METRO

Organic Waste Program:

Re-examine cost-effectiveness and adjust efforts if needed

October 2013
A Report by the Office of the Auditor

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Knighton Award for Auditing

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The Auditor's Office was the recipient of the Gold Award for Small Shops by ALGA (Association of Local Government Auditors). The winning audit is entitled *"Metro's Natural Areas: Maintenance strategy needed.* Auditors were presented with the award at the ALGA conference in Nashville, TN , in May 2013. Knighton Award winners are selected each year by a judging panel and awards presented at the annual conference.

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METRO

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MEMORANDUM

October 30, 2013

To: Tom Hughes, Council President
Shirley Craddick, Councilor, District 1
Carlotta Collette, Councilor, District 2
Craig Dirksen, Councilor, District 3
Kathryn Harrington, Councilor, District 4
Sam Chase, Councilor, District 5
Bob Stacey, Councilor, District 6

From: Suzanne Flynn, Metro Auditor

Re: Audit of Organic Waste Program

This report covers our audit of the effectiveness of the region's organic waste program. Our objectives were to determine the program's impact on the regional recovery rate and to identify potential actions Metro might take to improve the program. This audit was included in our FY2012-13 Audit Schedule.

The organic waste system is dynamic because of constant changes in technology and the growing concern about climate change. Our audit describes a system that also grew in complexity due to the increasing number of facilities, companies and governments involved. We found that Metro's success in managing the recovery of organic waste has been mixed. In 2011, recovered organic waste contributed only 1.4% to the overall recovery rate. We think the timing is right for Metro to reassess regional priorities. We made recommendations to improve the program if Metro determines that the benefits of this program outweigh the costs.

We have discussed our findings and recommendations with Martha Bennett, COO; Scott Robinson, Deputy COO; Tim Collier, Director, Finance and Regulatory Services; Jim Desmond, Director, Sustainability Center; Paul Slyman, Director, Parks and Environmental Services; and key management in each of the departments involved. A formal follow-up to this audit will be scheduled within 2 years. We would like to acknowledge and thank the management and staff in the departments who assisted us in completing this audit.

Table of Contents

Summary

Metro creates the regional waste management plan and works with local governments to see that it is followed. The goal of the plan is to reduce the amount of waste that goes to the landfill. The state has set a goal for the region that 64% of all of the waste generated must be diverted from the landfill (recovery rate). Seeking ways to meet that goal, Metro included in its regional plan the intent to divert organic material (yard debris and food waste).

The purpose of this audit was to determine the impact of the organic waste program on the recovery rate and see what improvements could be made. We worked with the three separate Metro departments responsible for the program to develop a historical and current understanding of its operations. We also talked with facility operators and employees of local governments and the Oregon Department of Environmental Quality and toured many of the facilities involved.

While the recovery of food waste increased by over 200% from 2007 to 2011, growing from 9,500 tons to almost 30,000 tons, it had a small impact on the regional recovery rate. If no food waste had been diverted, the recovery rate would have been 1.4% lower in 2011.

Addressing long-standing challenges will be important to provide a stable foundation for the program. Metro has been largely successful in aligning local government programs with the regional plan, but the uneven pace of development has created instability. It will be important for Metro to address the ongoing challenges of:

- Improving the quality of material collected,
- Creating appropriate financial incentives to encourage participation, and
- Ensuring there is sufficient capacity to manage the material collected.

The current regional plan was based upon several assumptions that need to be re-examined. The timing is right for Metro to reassess its leadership over the regional organic waste system. Further, it should ensure that its internal organization is aligned and there is agreement on the ultimate desirable impact to the region.

Background

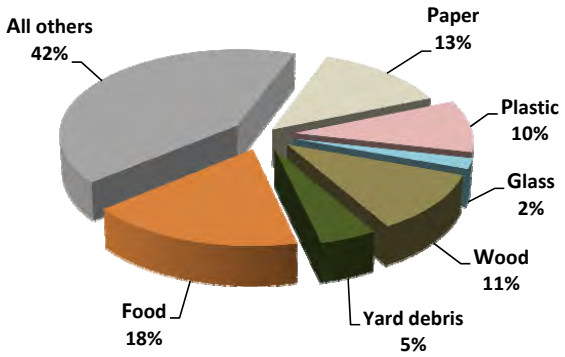
Metro is responsible for managing the disposal of solid waste in the region. One of the goals is to reduce the amount of waste going to landfills. The state has set a requirement that the region divert 64% of waste generated. The three primary methods to do this are recycling, energy generation and composting.

Metro has three roles in managing the region's solid waste:

- **System planner**: Metro creates the regional solid waste management plan (regional plan) and works with local governments to implement it.
- **System operator**: Metro owns two transfer stations, Metro Central and Metro South. These facilities process solid waste for delivery to landfills and other facilities.
- **System regulator:** Metro regulates the solid waste system by issuing licenses and franchises for participants. It also inspects facilities and collects solid waste fees and taxes.

