1. An Executive Summary Assessing the Scope of the Project

A Study Evaluating the Feasibility and Environmental Impact of Diverting Food Scraps from Landfills to Compost in Centre County, PA.

Currently, all household waste in the COG service area is brought to the landfill. Municipal solid waste (MSW) landfills are not a sustainable option for waste management as they cause much damage to the environment and contribute to climate change. Greenhouse gases (GHGs) including methane (CH4) and carbon dioxide (CO2) are produced as waste decomposes. The EPA estimated that in 2021 landfills accounted for almost 15 percent of total methane emissions (EPA, n.d). Therefore, the community must take action to reduce these emissions by collecting food scraps and diverting them from the landfill. The Centre County Recycling and Refuse Authority estimated that an average single-family household discards around 45 pounds of food scraps and food-soiled paper per month (State College, 2015). Mrs. Mato at the COG says, "We know from the Pennsylvania Waste Characterization Study of 2021 that 39% of the waste in the landfill stream is organic material that could be composted" (Mato, 2023).

State College Borough (SCB) began collecting green waste in 2008, the curbside collection pilot began in 2010 and introduced a permanent curbside organic collections program that has been in operation since 2013. SCB's neighboring areas would have ideally liked the same possibilities, as many in the COG service area have also wanted a better way of dealing with their organic household waste. However, a curbside organic collection program for the COG was not permitted by the Public Services and Environmental Committee, as well as the Department of Environmental Protection (PA-DEP), as they require organics to be collected in a separate truck. The COG estimated that the trucks collecting the organics from households would drive 2,300 miles per week within the COG service area (COG, 2019). Thus, with the emissions coming from fossil fuel-powered vehicles, there would have been little to no reduction in overall GHG emissions (COG, 2019).

Looking at the results shown in the 'Cost-Benefit Analysis for Proposed Regional Organics Program' PDF, it was estimated that an increase of 585 metric tons of GHG emissions would stem from a curbside collection for the COG service area (COG, 2019). Thus, with this curbside service practically negated the sustainable efforts, a new solution had to be found. Centre County Recycling and Refuse Authority (CCRRA) introduced its 2023 pilot project tackling food waste. They set up five locations (Spring Creek Park in College, Township Ferguson Township building, Hawbaker recycling facility in Patton Township, Harris Township at Nittany View Park, and Benner Township municipal building) for participants to drop off their household food waste.

The pilot attracted 662 registrants, which was above the goal of 500 people. On October 10th, a Survey Monkey link was sent out for participants to answer the survey questions within three weeks (till the 27th of October). The 18-question survey was created to address the functionality of the drop-off sites. The intention of this survey was to help with evaluating if such a project could be made permanent and at which locations. A total of 236 people took the survey, this was a turnout of 35.5 %.

The food scraps drop-off program ran from June 15th to November 13th, 2023. It has been estimated that during this time, nearly 80 tons of food scraps and garden waste were collected from the five locations. This averages out to around 241 pounds per person that have been successfully diverted from the landfill. These 80 tons are equivalent to around 7.5 tons in GHG emissions reduction (COG, 2016).

The Centre Region Climate Action and Adaptation Plan's (CAAP) emission goals, as well as the waste reduction and/or zero-waste goals of the CCRRA, the COG, and the Commonwealth of Pennsylvania, are in alignment with such an organics program. Improving efficiencies of waste management by reducing the number of miles spent on collection by citizens dropping their scraps off at their convenience, as well as addressing the social equality aspect of food security are directly being addressed by this project (CRPA, p.25&80, 2021).

Furthermore, looking at the overarching objectives outlined in the "Food Scraps Drop-off Proposal" PFD, this project was a great success. Supporting the community to take environmentally friendly action meant a great deal to many. This project also served as an educational tool, as it helped people to realize the large quantity of organic waste that they throw away each day. Greater equity was achieved by breaking through barriers allowing all who wanted to and were self-motivated to participate. To minimize the hurdles in the future, the infrastructure must be user-friendly and accessible.

An e-mail interview was conducted with the community partners (CCRRA, SCB Public Works, COG) to receive feedback on how they perceived the success of the project. Before the pilot program started there were two main concerns, namely regarding contamination and emissions reduction. It was especially important to the CCRRA that their Zero Waste Goal could be supported by participating in this project. From the viewpoint of the community partners the contamination was not an issue. Both Mr. Hockenberry and Mr. Hicks classified the amount of contamination as being very low and that the quality of the material was good. Ms. Shafer noted that there were some contamination issues at the very beginning. The consensus was that a voluntary program, with participants who are invested, will lead to long-term success, and ultimately bring about the most change.

The only problem that was mentioned across the board by community partners and participants alike was with the locks. Therefore, it is clear that another locking solution must be found. Looking ahead to a permanent project, some logistical issues such as locations (possibly one in each municipality) and how the costs will be covered must be investigated. SCB graciously did not charge anything for the usage of the dumpsters nor the collection of the food scraps. However, there will undoubtedly be a fee for a permanent food scrap project. Mr. Hick spoke about "various "pots of money" that could be utilized to make sure there were no fees to the participants" (Hick, 2023). There could also be some permitting issues with the Department of Environmental Protection. Mrs. Mato said, "PA-DEP is not sure about letting us place them in grocery stores or other parking lots, but that would be optimal. And the closer we can get them to other places from which SCB collects (like Weis markets throughout the county and some restaurants, for example) the lower the cost for collection since the truck is already in the area" (Mato, 2023). Thus, there will be a need for close collaboration with PA-DEP.

*A complete transcript of the community partner responses can be found in the appendix. Titled: Community Partners Food Scraps Pilot Interview Responses

Reference:

Basic information about landfills | US EPA. United States Environmental Protection Agency. (n.d.). https://www.epa.gov/landfills/basic-information-about-landfills

Carbon equivalency calculator: Natur-Bag® Food Scrap Calculator. Natur. (2022, December *16). https://naturbag.com/food-scrap-calculator/*

*COG (2019) PDF "Cost-Benefit Analysis for Proposed Regional Organics Program" *Emailed by Pam Adams 2023*

*COG (2023) PDF "Food Scraps Drop-off Proposal" *Emailed by Shelly Mato 2023*

*COG (2016) PDF "Organics Recycling Project-Carbon footprint XL" *Emailed by Shelly Mato 2023*

Mato., S (2023) PDF "Community Partners Food Scraps Pilot Interview Responses". Appendix.

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