



# Multifamily Recycling Report 2017

Findings and options to improve recycling at apartments  
and condos in the greater Portland area

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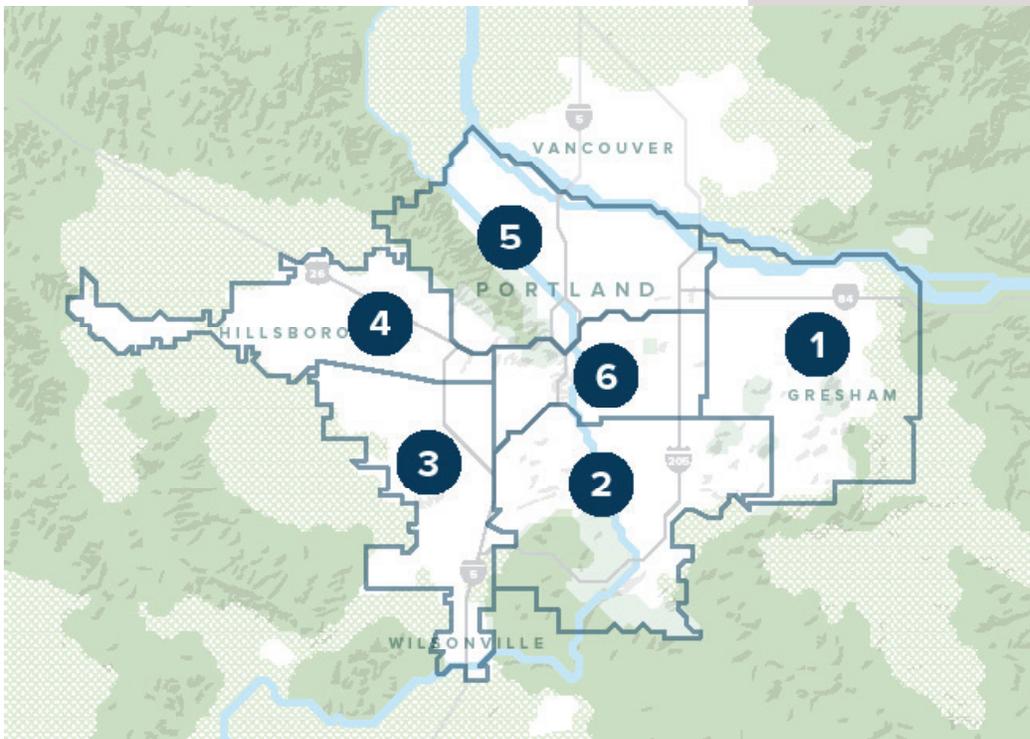
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# Executive summary

June 2017

*The Multifamily Recycling Project was a collaborative venture between Metro, the cities of Beaverton, Gresham and Portland, and Clackamas and Washington counties.*



## Project background and goals

The Multifamily Recycling Project was a collaborative project between Metro, the cities of Beaverton, Gresham and Portland, and Clackamas and Washington counties.

The project focused on gathering and analyzing a range of data about garbage and recycling in apartment and condominium buildings with five or more units, called “multifamily,” across greater Portland.

The purpose of the project was to define what opportunities for improvement exist in multifamily garbage and recycling collection related to policy, infrastructure, and education. Project goals included:

- ensuring access across the region to recycling services for people living in multifamily households,
- increasing the amount of materials recycled by multifamily households,
- ensuring the recyclable materials collected are high quality and therefore have value in recycling markets.

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## Project data sources

Multifamily service level data	The service volumes of over 4,000 multifamily garbage and recycling accounts were analyzed to determine the number and percent of sites with access to mixed recycling and glass recycling service. Median service volumes for garbage, mixed recycling, and glass recycling streams were calculated.
Multifamily program interviews	20 local governments were interviewed to identify successful multifamily garbage and recycling collection program characteristics.
Multifamily waste characterization study	The first regional, multifamily-specific waste characterization study to include measures on recyclables remaining in the garbage, contaminants in the recycling bin*, per household generation, and total generation.
Multifamily resident community interviews	Through culturally-competent contractors 54 low-income multifamily residents, and multifamily residents of color, were engaged to describe their experiences with garbage and recycling services.

\*In this report the word “bins” is used to refer to all equipment used to collect garbage, mixed recycling, and glass recycling at multifamily sites.

