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### Curb To Compost: A Feasibility Study Of Curbside Organics Collection In Upper Providence Township, Delaware County PA

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Curb to Compost: A Feasibility Study  
of  
Curbside Organics Collection  
in  
Upper Providence Township, Delaware County PA

Environmental Studies Program at Swarthmore College  
Fall 2020 ENVS 12 Compost and Climate Change Practicum Report  
May 2021

Evelyn Parts '24

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**Lars Seufert**            Member, Upper Providence Township Environmental Advisory Commission

**Chris Pieretti**        Owner-operator, Kitchen Harvest Composting Service

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## Summary

In an effort to educate residents of Upper Providence Township about composting and create an opportunity for residents to conserve valuable resources and divert their organic waste from the Covanta Delaware Valley incinerator, this “Curb to Compost” feasibility study was conducted with support from Lars Seufert, a member of the Upper Providence Township Environmental Commission. The intent of this study was to determine the feasibility of a municipal curbside food scrap and yard waste collection program in Upper Providence Township, beginning with a pilot program for one hundred residents and ending with a permanent, township-wide program. Precedent for this proposal can be found in the nearby borough of Media, which established a pilot curbside organics collection program in 2018 and is set to expand borough-wide in July 2021<sup>1</sup>. The Media Borough Compost Program can thus serve as a model for Upper Providence to implement a similar program. This report describes the Zero Waste rationale for these efforts, current Upper Providence waste operations, areas in need of further research, and other factors to consider for successful implementation of a Curb to Compost program.

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<sup>1</sup> “Compost Program Update,” Media Borough News blog, accessed February 1, 2021, <https://mediaborough.blog/2021/01/18/coming-soon-changes-to-food-composting-and-yard-waste/>.

## Introduction and rationale

Food scraps are an often overlooked form of recycling that are commonly grouped with garbage and sent to incinerators and landfills, despite their potential to be composted into a rich amendment for nourishing soil and growing all types of plants. According to the EPA, of the approximately 292 million tons of municipal solid waste (MSW) generated by the U.S. in 2018, less than 9% was composted. Food scraps and yard waste that could be composted comprised 34% of the total MSW generated in 2018 (22% and 12%, respectively).<sup>2</sup> When food scraps and other organic materials are sent to landfills, their decomposition can produce methane gas, which is 28 times more potent than carbon dioxide as a greenhouse gas. This is because of methane's greater heat trapping ability.<sup>3</sup> These excessive anthropogenic emissions of greenhouse gases are contributing to negative and potentially irreversible consequences of climate change.<sup>4</sup>

**Organics**<sup>5</sup> include both food scraps and yard waste. In Pennsylvania, there is legislation banning yard waste from landfills, but not legislation banning food scraps. At least six states across the United States have more comprehensive organic waste bans.<sup>6</sup> The yard waste ban in Pennsylvania was originally enacted in 1988, after tighter federal environmental restrictions caused some landfills to close and consequently created a landfill capacity crisis. This "**Act 101**" legislation requires residents to separate yard waste - which is referred to as leaf waste and defined as "leaves, garden residues, shrubbery and tree trimmings, and similar material, but not including grass clippings" - from other municipal waste, and restricts landfills and incinerators from accepting truckloads composed "primarily of leaf waste".<sup>7</sup> To comply with Act 101, Delaware County operated a Compost Farm from "the early 1990s" until 2019 to compost this separated yard waste.<sup>8</sup> It is unclear why the Compost Farm closed.<sup>9</sup>

Some municipalities, like Upper Providence Township (UP), send their MSW to an incinerator instead of a landfill. 12% of all MSW in the United States is incinerated with energy recovery<sup>10</sup>, which means that the materials are burned, the heat produced is used to generate electricity, and the resulting ash is sent to landfills. Burning food scraps wastes energy because food scraps are predominately water, so energy must be used to dry out the food scraps before they can combust. Incineration also releases air pollutants that may not be

