



Organic Waste System Audit Follow-Up

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SUMMARY

Metro implemented one of the three recommendations contained in the 2013 audit report **Organic Waste System: Re-examine cost-effectiveness and adjust efforts if needed.** The other two recommendations were in process. Continuing to implement the recommendations is important as Metro prepares for changes to the solid waste system. The leadership role Metro takes will partly determine if the benefits of collecting food waste can be achieved cost-effectively.

BACKGROUND

The auditor's office assessed the effectiveness of the region's organic waste (food and yard debris) program in a report released in October 2013. The audit found the amount of food waste collected had increased significantly, but it had little effect on the primary performance measure in the Regional Solid Waste Management Plan (Regional Plan). Accordingly, the audit recommended Metro assess the cost-effectiveness of the program. The audit identified long-standing challenges, such as lack of close-by processing capacity, that needed to be addressed to fully realize the benefits of the program. As a result, the audit recommended Metro clarify priorities and better define its regional leadership role for organic waste.

The audit also recommended Metro clarify how it would ensure alignment among the three roles it played in the solid waste system. The roles included a planning role, a regulatory role, and an operations role. As a system planner, Metro conducted research and developed a regional plan for solid waste. Metro regulated the system in part through issuing licenses for moving or managing solid waste materials. Metro also operated two of its own facilities that manage solid waste.

Since the audit, Metro worked on several projects to prepare for potential changes to the regional system when key operating contracts expire between 2017 and 2019. These efforts, called the Solid Waste Roadmap, included a project focused on food waste. Staff presented research to stakeholders and Metro Council to help inform decisions planned for 2017. In addition, Metro recently started the planning process for the next Regional Plan. The Regional Plan is expected to include new performance measures when it is adopted in 2019. The Roadmap and regional planning process will clarify the leadership role Metro will play in the organic waste system.

RESULTS

Metro made progress on all of the recommendations, though it only fully implemented one. We found Metro clarified how it plans to align its internal goals and performance measures among the three roles it plays in the solid waste system. Metro was in the process of defining its leadership role for organic waste during the follow-up audit, which is why two of the recommendations were still in process. Better information was available about the program's costs and benefits, but a cost-effectiveness analysis was not completed. Metro also addressed some of the long-standing challenges of managing organic waste by instituting tighter material quality standards and prioritizing commercial over residential organic waste recovery. Staff presented information to Metro Council about options to increase processing capacity near the region and incentives to increase program participation. However, the final decisions about these aspects of the program will not be finalized until 2017, at the earliest.

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Exhibit 1 Metro implemented one recommendation, while the others were in process

2013 Audit Recommendations	Status
1. Metro should clarify how it will meet internal goals and performance measures to ensure the departments involved in solid waste management are aligned to achieve the desired outcome of the program.	Implemented
2. Metro should assess the commercial and residential organic waste recovery programs to determine their cost-effectiveness as priority strategies for achieving statutory and environmental goals.	In process
3. If Metro determines that the benefits of the program outweigh the costs, it should define the leadership role it is going to take in advancing the program goals. The definition should address such things as:	In process
a. The comparative priority between residential and commercial food waste recovery	(Implemented)
b. Quality standards for incoming organic materials	(Implemented)
c. Incentives and disincentives to achieve program goals; and	(In process)
d. Increasing processing capacity	(In process)

Source: Office of the Metro Auditor

Organizational structure clarified

Since the audit, Metro consolidated the majority of solid waste duties previously split between different departments. Property and Environmental Services (PES) now handles research, planning and operations. Some staff reported it was easier to work within one department. Within PES, there was evidence that staff worked across solid waste program areas. For instance, the team responsible for developing the next Regional Plan included employees from all of Metro's solid waste programs. The project team's plan also includes efforts to engage employees throughout PES at various points in the planning process.