## Project findings

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1. There is inadequate access to mixed recycling and glass recycling service at many multifamily sites. Capacity, or volume, of available garbage, mixed recycling, and glass recycling service is inconsistent from site to site. Less than weekly service of glass recycling or mixed recycling is problematic.
  2. The current collection equipment is inconsistent and confusing to those who use it.
  3. Contamination in the mixed recycling stream is high.
  4. Bulky waste is inadequately managed.
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## Project options

### *Options that could be implemented with no policy changes*

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- A. Local Governments: Assist sites that lack mixed recycling or glass recycling collection to bring the missing material collection services to the site.
  - B. Metro: Provide reporting and data analysis to track changes in service resulting from local government assistance.
  - C. Project Team: Complete options for required weekly, per unit, service volume minimum standards for garbage, mixed recycling and glass recycling material streams.
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### *Options to be considered in development of the Regional Waste Plan*

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- D. Require per unit, service volume minimum standards (gallons/unit/week) for garbage, mixed recycling, and glass recycling material streams.
  - E. Require weekly mixed recycling and glass recycling service.
  - F. Set standard for bin colors.
  - G. Require use of standardized signage at all multifamily sites in the region.
  - H. Require regular bulky waste service.
  - I. Develop garbage and recycling collection area model ordinance or design guidelines for new construction and significant remodel of multifamily sites.
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# Introduction

The Multifamily Recycling Project was a collaborative venture between Metro, the cities of Beaverton, Gresham and Portland, and Clackamas and Washington counties.

Metro's mid-term review of the 2008-2018 Regional Solid Waste Management Plan found, "While there has been relatively consistent implementation of education programs targeted at this sector [multifamily], there continues to be inconsistency in the provision of collection services, as indicated by inequitable access to convenient recycling containers." This finding prompted Metro and the local governments to convene a project team to look at challenges in, and opportunities to improve, multifamily garbage and recycling collection.

This project focused on gathering and analyzing a range of data about garbage and recycling collection in apartment and condominium buildings with five or more units, referred to as "multifamily," across greater Portland. Greater Portland, often referred to in the report as "the region," includes 24 cities and three counties – Clackamas, Multnomah, and Washington.

The purpose of the project was to define what opportunities for improvement exist in multifamily garbage and recycling collection related to policy, infrastructure, and education. Project goals included:

- ensuring access across the region to recycling services for people living in multifamily households,
- increasing the amount of materials recycled by multifamily households,
- ensuring the recyclable materials collected are high quality and therefore have value in recycling markets.

This report provides:

- Project context and scope
- Key findings
- Options for potential improvements
- Implementation considerations
- Appendices with all data

## Multifamily

Apartment and condominium buildings with five or more units; may also include retirement communities and mobile home parks. This report focuses on multifamily sites with shared garbage and recycling collection service.

Definitions of terms used in this report can be found in the glossary, Appendix G.

# PROJECT CONTEXT AND SCOPE

There is no one way to characterize apartment and condominium buildings, collectively known as “multifamily housing.” Building types differ widely, from high-rise buildings to small individually-owned properties to large 500+ unit properties owned by national companies. This leads to numerous differences in the way garbage and recycling is collected. From garbage chutes to recycling rooms to variations on basement and outdoor collection areas, multiple configurations are possible and present in the system.

According to the 2013 American Community Survey, 23 percent of greater Portland households live in multifamily housing. These households vary across ethnicity, income, and education demographics. Metro’s Urban Growth Report projects that 60 percent of the next 200,000 households added within the Urban Growth Boundary will be multifamily.

Prior to this project, there was no clear agreement between Metro and local governments regarding the biggest challenges in the multifamily garbage and recycling collection system or the most likely opportunities to make improvements. In addition, there was no current regional data available on:

- the number of multifamily households with access to mixed recycling and glass service,
- the per household volume of the garbage, mixed recycling, and glass recycling service available to people living in multifamily households,
- how people living in multifamily households experience the collection system available to them,
- the amount of garbage, mixed recycling, and glass recycling materials generated by people in multifamily households,
- the amount of materials recycled,
- the amount of non-acceptable materials (known as “contaminants”) in the mixed recycling bin.

The project team identified and vetted four data sources to better understand the current multifamily garbage and recycling collection system and inform potential areas for improvement:

- Multifamily service level data
- Multifamily program interviews
- Multifamily waste characterization study
- Multifamily resident community interviews

Each data source is included as an appendix with results.