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<sup>2</sup> "National Overview: Facts and Figures on Materials, Wastes, and Recycling," United States Environmental Protection Agency, accessed January 26, 2021, <https://www.epa.gov/facts-and-figures-about-materials-waste-and-recycling/national-overview-facts-and-figures-materials#:~:text=Together%2C%20more%20than%2094%20million,percent%20recycling%20and%20composting%20rate.>

<sup>3</sup> "Reducing the Impact of Wasted Food by Feeding the Soil and Composting," United States Environmental Protection Agency, accessed September 18, 2020, <https://www.epa.gov/sustainable-management-food/reducing-impact-wasted-food-feeding-soil-and-composting#benefits;> "Understanding Global Warming Potentials," United States Environmental Protection Agency, accessed January 16, 2021, <https://www.epa.gov/ghgemissions/understanding-global-warming-potentials#Learn%20why.>

<sup>4</sup> Elizabeth Kolbert, "Why We Won't Avoid a Climate Catastrophe," *National Geographic*, March 25, 2020, [https://www.nationalgeographic.com/magazine/2020/04/why-we-wont-avoid-a-climate-catastrophe-feature/.](https://www.nationalgeographic.com/magazine/2020/04/why-we-wont-avoid-a-climate-catastrophe-feature/)

<sup>5</sup> **Organics** are materials produced from or consisting of living or formerly living organisms. All organics can be composted unless they are contaminated with toxic substances.

<sup>6</sup> Katie Sandsun and Emily Broad Leib et al., *Bans and Beyond: Designing and Implementing Organic Waste Bans and Mandatory Recycling Laws* (Harvard Law School Food Law and Policy Clinic and the Center for EcoTechnology, July 2019), [https://www.chlpi.org/wp-content/uploads/2013/12/Organic-Waste-Bans\\_FINAL-compressed.pdf](https://www.chlpi.org/wp-content/uploads/2013/12/Organic-Waste-Bans_FINAL-compressed.pdf).

<sup>7</sup> "Act 101 of 1988," Pennsylvania Resource Council, accessed January 29, 2021, [https://prc.org/act-101/.](https://prc.org/act-101/)

<sup>8</sup> Delaware County Municipal Solid Waste Management Plan: Substantial Revision: 2013 (Media, PA: Delaware County Solid Waste Authority), 8.

<sup>9</sup> Kyra Hall and Jennifer Pfluger, "Composting at the County Level: The Road to Zero Organic Waste in Delaware County, Pennsylvania," (Environmental Studies Compost and Climate Change Class Report, Swarthmore College, 2020).

<sup>10</sup> "National Overview: Facts and Figures on Materials, Wastes, and Recycling."

captured with pollution control systems. The combustion process produces large amounts of carbon dioxide (a greenhouse gas) as well as other toxic air pollutants such as fine particulate matter (PM<sub>2.5</sub>), which can travel deeply into lungs and damage the respiratory system; lead, which can cause developmental delays in children; and dioxins and furans, which are known to persist in the environment and to negatively affect hormone and reproductive systems.<sup>11</sup> The Covanta Delaware Valley incinerator where Delaware County sends all of its MSW is located in Chester City, in which 70% of the population is African American and 31% of the population lives below the poverty line. In the total area of Delaware County, 10% of residents live below the poverty line and 70% of residents are white.<sup>12</sup> With environmental and economic harms like these in the neighborhood of the Covanta incinerator, it is logical that Delaware County residents should divert their food scraps if they are able to compost at home or have access to a local composting service. When food scraps are composted, less carbon dioxide is produced (because food scraps decompose rather than combust), nutrients are recycled into a valuable compost product rather than being emitted into the air or landfilled as ash, and toxic chemicals such as dioxins and furans are not emitted.

