

Multifamily Property Manager Interviews

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Materials Management

700 NE Multnomah St.
Suite 600
Portland, OR 97232
Phone: 503-229-5696
800-452-4011
Fax: 503-229-5850
Contact: Brian Staffki
www.oregon.gov/DEQ

DEQ is a leader in restoring, maintaining and enhancing the quality of Oregon's air, land and water.



State of Oregon
**Department of
Environmental
Quality**

This report prepared by:

Oregon Department of Environmental Quality
700 NE Multnomah Street, Suite 600
Portland, OR 97232
1-800-452-4011
www.oregon.gov/deq

Contact:
Brian Stafki
503-229-5984

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Executive summary

In response to changes in Oregon's recycling laws, the opportunity to recycle is being extended to all residential and commercial tenants of multi-tenant properties. The change will require cities and counties to ensure properties with tenants that share garbage collection service also receive recycling collection by July 2022. This requirement is for cities with 4,000 or more residents, cities within the Metro Service District and counties which manage programs within those cities' urban growth boundaries. In order to support implementation, Oregon Department of Environmental Quality researchers conducted telephone interviews with property managers and other individuals responsible for overseeing garbage and recycling collection at multi-family properties. Data on multifamily recycling practices around Oregon were collected on topics including, but not limited to, the frequency and volume of garbage and recycling collection, information provided to tenants on the proper use of garbage and recycling areas, successes and challenges of offering garbage and recycling collection to tenants, and more. The data gathered from the interviews were then coded and analyzed and categorized into three themes:

- Recycling behavior
- Recycling collection systems
- Recycling policies

Findings around tenant behavior and factors that influence behavior emerged. For example, information on using garbage and recycling areas is usually provided to tenants by property managers at time of lease, but less so beyond that time. To support positive garbage disposal and recycling behavior, printed materials and face-to-face interaction were the most commonly used means to provide information to tenants.

Contamination of recycling by tenants is a problem and cited as the greatest challenge in offering recycling to tenants. Contamination of recycling by non-tenants was also cited to be a problem. Some property managers offer information on how to avoid contamination of recycling.

DEQ also looked at the collection system. The volume or frequency of garbage and recycling collection was deemed to be adequate, according to interviewees. Bulky waste disposal was largely expected to be arranged by tenants. As for elements of collection areas that helped support good recycling behavior, interviewees mentioned convenience, safety and security, accessibility and clearly marked receptacles.

Policy tools also support recycling at multifamily properties. Recycling agreements are not often used, whereas penalties are more often employed to curb improper garbage and recycling disposal.

Because the sample size for this study was small, findings are insightful but might not be representative of the whole population.

1. Introduction

This report is prepared for the benefit of stakeholders in order to determine solutions that could be helpful to cities and counties that need to implement multi-tenant recycling by 2022. Stakeholders could include but not limited to garbage and recycling collection companies and associations, developers and builders, local and regional governments, materials management programs, multi-tenant property owners, property managers, planners, recycling processors, tenant and tenant associations, and others.

The Recycling Opportunity Act was passed in 1983, with the intent that everybody in Oregon should be provided with an opportunity to recycle. In cities of 4,000 or more populations and within the Metro area, that opportunity meant regular on-route collection of recyclable materials from all collection service customers, or an equivalently-effective program. However, as the law was interpreted and implemented, many residential and commercial tenants ended up being denied an opportunity to recycle because it was the landlord, rather than the tenants, who were considered to be the collection service customers. If the landlord decided not to use a recycling service, then the tenant did not have an opportunity to recycle. In 2015, the legislature corrected this with the passage of Senate Bill 265. One provision of this law is that by July 1, 2022, tenants will also be considered to be collection service customers, and so must directly be provided with the opportunity to recycle by their landlords and collection service providers.

By July 1, 2022, local governments will need to ensure that the opportunity to recycle is extended to residential and commercial tenants of multi-tenant properties. Local jurisdictions affected include cities with 4,000 or more residents, cities within the Metro Service District and counties which manage programs within those cities' urban growth boundaries.

In order to help guide implementation of the updated recycling law, the Oregon Department of Environmental Quality interviewed multifamily property managers and other staff about their garbage and recycling collection systems and how they support tenants. This report offers a snapshot of the current practices and range of recycling collection services provided at multifamily properties. It is intended to help to gain understanding of current multifamily garbage and recycling collection practices.

Findings from this research have been organized into three main sections:

- Recycling behavior
- Recycling collection systems
- Recycling policies

2. Methods

2.1 Sample selection

2.1.1 City selection

In order to get representation from around the state, DEQ selected 15 cities to sample using census data from the 2011-2015 five-year American Community Survey (ACS) and Portland State University's (PSU) Population Research Center's 2016 estimates. The ACS estimates the number of units of multifamily housing for each city. PSU provides an annual list of cities and their projected populations. Cities over 4,000, but not within the MSD, were selected from the 2016 PSU list and combined with the ACS estimates and then ordered by the number multifamily units. Unit-counts for less than five units, mobile homes, boats, recreational vehicles and vans were excluded as it is not guaranteed they share collection services. Cities in the Metro area were excluded from the sample due to the Metro regional governments having conducted similar research in 2016 and 2017. Due to their larger size, two cities were selected more than once — Eugene was selected three times and Salem twice. In order

to more reflect rural areas of the state, two additional rural cities were added — Pendleton and Tillamook. In the end, there were 14 individual cities selected — see Table 1.

