to look broader and identify other programs including some at the community level. It was suggested to distinguish between financing and grants.

- Patrick Serfass recommended funding to incentivize these programs including groundbreaking or first of kind funding and noted that natural market forces should take over.
- James Palma stated that Paul Spies with the Department of Commerce works specifically with Agribusiness.
- Keith Ohlinger stated that a USDA farming program can provide funding for digesters and other programs.
- Patrick Serfass stated that the USDA program has a practice code for AD. He added that there are 13 or 14 other practice codes and each state has to decide which code is most important. Further, he noted that the state coordinator gets to decide which practice codes will get funded and AD is not often chosen because the projects are more expensive. He recommends suggesting to the state coordinator to set aside money or carve out money and get some preference to composting and AD.
- Gemma Evans asked not to forget the smaller projects and requested adding text to recommendation #6. She also suggested the list of resources be updated on an annual or regular basis.
- Brenda Platt added that we can initially document what is currently available but push for more.
- Brenda Platt noted that recommendation #12 (education) is limited to a series of fact sheets. She asked about adding videos, social media, etc.
- Patrick Serfass recommends legislative action for an organic recycling law that would require commercial organics waste generators within a certain radius. He added that if there is an organics recycling facility, willing to accept material and operating than commercial organics recycling is required. There is concern about what impacts this would have on commercial waste generators like increased costs. Brenda Platt seconds this. Legislation would be oriented toward large food waste generators. Kaley Laleker said the concerns were not reconciled and there are questions about who is responsible under that. There have been sub-bills in the past that dealt with yard trimmings. Especially rural areas because not every local government offers collection of yard trimmings. How would this work in rural areas? Kaley Laleker recognized that this was a major discussion with this bill but doesn't know if we'd get consensus. In the final report there will be a discussion of ideas presented. She noted that if we draft this section, people can weigh in on what we should say. She is not sure what the recommendation would say based on the conversation so far.
- Melvin Thompson is concerned about smaller restaurant operators and suggested determining appropriate thresholds and to look to other states for guidance.
- Patrick Serfass stated that by focusing on the largest generators you have a big impact. It was noted that two tons/week is a current threshold in some states (MA, RI, VT).
- Brenda Platt noted that MA has restaurant thresholds based on approximate seating, hospitals based on number of beds.
- Delegate Andrew Cassilly asked if it is based on a single entity or is it McDonalds. Patrick Serfass noted that visually it's a single site. Brenda Platt added that the average supermarket is two tons per week. Delegate Andrew Cassilly believes the market will regulate itself.
- Chaz Miller asked if we have data on the expansion facilities as a result of the laws in place. Erica Chapman stated that the majority of states had a push to get the facilities but

there is a lag. The amount of haulers is a problem. Patrick Serfass added that the organics recycling policy is just one piece.

- Keith Ohlinger mentioned generating market demand for organics and stormwater management. He noted that when soil is disturbed/moved around is a good time to get organic content up and added that there is a manual and team to determine credits.

Recommendations/Comments Non-study group members

- Phil Davidson commented on health and safety concerns, particulate matter and updating the exam to address these questions. He noted that the training isn't part of the exam, the training is to be recertified after the test. He added that if respirators are required than MOSHA needs to be involved. Additionally, health and safety concerns are addressed in updated training. The test is based on a book that is old and some things are not addressed. Brenda Platt noted that there are probably other reasons to update the test besides the health portion.
- It was noted that the MDA compost tax based on volume of compost. Brenda Platt recommended that there should at least be exemptions. Phil Davidson noted that the fee is $15/year but there is a .25 cents per ton fee that is a statute.
- Brenda Platt asked if mixed waste AD and recycled AD would count toward the MRA rate. Dave Mrgich stated that the law is written so AD counts as long as the digestate is recycled. He added that it does not matter what the source material is unless it's C & D. Brenda Platt feels strongly that that is not recommended. She believes it will be more mixed waste processing to count as recycling. Dave Mrgich stated that he doesn't see what's wrong with that as long as the source is not a material that doesn't count towards MRA and added that material is processed and returned to the marketplace. Patrick Serfass stated that there are more costs if you take in a lot of material that you can't digest. Brenda Platt added that there's a long history of mixed compost problems. She stated to get the highest quality product a mixed waste isn't a good source. Dave Mrgich added that energy production doesn't count, only the tonnage.
- Dave Mrgich asked for comments by December 17, 2018. He noted that the recommendations will be updated and redistributed. MDE is planning a February or March meeting to discuss a draft report and updated recommendations.
- Delegate Andrew Cassilly asked if dredging, AD and compost can be combined for the recommendations. Kaley Laleker noted that the combination makes sense for at least certain recommendations.

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Sign-In Sheet
House Bill 171 Study Group Meeting
Aqua, Aeris and Terra Conference Rooms
10:00AM – 12:00PM
December 3, 2018

Print Name	Signature	Organization	Email Address
Stephanie Williams		MDE OAC	stephanie.cabe.williams@maryland.gov
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Alan Pultynieicz		Montgomery County	alan.pultynieicz@montgomerycountymd.gov
Steven Birchfield		MES	SBIRC@menv.com
Linnea Boogades		AACo Recycling	pwboog22@aacounty.org
Linda Norris-Waldt		US Composty Council	LNORRISWALDT@compostycouncil.org
Lisa Kardell		WM	Lkardell@WM.com
Brenda Platt		ILSR	bplatt@ilsr.org
Melvin Thompson		Restaurant Assoc of MD	mthompson@marylandrestaurants.com
Keith Ohlinger		Farm Bureau	kohlinger@fb.org

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PATRICK SERFASS		AMERICAN BIOGAS COUNCIL	pserfass@ttcorp.com
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Erica Chapman		MDE	erica.chapman@maryland.gov

April 23, 2019, Study Group Meeting

Environment Events Calendar for Maryland

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Event Details

Study Group Meeting to discuss House Bill 171

Start Date: 4/23/2019 **Start Time:** 10:00 AM
End Date: 4/23/2019 **End Time:** 12:00 PM

State Agency(s)
Environment

Event Description:
Study Group Meeting to discuss House Bill 171 Yard Waste, Food Residuals, and Other Organic Materials Diversion and Infrastructure.
The bill requires the Department, in consultation with certain persons, to study and make recommendations regarding specified matters that relate to the diversion of yard waste, food residuals, and other organic materials from refuse disposal facilities, including the status of infrastructure in the State.

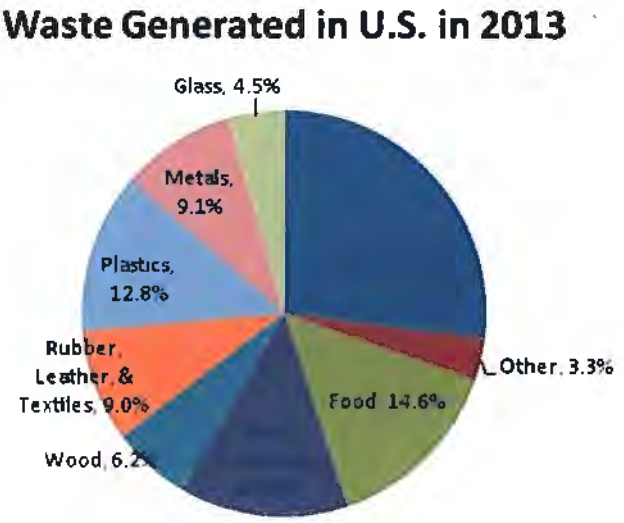
Location Information:
Maryland Department of the Environment
1800 Washington Blvd
First Floor Conference Rooms
Baltimore, MD 21230

Contact Information:
Name: Dave Mrgich
Phone: 410-537-3314
Email: dave.mrgich@maryland.gov

Announcements

NATURAL RESOURCES DEFENSE COUNCIL - FOOD MATTERS FUNDING - CITY OF BALTIMORE. Will be awarding up to $10,000 each to schools, nonprofit organizations, and/or small businesses that do work in support of Baltimore's goal to reduce commercial food waste in Baltimore City by 50 percent by 2030 May 7, 2019. All applicants will be notified whether they have been selected for funding during the week of May 27. The application deadline is Tuesday, May 7, 2019. All applicants will be notified whether they have been selected for funding during the week of May 27.

New!



Maryland Department of Agriculture Seeking Grant Proposals for Animal Waste Technology Fund

House Bill 171 – Department of the Environment – Yard Waste, Food Residuals, and Other Organic Materials Diversion and Infrastructure – Study

Subject: Public Meeting

Date and Time: Tuesday, April 23, 2019; 10:00 AM to 12:00 PM New!

Future meetings will be canceled and rescheduled if State offices are on liberal leave or are closed. Details on State closings are available on the Department of Budgement and Management's Special Closings of State Buildings, Liberal Leave and Emergency Information web page.

Parking: Study Group attendees will park in the Blue Lot and enter the building through the tunnel (located at the back right corner as entering the blue lot). The Blue Lot is on the left, prior to the railroad tracks if approaching from 95 or traveling north on Washington Blvd. Or on the right, after the Red Lot and the railroad tracks if approaching from Baltimore City or Monroe St.

Call-In: Study Group members ONLY have the ability to call into the meetings. The multi-party conference line accomdates up to 14 people. Study Group members should contact the Department for the call-in number.

Place: Maryland Department of the Environment, 1800 Washington Blvd., Baltimore, MD 21230

Documents: Documents for the meeting are available in the House Bill (HB) 171 Study Group section, below.

Add'l Info: The Maryland Department of the Environment (the "Department") has scheduled a meeting of the study group required by House Bill 171 – Department of the Environment – Yard Waste, Food Residuals, and Other Organic Materials Diversion and Infrastructure – Study. The bill requires the Maryland Department of the Environment (the "Department"), in consultation with certain persons, to study and make recommendations regarding specified matters that relate to the diversion of yard waste, food residuals, and other organic materials from refuse disposal facilities, including the status of infrastructure in the State. The complete text of the bill is available at http://mgaleg.maryland.gov/2017RS/Chapters_noln/CH_384_hb0171e.pdf.

Meetings are tentatively scheduled to occur every other month in 2018. If necessary, more frequent meetings will be scheduled. However, it is anticipated that, even if additional meetings are necessary, study group meetings will take place no more than once per month. Future meeting notices will be posted here and on the Department's Public Meeting Calendar web page.

Contact: David Mrgich, 410-537-3314

House Bill (HB) 171 Study Group

HB 171 Interim Report

HB 171 text.
HB 171 Study Points. This April 16, 2018, revised document lists the tentative order for study topics to be addressed by the Study Group.

April 23, 2019, Study Group Meeting

April 23, 2019, HB 171 Agenda **New!**

December 3, 2018, Study Group Meeting

December 3, 2018, HB 171 Agenda

December 3, 2018, HB 171 Topic 10 - Food Waste Recovery Pilot Program in Elkridge/Jessup Region -Peter Ettinger, BTS Bioenergy **New!**

December 3, 2018, HB 171 - Dredged Material Innovative Reuse - Maryland Port Authority **New!**

December 3, 2018, HB 171 Topic 10 - Recommend a Pilot Program for the Region of Elkridge and Jessup (coming soon)

December 3, 2018, HB 171 Recommendations (coming soon)

December 3, 2018, HB 171 Meeting Minutes (Draft) **New!**

September 20, 2018, Study Group Meeting

September 20, 2018, HB 171 Agenda
September 20, 2018, HB 171 Topic 7 - Sanitary and Public Health Concerns - MDE presentation
September 20, 2018, HB 171 Meeting Minutes (Draft)

July 16, 2018, Study Group Meeting

MARYLAND DEPARTMENT OF THE ENVIRONMENT
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HB 171 – Yard Waste, Food Residuals, and Other Organic Materials Diversion and Infrastructure Study

Study Group Meeting
April 23, 2019 10:00 AM – 12:00 PM

Minutes

Attendance: Ava Richardson, Brenda Platt*, Chaz Miller*, Christy Bujnovszky*, Doug Myers*, Erica Chapman*, Erin Hufner, Gayatri Mostaghimi, Gemma Evans*, Jeffrey Dannis, John Sullivan*, Kaley Laleker*, Kristen Keene, Kristyn Oldendorf, Melvin Thompson*, Pamela Kasemeyer*, Phil Davidson, Susan Casey, Steven Birchfield*, Tariq Masood*, Tyler Abbott, and Vinnie Bevivino.

On the phone: Ben Fischler* and Gary Felton*.

*Study Group Member

Introduction

The meeting minutes are approved for the December 3, 2018 meeting.

Kaley Laleker informed the group that they'll have until May 6, 2019, to submit any comments concerning the HB 171 Draft Final Report. She reminded the study group that the final report is due to the General Assembly in July and that in May study group members will receive a second version of the final report for review.

Discussion of HB 171 Draft Final Report – Current Recommendations

Kaley Laleker acknowledged that the Department is aware that there are items in the final report that need to be fixed, such the updating appendices placeholders and the alignment of Table 10.

Kaley Laleker explained that the recommendations are broken down into legislative, regulatory, and programmatic areas. She facilitated a discussion which involved going over each recommendation, sharing comments previously submitted by study group members concerning the recommendation shared in December 2018, indicated which recommendations were amended as a result of those comments, and asked if the study group had any input on the latest version of the recommendations. A summary of the recommendation discussion follows (note, discussions concerning a specific recommendation begin with the recommendation stated in the italicized text):

- *Conduct targeted education and outreach to reduce barriers to food donation.* Kaley Laleker informed the study group that the Department has begun to develop the K-12

school recovery toolkit, in consultation with the Maryland State Department of the Education, suggested in this recommendation.

- *Create a series of fact sheets for educating the public, local governments, and others on composting and anaerobic digestion.* Brenda Platt stated that this recommendation could be expanded from fact sheets to an outreach and education campaign. A campaign could include webinars, in-person trainings, and fact sheets. Also, the campaign should provide information on the importance of and how to develop a diverse and decentralized organics infrastructure. She suggested adding the University of Maryland Extension (UME) to the list of state partners that will collaborate with MDE to conduct outreach about composting and anaerobic digestion.
- Jeff Danis suggested that the fact sheets should also include information on the State Highway Administration compost specifications.
- *Promote the EPA's Waste Management and Food Recovery Hierarchies*. Kaley Laleker shared images of EPA's Waste Management and Food Recovery Hierarchies, the Institute for Local Self-Reliance's (ILSR) Hierarchy to Reduce Food Waste and Grow Community, and the Vermont Food Recovery Hierarchy. She explained that the Vermont hierarchy is similar to the EPA hierarchies, whereas the ILSR hierarchy takes into account scale (from local and decentralized to centralized and industrial scale) and the processing of source separated and mixed solid waste. She shared that the Department has traditionally promoted the EPA hierarchies and their food recovery strategies. She asked if the recommendation should remain to promote the EPA hierarchies or changed to promote a different waste management hierarchy.
- Doug Myers suggested that whichever version of the hierarchy we select, that an explanation of the hierarchy and how it influences organics waste diversion should be included in the introduction of the final report. It was suggested this information could be included before the definition of terms used in the final report.
- Brenda Platt pointed out that unlike the EPA Food Recovery Hierarchy, the ISLR hierarchy ranks the strategies of feeding people and animals together, as well as adds incineration as a least favorable strategy ranked equally to landfilling.
- Gemma Evans expressed that the ISLR hierarchy includes diversity, which is good.
- Erica Chapman asked if the Department could develop its own hierarchy modeled after the EPA and ISLR hierarchies. The custom hierarchy could incorporate scale, take into account source separated and mixed solid waste streams, and include other organic waste (i.e. manure) not addressed in the other hierarchies.
- Chaz Miller suggested endorsing the EPA and ISLR hierarchies. He also stated that the final report should explain that these strategies are generally not implemented independently of each other or from most to least favorable. Also, a strategy may not be implemented at the scale endorsed on a hierarchy. He emphasized that the final report and promotion of a hierarchy should include an explanation that depending on the region or a jurisdiction's needs, a strategy selected and scale at which a strategy is implemented may differ from what is endorsed on a hierarchy.
- Pamela Kasemeyer cautioned if we use the ISLR hierarchy, it would need to be amended to make sure the explanatory language next to each strategy was in line with the study group's recommendations. For example, the language next to the "Landfill and Incinerator" strategy endorses a food waste ban, which is not currently a recommendation of the study group.

- Brenda Platt responded that there is a version of the ISLR hierarchy without the descriptive language.
- *Proposing an Organic Waste Ban.* Brenda Platt asked the study group if any member is opposed to recommending an organic waste ban.
- Kaley Laleker stated that no member expressed opposition to an organic waste ban, but instead, the study group had not come to a consensus as to whether an organic waste ban should be recommended. She pointed out that the final report includes information about the reported effects of these laws experienced by other states that have implemented organic waste bans. She noted many of the bans' provisions had been implemented incrementally over the last few years, and that the Department will continue to evaluate the effects of other states' organic waste bans.
- Pamela Kasemeyer asked if the Department planned to add information about House Bills 510, 511, and 954, which passed during the 2019 legislative session, to the final report. Kaley Laleker responded that yes; at the time the final report was being drafted these bills had not yet passed the General Assembly. Now that the laws have passed the state legislator information about these bills will be added to the final report.
- Pamela Kasemeyer also asked if HB 510 of 2019 ban on landfills accepting source separated food scraps for final disposal would change how the Department regulates organic waste disposal.
- Erica Chapman explained that the HB 510 of 2019 ban does not require people or businesses to dispose of food scraps separately from other waste, but may impact businesses that as part of their operations dispose of food separately. Also, the ban will be enforced similar to the existing ban of landfills accepting source-separated yard trimmings for final disposal.
- Brenda Platt again asked if any members of the study group are opposed to an organic waste ban.
- Melvin Thompson shared that when bills proposing an organic waste ban were introduced in previous legislative sessions, the National Restaurant Association expressed concerns about identifying which restaurants would be covered under the ban since no method was proposed for measuring restaurant food scraps generation. He believes the proposed threshold for coverage under a ban was 2 tons of food scraps generated per week.
- Pam Kasemeyer added that another concern, from the solid waste industry perspective, is that Maryland currently does not have the proper collection infrastructure to retrieve the food scraps from the restaurants.
- Erica Chapman shared that Vermont has delayed their requirement for haulers to collect food scraps from 2018 to 2020 due to concerns about insufficient collection infrastructure.
- Doug Myers stated that high tipping fees are also a concern, as well as composting facilities having enough trained staff to manage the increased amount of food scraps that would be received. He emphasized that in addition to a regulatory framework to implement an organic waste ban, there needs to adequate funding and technical assistance for impacted facilities to hire and train staff.
- Erica Chapman reiterated that the study group in previous meetings did not express opposition for an organic waste ban, but instead did not come to a consensus as to whether it was appropriate to recommend a ban in light of the study group concerns

around implementation. She suggested it may be better to recommend that the Department should commit to continually evaluate the feasibility of a Maryland organic waste ban as more data becomes available from states' implementing bans.

- Brenda Platt also suggested that in place of recommending an organic waste ban, that the final report section "Promoting New Organics Recycling Capacity-Disposal Bans" should be reworded so that is doesn't read as the study group was opposed to an organic waste disposal ban.
- Brenda Platt questioned the food scraps generation data provided in the report under the "Food Residuals and Animal Manure Infrastructure in Maryland" section. She could not calculate the approximate total tonnage of food scraps generated from large food scrap generators (LFSGs) by multiplying the number of LFSGs identified by the Johns Hopkins Center for a Livable Future and the threshold of 52 tons per year used for LFSG status. She requested that the Department check these numbers and to include a chart to show the numbers used to estimate the approximate total tonnage of food scraps generated by LFSGs.
- Kaley Laleker responded that the tonnage was calculated using the average food scrap generation rates from a Massachusetts study in which they calculated food scrap generation estimates for LFSGs in Massachusetts. The appendix includes the white paper that discusses this calculation and provides Massachusetts' average generation rates. However, she informed the study group that the Department would double check these numbers and clarify within the report how the Maryland approximate food scraps generation tonnage was calculated.
- Brenda Platt also pointed out the "Conclusions Regarding Regional Infrastructure Capacity in Maryland" section of the report does not provide the numbers used to calculate the percentage of composting facility available capacity utilized in 2016. She asked how the Department calculate these percentages and if a chart showing facility capacity and actual tonnage composted could be added to the report.
- Erica Chapman stated these percentages were calculated using the capacity of a facility and the tonnage of compost produced in 2016 reported by facilities. She informed the study group that this data is presented in chart form in the white paper found in the appendix, and suggested that the Department could either paste these charts in the body final report or reference the applicable tables within the white paper.
- Jeff Dannis made a general comment concerning the difference between a composting capacity and throughput. He explained that capacity represents the maximum tonnage of feedstock that could be processed per year. However, the throughput of compost batches may not always match up with capacity due to the seasonal availability of feedstock. For example, during the winter months, a yard trimmings composting facility would receive the less amount of grass clippings and would need to store brown leaves and other woody material until the spring when composting could resume.
- *Simplify reporting of organics diversion and incorporate voluntary reporting of food donation and animal feed.* On the general topic of business reporting, Kaley Laleker shared that the Department is currently working on implementing online reporting for businesses to allow them to report quantities of diverted for donation or animal feeding. The Department plans to have online reporting an option for businesses and processors available for calendar-year 2019 reporting.

- *Clarify in guidance that anaerobic digestion is considered recycling in meeting counties' MRA recycling rates.* Kaley Laleker explained if an anaerobic digester accepts MRA material as a feedstock, the material would be counted as MRA recycling to the extent that the digestate is returned to the marketplace. She shared the example provided in the final report of how the Department would calculate how much of MRA material a facility could report as tons of MRA recycling, which states "if a digester accepts 100 tons of MRA material and returns 70% of the digestate to the market, then the facility would report 70 tons of MRA recycling."
- Brenda Platt suggested the example should read as follows, "if a digester accepts 100 tons of MRA material, produces 20 tons of digestate, and returns 70% of the digestate to the market, then the facility would report 70% of 20 tons of MRA recycling or 14 tons of MRA recycling."
- Brenda Platt expressed her opposition of the digestion of mixed solid waste being counted as MRA recycling. She also opposes counting all the tons of organic MRA material digested as MRA recycling as long as it all is returned to the marketplace since some of the feedstock mass would be lost as carbon dioxide and energy. In addition, if the feedstock includes mixed solid waste then some proportion of the feedstock mass will be lost as contamination because it will not be digestible.
- Doug Myers responded that composting has a similar issue, as composting produces heat as energy and carbon dioxide as by-products in addition to compost. However, he agreed that if the Department wants to count the digestion of mixed solid waste as MRA recycling, it must somehow deduct the mass lost as contamination.
- Brenda Platt recommended that the final report should include a discussion about the digestion of mixed waste versus source-separated organic material. Kaley Laleker responded that the final report would include such a discussion.

Discussion of HB 171 Draft Final Report – Other Recommendations and Comments

- Jeff Dannis suggested adding a recommendation that requests that MDA and SHA standardize the classifications of compost. He stated that MDA's general, limited, and restricted compost use regulations and SHA compost specifications are not related and make it difficult for a composting facility to comply with state requirements.
- Phil Davidson explained that MDA's general, limited, and restricted compost use regulations govern the classification of compost based factors such as heavy metal content. The nutrient management regulations influence compost usage by regulating the amount of plant nutrients that may be land applied.
- Erica Chapman added that the SHA compost specifications deal primarily with compost classification suitable for use as best management practices for establishing vegetation on disturbed land, soil erosion and sediment control, and for post-construction stormwater management. She explained that depending on the composter's proposed use for their compost product, the state requirements they are subject to will vary.
- Jeff Dannis suggested that explanation of these different state policies impacting compost classifications should be included in the final report, in outreach materials, and the *2015 Permitting Guidance for Maryland Composting Facilities.*

- Kaley Laleker stated that information on the different uses of compost depending on the classification could also be added to outreach materials and the *2015 Permitting Guidance for Maryland Composting Facilities.*
- Brenda Platt proposed a recommendation that calls for MDE and MDA to consider developing exemptions from the MDA compost registration requirement for small composting operations under certain square feet that wish to sell or distribute compost off-site.
- Several study group members inquired if SHA has updated its compost specifications as required under HB 878 of 2014. Erica Chapman responded that yes, they continue to conduct feasibility studies to identify uses of compost as a best management practice for state highway projects, as well as consults with the Department and MDA to ensure their proposed specifications meet compost classification and stormwater requirements. Once SHA develops a new compost related specification, they issue an amendment to their SHA *Standard Specifications for Construction and Materials* document.
- Kaley Laleker informed the study group that the Department's Solid Waste Program Director is involved in the SHA Recycled Materials Task Force, which includes state, federal and private recycling stakeholders. She explained that the task force meets regularly to identify opportunities where waste materials can be recycled to produce quality products for use in different state projects, such as beneficial reuse of dredge materials and state highway construction projects.
- Doug Meyers asked if a recommendation is needed that would require the state to promote and explore the use of dredge material as a soil amendment.
- Brenda Platt expressed her concern over dredge material being used as a soil amendment because it is not as high of quality of a product as compost or other soil conditioners.
- Kristen Keene explained that although dredge material may not be as high of quality as compost, it can still be used for numerous industrial uses that do not require a high-quality product or require a product with low nutrient quality. She also stated that the MPA would welcome opportunities to research the blending of dredge material with organic materials to increase its market uses.
- Erica Chapman suggested that maybe a recommendation could be to research possible uses for mixtures of dredge material and recovered organic material.
- Doug Myers added there is the need to conduct a market analysis to identify markets in Maryland for different qualities or classifications of dredge material, compost, and digestate.
- Kaley Laleker reminded the study group that presently there was no recommendation concerning dredge material and asked the study group if one should be included in the final report.
- Several study group members suggested adding a "research and development" recommendation that encourage state partners to identify research opportunities around the use of dredge materials, compost and digestate for different uses and to conduct an analysis to identify existing markets for these materials.
- Kaley Laleker request that study group members forward any "research and development" recommendation language to her.
- Jeff Dannis informed the study group that he'd emailed Dave Mrgich proposing several paragraphs concerning health and safety concerns around particulate matter and dust that could be added to the final report.

- Kaley Laleker stated that a study group member submitted a comment asking if on-farm anaerobic digestion facilities would be required to obtain a permit. She informed the study group that the HB 124 workgroup is currently working on recycling facility regulations that will regulate anaerobic digestion facilities, and these regulations will not create the need for an anaerobic digestion facility permit. The regulations will instead include certain design and operational requirements that anaerobic digestion facilities will be subject to.
- Kaley Laleker went over the recommendations proposed by the 2012 Composting Workgroup and explained that some study members suggested re-proposing some of the Composting Workgroup recommendations along with the HB 171 recommendations. She shared the status of some Composting Workgroup recommendations that have been carried out, such as new Land and Materials Administration staff that are dedicated to conducting outreach which satisfies the 2012 recommendation to hire a composting outreach employee. She informed the study group that appropriate Composting Workgroup recommendations that weren't implemented in the past are incorporated into the HB 171 recommendations.
- Kaley Laleker stated that a study group member submitted a comment asking if the use of digestate could be added as a stormwater best management practice in the Maryland Stormwater Design Manual. The Department's Stormwater Management Program informed her that they would consider adding digestate the next time they update the design manual.
- Kaley Laleker informed the study group that the financial incentives discussed in the final report will be posted on the Department's website for increased visibility. She also shared that the Department has increase collaboration with Commerce by forwarding individuals looking to obtain recycling related permits or approvals to Commerce in order to learn about opportunities for financial assistance.
- Doug Myers recommended adding Chesapeake Bay Trust grants to the final report and the website.
- Kaley Laleker read a comment submitted by Jane Thery which suggests adding to the "Food Residuals and Animal Manure Infrastructure in Maryland" section of the final report the tonnage of manure generated by horse farms. Jane Thery stated that this tonnage is known.
- Brenda Platt added that the Department should reach out to MDA to retrieve data on the tonnage of manure generated by all types of livestock and on the recycling or reuse of manure.
- Brenda Platt shared several suggestions for information that could be added or amended in the final report:
    - Moving the detailed discussion of health and safety concerns from the body of the final report to the appendix, and moving more detailed information about decentralized and diverse organics recycling infrastructure out of the appendix into the body of the final report;
    - Adding to the introduction information about the benefits of composting and anaerobic digestion;
    - Add to the recommendation "create a series of fact sheets for educating the public, local governments, and others on composting and anaerobic digestion" information about the benefits of composting and anaerobic digestion.

    - To spend less time discussing organics collection infrastructure and focus more on organics recycling infrastructure; and
    - Add to the report information about contamination, and how a decentralized organics recycling infrastructure reduces contamination.
- Kristen Keene suggested adding to the "create a series of fact sheets for educating the public, local governments, and others on composting and anaerobic digestion" recommendation that K-12 fact sheets be created and that it should include resources from the Maryland Association for Environmental and Outdoor Education.
- Pamela Kasemeyer recommended keeping the detailed information about decentralized and diverse infrastructure in the appendix to keep the report at a manageable length.
- Steven Birchfield requested that both state total and the Organics Composting Facility specific composting capacities provided in the final report be updated to reflect Organics Composting Facility's 24,500 tons increase in capacity (from 8,000 tons to 32,500 tons).
- Phil Davidson questioned if the study group should recommend that MDA update its compost operator exam to include health and safety topics. He explained that the questions on the exam are based on the Northeast Regional Agricultural Engineering Service *On-Farm Composting* handbook, and that reading this handbook is required for an applicant to sit for the exam. It is not clear if the exam could be updated to add health and safety topics if the *On-Farm Composting* handbook is not updated to include this information as well. He also stated that he has discussed this topic with the third-party composting training organizations US Composting Council (USCC), Solid Waste Association of North America (SWANA), and UME and was informed they already include health and safety topics in their training. Therefore, the study group should examine if this recommending an update to the MDA compost operator exam to add health and safety topics is appropriate or necessary in light of this information.
- Some study group members expressed that they still feel health and safety related questions should be added to the exam, and possibly the recommendation could be for MDA in consultation with USCC, SWANA, and UME explore how to add relevant health and safety topics uniformly in third-party composting training programs.
- Phil Davidson also emphasized that if the study group desires that the exam and training should include topics around personal protection equipment, such as respirators, MDA would have to consult with the Maryland Occupational Safety and Health.

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Sign-In Sheet
House Bill 171 Study Group Meeting
Aqua and Aeris Conference Rooms
10:00 AM – 12:00 PM
April 23, 2019

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APPENDIX D

Appendix D: Maryland Laws and Regulations Governing the Diversion of Organics

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

HB 171 Study Topic 1: Diversion of organic materials from refuse disposal facilities in the State, including State laws or regulations governing the diversion of organics

January 2018

CURRENT STATUS OF ORGANICS DIVERSION IN MARYLAND

Pursuant to Chapter 384 of 2017, *Yard Waste, Food Residuals, and Other Organic Materials Diversion and Infrastructure Study*, this document summarizes the current State statutes and regulations that govern the diversion of organic materials from refuse disposal facilities. Diversion of organic materials can take the following forms:

- Source reduction (preventing waste before it occurs);
- Reuse (including, for food scraps, donation and animal feed); and
- Recycling (composting, mulching, anaerobic digestion, etc.).

The State's primary law governing waste diversion is the Maryland Recycling Act (MRA). The MRA authorizes the Maryland Department of Environment (the "Department") to review and approve county recycling plans, enforce mandatory county recycling rates, and coordinate a State Government recycling program.[1] Counties play a large role in the MRA, creating and implementing their recycling plans and reporting recycling data to the Department. The Department also regulates the construction and operation of solid waste processing facilities and composting facilities. Other aspects of organics diversion, such as food donation, are not regulated by the Department but may be subject to other State and federal laws as outlined in this document.

In 2016, 6.8 million tons of MRA waste was generated in Maryland, with 2.8 million tons recycled and 4.0 million tons disposed.[2] Compostable organic materials (excluding paper) account for 26 percent of MRA waste generated, of which 47 percent was food residuals, and 42 percent was yard trimmings.[3] In 2016, Maryland achieved an overall MRA recycling rate of 43 percent. In comparison, the recycling rate for compostable organic materials was somewhat higher at 54 percent, but much of this was due to the high level of yard trimmings recycling. While 85 percent of yard trimmings were recycled, only 15 percent of food scraps were recycled.

While the Department tracks overall per capita generation of waste over time, it is unable to collect data on source reduction of particular materials.[4] Instead, the Department uses a source reduction credit

[1] Md. Code Ann., Envir. §§ 9-505 and 9-1701 – 9-1730.

[2] MRA waste consists of municipal solid waste and industrial waste from non-private industrial waste landfills. Envir. § 9-1701(q).

[3] Northeast Maryland Waste Disposal Authority, *2016 Maryland Statewide Waste Characterization Study* (2017), http://mde.maryland.gov/programs/LAND/AnalyticsReports/2016%20Maryland%20Statewide%20WCS%20Study.pdf

[4] One potential way of collecting material-specific source reduction data would be to conduct periodic waste characterization studies and compare the results over time; however, as the 2016 study was the first of its kind in Maryland, it is not currently possible to track changes

system based on source reduction activities rather than tonnage reporting (discussed in detail below). Overall, Maryland generated 0.66 tons of MRA waste per person in 2016, which is similar to the level of generation in 2015. Over the past 10 years, MRA waste generation per capita has declined somewhat from 0.79 tons per person in 2006.

The Department also does not currently collect information on the quantity of food scraps diverted through food donation or animal feed. Many Maryland businesses and organizations, including supermarkets, universities, and farms, provide surplus food to food banks and other food aid organizations, but given the lack of a reporting mechanism, it is difficult to determine the quantity of food residuals diverted through donation.[5] Still, it is clear that a continued need for these efforts exists. The U.S. Department of Agriculture (USDA), Economic Research Service reports that 10.1 percent of Maryland's 2.3 million families faced food insecurity from 2014 to 2016.[6]

MARYLAND LAWS AND POLICIES: SOURCE REDUCTION AND REUSE

Source Reduction Credit System

Source reduction is the most environmentally preferred strategy for diverting materials and is encouraged in the State through the source reduction credit system. In 2000, a Senate Joint Resolution (SJ 6) established a voluntary statewide waste diversion rate goal, defined as the sum of the MRA recycling rate plus a source reduction credit of up to 5 percent. The Department is charged with establishing the criteria for the source reduction credit. To this end, the Department developed a voluntary Source Reduction Checklist to be submitted annually along with the counties' Recycling Tonnage Reporting Surveys. Through the checklist, counties can receive credit for a variety of source reduction activities.[7] Some of these activities specifically target organics, such as "grasscycling" education, which can be claimed for up to a 2 percent credit, and home composting education programs. Chapter 692 of 2012 set the voluntary Statewide diversion rate goal at 60 percent by 2020.

Greenhouse Gas Reduction Act (GGRA)

The Greenhouse Gas Emissions Reduction Act (GGRA) was signed into law in 2009 and reauthorized in 2016. The original GGRA required the State to achieve a minimum 25 percent reduction in Statewide greenhouse gas (GHG) emissions from 2006 levels by 2020, and the 2016 reauthorization sets a goal of 40 percent GHG emissions reductions by 2030.[8] The Department reported in the *2015 Greenhouse Gas Reduction Plan Update* that Maryland is projected to exceed the 25 percent reductions in GHG emissions from 2006 by 2020 goal.[9] Waste diversion is a component of the Department's overall GHG reduction plan. Source reduction, in particular, can further climate change goals because preventing waste before

in the generation of particular materials in Maryland over time.

[5] Some evidence of this can be found in the summary of presentations from the Department's 2016 Maryland Food Recovery Summit, available on the Department's food recovery website, http://www.mde.maryland.govfoodscraps.

[6] *The Food Insecurity in Households with Children: Prevalence, Severity, and Household Characteristics, 2010-11* and *Household Food Security in the United States in 2016* reports, along with accompanying data tables, can be accessed at https://www.ers.usda.gov/topics/food-nutrition-assistance/food-security-in-the-us/key-statistics-graphics/.

[7] The source reduction credit does not count towards a county's MRA recycling rate.

[8] Chapters 171 and 172 of 2009 and Chapter 11 of 2016.

[9] The emissions reductions resulting from the implementation the 2015 GGRA Plan Update are projected to exceed the GHG emissions reductions 2020 goal by 3.71 $MMtCO_2e$. The *2015 Greenhouse Gas Reduction Plan Update* can be accessed at http://www.mde.state.md.us/programs/Air/ClimateChange/Documents/ClimateUpdate2015.pdf

it occurs typically achieves even greater GHG emissions reductions than recycling.[10] The Department, through collaboration with the Maryland Commission on Climate Change and other State agencies, is currently updating the plan to reduce Maryland's emissions to the 2030 GHG reduction goals.

Waste Reduction and Resource Recovery Plan Executive Order

In 2017, Governor Larry Hogan signed Executive Order 01.01.2017.13, *Waste Reduction and Resource Recovery Plan*. The Order established a sustainable materials management (SMM) policy for the State, which seeks to: minimize the environmental impacts of materials management over their entire lifecycle; conserve and extend existing in-State disposal capacity through source reduction, reuse, and recycling; capture and make optimal use of recovered resources; and work towards a system of materials management that is both environmentally and economically sustainable. The SMM policy emphasizes source reduction by broadening the focus from end-of-life to the entire lifecycle of materials. In addition, the Order directs the Department to work with stakeholders to develop an improved method of quantifying and tracking statewide recycling and source reduction efforts, along with new SMM goals. In 2018, the Department began to meet with county recycling coordinators and other recycling stakeholders to discuss alternatives to weight-based MRA measurements, updates to the source reduction credit system, increasing business reporting to counties, and which additional materials could count towards a county's MRA recycling rate.

Liability Protection for Food Donation

Maryland law provides civil liability protection to a person who donates, prepares, or distributes wholesome food to a non-profit organization that serves food insecure individuals. This law also protects the non-profit organization that is dispensing the food to food insecure people. Liability protection extends only to the provision of food in good faith where there is no willful act of negligence or misconduct.[11] Maryland law provides protection similar to that provided under the federal Bill Emerson Good Samaritan Food Donation Act.[12] Both the State and federal laws have two important limitations: (1) they do not apply to donations made by a person directly to the end user of the food; and (2) they do not apply to donations to any organization that sells the donated food, even at a reduced price. In Maryland, the Departments of Health and Agriculture may inspect donated food for wholesomeness and establish procedures for handling donated food.[13]

Food Recovery in Schools

Chapter 637 of 2016 authorizes county boards of education to develop and implement food donation programs for leftover or excess food in public schools, as well as to apply for recognition under any food recovery certification program. Food banks have pre-existing food recovery networks that a school food recovery program could tap into and schools have the potential to serve as both collection and distribution centers. For example, the Manna Food Center's Community Food Rescue network uses a food matching app to link local food service businesses and farmers to organizations that serve food insecure people.[14] Montgomery County Public Schools currently donate recovered food products

[10] See U.S. EPA, Waste Reduction Model, https://www.epa.gov/warm

[11] Md. Code Ann., Cts. & Jud. Proc. §5-634.

[12] 42 U.S.C. §1791.

[13] Md. Code Ann., Health-Gen § 21-322.