Introducing those UP residents who might not be interested in composting at home to the idea of separating food scraps for curbside collection and composting elsewhere is a step in the right direction for “Zero Waste”. Rather than literally producing no waste, **Zero Waste** has become the universal term for a set of principles and behaviors directed toward waste prevention and responsible resource use. Many municipalities are now creating Zero Waste Resolutions for more sustainable localized waste management policy.<sup>13</sup> The Zero Waste International Alliance defines Zero Waste as “the conservation of all resources by means of responsible production, consumption, reuse, and recovery of products, packaging, and materials without burning and with no discharges to land, water, or air that threaten the environment or human health.”<sup>14</sup>

The goals of this pilot Curb to Compost program include both environmental benefits, such as waste diversion from the air-polluting Covanta incinerator and rapidly filling Delaware County Rolling Hills Landfill (where incinerator ash goes), and economic benefits, such as reducing the cost of waste hauling and tipping fees and producing a valuable end product.<sup>15</sup> By making the finished compost product available for gardens, farms, and residents of the township, UP residents would be inspired to grow food (reducing their reliance on food that must be transported long distances) and experience the myriad health benefits of gardening.<sup>16</sup> Composting food scraps and utilizing finished compost would put the nutrients from food scraps back into food that the

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<sup>11</sup> Catalina Jaramillo, “Incinerators in Camden, Chester among nation’s most polluting, report finds,” *National Public Radio WHYY*, May 23, 2019,

<https://whyy.org/articles/incinerators-in-camden-chester-are-among-the-nations-most-polluting-report-finds/>; “Inhalable Particulate Matter and Health,” California Air Resources Board, accessed February 1, 2021, <https://ww2.arb.ca.gov/resources/inhalable-particulate-matter-and-health>; United States Environmental Protection Agency “Dioxins and Furans,” accessed December 3, 2020,

<https://archive.epa.gov/epawaste/hazard/wastemin/web/pdf/dioxifura.pdf>; Lali Z, “Release of Dioxins from Solid Waste Burning and its Impacts on Urban Human Population - A Review,” *Journal of Pollution Effects & Control* 6 (2018): 215, <https://doi.org/10.4172/2375-4397.1000215>.

<sup>12</sup> “Quick Facts,” United States Census Bureau, accessed January 26, 2021,

<https://www.census.gov/quickfacts/fact/table/delawarecountypennsylvania.chestercitypennsylvania/PST045219>.

<sup>13</sup> “Zero Waste,” Chester Residents Concerned for Quality Living, accessed January 26, 2021,

<https://www.chesterresidents.org/zero-waste/>.

<sup>14</sup> “Zero Waste Definition,” Zero Waste International Alliance, December 18, 2018, <http://zwia.org/zero-waste-definition/>.

<sup>15</sup> Kathleen Carey, “Trash-disposal crisis means consumers will pay more,” *Delaware County Daily Times*, January 27, 2019,

[https://www.delcotimes.com/news/local/trash-disposal-crisis-means-consumers-will-pay-more/article\\_026449cc-1ffb-11e9-a809-4798edf4e0cd.html](https://www.delcotimes.com/news/local/trash-disposal-crisis-means-consumers-will-pay-more/article_026449cc-1ffb-11e9-a809-4798edf4e0cd.html).

<sup>16</sup> Masashi Soga, Kevin Gaston and Yuichi Yamaura, “Gardening in beneficial for health: A meta-analysis,” *Preventative Medicine Reports* 5 (2017): 92-99, <https://doi.org/10.1016/j.pmedr.2016.11.007>.

community grows, closing the loop for a more circular economy<sup>17</sup> and making UP a more sustainable community. Utilizing compost has benefits for the ecosystem as well. Compost is full of living microorganisms that: exchange nutrients with plants in a mutually beneficial manner, reducing the need for fossil fuel-based and/or chemical fertilizers; suppress plant diseases and pests, increasing plant health; help retain moisture in soils, reducing the need for irrigation; and physically hold soil particles together, reducing erosion.<sup>18</sup>

This report was produced for the UP Environmental Commission to advance organics recycling initiatives and facilitate establishment of a curbside organics collection program. Additionally, this report is intended for UP residents, with the hope of encouraging support for and participation in the program. Finally, by creating a report for discussion, awareness about the importance and feasibility of composting can be easily communicated to neighboring municipalities in similar situations.