The focus of this audit was on organic waste. This material is one of many types of waste in the system that Metro manages. Based upon a study in 2009-2010, organic material, principally food waste, was the largest single material type going to the landfill. As such, it represented an opportunity to increase the amount of waste recovered.

Exhibit 1
Region's waste sent to landfills



Source: Waste Composition Study, Department of Envrionmental Quality, 2009-2010 (most recent year data is available).

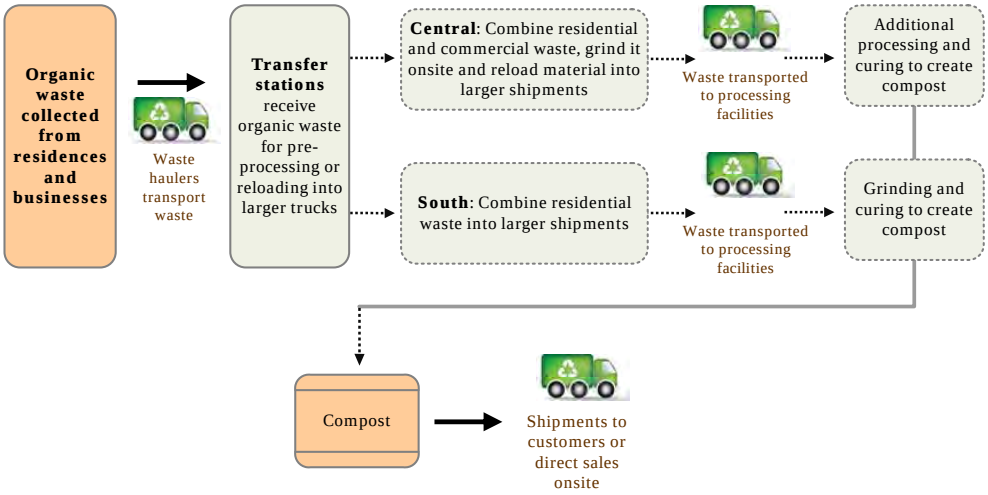
Organic material comes from two sources: commercial operations and residences. Material from commercial sources is mostly food waste. Material from residential sources is mostly yard debris, such as leaves, grass and branches, and in the City of Portland, it also contains a small amount of food waste.

Work began in the early 1990's to recover food waste when there was a concern about lack of landfill space. The belief was that by diverting food waste, the need for additional landfill space would be reduced. In addition, it was thought that the material could be used to produce compost or energy.

The regional plan contained objectives for increasing recovery of organic waste. The objective for residential material was to encourage home composting and to eventually develop a residential collection program. The objective for commercial material was to provide an alternative for businesses to dispose of food waste.

The system to recover organic material included many participants from the public and private sectors. Below is a diagram showing how organic material was collected from residences and businesses and turned into compost.

Exhibit 2
Overview of the organic waste system



Source: Metro Auditor's Office analysis

* *The diagram is simplified to show the parts of the system where Metro is directly involved. A portion of organic waste is also processed at two private facilities and some organic waste is used to generate energy rather than being made into compost.*

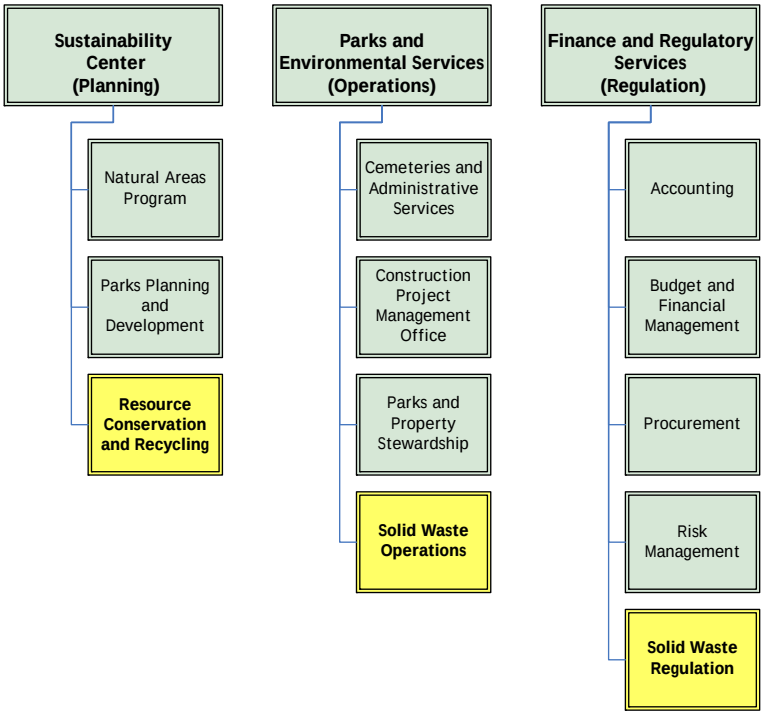
In the last 20 years, there have been several attempts to develop a regional organic waste program. Some of these efforts have included testing processing technologies and offering grants to make improvements that allow yard debris facilities to accept food waste. Each of these efforts suffered setbacks. Several processing technologies never became viable. Yard debris facilities were not willing to make upgrades to accept food waste even with financial incentives from Metro.