Internal alignment is important because Metro's solid waste roles are interrelated. Changes to one role could affect the other two. For instance, regulatory changes could increase or decrease the amount of material received at Metro's facilities. Changes in the amount of waste received could impact operational costs. Similarly, physical limitations at Metro's transfer stations determine how much food waste can be managed. System planners need to have that information in order to develop realistic plans and performance measures for the region.

Ensuring alignment of performance measures was an important part of getting a clearer picture of the performance of the program. The current Regional Plan emphasizes a measure called the recovery rate. The recovery rate indicates the relative amount of material 'recovered' or diverted from landfills for example, by recycling. The initial audit noted that despite a 200% increase in food waste recovered between 2007 and 2011, it only contributed about 1.4% to the recovery rate. Since then the impact of food waste recovery has been relatively stable, but declined slightly in 2015 to 1.3%.

Exhibit 2 How the recovery rate is calculated

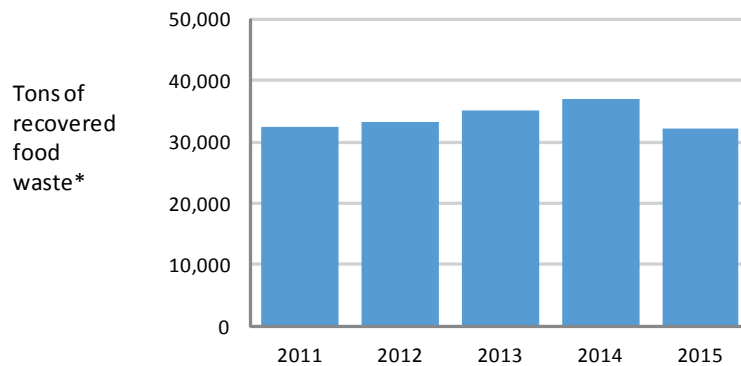
$$\text{Recovery Rate} = \frac{\text{Tons of recovered material (diverted from landfill)}}{\text{Tons of material sent to landfill} + \text{Tons of recovered materials}}$$

Source: Oregon Department of Environmental Quality

While the recovery rate is the current Regional Plan's primary performance measure, the relationship between the activities in the plan and actual performance is not strong. An additional ton of recovered waste may not improve the recovery rate due to decreased recovery in other waste types or an increase in the total amount of waste generated. Conversely, the rate could improve even if recovery targets for specific waste types were not met if the overall amount of waste generated decreased. As such, other measures are needed to provide an accurate assessment of the program's performance.

Since the original audit, Metro set a target to recover at least 50,000 tons of commercial food waste each year. Recent trends indicate that additional recovery will be needed to meet that target. Staff estimated the region was collecting a little more than half the amount of commercial food waste compared to the target. Including both commercial and an estimated amount of residential material, about 34,000 tons per year of food waste has been recovered over the last five years.

Exhibit 3 The amount of food waste recovered was mostly unchanged in recent years