[14] The Community Food Rescue network website reports that 3.1 million pounds of food have been recovered and donated as of 2018. To learn more about the Community Food Rescue network visit https://www.communityfoodrescue.org/.

through the Community Food Rescue network to other Montgomery County public and private schools that serve as donation centers. Maryland Food Bank reported in 2016 that it's School Pantry program consisted of 227 Maryland public school pantry sites and distributed 4 million meals to food insecure families.[15] However, the Maryland Food Bank purchases the food distributed at the pantry sites rather than recover leftover school meals due to food safety concerns.

Date Labeling on Food Products

The language and use of date labels are largely unregulated at the federal level. While consumers may assume that date labels convey the date through which the food is safe to eat, instead they are often used to indicate peak food quality or stock control information for retailers.[16] This misconception can discourage the consumption or donation of safe and edible food, despite civil liability protections under federal and State laws. "Sell By" date labels are only mandated under Maryland's law for Grade A Milk.[17] Under the Code of Maryland Regulations (COMAR) 10.15.06.10, a person generally may not sell Grade A Milk after the Sell By date, which is set at 18 days from the date of processing. Specified food service providers may sell Grade A Milk up to four days after the Sell By date.[18] Local health codes may establish more detailed date labeling requirements, particularly governing the sale of food by food establishments. For example, Baltimore City defines an "expiration date" as "any date designated as an 'expires on' date, 'sell by' date, 'pull by' date, 'use by' date, or 'best if used by' date."[19] The City permits the sale of food past the expiration date only if separated from its non-expired food counterpart and if the label includes the phrase "This Food is Being Sold Past Its Expiration Date." This exception is not extended to perishable items.

Animal Feed from Food Residuals

Food service providers and manufacturers generate waste, such as vegetable peels, pulps, or trimmings, which are not typically consumed by humans. They may also generate other food residuals that are not feasible to donate for logistical reasons. This has led to increased interest in reusing food residuals as animal feed. Federal law prohibits the feeding of food residuals containing mammalian protein to ruminant animals (cattle, goats, etc.). It allows a person to feed food residuals containing animal products to swine if the person obtains a license and the food residuals are boiled before feeding.[20] Additional planning and preventive control requirements apply to certain facilities that produce animal feed from food residuals under the Food Safety Modernization Act's Preventive Controls Rules for Animals.[21] Maryland law addresses the feeding of residuals to swine but generally mirrors the federal law.[22] Maryland law was amended in 2015 to permit an individual to feed household food residuals to swine without boiling the material, as long as the swine are not sold. Local government laws may be

[15] To learn more about the Maryland Food Bank School Pantry Program visit https://mdfoodbank.org/our-programs/school-pantry/.

[16] Harvard Food Law and Policy Clinic, Keeping Food Out of the Landfill: Policy Ideas for States and Localities, pp. 26 (2016), https://www.chlpi.org//wp-content/uploads/2013/12/Food-Waste-Toolkit_Oct-2016_smaller.pdf

[17] Md. Code Ann., Health-Gen. § 21-426.

[18] The exempted providers are food service facilities, hospitals, schools, institutions, and facilities where milk is consumed on the premises. COMAR 10.15.06.11.

[19] Baltimore, Md. Health Code, § 6-505.1(a)(3).

[20] *See* Harvard Food Law and Policy Clinic and Food Recovery Project at the University of Arkansas School of Law; The *Leftovers for Livestock: A Legal Guide for Using Excess Food as Animal Feed* pp. 3-8 (2016), https://www.chlpi.org/wp-content/uploads/2013/12/Leftovers-for-Livestock_A-Legal-Guide_August-2016.pdf.

[21] Id; 21 C.F.R. § 507.12;

[22] Md. Code Ann., Agric. § 3-404.

more restrictive than the State requirements.[23]

MARYLAND LAWS AND POLICIES: ORGANICS RECYCLING AND BIOMASS RENEWABLE ENERGY GENERATION

Mandatory MRA Recycling Rates

Chapter 692 of 2012 amended the MRA to increase counties' mandatory recycling rates to 35 percent (for counties with populations greater than 150,000) and 20 percent (for counties with a population less than 150,000). It also increased the mandatory State Government recycling rate to 30 percent. Counties and State agencies may count recycling of municipal organics materials toward their mandatory rates.[24]

Yard Trimmings Disposal Ban

Maryland law prohibits an owner or operator of a refuse disposal system (e.g., landfill, incinerator, transfer station, processing facility) from accepting truckloads of separately collected yard trimmings for final disposal unless the owner or operator provides for the composting or mulching of the yard trimmings.[25]

Composting Educational Information and Study

Chapter 363 of 2011 required the Department to post educational information on composting on its website; conduct a study of composting in the State; and make recommendations about how to promote composting in the State, including any necessary programmatic, legislative, or regulatory changes related to composting. The Department's composting webpage and education resources can be found at http://mde.maryland.gov/composting. The final report of the study required under Chapter 363 is also available on that webpage.

Composting and Natural Wood Waste Recycling Facility Requirements

In 2013, the statute was amended to authorize the Department to develop regulations specific to composting facilities.[26] These regulations, developed through a stakeholder workgroup and adopted in 2015, clarified the permits and requirements applicable to various types of composting and NWW recycling activities. The Department issued detailed permitting guidance to accompany the new regulations.[27] Below is a summary of the permitting requirements applicable to various types of composting and NWW recycling facilities:

- A facility that recycles only NWW (e.g., stumps, logs, large branches) is required to obtain a NWW Recycling Facility Permit, which is available as a general or an individual permit. A facility that is operated by a non-profit or governmental organization or that provides recycling services only for its employees or materials is not regulated.[28]

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[23] Section 48-12 of the Montgomery County Code prohibits the feeding of food scraps to swine unless it is raised for personal or household consumption.

[24] Note, composting on farm or at a private facility which composts on-site generated waste does not count towards a Maryland County's MRA rate

[25] Md. Code Ann., Envir., §§ 9-1723 – 9-1724.

[26] Md. Code Ann. Envir. §§ 9-1701, and 9–1725 – 9-1726.

[27] Maryland Department of the Environment, *Permitting Guidance for Maryland Composting Facilities* (2015), http://mde.maryland.gov/programs/LAND/RecyclingandOperationsprogram/Documents/Permitting%20Guidance%20-%20Final%206.12.15.pdf

[28] COMAR 26.04.09.

- A facility that composts source-separated materials such as yard trimmings and food scraps is subject to the new composting facility regulations, and generally requires a composting facility permit, which is available as a general or individual permit.[29] The composting facility regulations contain a tiered design and operational requirements based on the size of the facility and types of feedstocks composted. Permit exemptions exist, including for small and certain on-farm composting facilities.
- A facility that composts sewage sludge requires a sewage sludge utilization permit and is subject to design and operational requirements related to sewage sludge management.[30]
- A facility that composts mixed solid waste, diapers, or other materials determined by the Department to have a higher risk of pathogens, contaminants, or hazardous substances, is considered a solid waste processing facility and must obtain a refuse disposal permit.[31]

In addition to a permit for the composting facility itself, a composting facility may require a water (discharge) permit. Certain types of equipment used on site may require an air permit to operate or permit to construct. At a minimum, most commercial composting operations that distribute compost will be required to obtain coverage under the Department's General Permit for Stormwater Discharges Associated with Industrial Activity.

Regulation of Soil Conditioners and Compost

The Maryland Department of Agriculture (MDA) regulates the products of composting, such as soil conditioners and compost sold in the State, under COMAR 15.18.03 and 15.18.04. MDA regulations establish product registration, labeling, testing, inspection, and recordkeeping requirements for these products. Compost must meet certain specifications corresponding to the uses for which the compost is sold. Composting facility operators must be certified with MDA. In addition, the Maryland Lawn Fertilizer Law and the "Fertilizer Application Requirements for Land Not Used for Agricultural Purposes" regulations govern the application of organic fertilizer onto lawns.[32] The law and regulations require both homeowners and professionals to adhere to the University of Maryland's fertilizer recommendations and to use best management practices (BMPs) when applying fertilizer to lawns.

Compost Use on Public Land

State law requires state agencies responsible for maintenance of public land to give consideration and preference to the use of compost in land maintenance activities paid for with public funds, to the maximum extent possible.[33] Use of compost by State and local governments can help promote compost markets in the State. The law also establishes a goal for the Department of General Services (DGS) to compost, to the extent practicable, all landscape waste on State property that is under DGS operation for use as fertilizer in landscaping activities; and increase the percentage of landscaped area fertilized by compost each year. However, DGS informed the Department that it does not use compost as a fertilizer on public grounds because it would exceed the amount of plant nutrients that may be applied on turf as allowed under the Maryland Lawn Fertilizer Law.[34]

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[29] COMAR 26.04.11.
[30] COMAR 26.04.06.
[31] COMAR 26.04.07.
[32] Md. Code Ann., Agri. §§ 8-801 et seq.; COMAR 15.20.10.
[33] Md. Code Ann., State Fin. & Proc. § 14-409.
[34] Although a 2018 amendment to the law removed the requirement that organic fertilizer products be "low phosphate," nitrogen requirements still prevent the use of compost on public lands.

Chapter 430 of 2014 established the use of compost in highway construction projects as a best management practice for erosion and sediment control, and post-construction stormwater management. The law also required the State Highway Administration (SHA) to establish specifications for compost-based products, which it did in 2015. Note, these specifications only need to be met if the compost-based product is to be marketed for use in SHA projects; in addition, MDA's compost-based product regulations must be adhered to as well as SHA requirements. SHA maintains a list of compost producers qualified for sourcing for State projects and regularly interacts with recycled materials providers through its Recycled Materials Taskforce. SHA reported to the General Assembly that in 2016 it used 4,702 cubic yards of compost as an additive in topsoil.[35]

Regulation of Anaerobic Digestion Facilities

Anaerobic digestion is a process in which microorganisms break down organic material in the absence of oxygen, producing the renewable energy source of biogas and nutrient-rich digestate. Biogas can be combusted to generate electricity or heat, or compressed into an alternative fuel. In addition, the digestate can be returned to the market as a fertilizer, soil amendment, or animal bedding. A refuse disposal permit is required for a facility whose primary purpose is to process solid waste. The Department has generally determined that a refuse disposal permit is not required for an anaerobic digestion facility if the digestate is returned to the marketplace in the form of raw material or product and the quantity of non-digestible and non-recyclable solid waste handled at the facility remains at a *de minimis* level. Note, digestate returned to the marketplace can be counted towards a county's MRA recycling rate.

Amendments to the Environment Article relating to recycling facilities were recently enacted as Chapter 376 of 2017. These changes clarified that the definition of solid waste includes materials that are managed at a recycling facility, including an anaerobic digestion facility, which are not recycled within one year of receipt or otherwise managed per Department regulations. Chapter 376 of 2017 additionally requires the Department to convene a workgroup to develop regulations concerning recycling facilities. Anaerobic digestion facilities must comply with federal, State, and local air and water quality laws, and may require discharge permits and/or air quality permits.[36]

Anaerobic Digestion of Animal Manure on Land Subject to Agricultural Land Preservation Easements

Chapter 287 of 2014 permits Maryland Agricultural Land Preservation Foundation easement landowners to request approval to a construct renewable energy generation facility for commercial electricity production. The sources of renewable energy are limited by the statue but include anaerobic digestion of poultry litter or livestock manure. Applications must be received by the Foundation no later than June 30, 2018, and the Foundation cannot approve proposed facilities after June 30, 2019.[37]

Renewable Portfolio Standard

In 2004, the State adopted the Renewable Energy Portfolio Standard (RPS).[38] The RPS mandates that a

[35] Changes to SHA's soil erosion and sediment control practices are described in *A Report to the Maryland General Assembly regarding Compost and Compost-Based Products on State Highway Administration and Construction Projects* http://dlslibrary.state.md.us/publications/Exec/MDOT/SHA/TR8-609.3(d)_2016.pdf.

[36] Md. Code Ann. Envir. §9-323 (Discharge Permit statute) Md. Code Ann. Environ §2-401 (Air Quality Permit statute).

[37] Md. Code Ann., Agric. § 2-513 (2014).

[38] Md. Code Ann., Public Utilities §§ 7-701 - 7-713.

certain percentage of electricity suppliers' retail sales must be derived from renewable energy sources, with the percentage increasing over time to reach 25 percent by 2020. The RPS is implemented through the creation, transfer, and retirement of renewable energy credits (RECs). A REC represents one megawatt-hour (MWh) of electricity generated using eligible renewable energy source. Renewable energy sources are divided into two tiers. Qualifying biomass, a Tier 1 renewable source, is defined as organic material available on a sustainable basis that is 1) separated from inorganic material and derived from several organic sources including yard trimmings (excluding invasive exotic plant species) co-digested with manure or poultry litter to produce biogas, or 2) a plant cultivated for use as a Tier 1 renewable source. Tier 2 renewable sources can contribute no more than 2.5 percent toward meeting the RPS.

MARYLAND LAWS AND POLICIES: ORGANIC MATERIALS DIVERSION PROJECT DEVELOPMENT FINANCIAL ASSISTANCE PROGRAMS

The following financial assistance programs could directly fund or offset expenses related to the development of an organic materials diversion project. Financial incentives discussed below include loans, grants, bonds, and tax incentives. Activities eligible for funding include the acquisition of property or equipment, and operating expenses related to salaries, job training, and outreach. Some of the financial incentive programs are tailored to support solid waste diversion projects, while others are available to any project that meets the program's applicant, geographic area, industry, and business activity criteria. Note, the Maryland Department of Commerce administered financial assistance programs are discussed in "Study Topic 6: Incentives Review for the Yard Waste, Food Residuals, and Other Organic Materials and Infrastructure Study" White Paper.

Grants and Loans

Maryland's Fresh Food Financing Program

The Maryland Department of Housing and Community Development's (DHCD) Fresh Food Financing Program provides loans for the start-up, rehabilitation, or expansion of small businesses and non-profits that propose to increase access to healthy food to underserved areas in Maryland. Projects that will source fresh food from Maryland farmers to designated food desert areas and Sustainable Communities are eligible. Loans up to $500,000, based on a financial need of up to 50 percent of project costs, are available. Funds may be used for activities such as construction and rehabilitation, purchasing of equipment, and working capital expenses.[39] Small businesses, non-profit organizations, or microenterprises may apply.[40]

Keeping Maryland Beautiful Program

The Maryland Environmental Trust in partnership with the Maryland Department of Transportation and DHCD offers several grants through the Keeping Maryland Beautiful Program to "help volunteer-based, nonprofit groups, communities and land trusts in Maryland to support environmental education projects, litter removal, citizen stewardship and to protect natural resources in urban and rural

[39] *See* the "Maryland's Fresh Food Financing Initiative Fact Sheet" for more information at https://dhcd.maryland.gov/Communities/Documents/freshfood/Financing_Application.doc.
[40] Md. Code Ann., Housing and Community Development § 6-305.8; COMAR 05.13.06.

areas."[41] Three Environmental Education, Community Initiatives and Cleanup Grants are available to non-profits, schools and municipalities that conduct environmental educations projects, community engagement and neighborhood greening initiatives. The grants are as follows:

- The Bill James Environmental Grant offers funds up to $1,000 to school groups, science and ecology clubs, and other non-profit youth groups for proposed environmental education projects.
- Clean Up & Green Up Maryland Grant offers funds up to $5,000 to community groups and non-profit organizations with proposed neighborhood beautification projects, such as litter removal and community education.
- Margaret Rosch Jones Grant offers funds up to $2,000 to non-profit groups or communities for an ongoing project that has demonstrated success in solving an environmental issue.

Maryland Manure Transport and Cost Share Program

MDA administers the Manure Transport Program that offers cost-share assistance to operations receiving animal waste to cover the cost of transporting this waste from animal producers with excess manure and poultry litter. Transported animal waste may be land applied or transported to an approved alternative use facility.[42] Alternative uses for the animal waste listed in the regulations include the production of fertilizer, composting, and manure-to-energy projects. MDA also provides a Manure Matching Service that connects farmers with excess manure to nearby operations looking to receive the material.[43]

Animal Waste Technology Fund Grants

The Animal Waste Technology Fund, which funds the MDA Animal Waste Technology Grant Program, provides financial assistance to individuals, businesses and non-profits that conduct research or develop technologies that reduce the amount of nutrients in animal waste; alter the composition of animal waste; develop alternative animal waste management strategies; or use animal waste in the production of marketable products such as fertilizer.[44] The Maryland Energy Administration (MEA), through a funding agreement with MDA, launched the Animal Waste to Energy Grant Program in 2012 to invest in projects that utilize animal manure to generate electricity for commercial use. The grant is available to businesses, government agencies, and non-profits that operate in Maryland. For FY 2018, 2 million dollars were made available through MEA Animal Waste to Energy Grants, and 1.5 million dollars were made available through MDA Animal Waste Technology Grants.

The Maryland Agriculture & Resource Based-Industry Development Corporation

The Maryland Agriculture & Resource Based-Industry Development Corporation (MARBIDCO) is a quasi-public economic development organization that provides financial assistance and other services to certain small-scale farmers, watermen, and rural business to "[help] retain existing resource-based industry production and commerce, promote rural entrepreneurship, and nurture emerging or expanding agricultural enterprises."[45] The MARBIDCO provides the following loans and grants that

[41] To learn more, please see the Keep Maryland Beautiful Grant Program webpage at https://dnr.maryland.gov/met/Pages/grant_programs.aspx.

[42] Md. Code Ann., Agri. § 8-704.2; COMAR 15.20.05.

[43] Md. Code Ann., Agri. § 8-704.1. *See* the MDA *Maryland's Manure Matching Service* brochure at https://mda.maryland.gov/resource_conservation/Documents/MDAmatchingreprnt305-2.pdf.

[44] Md. Code Ann., Argic. § 8-7A-02.

[45] Md. Code Ann., Econ Dev. §§ 10-501 et seq.

businesses participating in organic materials diversion may be eligible for:[46]

- The Maryland Resource-Based Industry Financing Fund provides low-interest loans for purchasing of equipment, fixed assets, real estate and for renewable energy projects. Commercial lender participation is required for MARBIDCO's financial assistance.
- The Rural Business Energy Efficiency Improvement Loan Fund provides loans up to $30,000 to rural businesses for the purchasing and installing of equipment or technology related to lowering business-related energy consumption, at the recommendation of a third party energy auditor. A grant up to 10 percent of the loan amount, no greater than 1,000, can be awarded to borrowers in good standing on making their payments.
- The Local Government Ag/RBI Project Cost Share Program provides matching cost-share grants up to $25,000 to local government for investment into rural business development projects that fit within MARBIDCO's purpose outlined in the statute.[47] Projects that are eligible for matching funds include biomass/energy production projects at a farm or a rural business. MARBIDCO funding cannot exceed a local government investment, and an individual farmer or rural business owner must contribute funds if they directly benefit from the investment.
- The Maryland Value-Added Producer Grant (MVAPG) Capital Assets Option is a competitive grant, up to $10,000, providing capital funds to farmers and rural business expanding or diversifying their operations through value-added processing. Grants may be used to purchase equipment or construct facilities for projects such as the development of manure digesters. There is a third-party matching fund requirement.[48]
- The MVAPG USDA Option provides matching funds to recipients of the USDA Value-Added Producer Grants Program, which requires a non-federal financial matching commitment. Under this grant, MARBIDCO may fund up to 15 percent of the USDA matching requirement.[49] Eligible applicants must produce value-added products and have to be an independent producer, agricultural producer group, farmer or ranch cooperative, or a majority-controlled producer-based business venture.

Community Development Block Grant

The Community Development Block Grant's States and Small Cities Program is administered by DHCD and funds local jurisdiction projects that propose to strengthen communities within a priority funding area that is located in a non-entitlement jurisdiction. Note, there is a federally administered Community Develop Block Grant Entitlement Program that funds large metropolitan non-entitlement communities.[50] A non-entitlement county has a population of less than 200,000, and non-entitlement city or town has a population of less than 50,000.[51] The DHCD program provides funds for housing, public service infrastructure, and economic development projects that meet one of the following national objectives: benefits persons of low- and moderate- income, eliminates slum and blight, and

[46] See descriptions of each MARBIDCO financial assistance program at https://www.marbidco.org.

[47] Md. Code Ann., Econ Dev. § 10-502(b).

[48] According to the MVAPG-CAO webpage, "value-added" means that a product has an incremental value earned as a result of a change in physical state, differentiated production or marketing, product segregation, and/or farm or rural community-based biomass energy operation. Eligible expenses for the capital option include purchasing manure digesters. *See* the MVAPG-Capital Asset Option webpage at https://www.marbidco.org/_pages/programs_grants/grant_programs_mvapgcao.htm.

[49] 7 U.S.C. 1632a; 7 CFR 4284 subpart J.

[50] Md. Code Ann. Housing and Community Development § 6-608; 42 U.S.C. § 5307.

[51] The current non-entitlement jurisdictions in Maryland as of 2018 are Anne Arundel, Baltimore, Harford, Howard, Montgomery and Prince George's counties, and cities of Annapolis, Baltimore, Bowie, Cumberland, Frederick, Gaithersburg, Hagerstown, and Salisbury.

meets an urgent need of recent origin that threatens public health and safety.[52]

Community Legacy Program

The DHCD Community Legacy Program finances projects aimed at strengthening designated sustainable communities, addressing barriers to revitalization, and contributing towards a local government's Sustainable Communities Action Plan.[53] Eligible community legacy projects include the development of community open spaces or the acquisition or improvement of vacant buildings or unimproved land.[54] Local governments, community development organizations, and groups of local governments sharing a common goal are eligible for financing.[55] Available financial assistance includes grants, loans, assurances, guarantees, other credit enhancements, reductions in the principal obligation of the rate of interest on a loan, or prepayment of interest on a subordinated loan or portion of a loan.[56]

Baltimore Regional Neighborhood Initiative

The DHCD Baltimore Regional Neighborhood Initiative provides financing to entities that propose investment into housing and businesses that will lead to sustainable Baltimore regional communities. Awarded funds can be used for, but not limited to, development or enhancement of community open spaces or public infrastructure, acquisition or rehabilitation of vacant or blighted properties, workforce development, and operating costs needed to implement a community enhancement project.[57] Eligible applicants are non-profits or foundations with a clear revitalization strategy for a sustainable community located in Baltimore City or the inner-695 beltway of Baltimore or Anne Arundel Counties. Available financial assistance includes grants, loans, assurances, guarantees, other credit enhancements, reductions in the principal obligation of the rate of interest on a loan, or prepayment of interest on a subordinated loan or portion of a loan.[58]

Local Government Infrastructure Financing Program Capital Reserve Fund Loan

DHCD's Community Development Administration issues bonds on behalf of local governments to finance projects that support the infrastructure of government-owned and operated public service systems, such as solid waste management facilities.[59] The project must be located on a site suitable for infill development or redevelopment, located in an area designated for development, designed with sensitivity for sensitive areas such as streams, and meet other eligibility criteria of COMAR 05.09.01.05. Local government applicants must secure local legislative approval to incur the debt and must meet credit requirements.[60]

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[52] Learn more on the DHCD "Community Development Block Grant Program" webpage at https://dhcd.maryland.gov/Communities/Pages/programs/CDBG.aspx.

[53] A Sustainable Community is a geographic area inside of a designated Priority Funding Area that is targeted for revitalization by local government.

[54] Learn more on the DHCD "Community Legacy Program" webpage at https://dhcd.maryland.gov/Communities/Pages/programs/CL.aspx.

[55] According to 12 U.S.C. § 4702, a community development organization is a non-profit organization whose primary mission is promoting community development, serves an investment area or targeted population, and provides development and financing services.

[56] Md. Code Ann. Housing and Community Development. §§ 6-201 – 6.213; COMAR 05.17.01.

[57] Learn more on the DHCD "Baltimore Regional Neighborhood Initiative" webpage at https://dhcd.maryland.gov/Communities/Pages/programs/BRNI.aspx.

[58] Md. Code Ann., Housing and Community Development §§ 6-501 – 6-510; COMAR 05.20.02.

[59] Learn more on the DHCD "How Local Government Infrastructure Financing Works" webpage at https://dhcd.maryland.gov/Communities/Pages/lgif/HowItWorks.aspx.

[60] Md. Code Ann. Housing and Community Development §§ 4-225 – 4-233; COMAR 05.09.01.

Community Development Technical Assistance Grants Program

The DHCD Community Development Administration's Technical Assistance Grant provides funding for eligible entities to obtain or provide advisory, consultative, training, information, and other services for the implementation of community development activities.[61] Non-profit organizations, local governments, local development agencies and corporations may apply for financial assistance. Special areas of focus for grant funding are projects that support designated Main Street and/or Maple Street communities, Transit Oriented Development, Base Realignment and Closure Zones, and Sustainable or Green initiatives.[62]

Maryland Heritage Trust Programs

The Maryland Heritage Trust (MHT) Capital Loan Program offers fund to local governments, non-profit organizations, businesses, and individuals proposing to acquire and preserve historic properties.[63] Eligible projects must be located on a site listed on the Maryland Register of Historic Properties, have a strong public benefit purpose, and adhere to the federal standards for the treatment of historic properties.[64] This program offers both capital loans and grants that can be used to fund the acquisition, rehabilitation, pre-development and refinancing projects. The amount awarded for loans is dependent on the project category, and grants may be awarded up to $100,000 with a dollar for dollar match requirement.[65]

Combined Heat and Power Program

The MEA Combined Heat and Power (CHP) Program offers grants up to $500,000 to a commercial, industrial, institution, critical infrastructure facility that implements CHP technologies, including technologies that use biogas/biomass as a fuel source.[66] Proposed projects must have a specific annual CHP system efficiency, as well as document projected on-site energy reductions and avoided energy expenses. In addition, biomass/biogas CHP projects must estimate the amount of biofuel the facility will consume annually. The program utilizes a tiered capacity payment structure, with smaller CHP systems being awarded a capacity payment per kW grant greater than larger CHP systems.[67]

Jane E. Lawton Conservation State Loan Program

The MEA Jane E. Lawton Conservation State Loan Program provides low-interest revolving loans up to $500,000 to non-profit organizations, commercial businesses, and local governments to fund startup costs of implementing energy efficient measures at their facility. Eligible improvements include the utilization of certain renewable energy sources, such as biomass and anaerobic digestion.[68] Borrowers may use the cost savings earned through energy efficiency measures as the primary source of revenue for loan repayment. The program has a neutral budget impact on both the State and burrows, making it an attractive financing option for eligible organizations.[69]

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[61] Md. Code Ann. Housing and Community Development § 4-211(a)(7).

[62] Learn more on the DHCD "Technical Assistance Grants Program" webpage at https://dhcd.maryland.gov/Communities/Pages/tag/default.aspx.

[63] Md. Code Ann., Financial Institutions § 13-1113.

[64] 36 C.F.R part 68.

[65] For more information see the MHT "Financial Assistance Programs" webpage at https://mht.maryland.gov/Financial.shtml.

[66] Md. Code Ann., State Govt. § 9-20B-05(f).

[67] *See* the "Notice of Grant Availability MEA CHP FY19 Grant Program" at https://energy.maryland.gov/business/Documents/Notice%20of%20Availability.pdf

[68] Md. Code Ann., State Govt, Title 9, Subtitle 20A.

[69] Learn more about the FY19 Jane E. Lawton Conservation Loan Program at

Maryland Smart Energy Communities Grant Program

The mission of the Maryland Smart Energy Communities (MSEC) program to encourage local governments to adopt long-term energy policies that will lead to continuous energy savings and opportunities for renewable energy development. Participating local governments must voluntarily adopt energy policies in two out of three areas, including energy efficiency or renewable energy. In addition, local governments must commit to developing a baseline of current electricity usage and an action plan to achieve energy goals outlined in their adopt policies within the required timeframes.[70] Local governments participating as MSEC must meet all required deliverables, and the amount of funds awarded, up to $75,000, is based on population size and funding availability.[71]

Tax Incentives

Farm Food Donation Tax Credit

The Farm Food Donation Pilot Program, enacted 2017, establishes a state income tax credit for food donations made by qualified farms located in Anne Arundel, Calvert, Charles, Montgomery, Prince Georges, and St. Mary's counties. A qualified farmer can claim a credit equal to 50 percent of the value of a food donation or 75 percent of the value an organic food donation, not to exceed $5,000 per farmer in a taxable year. MDA is required to publish the weekly values of produce and certified produce which is used by a State Certified Tax Credit Administrator, the non-profit recipient of the donated produce, to determine the value of any eligible food donations.[72] The tax credit will aid farmers in offsetting the costs of harvesting, packing, and transporting donated produce.

Urban Agriculture Tax Credit

In 2010, the General Assembly authorized governing bodies of Maryland counties and Baltimore City to offer a property tax credit on certain properties located in a priority funding area that serves "urban agricultural purposes."[73] Urban agricultural purposes, which are listed in the statute, include food donations as part of a community development project and environmental mitigation activities such as stormwater abatement and groundwater protection. Local governing bodies establish the duration, amount, and any additional criteria for the credit. Baltimore City, Prince George's and Montgomery Counties have implemented the tax credit program.[74, 75]

Biofuels Tax Credit

Organic materials such as vegetable oils, animal fats, or recycled restaurant greases can be used to make biofuel. MDA regulates the transportation of waste kitchen grease for the conversion into biofuel.[76]

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https://energy.maryland.gov/Govt/pages/janeelawton.aspx.

[70] *See* the "Notice of Grant Availability MSEC FY19 Grant Program" at https://energy.maryland.gov/govt/Documents/FY19%20MSEC%20FOA%20Final.pdf.

[71] Learn more about the Maryland Smart Energy Communities Grant Program at https://energy.maryland.gov/govt/Pages/smartenergycommunities.aspx.

[72] COMAR 15.01.12; Md. Code Ann., Tax-Gen. §10-741. The law prohibits issuing initial credits after December 31, 2019.

[73] Md. Code Ann., Tax-Prop. § 9-253.

[74] Harvard Food Law and Policy Clinic, *A Review of Food System Policies in Maryland,* p.7 (2017), https://www.chlpi.org/wp-content/uploads/2013/12/MD-Policy-Scan-report-cover_September-2017.pdf

[75] Baltimore, Md. Tax Code, §10-19 (2015); Montgomery County Code, §52-11 (2017); Prince George's County Code, §§10-235.22 – 10-235.25 (2015).

[76] Md. Code Ann., Agric, Title 10, Subtitle 18.

Since 2008, Marylanders could claim a tax credit of 3 cents per gallon, not to exceed $500, of heating oil blended with biodiesel that was purchased for space and water heating.[77] The tax credit could be claimed against both corporate and personal income taxes, but the credit expired at the end of the tax year 2017.

Clean Energy Incentive Tax Credit

The Clean Energy Incentive Tax Credit offered a state income tax credit of 0.85 cents per kilowatt-hour (kWh) for electricity generated from specified energy resources, including methane from anaerobic digestion of nonhazardous materials. The credit could be claimed over five years. The credit was available to businesses that constructed and generated electricity at a qualified facility on or after January 1, 2006, but before January 1, 2016, and initial credits could not be issued after December 31, 2018.[78] The MEA reports that $25 million in tax credits were issued as of January 2018, and currently no further funding is expected to be made available in future tax years.

Maryland Heritage Structure Rehabilitation Competitive Commercial Tax Credit

The Maryland Heritage Structure Rehabilitation Competitive Commercial Tax Credit offers owners of income-producing properties a state income tax credit of 20 percent of the eligible expenses for substantial rehabilitation of certified historic buildings.[79] Projects that achieve LEED Gold Certification or equivalent may earn an additional 5 percent credit. Substantial rehabilitation projects are defined as projects with eligible expenses that are greater than the adjusted basis value of the building or $25,000. Non-profit, local government, a private individual, and business property owners may apply for the tax credit.[80] Larger, income-producing commercial rehabilitation projects are eligible for the tax incentive, which is capped at $3 million per project.[81]

[77] Md. Code Ann., Tax - General, § 10-727.
[78] Md. Code Ann. Tax-General, § 10-720 (2006)
[79] COMAR 34.04.07.03(C).
[80] Md. Code Ann., Tax-Gen. § 10-704.5; Md. Code Ann., Financial Institutions. § 13-1113.
[81] Learn more about the tax incentive on the MHT "Competitive Commercial Tax Credit" webpage at https://mht.maryland.gov/taxcredits_competitive_commercial.shtml.

Biofuels Tax Credit

Organic materials such as vegetable oils, animal fats, or recycled restaurant greases can be used to make biofuel. MDA regulates the transportation of waste kitchen grease for the conversion into biofuel.[76] Since 2008, Marylanders could claim a tax credit of 3 cents per gallon, not to exceed $500, of heating oil blended with biodiesel that was purchased for space and water heating.[77] The tax credit could be claimed against both corporate and personal income taxes, but the credit expired at the end of the tax year 2017.

Clean Energy Incentive Tax Credit

The Clean Energy Incentive Tax Credit offered a state income tax credit of 0.85 cents per kilowatt-hour (kWh) for electricity generated from specified energy resources, including methane from anaerobic digestion of nonhazardous materials. The credit could be claimed over five years. The credit was available to businesses that constructed and generated electricity at a qualified facility on or after January 1, 2006, but before January 1, 2016, and initial credits could not be issued after December 31, 2018.[78] The MEA reports that $25 million in tax credits were issued as of January 2018, and currently no further funding is expected to be made available in future tax years.

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[76] Md. Code Ann., Agric, Title 10, Subtitle 18.
[77] Md. Code Ann., Tax - General, § 10-727.
[78] Md. Code Ann. Tax-General, § 10-720 (2006)
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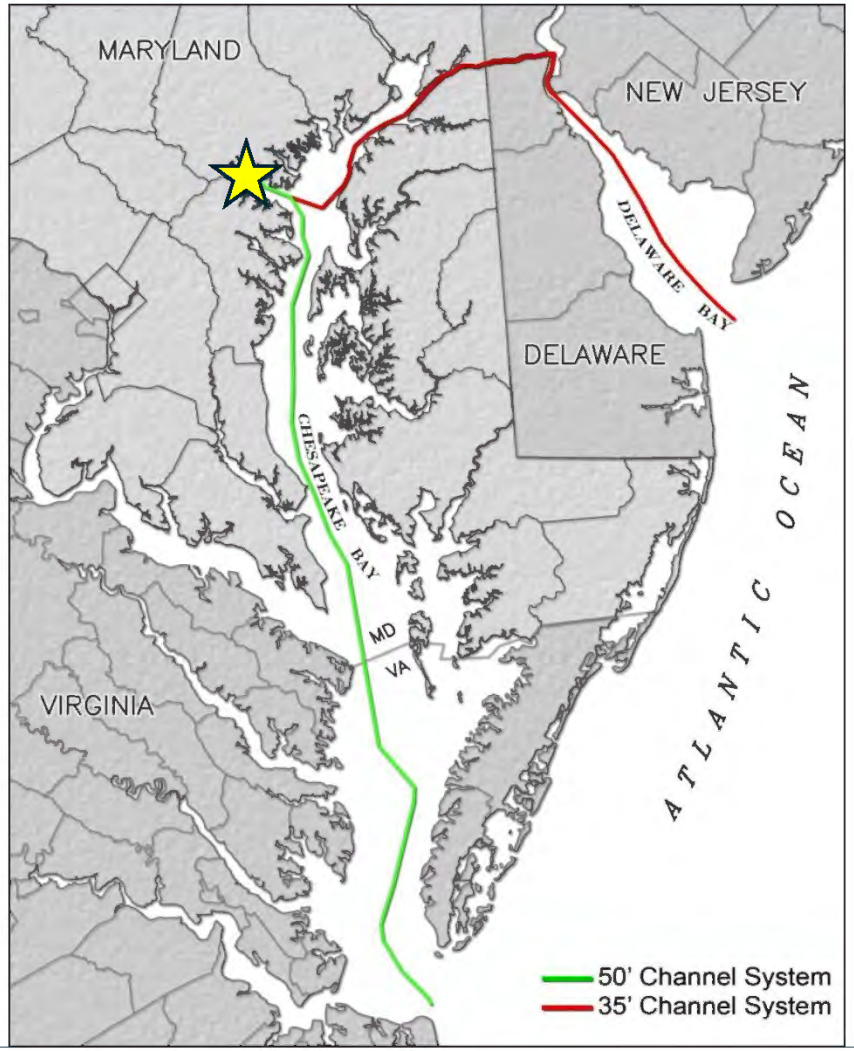
MPA Presentation on State Policies for the Reuse of Dredged Materials

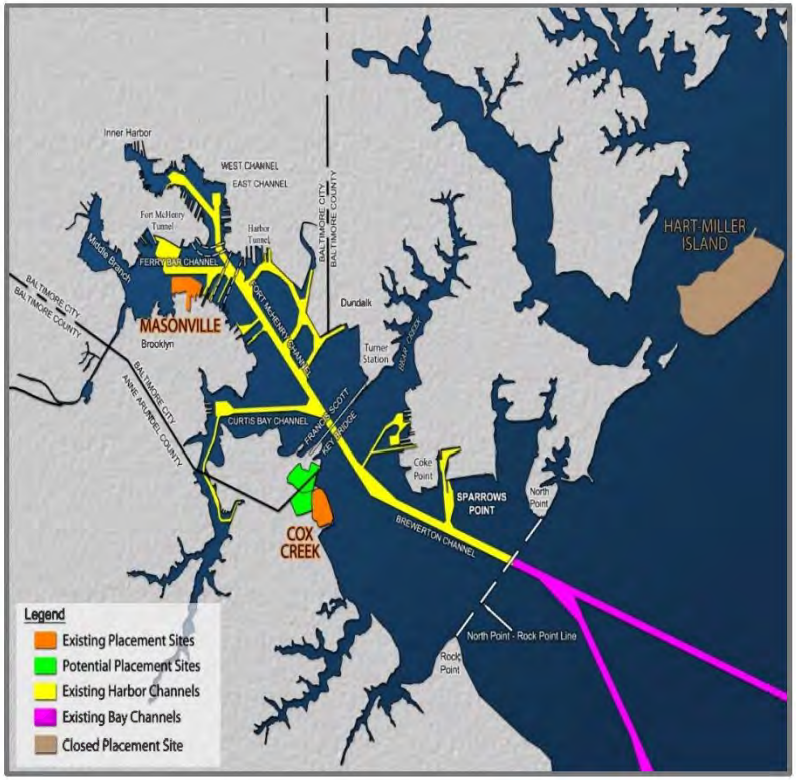
MPA DMMP Innovative Reuse Program
December 3, 2018

Dredged Material Management

Harbor Channel Material - Where do we go next?

SEDIMENT TO SOLUTIONS: CHANNELING INNOVATION





MARYLAND DEPARTMENT OF TRANSPORTATION
MARYLAND PORT ADMINISTRATION

PORT OF BALTIMORE 1706 Helen Delich Bentley

GreenPort of Baltimore

Dredging

Port of Baltimore Shipping Channels Maintenance Dredging

- Port of Baltimore's shipping channel
  - Maintaining a 50'depth keeps channels safe and open and the Port competitive.
- Annual maintenance of the State's marine highway
  - 136 miles of dredged channels/yr
- 4.7mcy of material is dredged annually
  - Harbor channel material: 1mcy/yr
  - Bay channel material
  - C&D Canal approach channel material

New Solutions Needed

SEDIMENT TO SOLUTIONS: CHANNELING INNOVATION

Innovative Reuse and Beneficial Use

Building Materials

Habitat Restoration

Manufactured Topsoil

Site Reclamation

MPA Long-Term Innovative Reuse Goal:

Recycle **500,000 cy/year** of Harbor Channel sediment

Innovative Reuse & Beneficial Use

SEDIMENT TO SOLUTIONS: CHANNELING INNOVATION

Statutory Definitions:

Innovative Reuse:
"includes the use of dredged material in the development or manufacturing of commercial, industrial, horticultural, agricultural or other products."