Nevertheless, several governments in the region have organic waste programs. The City of Portland is the only one with both a commercial and residential program. The City of Portland's commercial program is the most well developed in the region. It began in 2005 and reportedly has between 700 and 1,000 participating businesses. Other commercial programs in the region are more recent. Portland's residential program started in 2011.

As organic waste programs developed, there has been some negative public response. In Portland, the residential program led to a change in the frequency of garbage service, which resulted in a decline in public satisfaction. Controversy also arose because of the proximity of some processing facilities to residential neighborhoods. This led to changes in the type and quantity of material that some facilities were permitted to receive.

Although the organic waste program is a small component of Metro's overall solid waste management responsibilities, three different departments are involved. Regional planning is done by the Resource Conservation and Recycling Division within the Sustainability Center. The Solid Waste Operations division within Parks and Environmental Services manages the contractors who operate the two Metro-owned transfer stations that are the primary facilities in the region accepting food waste. Finally, two divisions within Finance and Regulatory Services monitor franchises and licenses, inspect regulated facilities, and collect fees and taxes.

Exhibit 3
Organizational structure



Source: Auditor's Office analysis

In FY2011-12, Metro paid contractors about $5.2 million to process organic waste at its two transfer stations. Because Metro does not track expenditures by material type, we were unable to determine the full cost of personnel, materials and services, and capital outlay spent in each department. For the FY2013-14 budget, Metro began to calculate the full cost associated with managing organic material and set rates to cover its estimated costs of almost

$6 million for processing it. This total includes the full cost of managing the material, but doesn't include budgeted expenditures for system planning and regulation. Fees on the waste sent to landfills are used to fund these parts of Metro's operations.

In 2012, Metro's transfer stations accepted about 103,000 tons of organic material. About 82% of the total was from residential sources (yard debris and food waste) and 18% was from commercial sources (food waste). Recent assessments of the material processed at the transfer stations estimated that less than 10% of organic material from residences was food waste. The remainder was yard debris. In 2012, nearly all of the organic material containing food waste passed through Metro's transfer stations.

Scope and methodology

The purpose of this audit was to assess the effectiveness of the regional organic waste system. There were two objectives for the audit:

1. Determine the impact of organic waste programs on the regional recovery rate.
2. Determine if there are actions Metro can take to address barriers to creating and sustaining a regional organic waste system to meet regional goals.

To meet our objectives, we assessed the three Metro departments that had a role in managing the region's organic waste. Although the regional plan identified seven objectives related to residential and commercial organic waste, we mainly focused on those specific to food waste recovery. For commercial organic waste, we focused on activities leading to an increase in recovery from food generating businesses, and for residential organic waste, we focused on residential curbside food and yard debris collection.

To gain a better understanding of organic waste management requirements and challenges, we reviewed state statutes and rules related to solid waste, as well as Metro code. In addition, we collected and examined regional plans, local plans, and other planning documents for organic waste. We also looked at audit reports performed by this and other offices to understand related analyses performed in the past. We reviewed reports on industry practices for managing organic waste. These reports included topics such as processing methods, community relations, program planning, and contamination.

We conducted interviews and visited sites to better understand how organic waste is planned for and processed in the region and to determine challenges that exist for participants. We interviewed employees at Metro, local governments in the region and the Department of Environmental Quality (DEQ). We also interviewed private sector owners and managers to get a better understanding of how the system works as a whole. We toured Metro's two transfer stations, a privately owned transfer station, an organic waste reloading facility, three processing facilities and two yard debris facilities.

We used data in the DEQ annual summary reports from 2007 through 2011 to determine the percentage of recovery attributable to food waste. Recovery and recycling facilities report this data to DEQ on an annual basis. We assessed the reliability of the data and found no material discrepancies. We also analyzed data Metro uses to monitor contracts and licenses and make payments to its contractors. That data allowed us to estimate how much food waste was collected as part of the City of Portland's commercial and residential programs.

This audit was included in the FY2012-13 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.

Results

Preventing waste from being discarded in the landfill has value for the region. The regional plan for solid waste management identified food waste as one of the largest opportunities to divert waste. Although the amount of food waste recovered has grown, it had minimal effect on the overall recovery rate. We found that barriers existed that reduced the effectiveness of the region's effort.

Creating a strong waste management system for organic material was challenging for Metro. While local jurisdictions had programs that line up with regional goals, the speed and strength of local program implementation varied. Metro needed to establish rates that encouraged participation both on the part of residents and businesses who create waste, and the facilities that must recover processing costs. Further, the challenge of having enough facilities to receive and process food waste was unresolved. As a result, food waste was transported longer distances than expected, potentially decreasing the environmental benefits of recovering organic waste.