* Total includes both commercial and residential food waste

Source: Oregon Department of Environmental Quality

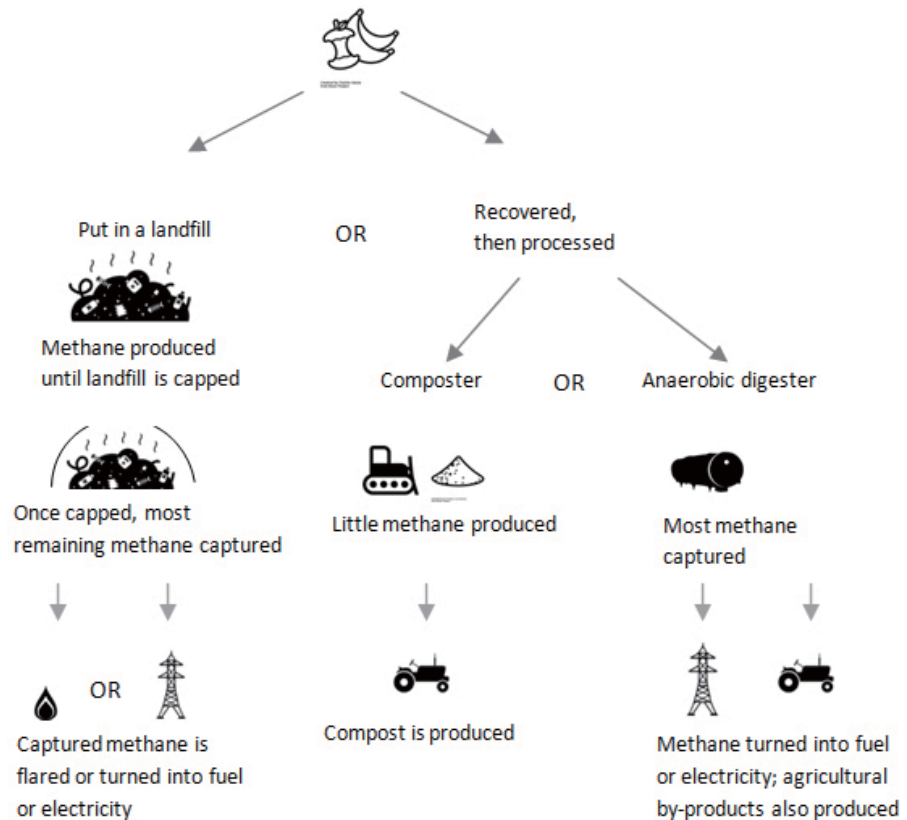
Metro appears likely to change the performance measures in the next Regional Plan. This represents an opportunity to get a clearer picture of how well the organic waste program performs. Environmental benefits of recovering and processing food waste come from creating energy and preventing the release of methane, a powerful greenhouse gas. Agricultural products can also be produced. Compared to using only the recovery rate, new measures could show the recovery and processing of food waste has greater overall benefit.

Compare cost and benefit information to evaluate cost-effectiveness

While Metro developed better information about both the benefits and the costs of the program, it had not yet used the information to determine whether it was a good overall value compared to other solid waste strategies. Getting good value for the public’s money is a regional policy and a stated priority for the region’s solid waste system. More thoroughly analyzing benefit and cost information could help Metro determine if the program’s costs are balanced with its benefits.

The reasons to prioritize food waste recovery seem sound from a benefits perspective. Food is abundant in the waste stream that goes to landfills. Processing food scraps instead of sending them to the landfill can prevent the release of methane. Methane can instead be used for fuel or to generate electricity. Agricultural products like compost or fertilizer can also be produced by recovering food waste.

Exhibit 4 Food scraps can be managed to create compost, fuel or electricity



Source: Office of the Metro Auditor, based on information from the US Environmental Protection Agency

Similarly, the reasons to prioritize commercial food waste recovery over residential food scraps also seem sound. Food waste from commercial sources is more concentrated, which makes it easier to access. This is because it is not mixed with yard debris, like residential food waste. In addition, some businesses produce a large amount of food waste. If they participated in the program, the amount of material recovered could increase quickly.

While the potential benefits are clear, fully realizing them has proved difficult. During the original audit, a new residential food waste program and local regulatory changes created a shortage of processing capacity near the region. Food

waste had to be transported further than expected for processing which reduced some of the benefits of recovering it. Metro’s analysis indicated that even with longer transportation distances there were still benefits of recovering food waste. Nevertheless, the ratio of benefits-to-costs will be reduced if benefits are lower than expected or costs are higher than expected.

Since the audit, Metro started to evaluate the costs of food waste recovery more comprehensively. For instance, employees recently presented different ways that business-level costs might be affected by regulatory changes designed to increase participation in the program. Metro also forecasted some of the potential costs the region could avoid by processing 50,000 tons of food scraps instead of allowing the methane from that food to escape from a landfill.

