



Department Source: City Utilities - Solid Waste

To: City Council

From: City Manager & Staff

Council Meeting Date: August 6, 2018

Re: Solid Waste Utility Compost Operation and Food Waste Collection Programs

## Executive Summary

At the request of Councilman Thomas, staff has prepared a report on the Solid Waste Utility's compost operation and food waste collection programs.

## Discussion

Successful waste diversion operations across the United States have a multiple roll cart collection system with three material categories: landfill (trash), single-stream recycling, and organics (yard waste, food waste, and compostable fiber). The rate structure usually combines the cost of recycling and composting operations into the landfill rates. This encourages residents to use the "free" organics and recycling roll carts while minimizing the size of their landfill roll cart, which results in a lower monthly solid waste bill for the residents.

### Composting History

Prior to 1990, it was a common practice to dispose of yard waste (tree trunks, limbs, leaves, grass clippings etc.) in landfills across Missouri. In 1990, the Missouri Legislature passed Senate Bill 530 which amended the Missouri Solid Waste Management Law (Section 260.250 RSMo) to promote a state-wide plan to achieve 40% waste diversion in Missouri by 1998. Since yard waste was a major component of Missouri's solid waste stream, it was banned from landfills in 1992. The Columbia Solid Waste Utility (SWU) began its compost operation in 1989 at the Columbia Sanitary Landfill. Initial feed stock for the compost operation consisted of yard waste that customers brought to the landfill. Due to the regulatory requirement, in 1992 the SWU began a curbside residential yard waste only collection program in response to the state-wide yard waste ban. This yard waste material was transported to the landfill and added to the feed stock for the compost operation. SWU continued to operate curbside residential yard waste only collect program until April 2009. In addition to the curbside collection program, the SWU established two yard waste drop-off centers, in response to numerous customer requests. The Capen Park Yard Waste Drop-off Center was completed in 1992 and Parkside Drive Yard Waste Drop-off Center was completed in 1993.

In 2007, the Missouri Legislature amended the Missouri Solid Waste Management Law (Section 260.250 RSMo) to allow yard waste in municipal solid waste bioreactors and in April 2009, the City's Bioreactor Landfill became operational. The SWU made the following operational changes related to yard waste as a result of the regulatory change and due to the large volume of available yard waste and the low demand for the City's compost:

- Residential yard waste and trash were collected in the same vehicle as part of the curbside residential trash collection program and placed in the bioreactor landfill.



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Yard waste collected as part of the curbside residential collection program was no longer used as feed stock for the compost operation.

- Yard waste (mulch) began to be used for litter control, erosion control and intermittent cover in landfill operations. (Prior to April 2009, all yard waste was ground into mulch and used as feed stock for the compost operation.)

Staff estimates that in today's current operational conditions approximately 60% of all yard waste (mulch) is consumed by landfill operations and the remaining 40% is used as feed stock in the compost operation.

Food waste was first introduced to the compost operation in 2012. Major retailers, such as Wal-Mart started a nationwide initiative to compost all organic waste from their facilities. Since City Ordinance (Sec. 22-165) prohibits the private hauling of garbage (food waste is defined as garbage), the SWU started a Commercial Food Waste Collection program. All food waste that is collected as part of the Commercial Food Waste Collection program is used as feed stock for the compost operation. Any commercial business or school that produces food waste in Columbia can participate in the food waste collection program. The SWU currently has 27 commercial food waste customers. The monthly rate for the food waste collection program varies with the size of the food waste container and is currently set at 85% of the commercial refuse collection rate.

The total annual tons of food waste collected from FY 2012 through FY 2017 are shown below in Table 1.

**Table 1:** Tons of food waste collected by the Solid Waste Utility, FY 2012 - 2017.

	2012	2013	2014	2015	2016	2017
<b>Food (tons)</b>	377.71	436.09	342.64	379.01	364.76	255.67

The SWU has seen a decline in the annual tons of food waste collected since it peaked in 2013. The feedback provided by food waste customers indicates this decline is related to the cost of the food waste collection service and the frequency of collection. Customers have stated that the additional work required for them to separate the food waste from non-food waste is not worth the 15% cost savings between food waste and trash. Customers have also expressed concern that the SWU only collects food waste two days per week (Tuesday and Thursday).

The FY 2018 operational budget for the SWU's compost operation is approximately \$400,000. The SWU does market, bag and sell its compost "Columbia's Finest" at the HyVee on West Broadway. The SWU also sells bulk compost to the public. The current bulk price is \$20.00 per cubic yard. The average annual revenue from compost sales is approximately \$15,000 per year. So far in FY 2018, the SWU has approximately \$11,000 in compost sales.



## Current Proposal for Increased Division and Composting

As part of the proposed FY 2019 budget, the SWU is proposing to improve the overall solid waste collection program in the Downtown CID by starting a five day per week food waste collection program. Preliminary estimates indicate that the Downtown CID food waste collection program has the potential to produce approximately 750 tons of food waste annually. The SWU staff, with the help of a citizen volunteer, is in the process of determining what CID businesses want to participate, a more refined estimate of the amount of food waste that will be collected and determining if this will have an impact to future solid waste rates in the CID. Implementation of this new food waste collection program in the Downtown CID is contingent upon Council approval of the proposed FY 2019 budget and the ability of the SWU to fill several vacant positions.