## Current operations

The UP Environmental Commission (EC)<sup>19</sup> contributes to a network of municipal Environmental Advisory Councils (EACs) across the state that “research issues and advise local government officials to help inform decision-making regarding the environment”.<sup>20</sup> It consists of one representative from each of five UP districts, and presents environmental sustainability initiatives to the Township Council for consideration.<sup>21</sup>

Initially, the EC considered a community composting program along the lines of the Philadelphia Community Composting Network that launched in 2019.<sup>22</sup> In such a program, residents would compost their food scraps in a communal pile in exchange for volunteering their time to manage the pile. Community composting programs are common in urban communities, but are likely less common in suburban communities due to residents owning larger properties and being able to compost at home. The EC also researched other composting possibilities and a unique local alternative was found: a curbside food scrap collection and composting service called Kitchen Harvest, based in Media just four miles from the UP Administrative Office. Kitchen Harvest offers a subscription composting service for \$18 a month in which residents’ food scraps and yard waste are collected biweekly from their curbs and composted at Kitchen Harvest processing sites (at Linvilla Orchards), with finished bulk compost available to customers at a 20% discount.<sup>23</sup>

Kitchen Harvest has contracted with the Borough of Media for a pilot food scrap collection program since 2018. In July 2021, Media will be the first municipality in Delaware County to offer organics composting service to all residents. In this arrangement, the Media Public Works department will collect organics weekly and deliver

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<sup>17</sup> “What is the Circular Economy?,” Ellen Macarthur Foundation, accessed January 29, 2021, <https://www.ellenmacarthurfoundation.org/circular-economy/what-is-the-circular-economy>.

<sup>18</sup> David Montgomery, *The Hidden Half of Nature: The Microbial Roots of Life and Health* (New York: W. W. Norton & Company, 2016).

<sup>19</sup> “Environmental Commission,” Upper Providence Township, Delaware County, PA, accessed Fall 2020, <https://www.upperprovidence.org/150/Environmental-Commission>.

<sup>20</sup> “EAC Network,” WeConservePA, accessed Jan 26, 2021, <https://weconservepa.org/eac/>.

<sup>21</sup> “District Map,” Upper Providence Township, Delaware County, PA, Nov 5, 2019, <https://www.upperprovidence.org/DocumentCenter/View/701/District-Map-11-5-2019>.

<sup>22</sup> Frank Kummer, “Philadelphia to launch city-wide composting network of up to 25 sites,” *Philadelphia Inquirer*, June 19, 2019, <https://www.inquirer.com/science/climate/philadelphia-compost-food-waste-20190619.html>.

<sup>23</sup> “Residential Composting,” Kitchen Harvest, accessed January 29, 2021, <https://www.mykitchenharvest.com/residential>.

them to the Kitchen Harvest processing site. In return, Kitchen Harvest will do bulk drops of finished compost at an accessible site in Media a couple times a year for residents to pick up.<sup>24</sup>