The regional plan was based upon several assumptions that need to be re-examined. The timing is right for Metro to reassess its leadership over the regional organic waste system. Further, it should ensure that its internal organization is aligned and there is agreement on the ultimate desirable impact to the region.

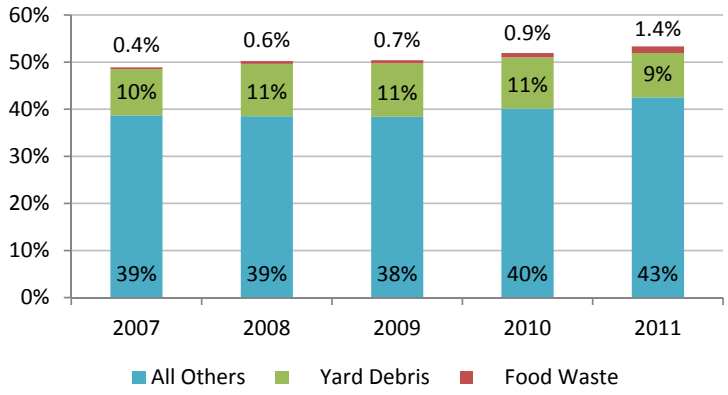
Recovering food waste has a small effect

The regional recovery rate is the primary measure of performance in the regional plan. It is measured by dividing the number of tons of waste recovered by the total number of tons of waste generated. Increasing the amount of food waste recovered was identified in 1995 as an opportunity to increase the overall rate. Although local government programs increased the amount of food waste recovered, those efforts did not result in a significant increase in the rate.

In 2011, the most recent year data was available, the Metro region achieved a recovery rate of 59.3%. Although that rate was the third highest in the state, the region had not yet achieved its statutorily-required goal of 64%. Nevertheless, the State of Oregon concluded that the region did all it could to meet the goal and did not require any corrective actions.

We collected data to estimate the contribution organic material had on the regional recovery rate. We found the food waste component of the recovered organic waste stream increased by over 200% from 2007 to 2011, growing from 9,500 tons to almost 30,000 tons. Even with this rapid growth, food waste only contributed about 1.4% to the regional recovery rate in 2011 (see Exhibit 4 on following page). In other words, if no food waste was recovered, the recovery rate would have been 1.4% lower.

Exhibit 4
Contribution to regional recovery rate



Source: Metro Auditor's Office analysis of DEQ data.

Based on Metro data from 2012, about 8,500 additional tons of food waste was collected through the City of Portland's residential program. However, preliminary data from a survey of waste haulers indicated that total food waste recovery from residential and commercial sources was largely unchanged from 2011 to 2012. About 30,000 tons were recovered in both years. This was likely caused by residential food waste displacing commercial in 2012 because of a lack of capacity to process it.

In addition to the small impact, allowing food waste to be combined with yard debris may have had unintentional negative environmental impacts. Combining those materials reduced the number of facilities near the region that could process it. As a result, some material had to be transported longer distances. Transporting organic material long distances can reduce some of the environmental benefits of recovering it due to increased greenhouse gas emissions.

Programs have evolved but challenges remain

When organic waste programs started, it was reasonable to expect that they would develop unevenly. Metro's initial work included conducting research, developing pilot projects and testing methods to manage the material. In 2005, local governments began to implement food waste programs. These efforts increased the amount of material collected but also showed that challenges remained in creating a strong region-wide program.

Addressing long-standing challenges will be important to provide a stable foundation for the program. Metro has been largely successful in aligning local government programs with the regional plan, but the uneven pace of development has created instability. To stabilize the system, it will be important for Metro to address the ongoing challenges of:

- Improving the quality of material collected,
- Creating appropriate financial incentives to encourage participation, and
- Ensuring there is sufficient capacity to manage the material collected.

Additional organic material recovery may not be cost-effective at this time. Metro and the region have nearly achieved the high growth food waste recovery scenario in the regional plan. This represents an increase in the amount of organic material recovered and it was achieved within the first five years of the 10-year regional plan. Further, due to changes in markets, other materials may need to take priority in order to preserve progress in areas that have a larger impact, such as plastics and wood waste.

Regional and local government plans align but implementation uneven

Plans and status updates from the last five years demonstrated that local governments consistently took actions related to organic waste recovery. However, local governments have autonomy over how they implement programs. This resulted in varying levels of program maturity. For example, at the time of our review, one local government had a commercial program and a residential collection program in place. Four local governments were preparing for or had already started commercial collection programs. Two of the region's local governments we spoke with did not plan to implement a commercial program.

Although it is by design that local governments have flexibility, Metro is ultimately responsible for disposal of the region's solid waste. If Metro determines certain activities are more or less successful at achieving the region's goals, requiring local governments to increase or decrease those activities may be difficult. Further, what works on a local scale may have negative effects on the regional system as a whole. When one local government moved ahead on its residential program, other local governments delayed implementing or expanding their commercial programs because of a lack of capacity and a concern about negative public perception. Since commercial programs were expected to result in higher food waste recovery, these delays made the system less effective in reaching regional goals.