Table 1: Cities selected for multitenant research

City	Sample size	Estimated 2016 population	Estimated 2015 multifamily units (five or more)
Albany	5	52,540	2,943
Bend	5	83,500	4,428
Corvallis	5	58,240	7,768
Eugene (sample 3x)	15	165,885	17,770
Keizer	5	37,505	2,579
Lebanon	5	16,435	1,109
Medford	5	78,500	4,882
Pendleton	5	16,880	982
Redmond	5	27,595	964
Salem (sample 2x)	10	162,060	12,757
Sheridan	5	6,115	351
Springfield	5	60,140	4,542
Tillamook	5	4,920	693
Woodburn	5	24,795	1,459
Total	85		

2.1.2 Property selection and profiles

For each city selected, DEQ planned to sample 5 multifamily properties using city, county and collection providers’ records for a total of 75 samples. Cities that were sampled more than once had 5 properties for each time they were chosen. After adding two additional rural cities, the property sample increased to 85. To qualify for participation, properties met the following criteria:

- Had five or more dwelling units — DEQ’s definition of multifamily
- Collection was not shared with commercial tenants
- Multiple units shared material collection receptacles in common collection areas (garbage, recycling or both)

Properties with less than five units, mobile homes parks, recreational vehicle parks, marinas with houseboats and similar properties were not included since the census data did not specify which of these were in multifamily configurations.

Properties were randomly selected within each city, proportional to the size distribution for each city. In most cases, the 2015 American Community Survey provided unit-size distributions for each city. These were used to create a list of the types and proportions of multifamily properties to choose. Overall, 27 percent of multifamily properties in Oregon were 5-9 units in size, 22 percent were 10-19 units and 50 percent 20 or more units — see Table 2. Properties were selected to match, as close as possible, this unit-size distribution. In some cases, properties were selected by records provided by the city that included unit counts or from customer lists provided by the local collection companies that included garbage service levels. In all cases, the properties were intended to be representative of the city. DEQ staff then used web searches and Google Maps aerial and street view to verify the eligibility and size of the property.

Table 2: 2015-2016 American Community Survey unit-size distribution for Oregon

Unit-sizes	Percent
5 to 9	27%
10 to 19	22%
20 or more	50%
Total	100%

2.2 Protocol for contacting property managers

DEQ searched for property contact information on the web. In cases where contact information wasn't available on the web, researchers attempted to get customer information from their garbage and recycling collection service provider. A majority of collection service providers contacted were able to provide customer contact information. In some cases, where ownership was known from assessment records, DEQ conducted a web search for the property owner.

Researchers called each property and attempted to talk to property managers or staff responsible for maintaining the garbage and recycling collection areas at least two times. They were assumed to have the most insight on their community's garbage and recycling collection.

When no contact was made on the first call, a voicemail message was left. If available, an email was sent to the property manager. Another follow-up call was made three business days later. If there was no returned call after four business days, a replacement property was selected.

Alternate properties within the same unit-size class were chosen by using a random number generator from the preliminary list of properties following the protocol above.

2.3 Data collection

A structured interview with both closed-ended and open-ended questions was used to interview a property manager from the selected properties. Most interviews were conducted over the telephone, but a number were conducted face-to-face. Phone interviews were conducted because they were a natural extension of calling property managers to get permission for conducting property surveys. Interview responses were recorded on a hard copy template form, then transcribed into digital format for data analysis. Questions included, but were not limited to, what information is provided to tenants on about garbage and recycling on-site, if they had any agreements with tenants to recycle, was collection service adequate, were there problems with contaminants in the recycling and more. Questions on a data sheet were accompanied by a protocol that described the meaning of questions. Research analysts were offered a brief training on how to conduct the interviews. The full list of questions is available in Appendix A.

2.3.1 Interview questions

The question topics are categorized below into three main sections — behavior, collection and policy.

2.3.1.1 Recycling behavior

These were questions that related to behavior of tenants around using collection services. They could be about the direct behavior or about actions the property managers take to influence behavior. They included the following topics:

- Information provided to tenants when they sign or renew lease
- Any resources provided to tenants on an ongoing basis
- Problems with tenants or non-tenants disposing of garbage in the recycling
- Special messages about items that do not belong in the recycling

- Challenges in providing garbage/recycling collection to tenants
- What is most useful in addressing challenges

2.3.1.2 Collection system

Questions about the garbage or recycling collection system aimed to understand the system, including service levels and equipment. They included to following topics:

- Adequacy of garbage collection service
- Adequacy of recycling collection service
- Procedures for management of bulky waste like couches and mattresses
- Best aspects of garbage/recycling collection
- Improvements to garbage and recycling collection for tenants

2.3.1.3 Policy

There were two topics related to recycling policy assessed through the interviews:

- Recycling agreements
- Penalties for incorrect usage

2.4 Analysis

Open-ended responses were analyzed and themes were determined then counted. The codes were categorized within the main three themes of recycling behavior, collection and policy. Then, responses were coded further to find more specific examples within that theme. Because of the small sample size, usually only the examples with the first or second highest frequency were used for discussion, unless additional detail was needed. The coding key can be found in Appendix B.