Beneficial Use:
"Means any of the following uses of dredged material from the Chesapeake Bay and its tributary waters placed into waters or onto bottomland of the Chesapeake Bay or its tidal tributaries, **including Baltimore Harbor**:

(i) The restoration of underwater grasses;
(ii) The restoration of islands;
(iii) The stabilization of eroding shorelines;
(iv) The creation or restoration of wetlands; and
(v) The creation, restoration, or enhancement of fish or shellfish habitats."

Harbor Channel Maintenance Dredged Material WHAT'S IN IT?

- **Physical Characteristics**
  - Fine-grained Silts and Clays
  - Estuarine sediments (salinity ranges 1-15 ppt)
  - Initial moisture content: 70-80% water by weight before dewatering

- **Chemical Characteristics**
  - Metals – majority are not at levels of concern
  - Organics – infrequently detected
  - Bay & Harbor material contain Sulfides

Dredged Material Reuse Potential

The MDE Guidance Document guides prospective end users of dredged material through the various steps, permits or approvals necessary based on the proposed project. It covers the sampling requirements, environmental and public health standards and long-term management needs.

Establishes **4 categories** for management (including dredged material) of engineered fill or soil, including as a soil amendment:

- Category 1 – Residential, Unrestricted
- Category 2 – Non-Residential, Restricted Use
- Category 3 – Restricted Use, Cap Required
- Category 4 – Ineligible for Reuse

Innovative Reuse Opportunities

- Conducting Field Demonstrations/Small Scale projects
- Governor Hogan issued Waste Reduction/Resource Recovery Executive Order
- MPA Completing Studies: UMD Testing Topsoil & Fill Material Blends
- Partnering with Maryland State Highway Administration (SHA)

Demonstration Projects

SEDIMENT TO SOLUTIONS: CHANNELING INNOVATION

Currently evaluating projects using dried dredged material from Cox Creek DMCF for:

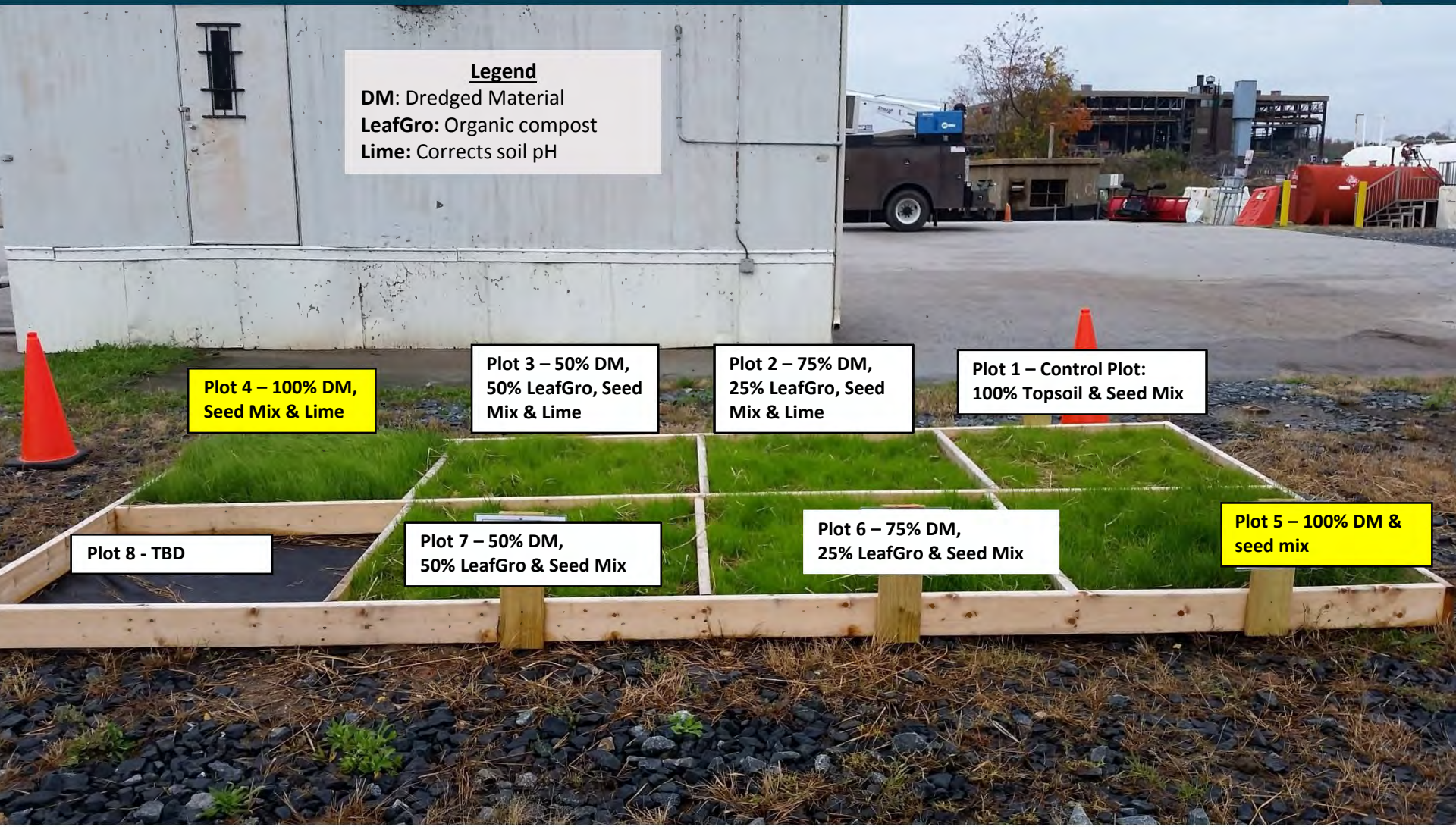
- **Alternative Daily Cover** (ADC) in partnership with Baltimore City
- **Engineered Fill** – on MPA property
- Small test **nursery** – growing grass in dredged material

Also exploring alternative sediment management opportunities at Hart Miller Island:

- **Design with Dredge pilot project** – in partnership with local landscape architecture firm, Mahan Rykiel.

Test Nursery at Cox Creek DMCF

SEDIMENT TO SOLUTIONS: CHANNELING INNOVATION



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MARYLAND PORT ADMINISTRATION

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Governor's Executive Order

June 2017 - Governor Hogan issued Waste Reduction/Resource Recovery Executive Order → prompted the creation of Sustainable Materials Management Maryland (SM3)

University of MD Studies

SEDIMENT TO SOLUTIONS: CHANNELING INNOVATION

Topsoil Study: Aimed to develop a dredged material blend with properties that meet the MDOT SHA topsoil specifications, evaluate potential leaching characteristics, and determine the geotechnical stability of the blend.

Embankment Study: Explored the use of dredged material as potential highway embankment material. This study was conducted by amending the dredged material with quarry by-products. Geotechnical analysis was coupled with an environmental assessment to ensure satisfactory performance of the dredged material in structural fills.

MARYLAND DEPARTMENT OF TRANSPORTATION MARYLAND PORT ADMINISTRATION

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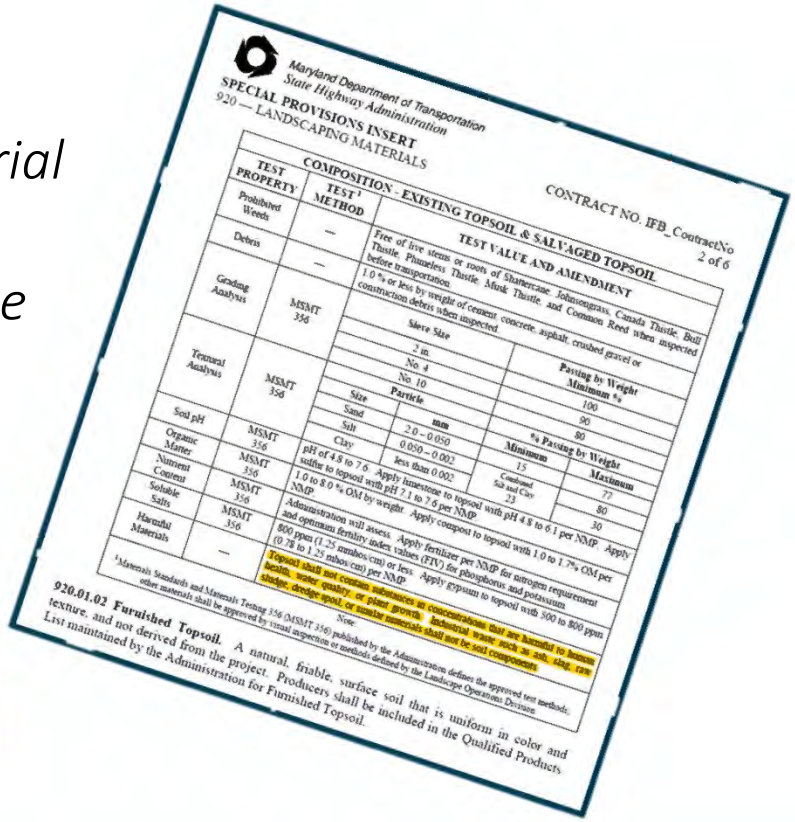
Partnering with SHA

Current 920 Topsoil Spec - Harmful Materials :

"Topsoil shall not contain substances in concentrations that are harmful to human health, water quality, or plant growth. Industrial waste such as ash, slag, raw sludge, dredge spoil, or similar materials shall not be soil components."



Maryland Department of Transportation
State Highway Administration

SPECIAL PROVISIONS INSERT
920 — LANDSCAPING MATERIALS

CONTRACT NO. IFB_ContractNo
2 of 6

COMPOSITION - EXISTING TOPSOIL & SALVAGED TOPSOIL

TEST PROPERTY	TEST METHOD	TEST VALUE AND AMENDMENT	
Prohibited Weeds	—	Free of live stems or roots of Shattercane, Johnsongrass, Canada Thistle, Bull Thistle, Plumeless Thistle, Musk Thistle, and Common Reed when inspected before transportation.	
Debris	—	1.0 % or less by weight of cement, concrete, asphalt, crushed gravel or construction debris when inspected.	
Grading Analysis	MSMT 356	Sieve Size	Passing by Weight Minimum %
		2 in.	100
		No. 4	90
		No. 10	80
Textural Analysis	MSMT 356	Particle Size	mm
		Sand	2.0 – 0.050
		Silt	0.050 – 0.002
		Clay	less than 0.002
Soil pH	MSMT 356	pH of 4.8 to 7.6	Apply limestone to topsoil with pH 4.8 to 6.1 per NMP. Apply sulfur to topsoil with pH 7.1 to 7.6 per NMP.
Organic Matter	MSMT 356	1.0 to 8.0 % OM by weight.	Apply compost to topsoil with 1.0 to 1.7% OM per NMP.
Nutrient Content	MSMT 356	Administration will assess.	Apply fertilizer per NMP for nitrogen requirement and optimum fertility index values (FIV) for phosphorus and potassium
Soluble Salts	MSMT 356	800 ppm (1.25 mmhos/cm) or less.	Apply gypsum to topsoil with 500 to 800 ppm (0.78 to 1.25 mhos/cm) per NMP.
Harmful Materials	—	Topsoil shall not contain substances at concentrations that are harmful to human health, water quality, or plant growth. Industrial waste such as ash, slag, raw sludge, dredge spoil, or similar materials shall not be soil components.	

Materials Standards and Materials Testing 356 (MSMT 356) published by the Administration defines the approved test methods. Note:
other materials shall be approved by visual inspection or methods defined by the Landscape Operations Division.

920.01.02 Furnished Topsoil. A natural, friable, surface soil that is uniform in color and texture, and not derived from the project. Producers shall be included in the Qualified Products List maintained by the Administration for Furnished Topsoil.

SHA will be updating the 920 furnished topsoil specification to remove the words "dredge spoil" from the Harmful Materials provision.

Questions?

MARYLAND DEPARTMENT OF TRANSPORTATION

MARYLAND PORT ADMINISTRATION

Sediment to Solutions: Channeling Innovation

APPENDIX E

Appendix E: Status of Organics Waste Diversion Infrastructure in Maryland

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, the quantity of food waste generated by an 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 tons (85 percent) of the 756,768 tons of yard trimmings generated.[215] Maryland law currently prohibits a refuse disposal system, such as a landfill or incinerator, from disposing of separately collected loads of yard trimmings.[216]

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. In 2016, 226,780 tons of yard trimmings were accepted at permitted yard waste composting facilities, of which a total of 645,197 tons were recycled. 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).

Where yard trimmings are recycled at centralized facilities rather than at 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. Table 1 provides brief information regarding the management of yard trimmings accepted by the counties.

Table 1 – Yard Trimmings Managed by the Counties

[215] 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

[216] Environment Article, § 9-1724, Annotated Code of Maryland.

County	Yard Trimmings Management
Allegany	Ongoing mulching operation at the County site and free mulch for residents
Anne Arundel	Ongoing composting operation at the permitted composting facility at the Millersville Landfill site. Exports some yard trimmings to Carroll County
Baltimore City	Ongoing composting operation at the composting pilot project. Some composting and mulching at the City's Recreation and Parks locations
Baltimore	Ongoing composting operation at the permitted composting facility at the Eastern Landfill site.
Cecil	Ongoing composting operation at the permitted composting facility at the Central Landfill Site.
Frederick	Ongoing composting operation at the permitted composting facility at the Reichs Ford Landfill site.
Garrett	Ongoing mulching operation at the County Landfill and free mulch for residents
Harford	Ongoing composting operation at the permitted composting facility at the Harford Waste Disposal Center Landfill Site.
Montgomery	Ongoing composting operation at the permitted composting facility.
Prince George's	Ongoing composting operation at the permitted composting facility.

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 2 lists the permitted and active composting facilities as of 2016 and their processing capacities, with actual tons of feedstock accepted, and the markets for the material composted. A map showing the active yard trimmings composting facilities is provided in Figure 1.

Figure 1 - Permitted Yard Trimmings Composting Facilities Operational in 2016

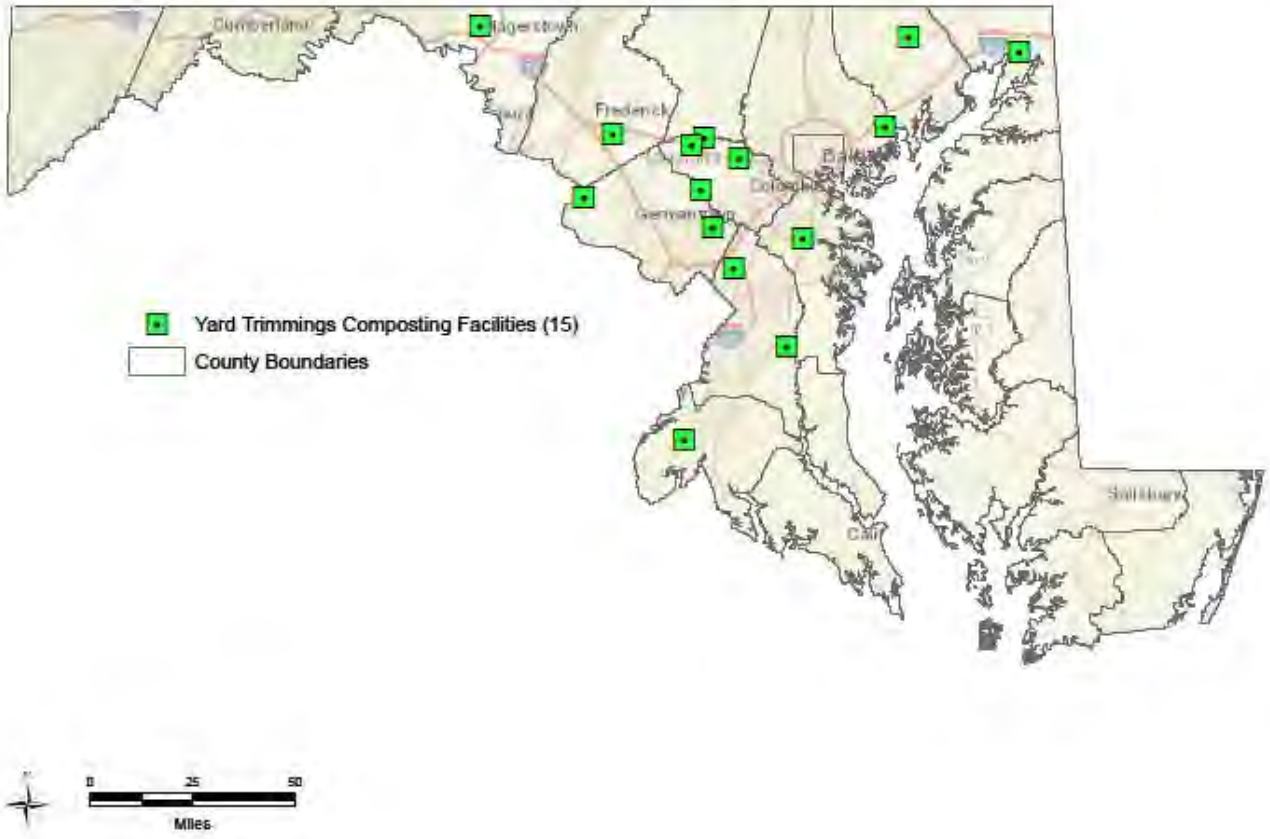


Table 2 – Permitted Yard Trimmings Composting Facilities Operational in 2016

Facility Name, County	Capacity (tons)	Accepted (tons)	Compost Produced* (tons)	Compost Markets
Millersville Landfill, Anne Arundel	35,000	27,357	3,448	Used at County Facilities, Sold to Farmers Landscapers
Eastern Sanitary Landfill, Baltimore	20,000	21,096	930	Used at the landfill site as soil amendments. Free distribution to the public
Harvest RGI, Carroll	50,000	37,443	26,067	Sold to Landscapers, Farmers, Home Owners, and Environmental Remediation Firms
Cecil County Central Landfill, Cecil	10,000	10,130	5,065	Used at the Landfill Site as topsoil for stabilization of disturbed areas
Calvert Wood Recycling, Charles	5,000	791	1,587	Used at the facility as specialized bio-retention soils
Reichs Ford Site B Landfill, Frederick	25,000	9,683	5,000	Sold to public and wholesale/retailers in State and out of state.
Harford Mulch and Compost Facility, Harford	40,000	7,682	7,510	Sold to the public. Self-load up to 3-30 gallons bags are for free
Alpha Ridge Landfill, Howard	6,000	5,750	2500	Blended topsoil products used by the County facilities, and sold to residents and contractors. HoCoGro Compost is sold to residents and contractors
Level Land Mulch Yard, Howard	6,250	585	500	Used at the facility and sold to landscapers and nurseries
Montgomery County Yard Trim Composting Facility, Montgomery	77,000	57,556	50,686	Leafgro product is sold to landscapers and homeowners
ACME Biomass, Montgomery	19,000	10,000	5000	Used at the facility and sold to landscapers and agricultural industry
Aspen Nursery, Montgomery	1250	563	300	Used at the facility and sold to residents and landscapers
Organics Composting facility, Prince George's	61,000	30,328	25,956	Leafgro product is sold to home improvement retailers in state and out of state
City of College Park Composting Facility, Prince George's	5,600	3,293	1,404	Sold to public and landscapers in state and District of Columbia
Forty West Landfill, Washington	5,000	4,523	2,261	Sold to public and landscapers. Compost is exported to out of state markets as well.
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, the feedstock may be accepted in 2016, but not composted until 2017.

Permitted Yard Trimmings Composting Facilities Planned for 2019

Table 3 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 2019 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 3 – Permitted Yard Waste Composting Facilities Planned for 2019

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 the 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.

Figure 2 - Active and Planned Permitted Yard Trimmings Composting Facilities by Region

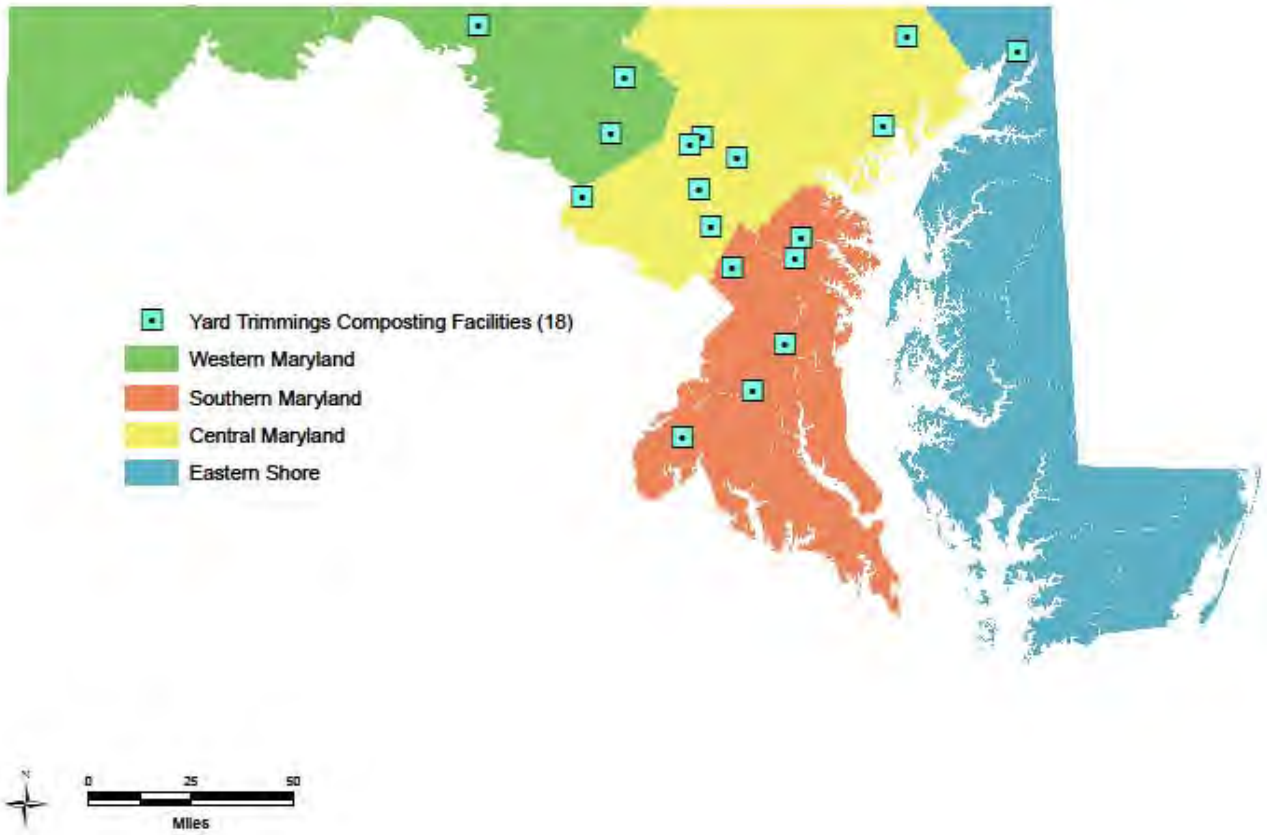


Table 4 provides a summary of existing and planned composting facilities and processing capacity by geographical region.

Table 4 – Summary of Yard Trimmings Composting Facilities and Processing Capacity in Tons by Region

Region	Population	No. of Facilities	Capacity in 2016	Additional Planned Capacity in 2019	Total Projected Capacity	Yard Trimmings Accepted in 2016
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
Eastern Shore Maryland	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 of in Maryland (next to paper), accounting for approximately 24 percent of the municipal solid waste disposed. Eighteen percent of the waste disposed of, or an estimated 713,257 tons, was food scraps. Wasted food is a growing problem in the country. In the United States, 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 United States goes to waste or about 63 million tons annually.[217] 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

[217] 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

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 (LFSGs) used in other states. See Table 5 below. These thresholds are generally used for the purpose of determining the applicability of a state's organics disposal ban or recycling mandate, 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 LFSG status.

Table 5 – Definitions of LFSGs in Other States

States	LFSG Definition
California[218]	Entity producing 4 cubic yards of "organic waste" per week (includes food scraps and yard trimmings)
Connecticut[219]	Entity producing 52 tons of food scraps per year
Massachusetts[220]	Entity producing 52 tons of food scraps per year
Vermont[221]	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.[222] 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 6 shows that the LFSG types identified by the CLF generated the great majority of food scraps in Maryland.

[218] California Public Resources Code, § 42649.81.
[219] Connecticut General Statute Title 22a, Chapter 446d, Section 22a-226e.
[220] Massachusetts Code of Regulations 310 CMR 19, Section 19,017.
[221] 10 Vermont Statutes Annotated, § 6605k.
[222] 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

Figure 3 - Large Food Waste Generators

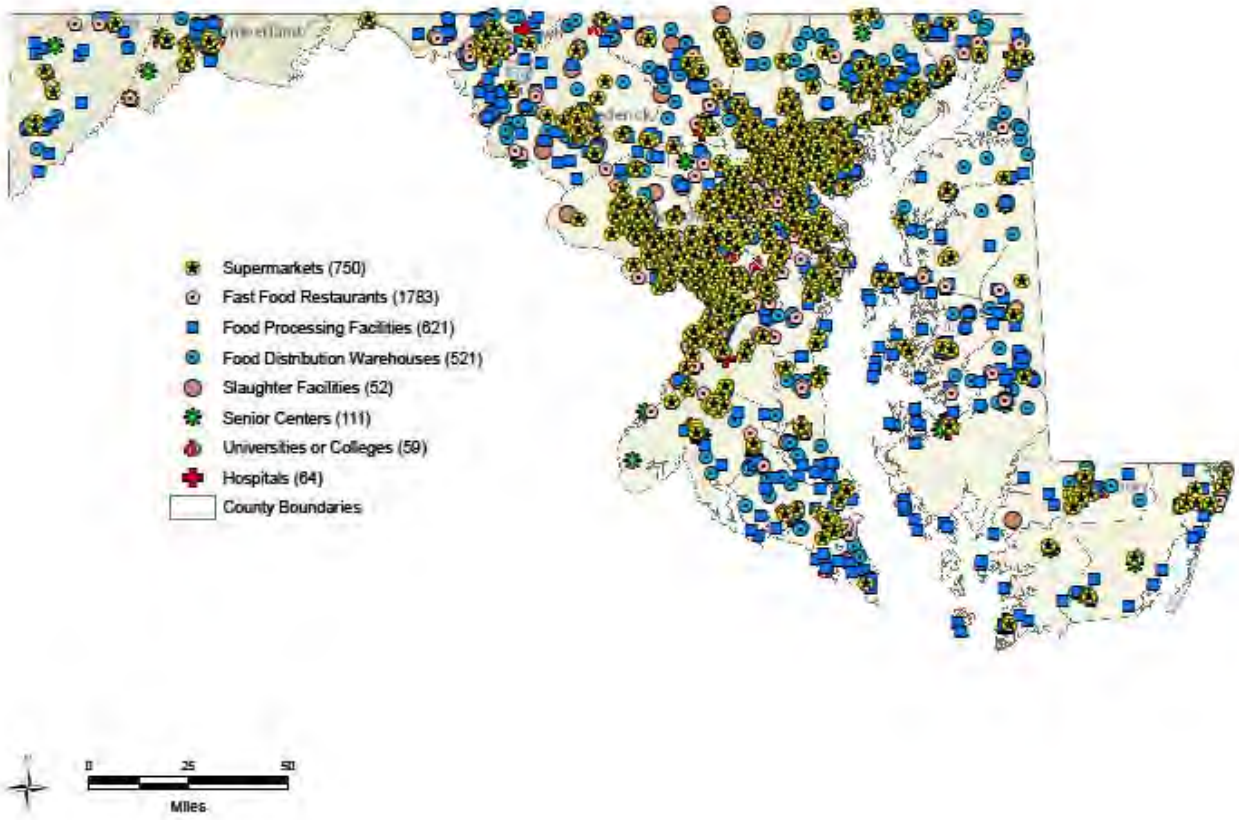


Table 6 – Estimated Food Scraps Generation from LFSGs

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
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 generated 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 residentially generated food scraps is currently limited; only one county, Howard County, currently offers curbside food scrap collection (in a portion 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 a 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 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 Farm Stewardship Certification and Assessment Program (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 7 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 7 – Food Scraps/Manure Permitted Composting Facilities Operational in 2016

Facility Name, County	Facility Type	Capacity (tons)	Accepted (tons)	Compost Produced* (tons)	Compost Markets
Twin Maple, Caroline	Food Scraps/ Straw/Manure	13,000	0	0	Land applications
West Coast Mushrooms, Cecil	Hay/Straw/Manure	16,120	16,170	20,700	Used at the Site
Veteran Compost, Harford	Food Scraps /Manure	20,000	1,800	1,435	Sold to retailers, homeowners, and agricultural buyers
Alpha Ridge Landfill, Howard	Food Scraps /Manure	2,000	1,950	1,335	Blended topsoil products used by the County facilities, and sold to residents and contractors. HoCoGro Compost is sold to residents and contractors
Organics Composting Facility, Prince George's	Food Scraps /Yard Waste	8,000	4,062	6,490	Leafgro product is sold to home improvement retailers in state and out of state
	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, the feedstock may be accepted in 2016 but not composted until 2017.

Figure 4 - FSCAP Horse Farms and Animal Feeding Operation Farms

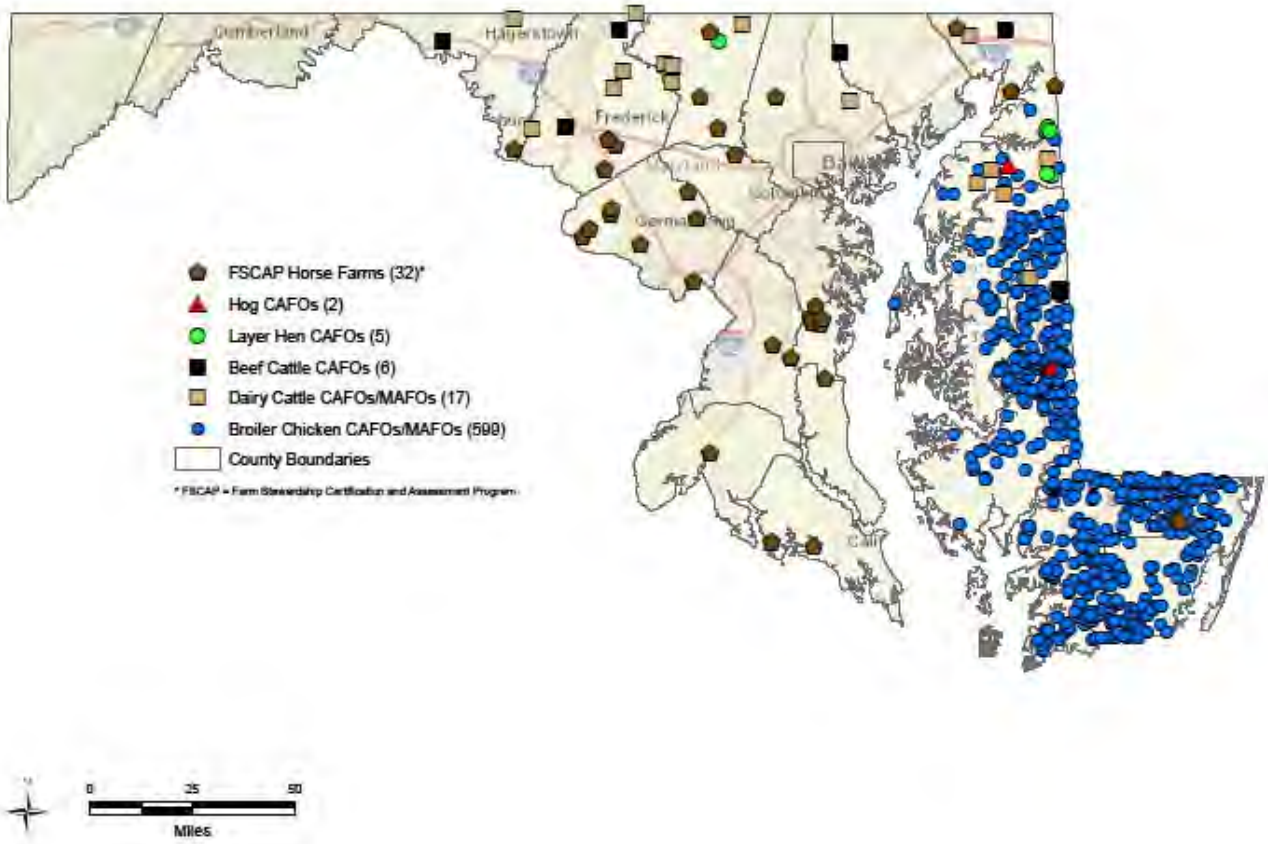
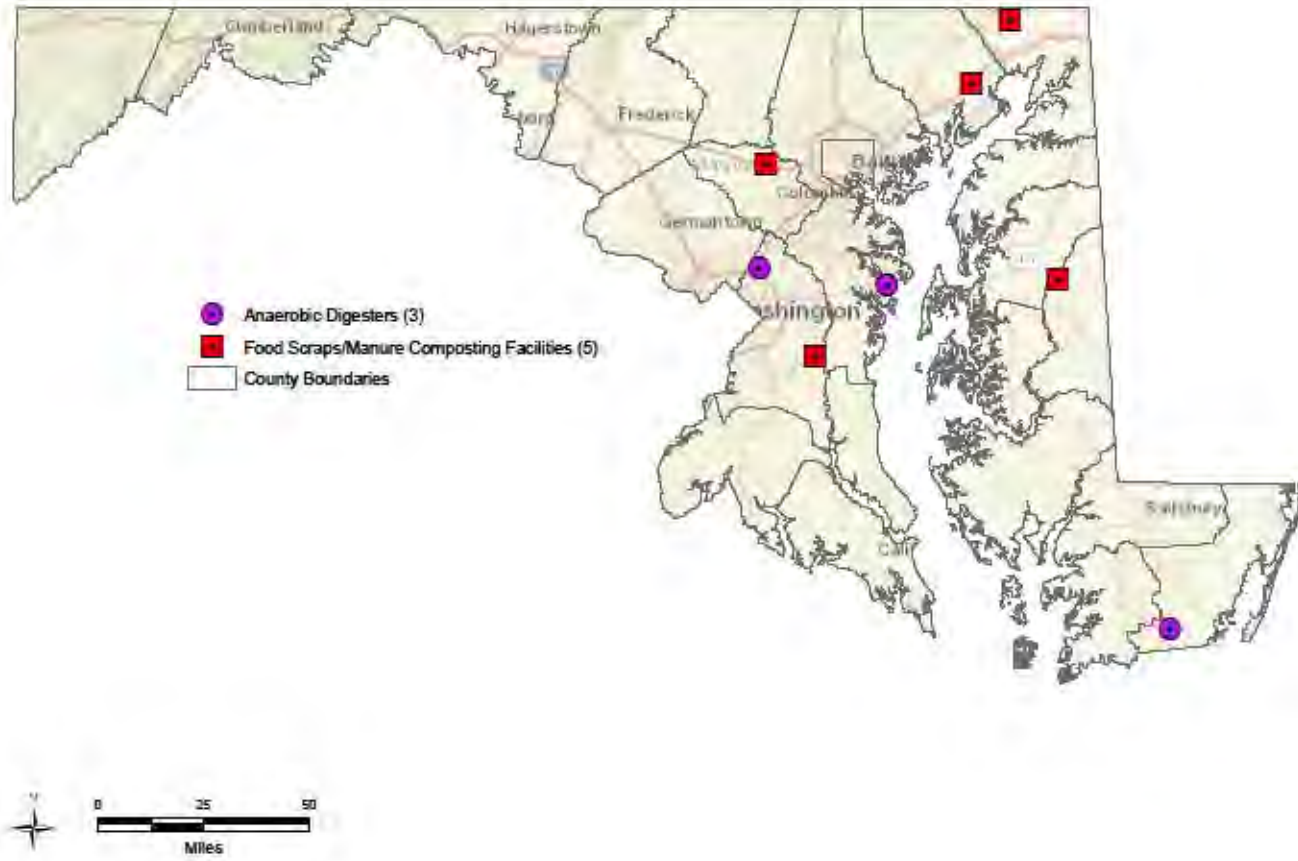


Figure 5 - Food Scraps/Manure Composting Facilities Operational in 2016



Planned Food Scraps/Manure Composting Facilities

Table 8 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 2019 provided that the facilities obtain all applicable local permits and approvals. The combined composting capacity of these facilities will be 38,000 tons per year, which will bring the total State's food scraps/manure composting capacity to 97,120 tons per year.

Table 8 – Planned Permitted Food/Manure Composting Facilities for 2019

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**		

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

Table 9 – Summary of Food/Manure Composting Facilities and Processing Capacity in Tons by Region

Region	Population	No. of Facilities	Capacity in 2016	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 Maryland	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.[223] Anaerobic digestion can be used to generate biogas from a variety of organic materials, including food scraps, animal manure, municipal wastewater, sewage sludge, fats, oils, and grease. Table 10 provides a list of active and planned anaerobic digestion operations in Maryland. A map showing the location of composting facilities and anaerobic digesters is contained in Figure 5.

[223] American Biogas Council, "What is Anaerobic Digestion," https://www.americanbiogascouncil.org/biogas_what.asp.