System-wide commitment to standards needed

The effectiveness of organic waste recovery programs depends upon the quality of the material collected. While Metro does not directly govern what is collected, it can encourage regionally agreed-upon standards for what will be accepted.

When standards are not followed, items that are not compostable or take too long to break down get mixed in with organic materials. This reduces efficiency and effectiveness. Contaminated material can increase work time needed to sort it out and decrease the value and demand for the final product.

In 2004, Metro identified the need of setting material acceptance standards and ensuring compliance with those standards. Metro planned for a system where processing facility operators set the standards and haulers ensured compliance. When the first commercial program began, there was only one

processing facility involved and it had its own set of standards. As programs expand and new facilities become part of the system, regionally agreed upon standards will become more important.

More recently, Metro wanted to develop standards for treatment of compostable serviceware, such as cups, food containers and eating utensils. It convened stakeholders in May 2013 to try to develop standards for what serviceware would be accepted for composting but the group did not reach a consensus on how to proceed. Metro plans to use information from the meeting to determine next steps in moving forward with new regional standards.

Metro also supported state legislation that would have improved labeling of compostable materials. The legislation did not pass, but even if it had, it might not have provided a complete solution. This is because it would not have accounted for those materials that may compost but do so at slower speeds than other organic material.

Incentives to encourage participation must be balanced with financial stability

Local jurisdictions set the rates charged by haulers to pick up waste from residents and businesses. Metro set the rates that haulers pay to process the material at its transfer stations. Setting rates to create incentives for recovering organic material was complex. On the one hand, Metro wanted to increase recovery so rates had to be low enough for residents, businesses and haulers to be willing to supply organic material. On the other hand, it was costly to manage organic material and the rates charged to participants needed to be sufficient to cover operating expenses. As more organic material was collected, it became more difficult to determine the appropriate amount of incentive.

Until recently, the rates for waste going to the landfill subsidized some of the costs of processing organic material. Over the last three years Metro gradually changed its rates to match the full cost of processing each type of material. As of September 2013, the per ton charge for recovering both commercial and residential organic waste was nearly the same as the disposal charge for material sent to the landfill. Because organic waste is exempt from the fees and taxes that are applied to the waste sent to landfills some incentive still remains. However, the incentive to divert organic material has decreased.

Changing the rate structure also had benefits. It increased transparency about the incentives built into the system. It also clarified potential costs and benefits for participants in the system. While Metro does not formally set rates for private facilities, the rates it sets at the transfer stations it owns function as the benchmark rate for private sector transfer stations in the region.

Although Metro put in place some financial incentives, their effectiveness may have been outweighed by market conditions. Environmental regulations require facilities that reload, transfer and process food waste to have odor

containment, ground water protection systems and nuisance mitigation, which require additional investment. Further, technologies were not yet developed to provide a reliable alternative to composting.

Establishing appropriate incentives was also difficult because of the growth and complexity of the system. Prior to 2010, there were only a few haulers, one transfer station and one compost facility in the organic waste system. Today, there are many haulers, three transfer stations and at least six compost facilities involved. Additionally, some companies operate more than one type of business in the system. For example, a company that operates a transfer station may also own a waste hauling company and a facility that processes compost. This makes it more difficult to understand the true cost of operating the system. Some participants may be receiving more benefits than others depending on how many different types of businesses they have.

More information is needed about the costs and benefits of participating in the system to determine what incentives are appropriate. Providing incentives is not without risk. For example, increasing rates to motivate private sector participation may reduce material supply as waste generators find alternatives, such as home composting or using garbage disposals to dispose of food waste. Conversely, if the value of the final product increases, the need for subsidies may be reduced.

Capacity to receive and process organic waste is an ongoing challenge

Metro has been concerned about a lack of facilities to process food waste since the early 1990s. Additional facilities were created near the region, but there may be a shortage for some material types. As an example, during our audit, commercial organic material was hauled 260 miles to a facility in Eastern Washington. There were several factors that contributed to this condition.

A complex and sometimes uncertain regulatory environment in Oregon was one of the major challenges to siting facilities within close proximity to the region. As with other parts of the system, there were several entities involved in regulating facilities that process organic material (Exhibit 5 on following page). A formal structure to integrate these regulations was not in place, which created uncertainty for operators.

Exhibit 5
Regulatory entities and roles

Entity	Regulatory Role
Metro	• Issue licenses to companies that transport food waste generated in the region. • Issue licenses and franchises to facilities inside the region that manage organic material. • Inspect facilities that have a Metro license or franchise.
Oregon DEQ	• Create environmental regulations to mitigate possible environmental and human health impacts of processing facilities. • Issue solid waste permits to compost facilities. • Inspect facilities for compliance with regulations.
Local governments	• Set service standards for organic material collection. • Issue land use permits for processing facilities. • Determine if infrastructure changes are required to mitigate impacts of operations.