Additional data sources such as personal interviews, published articles, and previous studies that informed the project are included in the bibliography.

# PROJECT FINDINGS

The project team was able to create an agreed-upon regional body of knowledge and data on which to base future policy. Baseline measurements for each of the project's three goals were established, enabling future improvements to be relevantly tracked. The following findings are summarized from the research completed by the project team.

## Finding 1

**There is inadequate access to mixed recycling and glass recycling service at many multifamily sites. Capacity, or volume, of available garbage, mixed recycling, and glass recycling service is inconsistent from site to site. Less than weekly service of mixed recycling or glass recycling is problematic.**



### Insufficient service

“Sometimes the garbage area, the garbage can is overflowing or there’s a lot of garbage everywhere.”

*1:1 Interview with Amber  
from Trash for Peace  
December 2016*



### Insufficient Bin Space

“It is more difficult to recycle, because it fills up quickly. Not much fits in the recycling and we have to put it together with the trash.”

*1:1 interview with Paulina  
from Trash for Peace  
December 2016*

Access to mixed recycling and glass recycling service is inadequate at multifamily properties throughout the region. Regional and local codes require all apartment and condominium households have access to mixed recycling and glass recycling service.

Analysis of service level data for reported sites, which represents 72 percent of apartment and condominiums in the region, showed that:

- Eight percent of properties (five percent of households) do not have access to mixed recycling service, and
- 28 percent of properties (25 percent of households) do not have access to glass recycling service.

More than 4,000 apartment and condominium building garbage and recycling accounts were analyzed to identify median per household, per week service levels for each collected stream. This information was then used to calculate the median household volume of garbage, mixed recycling, and glass recycling service, and the ratio of mixed recycling volume compared to garbage service volume.

The service level data provided a baseline measurement for the project goal of ensuring access to garbage, mixed recycling, and glass recycling services for multifamily households.

Single-family households have more available weekly mixed recycling and glass recycling service volumes than the median weekly multifamily mixed recycling and glass recycling volumes. Figure 1 shows the volume ranges for the six most commonly subscribed single-family service volumes, as well as the median multifamily volumes.

*Figure 1  
Service volumes and ratio comparison for multifamily and single-family households normalized to gallons/household/week*

<b>Waste stream</b>	<b>Multifamily</b>	<b>Single-family</b>
Garbage	40	17.5-60
Mixed recycling	17	35-90
Glass recycling	3	3.4-14
Service ratio mixed recycling volume:garbage volume	40%	75%-340%

An insufficient volume of garbage and mixed recycling service was also repeatedly identified by members of multifamily households through discussion groups and one-on-one interviews.

Less than weekly glass recycling service presents health and safety issues for people living in multifamily households. Bins can overflow and garbage and mixed recyclable materials litter collection areas. When a large quantity of glass collects outside of the bin water can be trapped for prolonged periods of time and broken glass presents a safety issue to children and adults accessing the area. The following picture of a waste characterization study site with less than weekly glass service illustrates the problem.



## Finding 2

**The current collection equipment is inconsistent and confusing to those who use it.**



### Confusing bin colors

“Color coordinate everything – all recycling related bins and materials in one color; all trash related materials in another color.”

*Trash for Peace Community Discussion*  
December 2016

### Bins

In this report the word “bins” is used to refer to all equipment used to collect garbage, mixed recycling, and glass recycling at multifamily sites.

Regionally collection equipment, called bins (all bins, carts, containers, drop boxes, compactors), vary widely in color. From city to city and county to county, no bin color consistently denotes the material collected. Bins of all colors are used to collect all material streams.

As seen in the following pictures, there is so much variation that bin color is meaningless to people living in multifamily households and can be counterproductive in determining which bin contains which material.



Signage, such as stickers and posters, may be posted on or near bins. There is a lack of consistency throughout the region in regards to these key identifiers. Occasionally signage from three eras, a 30-year period, may be found on a single bin or in a single enclosure on a property. Recycling bins often have an overabundance of decals and signage, while garbage bins often lack any signage to denote what goes in the bin and what stays out.



Signage and bin color can vary on a single property from enclosure to enclosure and even within the same enclosure, as over time bins are moved and replaced.

Apartment residents typically have a high mobility rate, meaning they move more often and are more likely to encounter multiple garbage and recycling collection areas. A 2016 survey done by the

National Apartment Association reports a turnover rate of 53 percent for market rate apartments. Put another way, 53 percent of people in rental apartment homes are “new” residents at that site every year. This includes people moving from site to site within the greater Portland area.