3. Findings

3.1 Samples

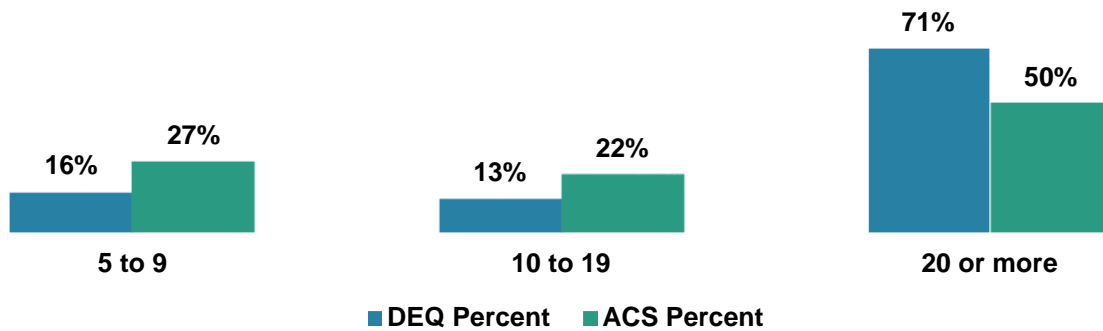
DEQ conducted 77 phone and face-to-face interviews with property managers and others who coordinated use of shared garbage or recycling collection areas. This is eight fewer (nearly 10 percent) interviews than researchers set out to conduct. Properties were difficult to identify and contact. In some cases, properties would not respond to calls and alternate properties had to be selected. Researchers were unable to reach all properties in Sheridan and Corvallis for interviews.

3.2 Property profiles

3.2.1 Unit-size distribution

Unit-size distributions for properties selected for manager interviews varied from those identified in the 2015 ACS. Of the interviewed properties, 16 percent had five to nine units, 13 percent had 10-19 units and 71 percent had 20 or more units, as illustrated by Figure 1 and Appendix C.

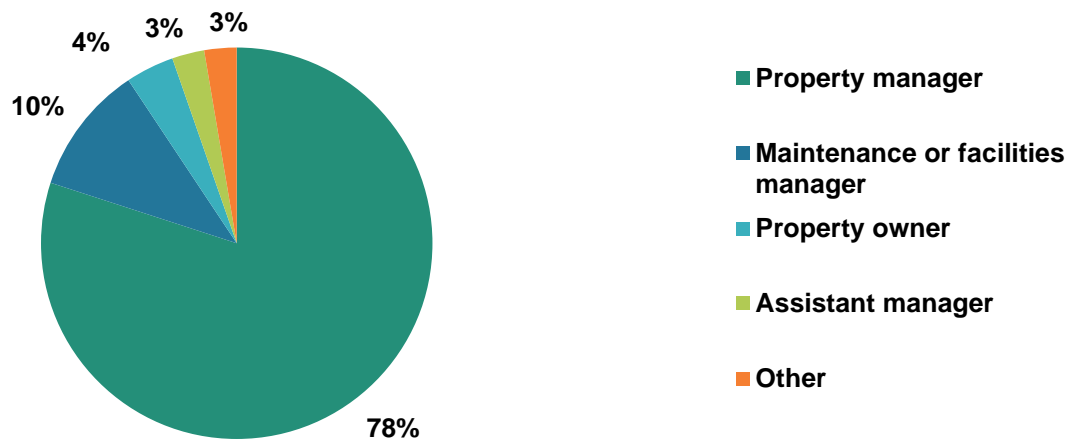
Figure 1: Properties selected by DEQ for interviews by size compared to the distribution of Oregon properties according to the 2015 American Community Survey



3.2.2 Interviewee roles

DEQ mostly interviewed property managers, which composed 78 percent of the interviewees. Not all properties had dedicated on-site property managers. Other properties had staff specifically assigned to maintenance and managing garbage and recycling collection. The roles of other selected interviewees for this study were self-described as maintenance or facilities managers or workers (10 percent) and as property owners (four percent). Other roles included assistant managers, leasing or showing agents, plant engineers, and waste management consultants — see Figure 2 below and Appendix D.