Source: Metro Auditor's Office review

Several other factors also contributed. Even when facilities obtained all regulatory approvals, programmatic changes could impact what material a facility was authorized to accept. For example, when the City of Portland's residential program began adding food waste to yard debris, it changed which facilities could accept it. Also, because of competition, rival firms may be unwilling to work together, so excess capacity under one company's control may not be used by others. Finally, emerging technologies for managing organic waste can create changes to the system.

Prior to the system expanding in 2011, Metro had information about potential capacity shortages and missed an opportunity to respond. Data from pilot projects showed that assumptions about the amount of yard debris that would be collected as part of the residential program were inaccurate. As a result, estimates about how much organic material would be collected were too low.

Metro missed another opportunity when there was not enough preparation at one of the processing facilities. Anticipated improvements at one facility in Washington County were incomplete at the time a new program started, and the facility was unprepared for the amount of material it received. As it struggled, Washington County placed a cap on the amount and type of material the facility could accept. This caused further disruption in the system, while Metro tried to find alternative facilities and avoid having the material sent to the landfill.

Metro knew from past experience that open air facilities near residential areas can lead to odor problems and could have better prepared the system for the amount of additional material. Further, it could have ensured the facility was physically prepared for the material.

Capacity challenges were not limited to processing facilities. Operations at Metro's two transfer stations had to be altered to provide enough capacity to accommodate organic material. Metro South changed its dry waste recovery work to night shift to accommodate daytime processing of food waste. Metro Central had to reconfigure two bays and redesign a wood waste grinder for use in pre-processing organic material. During our audit, Metro's transfer stations were near capacity for organic material. As a result, additional growth in organic waste programs may require private sector transfer stations to be more involved.

Clearer goals and performance measures needed

In addition to external challenges, Metro had an internal challenge to manage its three roles as a planner, facility operator and regulator in the system. Each role had different priorities. Without integrated performance measures, Metro could not evaluate the overall success of its program.

Management literature shows that complex systems need clear goals and integrated performance measures to assess the efficiency and effectiveness of each individual component toward the final outcome. Performance measures to assess the regional plan and its component programs have not been fully developed. The regional recovery rate is the plan's primary performance measure, but there is not a direct relationship between the activities in the plan and actual performance. 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.

Other performance measures to assess each of Metro's roles showed that there were additional goals besides the recovery rate that each was expected to achieve. Measures for the planning group included the regional recovery rate, but also the amount of waste generated per capita and the amount of greenhouse gas emissions reduced. Measures for the operations group included the material recovery rate at each of the transfer stations. The cost per ton of recovering recyclable material at the transfer stations was also used to assess performance, but did not include organic material. Finally, measures for the regulatory group included many output measures, such as the number of facility inspections.

All of these measures have value, but they were not aligned to help decision makers understand how each role related to Metro's overarching goal. For example, setting standards for the type of material that can be accepted could improve the efficiency and effectiveness of operations at the transfer stations. However, those standards could reduce the overall amount of material recovered. In the absence of well-developed performance measures, it was difficult for Metro to determine the effectiveness of its collective efforts.

The challenges identified in this report demonstrate the dynamic nature of the organic waste system. As such, it is important to periodically reassess goals, strategies and performance measures for material recovery. It may be that the recovery rate is no longer an accurate measure of the regional plan. Regardless of the goal, there should be a process in place to assess outcomes to improve efficiency and effectiveness.

Timing right to reassess direction

Metro and the region are at a crossroads. The regional plan was based upon several assumptions that need to be re-examined. Until recently, priority was placed on developing commercial food waste programs throughout the region. Planners also anticipated that processing facilities would be located within or near the region. Each of these assumptions may no longer be valid.

The technology and knowledge about what is best for the environment have progressed. As a result, emphasis on the previous measure of success, the recovery rate, may be reduced. The Oregon Department Environmental Quality (DEQ) created a 2050 Solid Waste Plan that could change the strategy for managing solid waste in the region. DEQ's focus is increasingly on waste prevention, which will likely change the relative priority and management strategies for certain material types. Beyond recovering waste, DEQ is looking at other performance measures, such as energy savings or greenhouse gas emission reductions, that could be achieved from focusing on certain materials. For example, plastics present an opportunity to save energy, and paper and food waste present opportunities to reduce greenhouse gas emissions when specifically managed for those purposes.

We found that Metro's success in managing organic waste was mixed. Metro made continual attempts to address long-standing issues, such as capacity and incentives to encourage participation in organic waste programs. To address these challenges, it implemented plans, convened stakeholders, conducted research and offered grants. These strategies helped the region increase recovery, but have not been sufficient to stabilize the system. There remains a risk that factors outside Metro's full control may impact the success of the program. To address any state-mandated changes in direction and improve the effectiveness of the regional system, Metro may have to increase its oversight of local jurisdictions and private service providers.