Figure 6 - All Active and Planned Food Scraps/Manure Composting Facilities

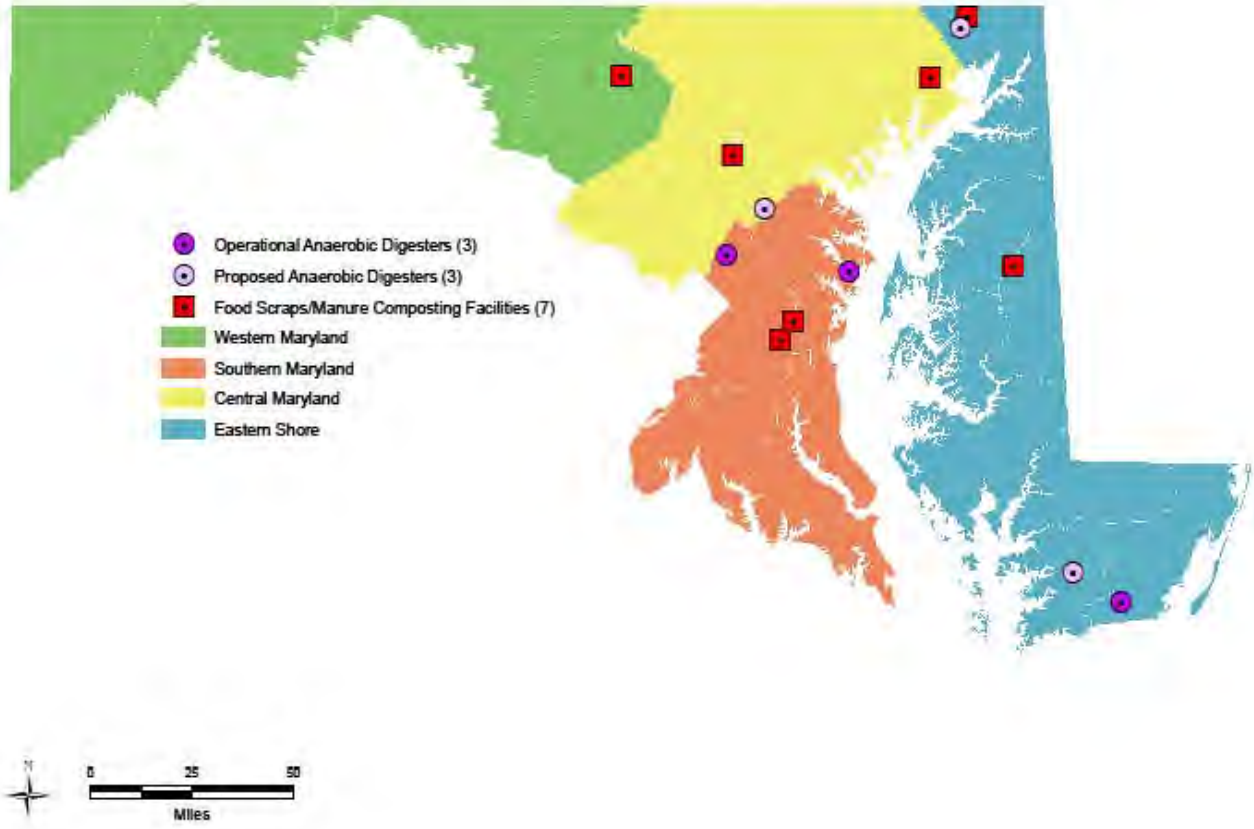


Table 10 – Active and Planned Anaerobic Digestion Operations

County	Facility Name	Operation Type	Capacity	Operational Status
Anne Arundel	US Naval Academy	Food Scraps	Not Available	Active
Cecil	Kilby Inc.	Food Scraps/Manure	Not Available	Being Upgraded
Howard	BTS Bioenergy America	Food Scraps	100,000 tons/year	Being Built
Prince George's	USDA/ARS Beltsville Agricultural Research Center	Manure	Not Available	Active
Somerset	Clean Bay Renewables	Poultry Litter	80 tons/day	Planned
Worcester	Millennium Farms	Poultry Litter	1,250 tons/year	Active

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. [224] 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, 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.

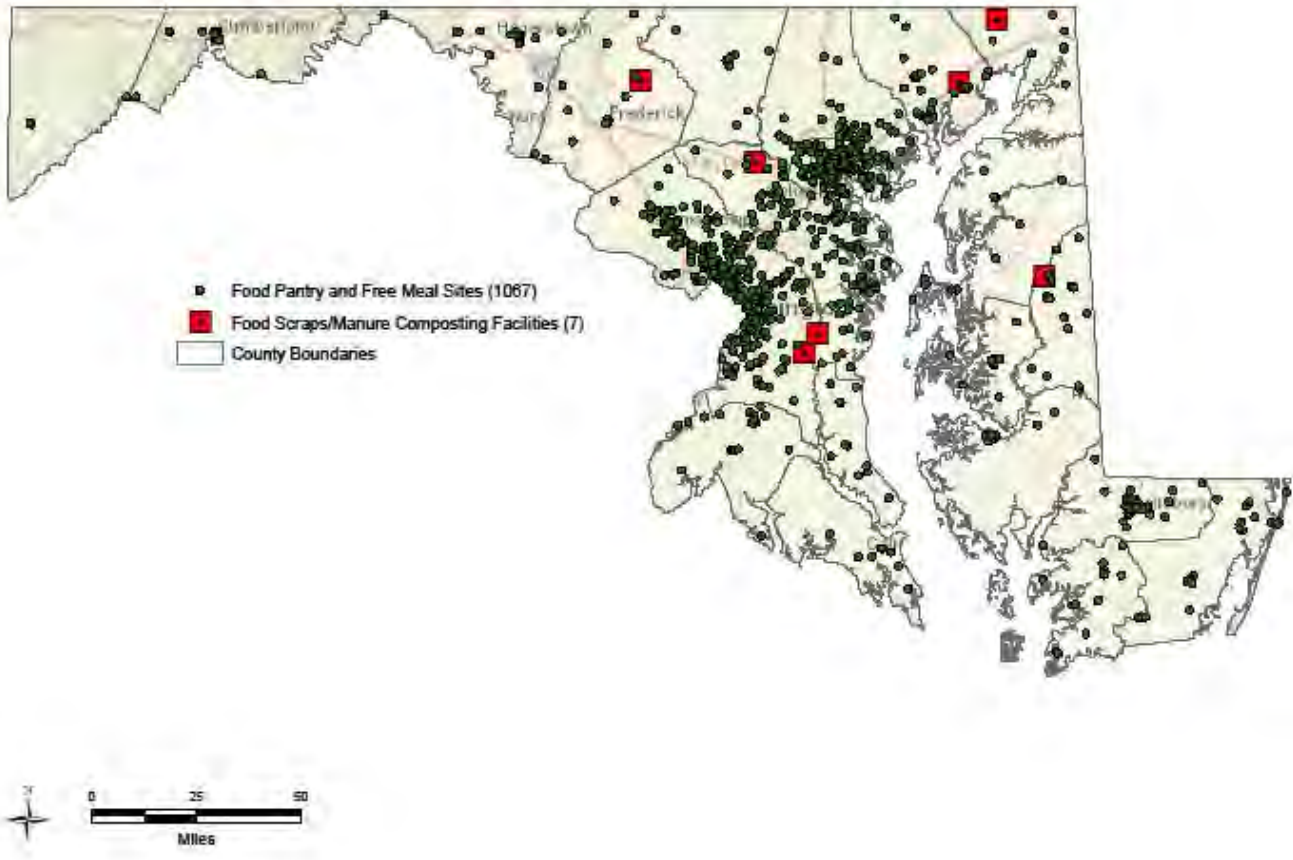
The CAFB operates in the Washington metropolitan area, including in Montgomery and Prince George's Counties.[225] According to CAFB, in the fiscal year 2015, 8,700 tons of food was distributed in Maryland through food assistance partners and direct distribution programs. Figure 7 provides a map of the 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. [226]

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 percent 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 capacity is currently limited in Maryland.
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 the collection and distribution infrastructure.

[224] Maryland Food Bank, http://www.Mdfoodbank.org.
[225] Capital Area Food Bank, https://www.capitalareafoodbank.org/about-cafb/
[226] Manna Food Center, https://www.mannafood.org/

Figure 7 - Food Pantry and Free Meal Sites



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 the collection and recycling of NWW. In 2016, 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 11 provides a list of permitted NWW facilities and Figure 8 provides a map showing the locations of these facilities.

Table 11 – 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
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

County	Facility Name	NWW Accepted	NWW Recycled
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 the 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 that 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 12 - Comparison of Organics Diversion Activities of Other States with Maryland*

State	Population	Organics Diversion	Permitted Composting Facilities		Anaerobic Digestion Sites	Food Disposal Ban
			Yard Trimmings	Food Residuals/ Manure		
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
Maryland	6,016,447	126,248 tons of food scraps, 645,197 tons of yard trimmings, and 484,079 tons of NWW.	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**	16	Yes

*Unless otherwise noted, data is for the calendar year 2016.
** Includes yard trimmings.

APPENDIX F

Appendix F: Other State Laws and Regulations Governing the Diversion of Organics

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

HB 171 Study Topic 2: Study the laws and regulations of other states, including the laws and regulations of Massachusetts, Connecticut, Vermont, California, and Rhode Island, governing the diversion of yard waste, food residuals, or other organic materials.

May 2018

INTRODUCTION

Pursuant to Chapter 384 of 2017, *Department of the Environment – Yard Waste, Food Residuals, and Other Organic Materials Diversion and Infrastructure Study*, this document summarizes organic material diversion laws enacted in the following states: Massachusetts, Connecticut, Vermont, California, and Rhode Island. This document will explore laws and regulations related to source reduction, food donation, use of food as animal feed, and recycling (composting, mulching, and anaerobic digestion).

SOURCE REDUCTION AND REUSE

Food Waste Reduction

The U.S. Department of Agriculture (USDA) Economic Research Service reports an estimated 31 percent of food available for human consumption in 2010 was lost at the retail and consumer levels, resulting in an estimated total retail loss of $161.6 billion. The top three food groups lost, in terms of retail monetary value, were animal-based at $48 billion (30 percent), vegetables at $30 billion (19 percent), and dairy products at $27 billion (17 percent).[82] Laws that promote the reduction of food residuals, donation of edible surplus food, or reuse of food through animal feeding can combat food loss in the U.S. These laws can include consistent and science-based date labeling provisions, liability protection and safety standards for food donation, and clear rules for use of human food residuals as animal feed. However, most states do not expand upon the donation liability protections, food labeling, and food safety requirements codified in federal laws. In addition, the complexity of federal animal feed laws can disincentive the reuse of food residuals as animal feed. The subsequent sections will explore how states have adopted or expanded upon federal laws in these areas.

Date Labeling Requirements

Consumers and sellers of food often rely upon date labels in determining when to discard food as no longer safe to eat or sell. However, in many circumstances, date labels are not required by law and are not intended to communicate information on product safety. Further, producers use a

[82] *See* Buzby, J., et al. *The Estimated Amount, Value, and Calories of Postharvest Food Losses at the Retail and Consumer Levels in the United States*. Economic Information Bulletin Number 121. Economic Research Service, United States Department of Agriculture. Feb. 2014. https://www.ers.usda.gov/webdocs/publications/43833/43680_eib121.pdf. The Economic Research Service's food loss estimations are adjusted to exclude inedible food residuals, such as vegetable peels.

broad variety of language to communicate information such as peak quality, leading to inconsistency and consumer confusion. States' labeling laws are not uniform in the food products regulated, nor in food products that are prohibited from being sold or served past the label's date. Rethinking date labeling policies and clarifying the meaning of labels through outreach can achieve source reduction by preventing the disposal of wholesome food simply because it is near or past the date on the label.[83]

At the federal level, the U.S. Food and Drug Administration (FDA) only regulates date labeling of infant formula.[84] The USDA Food Safety and Inspection Service (FSIS) regulates the labeling of meat, poultry and egg products. FSIS regulations allow the voluntary use of date labels on regulated food products, provided that the labels are not false or misleading and comply with FSIS calendar date provisions.[85] In addition to the USDA FSIS guidance, major trade associations Food Marketing Institute and the Grocery Manufacturers Association have launched an initiative that promotes the voluntary adoption of standardized food date labeling language. Food retailers and manufacturers are encouraged the use of "BEST if Used By" phrase to relay food quality and "USE By" phase to relay food safety.[86]

Most states only regulate date labeling of dairy products and shellfish. Table 1 provides an overview of Massachusetts, Connecticut, Vermont, California, and Rhode Island laws requiring date labels.

Table 1. State Food Date Labeling Laws

Citation	Food Items Requiring Date Labels	Sale Past Date Label Prohibited
California		
Cal. Food & Agric. Code § 27644 Cal. Food & Agric. Code § 36004; 3 CCR § 627 Cal. Health & Safety Code § 114039	Eggs Dairy products Shellfish	No No No
Connecticut		
Conn. Gen. Stat. Ann. § 22-197b; Conn. Agencies Regs. §22-133-131 Conn. Gen. Stat. Ann. § 26-78a(c)[87]	Dairy products Donated game meat	No No
Massachusetts		
105 CMR 500.006	Prepackaged perishable or semi-perishable food products, with exemptions[88]	Yes, with exemptions
Maryland		

[83] See *Keeping Food Out of the Landfill: Policy Ideas for States and Localities*, Harvard Food Law and Policy Clinic. p. 26. Oct. 2016. https://www.chlpi.org/wp-content/uploads/2013/12/Food-Waste-Toolkit_Oct-2016_smaller.pdf.

[84] 21 CFR § 107.20.

[85] 9 CFR 317.8 and 381.129. In December 2016, the USDA FSIS issued new guidance which recommends the use of the "Best if Used By" phase when applying date labels to meat, poultry, and eggs products. The "Food Product Dating" guidance document can be view at https://www.regulations.gov/contentStreamer?documentId=FSIS-2016-0044-0001&contentType=pdf.

[86] Please see the Grocery Manufacturers Association's 2017 news release for more details about food product date labeling initiative at https://www.gmaonline.org/news-events/newsroom/grocery-industry-launches-new-initiative-to-reduce-consumer-confusion-on-pr/.

[87] Charitable organizations must notify recipients the donated game meat was not and is not required to be inspected under Connecticut's food safety laws and the State is not liable for injury as a result of eating the meat, and meat should be labeled with the phrase "not for sale."

[88] The food products exempt from Massachusetts food labeling regulations include: fresh meat, poultry, fish, fruits and vegetables unpackaged or packaged in translucent containers; pre-packaged food products for retail sale weighing less than 1.05 ounces; and food products intended for sale outside of Massachusetts (105 CMR 500.006(B)(9)).

Citation	Food Items Requiring Date Labels	Sale Past Date Label Prohibited
Md. Code Ann. Health-Gen. § 21-456; COMAR 10.15.06.10-.11	Grade A Milk	Yes, with exemptions[89]
Rhode *Island*		
R.I. Gen. Laws Ann. § 21-14-9 R.I. Gen. Laws Ann. § 21-33-2	Shellfish Packaged baked goods	No Yes, with exemptions
Vermont		
12-5 Vt. Code R. § 30:5-204 12-5 Vt. Code R. § 30:5-205	Shellfish Ready-to-eat, potentially hazardous food	No Yes

Massachusetts has a broad requirement for the labeling of packaged food products, with a recommended last date of retail sale (indicated with "sell by," "best by," or "use by" language) that provides for a reasonable subsequent period of home shelf life.[90] Shelf life is not necessarily a safety-related concept but takes into account the risk of spoilage, loss of nutritional value, and loss of palatability. Frozen or long shelf life food products may be date labeled, in which case they must follow the label format outlined in regulations. Massachusetts generally prohibits the sale of past-date food products but provides additional detail, allowing food products to be distributed after the date if the food is (1) apparently wholesome and its quality is not considerably reduced; (2) segregated from food products that have not exceeded their date; and (3) labeled indicating the product is for sale after the recommended sale or use by date.[91] Vermont's food label regulations incorporate food safety provisions, requiring ready-to-eat, potentially hazardous food to be labeled with a date that is at least seven calendar days from the preparation date or its removal from refrigeration of at least at 41˚F.[92] If the food is not consumed or sold within these seven days, it must be disposed of.[93]

Country of Origin and PLU Labeling

Besides date labeling, food products may be labeled with additional identifying information. The Country of Origin Labeling (COOL) law requires food retailers to inform customers of the country origin for certain foods.[94] Food products subject to this law, referred to as covered commodities, include certain meats, fish, produce, and peanuts.[95] Price Look Up (PLU) codes are a four or five digit number, assigned by the International Federation for Produce Standards, used voluntarily by retailers on bulk produce to streamline inventory control and purchasing of products. A PLU code identifies the type of produce commodity, if the produce is organic or non-organic, the size of the produce, and the price of the produce.[96]

Many produce retailers and manufacturers satisfy the federal COOL requirement and voluntarily utilize PLU codes through adhesive labels on fresh produce. Not removing these labels before

[89] Food service facilities, hospitals, schools, institutions, and place where milk is consumed on the premises can serve Grade A Milk for no more than four days past the sell-by-date (COMAR 10.15.06.11).
[90] 105 CMR 500.006(B)(5).
[91] 105 CMR 500.006(B)(4) and 500.006(B)(9).
[92] Ready to eat food means food that is edible without washing, cooking, or additional preparation can be consumed in this form (12-5 Vt. Code R. § 30.13). Potentially hazardous food means food that requires temperature control to prevent the growth of infectious or toxigenic bacteria (12-5 Vt. Code R. § 30:5-203).
[93] 12-5 Vt. Code R. § 30:5-205.
[94] Food service establishments are exempted from the COOL requirement 7 U.S.C. 1621 et seq.
[95] 7 US Code § 1638a
[96] Additional information on PLU codes is accessible on the International Federation at https://www.ifpsglobal.com/.

disposal may prevent produce from being recovered for animal feeding, composting, and anaerobic digestion. The COOL law does not stipulate the exact size, medium, or placement of the label; the law only requires that the COOL be "legible and placed in a conspicuous location where they are likely to be read and understood by a customer."[97] The COOL law can be satisfied and PLU codes voluntarily used through alternative labeling (i.e., biodegradable or edible labels), which could increase the diversion of uneaten produce. As of present, no states have adopted policies that encourage food retailers to use alternative labeling when displaying the COOL or using PLU codes.

Liability Protection for Food Donation

The Bill Emerson Good Samaritan Food Donation Act (the Emerson Act) serves as a federal baseline by providing liability protection to donors and non-profit recipients of donated food when the food is distributed at no cost to needy populations as long the donor or non-profit did not act with gross negligence or intentional misconduct.[98] The Emerson Act also protects a farmer who allows the gleaning of donated food crops on the person's property from civil or criminal liability that arises due to the injury or death of the gleaner when the donations are distributed to needy populations, and the farmer did not act with gross negligence or intentional misconduct.[99] The Harvard Food Law and Policy Clinic has examined the limitations of the Emerson Act and ways that state laws may provide stronger liability protections.[100] The Emerson Act does not provide liability protection for food donations that are distributed at a nominal fee to recipients or that are distributed directly to recipients without passing through a non-profit. To be protected under the Emerson Act, the donated food must comply with federal, state, and local quality and labeling standards, even if those standards are not safety-related. In addition, the Emerson Act does not explicitly protect food that is past the date on the label but is still safe for human consumption. The Emerson Act also only addresses food donated for human consumption and not food diverted for animal feed.

Table 2. State Liability Protection Laws

State	Law Citation	Liability Protection		Distributors Covered		Nominal Fee Permitted	Past Shelf Date Covered
		Civil	Criminal	Non-Profit	Direct		
CA	Cal. Civ. Code § 1714.25; Cal. Food & Agric. Code § 58502; Cal. Health & Safety Code §§ 114432-114435	X	X	X	X		X
CT	Conn. Gen. Stat. Ann. §§ 52-557L-K; Conn. Gen. Stat. Ann. § 26-78a	X	X	X		X	
MA	Mass. Gen. Laws Ann. Ch. 94, § 328[101]; 105 CMR 500.006(B)(4)	X		X		X	X

[97] 7 CFR § 65.400.
[98] 42 USC § 1791.
[99] Idib.
[100] Harvard Food Law and Policy Clinic, *Keeping Food Out of the Landfill: Policy Ideas for States and Localities*, p. 6. Oct. 2016. https://www.chlpi.org/wp-content/uploads/2013/12/Food-Waste-Toolkit_Oct-2016_smaller.pdf
[101] A non-profit organization's liability protection is contingent on the organization ensuring the food establishment that donated the food is compliant with the permit and inspections requirements of the Department of Public Health and the local board of health.

State	Law Citation	Liability Protection		Distributors Covered		Nominal Fee Permitted	Past Shelf Date Covered
		Civil	Criminal	Non-Profit	Direct		
MD	Md. Code Ann. Cts. & Jud. Proc. § 5-634; Md. Code Ann. Health-Gen. § 21-322	X		X			
RI	R.I. Gen. Laws Ann. § 21-34-1—2; R.I. Gen. Laws Ann. § 21-33-3[102]	X	X	X			Prepacked baked goods
VT	VT. Stat. Ann. Tit. 12 §§ 5761-5762[103]	X	X	X	X		

The limitations of the Emerson Act can be addressed within the provisions of states' individual "Good Samaritan" food donation laws. For example, California's law protects direct donation by food facilities, and Vermont's law protects donation by any "good-faith donor."[104] Connecticut and Massachusetts both allow non-profit organizations to distribute donated food at a fee while maintaining liability protection for the donor and non-profit organization. In Massachusetts, the fee must be "sufficient only to cover the cost of handling such food," in Connecticut the fee must be "nominal." [105] Massachusetts, which has stringent date labeling laws for food (see above), specifically allows for the donation of past-date food without losing liability protection, as long as that food meets other requirements related to wholesomeness, separation from other foods, and labeling.[106]

California has taken additional steps to promote food donation and to educate stakeholders on the Good Samaritan Food Donation Act. With the passage of AB 1219 of 2017, California Department of Public Health's Environmental Health Officers are required to educate the owners and operators of food facilities on the civil and criminal liability protections afforded to these facilities when donating apparently wholesome food.[107] This outreach will occur during Environmental Health Officers routine inspections of food facilities through the distribution of outreach materials.

Food Safety Standards for Food Donation

The FDA Food Code establishes national food safety standards for food establishments; however, it is not codified into federal law.[108] States can choose to adopt the FDA Food Code in its entirety or in part. Massachusetts, Connecticut, Vermont, California, and Rhode Island have all adopted a version of the FDA Food Code; however, neither the FDA Food Code nor these states' food safety regulations provide comprehensive standards for safely handling food intended for donation.[109] The Comprehensive Resource for Food Recovery Programs, the sole federally recognized food

[102] Rhode Island authorizes the sale of pre-packed baked goods after the "past date" as long as (1) it's separated from products that have not and (2) is labeled as being offered for sale "past date."
[103] Vermont does not extend liability protection for the donation of canned goods that are rusted, leaking, swollen or defective
[104] Cal. Civ. Code § 1714.25(a); VT. Stat. Ann. Tit. 12 §§ 5762(a).
[105] Mass. Gen. Laws Ann. Ch. 94, § 328; Conn. Gen. Stat. Ann. §§ 52-557I(a).
[106] Id.; 105 CMR 500.006(B)(4).
[107] Cal. Health & Safety Code § 114435.
[108] The FDA Food Code webpage: https://www.fda.gov/Food/GuidanceRegulation/RetailFoodProtection/FoodCode/.
[109] Massachusetts adopted the 1999 FDA Food Code, Connecticut adopted the 2017 FDA Food Code; Vermont and California adopted the 2001 FDA Food Code; and Rhode Island adopted the 2005 FDA Food Code. See full list the adoption of the FDA Food Code by each state at https://www.fda.gov/downloads/Food/GuidanceRegulation/RetailFoodProtection/FoodCode/UCM577858.pdf.

donation guide for entities facilitating food recovery programs, is updated infrequently and does not incorporate the FDA Food Code.[110] This may discourage state regulatory agencies from adopting provisions of the Comprehensive Resource for Food Recovery Programs into state food safety regulations.[111]

Texas and Washington have adopted regulations that provide comprehensive food safety guidance for food establishments participating in food recovery programs. Summaries of Texas and Washington's donated food safety regulations are provided below:

- Texas establishes requirements for properly handling, transporting, and storing potentially hazardous food for distribution through a charitable organization or directly to a recipient.[112] In addition, it outlines the food products that are not permitted for donation, which include foods previously served to customers, heavily rim- or seam-dented canned goods, packaged foods without the manufacturer's complete labeling, and foods that have been subject to extreme temperature or weather.
- Washington provides comprehensive donated food safety requirements for operating a food recovery program.[113] It exempts a donated food distribution organization from requirements of a food establishment permit and certain food service regulations if (1) the food is donated to food insecure populations; and (2) potentially hazardous food prepared on-site is distributed within eight hours. It also:
    - Establishes standard operating procedures and equipment requirements for donated food distribution organizations to ensure food safety;
    - Lists the food products a donated food distribution organization may and may not receive, and requires all food products received to be inspected for quality and safety;
    - Allows alternative labeling of packaged foods; and
    - Requires record keeping of certain received donated foods for at least 30 days and annual reporting to the local board of health.

Animal Feeding Policies

Certain types of food residuals that cannot be used to feed people may be used to feed animals, such as brewery grains; peels, hulls, pulp, and other produce residuals; and human food products that are safe but not marketable for various reasons. A human food facility may process food residuals into animal feed on site, or provide food residuals directly to an animal producer for feeding or an animal feed production facility for further processing.

Federal and state laws govern the use of food residuals as animal feed with an emphasis on preventing the spread of diseases. The majority of state laws incorporate the animal feed requirements mandated in federal laws, including the following: [114]

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[110] Food Recovery Committee. *Comprehensive Resource for Food Recovery Programs.* Apr. 2016, The Conference for Food Protection. http://www.foodprotect.org/media/guide/comprehensive-resource-for-food-recovery-2016-version.pdf.

[111] Harvard Law School Food Law and Policy Clinic and the Natural Resources Defense Council. *Don't Waste, Donate: Enhancing Food Donations Through Federal Policy*. Mar. 2017, https://www.nrdc.org/sites/default/files/dont-waste-donate-report.pdf.

[112] 25 Tex. Admin. Code § 228.83.

[113] Wash. Admin. Code § 246-215-09400 et seq.

[114] All state swine feeding laws exempt households from garbage treating licenses and authorize the feeding of untreated household garbage to swine on that household's premises.

- Animal feed may not be adulterated or handled in unsanitary conditions nor may food labels be false or misleading, pursuant to the Food, Drug, and Cosmetic Act (FD&C Act);[115]
- "Garbage" must be heat-treated (212˚F for 30 minutes) by a licensed facility before being fed to swine, pursuant to the Swine Health Protection Act; and [116]
- Food residuals containing animal tissue may not be used as feed for ruminant animals, pursuant to the Transmissible Spongiform Encephalopathy/Ruminant Feed Ban Rule.[117]

Table 3. State Laws Governing Use of Food Residuals for Animal Feed

Citation	Animal Covered	License To Feed	Treatment Requirements	Covered Food Scrap Types
California				
Cal. Food & Agric. Code §§ 10901–90	Swine	Required	Boil 212˚F/30 min	Untreated garbage
Cal. Food & Agric. Code § 34006	Farm Livestock	No	Boil 145˚F/30 mins or 185˚F	Unpasteurized milk
Connecticut				
Conn. Gen. Stat. §§ 22-320a–g	Swine	Required	Boil 212˚F/30 min	Untreated garbage
Maryland				
Md. Code Ann., Agric. § 3-404[118]	Swine	Required	Heat-treated	Garbage
Massachusetts				
Mass. Gen. Laws ch. 270, § 9	All ruminants	No	None	Animal Tissue
Mass. Gen. Laws ch. 129, § 14B	Swine	Required	Boil 212˚F/30 min	Untreated garbage
Rhode Island				
R.I. Gen. Laws §§ 4-3-1–11	Swine	Required	Boil 212˚F/30 min	Garbage
Vermont				
Vt. Stat. Ann. tit. 6, §§ 1671–77	Swine	No	None	Garbage

In addition to these laws, animal food production facilities must comply with the FDA's Food Safety Modernization Act (FSMA) Preventive Controls rule for animal food.[119] The FSMA Preventive Controls rule for animal food applies to facilities registered under the FD&C Act to manufacture, process, pack, or hold animal food.[120] It does not apply to farms, retail food establishments, restaurants, non-profits producing or serving food directly to consumers, and non-processing fishing vessels.[121] In general, the FSMA Preventive Controls rule requires animal food facilities to implement the following food safety controls: Current Good Manufacturing Practices (CGMPs); Hazard Analysis and Risk-based Preventive Controls (HARPC); and if applicable, a

[115] 21 USC §§ 342 – 343.
[116] 9 CFR § 166. Federal law defines "garbage" as all waste material derived in whole or in part from the meat of any animal and other refuse of any character that has come into contact with the meat of an animal due to handling, preparation or consumption. This definition excludes meat-containing food waste from a household that is fed to swine only for that household's use (9 C.F.R. § 166.1).
[117] 21 CFR § 589.2001.
[118] Maryland law does not specify the temperature or duration the garbage must undergo heat-treatment. The law requires the garbage be heat-treated until it is a uniform consistency containing no more than one percent moisture and is determined to be non-putrescible; the resultant product is considered commercial animal feed, not garbage.
[119] 21 CFR § 507.
[120] 21 USC § 350d.
[121] 21 CFR 507.5(a). Section 1.226 lists the facilities exempt from registration under section 350d of the FD&C Act; these facilities are also exempt from the FSMA Preventive Control rule for animal food. Processing fishing vessels are required to develop and implement Preventative Controls rule for human food's CGMPs and HARCPs for their operations (21 CFR 123).

Supply Chain Program.[122] A human food facility that uses human food by-products for animal feed is subject only to basic CGMPs related to holding and distribution if it already complies with CGMPs and other safety requirements for human food under the FD&C Act, and does not further process (i.e., cook or pelletize) the by-products for use as animal feed. Modified requirements exist for very small businesses.

Organic Materials RECYCLING MANDATES

Disposal Bans and Recycling Mandates

Overview of Laws

Massachusetts, Connecticut, Vermont, California, and Rhode Island have enacted laws that ban disposal or require diversion of food residuals. All these states except Rhode Island have also passed laws that ban disposal of yard trimmings. California's law requires commercial businesses that generate a specific tonnage of organic material to arrange for recycling services for those materials. The other four states prohibit covered generators of organic materials from disposing of those materials and/or require covered generators to divert those materials from disposal. Generators are subject to the laws if they generate greater than a threshold quantity of organic materials; some states also apply a threshold distance from an available composting or anaerobic digestion facility with the capacity to process the materials.

Table 4. State Organic Waste Bans and Mandatory Recycling Laws

Citation	Waste Covered		Generation Threshold		Generators Covered			Distance Exemption
	Food	Yard			Residential	ICI	Gov't	
California								
Cal. Pub. Res. Code §§ 42649.81 - 42649.82 (2014)[123]	X	X	2016 2017 2020	8 yd^3/week 4 yd^3/week 2 yd^3/week[124]		X		None
Connecticut								
Conn. Gen. Stat. Ann. § 22a-208v (1993)		X	1998	None	X	X	X	None
Conn. Gen. Stat. Ann. § 22a-226e (2013)	X		2014 2020	104 tons/year 52 tons/year		X		20 miles
Maryland								
Md. Code Ann., Envir., §9-1724 (1992)[125]		X	1992	None	X	X	X	None
Massachusetts								
310 CMR 19.017[126]	X	X	1991 2014	None 1 ton/week		X	X	None
Rhode Island								
R.I. Gen. Laws Ann. § 23-18.9-17 (2014)	X		2016	104 tons/year		X		15 miles[127]

[122] *Leftovers for Livestock: A Legal Guide for Using Excess Food as Animal Feed*, by Harvard Law School Food Law and Policy Clinic and the Food Recovery Project at the University of Arkansas, provides a comprehensive guide of federal and state animal feeding laws. The full report can be accessed at https://www.chlpi.org/wp-content/uploads/2013/12/Leftovers-for-Livestock_A-Legal-Guide_August-2016.pdf

[123] Rural counties may adopt a resolution exempting the county from the mandatory recycling requirements.

[124] If by 2020 the statewide organic waste disposal rate has not been reduced to 50% of the 2014 levels, covered generators reaching two cubic yards (yd^3) threshold will be required recycle organic material.

[125] The ban only applies to the disposal of source separate yard trimmings.

[126] A temporary disposal of restricted organic materials may be permitted if (1) the material is not acceptable for recycling or composting; and (2) or if a recycling facility is unable to accept material.

[127] A waiver may be granted if a composting or anaerobic digestion facility tipping fee is greater than landfill or incinerator facility fee.

Citation	Waste Covered		Generation Threshold		Generators Covered			Distance Exemption
	Food	Yard			Residential	ICI	Gov't	
			2018	52 tons/year				
Vermont								
Vt. Stat. Ann. tit. 10, § 6621a (2012)		X	2016	None	X	X	X	None
			2014	104 tons/year				
			2015	52 tons/year				
Vt. Stat. Ann. tit. 10, § 6605k (2012)	X		2016	26 tons/year	X	X	X	None
			2017	18 tons/year				
			2020	None				

Vermont's Universal Recycling Law is the most extensive of the organics disposal bans, requiring all generators to comply with the disposal bans for yard trimmings and food residuals by 2016 and 2020, respectively. [128] The Vermont law incorporates several additional components, aside from the mandate on generators:

- The law includes waste management hierarchy language, declaring that "it is the policy of the state that food residuals collected…shall be managed according to the following order of priority uses: (1) reduction of the amount generated at the source; (2) diversion for food consumption by humans; (3) diversion for agricultural use, including consumption by animals; (4) composting, land application, and digestion; and (5) energy recovery."[129]
- The 2012 version of the law instituted parallel collection of organic materials by solid waste haulers and drop-off centers. Drop-off centers and waste haulers were required to offer recycling services for yard trimmings by 2015 and 2016 and to offer food residual recycling services by 2017 and 2018, respectively.[130] Act 208 of 2018 repeals the requirement for haulers to collect yard trimmings and requires only drop-off centers to collect yard trimmings between April 1st and December 15th. In addition, the requirement for haulers to offer food residual collection is delayed to July 1, 2020.
- Haulers that offer bag-drop or fast-trash at a fixed site must offer the collection of yard trimmings and food residuals.[131]

Results of Laws

The following section will summarize successes and challenges experienced by Massachusetts, Connecticut, Vermont, California, and Rhode Island in implementing their organic materials disposal bans or recycling mandates.

California

The most recent waste diversion data available for California is from the calendar year 2016. The Mandatory Commercial Organics Recycling Law became effective for certain businesses beginning in April 2016, so data is not yet available to determine whether the law has had an impact on recycling rates. According to the 2017 *State of Disposal in California and State of Recycling in California Report,* in 2016 the State reported a recycling rate of 44 percent, which was the lowest rate since the 75 percent recycling goal was established in 2011.[132] The calendar

[128] Act 148, Statues of 2012 - An act relating to establishing universal recycling of solid waste.
[129] Sections 6605 and 6607a of the Conservation and Development Title require leaves and yard trimmings be managed according to the priorities established in subdivisions 6605k(a)(3)–(5).
[130] Vt. Stat. Ann. tit. 10, §§ 6605(j) and 6607a(g)(1).
[131] Section 2 of Act 208, Statutes of 2018.
[132] *See* the *State of Disposal in California and State of Recycling in California Report* at http://www.calrecycle.ca.gov/publications/Documents/1612/2017%20State%20of%20Recycling%20and%20Disposal%20Report_01612.pdf.

year 2016 marked the fourth consecutive year in which disposal rates have increased. Also, the largest component of landfill alternative daily cover was green material.[133]

The California Department of Resources Recycling and Recovery discussed in the 2017 report several challenges facing organics recovery. California's organic material processing infrastructure does not have enough capacity to process all the organic material generated, and the development of new composting facilities has stalled. The environmental value of compost use (i.e., improved soil health) has not been translated into monetary value, leading to a small market for compost. While the state has begun to monitor compliance with the commercial organics recycling requirement, the report noted that "there are few compliance tools in place to ensure that businesses recycle organic waste."[134] Further, the report stressed that improved infrastructure would be key to implementing the new law and cited the State's Organics Grant Program as one effort to address this challenge.[135]

Connecticut

The Commercial Organics Recycling Law went into effect in 2014, and the food residuals generation threshold decreased in 2016, subjecting additional generators to the law. According to the *Statewide Solid Waste Composition and Characterization Stud[ies]* (the "study") of 2010 and 2015, organic materials accounted for an estimated 26.7 percent in 2009, and 33.4 percent in 2015 of MSW (both residential and ICI) disposed.[136] When comparing the change in MSW composition between 2009 and 2015, the tons of yard trimmings disposed of decreased by an estimated 79,000 tons; however, food residuals disposed of increased by an estimated 198,000 tons (see Table 5).[137] The increase in food residuals disposal may be due to the challenges related to (1) collecting source-separated food residuals; and/or (2) separating disposed food residuals from other refuse to be used as feedstock at an organic materials processing facility. In fact, an estimated 12.4 percent of the approximate 520,000 tons of food discarded in 2015 was packaged, which would require pre-processing and may prevent its recovery for composting or anaerobic digestion.

Table 5: Composition of Organic Materials in the Connecticut MSW Stream

	CY 2009		CY 2015	
Organic Waste Type	**Est. % Disposed**	**Est. Tonnage**	**Est. % Disposed**	**Est. Tonnage**
Yard Waste*	9.4%	223,958	6.2%	145,367
Food Waste	13.5%	321,481	22.3%	519,832

[133] Starting in 2020, using green materials as alternative daily cover will count as disposal under the 75 percent recycling 2011 law.

[134] *State of Disposal in California and State of Recycling in California Report,* p. 19 at http://www.calrecycle.ca.gov/publications/Documents/1612/2017%20State%20of%20Recycling%20and%20Disposal%20Report_01612.pdf.

[135] Id.

[136] The *2015 Connecticut Statewide Solid Waste Composition and Characterization Study* separated the categories of food waste (22.3%) and other organic waste (11.1%); these percentages are added together in the above discussion because they were not separated in the *2010 Connecticut Statewide Solid Waste Composition and Characterization Study.* Note, the 2010 study contains results from waste sorting that occurred in 2009 and were then applied to the Connecticut Department of Environmental Protection 2009 MSW tonnage.

[137] *See* Table 3-2 Comparison of Detailed MSW Composition from the *2015 Connecticut Statewide Solid Waste Composition and Characterization Study*. Please note, change in the disposal of categories leaves & grass (-0.2%) and trimmings & prunnings (-2.9%) were added together.

* Yard waste includes leaves and grass, and prunings and trimmings.

The 2015 study also included waste sampling at two material recovery facilities, which revealed that an estimated one percent of residential single-stream recyclables consisted of food residuals (including sorted bagged waste). The 2015 study does not report the tonnage of food residuals received by material recovery facilities, and therefore cannot be compared against the more than 4,600 tons of food residuals diverted in 2017.[138] The Connecticut Department of Energy and Environmental Protection (DEEP) informed the Department that one broader challenge it faces when evaluating the impact of the food residuals disposal ban is tracking the diversion activities of food generators and food donation organizations. These generators or charitable organizations are not traditionally regulated by DEEP. Despite these challenges, DEEP believes that the increase in food feedstock under the ban has led to the construction of one operating anaerobic digestion facility, and one composting facility has begun processing food residuals. Another three anaerobic digestion facilities have received DEEP authorization; however, construction has yet to begin due to delays in finalizing power purchase agreements with utilities needed to secure financing.

Massachusetts

Since Massachusetts amended its solid waste disposal regulations to include a ban on disposing of commercial food residuals in 2014, it has seen a growth in the in-state organics recovery industry.[139] When comparing the 2014 and the 2017 *Municipal Solid Waste & Recycling Survey* responses, 15 percent of reporting municipalities offered food residuals recycling services in 2017 versus only nine percent in 2014.[140] In addition, municipalities enforcing mandatory recycling on a local level increased from 33 percent in 2014 to 49 percent in 2017.[141] Although 2,081 tons more of food residuals was composted in 2017, the tonnage of yard trimmings composted decreased by 92,789 tons from the levels reported in 2014.