Figure 2: Roles of multifamily property staff interviewed

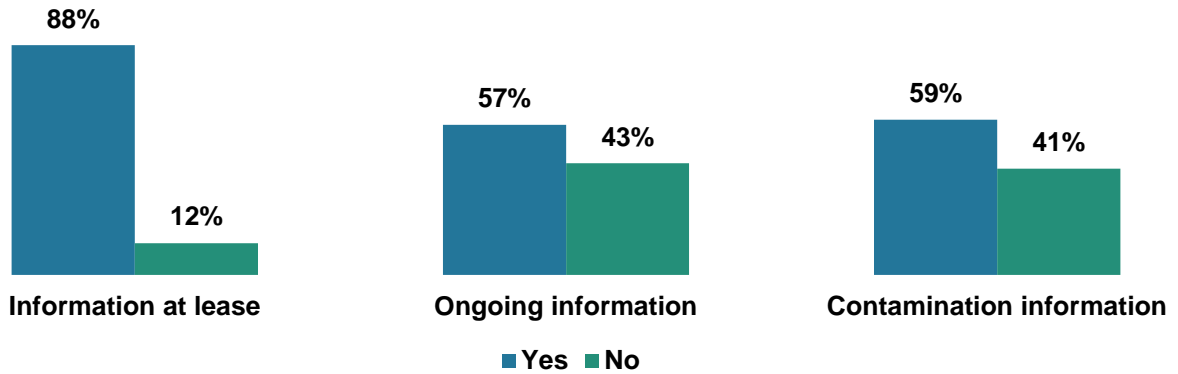


3.3 Behavior

3.3.1 Providing information on garbage and recycling

As shown in Figure 3, 88 percent of interviewees provided tenants with information on how to use the garbage and recycling system during the signing or renewal of the lease. Property management provided information to tenants on garbage and recycling beyond signing or renewing the lease less frequently. Fifty-seven percent of interviewees reported they provided tenants with ongoing information on how to use the garbage and recycling system. Similarly, in terms of other special contamination messages, such as materials that did not belong in the recycling, 59 percent of interviewees said they provided this information to tenants.

Figure 3: Information provided to tenants about using shared garbage and recycling collection

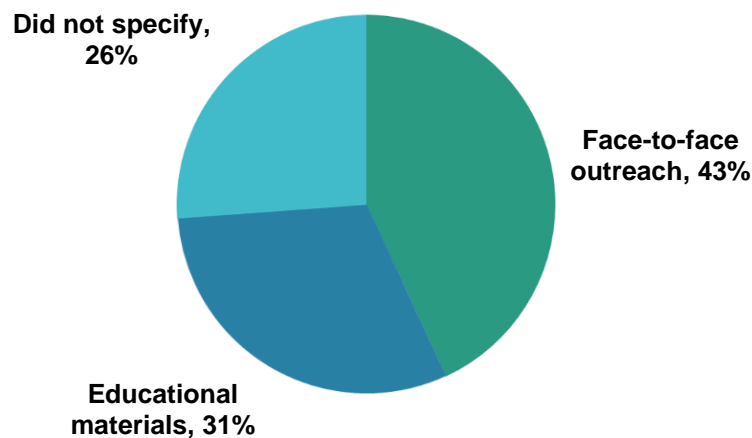


3.3.1.1 Types of garbage and recycling information provided to multifamily tenants

Information provided at the lease signing

Most interviewees provided information about garbage and recycling use during the signing or renewal of a lease. Seventy-four percent of those interviewees mentioned a specific method of providing information. Face-to-face interactions were the most common method interviewees used to provide information to tenants — used by 43 percent of interviewees. This included orientations or meetings as well as providing informal verbal information. Thirty-one percent of interviewees used printed educational or outreach materials — which included newsletters, resident handbooks, signage and other similar materials — see Figure 4 below and Appendix E.

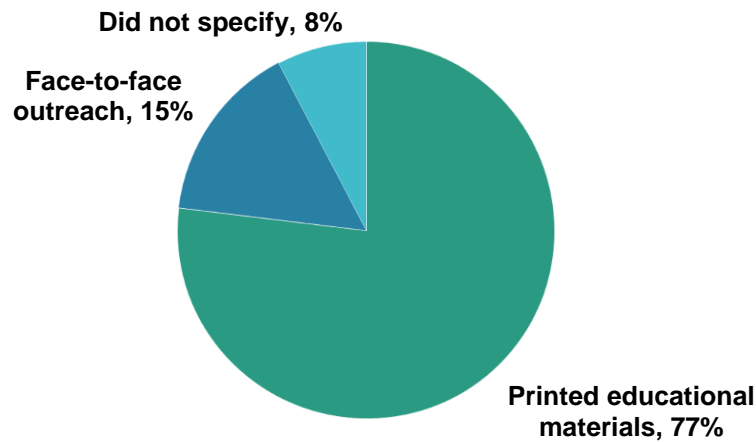
Figure 4: Methods for providing garbage and recycling information as part of lease signing or renewal



Information provided on an ongoing basis

A majority of interviewees provided information to tenants on an ongoing basis. Of these, 77 percent of interviewees reported using printed educational or outreach materials which included newsletters, signage, memos and similar materials. Fifteen percent used face-to-face methods — See Figure 5 below and Appendix E.