Metro has opportunities to make changes in the structure of the regional solid waste system in the coming years. The current regional plan expires in 2018 and Metro's major contracts, such as the landfill and transfer stations, expire between 2017 and 2019. It is in the process of assessing its role and goals for the system to inform any potential changes. It should use the resulting analysis to reassess the role and strategies it wants to use to manage the organic waste system.

Recommendations

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.

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.

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's goals. The definition should address such things as:

    a. Incentives and disincentives to achieve program goals;

    b. Quality standards for incoming organic material;

    c. Increasing processing capacity; and

    d. The comparative priority between residential and commercial food waste recovery.

Management response

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Metro | *Making a great place*

Date: October 25, 2013

To: Suzanne Flynn, Metro Auditor

From: Martha Bennett, Chief Operating Officer
Scott Robinson, Deputy Chief Operating Officer
Jim Desmond, Sustainability Center Director
Paul Slyman, Parks & Environmental Services Director
Tim Collier, Finance & Regulatory Services Director

Subject: Management response to regional organic waste system audit

Thank you for the opportunity to respond to your recent audit on Metro's role in the regional organics waste system. We appreciate the time and effort expended by you and your staff. Your report captures much of the complexity of this system and makes useful findings and recommendations that can help us to continue to refine and improve our work. Establishing effective and stable food waste collection and recovery programs is challenging for the region, the state and across North America. In general, the report calls for Metro to undertake thoughtful analysis, informed by past performance, to determine how it should move forward with organics recovery efforts. We completely agree and that work is underway.

A more detailed statement regarding management's response to the individual recommendations made by the auditor's office in the report's *Results* and *Recommendations* sections, as well as summaries of activities currently underway relative to the audit findings, are provided below.

Results

1. Recovering food waste has a small effect

Response:

We agree with your finding that the food waste program has had a small effect, to date, relative to the overall size of the region's waste stream. It is important to note, however, that the rationale for food waste recovery being a priority area within the Regional Solid Waste Management Plan approved by the Oregon Department of Environmental Quality (DEQ) is the significant amount of this material *available* for recovery within the waste stream. The most recent waste characterization data from DEQ indicate that approximately 25% of the region's disposed commercial waste is food and 30% of the disposed residential waste is food.

These percentages are far above those for any other materials in the waste stream. Food thus represents one of the best opportunities to recover the additional material necessary for the region to reach its statutory recovery target. Recovery of food through composting or anaerobic digestion also provides substantial environmental benefits, particularly from the avoided greenhouse gas emissions achieved by not sending this material to landfills.

Please see the response to Recommendation 2 below for how these observations will be integrated into future program work.

2. Programs have evolved, but challenges remain

Response:

The report rightly notes that Metro and its regional partners would need to address long-standing challenges if successful food waste recovery is to be achieved and long-lasting. The challenges noted include those listed below.

A. Improving the quality of material collected

We completely agree with the need to improve the quality of material collected. Higher quality material corresponds with more processing facilities interested in accepting Metro-region material, lower costs of processing and higher quality end-products. While a recent statistically valid analysis of the commercial food waste collected at Metro Central showed that the contamination rate was less than 5%, we believe that weight-based calculation understates the impact of lightweight plastics on material quality.

Current actions to address material quality include inspections and rejections of highly contaminated loads at Metro Central, renewed customer education efforts by the City of Portland, and a strong emphasis on material quality in the recruitment and technical assistance efforts of new and developing collection programs in Gresham, Beaverton, south Washington County and Clackamas County. In addition, Metro staff has been working with stakeholders and conducting research to help inform whether current standards for the acceptance of non-food items, such as compostable serviceware, should be revised.

B. Creating appropriate financial incentives to encourage participation

Financial incentives can come into play at multiple points in the system: to incentivize composting and anaerobic digestion facilities to enter the market to handle Metro region material; as direct differentials in the cost of tipping food waste as a recoverable material versus as garbage at transfer stations; and as discounting on solid waste collection rates set by local governments to entice businesses or residents to participate in food waste recovery programs.

As you note, financial incentives offered in the past by Metro (and the City of Portland) to attract new facility development had little impact. These were offered to yard debris or agricultural waste composting facilities as grants to make the capital improvements necessary to be able to take food waste. Metro management plans on reevaluating the future potential of direct financial incentives to facilities as part of the Solid Waste Roadmap work.

Financial incentives in Metro tip fees appear to be adequate at this time. Current tip fees (rounded) are $94 for garbage, $56 for residential organics and $60 for commercial organics. The differential is primarily due to the waiver of the Regional System Fee, Metro Excise Tax and DEQ fees, as is done with all source-separated recyclable material. The adequacy of the tip fee incentive will have to be assessed in the future, however, if Metro continues to have small increases in disposal fees, contracted costs for organics processing increase, and disposal costs do not account for environmental externalities such as greenhouse gas emissions.

C. Ensuring there is sufficient capacity to manage the material collected.
As we entered 2011, it appeared that the region had turned a significant corner in terms of food waste processing capacity. The opening of Pacific Region Compost and Nature's Needs, and their interest in sourcing food waste from the Metro region, represented what appeared to be adequate capacity for some years to come. In addition, Columbia Biogas had been franchised by Metro to process commercial food waste once constructed, which would represent a significant expansion in available capacity.