Important to recognize is the fact that Kitchen Harvest accepts yard waste as well as food scraps. Media Borough was able to scale up its Compost Program because it is consolidating its food scrap and yard waste collections, which makes collection more efficient. UP operates waste management differently and contracts with private trash hauler A.J. Blosenski for trash, recycling and yard waste collection. The current five year contract with Blosenski runs from January 1, 2018 to December 31, 2022 includes trash pickup twice weekly, recycling collection once per week and yard waste removal twice per month.<sup>25</sup> Yard waste is collected on the first and third Wednesday and tipped at Delco Mulch and Supply; large trucks with an estimated volume of 25 cubic yards are charged \$400 per load and small trucks with an estimated volume of 11 cubic yards are charged \$200 per load, for an average tipping fee of \$17/cubic yard.<sup>26</sup> Blosenski is a relatively small trash hauler based out of Chester County, with 230 employees and 135 vehicles. At this time, the company does not have the capacity to collect food scraps because all of their trucks are in use for trash collection, and because they do not have enough employees to consider this new type of collection. William Blosenski stated that they would also need a separate truck for food scraps collection and do not have the finances to consider that purchase now.<sup>27</sup>

An exhaustive search of local trash haulers who are willing and able to collect food scraps was beyond the scope of this project. However, Dan Del Bonifro at J & K Trash Removal reported that they could collect food scraps from a small number of centralized locations in UP. Residents would deposit their food scraps into totes at one of these centralized pickup sites. From there, J & K would collect the food scraps and haul them to Kitchen Harvest's facility for composting.<sup>28</sup>

Kitchen Harvest's contract for collecting food scraps for Media Borough's pilot curbside collection program cost \$200 per household per year, as opposed to the private subscription cost of \$216 per household per year, to collect up to one 5 gallon bucket of food scraps per week. Participants of the food scrap collection pilot program wishing to place bulk orders for finished compost get a 20% discount for the product when purchased from Linvilla Orchards, where Kitchen Harvest is located. Additionally, Kitchen Harvest provides Media with a finished (screened to 3/4" particles) pile of compost at no cost in which residents can each obtain a free "bucket or two, twice per year".<sup>29</sup>

From January 2018 to July 2020, Upper Providence Township produced an average of 317 tons of trash per month<sup>30</sup>, which is sent to the Covanta Delaware Valley incinerator via the Delaware County Solid Waste

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<sup>24</sup> "Compost Program Update," Media Borough News, January 18, 2021, <https://mediaborough.blog/2021/01/18/coming-soon-changes-to-food-composting-and-yard-waste/>.

<sup>25</sup> Upper Providence Township Chester County PA "Trash and Recycling," accessed September 18, 2020, <https://www.upperprovidence.org/222/Trash-Recycling>.

<sup>26</sup> Gregory Lebold (Upper Providence Township Manager), email to author, April 27, 2021.

<sup>27</sup> William Blosenski (Manager of Commercial Operations at A.J. Blosenski), phone conversation with author, December 4, 2020.

<sup>28</sup> Dan Del Bonifro (Accounts Manager at J & K Trash Removal), phone conversation with author, December 8, 2020.

<sup>29</sup> Chris Pieretti (Owner-operator of Kitchen Harvest Composting Service), email to author, September 20, 2020.

<sup>30</sup> Lars Seufert (Member of Upper Providence Environmental Commission), "Annual Refuse Disposal Costs" digital file created with data provided by Upper Providence Township Manager Greg Lebold and shared with author, September 18, 2020.



Authority<sup>31</sup>. Chris Pieretti at Kitchen Harvest stated that households participating in the 2018 pilot program produced an average of 10 pounds of food scraps per week, or 40 pounds per month.<sup>32</sup> If the 4,100 households in Upper Providence Township separated 40 pounds of food scraps per month from their trash, 82 tons of organics per month could be diverted, reducing the amount of UP waste incinerated by 25%.<sup>33</sup> Even if only a quarter of the households participated in a township-wide compost program, the amount of UP waste incinerated could be reduced by more than 5%.

## Recommendations

Implementing a Curb to Compost program in UP would contribute to positive systemic change in waste management. Below are individual points for further UP and EC consideration.