Commissioned by the Massachusetts Department of Environmental Protection (MassDEP), consultant firm ICF analyzed the impact the Commercial Food Waste Disposal Ban on Massachusetts' organics recovery industry.[142] The study found that the ban further encouraged the cultural trend within the Commonwealth, which started in the 1990s, of residences and businesses adopting organic material diversion practices. Some other highlights from the report are as follows:

- In 2016, the organics recovery industry added approximately $77 million to the gross state product and generated approximately $175 million in economic activity.

[138] The *CT Statewide Average Municipal Solid Waste (MSW) Statistics* document, which reports the average recycling, disposal and generation rates per fiscal year has not been made publicly available since 2014. However, the Connecticut Department of Environmental Protection through email correspondences with the Department provided tonnages for food residuals diverted to the State's four permitted composting and anaerobic digestion facilities.

[139] 310 CMR 19.017

[140] In both 2014 and 2017, three-fourths of Massachusetts municipalities participated in MassDEP's *Solid Waste and Recovery Surveys*. The excel sheets summarizing the annual Solid Waste and Recovery Surveys can be accessed on the "Recycling & Solid Waste Data for Massachusetts Cities & Towns" webpage at https://www.mass.gov/lists/recycling-solid-waste-data-for-massachusetts-cities-towns.

[141] Generators, haulers, and waste processors are regulated under the ban; however, Massachusetts municipalities can enact local laws and recycling programs to encourage compliance with statewide commercial food waste ban.

[142] *See* the *Massachusetts Commercial Food Waste Ban Economic Impact Analysis* at https://www.mass.gov/files/documents/2016/12/nx/orgecon-study.pdf.

- Food rescue organizations, organic material haulers, and organic materials processing facilities experienced a 150 percent increase in the number of employees from 2010 to 2015.[143]
- Organic material haulers and processing facilities managed six and eight times more food residuals, respectively, in 2015 when compared to 2010.[144]
- Some organic materials haulers and processors interviewees indicated their customer base has remained mostly consistent with pre-2014 levels but fluctuates as a result of pilot and short-term grant programs aimed at increasing food residuals diversion.
- Food residuals processors and haulers are concerned with the availability of composting sites that the can process high volumes of material at a low cost, as well are located nearby generators.
- Although food rescue organizations report an increase in food establishments willing to donate food, the solid waste regulations equally weighing the donation and recycling of food exacerbates the issue of large generators' preference for composting over donation.[145]

Rhode Island

Rhode Island's statute requires all collected municipal refuse and recyclables be delivered to the Rhode Island Resource Recovery Corporation (RIRRC) solid waste acceptance facility.[146] Before the Commercial Food Waste Disposal Ban's 2016 effective date, the *2015 Rhode Island Solid Waste Characterization Study* revealed that vegetative food residuals, at 17.1 percent, was the largest component of organic material received at the RIRRC landfill.[147] The RIRRC publishes an annual "Municipal Summary" that reports each municipalities recycling and diversion rates. The "2017 Municipal Summary" reveals the tonnage of leaf and yard trimmings composted peaked in 2015 (67,284 tons) and decreased by more than 4,000 tons as of 2017 (63,103 tons).[148]

It is difficult to empirically assess the impact of the Commercial Food Waste Disposal Ban in Rhode Island. The annual RIRRC "Municipal Summary" reported composted material tonnage and mandatory recycling rate do not include commercially generated food residuals composted as a result of the ban. The Rhode Island Code of Regulations (RICR) lists leaf and yard waste as the only "mandatory" organic material that must be diverted under a municipal and business recycling program. The mandatory recycling rate incorporates the tonnage of RICR "mandatory recyclables" diverted from disposal.[149] Also, Rhode Island businesses are no longer required to submit an "Annual Recycling Report" to the Rhode Island Department of Environmental Management (RIDEM) as of 2016.[150]

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[143] *See* "Figure 2. Average Number of Employees per Business" of the *Massachusetts Commercial Food Waste Ban Economic Impact Analysis*.
[144] Haulers and processors managed fewer than 33,000 tons in 2010 and more than 200,000 tons in 2015. Note, these tonnages only reflect information collected from survey respondents. *See* "Figure 5. Average Annual Tonnage of Food Received by Industry Segment, 2010-2016 per Business" of the *Massachusetts Commercial Food Waste Ban Economic Impact Analysis*.
[145] Food rescue organizations explained that generators prefer composting food residuals because handling procedures do not involve food safety provisions and can allow for centralized waste management at all a generator's location.
[146] R.I. Gen. Laws Ann. §§ 23-18.9-1 and 23-19-4.
[147] *See RI Statewide Solid Waste Composition and Characterization Study 2015* at https://www.rirrc.org/sites/default/files/2017-02/Waste%20Characterization%20Study%202015.pdf.
[148] *See* the "2017 Municipal Summary" at http://www.rirrc.org/sites/default/files/2018-03/2017%20Municipal%20Summary%20Detailed%20with%20Charts%2020180330_0.pdf.
[149] 250-RICR-140-20-1.6 and 250-RICR-140-20-2.15.
[150] According to the RIDEM "Annual Recycling Report" webpage commercial business are no longer required to submit a recycling survey as RIDEM plans to remove this requirement in revised commercial regulations. *See* http://www.ri.gov/DEM/recycling.

Nonetheless, the RIDEM believes without the certainty of organic feedstock diverted under disposal ban the state's first commercial anaerobic digester would not have been constructed.[151] As of 2017, a commercial scale composting facility and animal feeding operation have begun to process food residuals.[152] However, the RIDEM expressed that the interest of commercial generators to recycle their food residuals exceeds the state's current organic material processing capacity.

Vermont

Overall, the Universal Recycling Law has increased organic material diversion since its enactment in 2012. The *2016 Diversion and Disposal Report* notes the following changes in Vermont's organic material diversion:[153]

- The diversion rate was higher than the average diversion rate over the last 17 years. Vermont diverted a total of 44,383 tons of organic materials, which included 32,788 tons of material composted at households and 11,595 tons of material processed at organic recycling facilities;[154]
- Nine composting facilities were certified to process food residuals and/or yard trimmings; and
- The Vermont Food Bank reported that 3,658 tons of food was diverted through food donation.

The 2018 amendments to the Universal Recycling Law temporarily ease the requirements on haulers and collection facilities. Haulers have more time to implement a food residuals collection program. Also, the added requirement for haulers to offer food residuals and yard trimming collection at their fast trash or bag-drop site may encourage residents not serviced by a curbside collection program to comply with the organic waste ban.

Waste Reduction at Large Venues and Events

Most states have laws that require operators of large venues and large/special events to plan for the recycling of materials. California has taken this requirement one-step further with the passage of AB 2176 of 2004, which requires operators of large venues and events in each city and county to plan for waste reduction, and upon request to report information regarding their waste reduction efforts to their local government. On an annual basis, operators of large venues and events must meet with solid waste haulers and recycling facilities that service the large venue or event to evaluate if their waste diversion programs are appropriate.[155]

Promoting Recycling Infrastructure

[151] The Orbit Energy commercial anaerobic digestion facility is designed to accept up to 250 tons of food residuals daily. *See* Faulkner, T. (2017, May 8). *R.I.'s First Digester Expected to Take Food Scrap in June.* https://www.ecori.org/composting/2017/5/8/food-digester-taking-scrap-in-june.

[152] *See* "Rhode Island Wasted Food Stakeholder Engagement and Initial Findings" 2017 report by the Center for EcoTechnology at https://wastedfood.cetonline.org/wp-content/uploads/2018/03/AssessmentRI_112117_nomarks_nospread.pdf.

[153] See the *2016 Diversion and Disposal Report: A summary of solid waste management in the State of Vermont* at http://dec.vermont.gov/sites/dec/files/wmp/SolidWaste/Documents/2016-Diversion-and-Disposal-Report.pdf.

[154] The overall solid waste diversion rate was 36 percent, and the overall disposal rate was 64 percent, which was the lowest rate achieved in Vermont since the late 1990s.

[155] Cal. Pub. Res. Code §§ 42648 – 42648.7.

The following sections discuss how Massachusetts, Connecticut, Vermont, California, and Rhode Island have addressed regulatory and technical barriers to organics recycling infrastructure development.

Updating Composting and Anaerobic Digestion Regulations

Like Maryland did in 2015, many states have updated their regulations in recent years to more clearly address composting facilities, distinguish those facilities from solid waste acceptance facilities, allow for composting of additional materials, and craft permit exemptions or general permits for facilities considered to pose less risk of environmental impact. Some states have extended this process by amending their regulations to address anaerobic digestion and other technologies that recycle organics. The following are examples from California, Connecticut, Massachusetts, and Rhode Island.

California- In-Vessel Digestion Regulations

California adopted significant updates to its compostable materials handling regulations in 2015. As part of that effort, it enacted regulations governing in-vessel digestion, which includes both anaerobic and aerobic digestion.[156] In addition to basic operational requirements, the regulations establish permitting tiers for different types of in-vessel digestion facilities, summarized in Table 5.

Table 6: California's In-Vessel Digestion Permitting Tiers

Permitting Tier	Facility Types
Excluded (not regulated)	1. **Co-digestion at a POTW**. Co-digestion of kitchen grease and food residual with wastewater at a publicly owned treatment works (POTW); the POTW permit must address acceptance of the additional materials. 2. **Agricultural Site**. On-site digestion of material derived from an agricultural site, if no more than 1,000 cubic yards (yd^3) of composted digestate is given away or sold annually off-site. 3. **Co-digestion at a dairy**. Co-digestion of manure with agricultural material derived on- or off-site, and/or imported vegetative food material in accordance with a water permit. No more than 1,000 $yd^3$of composted digestate may be given away or sold annually off-site. 4. **Small volume**. In-vessel digestion activities with less than 100 yd^3 of solid waste, feedstock, and digestate on-site.
Notification	1. **Research operations**. Must submit results of research for review every two years. 2. **Co-digestion at a dairy**. Accepts imported solid waste feedstock and agricultural materials for co-digestion with manure, in accordance with a water permit. 3. **Distribution center digester**. Accepts unsold products from retail stores to which the products were originally sent. All unsold products must be collected and processed in covered, leak-proof containers, and if putrescible must be refrigerated at the store and kept cool during transport. 4. **Limited volume**. Receives less than an average of 15 tons of solid waste per day, not to exceed 105 tons per week.

[156] 14 CCR §17896.2 et seq.

Registration[157]	1. **Medium volume**. Receives on average between 15 and 100 tons of solid waste per day, not to exceed 700 tons per week.
Full Permit	1. **Large volume**. Receives on average greater than 100 tons of solid waste per day, or greater than 700 tons per week.

Connecticut - Separate Definition and Elimination of the Determination of Need for Waste Conversion Facilities

In 2017, Connecticut legislation distinguished waste conversion facilities from resources recovery facilities.[158] Resources recovery facilities combust municipal solid waste (MSW) for electricity, while waste conversion facilities do not combust MSW, but use thermal, chemical or biological processes to convert solid waste into electricity, fuel, gas, chemicals or other products. Waste conversion facilities include anaerobic digestion and MSW composting facilities. In contrast to a resources recovery facility, a waste conversion facility does not require the DEEP to issue a determination of need as part of the permitting process. The determination of need is a determination by DEEP that the facility is necessary to meet the solid waste disposal needs of the state and will not result in substantial excess capacity; it involves an additional public comment period. Since the enactment of this law, DEEP has not received any waste conversion facility permit applications; therefore, DEEP is unable to evaluate if these changes have reduced the regulatory burden of proposed composting or anaerobic digestion facilities.

Massachusetts - Site Assignment Regulations for Solid Waste Facilities

Massachusetts amended its regulations in 2012 to exclude a broad variety of recycling facilities from the site assignment requirement, a determination by the Board of Health that designates an area of land as suitable for use as a solid waste facility.[159] The amended regulations also established specific permitting requirements for recycling, composting, and aerobic and anaerobic digestion. Handling of organic materials on farms is not subject to permits as long as it complies with guidelines and requirements of the Department of Agricultural Resources.[160] Small-scale anaerobic digestion operations that receive no more than 100 tons per day of organic material, based on a 30-day rolling average, require a general permit. The general permit requirements for composting and anaerobic digestion facilities are similar and consist mainly of performance standards to prevent odors, harborage of vectors, and water pollution. Residuals may not be greater than 5 percent by weight of the materials received during any quarter. Anaerobic digestion facilities receiving more than 15 tons per day of nitrogen-rich material from off-site must have those materials delivered via sealed tank or vessel and transferred to the digester using a direct connection (e.g., hose) technology.[161] Facilities that do not qualify for the general permit are required to obtain a more extensive, individual permit for composting or "conversion" (which includes aerobic or anaerobic digestion or other enzymatic, thermal or chemical degradation of organic materials). The individual permit requires submission of detailed information, which is

[157] The registration tier is a less extensive version of the full permit, which requires submission of basic information about the facility. The agency reviews the information within 30 days and issues or denies the registration permit. Registration permits are issued by local enforcement agencies, while the full permit is issued by the State agency.

[158] Public Act No. 17-218 of 2017.

[159]

[160] The Agricultural Composting Program is regulated under 330 CMR 25.00.

[161] A summary of permit requirements are provided on the "Instructions: General Permit Certification for New or Newly Acquired Recycling, Composting & Aerobic or Anaerobic Digestion Operations pursuant to 310 CMR 16.04" document at http://www.mass.gov/eea/docs/dep/recycle/approvals/swgpinst.pdf.

reviewed for additional criteria, such as whether there is a market for the compost or converted product.[162]

Rhode Island – Organic Waste Recycling Facility Regulations

In response to the Commercial Food Waste Disposal Ban becoming effective, the RIDEM amended its organic waste recycling facilities regulations in 2016. Both small-scale and medium-scale composting operations are largely exempt from the provisions of Solid Waste Regulation Number 1 (General Requirements). These operations must still comply with (1) all zoning and other local laws; (2) RIDEM's right to inspect a facility; and (3) penalties for non-compliance with applicable solid waste regulations.[163] Small-scale composting operations do not have to register with RIDEM. [164] Medium-scale composting operations must register with RIDEM using a one-time "Registration Form for Medium-Scale Composting Facility" and renew their registration every three years.[165] The Solid Waste Regulation Number 8 (R.I. Waste Composting Facility) provides detailed operation and infrastructure requirements for small to large-scale composting operations. In addition, Regulation 8 includes Rhode Island's first provisions for the licensure and operation of anaerobic digestion facilities.[166]

The RIDEM collaborated with the Rhode Island Food Policy Council to update Regulations Number 1 and Number 8; these amended regulations encourage the development of local community and small business based composting infrastructure.[167] Also, Regulation Number 1 allows a municipality with approval from RIDEM to conduct a limited demonstration pilot project prior to applying for an organic waste recycling facility license. Pilot projects may be conducted for up to six months and can process no more than 50 tons of organic material per day.[168] This will allow communities to test technologies and methodologies before making large investments in organic material recycling infrastructure.

Dairy Farm Biogas Programs

Anaerobic digestion projects located on animal farms are of increasing interest to state legislators. These operations promote the diversion of agricultural by-products and provide a profitable alternative for manure management. California and Vermont have enacted legislation to encourage the development of dairy farm anaerobic digestion projects.

California's Dairy Biomethane Pilot Projects

Senate Bill 1383 of 2016 established a statewide goal for the reduction of short-lived climate pollutants, including a 40 percent reduction in methane emissions below 2013 levels by 2030.[169]

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[162] 310 CMR 16.05.
[163] 250-RICR-140-05-1.5, 1.6.08(a) and (d), 1.6.09, and 1.6.10.
[164] 250-RICR-140-05-1.6.
[165] 250-RICR-140-05-1.6 and 250-RICR-140-05-8.D.
[166] 250-RICR-140-05-8.
[167] The Rhode Island Food Policy Council, launched by the State House in 2011, consist of a diverse group of Rhode Island food system stakeholder. The council's mission is to promote a sustainable and equitable Rhode Island food system through the creation of partnerships and policies. Learn more on the Rhode Island Food Policy Council website at http://rifoodcouncil.org/. *See* the 2016 "Rhode Island announces rules for composting facilities" report in the *Waste Dive* newsletter at https://www.wastedive.com/news/rhode-island-announces-new-rules-for-composting-facilities/419839/.
[168] 250-RICR-140-05-1.6.11.
[169] Cal. Health & Safety Code, §39730.5(a). The Climate and Clean Air Coalition define short-lived climate pollutants as contaminants with short lifetimes in the atmosphere, in comparison to longer-lived pollutant carbon dioxide (CO_2), with a capacity to heat the atmosphere that is tens to thousands of times greater than CO_2. This category of pollutants includes methane,

To achieve this goal, the bill directs the California Public Utility Commission (CPUC) to require utility companies to implement at least five dairy biomethane pilot projects to demonstrate interconnection to a common pipeline system.[170] The pilot projects must use biomethane produced from California dairy farms and result in a measurable reduction in GHG emissions. In response to the bill, CPUC issued a request for proposals in spring 2018, and a total of six pilot projects were selected with 45 dairy farms participating. The projects will receive $319 million in funding over the next 20 years.[171]

Vermont's Cow Power Ombudsman Program

In 2004, Vermont's legislature approved the implementation of the Cow Power program, which provides financial incentives and technical assistance to promote the development of anaerobic digestion projects on Vermont farms. Act 69, Statutes of 2003 requires Vermont utilities to implement renewable energy pricing programs that allow customers to voluntarily invest in renewable energy, currently $0.04 per kilowatt-hour (kWh).[172] These proceeds are deposited into a Renewable Energy Development Fund, administered by Green Mountain Power (GMP), and are used to provide production incentives to farm digesters through financial and technical assistance.[173] To achieve the goals of the Cow Power program the Agricultural Anaerobic Digestion Ombudsman position was created in 2005. The ombudsman serves as a consultant to assist farmers in developing anaerobic digestion projects and provides subsequent technical support. Since 2005, the ombudsman has assisted in the development of 16 anaerobic digestion projects.[174]

Recycling Financial Incentives

State Tax Incentives

Tax incentives can be used to reduce the tax liability of organics generators or recyclers by providing credit for the value of donated food or costs to transport donated food, energy produced using organics, or money spent on organics recycling equipment or infrastructure.[175] The tax incentives summarized in Table 7 were enacted by states to support food donation, renewable energy, or organic material recycling infrastructure.

Table 7: State Tax Incentive Laws

hydrofluorocarbons, ground ozone, and black carbon. The Coalition's short-lived climate pollutants webpage can be accessed at http://www.ccacoalition.org/en/science-resources.

[170] Cal. Health & Safety Code, §39730.7(d).

[171] *See* the NGT News' December 2018 article discussing the selection of the pilot projects at https://ngtnews.com/california-agencies-select-dairy-biomethane-projects-under-319-million-pilot.

[172] Vt. Stat. Ann. tit. 30, § 8003.

[173] The Vermont Public Service Board Order Proposal for Decision to approve the Cow Power program can be accessed at http://puc.vermont.gov/sites/psbnew/files/orders/2004/6933fnl.pdf.

[174] *See* EPA's "Case Study: Overcoming Barriers in Vermont, Anaerobic Digestion Ombudsman at: https://www.epa.gov/sites/production/files/2016-02/documents/vt_ombudman_case_study_1_20_16.pdf.

[175] *See* Sam, A., et al. How Incentives Affect the Adoption of Anaerobic Digesters in the United States. *Sustainability* 2017, 9(7), 1221. http://www.mdpi.com/2071-1050/9/7/1221/html.

Citation	Tax Incentive	Tax Affected	Provisions
California			
Cal. Rev. & Tax. Code § 17053.88	Credit	Income	15% of the qualified value of fresh fruits or fresh vegetables donated by a farmer to a food bank until 2020.
Cal. Rev. & Tax. Code § 17053.12	Credit	Income	50% of the transportation costs incurred for the donation of agricultural product to a non-profit charitable organization.
Cal. Rev. & Tax. Code §§ 18851-55	Donation	Income	A taxpayer can donate a portion of their income tax refund to the Emergency Food for Families Voluntary Tax Contribution Fund.
Connecticut			
Conn. Gen. State. § 12-81ff	Exemption	Property	Authorizes local governments to provide a property tax exemption for equipment for recycling installed after October 2013. The exemption applies to the increased value of the property the first fifteen assessment years after installation.
Massachusetts			
Mass. Gen. Stat. ch. 64H, § 6(s)	Exemption	Sales	Exempts purchase of machinery used for agricultural production and producing electricity delivered to consumers through mains, lines, or pipes from the 6.25% sales tax.
Rhode Island			
R.I. Gen. Laws Ann § 44-3-3	Exemption	Property	Exempts qualifying renewable energy systems and associated equipment used in the residential and manufacturing sectors.
R.I. Gen Law §44-3-9	Stabilization	Property	Authorizes local governments to provide property tax stabilization agreements for renewable energy systems for up to 20 years.
Vermont			
Vt. Stat. Ann. tit. 32, § 9741	Exemption	Sales	Exempts purchase of anaerobic digestion equipment, with a capacity of 500 kilowatts (kW) that is available for distribution on grid-tied systems and off-grid systems, from the 6% sales tax.

State Government Financial Assistance

New companies in the recycling industry may struggle to secure capital from conventional lenders due to (1) high capital cost of installing recycling technology and equipment, (2) uncertainty in feedstock supply levels and recyclable product prices, and (3) the lack of comparable recycling business to evaluate.[176] For example, food product depackaging equipment, which can improve the ability to recover food residuals for animal feed or recycling, can cost between $250,000 and $500,000.[177] This section provides examples of state grant and loan programs intended to increase the development of organic materials processing infrastructure.

California - Recycling Market Development Zones

The Recycling Market Development Zone (RMDZ) Program provides loans, technical assistance, and free product marketing to eligible businesses that (1) produce commodities from recycled materials normally disposed of in California landfills; (2) increase market demand for diverted recyclable materials; and (3) are located in a RMDZ designated area, which consists of 88,000

[176] Kirckpatrick, D. "Financing Recycling Ventures: There are increasing financial resources for recycling start-ups and expansions." *Recycling Today*, Aug. 2001. http://www.recyclingtoday.com/article/financing-recycling-ventures/.
[177] Spencer, Robert and Casella, Morgan. "Massachusetts Pioneers Food Waste Separators." *BioCycle.* Jan. 2018 https://www.biocycle.net/2018/01/11/massachusetts-pioneers-food-waste-separators/.

square miles.[178] The program provides loans with a 4 percent fixed interest rate on up to $2,000,000 or 75 percent of total project costs. Businesses and non-profits are eligible, and the loans may be used for machinery and equipment, working capital, real estate purchases and improvements, refinancing of excessive debt that results in increased diversion, and loan-closing points. According to the RMDZ businesses location search tool, 68 RMDZ participating businesses in Californiathat utilize organic material feedstock.[179]

California - Greenhouse Gas Reduction Grant and Loan Programs

These Greenhouse Gas Reduction Grant and Loan Programs provide financial incentives for capital investments in infrastructure for composting, anaerobic digestion and recycling facilities that will reduce GHG emissions and deliver economic benefits to disadvantaged and low-income communities.[180]

- **Food Waste Prevention and Rescue Grant Program**: Grants up to $500,000 for projects that prevent food residuals generation at the source or recover food to be distributed to people, with any remaining food residuals diverted for composting or digestion when available in the project service area. Businesses, non-profits, and state and local government agencies are eligible.
- **Organics Grant Program**: Grants up to $3,000,000 for composting projects and $4,000,000 for anaerobic digestion projects, with $2,400,000 allocated for requested infrastructure costs and $600,000 delivered in performance payments. Eligible costs include construction, renovation, and expansion of facilities. Of the total composting grants awarded, $3,000,000 is reserved for projects serving rural communities. Businesses, non-profits, and state and local government agencies are eligible.
- **Greenhouse Gas Reduction Loan Program:** Loans up to $2,000,000 or 75 percent of total project costs, whichever amount is less, with a 25 percent matching funds requirement. Eligible expenses include purchases of equipment, real estate, and improvements to real property for digestion or composting facilities that will convert materials into soil amendments, biofuels, or bioenergy; pre-processing facilities; and food waste prevention projects.

Connecticut - Green Bank Anaerobic Digestion Pilot Project Program

Public Act 11-80 of 2011 established the Clean Energy Finance and Investment Authority, also known as the Connecticut Green Bank.[181] The Green Bank is a quasi-public finance institution responsible for partnering with the private sector to leverage public and private funds to finance renewable energy and energy efficiency projects.[182] The Green Bank administers the Anaerobic Digestion Pilot Project Program. Anaerobic digestion projects can be financed through loans, loan enhancements, power purchase agreements, or grants.[183] A total of $5,000,000 is allocated for the

[178] Cal. Pub. Res. Code §§ 42010 –24.
[179] The Recycling Market Development Zones Business Search tool can be accessed at http://www.calrecycle.ca.gov/rmdz/Reports/Businesses/
[180] Cal. Pub. Res. Code §§ 42995 – 99. A summary of the Greenhouse Gas Reduction and Loan Programs and links to each program's webpage can be accessed at http://www.calrecycle.ca.gov/climate/grantsloans/.
[181] Conn. Gen. Stat. Ann. § 16-245n.
[182] A description of the Green Bank role in financing renewable energy projects in Connecticut can be accessed at https://www.ctgreenbank.com/about-us/.
[183] The Anaerobic Digestion Pilot Project Program was expanded under PA 15-152 of 2015 for two additional years. *See* the Clean Energy Finance and Investment Authority's "Anaerobic Digestion Request for Proposals" at

program, with funding per project not to exceed $450 per kW of energy generated over a 15 or 20-year term. Businesses, non-profits, farms, and state and local governments are eligible. Eligible projects are anaerobic digestion projects with a generator capacity of no more than three megawatts (MW) that are in the development phase and will distribute energy off-site.

Connecticut - Recycle CT Foundation

Public Act 14-94 of 2014 established the Recycle CT Foundation, Inc., (Foundation), a non-profit state chartered foundation. The Foundation's purpose is to promote education programs that increase the public's participation in recycling and reuse activities.[184] The Foundation administers the following programs:

- **School Grant program**: Provides grants between $500 and $1500 for projects that educate and encourage reduction, reuse, recycling, composting and/or anaerobic digestion activities. Eligible awardees include all Connecticut-based K-12 schools; however, preference will be given to registered CT Green LEAF Schools.[185]
- **Innovation Grant Program**: Provides grants between $2,500 and $10,000 per project for new and innovative programs, processes or demonstration projects related to sustainable materials management. Eligible awardees include non-profits, municipalities, higher education institutions, school districts, and public housing authorities.[186]

Massachusetts - Recycling Business Development Grants

Massachusetts Department of Environmental Protection provides grants to recycling processors and manufacturers who create sustainable markets and add value to municipal and business recycling efforts.[187] Grants range from $50,000 to $400,000 per project, with a required funding match of 25 percent. Eligible projects include processing, manufacturing, and reuse of eligible materials, such as processing source-separated contaminated food materials. Non-profit and for-profit organizations are eligible. [188]

Massachusetts - Sustainable Materials Recovery Program (SMRP) Municipal Grants

The SMRP awards grants to local governments to conduct certain activities to improve local recycling, composting, reuse, and household hazardous waste diversion programs.[189] Projects that expand capacity for food donation, composting or anaerobic digestion are eligible for grants between $10,000 and $250,000.[190]

Massachusetts - Clean Energy Center (CEC) Commonwealth Organics to Energy Grants

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https://www.energizect.com/sites/default/files/uploads/V1%20S103_11-80%20AD%20Rolling%20Enroll%20%28final%206-14-13%29.pdf.

[184] Conn. Gen. Stat. Ann. § 22a-228a. *See* the RecycleCT Foundation webpage at http://www.recyclect.com/about-us.html.

[185] Connecticut Green LEAF Schools a statewide initiative in which participating schools to provide environmental and sustainability geared education to improve the health of students and staff, and the sustainable use of school resources. *See* the RecycleCT School Grant Application at http://www.recyclect.com/assets/downloads/SchoolGrantDraftApplication2017.pdf.

[186] *See* the RecycleCT "Application Guidelines for RecycleCT Innovation Grant" http://www.recyclect.com/assets/downloads/Innovation%20Grant%20Criteria%20and%20FAQ.pdf

[187] Mass. Gen. Stat. ch. 25A § 11F(d); 310 CMR 19.303(2)b; and the Declaration of Trust. Article 2.1/

[188] *See* 2017 Recycling Business Development Grant Application at https://www.mass.gov/files/documents/2017/11/06/rbdgap_3.pdf.

[189] 310 CMR 19.300. The grant program is funded by 50 percent of the revenue from Waste Energy Credits earned by municipal waste combustors.

[190] Massachusetts DEP, Sustainable Materials Recovery Program Municipal Application - Grant Guidance https://www.mass.gov/files/documents/2018/03/21/smrpguid.pdf

The CEC, which administers the Massachusetts Renewable Energy Trust Fund consisting of revenue from surcharges on customers of electric utilities, provides grants of up to $500,000 for organics to energy implementation projects and up to $250,000 for organics to energy pilot projects.[191] A cost-share of 25 percent applies to the design phase, and 50 percent to the construction phase of a project. Commercial, industrial, institutional and public entities are eligible.[192] Previously funded projects include the construction of an anaerobic digestion facility to process food residuals at a Stop and Shop Distribution Center.[193]

Rhode Island - Rhode Island Resource Recovery Corporation Municipality Grants

When funds allow, the RIRRC may make funding available to finance municipal grants.[194] Grant amounts of at least $5,000 are available for project-based grants, and grants of at least $2,000 are available for training-based grants with a dollar for dollar match requirement. Municipalities may apply for grants to fund programs that promote waste diversion and recycling practices, initiate public-private partnerships, focus on providing long-range waste diversion solutions, and invest in professional development opportunities for employees.

Rhode Island - Rhode Island Commerce Corporation (CommerceRI) Renewable Energy Fund Grant

The Rhode Island Commerce Corporation (CommerceRI) is a quasi-state agency that works with public, private, and non-profit partners to facilitate economic development to benefit Rhode Island businesses and citizens.[195] The CommerceRI's Renewable Energy Fund was established to expand access to renewable energy sources, such as anaerobic digestion, throughout the state and the economic benefits it affords to Rhode Island citizens.[196] The CommerceRI's awards grants to fund commercial-scale renewable energy projects that generate electricity for onsite-consumption, and spurs job growth in the green technology and energy sectors. Eligible entities include in-state businesses, institutions, non-profits, municipalities, and state facilities.[197]

Vermont- Compost Heat Recovery Grants

Act 74, Statutes of 2005 established the Vermont Clean Energy Development Fund, administered by the Vermont Public Service Department, to advance cost-effective and environmentally sustainable electric power resources in Vermont; specifically, renewable energy sources utilized in combined heat and power technologies.[198] Eligible projects are compost heat recovery projects located on Vermont farms. Grants of $15,000 to $63,000 per project are available (with a total funding availability of $63,000), with a matching fund requirement of at least 60% of the cost of the heat recovery and distribution equipment.

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[191] Mass. Gen. Laws Ch. 23J, §9.
[192] Massachusetts CEC, Commonwealth Organics-to-Energy Grants for Implementation Projects and Pilot Projects, Solicitation No. 2017-COTE-IP5, http://files.masscec.com/Implementation%20-%20Read%20Me%20First%20Solicitation.pdf.
[193] Massachusetts CEC, Stop & Shop, http://www.masscec.com/success-stories/stop-shop
[194] R.I. Gen Law § 23-19-32. *See* the "Resource Recovery Grantmaking Policy" eligibility and application guidance document at http://www.rirrc.org/sites/default/files/2017-02/Grantmaking%20Policy%20%28PP%29%2020170208.pdf. Chapter 23-19 of the Rhode Island General Laws created the RIRRC. The RIRRC is responsible for providing solid waste management and recycling services for Rhode Island.
[195] Title 42 Chapter 64, Rhode Island General Laws. Learn more about CommerceRI's mission and programs at https://commerceri.com/.
[196] R.I. Gen Law § 42-64-13.2.
[197] Eligible renewable energy technologies must be outlined in R.I. Gen Law § 39-26-5.
[198] Vt. Stat. Ann. tit. 30, § 8015. *See* "Request for Proposals for Heat Recovery from Composting" http://www.trorc.org/wp/wp-content/uploads/2018/02/RFP-for-Compost-Heat-Recovery-Grants-2018.pdf

Pennsylvania - Request for Information

In June 2017, the Philadelphia Water Department (PWD) issued a food residual co-digestion Request for Information (RFI) to solicit business plans from vendors that can collect, preprocess, and transport food residuals slurry to be digested at a city-owned treatment plant. This RFI allowed the City of Philadelphia to identify potential organic waste processors to manage the increased food residuals diverted under the 2015 update to the Philadelphia Code. The amended "Dumpster Code" bans all commercial businesses from disposing of food residuals in dumpsters; business must grind up non-packaged food residuals in the sink garbage disposal or arrange for organic waste recycling services.[199] In total, the PWD received 12 responses and three inquiries from food residuals pre-processing vendors. Most respondents proposed providing PWD treatment plants with industrial and institutional food residuals and scaling up their pre-processing activities by adding shifts or modules at their facilitates. Overall, the RFI confirmed that PWD's business strategy for pre-processing food residuals is viable and has also encouraged investment in Philadelphia's organic recycling infrastructure.[200]

Renewable Energy Mandated Purchasing Agreements

States have attempted to incentivize the development of the renewable energy industry by enacting renewable portfolio standards (RPS), policies that require a minimum portion of electricity purchased by utility companies to be from designated renewable sources. Utilities can enter into power purchase agreements with renewable energy generators to satisfy their RPS obligations. Power purchasing agreements incentivize utility-scale renewable energy projects by providing stable and long-term revenue streams to generators, and low-cost energy sources and renewable energy credits (RECs) for utility companies.[201] This section discusses legislation that mandates power purchase agreements with anaerobic digestion facilities.

Long-term contracts

Connecticut, pursuant to Public Act 17-144 of 2017, issued a request for proposals to procure up to 899,250 megawatt hours (MWh) per year of renewable energy and associated RECs from technologies such as anaerobic digestion for 20-year contracts.[202] A previous renewable energy solicitation in 2016 resulted in the selection of only solar energy projects.[203] The 2018 solicitation excluded solar projects, and a new 10,519 MWh anaerobic digestion project was selected. The Turning Earth Anaerobic Digestion Project will digest 54,000 tons of food residuals and 15,000 tons of yard and woody waste, and produce 90,000 yd^3 of compost and mulch.[204]

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[199] Section 10-722, Title 10 of the Philadelphia Code.

[200] *See* the "draft SWRAC meeting minutes 9-28-17 final" from the City of Philadelphia Solid Waste and Recycling Advisory Committee (SWRAC) meeting at https://www.philadelphiastreets.com/images/uploads/documents/draft_SWRAC_meeting_minutes_9-28-17_final.pdf.

[201] See The National Conference of State Legislators "State Policies for Power Purchase Agreements" webpage at http://www.ncsl.org/research/energy/state-policies-for-purchase-agreements.aspx.

[202] Conn. Gen. Stat. Ann. § 16a-3h. Draft Notice of Request for Proposals from Private Developers for Clean Energy http://www.dpuc.state.ct.us/DEEPEnergy.nsf/c6c6d525f7cdd1168525797d0047c5bf/c5b302de4d16dcdc852581f70059cdbd/$FILE/2017.12.15_FINAL%20Draft%20RFP.pdf.

[203] The 2017 Press Release for the "Shared Clean Energy Pilot Projects Selected" can be accessed at http://www.ct.gov/deep/cwp/view.asp?A=4918&Q=594296.

[204] *See* the DEEP 2018 Press Release announcing projects selected at https://www.ct.gov/deep/cwp/view.asp?A=4965&Q=603300.

The New York State Energy Research and Development Authority (NYSERDA) purchases qualifying RECs from renewable resources that became operational on or after January 1, 2015, through fixed-price long-term contracts pursuant to the Clean Energy Standard (formerly known as the Renewable Portfolio Standard).[205] The Clean Energy Standard requires energy to be generated from at least 50 percent of any eligible Tier 1 renewable energy source by 2030, including biogas. The Clean Energy Standard differs from some other RPS by not including generation carve-outs for each type of Tier 1 renewable energy source.[206]

Feed-in Tariffs and Net Metering Programs

Feed-in tariffs are performance-based incentives that allow greater participation of renewable energy generators by providing price certainty, streamlining the contracting process, and allowing access to small-scale renewable energy generators.[207] Net metering systems allow residential and commercial renewable energy generators to sell surplus electricity back to a utility company, reducing the generator's utility bills and distributing renewable energy to other customers. The adoption of aggregate net metering and virtual or community net metering has allowed non-profits, multi-dwelling housing, and municipalities unable to install renewable energy generating systems to benefit from other net metering systems.[208]

The Vermont utility company GMP offers a feed-in tariff to farm biomethane generators through the Cow Power program.[209] GMP ratepayers can subscribe to the Cow Power program and make a voluntary $0.04 per kWh payment on their utility bill in turn for access to renewable energy. Customers can select to have 25 percent, 50 percent, or 100 percent of their electricity generated by Vermont farmers. When purchasing electricity from farm generators under a Vermont's Standard-offer Program, GMP provides a production incentive to these generators by purchasing RECs for up to $0.04 per kWh.[210] The program promotes anaerobic digestion projects on farms by depositing unused proceeds into the Renewable Energy Development Fund for later investments into farm-based anaerobic digestion projects.[211]

The NYSERDA from 2011 to 2015 offered the Anaerobic Digester Gas-to-Electricity Program, operated under the former RPS.[212] Financial incentives offered under the program were as follows: capacity incentives to offset system installation cost; performance-based incentives of $0.0025 per

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[205] Public Authorities Law §§ 1850 et seq (2013).

[206] *See* New York Public Service Commission Order in Case No 15-E-0302, Establishing Clean Energy Standard. The first Renewable Energy Standard Request for Proposals in 2017, under the Clean Energy Standard, resulted in no biogas generators systems being selected; see https://www.nyserda.ny.gov/All-Programs/Programs/Clean-Energy-Standard/Renewable-Generators-and-Developers/RES-Tier-One-Eligibility/Solicitations-for-Long-term-Contracts/2017-Solicitation.

[207] See *Best Practices for Implementing a Feed-in Tariff Program*, University of California Los Angeles Luskin School of Public Affairs at https://luskin.ucla.edu/sites/default/files/Best%20Practices%20for%20Implementing%20a%20Feed%20in%20Tariff%20Program.pdf.

[208] *See* The National Conference of State Legislators "State Net Metering Policies" webpage at http://www.ncsl.org/research/energy/net-metering-policy-overview-and-state-legislative-updates.aspx.

[209] Vt. Stat. Ann. tit. 30, § 8003.

[210] Vermont farmers enter a purchasing agreement with GMP through the Vermont Standard-offer program, which pays a fixed price over a 20-year contract. In 2017, Vermont established a price cap of $0.145 per kWh for large farm methane generators and $0.199 per kWh for small farm methane generators. Learn more about the 2018 Standard-Offer Program at http://www.vermontstandardoffer.com/farm-methane/.

[211] *See* "Cow Power — the Vermont brand of electricity." *Times Argus*. May 2013. https://www.timesargus.com/articles/cow-power-the-vermont-brand-of-electricity/.