This scenario began to change in late 2011, when Nature's Needs experienced significant odor issues that ultimately led to Washington County shutting off its ability to accept commercial food waste and reducing the level of allowable tonnage. In addition, Columbia Biogas has yet to be constructed and Pacific Region Compost has experienced operational problems, as documented recently by DEQ. On the positive side, new capacity has come online at the JC-Biomethane anaerobic digester in Junction City and capacity remains at facilities located in Washington, although their distance from the Portland region is not ideal.

Given these circumstances, Metro has begun work to assess short-term and long-term capacity needs and identify options for addressing these needs. The Metro Council can expect to be engaged in this work in 2014.

D. Regional and local government plans align, but implementation uneven.
The auditor notes that local governments have autonomy over how they implement programs and that resulted in varying levels of program maturity. While that is by design and, for the most part, has been helpful over time in allowing the region to scale collection to capacity, the approach may have broken down with the implementation of Portland's residential program. The unexpectedly large volume of material contributed to the problems experienced by Nature's Needs that ultimately led the Washington County Board of Commissioners to prohibit the processing of commercial food waste at that facility. In practice, this change at Nature's Needs had minimal effect on the pace at which Gresham, Beaverton and other suburban communities have ramped up their programs, but it is certainly something they have had to consider. Metro has worked closely with these jurisdictions over the past five years to help them calibrate program development and implementation to broader system conditions.

E. Capacity to receive and process organic waste is an ongoing challenge.
As noted above, as we entered 2011 it appeared to Metro management that there was adequate capacity near to the region to handle current generation and planned increases associated with the growth of voluntary commercial sector programs in suburban communities and Portland's mandatory commercial efforts. That conclusion turned out to be mistaken due to the limitations imposed on Nature's Needs. You are right in noting that capacity remains a dynamic issue. There is new capacity at JC-Biomethane, but uncertainties remain regarding the long-term capacity of that facility and Pacific Region Compost to take Metro-area material.

F. Clear goals and performance measures needed.
The report finds that Metro had an internal challenge in managing its three roles as a planner, facility operator and regulator in the system, and that the lack of integrated performance measures left it unable to evaluate the overall success of its program. Management commits to looking at this more closely, but does not see evidence that the

challenge of having three roles (which extends to other materials besides organics) or different performance measures across these roles had an impact on the direction and outcomes of the organics program to date. We attribute this to the effort made by management and staff to closely coordinate and align efforts across department lines.

Recommendations

Recommendation 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.

Response:

Management recognizes that the absence of a document that clearly demonstrates that integrated and coordinated nature of the organics system work can leave the impression that goals and performances measures are not aligned. Such a document can be an effective touch point, tool and communications mechanism for keeping our work on track and ensuring missions are aligned for organics work. We will produce this document and share it with you.

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:

Management will continue, and strive to improve, its efforts to analyze the overall cost-effectiveness (direct cost and environmental costs) of organics waste recovery programs as priority strategies for meeting statutory recovery goals and reducing the environmental impact associated with end-of-life management of food waste. Some of this work will be done through the Metro Solid Waste Roadmap effort, which includes a project to look at costs, feasibility and impacts of different options for expanding food waste processing capacity to serve the region. Other work will take place in the context of the next procurement process for organics management services at the Metro transfer stations and through local government rate-setting for food waste collection programs.

Recommendation 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's goals. The definition should address such things as:

a. Incentives and disincentives to achieve program goals
b. Quality standards for incoming organic material
c. Increasing processing capacity
d. The comparative priority between residential and commercial food waste recovery.

Response:

Management strongly agrees with this recommendation. System incentives and disincentives to date have been focused on the differential tip fees at Metro facilities, the Portland commercial composting requirement, local government rate incentives and, in Portland's case, residential service level incentives. There is opportunity to explore others.

Management agrees with the need to continue to focus on the quality of the incoming material. Composting and anaerobic digestion are more akin to recycling than they are to disposal options. That is to say, they are manufacturing processes that focus on creating high quality end-products with value in the marketplace. As a result, they require high quality feedstock if they are to produce these products at a reasonable cost. To do this, local governments and haulers need to focus on education and assistance to generators, and Metro, private transfer stations, composters and anaerobic digesters need to enforce load quality standards at their facilities. In addition, Metro needs to consider whether revising current acceptance standards to limit some non-food waste items, such as compostable serviceware, could make the food waste program more sustainable without putting undue burden on users of these items.

As noted above, through the Solid Waste Roadmap, management will be identifying the level of need and options for increasing processing capacity. It will engage external stakeholders and the Metro Council in this work in 2014. This work will necessarily include an evaluation of the relative priority of residential and commercial food waste recovery.

We appreciate the efforts of you and your staff in conducting this audit and the useful insight it provides in how we can continue to improve the region's food waste recovery efforts.

5

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