Included in the proposed FY 2019 budget is the replacement of the existing compost windrow turner with a larger self-propelled unit. If approved, the new unit will allow the SWU staff to produce more compost and operate the compost program more efficiently. The new unit will build much taller and wider windrows and allow SWU to:

- Accept compostable napkins and plates, making food waste collection at special events much simpler.
- Produce much more compost in the same foot print.
- Add water directly into the windrow during the turning process to maintain optimum moisture content for the biological process.

The implementation of the food waste collection program in the CID and purchase of the windrow turner are contingent on Council approval of the proposed FY 2019 budget.

## Potential Waste Diversion & Compost Opportunities:

The Missouri Department of Natural Resources conducts a statewide waste composition study every 10 years. The Columbia Landfill participated in the most recent study, which was released to the public in January 2018. This study revealed that approximately 39.4 % of all material that goes into the landfill could potentially be composted. The Columbia Landfill accepted 179,977 tons of solid waste in calendar year 2016. Based on the recent waste composition study, an estimated 70,864 tons of material that is currently being placed in the landfill could potentially be composted as shown in Table 2 below.

**Table 2:** Compostable materials disposed in the Columbia Landfill based on the total solid waste accepted in 2016.

	Est. Percent	Conf. Int. (+/-)	Tonnage
<b>Food Waste</b>	17.8%	4.4%	31,977
<b>Wood - Clean/ Untreated</b>	5.4%	3.6%	9,679
<b>Yard Waste</b>	4.3%	3.4%	7,698
<b>Other/ Composite Organic</b>	4.5%	2.1%	8,102
<b>Compostable Paper</b>	7.4%	1.5%	13,408
<b>TOTAL</b>	39.4%		70,864

The SWU collected 255 tons of food waste in FY2017. Adding the preliminary Downtown CID estimate of 750 tons, brings the maximum potential FY2019 food waste tons up to 1,005 tons,



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which is 3.1% of the 31,977 tons of estimated food waste that is currently disposed in the Columbia Landfill.

The current compost operation only consumes approximately 40% of all available yard waste (mulch). Mulch is currently mixed at a 15:1 ratio with food waste and other organics from commercial customers. The optimum ratio of mulch to food waste and organics is 3:1. Therefore, SWU has a sufficient supply of yard waste (mulch) for current and potential future compost operation needs.

### Potential for Household Food Waste Drop-off Program:

Food waste is classified as garbage and is regulated by the Solid Waste Management Program of the Missouri Department of Natural Resources. The collection, storage and processing of municipal food waste is a regulated activity. A permanent household food waste drop-off center would be required to obtain a construction and operating permit through the Solid Waste Management Program of the Missouri Department of Natural Resources, would be subject to Storm Water requirements under the City's MS4 program and would be required to be staffed by SWU employees.

Due to the regulatory requirements, the only viable location for a permanent household food waste drop-off center would be at the sanitary landfill. Creating a residential food waste drop-off center at the landfill could be accomplished by setting a food waste dumpster at the small vehicle drop-off facility. Landfill staff could incorporate the daily accumulation of food waste into the compost operation at the end of each day. Customers would be allowed to dispose of their food waste at no cost.

A second viable option would be to conduct additional one-day food waste collection events in conjunction with other special events throughout the year. On May 8, 2018, in conjunction with International Compost Awareness Week, City staff conducted a one-day food waste collection event at Capen Park. 1,080 pounds (0.54 tons) of food waste were collected during this event. Current staffing challenges may prevent the SWU from having the ability to conduct future one-day food waste collection events.

A third option would be to increase funding and emphasis for residential composting. The Office of Neighborhood Services currently provides education workshops, demonstration projects, waste audits and provides free GeoBin composters for eligible participants. Attached is a report which summarizes the services being offered by the Office on Neighborhood Services.

### Private Hauling of Food Waste

The private hauling of food waste has been prohibited in Columbia since the early 1960s. Section 22-156 of City code defines food waste as garbage and Section 22-165 of City code prohibits the private hauling of garbage. These and other solid waste ordinances were created in the early 1960s, because private hauling companies were not properly collecting and disposing of garbage and other solid waste in Columbia. Proper and timely collection



and disposal of garbage is critical to the protection of the environment and public health. Improper storage and disposal of garbage can attract vectors (mosquitoes, flies, rats & mice) and can lead to the spread of numerous diseases (salmonellosis, tetanus, hepatitis A, hookworm, etc.) Restricting the collection of food waste to City vehicles helps ensure that solid waste collection services are provided in the most efficient manner possible while minimizing the overall number of collection vehicles within Columbia, thus minimizing greenhouse gas emissions and wear and tear on city roadway system.

## Fiscal Impact

Short-Term Impact: There is no fiscal impact anticipated with this report.

Long-Term Impact: There is no fiscal impact anticipated with this report.

## Strategic & Comprehensive Plan Impact

### [Strategic Plan Impacts:](#)

Primary Impact: Not Applicable, Secondary Impact: Not Applicable, Tertiary Impact: Not Applicable

### [Comprehensive Plan Impacts:](#)

Primary Impact: Environmental Management, Secondary Impact: Not applicable, Tertiary Impact: Not Applicable

## Legislative History

Date	Action
None	None

## Suggested Council Action

This report is for information purposes.