[212] The NYSERDA is no longer accepting applications and may re-open Program Opportunity Notice if funding becomes available, *see* https://www.nyserda.ny.gov/All-Programs/Programs/Anaerobic-Digester-Gas-to-Electricity-Program.

kWh for up to 10 years; digester project enhancement incentives; and interconnection incentives to offset costs of implementing grid connection. The program was available to residential, commercial, industrial, agriculture, non-profit, school, and government applicants who installed anaerobic digestion systems. In 2016, $4 million was available for the development of Anaerobic Digester Gas-to-Electricity Systems in New York.[213]

California has combined the benefits of feed-in tariffs and net metering systems through the Renewable Energy Self-Generation Bill Credit Transfer Tariff (RES-BCT) program, established under AB 2466 of 2008. The RES-BCT program allows local government institutions with one or more 5 MW renewable generating systems to export surplus energy to the electricity grid and share the resultant generation credits, which lowers utility cost of the benefiting account with up to 50 other metering accounts owned by the same local government institution.[214] The program increases access to renewable energy to ratepayers across California and provides a performance incentive to large public renewable energy generators.

[213] *See* the NC Clean Energy Technology Centers "Anaerobic Digester Gas-to-Electricity Rebate and Performance Incentive" webpage at http://programs.dsireusa.org/system/program/detail/2725.
[214] The RES-BCT program is summarized on the California Public Utilities Commissions "Net Energy Metering" webpage at http://www.cpuc.ca.gov/General.aspx?id=3800.

APPENDIX G

Appendix G: Incentives Relevant to Organic Materials Diversion

Yard Waste, Food Residuals, and Other Organic Materials Diversion and Infrastructure Study (CH 384, Acts of 2017)

INTRODUCTION

Pursuant to Chapter 384, Acts of 2017, Department of the Environment – Yard Waste, Food Residuals, and Other Organic Materials Diversion and Infrastructure Study, this document reviews existing programs offered by the Maryland Department of Commerce (Commerce) and how they might be applied to encourage and support infrastructure and economic development efforts related to materials diversion. Note that there are also programs offered by the Technology Enterprise Development Corporation (TEDCO), the Maryland Agricultural and Resource-Based Industry Development Corporation (MARBIDCO), the Maryland Energy Administration (MEA), the Department of Housing and Community Development (DHCD), and the U.S. Department of Agriculture (USDA) that may also be relevant to this study, but those programs are outside of the scope of this white paper.

ABOUT THE MARYLAND DEPARTMENT OF COMMERCE

As the state's primary economic development agency, the Maryland Department of Commerce stimulates private investment and creates jobs by attracting new businesses, encouraging the expansion and retention of existing companies, and providing workforce training and financial assistance to Maryland companies. The Department also promotes the state's many economic advantages and markets local products and services at home and abroad to spur economic development and international investment, trade, and tourism. Between 2010 and 2016, Maryland Commerce has assisted nearly 4,000 small businesses and organizations; helped create or retain 40,000 jobs, and leveraged nearly $3 billion in private investment.

MARYLAND COMMERCE'S FINANCING & INCENTIVE RESOURCES

The Maryland Department of Commerce Office of Finance Programs provides the business community with financing and incentive-based solutions for economic development projects to maximize job creation and retention, leverage capital investment, and encourage growth in targeted business sectors and specific geographic areas throughout the state. To remain competitive in the marketplace, Commerce responds quickly to changing requirements with the development of incentives that address the identifiable needs of the business community.

Financial Incentives Provide:

- Entrepreneurs with access to capital markets
- Funding of economic development efforts for local jurisdictions
- Impetus to encourage capital investments and job creation
- Employment opportunities by attracting, creating, expanding and retaining businesses

Note that Commerce, except in specific instances, only supports for-profit businesses operating within the State. Its programs are not generally intended to support non-profit or governmental activities, though there are exceptions. These exceptions are noted in the individual program descriptions below.

GEOGRAPHIC PROGRAM RESTRICTIONS

Most Commerce programs are restricted to providing assistance to businesses located within Priority Funding Areas (PFAs), as defined by State statute, the Maryland Department of Planning, and the State's 24 jurisdictions. The following areas qualify as Priority Funding Areas:

- Every Maryland municipality, as they existed in 1997;
- Areas in Maryland that are inside the Washington Beltway and the Baltimore Beltway;
- Areas that have been designated as Enterprise Zones, neighborhood revitalization areas, Heritage Areas and existing industrial land;
- Other designated areas nominated by counties that meet certain guidelines.

Depending upon the program, many business operations located outside of a PFA may not be eligible for assistance through Commerce. Businesses should check with other State or Federal agencies to see if assistance is available through their programs.

In addition, there are certain programs that are tied to geographic areas, and only businesses located within those areas are eligible to obtain assistance from them. Examples are the Maryland Enterprise Zone Program and the Regional Institution Strategic Enterprise (RISE) Zone Program.

BUSINESS ACTIVITY PROGRAM RESTRICTIONS

Most Commerce programs are restricted to providing assistance to businesses operating in certain industries or who are engaged in certain activities. Some programs are highly restrictive, while others have broader application. Examples of program restrictions are:

- Line of business or NAICS code
- Business activity, such as research and development
- Workforce training
- Hiring new employees
- Capital investment in buildings or equipment

Some programs have few restrictions other than the creation of a minimum number of jobs, while others are highly targeted to certain industries or activities.

SMALL BUSINESS ASSISTANCE

The Maryland Department of Commerce offers multiple programs that support small business creation and growth.

Maryland Small Business Development Financing Authority (MSBDFA)
Economic Development Article §5-501 to 5-575

The Maryland Small Business Development Financing Authority (MSBDFA) was created by the General Assembly in 1978. This program promotes the viability and expansion of businesses owned by economically and socially disadvantaged entrepreneurs. MSBDFA assists small businesses unable to obtain adequate business financing on reasonable terms through normal financing channels. Meridian Management Group, a private contractor, manages the program's four components and Commerce provides financing for the approved small businesses. The four components are:

- *Contract Financing Program* – Provides loan guarantees and direct working capital and equipment loans to socially or economically disadvantaged businesses awarded contracts mainly funded by government agencies and/or public utilities.
- *Equity Participation Investment Program* – Provides direct loans, equity investments, and loan guarantees to small businesses.
- *Long-Term Guaranty Program* – Provides loan guarantees and interest rate subsidies.
- *Surety Bonding Program* – Assists small businesses in obtaining bonding primarily for government or public utilities contracts that require bid, performance, and payment bonds.

Geographic Restrictions: The MSBDFA program is restricted to businesses that operate within Priority Funding Areas.

Business Activity Restrictions: The MSBDFA program has no activity restrictions other than proof that a business is owned by economically and socially disadvantaged entrepreneurs.

Relevance to Study: Any business engaged in any activities related to yard waste, food residuals, or other organic materials diversion or infrastructure creation or expansion is eligible for this program as long as they meet the geographic and business activity restrictions.

Small, Minority and Women-Owned Business Account—Video Lottery Terminal Fund (VLT)
Economic Development Article §5–1501; State Government Article §9-1A-27

Article XIX of the Maryland Constitution authorized video lottery terminals (VLTs) to contribute towards funding education. This provision was enacted pursuant to Chapter 5, Acts of the 2007 Special Session and ratified by Maryland voters in the November 2008 General Election. As a result, Chapter 4, Acts of the 2007 Special Session also became effective and established the Small, Minority, and Women-Owned Businesses Account (the Account) under the Authority of the Board of Public Works (BPW). This law requires that 1.5 percent of VLT proceeds be paid into the Account

to be used to make grants to eligible fund managers to provide investment capital and loans to small, minority, and women-owned businesses in the State. In 2017, the authority to operate the Fund was transferred to the Department of Commerce.

The State's VLT fund uses proceeds from Maryland's casinos to assist small, minority, and women-owned businesses located in targeted areas surrounding six Maryland casinos: Maryland Live in Anne Arundel County, Hollywood Casino Perryville in Cecil County, Rocky Gap in Allegany County, Ocean Downs in Worcester County, MGM National Harbor in Prince George's County, and Horseshoe Casino in Baltimore City. At least 50% of the VLT allocations support small, minority and women-owned businesses located within a 10-mile radius of the casinos. The other 50% is available to small, minority and women-owned businesses located throughout Maryland.

In FY 2017, there were eight designated fund managers that received funds for the purpose of making loans to small, minority, and women-owned businesses in the State:

- Anne Arundel Economic Development Corporation (AAEDC)
- Baltimore County Department of Economic and Workforce Development
- Baltimore Development Corporation (BDC)
- FSC First Prince George's
- Howard County Economic Development Authority
- Maryland Capital Enterprises Inc. (MCE)
- Meridian Management Group, Inc. (MMG)
- Tri County Council for Western Maryland

Geographic Restrictions: The VLT program prioritizes businesses located within a 10-mile radius of one of Maryland's casinos, but offers funding to businesses throughout the State. However, funding is restricted to businesses that operate within Priority Funding Areas.

Business Activity Restrictions: The VLT program has no activity restrictions other than proof that a business is a small, minority, or women-owned business.

Relevance to Study: Any business engaged in any activities related to yard waste, food residuals, or other organic materials diversion or infrastructure creation or expansion is eligible for this program as long as they meet the geographic and business activity restrictions.

Military Personnel and Veteran-Owned Small Business No-Interest Loan Program (MPVSBLP)
Economic Development Article §5-1001 to 5-1007

The Military Personnel and Veteran-Owned Small Business No-Interest Loan Program (MPVSBLP) was enacted originally in 2006 to assist with costs that result from the call to active duty for

businesses owned by military reservists and National Guard members and for small businesses that employ such persons. In the 2013 legislative session, the Maryland General Assembly approved Chapter 105, which altered the name and expanded eligibility for participation in the program to include all veteran-owned small businesses. The change eliminated the requirement for a veteran to have a service-related disability to use the program.

MPVSBLP provides no-interest loans of up to $50,000, from one to eight years, for businesses owned by military reservists, veterans, National Guard personnel and for small businesses that employ or are owned by such persons.

Geographic Restrictions: The MPVSBLP program restricts funding to businesses that operate within Priority Funding Areas.

Business Activity Restrictions: The MPVSBLP program has no activity restrictions other than proof that the loan is going to a small business owned by military reservists, veterans, National Guard personnel, or is a small business that employs or is owned by such persons.

Relevance to Study: Any business engaged in any activities related to yard waste, food residuals, or other organic materials diversion or infrastructure creation or expansion is eligible for this program as long as they meet the geographic and business activity restrictions.

Maryland Economic Adjustment Fund (MEAF)
Economic Development Article §5-201 to 5-209

The Maryland Economic Adjustment Fund (MEAF) was established in 1994 as a revolving loan fund to assist companies experiencing dislocation due to defense adjustments. MEAF is supported by funds from the U.S. Economic Development Administration and the State.

Funding assistance through MEAF assists small businesses with upgrading manufacturing operations, developing commercial applications for technology, or entering into and competing in new economic markets. Eligible businesses include manufacturers, wholesalers, service companies, and skilled trades.

Geographic Restrictions: The MEAF program restricts funding to businesses that operate within Priority Funding Areas.

Business Activity Restrictions: The MEAF program is restricted to companies involved in manufacturing, wholesale, certain services, and skilled trades. Funds can only be used for working capital machinery and equipment, building renovations, real estate acquisitions, or site improvements.

Relevance to Study: Any business engaged in any activities related to yard waste, food residuals, or other organic materials diversion or infrastructure creation or expansion is eligible for this program as long as they meet the geographic and business activity restrictions.

ECONOMIC DEVELOPMENT INCENTIVES

Maryland Economic Development Assistance Authority and Fund (MEDAAF)
Economic Development Article §5-301 to 5-349

The Maryland Economic Development Assistance Authority and Fund (MEDAAF) is the primary economic development finance tool offered by the Department. MEDAAF was enacted in 1999 to provide below market, fixed-rate financing to growth industry sector businesses locating or expanding in priority funding areas of the State. The MEDAAF program is administered under five capabilities that address appropriate economic development opportunities for both the business community and political jurisdictions as follows:

- MEDAAF Capability 1 - Significant Strategic Economic Development Opportunities
- MEDAAF Capability 2 - Local Economic Development Opportunities
- MEDAAF Capability 3 - Direct Assistance to Local Jurisdictions or MEDCO
- MEDAAF Capability 4 - Regional or Local Revolving Loan Funds
- MEDAAF Capability 5 - Special Purpose Grants and Loans/Brownfields

The primary job creation capabilities are MEDAAF-1 and 2. MEDAAF-3 provides direct assistance to local jurisdictions for economic development projects and MEDAAF-4 provides funding to local governments to create revolving loan funds to assist small businesses. MEDAAF-5 has several special purposes including day care facility finance, Arts and Entertainment Districts, and brownfield remediation.

MEDAAF Capability 1 - Significant Strategic Economic Development Opportunities
Projects under this capability are normally regarded as producing significant economic development opportunities on a Statewide or regional level. Assistance is provided directly to businesses or through the Maryland Economic Development Corporation (MEDCO) in the form of a loan. The maximum assistance under this capability cannot exceed the lesser of $10,000,000 or 20 percent of the current fund balance.

MEDAAF Capability 2 - Local Economic Development Opportunities
Capability 2 of MEDAAF provides assistance in the form of a loan, a conditional loan, investment, or a grant directly to a business or to MEDCO for use in the project. All assistance under this capability must be endorsed through a formal resolution by the governing body of the jurisdiction in which the project is located. In addition, the local jurisdiction must participate in an amount equal to at least 10 percent of the total assistance. Funds may be used for land acquisition, infrastructure improvements, buildings, fixed assets, and leasehold improvements.

MEDAAF Capability 3 - Direct Assistance to Local Jurisdictions or MEDCO
Capability 3 of MEDAAF provides assistance directly to a local jurisdiction or MEDCO for local economic development needs including feasibility studies, economic development strategic plans, and infrastructure. Funds may be used for buildings, infrastructure improvements, fixed assets, and leasehold improvements. All assistance under this capability must be endorsed through a formal resolution by the governing body of the jurisdiction in which the project is located. Assistance provided may be in the form of a loan, a conditional loan, investment, or a grant.

MEDAAF Capability 4 - Regional or Local Revolving Loan Funds
Capability 4 of MEDAAF provides assistance to local jurisdictions to help capitalize local economic development revolving loan funds. The typical revolving loan fund client is a small business that may be in an industry sector, such as retail service, that is not otherwise eligible for assistance. The final recipient of financing is determined by the local jurisdiction. Jurisdictions may receive funding of up to $250,000 annually. To qualify for funding, local jurisdictions must provide acceptable matching funds into the designated revolving loan fund.

MEDAAF Capability 5 - Special Purpose Grants and Loans
This capability contains targeted programs for specialty initiatives that at one time had been deemed critical to the State's economic health and development by the General Assembly. These specialty programs may be exempt from local participation and certain other MEDAAF requirements. The special purpose initiatives include Brownfields, Seafood and Aquaculture, Animal Waste, Day Care, and Arts and Entertainment. The funds do not have a direct job creation component.

Geographic Restrictions: The MEDAAF program restricts funding to businesses that operate within Priority Funding Areas.

Business Activity Restrictions: The MEDAAF program has multiple components and is very complex. Businesses can receive direct assistance, local governments can receive funding for their revolving loan funds, jurisdictions can receive direct funding for certain activities, and special programs can receive assistance.

Relevance to Study:
- Any business engaged in any activities related to yard waste, food residuals, or other organic materials diversion or infrastructure creation or expansion is eligible for this program as long as they are located within a PFA.
- Any jurisdiction can apply for assistance with land acquisition, infrastructure improvements, acquisition of fixed assets, leasehold improvements, up to 70% of the cost of a feasibility study and up to 50% of the cost of preparing a local economic development strategic plan. Any of these activities may be related to yard waste, food residuals, or other organic materials diversion or infrastructure creation or expansion.
- Revolving loan funds may be used to support business engaged in the activities under study, depending on the rules of each fund.

Economic Development Opportunities Program Fund (Sunny Day)
State Finance and Procurement Article §7-314

The Economic Development Opportunities Program Fund, known as Sunny Day, was enacted in 1988 to enable Maryland to act on extraordinary economic development proposals that required financial assistance beyond the capabilities of other state and local financing programs. The Sunny Day fund supports extraordinary economic development opportunities that create and retain employment as well as create significant capital investments. Projects must generate significant jobs in areas of high unemployment; they are evaluated on a competitive basis. Participants must provide a minimum capital investment of at least five times the amount of the Sunny Day assistance.

Geographic Restrictions: The Sunny Day program restricts funding to businesses that have investments within areas of high unemployment. In addition, these investments are expected to occur within Priority Funding Areas.

Business Activity Restrictions: The Sunny Day program is restricted to companies that are creating "extraordinary" economic development opportunities and "significant" capital investments.

Relevance to Study: Any business engaged in any activities related to yard waste, food residuals, or other organic materials diversion or infrastructure creation or expansion is eligible for this program as long as they are considered an extraordinary economic development opportunity and meet the geographic and business activity restrictions.

Partnership for Workforce Quality (PWQ)
Economic Development Article §3-401 to 3-412

The Partnership for Workforce Quality (PWQ) is an incumbent worker training program established by the Maryland General Assembly in 1989 and administered by the Maryland Department of Commerce. PWQ was developed to encourage Maryland companies, especially manufacturing and technology companies, to invest in incumbent worker training for job-specific skills to upgrade or retain full-time, Maryland-based employees.

PWQ provides matching training grants and support services targeted to improve the competitive position of small and mid-sized manufacturing and technology companies. Grants are used to increase the skills of existing workers for new technologies and production processes, improve employee productivity, and increase employment stability. Matching grant funds are used to reimburse up to 50% of the costs of qualified projects.

Applicants must be a Maryland employer, may not be in arrears with any State taxing agency, and not be in default with any Commerce program. Applicants should have a minimum of 10 full-time employees. At least 60% of available funds must be awarded to employers with 150 or fewer

employees in the State. The Program encourages the participation of small and minority-owned businesses.

Priority will be given to manufacturing and technology companies. In areas of the State where regionally important industries have been identified beyond manufacturing and technology, justification should be provided to approve PWQ funding.

Geographic Restrictions: The PWQ program restricts funding to businesses located within Priority Funding Areas.

Business Activity Restrictions: The PWQ program is restricted to companies that wish to offer incumbent worker training and have at least 10 full-time employees. Preference is given to manufacturing and technology companies.

Relevance to Study: Any business engaged in manufacturing or technology-related activities related to yard waste, food residuals, or other organic materials diversion or infrastructure creation or expansion may be eligible for this program. In addition, "regionally important industries" other than manufacturing or technology firms, may also be eligible.

CREDIT ENHANCEMENTS

Maryland Industrial Development Financing Authority (MIDFA)
Economic Development Article §5-401 to 5-466

The Maryland Industrial Development Financing Authority (MIDFA) was established by the Maryland General Assembly in 1965 to promote significant economic development by providing financing support to manufacturing, industrial, and technology businesses located in or moving to Maryland. MIDFA encourages private sector investments through the use of insurance, the issuance of tax-exempt and taxable revenue bonds and linked deposits, which reduces a lender's risk and increases access to capital for small and mid-sized companies. The Program has increased its commitment to growth and development of small business by increasing outreach efforts to community banks. The Fund does not provide direct loans, but provides insurance to transactions resulting in reduced credit risks, and enabling better terms from private financial institutions.

MIDFA offers two types of support: Credit insurance and private activity revenue bonds.

Credit Insurance
- Bond Program: Insures bonds up to 100% not to exceed $7.5 million of taxable or tax-exempt bonds.
- Conventional Program: Insures up to 80% not to exceed $2.5 million of a transaction made by a financial institution. Export transactions may be insured up to 90%.

Private Activity Revenue Bonds

- Taxable Bond: Provides access to long-term capital markets primarily for fixed asset financing.
- Tax-Exempt Bond: Provides access to long-term capital markets for fixed asset financing at tax-exempt rates. Eligibility is limited by Federal tax law to 501(c)(3) non-profit organizations, manufacturing facilities and certain solid waste projects. Additional limitations apply to the specific transaction type.

Geographic Restrictions: The MIDFA program restricts funding to businesses that operate within Priority Funding Areas.

Business Activity Restrictions: The MIDFA program is restricted to providing financing support to manufacturing, industrial, and technology businesses located in or moving to Maryland. The Fund does not provide direct loans, but provides insurance to transactions resulting in reduced credit risks, and enabling better terms from private financial institutions.

Relevance to Study: Any business engaged in any manufacturing, industrial, or technology-related activities involving the diversion of yard waste, food residuals, or other organic materials or the creation of infrastructure related to these activities AND who is seeking a loan from a private institution is eligible for this program as long as they meet the geographic and business activity restrictions.

TAX INCENTIVES

Biotechnology Investment Incentive Tax Credit (BIITC)
Tax General Article §10-725

Maryland's Biotechnology Investment Incentive Tax Credit (BIITC) program provides income tax credits for investors that invest in Qualified Maryland Biotechnology Companies (QMBCs). This tax credit program was enacted in 2005 to offer incentives for investment in seed and early stage, privately-held biotech companies. The value of the credit is equal to 50% of an eligible investment made in a QMBC during the taxable year. The maximum amount of the credit cannot exceed $250,000 for investors. If the credit exceeds the tax liability, the remaining credit is refundable. The program has a cap and credits are awarded on a first-come, first-served basis.

Geographic Restrictions: The BIITC program restricts funding to businesses that operate within Maryland.

Business Activity Restrictions: The BIITC program is restricted to providing tax credits to investors in companies involved in certain qualifying biotechnology activities.

Relevance to Study: Any business engaged in any qualifying biotechnology activities that could be applied to the processing or transformation of yard waste, food residuals, or other organic materials may be eligible for this program as long as they meet the geographic and business activity restrictions.

Brownfields Revitalization Incentive Program (BRIP)
Tax Property Article §9-229 and 14-902

A site that qualifies for this incentive program may also qualify for real property tax credits. The site must be located in a jurisdiction that participates in the BRIP, and be owned by an inculpable person. For five years after cleanup, a site may qualify for a real property tax credit between 50% and 70% of the increased value of the site. (In an Enterprise Zone, the tax credit may last for up to 10 years). This credit, combined with other real property tax credits, may not exceed 100% of the tax on the increased value of the site.

Geographic Restrictions: The BRIP program restricts funding to brownfields sites that are located within jurisdictions that participate in the program.

Business Activity Restrictions: The BRIP program is restricted to property that is an eligible brownfields site that is owned by an inculpable person or a property where there is a release, discharge, or threatened release of oil so long as the property is not owned by the person responsible for the discharge.

Relevance to Study: Any business engaged in any activities related to yard waste, food residuals, or other organic materials diversion or infrastructure creation or expansion that may wish to set up operations on an existing brownfields site may be eligible for this program as long as they meet the geographic and business activity restrictions.

Enterprise Zone Tax Credit
Tax General Article §10-702 and Tax Property Article §9-103

Maryland's Enterprise Zone Tax Credit Program is a joint effort between the State and local governments to provide tax incentives to businesses and property owners located in some of the State's most economically distressed communities. The Program was created in 1982 with two enterprise zones (EZs) in two jurisdictions. As of December 2017, there are 36 EZs across the State, along with four Focus Areas in Baltimore City and Prince George's County. There are currently seven State-designated zones in Western Maryland, 15 on the Eastern Shore, seven in Southern and Suburban Maryland, and seven in Central Maryland.

The Enterprise Zone program provides real property and state income tax credits for businesses located in a Maryland enterprise zone. The real property tax credit is 80% of the incremental increase in property taxes over the first five years, decreasing 10% annually during the next five years. The income tax credit is a $1,000 credit per new employee. For economically disadvantaged employees, the credit increases to $6,000 per new employee over three years. Enhanced credits for both property and income tax credits are available in Enterprise Zone Focus Areas.

Geographic Restrictions: The Enterprise Zone program restricts funding to businesses and property developers that operate within established enterprise zones.

Business Activity Restrictions: In order for a business to qualify for the Enterprise Zone property tax credit, it must meet all state and local eligibility requirements. To be qualified the business must satisfy one of the two specific statutory requirements, which are that the business must either (1) make and investment in capital improvements, or (2) hire new employees. The business must contact the local enterprise zone administrator regarding the local eligibility requirements because the local eligibility requirements vary by the enterprise zone.

Relevance to Study: Any business engaged in any activities related to yard waste, food residuals, or other organic materials diversion or infrastructure creation or expansion is eligible for the Enterprise Zone program as long as they meet the geographic and business activity restrictions.

Job Creation Tax Credit (JCTC)
Economic Development Article §6-301 to 6-309

The Job Creation Tax Credit (JCTC) was enacted in 1996 to encourage businesses to create new jobs in Maryland. The credit is available Statewide, but lower job thresholds and increased credits are available in targeted areas. The credits are available for full-time jobs paying at least 150 percent of federal minimum wage in targeted industry sectors. The JCTC is available anywhere in the State in a variety of targeted industry sectors.

Businesses that create a minimum number of new full-time positions may be entitled to state income tax credits of up to $3,000 per job or up to $5,000 per job in a "revitalization area." Businesses engaged in an eligible activity must create at least 60 new full-time jobs in a 24-month period; this is reduced to 30 new full-time jobs if they are high-wage jobs, and reduced to 25 new full-time jobs if they are located in a Job Creation Tax Credit Priority Funding Area. In counties with (1) annual average employment less than 75,000 or (2) median household income less than two thirds of the statewide median household income, the minimum requirement is reduced to 10 jobs.

A business may not claim more than $1 million in a credit year. The program is capped at $4 million in tax credits in a calendar year. Credits are certified on a first-come, first-served basis based on when the Maryland Department of Commerce (Commerce) receives the final application and the availability of credits. Unused credits may be carried forward for five years.

A business may qualify for the JCTC program if it is primarily engaged in:

- manufacturing or mining;
- transportation or communications;
- agriculture, forestry, or fishing;
- research, development, or testing;
- biotechnology;

- computer programming, information technology, or other computer–related services;
- central services for a business entity engaged in financial services, real estate services, or insurance services;
- the operation of central administrative offices;
- the operation of a company headquarters other than the headquarters of a professional sports organization;
- the operation of a public utility;
- warehousing;
- business services, if the business facility established or expanded is located in a State priority funding area

Geographic Restrictions: The JCTC program offers greater benefits to businesses that operate within Priority Funding Areas as defined in the JCTC statute. The JCTC PFA definition differs slightly from the definition used for other programs. Businesses located outside of a JCTC-defined PFA have higher job creation requirements.

Business Activity Restrictions: The JCTC program is restricted to companies involved in certain activities listed above, and creating a minimum number of jobs as required by the geographic area in which it is located.

Relevance to Study: Any business engaged in any activities related to yard waste, food residuals, or other organic materials diversion or infrastructure creation or expansion is eligible for this program as long as they meet the geographic and business activity restrictions.

More Jobs for Marylanders Incentive Program for Manufacturers (MJM)
Economic Development Article §6-801 to 6-809

The More Jobs for Marylanders (MJM) program was created in 2017 to promote the growth of manufacturing in Maryland by providing tax incentives for manufacturing job creation, encouraging manufacturers to invest in new equipment through accelerated and bonus depreciation, and funding job training and apprenticeship programs to help strengthen Maryland's manufacturing workforce. Tax credits are available to new and existing manufactures that locate or expand in Maryland and create new manufacturing jobs. New and existing manufacturers located in a Tier 1 or Tier 2 county may qualify for the following credits, available for a 10-year benefit period:

- TIER 1 NEW BUSINESS: (a) a refundable credit against the State's income; (b) a credit against the State's portion of the property tax; (c) a refund of sales and use tax; and (d) a waiver of fees charged by SDAT.
- TIER 1 EXISTING BUSINESS: A refundable credit against the State's income tax.
- TIER 2 EXISTING BUSINESS: A refundable credit against the State's income tax.

Tier 1 Counties include Baltimore City and Allegany, Baltimore, Dorchester, Prince George's Somerset, Washington, and Worcester counties. Tier 2 Counties include all other Maryland counties.

As of July 1, 2018 Caroline, Garrett, Kent, and Wicomico Counties will also qualify as Tier 1 counties.

To qualify for the MJM program, a business must:

- Be a manufacturer primarily engaged in activities that according to the North American Industrial Classification System (NAICS), would be included in Sector 31, 32, or 33, except for Refiners.
- Offer ongoing job training or a postsecondary education program (e.g. tuition reimbursement).
- New or existing manufacturers in Tier 1 counties must create at least 5 new qualified jobs. (A qualified job is a job that is full-time, pays at least 120% of State minimum wage and is filled for 12 months.)
- Existing manufacturers in Tier 2 counties must create at least 10 new qualified jobs.

Businesses can enroll their project in the program and be certified as a Qualified Business Entity until June 1, 2020. Businesses who have been certified to receive benefits under the program will receive for the full 10-year duration, subject to appropriation. If during the 10-year benefit period, the number of new qualified positions falls below the number the business received credit for in the first benefit year, the project will removed from the program and all benefits will be terminated.

Geographic Restrictions: The MJM program restricts funding to Maryland-based businesses.

Business Activity Restrictions: The MJM program is restricted to companies that are involved in manufacturing activities (NAICS 31-33), except for refiners. Manufacturers in Tier 1 counties must create at least 5 new jobs, while those in Tier 2 counties must create at least 10 new jobs.

Relevance to Study: Any new or existing manufacturing business operating in business areas related to yard waste, food residuals, or other organic materials diversion or infrastructure creation or expansion is eligible for this program as long as they meet the geographic and business activity restrictions.

One Maryland Tax Credit
Economic Development Article §6-401 to 6-407

The One Maryland Tax Credit (OneMD) was enacted in 1999 to promote job creation and investment in qualified distressed communities, those counties with high unemployment, and low per capita income compared to the rest of Maryland. To qualify for the credits, the business must

create at least 25 new jobs and make capital expenditures. The jobs must be full-time, pay at least 150 percent of federal minimum wage, and the business must be in a targeted industry sector.

Businesses that invest in an economic development project in a "qualified distressed county" and create at least 25 new full-time jobs may qualify for up to $5.5 million in state income tax credits. Project tax credits of up to $5 million are based on qualifying costs incurred in connection with the acquisition, construction, rehabilitation, and installation of a project. Startup tax credits of up to $500,000 are available for the expense of moving a business from outside Maryland and for the costs of furnishing and equipping the new location. The credit can be carried forward 14 years and is refundable, subject to certain limitations. As of July 1, 2018, no business may claim both the One Maryland Tax Credit and Job Creation Tax Credit in the same tax year.

Geographic Restrictions: The One Maryland program restricts funding to businesses that operate within Priority Funding Areas located within certain designated "qualified distressed counties." As of July 1, 2018, these jurisdictions are Baltimore City and Allegany, Caroline, Dorchester, Garrett, Kent, Somerset, Washington, Wicomico, and Worcester counties.

Business Activity Restrictions: The One Maryland program is restricted to companies that conduct or operate a trade or business in Maryland or are an organization operating in Maryland that is exempt from taxation under §501(c)(3) or (4) of the Internal Revenue Code, and are expanding employment and investing at least the minimum amount of money required by statute.

Relevance to Study: Any business making a large investment in facilities and new employment in any activities related to yard waste, food residuals, or other organic materials diversion or infrastructure creation or expansion is eligible for this program as long as they meet the geographic and business activity restrictions.

Research and Development Tax Credit
Tax General Article 10-721

The Research and Development Tax Credit (R&D Tax Credit) was enacted in 2000 to encourage businesses to maintain and increase R&D expenditures in the State. The R&D tax credit is not a tax credit that specifically targets job creation although it likely supports the increase in R&D jobs in the State.

For Maryland businesses that incur Maryland qualified research and development expenses, the Basic R&D tax credit is the lesser of 3% of eligible R&D expenses or 3% of the Maryland Base Amount. The Growth R&D tax credit is 10% of eligible R&D expenses in excess of the Maryland Base Amount. The credits are capped at $4.5 million each annually. If the amount of credits all businesses apply for exceeds the cap, each business receives its pro rata share. R&D tax credits certified after December 15, 2012 are refundable for a "small business" if the tax credits exceed the income tax liability. Businesses must submit an application to the Maryland Department of Commerce by September 15 for expenses incurred in the previous tax year.

Geographic Restrictions: There are no geographic restrictions other than the requirement that the eligible R&D activities take place within the State of Maryland.

Business Activity Restrictions: The R&D Tax Credit program is restricted to companies involved in R&D activities, as defined by the Federal definition of qualified R&D and qualified R&D expenses. To qualify the business must incur Qualified Research and Development Expenses, as defined by § 41(b) of the Internal Revenue Code in Maryland.

Relevance to Study: Any business engaged in qualified Research and Development activities related to yard waste, food residuals, or other organic materials diversion or infrastructure creation or expansion is eligible for this program as long as they are located in and perform their R&D within Maryland.

Regional Institution Strategic Enterprise (RISE) Zone Program
Economic Development Article *§5-1401 to 5-1407*

A RISE Zone is a geographic area that has a strong connection with a qualified institution and is targeted for increased economic and community development.

Qualified institutions include institutions of higher education, regional higher education centers, or non-profits affiliated with a federal agency. The purpose of the RISE Zone program is to access institutional assets that have a strong and demonstrated history of commitment to economic development and revitalization in the communities in which they are located. Qualified institutions and local governments develop a targeted strategy to use the institutional assets and financial incentives to attract businesses and create jobs within the zone.

A RISE Zone designation is in effect for 5 years, with a possible additional 5-year renewal. Counties and municipalities are limited to a maximum of three RISE Zones. Current RISE Zones are located in Baltimore City and in Baltimore and Prince George's counties.

Businesses locating in a RISE Zone or an existing business doing a significant expansion within the Zone, may qualify for real property tax credits and income tax credits related to capital investment and job creation.

The designation of a RISE Zone requires a two-step process. Institutions must first apply to Commerce to be designated a Qualified Institution. Qualified Institutions applying to Commerce to designate a RISE Zone shall jointly apply with a county, municipality, or the economic development agency of a county or municipality to designate a RISE Zone.

Geographic Restrictions: All eligible business activities must occur within an established RISE Zone.

Business Activity Restrictions: The RISE Zone program is restricted to companies who have business or research connections to qualified RISE Zone institutions.

Relevance to Study: Any business linked to a qualified RISE Zone institution and operating within a RISE Zone who is engaged in activities related to yard waste, food residuals, or other organic materials diversion or infrastructure creation or expansion may be eligible for this program.

Wineries and Vineyards Tax Credit
Tax General Article 10-735

The Maryland Wineries and Vineyards Tax Credit program was enacted in 2012 for qualified capital expenses related to a Maryland winery or vineyard. The credit is equal to 25 percent of qualified capital expenses made in connection with the establishment of new wineries or vineyards, or capital improvements made to existing wineries or vineyards in Maryland. Total credits granted may not exceed $500,000 in a year. If the total amount of credits applied for exceeds $500,000, the credit is prorated among the certified applicants.

Qualified applicants are eligible for an income tax credit of 25% of qualified capital expenses made in connection with the establishment of new wineries or vineyards, or the capital improvements made to existing wineries or vineyards in Maryland. The credit to all businesses is limited to $500,000 for each calendar year. If the amount that all businesses apply for exceeds this cap, the credit will be prorated.

Geographic Restrictions: The Wineries and Vineyards Tax Credit program restricts funding to wineries located in Maryland on agricultural lands of at least one acre.

Business Activity Restrictions: The Wineries and Vineyards Tax Credit program is restricted to qualified wineries as defined by the Comptroller of Maryland as either a Class 3 or Class 4 winery. A qualified vineyard is defined as agricultural lands located in Maryland consisting of at least one contiguous acre used solely to grow grapes and other plants that will be used in the production of wine by a winery licensed by the Comptroller of Maryland.

Relevance to Study: The list of qualified expenses that can be claimed under this program does not include activities or equipment related to yard waste, food residuals, or other organic materials diversion or infrastructure creation or expansion.

OTHER FINANCING RESOURCES

Community Development Block Grant (CDBG)
CDBG assists local governments in implementing commercial and industrial economic development projects. Approved program funds are disbursed to eligible local jurisdictions as conditional grants and used for public improvements for business startup or expansion, or for

business loans. Projects must create jobs with the majority targeted to individuals of low to moderate income, or eliminate blight conditions that impede commercial and industrial development. Fund uses include acquiring fixed assets, infrastructure, and feasibility studies.

CDBG is a Federally funded program that that provides communities with resources to address a wide range of unique community development needs. Funds are allocated to States and Small Cities based on poverty and population statistics. Maryland's CDBG program is administered jointly by DHCD and Commerce. Approximately 25 percent of the State's annual CDBG award is allocated to Commerce for job creation. Under federal guidelines, the assistance must be targeted to low and moderate-income citizens in non-urban areas of the State. Commerce's strategy for use of CDBG funds emphasizes support of local government economic development initiatives that encourage commercial and industrial growth, workforce training, commercial revitalization, and development and growth of small businesses. Funds are disbursed to local jurisdictions in the form of a conditional grant. The local jurisdiction may lend the funds to a commercial enterprise or directly use the funds for infrastructure improvements needed by businesses or other eligible projects. Eligible projects include revolving loan funds that serve the needs of local businesses.

Geographic Restrictions: The CDBG program restricts funding to businesses who operate within Priority Funding Areas in non-urban areas of the State.

Business Activity Restrictions: The CDBG program is restricted to activities that are targeted to low and moderate-income citizens. CDBG funds are not provided directly from Commerce to an eligible business, but are instead provided to a local government who makes the final determination of funding eligibility.

Relevance to Study: Any local government who is eligible for CDBG funding through the Department of Commerce may use this funding to support local businesses in non-urban areas, as long as that assistance is targeted to low- and moderate-income citizens.

ExportMD

The ExportMD grant program helps to offset some of the costs of marketing internationally for Maryland's small and mid-sized companies. Maryland companies that receive an ExportMD Award are eligible for up to $5,000 in reimbursement for expenses associated with an international marketing project and can also receive up to 40 hours of assistance from the Department's trade experts located in nine countries around the globe. Eligible expenses include those related to an international marketing initiative including trade show fees, airfare, translation of brochures, and web site development. These activities may result in additional contracts and increased sales, which lead to increased employment.

Geographic Restrictions: Only Maryland-based companies are eligible for ExportMD grants.

Business Activity Restrictions: The ExportMD program is restricted to companies involved in the export of goods or services.

Relevance to Study: Any Maryland business creating a good or service that is exportable and is related to yard waste, food residuals, or other organic materials diversion or infrastructure creation or expansion is eligible for this program as long as they meet the program's business activity restrictions.