Figure 5: Methods for providing garbage and recycling information on an ongoing basis



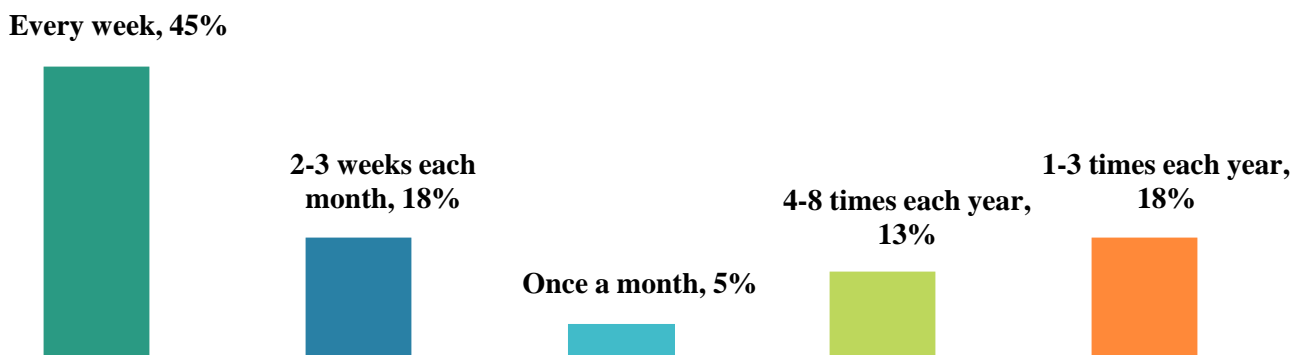
Contamination information

Some interviewees provided information about materials that do not belong in the recycling. Eighty-five percent of those interviewees who provided tenants with special messages about materials that do not belong in the recycling, mentioned providing posters or other signage, newsletters, reminders or other printed materials — See Appendix E.

3.3.2 Negative recycling behaviors

Forty-six percent of interviewees named contamination of recycling and other negative behaviors — such as leaving bulky waste on the ground, adding trash to overflowing receptacles — as the greatest challenge of offering garbage and recycling collection at multi-tenant properties. When asked specifically about contamination of recycling, 58 percent of interviewees of properties where recycling collection is offered said that tenants contaminated recycling with some frequency. As illustrated by Figure 6, 45 percent of interviewees who reported contamination problems said that recycling contamination occurs every week. Eighteen percent of interviewees stated that contamination occurs two to three weeks per month and one to three times per year each — see Appendix F.

Figure 6: Frequency of contamination of recycling by tenants



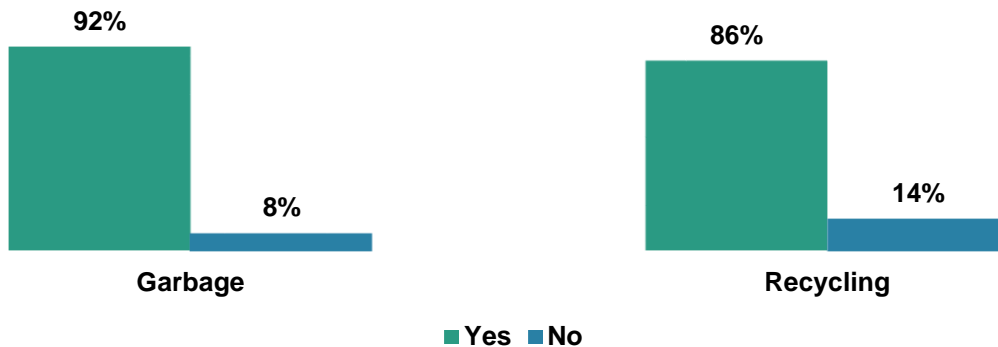
3.4 Collection

3.4.1 Collection service

Overall, garbage and recycling volume or frequency was reported as adequate, which can be seen in Figure 7 and Appendix G. For garbage collection, 92 percent of interviewees felt their service was adequate. For interviewees

with recycling collection, 86 percent of respondents felt that the volume or frequency of recycling pickup for their property was adequate. Sixteen percent of interviewees did not offer recycling. Additionally, 43 percent of interviewees highlighted the service from their hauler as adequate or good. Within these responses, 76 percent of interviewees expressed positive opinions about the frequency of service at their properties.

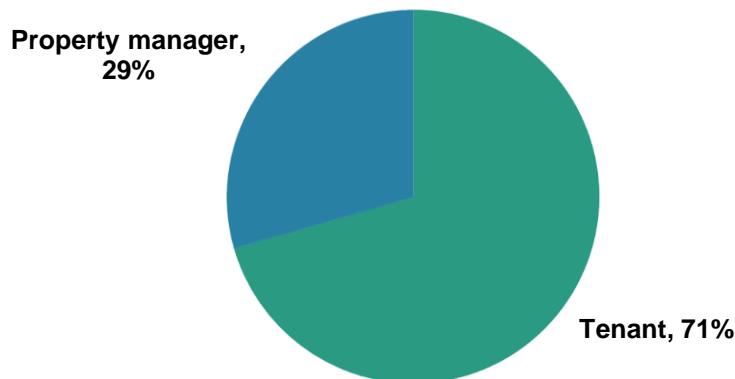
Figure 7: Adequacy of garbage and recycling collection service



3.4.2 Bulky waste disposal

In 71 percent of the cases as illustrated by Figure 8 and Appendix H, bulky waste disposal was to be arranged by the tenant. The remaining was arranged by the property manager.