**Take advantage of Kitchen Harvest Composting Service.** Very few communities have access to a local community-scale food scrap processor. The fact that Kitchen Harvest is a well-established composting business (since 2010) within five miles of UP should not be ignored, but rather leveraged as a resource. Kitchen Harvest can provide fully half of the needed infrastructure to accomplish Township-wide composting, with the other half being hauling. Kitchen Harvest can accept more types of organics than one can safely compost at home, for example refined carbohydrates and food soaked napkins. The Kitchen Harvest composting service has the hauling capacity to collect five gallon buckets of food scraps from residential curbsides in Upper Providence Township, but not to collect combined food scraps and yard waste from larger totes. Kitchen Harvest has the processing capacity to receive both food scraps and yard waste collected by third party haulers and process those organics into compost. Kitchen Harvest is interested in bidding on municipal-scale food scrap collection and processing contracts.<sup>34</sup> This is a relatively unique opportunity that should be capitalized upon, as few other regions have access to food scrap composting facilities like Kitchen Harvest.

**Establish a pilot program using lessons learned from Media Borough.** UP is fortunate to have neighboring Media Borough be three years into pioneering the first municipal-scale organics compost program in southeastern Pennsylvania. UP can use Media as a model to design its own food scrap collection program. Detailed information about the history and current status of the Media Compost Program can be found in the sibling practicum report by Hope Darris.<sup>35</sup> Kitchen Harvest owner Chris Pieretti would be willing to contract for a pilot food scrap composting service, including collection and processing, for 100-250 households in either of Districts 1, 2 or 4 of UP (which are the most densely populated districts). The Kitchen Harvest charge for this program would be \$200 annually per household.<sup>36</sup> Like in Media, a Compost Committee composed of representatives from Township administration, Public Works and the EC could manage the program. By starting with a limited number of participants, the amount of financial risk would be reduced while allowing for

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<sup>31</sup> Delaware County Municipal Solid Waste Management Plan: Substantial Revision: 2013 (Media, PA: Delaware County Solid Waste Authority), 58-59; Nick Rohr (A.J. Blosenski) via Lars Seufert (Member of Upper Providence Environmental Commission), email to author, April 9, 2021.

<sup>32</sup> Chris Pieretti (Owner-operator of Kitchen Harvest composting service), email to author, September 18, 2020.

<sup>33</sup> "Quick Facts, Upper Providence township, Delaware County, Pennsylvania," United States Census Bureau, accessed September 20, 2020,

<https://www.census.gov/quickfacts/fact/table/upperprovidencetownshipdelawarecountypennsylvania/PST045219>.

<sup>34</sup> Chris Pieretti (Kitchen Harvest Composting Service Owner/Operator), email to author, February 16, 2021.

<sup>35</sup> Hope Elizabeth Darris and Jennifer Pfluger, "Curb to Compost: An Inaugural Municipal-Scale Program for Food Scrap Diversion and Organics Collection in Media Borough, Delaware County Pennsylvania," (Environmental Studies Compost and Climate Change Class Report, Swarthmore College, 2020).

<sup>36</sup> Chris Pieretti (Kitchen Harvest Composting Service Owner/Operator), email to author, February 16, 2021.



program troubleshooting. Data from the pilot, including participant feedback and amount of food scraps collected, would inform the feasibility of program expansion.

**Be creative with pilot program funding.** Up to \$7,500 for “Recycling Technical Assistance” is available to local governments by a partnership between the DEP, the Governor’s Center for Local Government Services and the Pennsylvania State Association of Township Supervisors.<sup>37</sup> The Pennsylvania Department of Environmental Protection (DEP) has historically offered larger recycling grants through Act 101, Section 902, although this grant is currently closed.<sup>38</sup> An assessment of other grant opportunities was beyond the scope of this report. However, another funding alternative would be to ask residents in a limited area if they would participate in a subscription service at a discounted rate. The discount would depend on the number of residents who signed up and the distance between their households, but could be determined and advertised in advance, and managed through the Compost Committee. If this program were well received, it would provide a larger base of experienced residents to support conversion to a township-wide program.