The high rate of turnover makes a simple, intuitive, easy-to-learn, and consistent system for collecting garbage and recyclables extremely important.

**Finding 3**  
**Contamination in the mixed recycling stream is high.**



Items found in the mixed recycling that are not recyclable at the curb are known as “contaminants.” A description of mixed recyclable materials acceptable at the curb can be found in the glossary under “standard recyclable materials.”

A multifamily waste characterization study was conducted from July 2016 through February of 2017. Figure 2 shows the results of the composition measures. Results for both measures are presented as percent of material category by weight. A full description of material categories can be found in Appendix C.

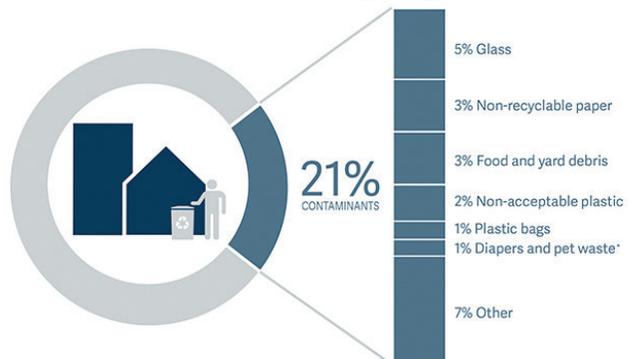
**Contaminants**  
 Items found in the mixed recycling bin that are not recyclable curbside.

Figure 2

Recyclables in the garbage bin



Contaminants in the recycling bin



\* Numbers do not sum to the total due to rounding

The Multifamily Waste Characterization Study found that:

- 15 percent of the garbage stream, by weight, was made up of curbside acceptable mixed recyclable materials, and
- 21 percent of mixed recycling stream, by weight, was contaminants.

The waste characterization study is an accurate measure of the current garbage and mixed recycling collection system performance at this specific point in time. Inferences can be made on how the system performed; however, no correlations or causations of system conditions can be made from this study.

As a point of comparison, results of a single-family study using the same methodology, completed by Metro in 2015 are below. Figure 3 shows the comparison.

Figure 3  
Multifamily vs single-family percent by weight

	<b>Multifamily</b>	<b>Single-family</b>
Recyclable materials found in the garbage	15%	14%
Contaminants found in the mixed recycling	21%	9%

There is significant room to improve multifamily garbage and mixed recycling collection system performance with regard to contamination in the mixed recycling stream.

**Finding 4**  
**Bulky waste is inadequately managed.**



**Bulky waste disposal / Mattress**

“It is hanging out at my place. – Can’t take it outside. I’ve asked the manager, but she says, no, you can’t. What am I supposed to do? “Take it to the recyclers”. I’ve asked four recycling companies – they wouldn’t take it. So I come back to the manager: “What am I supposed to do?”, And she: “Cut it up”. So I had to cut up a perfectly good mattress. Cut it up in pieces and -- a little piece, every day!”

*IRCO Community Discussion*  
December 2016



The term “bulky waste” includes furniture such as sofas, chairs, dressers, console televisions, mattresses, appliances, and larger size pieces of carpet and carpet pad.

Bulky waste has long been, and currently is, inadequately addressed within the multifamily garbage and recycling collection system. Under current service provisions, bulky waste is an “on call” service at the property manager’s request, with a separate, additional charge for service.

Bulky waste can create unsafe and unhealthy situations in garbage and recycling areas. It negatively contributes to people’s experience and perception of their garbage and recycling service.

In discussion groups and interviews, low-income people and people of color living in multifamily households raised concerns about bulky waste as a danger due to risk of injury. One person stated a concern around bulky waste falling on a child. People noted that when bulky waste (such as chairs and sofas) is present in garbage and recycling areas, this can encourage loitering. This occurrence was magnified when the area is located near the property’s designated smoking area.

The area is often screened or secluded and can become a hot spot for drug use and result in drug paraphernalia being left behind for children to find when taking out the garbage or recycling.

The waste characterization work consistently noted bulky waste present in garbage and recycling areas, sometimes blocking access to bins. During the study property managers at randomly selected sample sites were asked how they handle bulky waste. The results show an inconsistent approach to this material stream.