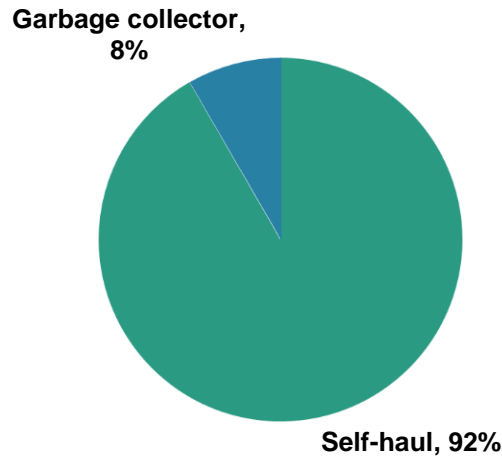
Figure 8: Bulky waste disposal arrangement



3.4.2.1 Tenant bulky waste arrangements

When tenants arranged disposal of bulky waste, 92 percent of interviewees said tenants self-hauled materials for disposal. Only eight percent of interviewees said the tenants worked primarily with the property’s garbage collection company — see Figure 9 and Appendix H.

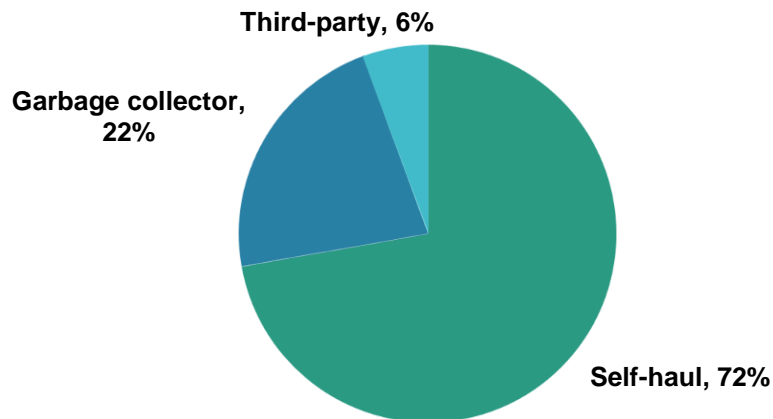
Figure 9: Tenant bulky waste disposal arrangements



3.4.2.2 Property manager bulky waste arrangements

As for when property management arranged bulky waste disposal, 72 percent is self-hauled for disposal, as illustrated by Figure 10. In 22 percent of the cases, the property manager arranges for their garbage collection company to provide bulky waste collection. Six percent of property managers used a third party such as a donation organization — see Appendix H.

Figure 10: Property manager bulky waste disposal arrangements



3.4.3 Collection area design and changes

Sixty-five percent of interviewees mentioned collection as what is best about their garbage and recycling system — see Appendix I, Table 15. Of those 51 respondents, 37 percent indicated the collection area was working well — see Appendix I, Table 16. Within these responses the elements of the collection area that were working well were the number and distribution of collection areas and the convenience of the area (53 percent of responses), receptacles (21 percent), safety and security (16 percent), and signage (10 percent) — see Figure 11 and Appendix I, Table 17. At the same time, 49 percent of interviewees mentioned that making changes to the collection area and collection service would improve their garbage and recycling collection system — see Appendix I, Table 18. Within these responses, 60 percent sought change in collection areas — see Appendix I, Table 19. These changes included altering the receptacles in some way, mentioned in 53 percent of responses, changing the structure (23 percent), changing the safety and security of the area (20 percent), and changing the number of collection areas (three percent) — see Figure 12 and Appendix I, Table 20.

Figure 11: What works best about the collection area

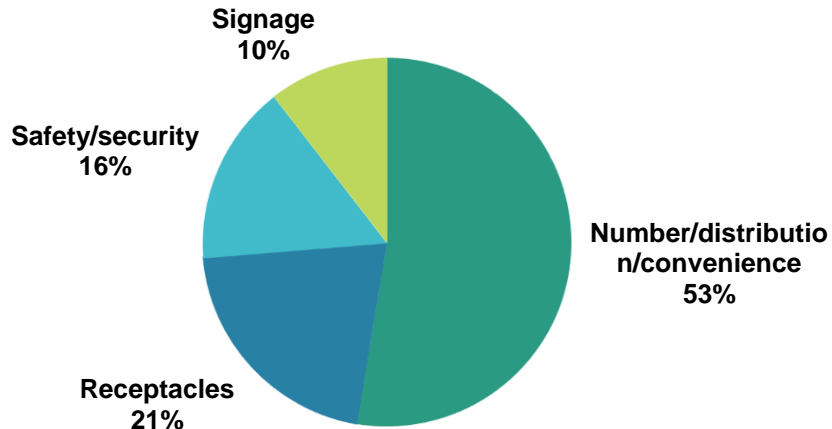
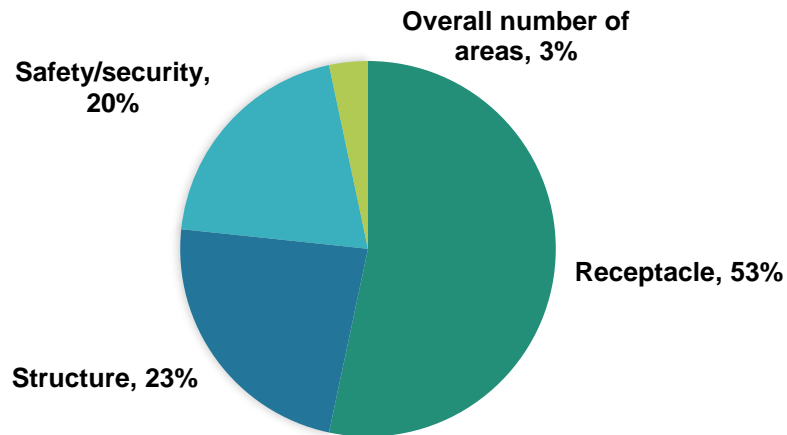