Appendix A: Table of Relevant Maryland Department of Commerce Incentive Programs

Funding Program Name	Type	Category	Details
Maryland Small Business Development Fund Authority (MSBDFA)	Bond, Contract Finance, Investment, Loan Guarantee	Small Business, Minority, Women-Owned Business	Assists small businesses unable to obtain adequate business financing on reasonable terms through normal financing channels by providing loan guarantees. View Program
Maryland Industrial Development Financing Authority (MIDFA)	Bond, Loan Guarantee	Location-Based, For Lending Institutions	Encourages private sector investments with insurance, and the issuance of tax-exempt and taxable revenue bonds for projects located in Priority Funding Areas. Uses include land acquisition, building acquisition, construction costs and more. View Program
Community Development Block Grant (CDBG)	Grant	Economic Development Partners	Provides funding to commercial and industrial economic development projects. Funds are dispersed to a local jurisdiction in the form of a conditional grant and then used for public improvements or loaned to a business. View Program
ExportMD Program	Grant	International, Startup, Small Business	Helps to offset some of the costs of marketing internationally for Maryland's small and mid-sized companies, providing up to $5,000 in reimbursement for expenses associated with an international marketing project. View Program
Partnership for Workforce Quality (PWQ)	Grant	Technology, Manufacturing	Provides matching training grants and support services targeted to improve the competitive position of small and mid-sized manufacturing and technology companies. View Program

Funding Program Name	Type	Category	Details
Economic Development Opportunities Fund (Sunny Day)	Grant, Investment, Loan	Job Creation	Supports extraordinary economic development opportunities that create and retain employment as well as create significant capital investments._ View Program
Maryland Economic Development Assistance Authority Fund (MEDAAF)	Grant, Investment, Loan	Location-Based, General, Economic Development Partners	Funds grants, loans and investments to support economic development initiatives in priority funding areas of the state. Uses include business attraction and retention, infrastructure support, brownfield redevelopment, A&E districts, daycare, revolving loan funds and local strategic planning. View Program
Maryland Economic Adjustment Fund (MEAF)	Grant, Loan	Small Business, Manufacturing	Assists business entities in the state with modernization of manufacturing operations, development of commercial applications for technology, and exploring and entering new markets._ View Program
Military Personnel and Veteran-Owned Small Business Loan Program	Loan	Veteran/Military	No interest loans of up to $50,000 for businesses owned by military reservists, veterans, National Guard personnel and for small businesses that employ or are owned by such persons. View Program
Small, Minority and Women-Owned Business Account-Video Lottery Terminal Fund (VLT)	Loan	Small Business, Minority, Women-Owned Business	Uses proceeds from video lottery terminals (slots) to assist small, minority and women-owned businesses located in targeted areas surrounding six Maryland casinos. View Program
Biotechnology Investment Incentive Tax Credit	Tax Credit	Biotechnology	Provides an investor with income tax credits equal to 50% of an eligible investment in a Qualified Maryland Biotechnology Company (QMBC), supporting investment in seed and early stage biotech companies. View Program
Brownfields Tax Incentive	Tax Credit	Location-Based, General	Provides incentives including tax credits, loans and grants for the redevelopment of eligible brownfield properties in participating jurisdictions. View Program

Funding Program Name	Type	Category	Details
Enterprise Zone Tax Credits	Tax Credit	Location-Based, General	Provides real property and state income tax credits for businesses located in a Maryland Enterprise Zone in return for job creation and investments. View Program
Job Creation Tax Credit	Tax Credit	Job Creation, General	Businesses that create a minimum number of new full-time positions may be entitled to state income tax credits of up to $3,000 per job or $5,000 per job in a "revitalization area." View Program
Maryland Wineries and Vineyards Tax Credit	Tax Credit	Agriculture	Provides an income tax credit for qualified capital expenses related to a Maryland winery or vineyard. View Program
More Jobs for Marylanders - Manufacturing Tax Credit	Tax Credit	Technology, Manufacturing	Provides manufacturer tax incentives tied to job creation for a 10-year period, and encourages additional investment in new equipment through accelerated and bonus depreciation. View Program
One Maryland Tax Credit	Tax Credit	General	Businesses that invest in an economic development project in a "qualified distressed county" and create at least 25 new full-time jobs may qualify for up to $5.5 million in state income tax credits. View Program
Regional Institution Strategic Enterprise (RISE) Zone Program	Tax Credit	Location-Based, Job Creation	A RISE Zone is a geographic area that has a strong connection with a qualified institution. Businesses locating in a RISE Zone or an existing business doing a significant expansion within the Zone, may qualify for real property tax credits and income tax credits related to capital investment and job creation. View Program
Research and Development Tax Credit	Tax Credit	Research	Businesses that have qualified R&D expenditures in Maryland may qualify for two state income tax credits, the Basic R&D Tax Credit and the Growth R&D Tax Credit. View Program

APPENDIX H

Appendix H: Current Process for Anaerobic Digestion Permitting

Engineering and Capital Projects Program Anaerobic Digestion (AD) Facilities and Water and Sewerage Construction Permit

Engineering and Capital Projects Program
Anaerobic Digestion (AD) Facilities
And
Water and Sewerage Construction Permit

Engineering and Capital Projects Program:
The Engineering and Capital Projects Program (ECPP) manages the engineering and project management of federal capital funds consisting of special federal appropriation grants and state revolving loan funds for water quality and drinking water projects. The Program also manages projects funded by State grant programs, including Bay Restoration Fund, Special Water Quality/Health, Small Creeks and Estuaries Restoration, Stormwater, Biological Nutrient Removal, and Water Supply Financial Assistance.
ECPP also reviews and issues Water and Sewerage Construction Permit for major water and wastewater systems including but not limited to those funded by the Department.
ECPP Involvement with Anaerobic Digestion (AD) Facilities:

ECPP is involved with AD facilities only when they are located within and serving sewage treatment plants that are funded by the Department and/or permitted under the Water and Sewerage Construction Permit. An AD facility is reviewed and approved by ECPP as a unit process of the sewage treatment system.

Review Standards:

To be approved for funding or permitting an AD facility must meet MDE-ECPP design guidelines and the *Recommended Standards for Wastewater Facilities* (as revised) for Great Lakes-Upper Mississippi River Board of State and Provincial Public Health and Environmental Managers (10-State Standards). The design guidelines can be found on MDE website.

In addition, the applicants must show that the proposed facility is included in the current County Water and Sewerage Plans, and must certify that the proposed facility will be operated either publicly or privately under a sound financial management plan.

Review Process:

1) An applicant submits the project plans and specifications with the permit application.

2) ECPP acknowledges receipt of the application package and determines the permit fee.

3) ECPP verifies that the project is consistent with the current County Water and Sewerage Plans.

4) ECPP reviews and approves the applicant's financial management plan.

5) ECPP reviews the plans and specifications for conformity with the design guidelines.

The permit is issued after all review comments are addressed and all issues are resolved.

Current and Future Considerations Relating to Anaerobic Digestion Facility Permitting

Maryland
Department of
the Environment

Current and Future Considerations Relating to Anaerobic Digestion Facility Permitting.

Presented to the HB 171 Workgroup, 5/17/2018

Edward M. Dexter, P.G., Administrator

Solid Waste Program, MDE.

Anaerobic Digestion Fits Where?

- **Recently, interest in AD has been increasing.**
- **Technically, the typical feedstocks for AD – manure, food scraps, yard trimmings, etc. – are solid waste in Maryland.**
- **The Department could require a Refuse Disposal Permit for AD.**
- **AD does not enjoy the specific exemption that composting has in the definition of 'solid waste' in Section 9-101 of the Environment Article:**

Environment Article, §9-101(j):

(j) **Solid waste. --**

(1) "Solid waste" means any garbage, refuse, sludge, or liquid from industrial, commercial, mining, or agricultural operations or from community activities.

(2) "Solid waste" includes:

(i) Scrap tires as defined in § 9-201 of this title;

(ii) Organic material capable of being composted that is not composted in accordance with regulations adopted under § 9-1725(b) of this title;

(iii) Materials that are managed at a recycling facility and are not recyclable materials as defined in § 9-1701 of this title; and

(iv) Recyclable materials as defined in § 9-1701 of this title that are not:

1. Returned to the marketplace in the form of a raw material or product within 1 calendar year from the time the recyclable materials are received; or
2. Otherwise managed in accordance with regulations adopted under § 9-1713 of this title.

(3) "Solid waste" does not include:

(i) Solid or dissolved material in domestic sewage or in irrigation return flows;

(ii) Compost as defined in § 9-1701 of this title;

(iii) Organic material capable of being composted that is composted in accordance with regulations adopted under § 9-1725(b) of this title; or

(iv) Materials that are managed at a recycling facility in accordance with regulations adopted under § 9-1713 of this title.

HOWEVER…

- **The Department has not historically required recycling facilities to obtain refuse disposal permits as long as they do not accept and generate more than a *de minimis* quantity of solid waste requiring disposal.**

- **HB 124 from the 2017 Legislative Session directs the Department to develop regulations for recycling facilities to clarify when a permit is or is not required.**

HB 124 from 2017:

Among other things, the bill requires MDE to adopt regulations to :

(1) Establish conditions under which a recycling facility does not require a refuse disposal permit.

(2) Exempt certain materials that are managed at a recycling facility from being designated as solid waste.

(3) Include design, construction, and operational conditions for recycling facilities to protect public health, the environment, and to minimize nuisances; a tiered system of permits or approvals for recycling facilities, as specified; and exceptions to any requirement to obtain a recycling facility permit or approval.

(4) And, MDE must establish a workgroup to do these things.

Workgroup Progress:

- **The workgroup has met 3 times and is examining existing Maryland regulations and other states' recycling regulations.**
- **The workgroup will consider permit exemptions and/or basic performance standards for recyclers that pose a limited risk of environmental impacts.**

So, AD Fits Where?

To summarize:

- **AD does not require a refuse disposal permit if constructed and operated in a manner that minimizes the amount of non-digestible materials that are screened out and disposed to a *de minimis* quantity, and does not cause nuisances, pollution, or other threats to the public health, safety, or comfort.**
- **The HB 124 Workgroup will consider how to address AD as part of the recycling facility regulations, taking into account any discussions and recommendations on AD permitting made as part of this HB 171 study group.**
- **We hope to have draft regs by the end of the year.**
- **To keep track of our activities, go to the Solid Waste Page on MDE's website at www.mde.maryland.gov**

Questions?

Maryland's Air Quality Regulations Applicable to Anaerobic Digestion

Department of the Environment

Maryland's Air Quality Regulations applicable to Anaerobic Digestion

Air Quality Permits Program

Mario G. Cora, Regulatory Compliance Engineer

May 17, 2018

DISCLAIMER

This presentation is intended to be an overview of laws and regulations administered by the Maryland Department of the Environment that may relate to anaerobic digestion. It should not be used as a complete guide to all of the local, State, or federal statutory and regulatory requirements that may apply to a specific composting facility.

Permit to Construct (PTC)

- Required before a new air pollution source is constructed or an existing air pollution source is modified.
- Purpose: to ensure that a proposed project will comply with applicable air quality laws and regulations which exist to protect public health and the environment.
- A permit to construct applies to an individual unit or process line.
- There may be several PTC's issued to a single facility.
- COMAR 26.11.02.09(6) Sources Subject to Permits to Construct and Approvals.
  - "All sources, including installations and air pollution control equipment, except as listed in Regulation .10 of this chapter—permit to construct required."

Permit to Construct (Con't)

- **COMAR 26.11.02.10 Sources Exempt from Permits to Construct and Approvals.**
  - **Provides a list of sources that are exempted. However, composting is not listed.**
- **Air pollution is defined under COMAR 26.11.01.01 B(2):**
  - **"Air pollution" as defined in Environment Article, § 2-101, Annotated Code of Maryland, "means the presence in the outdoor atmosphere of substances in quantities, having characteristics, and being of a duration which, from any single source or in combination with other sources, are, or may be predicted with reasonable certainty to be, injurious to human, plant, or animal life or to property, or which unreasonably interfere with the proper enjoyment of the property of others by reason of the emission of odors, solids, vapors, liquids, or gases, throughout the State and in such areas of the State that are affected by them."**

Potential Permit Requirements for Anaerobic Digestion Facilities

- An anaerobic digestion process or facility by itself does not meet COMAR definition of a source of air pollution.
- Electric powered mobile sources equipment, such as a bucket loader, do not need a permit.
- Other equipment used at an anaerobic facility that may need a PTC:
  - Boilers/process heaters;
  - Screening systems;
  - Grinding/shredding.
  - Internal combustion engine powered equipment (≥500 brake horsepower), such as a tub grinder or to generate electricity. COMAR 26.11.02.10E.

Other Regulations that May Apply to Anaerobic Digestion

- COMAR 26.11.02.13 – Sources subject to Permit to Operate (PTO)
  - Consists of about 60 source categories.
    - Anaerobic digestion is not a listed source!
  - MDE also has the discretion to require additional sources of interest to obtain a PTO.
    - COMAR 26.11.02.13A(61)

Other Regulations that May Apply to Anaerobic Digestion (Con't)

- **COMAR 26.11.06.08 – Nuisance.**
  - **"An installation or premises may not be operated or maintained in such a manner that a nuisance or air pollution is created. Nothing in this regulation relating to the control of emissions may in any manner be construed as authorizing or permitting the creation of, or maintenance of, nuisance or air pollution."**

Other Regulations that May Apply to Anaerobic Digestion (Con't)

- **COMAR 26.11.06.09 – Odors.**
  - **"A person may not cause or permit the discharge into the atmosphere of gases, vapors, or odors beyond the property line in such a manner that a nuisance or air pollution is created."**

Note: Improper composting/handling practices could lead to anaerobic decomposition, causing undesirable odors.

Maryland Department of the Environment
Air Quality Permits Program
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APPENDIX I

Appendix I: Sanitary and Public Health Concerns Related to Organic Materials Composting and Diversion

MDE: Health and Safety Concerns

Maryland
Department of
the Environment

Yard Waste, Food Residuals, and Other Organic Materials Diversion and Infrastructure – Study

Health and Safety Concerns

September 20, 2018

MDE's Charge

The Department shall…

"identify any applicable sanitary and public health concerns related to yard waste, food residuals, and other organic materials composting and diversion."

Ch. 384 of 2017

MDE's Charge (2)

- Today's meeting will focus on potential health impacts related to:
  - Mulching and other recycling of natural wood waste; and
  - Composting of yard trimmings, food scraps, and other organics.

Agenda

I. Potential health issues raised – *MDE*

II. Composting facilities: existing controls – *MDE*

III. Natural wood waste (NWW) facilities: existing controls – *MDE*

IV. Groundwater quality near NWW and composting facilities – *MDE*

V. Air-related health impacts – *MDH*

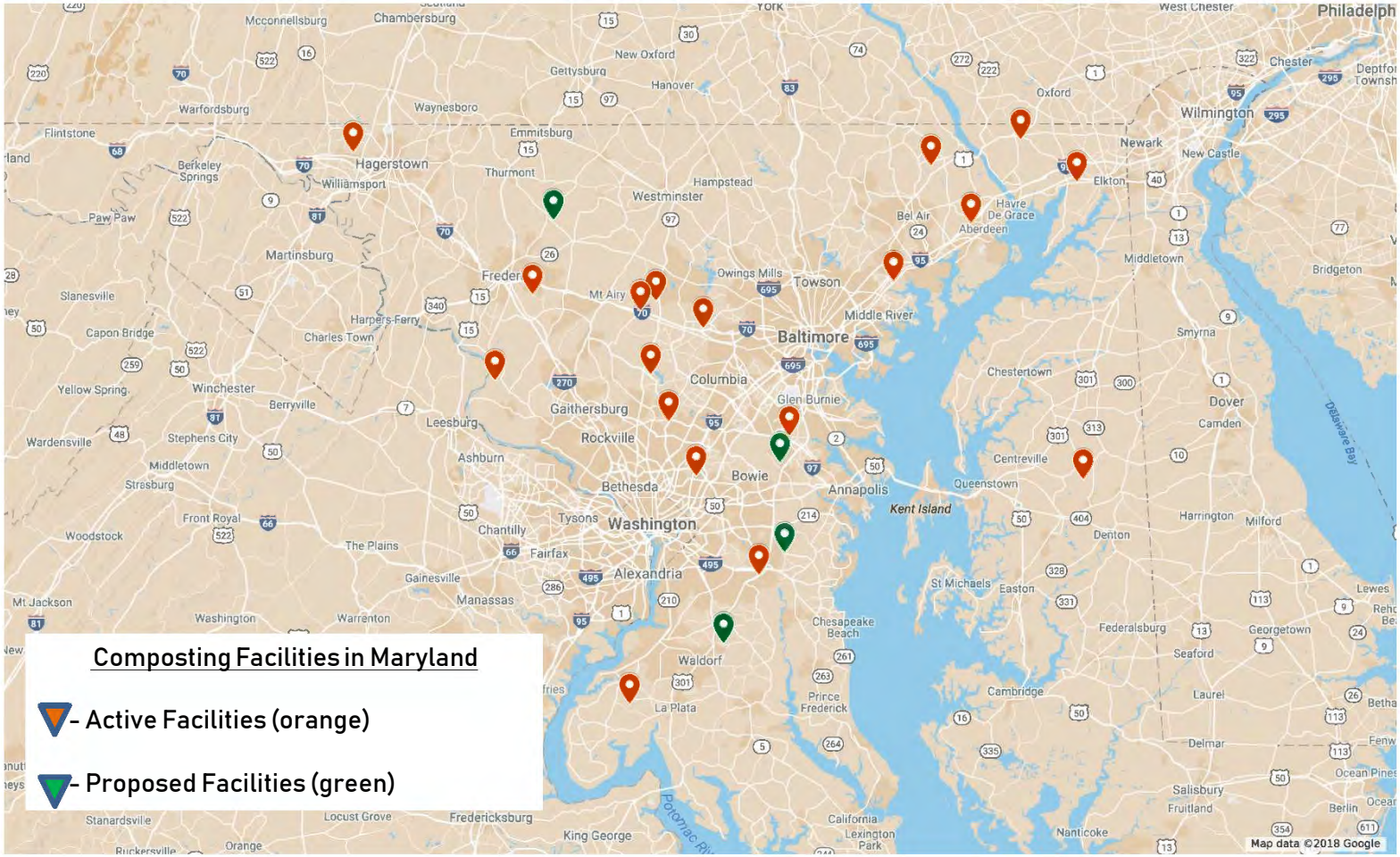
VI. Discussion – *Study group members*

VII. Public comments – *interested parties*

Potential Health Issues Raised

- Air-related issues
  - Particulate matter (PM) dust generated by road traffic and volatile organic compound (VOC) production.
  - Wood dust generated by wood grinding.
  - Mold and spores generated during decomposition of organic materials and potentially spread during pile turning or other management.
- Groundwater-related issues
  - Leaching of "contact water" from piles of organic materials that contains nutrients and other pollutants into the ground.
  - Production of natural organic acids that liberate metals already present in the soil.
- Surface water issues
  - Runoff of "contact water" containing nutrients and other pollutants to surface water.
- Other health issues
  - Exposure to pathogens in the feedstocks.
  - Harborage of disease vectors.

Composting Facilities

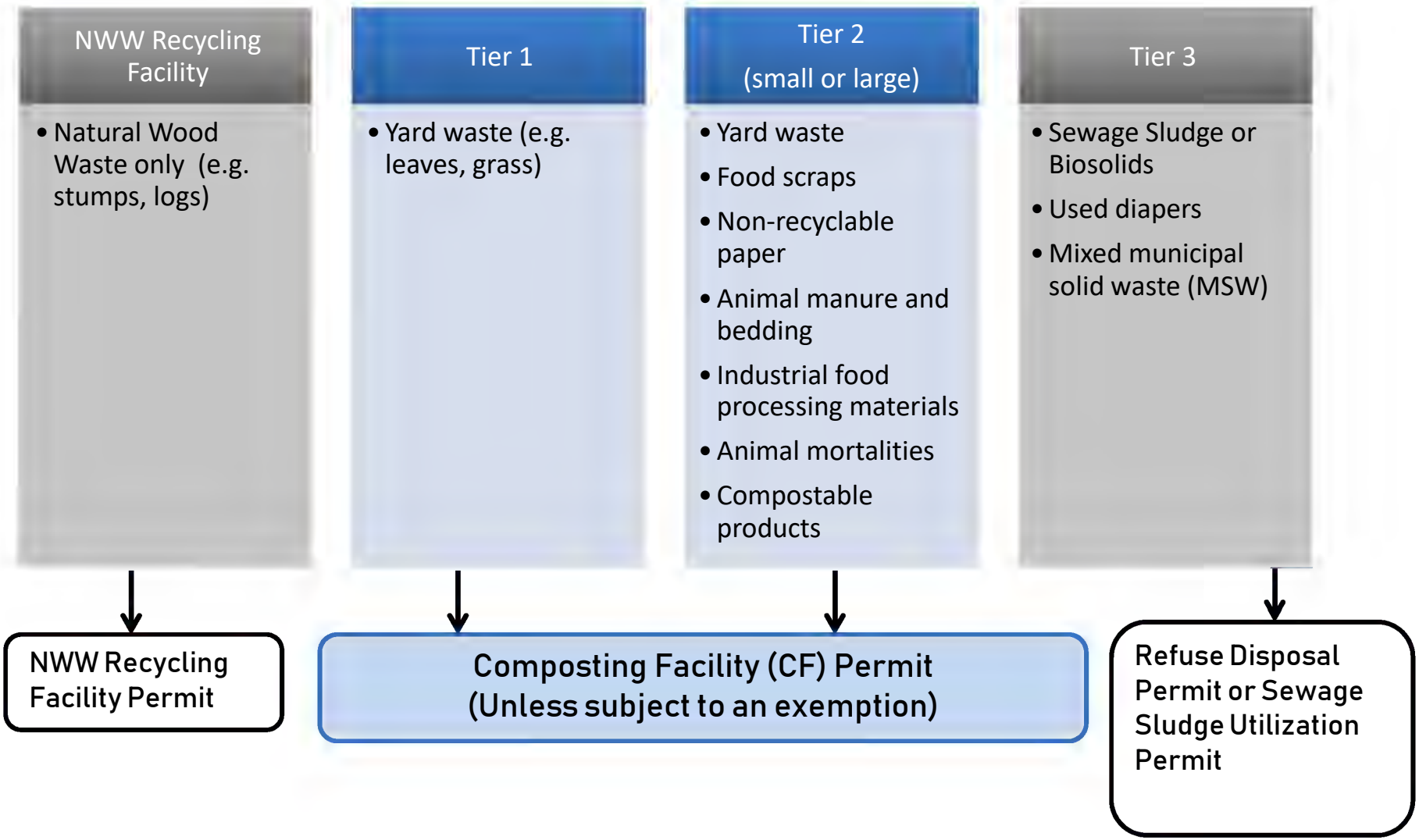


Regulatory Requirements

- The composting regulations can be found at COMAR 26.04.11 and on the Department's Organics Diversion and Composting web page at www.mde.Maryland.gov/composting.

- The following summarizes requirements relevant to the potential health issues raised and is not a complete list of all requirements.

Facility Tiers



General Restrictions

- Apply to all composting facilities, even those exempt from a composting facility permit.

- A person may not engage in composting in a manner which will likely…
  - Create a nuisance;
  - Be conducive to insect and rodent infestation or the harborage of animals;
  - Cause nuisance odors or other air pollution in violation of [air regulations] or [operate without required air permit];
  - Cause [an unpermitted] discharge of pollutants derived from organic materials or solid waste to waters of this State;
  - Harm the environment; or
  - Create other hazards to the public health, safety, or comfort as may be determined by the Department.

Setbacks

- Except where a greater setback is required by local, State, or federal law or regulations, feedstock receipt, feedstock storage, active composting, curing, and compost storage areas of a composting facility may not be located closer than:
  - 50 feet to the property line of a property not owned or controlled by the operator of the composting facility;
  - 300 feet to a dwelling not owned or operated by the operator of the composting facility;
  - 100 feet to a domestic well; and
  - 100 feet to a stream, lake, or other body of water except an impoundment for use in the composting process.

Air and Dust

- Fire prevention:
  - The operations plan must contain an emergency preparedness plan for responding to and minimizing the occurrence of fires.
  - Pile height and spacing must be specified in the operations plan and must comply with any local requirements and fire codes.
  - Piles must be monitored for temperature.
- Permit condition: dust resulting from the facility's operation shall be controlled at all times.

Pathogens and Vector Attraction

- Feedstock limitations: sewage sludge, mixed solid waste, and used diapers are not allowed at Tier 1 or 2 facilities.
- All compost must undergo the "Process to Further Reduce Pathogens"
  - 55 degrees C for at least 15 days (windrows) or 3 days (aerated static piles or in-vessel)
- Tier 2 facilities must also implement a vector attraction reduction method.
- Any incoming food scraps or manure must be incorporated into the compost pile, covered, or transferred to leakproof containment by the end of the operating day on which they are received.
- Plans for pathogen reduction and vector attraction reduction must be included in the operations plan.

Groundwater (1)

- Depth to groundwater.
  - Surfaces must have a minimum of 2 to 4 feet depth to the seasonal high water table, depending on where the facility is located.
- Slope of surfaces.
  - Surfaces must be sloped between 1 and 6 percent, as determined by site conditions and as sufficient to prevent ponding, except for areas located indoors, which shall have slope sufficient to prevent ponding and facilitate cleaning.

Groundwater (2)

Pad requirements.

- Tier 1 Facilities: surfaces used for feedstock receiving, feedstock storage, active composting, curing, and compost storage shall be composed of an all-weather pad.

- Tier 2 Small Facilities.
  - Surfaces used for feedstock receiving, feedstock storage, curing, and compost storage shall be composed of an all-weather pad.
  - Surfaces used for active composting shall be composed of:
    - An all-weather pad with a 6-inch layer of carbon-rich substrate such as wood chips placed beneath each active composting pile or windrow, above the all-weather pad; or
    - A low-permeability pad constructed in accordance with the requirements for Tier 2 Large Facilities, if the requirements for management of contact water are also met.
  - A 6-inch layer of compost or carbon-rich material must also be placed on top of each active pile.

Groundwater (3)

Pad requirements, continued:

- Tier 2 Large Facilities.
  - Surfaces used for curing and compost storage shall be composed of an all-weather pad.
  - Surfaces used for feedstock receipt, feedstock storage, and active composting shall be constructed of a low-permeability pad.

Groundwater (4)

Pad requirements, continued:

- "Low-permeability pad" criteria:
  - A pad constructed on the surface of the ground shall have a hydraulic conductivity of 1 x 10-5 cm/sec or less;
  - A pad that is buried shall have a hydraulic conductivity of 1 x 10-6 cm/sec or less;
  - A pad made of asphalt concrete or Portland cement concrete shall be designed to minimize the potential for cracking and allow equipment to operate without damage; and
  - A pad made of compacted clay shall have a minimum thickness of 1 foot and shall be protected from desiccation and installed in a manner such that the integrity of the pad will not be impaired by the operation of heavy equipment used on the pad.

Groundwater (5)

Groundwater monitoring.

- The Department may require a composting facility to install monitoring wells and conduct groundwater monitoring if:
  - The composting facility is located in karst terrain;
  - The composting facility is located in a wellhead protection area; or
  - The Department otherwise considers monitoring necessary to adequately protect groundwater because of the particular characteristics of the site.

Groundwater and Surface Water

Stormwater management.

- The composting facility shall be designed to manage any stormwater discharges associated with industrial activity, as defined in 40 CFR §122.26(b)(14), in accordance with:
  - The NPDES permit issued by the Department;
  - State and local stormwater requirements; and
  - State and local erosion and sediment control requirements.

- Run-on
  - Structures such as berms or ditches shall be used to prevent run-on to the feedstock receiving, feedstock storage, active composting, curing, and compost storage areas.

Groundwater and Surface Water (2)

Contact water management.

- Contact water is liquid that has contacted raw feedstocks or active composting material.
- It includes runoff from feedstock receiving area, feedstock storage area, or active composting area.
- For Tier 1 and Tier 2 Small: No separate requirements for contact water. Manage as stormwater.

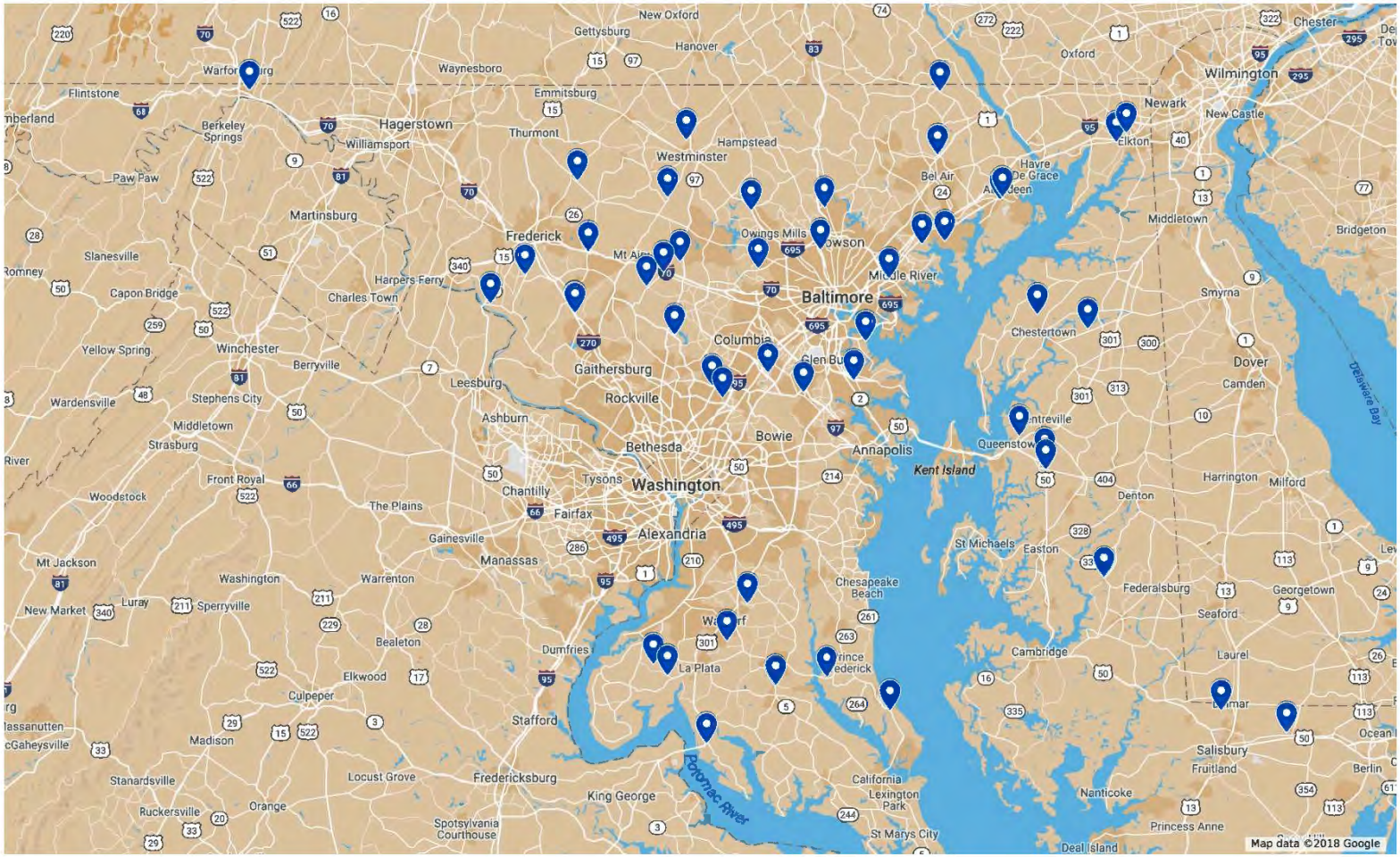
Groundwater and Surface Water (3)

Contact water management, cont'd.

- Tier 2 Large Facilities.
  - Must collect and contain contact water before:
    - Reuse on feedstock storage or active composting piles;
    - Transport off site for treatment at a permitted facility; or
    - Discharge on site pursuant to COMAR 26.08.01 - .04. (MDE surface or groundwater discharge permit).

- The collection basin, tank, or other containment system used to collect contact water shall:
  - Be sized to handle at least a 24-hour, 25-year storm event;
  - For a basin, have a synthetic or compacted clay liner with a hydraulic conductivity of 1×10^{-7} cm/sec or less;
  - For a liner constructed of compacted clay, have a thickness of at least 1 foot; and
  - For a tank or other containment system, be constructed of impermeable material.

Natural Wood Waste Facilities



What is "Yard Waste"? "NWW"?

- "Yard waste" is defined in Section 9-1701(t) of the Environment Article as

  "(t) Yard waste. --

  (1) "Yard waste" means organic plant waste derived from gardening, landscaping, and tree trimming activities.

  (2) "Yard waste" includes leaves, garden waste, lawn cuttings, weeds, and prunings."

- *"Natural Wood Waste" (NWW) means tree and other natural vegetative refuse, and includes tree stumps, brush and limbs, root mats, logs, leaves, grass clippings, unadulterated wood wastes, and other natural vegetative materials.* (From COMAR 26.04.09.02B(4)).

Natural Wood Waste

- The regulatory system for natural wood waste (NWW) was established in 1991 by Environment Article Section 9-1708, which directed the Department to establish a permitting system for natural wood waste composting facilities, and directed us to write regulations to create the system by July 1, 1992.

- These regulations are codified as COMAR 26.04.09.

- NWW operations are limited to the composting of wood chips into mulch, and related wood-chip products (some aren't composted).

- The purpose of the regulations was largely to address the risk of spontaneous combustion and other fires.

Natural Wood Waste Permitting I

- Commercial natural wood waste facility operators are required to obtain NWW permits.
- Governmental operators are exempt, although those that are located at refuse disposal facilities are regulated through a section of that permit which has similar requirements.

NWW Permitting II

- An application must include (from COMAR 26.04.09.05):

(a) A description of the project for which approval is requested, including how the requirements in Regulation .07 of this chapter shall be met;

(b) A description of all other applicable permits required under local, State, or federal statutes;

(c) A marketing plan and strategy for the product or products produced at the facility; and

(d) Copies of plans and engineering reports as described in §B of this regulation.

NWW Permitting III

- The plans include:
- A description of the facility
- Operations manual
- Stormwater and Erosion and Sediment Control plans
- Fire control plan and emergency preparedness manual
- Numerous other items

NWW Operational Requirements I

- Operational standards include requirements for:
  - Maintenance of pile spacing and height restrictions
  - Dust control
  - Fire prevention procedures per the Fire Marshal
- The Department may require that the natural wood waste recycling facility conduct processing activities involving unloading, separation, reduction, or alteration in an enclosed building, screened from adjoining properties, or buffered from adjoining properties at a distance determined by the Department.

NWW General Prohibitions

From COMAR 26.04.09.03: "A person may not engage in natural wood waste recycling in a manner which will likely:

(1) Create a nuisance;
(2) Be conducive to insect and rodent infestation or the harboring of animals;
(3) Cause a discharge of constituents derived from natural wood waste into the air unless otherwise permitted by the Department;
(4) Cause a discharge of constituents derived from natural wood waste to waters of this State unless otherwise permitted by the Department;
(5) Harm the environment; or
(6) Create other hazards to the public health, safety, or comfort as may be determined by the Department."

Groundwater I

- The Department is aware that the composting of nutrient rich feedstocks such as manure and food waste has the potential to leach nutrients and other pollutants into the surface and groundwater.
- Yard waste and NWW can liberate some naturally occurring compounds such as humic and fulvic acids.
- Other pollutants such as ammonia, alcohols and acetone can be created if the piles are allowed to become anaerobic.
- This is why the Composting Regulations contain significant controls for surface and groundwater protection for the Tier 2 Large facilities.

Groundwater II

- Although Maryland does not require groundwater monitoring at most NWW sites, some are located at municipal landfills and other sites where groundwater monitoring already exists.
- We have not generally seen significant water quality changes down-gradient of the composting areas relating to the composting.
- Some are NWW, some are yard waste such as leaves and grass.
- The last 5 years of NPDES discharge permit monitoring data for the two large yard waste composting facilities operated by MES indicates that the facilities are in compliance with effluent limits in their discharge permits, and working with Water and Science Administration to achieve benchmarks to lower the amounts of phosphorus and iron coming from the sites.

Groundwater III

Of the 13 composting facilities that are located at landfills with monitoring systems:

- 4 are not well monitored – Landfill monitoring wells are distant or not directly down-gradient of the area where the composting is occurring. No impact seen.
- 4 have confirmed other sources of contaminants that predate the composting, such as a landfill or fuel spill; no changes related to composting.
- 3 have had no observed change in water quality.

Groundwater IV

- One landfill has had an MCL exceedance for nitrates in one well downgradient of the NWW/yard waste area in 2016. The well hovered near the MCL of 10 for the last 5 years, and in 2016 peaked at 13.4 ppm (declining in 2017 to below 10). No other inorganic parameters exceeded any groundwater protection standards in any of the wells at the site. This area is adjacent to an area affected by the old unlined landfill – additional multi-level wells are being installed to determine the source.

- One landfill has shown no water quality changes downgradient of the NWW area, but increasing trends for TDS, NH3, Hg and Be downgradient of the yard waste area. The MCLs for Be and Hg were exceeded in 2016, but declined below the MCLs in 2017. The County has been asked to investigate this observation.

Groundwater V

Additionally, the following groundwater impacts were historically observed at privately operated sites not located at landfills, that pre-dated the composting regulations:

- Minor impact at two sites which had both composting and landfilling of NWW:
  - The impact was largely limited to salts and iron at low levels.
  - Both had had very large fires, which could contribute to the release of salts and metals much faster than by the natural decomposition of the woody organic matrix.

- A food composter, since shut down, was found to have odor, vector attraction, and surface water pollution issues.
  - Later found to have significant ammonia concentrations in the groundwater.
  - The facility was not operating in an aerobic manner, leading to ammonia production.

- A second food composter had a similar situation to a much lesser extent, and has since largely resolved its operational issues. We saw impacts in the food waste area, but not from the NWW area.

Groundwater Summary

- Two of 13 composting facilities at permitted landfills are showing an impact that could potentially be related to composting activities – neither is yet confirmed.
- No known impact by any of the NWW facilities (unless they had a large fire or a dump).
- No known impact by a composting facility on any domestic water supply.
- We consider the set of controls in the composting regulations, which applied additional protections for Tier 2 Large facilities, to be appropriate.

Suffolk Co. NY Groundwater Report

- Suffolk Co. NY, on eastern Long Island, did a study while considering whether to conduct more monitoring at composting facilities.
- The facilities studied were not purely NWW facilities, they were largely mixed green waste composters as well as wood. The report describes some as being just yard waste, most as “vegetative organic waste materials” – natural wood and other vegetative materials.

Suffolk County Report 2

- The study found that of the 11 vegetative sites studied, they all had elevated manganese, and some had additional metals at levels over standards. Two had at least one well with elevated levels of radioactive parameters.
- Note that some sites had been in use for decades, and had other waste disposal activities associated with them, e.g., prior landfilling, sewage management, auto dismantling, etc.
- Only one of the 11 sites investigated had an upgradient monitoring well for detection of chemicals coming from an upgradient source.

Suffolk County Report 3:

And other offsite sources were identified:

- The study identified possible other sources for salts and metals in several cases, including:
  -historical use as a scrapyard at two sites;
  - an adjacent landfill at another, and
  - possible influence by highway de-icing salt at another located along an access road to the Long Island Expressway.

- The study discovered "septage"-related compounds such as cosmetics and medications, at nearly every site, which demonstrates the extreme interconnectivity of the aquifer to surface and shallow-groundwater contaminant sources.