Figure 4 reveals that of the 92 property managers interviewed for the waste characterization study, 57 percent used their collection company to handle bulky waste at their site.

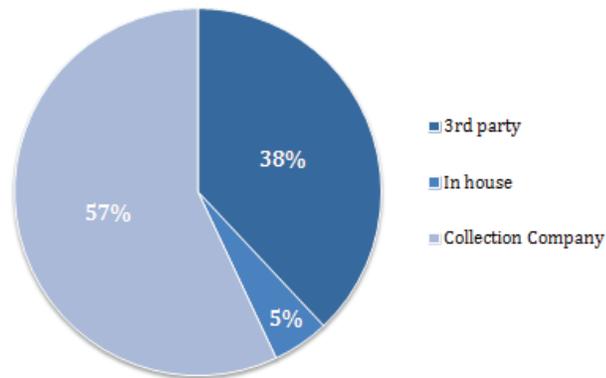
People in multifamily households do not feel empowered to address bulky waste with their property managers. Discussion group participants cited fear of retaliation as a reason not to approach the property manager. The mattress story referenced previously, illustrates that property

managers do not always have, or provide, correct information to tenants about how to deal with bulky waste.

Due to high household turnover, multifamily households may generate bulky waste at a greater rate than single-family households. Bulky waste is a material stream at multifamily sites in need of an apartment and condominium household specific solution.

Figure 4

**WASTE COMPOSITION STUDY FIELD DATA\***  
*How do you handle bulky waste?*



\*Sample size: 92 property managers

## OPTIONS TO ADDRESS FINDINGS

The project team identifies the following options to achieve the project goals of ensuring access to service, increasing the amount of recyclable materials recovered and ensuring the materials are high quality. Some options could be enacted with no policy changes, and other options should be considered and addressed through the 2030 Regional Waste Plan update process.

The Regional Waste Plan is the blueprint that guides how the region's garbage and recycling system is managed. It also guides programs to reduce waste. The plan is updated every 10 years and is adopted by Metro Council. A plan update is currently underway. Consideration of options related to multifamily recycling within the update process will ensure that they are informed by the community and stakeholder engagement process used to develop the plan and consistent with the goals and strategies developed through the planning process.

### **Options that could be implemented with no policy changes**

Ensure access to services -- Service of mixed recycling and glass recycling material streams at multifamily properties is required by the Metro Regional Service Standard and local code. The service level data provided by haulers showed sites throughout the greater Portland area with missing material stream collection. Local governments would work with sites to bring missing material stream collection to the site. Technical assistance would also be provided to sites identified with low per household volumes of mixed recycling and glass recycling service volumes.

#### Local governments

A. Assist sites that lack mixed recycling or glass recycling services to bring the missing material collection services to the site.

- o Using the service data requested as part of this project, local governments would provide assistance to sites for which no, or low, mixed recycling or glass recycling collection service was available.

- o Data related to providing technical assistance to sites with no, or inadequate, material collection services would be tracked and reported to Metro for additional analysis.

#### Metro

B. Provide reporting and data analysis to track changes in service resulting from local government assistance.

- o Changes in material stream service or service volumes at sites would be reported to and analyzed by Metro to measure progress toward the goal of ensuring access to services as required by the Metro Regional Service Standard.

#### Project team

C. Complete options for required per unit, service volume minimum standards for garbage, mixed recycling, and glass recycling material streams.

- o Options will be informed by the multifamily waste characterization generation study findings, reported service level volumes, and additional information sources.

- o Two additional meetings of the current project team will be needed in July and August 2017.

- o An addendum outlining options will be attached to this report by August 31, 2017.

#### **Options that should be considered in the Regional Waste Plan**

D. Require per unit, service volume minimum standards (gallons/unit/week) for garbage, mixed recycling, and glass recycling material streams.

- o To monitor and/or enforce this requirement, conduct annual or biannual reporting of multifamily account material stream service levels to gauge progress against goals of baseline per unit capacity.

- o This data source would also serve as a measure of access to materials stream service.

E. Require weekly mixed recycling and glass recycling service.

- o Change the multifamily Regional Service Standard to require a minimum frequency of weekly mixed recycling and glass recycling collection. Exceptions would be identified for apartment and condominium sites with compactor and roll-off mixed recycling service.

F. Set a standard for bin colors.

- o Mixed recycling bins blue and yard debris/organics/food scrap bins green. This follows both national trends and some local single-family implementation.