**Identify a waste hauler willing to collect food scraps.** Media Borough was able to implement its composting program borough-wide by consolidating food scrap collection with yard waste collection via the Public Works department, with organics being tipped (i.e. deposited) at the Kitchen Harvest composting site for processing. Kitchen Harvest does not have the hauling capacity for a full municipal-scale combined food scrap and yard waste collection contract, so as the UP explores options for a potential township-wide composting program, a separate organics hauler would need to be identified. Collection costs could be a hurdle, since the population of UP is spread over a much larger area than that of Media. The UP population is 1,810 per square mile versus 7,017 per square mile in Media, with a total population of 10,444 people spread among 4,106 households in UP, and 5,682 people among 2,718 households in Media.<sup>39</sup> Like Media, UP will likely have to consolidate food scraps with yard waste in order to enable food scraps collection. If Blosenski developed the capability to haul food scraps in addition to yard waste and/or the hauling and processing contracts were separated, UP could direct its waste hauler to deliver organics to Kitchen Harvest.

**Further cost analysis is needed.** At this point, the myriad benefits of a Curb to Compost program are clear. A more detailed cost analysis of current trash and yard waste recycling schemes is necessary in order to compare hauling and processing costs among different waste streams. The organics tipping fee that would be charged to UP by Kitchen Harvest for processing food scraps and yard waste together would be \$55 per ton; the Kitchen Harvest tipping fee for processing contamination-free food scraps without yard waste is \$60 per ton.<sup>40</sup> The waste tipping fee charged to UP for A.J. Blosenski to dump UP food scraps and other waste at the Delaware County Transfer Station (for transport to the Covanta incinerator) was \$53 per ton from 2019-2020 and increased to \$58 per ton in January 2021.<sup>41</sup> Once additional financial comparisons have been made, such as the cost of yard waste collection and tipping, a request for proposals from waste haulers to collect food scraps with and without joint yard waste collection can be considered.

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<sup>37</sup> “Recycling Technical Assistance,” Pennsylvania Department of Environmental Protection, accessed February 1, 2021, <https://www.dep.pa.gov/Business/Land/Waste/Recycling/Municipal-Resources/TechnicalAssistance/Pages/default.aspx>.

<sup>38</sup> “Recycling Financial Assistance,” Pennsylvania Department of Environmental Protection, accessed February 1, 2021, <https://www.dep.pa.gov/Business/Land/Waste/Recycling/Municipal-Resources/FinancialAssistance/Pages/default.aspx>.

<sup>39</sup> “Quick Facts,” United States Census Bureau, accessed January 29, 2021, <https://www.census.gov/quickfacts/fact/table/mediaboroughpennsylvania.upperprovidencetownshipdelawarecountypennsylvania/PST045219>.

<sup>40</sup> Chris Pieretti (Owner-operator of Kitchen Harvest Composting Service), email to author, February 1, 2021.

<sup>41</sup> Lars Seufert, “Annual Refuse Disposal Costs” and email to author, April 9, 2021.

**Promote current residential organics composting options in Delaware County.** For UP residents interested in but unable to compost at home, alternate composting options available in Delaware County can be found in the sibling practicum report by Kyra Hall.<sup>42</sup>

**Create a Zero Waste Plan with measurable trash reduction and resource conservation goals,** such as reducing the frequency of trash pickup, separating waste contracts for hauling and processing and creating a curbside organics collection programs. Reducing trash pickup from twice weekly to once weekly would have environmental benefits from less trash truck traffic and economic savings from reduced collection costs, and separating contracts allows UP more control over where and how its waste is processed.

**Join together with Delaware County neighbors to work towards Zero Waste.** A group called Chester Residents Concerned for Quality Living has joined together with other Delaware County residents in asking EACs to advance a resolution that requests the County to create a Zero Waste Plan, support municipalities with Zero Waste initiatives, and not extend the Delaware County service agreement with the Covanta incinerator.<sup>43</sup> Protecting the health of all Delaware County residents by working towards Zero Waste would have benefits beyond UP.