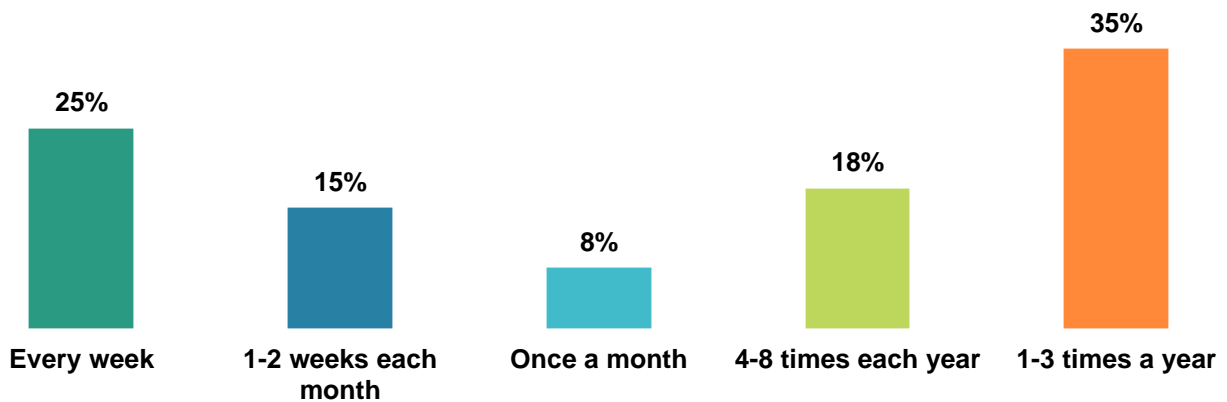
Figure 12: Changes to garbage and recycling collection area



3.4.4 Non-tenant contamination of recycling

Contamination of the recycling by non-tenants was an issue for 53 percent of interviewees as seen in Appendix J, Table 21. As seen in Figure 13 and Appendix J, Table 22, the rates of contamination of recycling varied, with 35 percent of interviewees reporting that contamination by non-tenants occurs every one to three times each year, 25 percent occurs every week and 18 percent four to eight times each year.

Figure 13: Frequency of recycling contamination by non-tenants

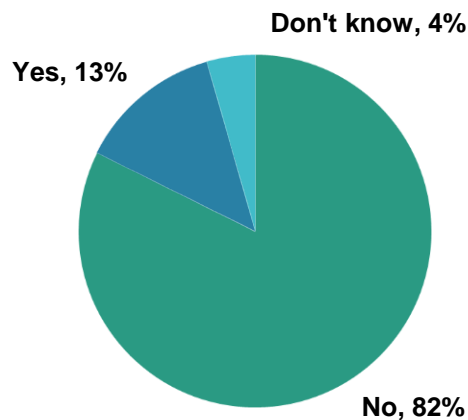


3.5 Policy

3.5.1 Recycling agreements

Tenants are not required to sign any recycling agreements with property managers, according to 82 percent of interviewees. Thirteen percent of respondents, however, reported that tenants are required to sign an agreement about recycling — See Figure 14 and Appendix K, Table 23.

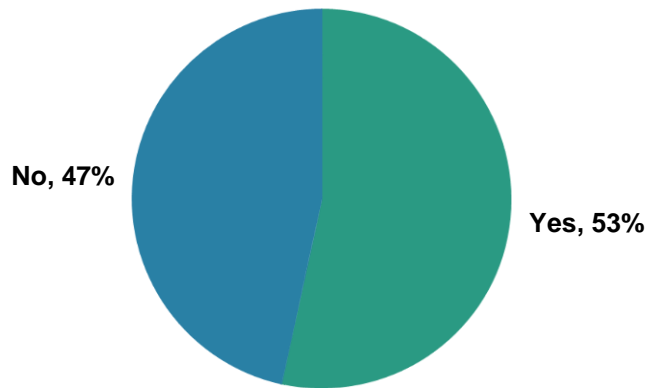
Figure 14: Recycling agreements between property manager and tenants



3.5.2 Penalties for incorrect disposal of garbage or recycling

Penalties, which included warnings, fines or eviction, for the incorrect disposal of garbage and recycling were used by 53 percent of interviewees— see Figure 15 and Appendix L, Table 24. Sixty-two percent of interviewees who used penalties mentioned that fees or fines are imposed for incorrect garbage or recycling disposal — see Appendix L, Table 25.