Metro also calculates a cost-per-ton figure for the materials it processes at its facilities. The information is used to set the rates customers are charged to process each material type. The figures include expenditures for managing the material, but do not include those for planning and research. Commercial organic waste was the most expensive material to manage. More comprehensive cost per ton figures would include all of Metro’s expenditures related to organic waste including planning and research.

Exhibit 5 Commercial organic waste was the material with the highest cost per ton to process

Yard debris	Solid Waste	Residential organic waste	Wood	Commercial organic waste
\$47.79	\$63.18	\$63.62	\$65.51	\$69.85

Source: Solid Waste Rate Study FY 2016-17, Metro Finance and Regulatory Services

Comprehensive cost per ton figures for material types could inform Metro’s prioritization of solid waste strategies. The cost figures could be combined with research about environmental benefits for different materials to create a common measure such as dollars per ton of avoided carbon or methane emissions. There may be other cost-benefit measures besides cost per ton that would provide value as well. Using a common measure to compare strategies to one another would show their relative cost for achieving the same benefits.

Research showed the region could attain environmental benefits by working with materials other than food waste. While Metro explored strategies for some other materials to varying degrees, commercial food waste remained a primary commitment. It was unclear to what extent this was a missed opportunity to pursue other solid waste strategies more aggressively or if organic waste was the best option in terms of the cost-benefit ratio.

Metro should integrate its improved cost information with information about the benefits of food waste recovery to develop a critical perspective about whether the program is a cost effective means to achieve those benefits. This is particularly important as Metro makes decisions about the leadership role it will play in recovering more food waste.

Important groundwork has been laid for decisions about Metro's regional role

Metro made progress defining its role for organic waste and laid groundwork for future decisions about the program. It clarified the priority of commercial over residential organic waste and adopted material acceptance standards. This implemented part of the third audit recommendation. Research and analysis was presented to Metro Council to inform decisions about increasing processing capacity and creating incentives to participate in the program. This meant the other parts of the recommendation were in still process.

The previous audit noted challenges arose when the City of Portland expanded its residential organic waste program. This required Metro to change its operations and find additional processing capacity. The audit recommended Metro clarify whether commercial or residential organic waste was the priority for the region.

Metro clarified the priority of commercial organic waste over residential through funding and communication. In 2016, Metro increased grant funding to local programs that seek to increase the recovery of commercial food waste. We found staff had been consistent and clear in recent communications that commercial recovery was Metro's priority. The next Regional Plan will be another opportunity to further clarify this prioritization.

Some entities that manage organic material expressed concern about other materials mixed with it, such as waxed cardboard boxes or compostable containers. Those materials were more difficult to work with. Noting this, the prior audit recommended Metro address material acceptance standards as part of defining its role in organic waste.

In the past few years, Metro implemented tighter material acceptance standards for commercial organic materials at its transfer facility that receives commercial organic waste. This could make the resulting material easier to work with and thus more desirable for processors. It could also make it easier to attract other processors to the region in the future. Conversely, tighter standards could also decrease the total amount of material recovered, if businesses do not participate.

Metro conducted research to better understand the barriers and motivations for businesses and other institutions to separate out food waste for recovery. For instance, staff reported working with the City of Portland to interview businesses throughout the region about these issues. Based on this and other analyses, staff presented the Metro Council with a set of policy questions.

The questions included options to incent or require commercial participation in different ways. Council may make decisions about these options in 2017. Those decisions will further define Metro's leadership role in those areas, and could help the program recover the target amount of material.

How to recover more material was one part of the equation. Metro determined aspects about how the material would move, and where it would be processed. For instance, it oversaw research that showed there was adequate capacity to move at least 50,000 tons of commercial food scraps around the region prior to processing each year.

Metro is also determining how to collect or aggregate food scraps once they are recovered. One option is for Metro to use more of its regulatory authority to direct recovered food scraps to a particular facility. Metro indicated using this

authority would allow it to develop an agreement with a local processor, offering the material as a form of payment. The processor could then create agricultural products or electricity to use or sell.