- o Glass recycling bins a consistent color throughout the region. There is not a clear national or local color trend denoting the glass stream. Glass recycling bins cannot be green, blue or the garbage color(s).

- o Garbage bins not blue, green or the glass color. Taken a step further, there is an opportunity to designate a garbage bin color such as black, following a national color trend.

Grey, brown or tan may be chosen to further increase bin color consistency in the system.

- o Standard bin colors would be applicable to resident-facing bins.

G. Require use of standardized signage at all multifamily sites in the region.

- o Develop signage that is prominent, multi-lingual, and image-based. Consult with people in multifamily households and multifamily route drivers as part of the signage design process. Test signage in the field to ensure that it meets goals for visibility and ease of use.

- o Guidelines and implementation plan developed for application of new signage and removal of existing signage.

H. Require regular bulky waste service.

- o Change the multifamily Regional Service Standard, hauler licenses or franchise requirements, or other program to ensure regular bulky waste service is provided.

- o Additional analysis needed to determine adequate minimum bulky waste service need and opportunities to meet the need.

I. Develop garbage and recycling collection area model ordinance or design guidelines for new construction and significant remodel of multifamily sites.

- o Develop a model ordinance or guidelines for design could provide direction on:

- square footage needed to collect above the minimum required volume of garbage, mixed recycling, glass recycling, and organic material streams based on potential volume requirement(s) adopted,

- recommendations or requirements around co-location of current and anticipated

# OPTIONS CROSSWALKED TO PROJECT GOALS AND FINDINGS

	Project goals			Project findings			
	Increases access to service	Increase recovery	Decrease contamination	Lack of service and volume	Collection system is confusing	Contamination is high	Bulky waste inadequately managed
<b>Options that could be implemented with no policy changes</b>							
<b>A: LG's:</b> Assist sites that lack mixed recycling or glass recycling services.	✓	✓	✓	✓		✓	
<b>B: Metro:</b> Provide reporting and data analysis to track changes in service resulting from local government assistance.	✓	✓	✓	✓		✓	
<b>C: Project team:</b> Complete options for required per unit, service volume minimum standards for garbage, mixed recycling and glass recycling material streams.	✓	✓	✓	✓		✓	
<b>Options to be considered in the Regional Waste Plan</b>							
<b>D:</b> Require per unit service volume minimum standards for garbage, mixed recycling and glass recycling material streams.	✓	✓	✓	✓		✓	
<b>E:</b> Require weekly mixed recycling and glass recycling service.	✓	✓	✓	✓		✓	
<b>F:</b> Set a standard for bin colors.	✓	✓	✓	✓	✓	✓	
<b>G:</b> Require the use of standardized signage at all multifamily sites in the region.	✓	✓	✓	✓	✓	✓	
<b>H:</b> Require regular bulky waste service.	✓		✓				✓
<b>I:</b> Develop garbage and collection area model ordinance or design guidelines.	✓	✓	✓	✓	✓	✓	✓

# IMPLEMENTATION CONSIDERATIONS

Implementation should consider the benefits to people living in multifamily households from services they should be consistently and adequately receiving. Implementation of improvements has the potential to provide co-benefits in multiple areas. These include:

- social justice,
- human and environmental health,
- increased community involvement,
- worker safety, and
- resident safety.

The cost of change, while important and to be included in future analyses, should not be the dominant consideration. Metro and the local governments will develop implementation plans for approved options.

The project team recommends as part of the implementation for any improvements, that planned measurements take place at key intervals to monitor progress.

- At regular intervals or when key improvement benchmarks have been met, a waste characterization study should be conducted to monitor performance.
- The waste characterization study conducted should use the same methodology as the baseline study conducted. This will provide additional point in time measures from which trends can be developed and will also measure progress towards recovery and contamination goals.
- If improvements are discrete, and a characterization study is conducted, we may be able to attribute performance improvements to the change.

Implementing improvements to multifamily garbage and recycling service will require a holistic approach. There are no silver bullets. Implementation of improvements to the multifamily garbage and recycling collection system must involve, and consider the needs of, a wide variety of stakeholder groups including:

- people living in multifamily households,
- collection companies, including route drivers,
- property managers,
- local government building staff related to garbage and recycling enclosures,
- local government solid waste staff,
- Metro staff,
- Department of Environmental Quality staff, and
- elected officials at all levels.