## Annotated bibliography

Citation details can be found in the footnotes, with more significant sources of information also annotated below.

Pieretti, Chris. Email communications with Evelyn Parts and/or Jennifer Pfluger. September 18, 2020; December 3, 2020; February 1, 2021; February 16, 2021.

Chris Pieretti is the owner and operator of Kitchen Harvest, a composting service located near Upper Providence Township. Multiple conversations with Pieretti provided a solid basis of information regarding curbside food scrap collection, processing food scraps into a compost product, and logistical aspects of using the Kitchen Harvest composting service. Pieretti also shared helpful details about the burgeoning compost program in Media Borough and was an invaluable source of information for this report.

Covanta. "Waste-To-Energy." Accessed September 18, 2020.  
<https://www.covanta.com/what-we-do/waste-to-energy>

This Covanta website provides information on how trash is incinerated at its "Waste-to-Energy" facilities, along with a general overview of how these facilities use the incineration process to generate usable energy. The site describes the goals of the incinerator as reducing methane greenhouse gas emissions by reducing the amount of waste that ends up in landfills, as well as reducing the emissions of greenhouse gases in general. Potential bias of this corporate website must be taken into account as Covanta could be minimizing or omitting details that they do not want the public to know about their facility. This source is helpful to consider possible benefits of diverting more waste from incinerators and ultimately landfills.

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<sup>42</sup> Kyra Hall and Jennifer Pfluger, "Composting at the County Level and Zero Organic Waste in Delaware County, Pennsylvania."

<sup>43</sup> "Zero Waste," Chester Residents Concerned for Quality Living, accessed February 1, 2021, <https://www.chesterresidents.org/zero-waste/>; "Sample Zero Waste Resolution for Municipalities," Chester Residents Concerned for Quality Living, accessed February 1, 2021, [https://www.chesterresidents.org/wp-content/uploads/2020/12/Zero-Waste-Resolution\\_example.pdf](https://www.chesterresidents.org/wp-content/uploads/2020/12/Zero-Waste-Resolution_example.pdf).

Environmental Protection Agency. "Reducing the Impact of Wasted Food by Feeding the Soil and Composting." Accessed September 18, 2020.

<https://www.epa.gov/sustainable-management-food/reducing-impact-wasted-food-feeding-soil-and-composting#:~:text=In%202017%2C%20Americans%20recovered%20over.6.1%20million%20households%20in%202017.>

This EPA website gives a general overview of compost, including a definition, environmental benefits of composting, steps to get started composting, accounts of successful composting projects and links to resources with more information. Because this is published by the federal Environmental Protection Agency, it is considered to be reliable and is a useful source of information for this report.

McSweeney, James. *Community-Scale Composting Systems: A Comprehensive Practical Guide for Closing the Food System Loop and Solving Our Waste Crisis*. White River Junction, Vermont: Chelsea Green Publishing, 2019.

Author James McSweeney has a background in agroecology and has worked as a large scale composter, composting educator and consultant to hundreds of composters to establish and improve composting operations. This book is written to educate potential community-scale composters about essential details of the composting process and options for different composting methods. This source details important aspects to consider for implementation of food scrap composting programs.

Media Borough Public Works. "Media Borough Food Compost Pilot Program Details." Accessed September 16, 2020. <https://www.mediaborough.com/publicworks/program-details>.

This website is the hub for information about Media Borough's curb to compost organics collection program. Included on this page is a link to a consulting report performed by SCS Engineers analyzing the feasibility of implementing a food scrap diversion program for the entirety of Media Borough; this report was sponsored by the Pennsylvania Department of Environmental Protection through an [Act 101 Section 902](#) grant obtained by Media Borough. This source is a relevant local example of an established composting program that can inform composting program design in Upper Providence Township.