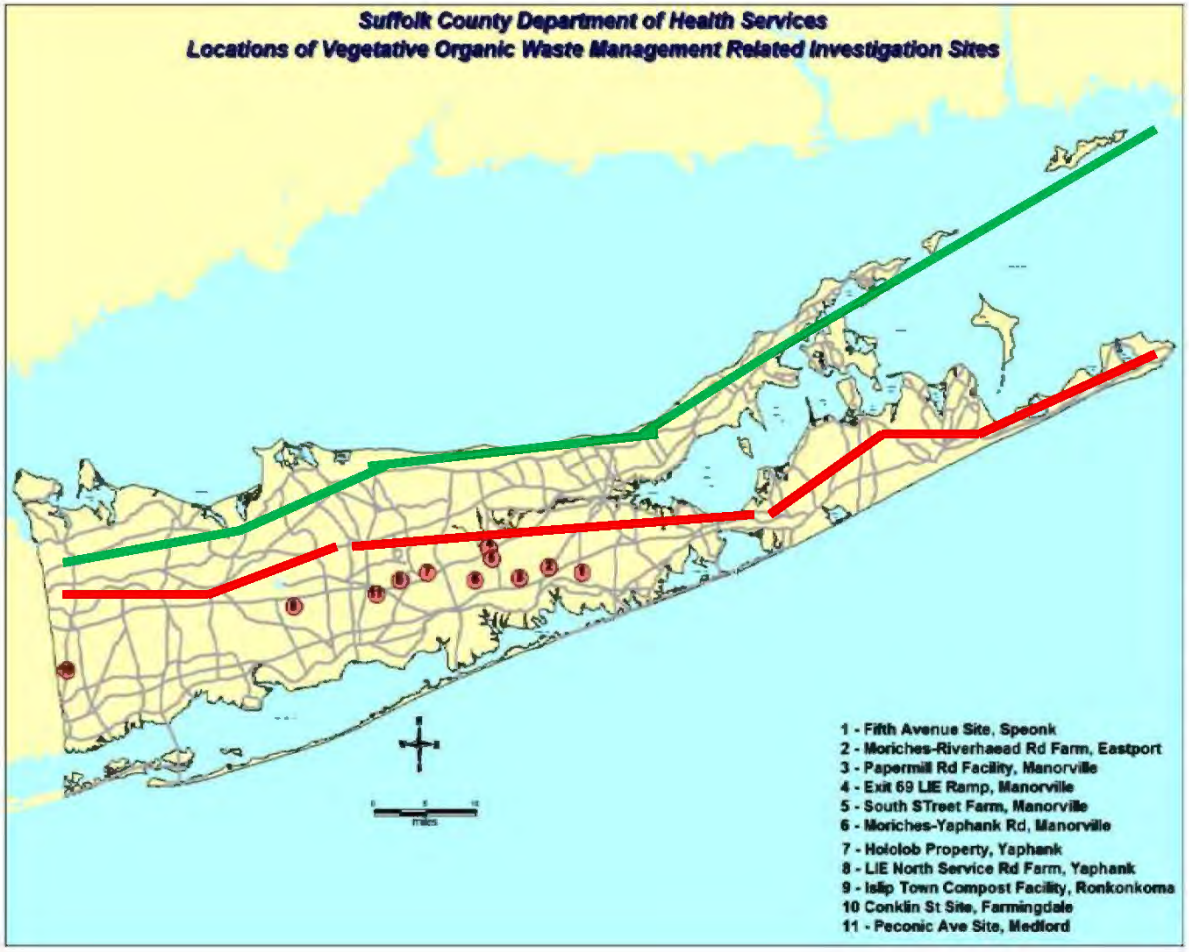
Suffolk County Report 4

- Maryland's geology is very different from Long Island's glacial outwash deposits, with soils that have markedly lower permeability than those of LI's outwash plains.

- LI's are lithologically more like Maryland's Paleochannel deposits on the lower Eastern Shore: extremely permeable sand and gravel.

- Maryland Piedmont counties have fine-grained soils developed from the decomposition of the parent bedrock, and tend to have the finer components above and saprolite and fractured bedrock below. Their permeability is 2 to 3 orders of magnitude lower than the LI surficial aquifers.

LI Report Sites and Moraines



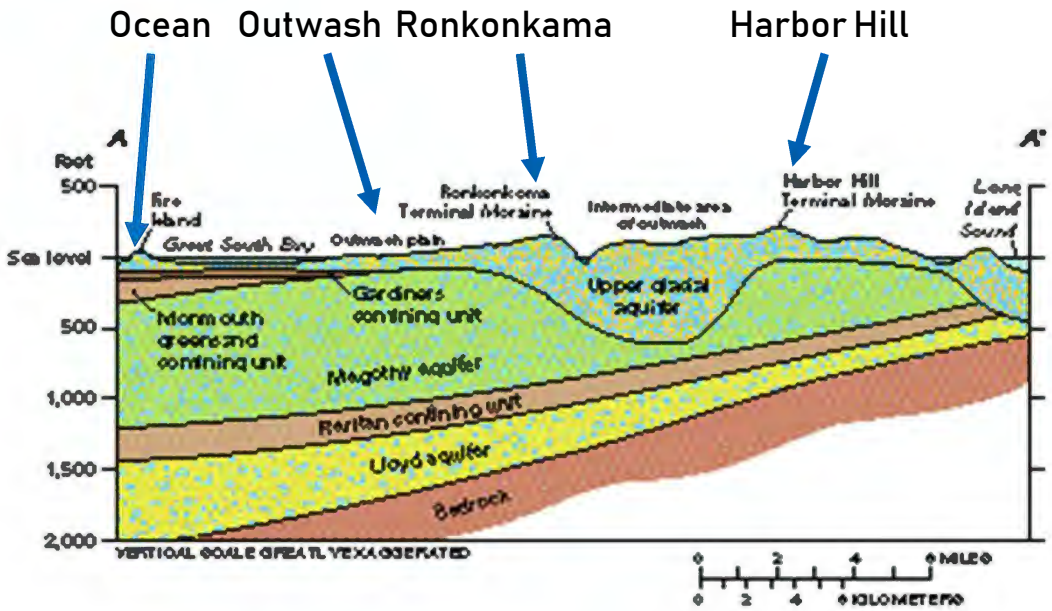
From "Investigation of the Impacts to Groundwater Quality from Compost/Vegetative Organic Waste Management Facilities in Suffolk County" by the Suffolk County Dept .of Health Services, 1/22/2016, p. 3, with Moraine lines added for this presentation by E. Dexter.

Ronkonkama Moraine

Harbor Hills Moraine

Lines depict approximate centerline of these long, irregular hills. From various glacial maps of Long Island.

Outwash Plains



Modified from Soren, Julian, and Simmons, D.L., 1987, Thickness and hydrogeology of aquifers and confining units below the upper glacial aquifer on Long Island, New York: U.S. Geological Survey Water-Resources Investigations Report 86–4175, 3 sheets.

Figure 70. The upper glacial aquifer is in contact with the Magothy aquifer in most places and with the Lloyd aquifer under Long Island Sound. The Monmouth greensand and Gardiners confining units overlie the Magothy aquifer in the area of Great South Bay. The line of the section is shown in figure 69.

Cross-section of LI Sediments: Over most of the southern part of the island, the outwash sediments are in hydraulic connection with underlying Magothy Aquifer, with no confining units over 1000 feet down. Anything spilled can communicate with a deep well over time.

From the GROUND WATER ATLAS of the UNITED STATES
Connecticut, Maine, Massachusetts, New Hampshire, New York, Rhode Island, Vermont
HA 730-M, Figure 670 https://pubs.usgs.gov/ha/ha730/ch_m/M-surf_Noratlantic.html accessed on 9/12/2018

Suffolk Summary

- The Suffolk report was designed to answer one question – whether to do more monitoring at the types of sites in the types of locations studied.
- It was done for and by regulators who were familiar with the geology of the area, so that is not addressed in detail even though it is crucial to a complete hydrogeological study.
- It points out risks that we are already aware of, but due to the geological setting is not directly comparable to Maryland conditions in most areas.

MDH: Composting Environmental Health Concerns

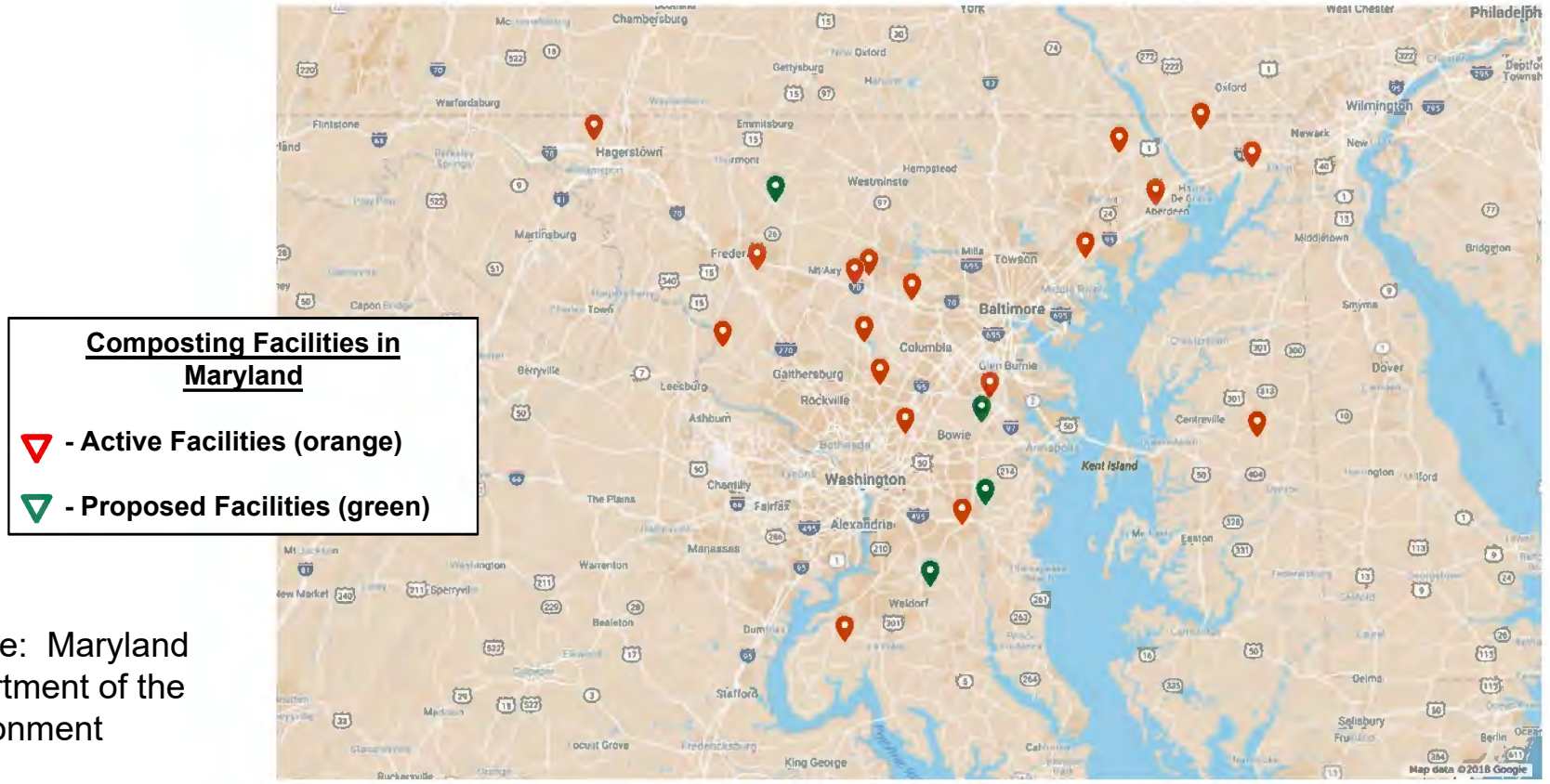
HB 171 Study Group

Composting: Environmental Health Issues

Clifford S. Mitchell, MS, MD, MPH
Director, Environmental Health Bureau
Maryland Department of Health
September 20, 2018

MARYLAND Department of Health

Composting: Maryland Locations



Source: Maryland Department of the Environment

Health Concerns

- Limited literature with direct human exposure or health effects data
- Some inferences from more general health literature, data
- Mainly related to air emissions, some to groundwater
- Emissions of concern include bioaerosols, volatile organic compounds (VOCs), particulate matter (PM)

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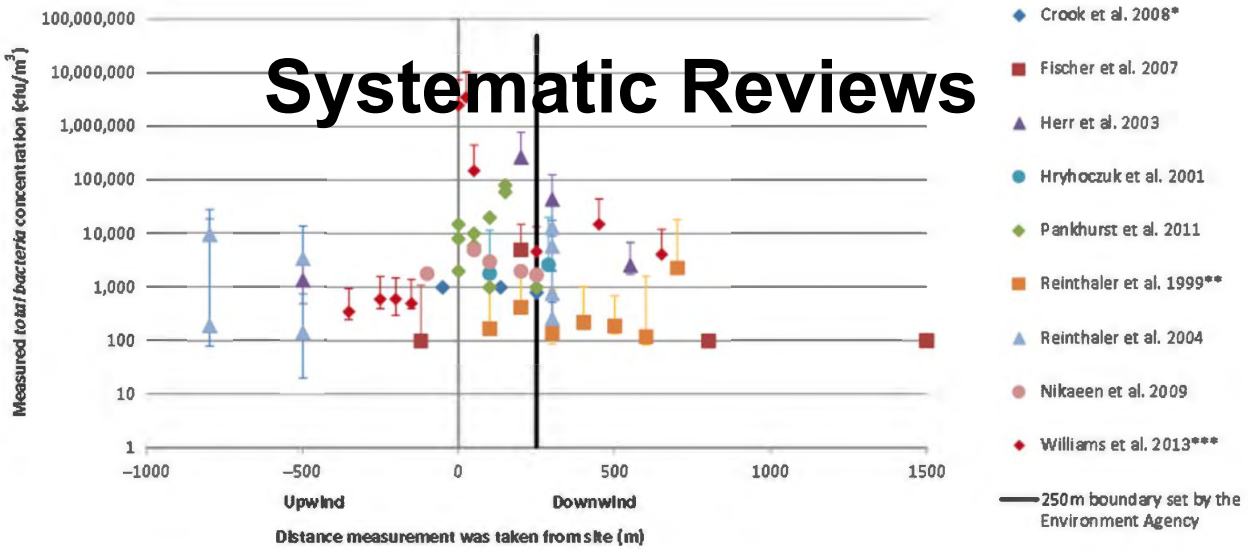

FIGURE 5. Mean/median airborne total bacteria concentrations in communities near composting facilities. If provided in the study, the range of values included is denoted by the error bars. Concentrations that appear to have been measured at 0m were taken on-site or on the site boundary. Please refer to Appendix 6 for study characteristics.

*Crook, Stagg, and Uwagboe (2008) stated that one of their measurements was collected at 120-150m downwind. These measurements are presented at 135m downwind on the graph.

**Reinthaler et al. (1999) stated that measurements were taken at different distances from compass points around the site. It was not clear whether these measurements represented upwind or downwind measurements, and have been assumed to have been downwind within this graph.

***Results from Williams et al. (2013) were estimated from graphs, and therefore the exact locations and concentrations has not been replicated.

Source: Pearson C, Littlewood E, Douglas P, Robertson S, Gant TW, Hansell AL. Exposures and health outcomes in relation to bioaerosol emissions from composting facilities: a systematic review of occupational and community studies. J Toxicol Environ Health B Crit Rev. 2015;18(1):43-69.

MARYLAND Department of Health

Table 3. Summary of bacteria (Gram-positive, Gram-negative and actinomycetes) concentrations for the 55 off-site (north, south, east and west sites) and the 54 on-site samples taken 1 and 10 meters from the piles.

Bacteria	55 off-site samples				54 on-site samples at 1 and 10 meters			
	Mean cfu/m³	Median cfu/m³	Range cfu/m³	Percent of total bacteria	Mean cfu/m³	Median cfu/m³	Range cfu/m³	Percent of total bacteria
Total bacteria	3,204	2,080	160-17,600	100.0	11,879	4,520	480-78,880	100.0
Gram-positive bacteria	1,523	840	160-7,436	47.8	6,738	2,458	240-43,030	55.2
Gram-negative bacteria	1,664	1,171	0-11,768	52.2	5,478	2,055	240-41,164	44.8
Actinomycetes	94	0	0-1,189	2.9	202	84	0-1,520	1.7

Note: fenceline values not included in this table.

Table 4. Summary of off-site and on-site values for total particulates, endotoxin and glucans.

	28 off-site samples				18 on-site samples			
	Mean ng/m³	Median ng/m³	Percent of total dust	Range ng/m³	Mean ng/m³	Median ng/m³	Range ng/m³	Percent of total dust
Total particulates	98,892	84,000		41,000–278,000	631,222	384,000	47,000–1,805,000	
Endotoxin	0.14	0.14	0.00014	0.01–0.41	1.94	1.99	0.12–6.06	0.003
β-1,3- glucans	0.24	0.13	0.00024	0.01–0.78	2.17	0.79	0.12–14.45	0.0034

Source: Hryhorczuk D, Curtis L, Scheff P, Chung J, Rizzo M, Lewis C, Keys N, Moomey M. Bioaerosol emissions from a suburban yard waste composting facility. Ann Agric Environ Med. 2001;8(2):177-85.

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Occupational Health Effects Studied

- Lung effects – asthma, bronchitis, potential for infections
- Skin effects
- Gastrointestinal effects
- Irritant effects

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Non-Occupational (Community) Studies

- Limited number
- Exposure, outcomes primarily based on odor, irritation, self-reported symptoms

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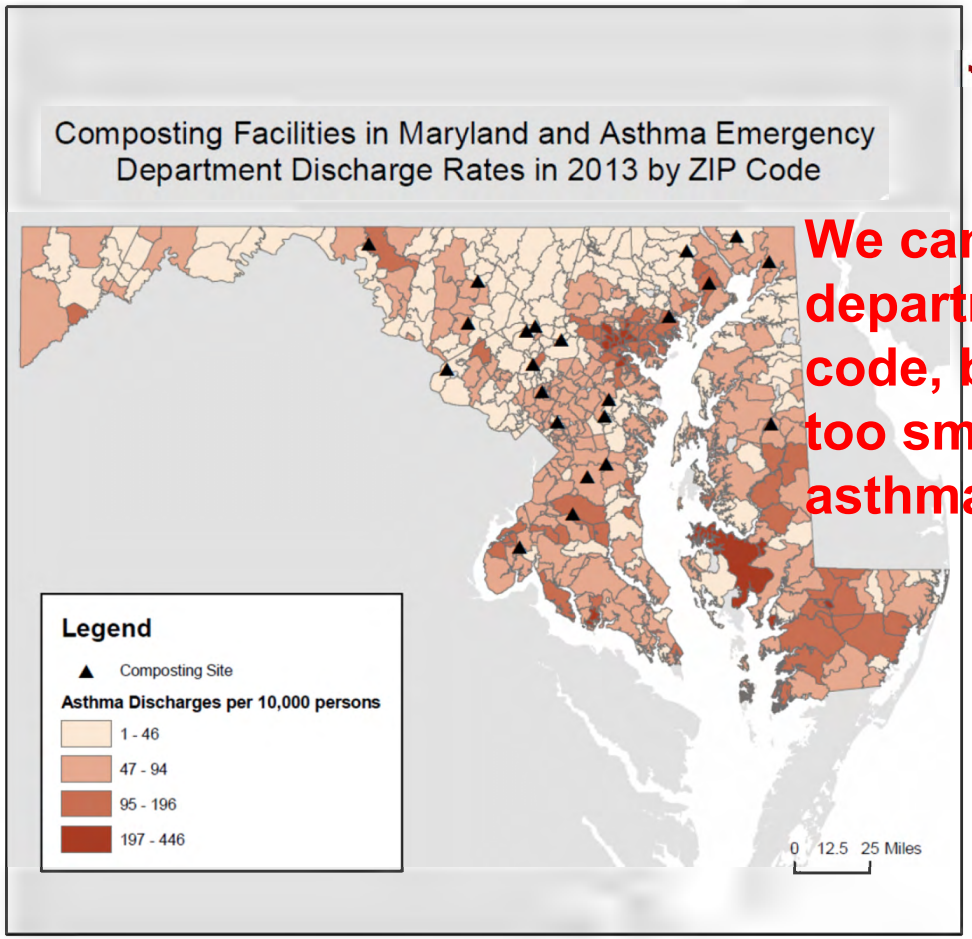
Data Limitations: Health Data Not Scaled to Facilities



We can show asthma emergency department discharge rates by ZIP code, but the compost facilities are too small to show any impact on asthma rates

Data: 2013 Asthma emergency department discharges by ZIP code. Source: MD Environmental Public Health Tracking: https://phpa.health.maryland.gov/oehfp/eh/tracking/Pages/home.aspx

MARYLAND Department of Health

Maryland Department of Health

Prevention and Health Promotion Administration

https://phpa.health.maryland.gov

MARYLAND Department of Health

APPENDIX J

Appendix J: Recommend a Pilot Program for the Region in which Elkridge and Jessup are Located

BTS BioEnergy

Global Leaders in Anaerobic Digestion

A 20 Year History

BTS BIOENERGY
www.btsbioenergy.com

- 200 + modular biogas plants in Europe, the UK and Japan
  rated energy capacity 250 kW to 3 mW +
- "Owned & Operated" or "Build to Suit"
- Organic Feed stocks: food waste (pre- or post-consumer), manure, fats, grease, and oil, DAF waste and other bio-degradable by-products
- Guaranteed energy performance: Refine biogas into bio-methane, grid injection, use by fleet, CHP, and thermal.



Food Waste for Anaerobic Digestion

BTS BIOENERGY
www.btsbioenergy.com

Wide range of food waste accepted:

- Fruits and vegetables
- Meats and dairy
- Cooked foods
- Fats, greases, and oils
- Packaged food

Industries Served:

- Food processing and distribution
- Foodservice / Hospitality
- Agriculture
- Public institutions
- Municipalities
- Academic Institutions

Our Products

Renewable Energy

- Renewable Natural Gas
- Direct to Grid / Fleet Vehicle
- Electricity - Power Purchase Agreements
- Surplus Thermal Energy - Refrigeration

Class A Soil Amendment

- Liquid
- Dewatered
- Dried, Granulated
- Pelletized
- N and / or P stripped

Why the United States … Maryland

BTS BIOENERGY
www.btsbioenergy.com

- No more incineration - - no more landfills
- Focus on GHG reduction: trucks off the road, land fill gas use, even “nimby” compost challenges
- Sustainability as a public/private focus
- The move to “Zero Waste”
- Lots of promises, little “proven” Innovation



I'll go this way – You go some other way

BTS BIOENERGY
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- Permitting: where go and how to proceed
- The County Vs. State requirements
- Lack of definition
- "I've heard that before" syndrome
- Landfills as a financial asset

HB 171

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(5) **identify the infrastructure needs**

(6) **identify means to encourage investment** and provide economic incentives to expand capacity

(10) subject to the approval of the affected local governments**, recommend a pilot program for the region in which Elkridge and Jessup** are located to prioritize infrastructure development and food waste recovery from large food waste generators.

HB 171: Tasks 5 and 6
Infrastructure Challenges

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In plain English:

- Identify infrastructure challenges related to **organic diversion** that are unique to geographic regions of the State, and
- Identify means of **encouraging investment** in new infrastructure.

Main revenue challenges to the organics diversion industry:

- Securing enough **feedstock** with an appropriate **tipping** fee,
- Developing markets for **finished products** at appropriate prices.

Tasks 5 and 6: Infrastructure Challenges

BTS BIOENERGY
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When entrepreneurs in the the organics diversion industry solve these challenges, financing for real estate and capital expenses follow.

Our Suggestions:

1) Provide **funding incentives** for counties to implement programs to collect and transfer organics to a nearby processing facility.

2) Require state and county-operated organics diversion and processing operations to insure tipping fees and sale of finished product, are aligned to the market rate.

Tasks 10: A Recommended Pilot

BTS BIOENERGY
www.btsbioenergy.com

In plain English: Right time, Right Place

BTS BioEnergy at the Maryland Food Center Authority
Urban industrial campus of food processors and distributors
100,000 TPY, primarily food waste
3 mW power
Schedule to open 4th Quarter, 2019

Why the United States … Maryland

BTS BIOENERGY
www.btsbioenergy.com

Concentrations of digestible waste & demand for renewable energy

+

Our history, experience, and technology

=

A customized solution that reduces wastes disposal costs and carbon footprint

A Global Leader in Anaerobic Digestion

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How It Works:
The BTS Process

Feedstock Receipt and Pre-treatment

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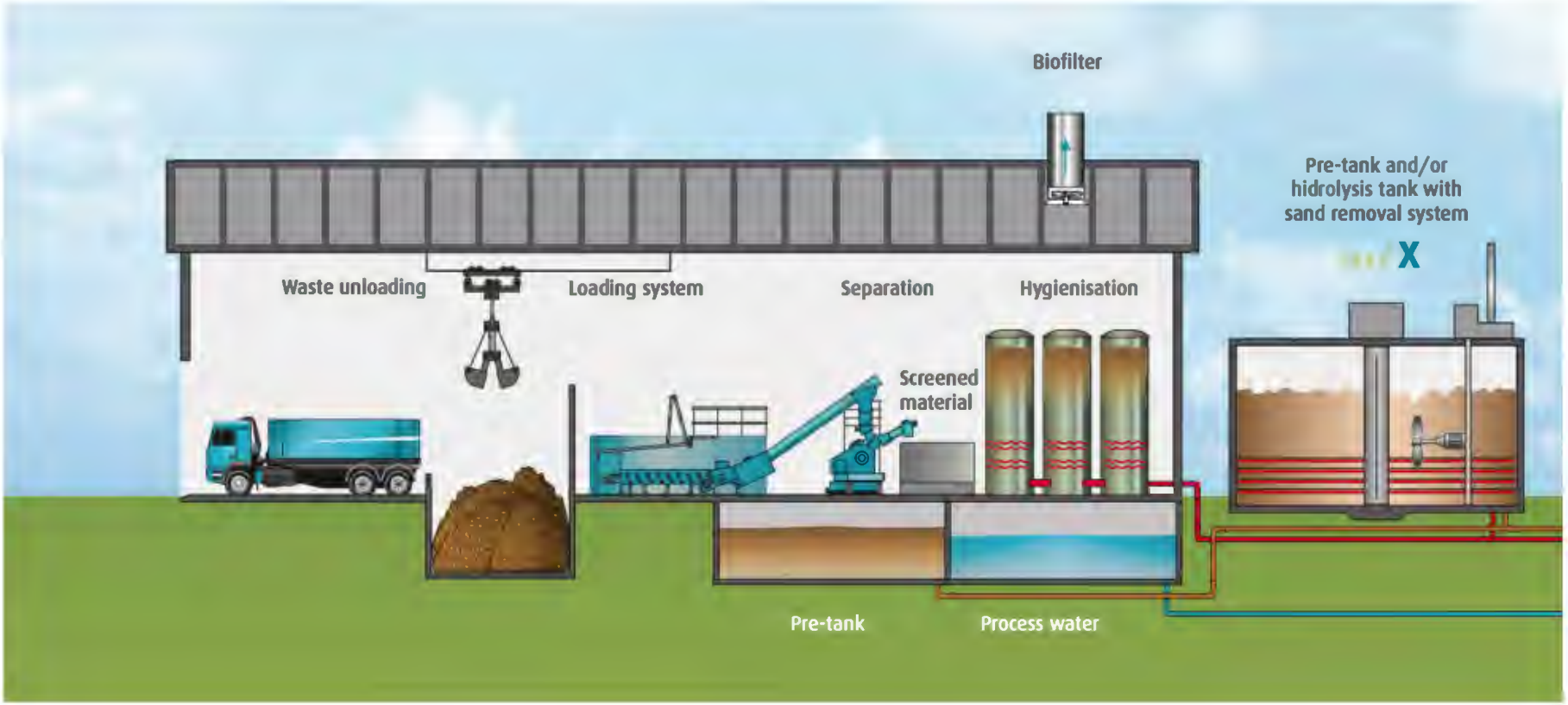

Primary Fermentation

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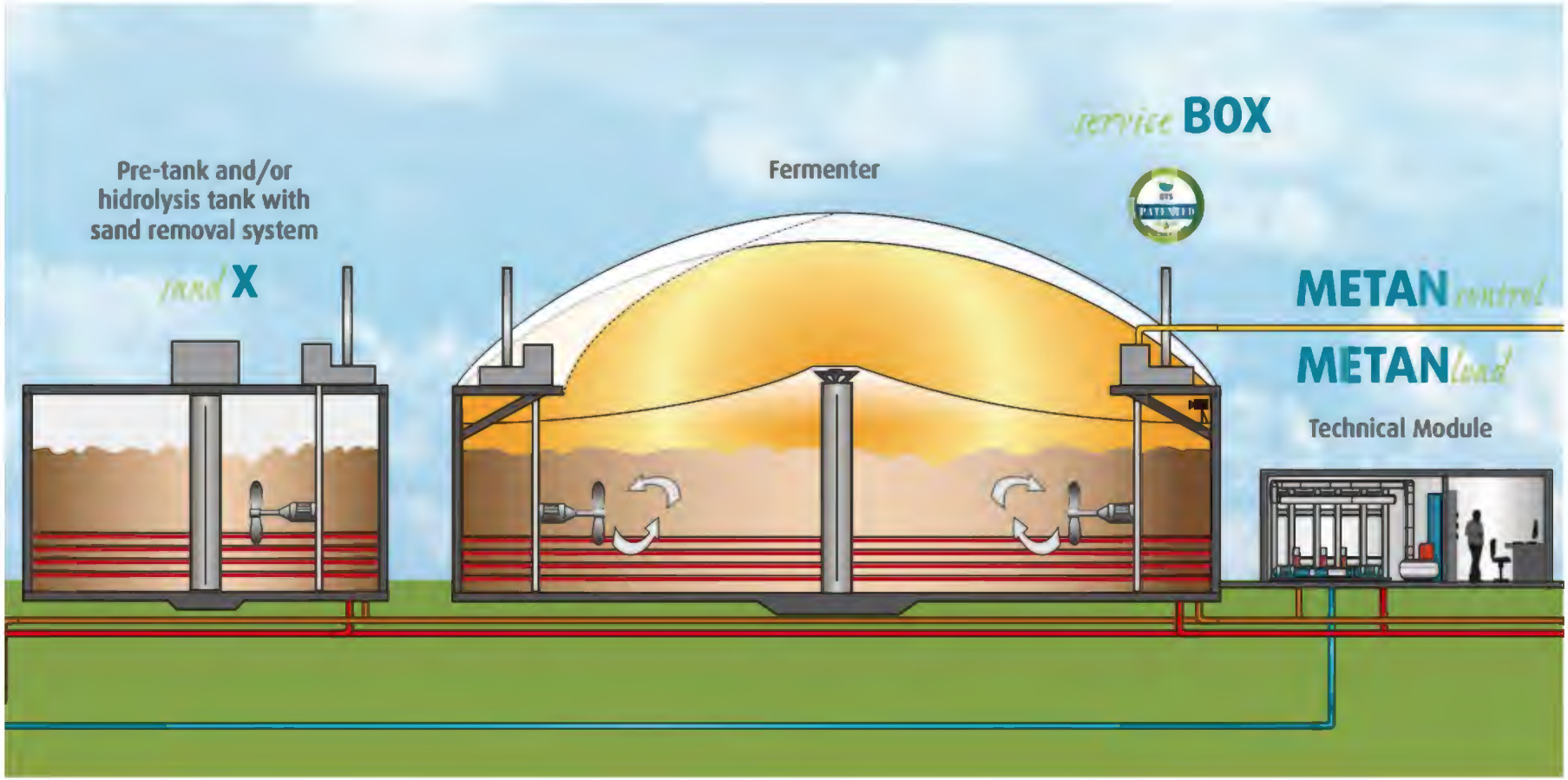

Our Proprietary Control System

BTS BIOENERGY
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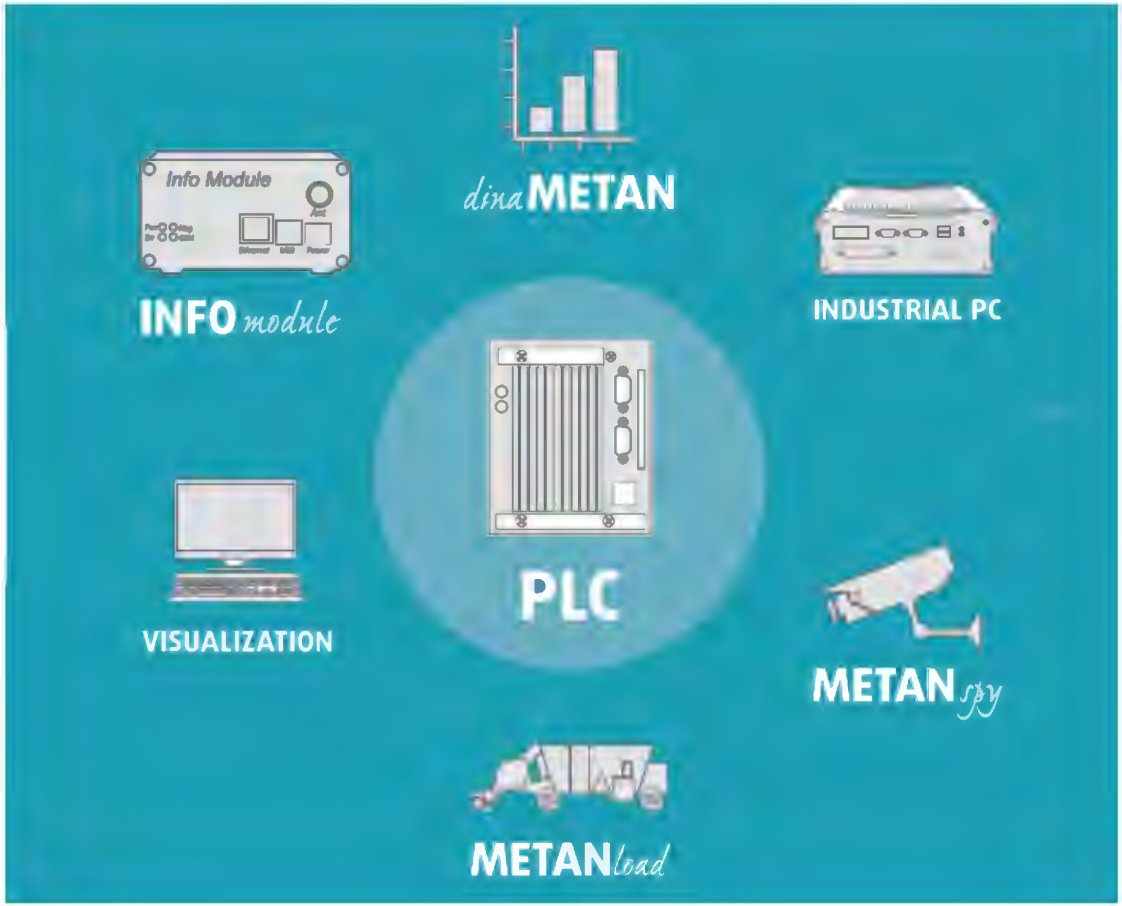
METAN *control*



Post Fermentation

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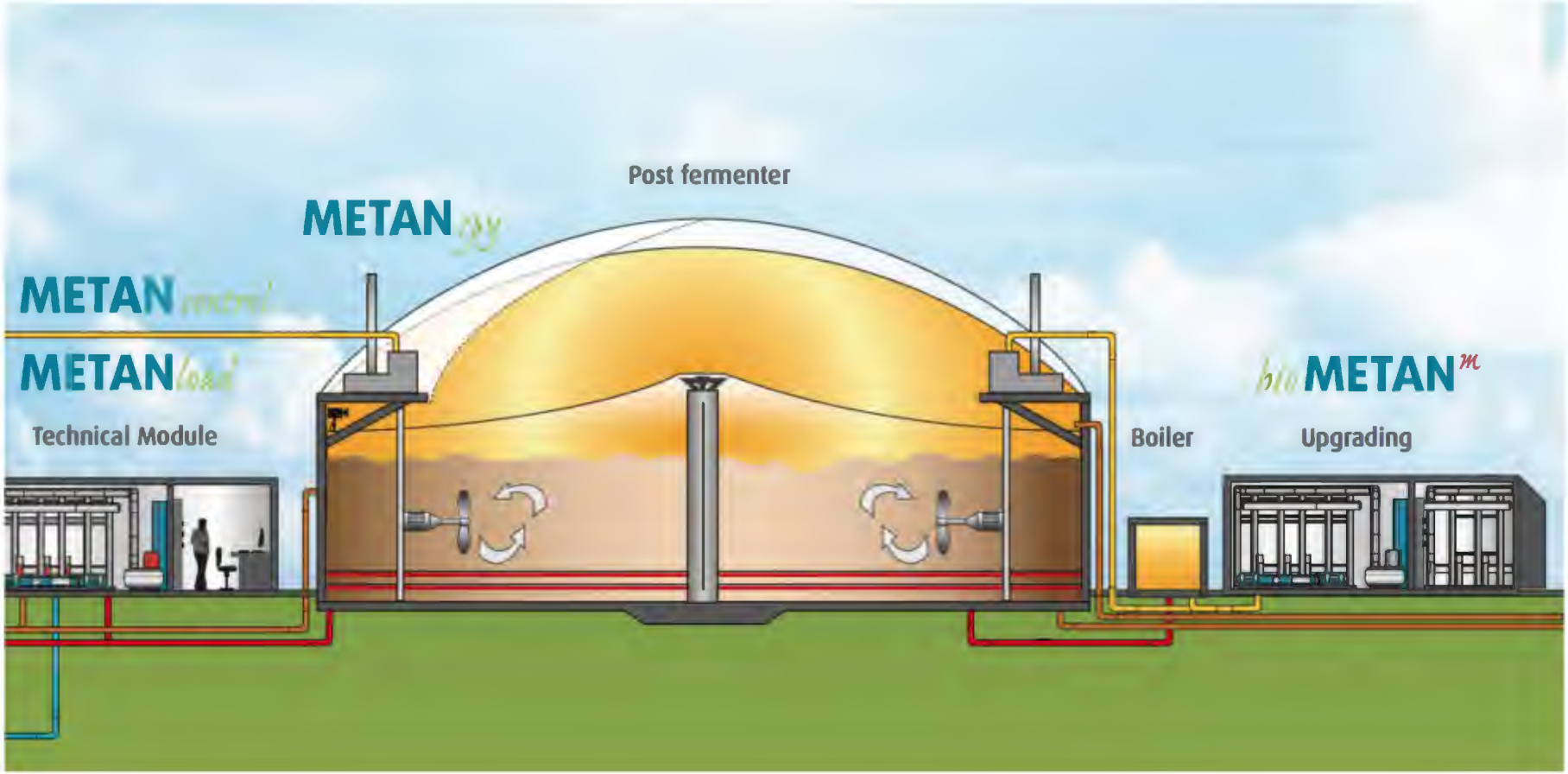

Upgrading and Digestate Refinement

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