Metro engaged commercial firms to explore the viability of such an arrangement and determined several firms had relevant experience and interest. The Metro Council then directed staff to begin the first steps of a formal process to solicit proposals for a processing facility closer to the region.

Success in siting a processor however, could also bring new challenges or risks. For instance, depending on how an agreement with a processor is structured could create financial liability if Metro does not gather enough material. Too much material could be a risk, too. If the growth in recovery does not match the processor's ability to handle it, too much material could be overwhelming. Local governments regulate solid waste collection and collection fees. Metro will need to coordinate with local governments to ensure recovery is appropriately paced.

METHODOLOGY

Our audit objective was to determine the implementation status of our 2013 recommendations. To accomplish our objective, we interviewed staff involved with solid waste planning, research and operations. We reviewed documentation related to solid waste system planning and operational research, staff and consultant analyses, and data about the solid waste system.

This audit was included in the FY 2016-2017 audit schedule. We conducted this performance audit in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.



Metro

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Memo

Date: Feb. 9, 2017
 To: Brian Evans, Metro Auditor
 From: Martha Bennett, Chief Operating Officer *MBS*
 Scott Robinson, Deputy Chief Operating Officer *SR*
 Paul Slyman, Property and Environmental Services Director *PS*
 Matt Korot, PES Resource Conservation & Recycling Program Director *MK*
 Subject: Management response to *Organic Waste System Audit Follow-Up*

Thank you for the opportunity to respond to your recent follow-up audit on Metro's work with the regional organics waste system. We appreciated being able to meet with you and Elliot Shuford to discuss this complex system and Metro's progress towards the recommendations that you made in your 2013 audit. Overall, the audit follow-up concludes that the agency has made good progress on the recommendations and that planned decisions in 2017 should complete this progress. We concur with that assessment.

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In-Process Recommendations

Recommendation 2: Metro should assess the commercial and residential organic waste recovery programs to determine their cost-effectiveness as priority strategies for achieving statutory and environmental goals.

Response:

The basis for Metro's identification of organic waste (also referred to as *food scraps*) as a priority recovery strategy is rooted in both the benefits that recovery can provide compared to other materials and the relative opportunity to actually achieve those benefits through Metro actions. The Oregon Department of Environmental Quality (DEQ) assessed the

potential greenhouse gas reductions from recycling for different recyclable materials disposed in the state. It concluded that the largest positive impacts would derive from increased recycling of paper, food and wood. The opportunity to recycle more of these materials is arguably strongest for food scraps, as the current levels of recycling are relatively low, it is the single largest material type remaining in the waste stream, and it is the most "accessible" through standard means of collection.

We share the Auditor's views that costs are an important element of determining whether to proceed with food scraps recovery as a priority strategy. In October 2016, the Metro Council indicated its interest in proceeding with consideration of options to accelerate recovery of food scraps in the region. It asked staff to return in spring/summer 2017 with a draft mandatory separation policy for food scraps-generating businesses, an estimation of costs of participation for those businesses and options for spreading those costs more broadly. That information will inform Council's decision-making on whether to proceed.

Recommendation 3: Metro should clarify how it will meet internal goals and performance measures to ensure the departments involved in solid waste management are aligned to achieve the desired outcome of the program:

- c. Incentives and disincentives to achieve program goals
- d. Increasing processing capacity.

Response:

As noted above, Metro has made significant progress in relation to these two sub-recommendations through the Council direction last fall on a mandatory separation policy and options for spreading costs to achieve the public good of food scraps recovery. In addition, and specific to recommendation 3c, in April Metro will issue a Request for Proposals (RFP) for a food scraps processing facility to serve the region. Respondents will be drawn from those firms that Metro qualified through a Request for Qualifications process in spring of 2016.

Thank you for the useful input you provided on Metro's food scraps recovery work.