Figure 15: Penalties for incorrect disposal of garbage or recycling



4. Discussion

4.1 Limitations

4.1.1 Sample size

Because of the small sample size of this study, which totaled 77 interviewees, the conclusions cannot be generalized across the population. Additionally, recycling was not offered by the management of all properties sampled in this study. Therefore, not all questions were applicable to all interviewees, limiting some information about recycling.

4.1.2 Sample representation

The distribution of unit sizes used in this study were close to the Oregon unit-size distribution as recorded by the ACS, but did not completely correspond with it. The data may be skewed slightly because of this difference.

Additionally, because Metro recently completed a study of multifamily properties, cities in the Metro Service District were excluded and therefore no interview data was included from the largest population center for this study. Additionally, there were some cities, Sheridan and Corvallis, with less than the proposed five interview samples. This could mean that responses are not completely representative of all the state's multifamily properties.

4.1.3 Question wording

Some of the questions used in the interview guide were somewhat leading. That is, the phrasing of these questions could cause respondents to answer in a particular way. The following questions could be considered leading:

22. What information do you provide to tenants when they sign/renew their lease on how to use the garbage or recycling?
24. What do you provide tenants on an ongoing basis to help with garbage and recycling? How often?
30. What works best about your garbage/recycling collection system?
31. What are the challenges you face in providing garbage/recycling to your tenants?

These questions assume facts, for example in number 22, which assumes that the property manager does provide information to tenants and may have led interviewees to grasp for information to answer this question, especially when considering the power dynamics between interviewer and interviewee, discussed in the next section.

4.1.4 Perceptions of DEQ's role

DEQ researchers were instructed to inform interviewees that this study was being conducted for research purposes only and not regulatory. Still, there may have been some reluctance to share information to the interviewer due to DEQ being the state's regulatory agency for environmental protection. The data may have been affected by the possibility of an interviewee withholding information out of fear of violations or other penalties.

4.1.5 Interviewer format

Although a majority of the interviews were conducted over the phone, a number were conducted face-to-face. The phone interview style may have produced different data in comparison to the face-to-face interview. For example, the phone interviewer was unable to perceive visual and nonverbal cues and may have had more difficulty developing rapport with the interviewee compared to the face-to-face interviewer.

4.1.6 Quantifying responses

Every effort was made to ensure data was collected consistently. However, due to the fact that there were several people recording responses, it is possible that the level of detail recorded from interviews was not consistent.

4.1.7 Language limitations

There were a few interviewees with limited English-speaking skills. No research team members had sufficient fluency necessary to proficiently communicate with these individuals in their first language. As a result, the persons with limited English-speaking skills may not have understood the questions being asked during interviews or answered to completely during interviews.

4.2 Conclusion

The purpose of this study was to gain a more detailed understanding of garbage and recycling collection practices at multifamily properties, representative of the broader multifamily population, across Oregon. Property managers and others offered a range of opinions during interviews with some emerging trends among these opinions. Though the sample size of this study was small and results cannot be assumed to represent the broader picture of multifamily garbage and recycling across Oregon, this study does provide meaningful insight. The opinions and experiences of property managers interviewed in this study are important. The main takeaways from the study were:

- Information is usually provided to tenants mostly at the signing or renewal of the lease.
- The disposal of bulky waste is commonly arranged by the tenant.
- Garbage and recycling collection service was mostly seen as adequate.
- Contamination of recycling by both tenants and non-tenants is a problem.
- Recycling agreements in leases are not used widespread.
- Penalties for incorrect garbage or recycling disposal were used by roughly half of interviewees.

Appendix A

Property manager interview questions

1. City
2. Address
3. Property name
4. Date
5. Interviewer
6. Property type (R = residential; C = commercial)
7. Do you have garbage collection service?
8. Do you share service with any commercial properties?
9. Who is your garbage and recycling collection company?
10. Property manager
11. Phone number
12. Email
13. Total buildings (number)
14. Building designations (numbers/letters/names)
15. Units (number)
16. Role of interviewee if not property manager
17. Do you feel you have adequate volume or frequency of GARBAGE pickup for your property?
18. Do you feel you have adequate volume or frequency of RECYCLING pickup for your property?
19. What information do you provide to tenants when they sign/renew their lease on how to use the garbage or recycling?
20. Are they required to sign any agreements about recycling?
21. What do you provide tenants on an ongoing basis to help with garbage and recycling? How often?
22. Are there problems with tenants disposing of garbage in the recycling? If so, how often is it a problem?
23. What should residents do with large items like couches and mattresses? Do you provide information on what to do? Is the service provided by your garbage and recycling collection company or another provider?
24. Do you provide tenants with any special messages about items that don't belong in the recycling?
25. Are there any penalties for incorrectly disposing of garbage or recycling?
26. Are there problems with NON-TENANTS disposing of garbage or large items on your property? If so, how often?
27. What works best about your garbage/recycling collection system?
28. What are the challenges you face in providing garbage/recycling to your tenants?
29. What have you found most useful in addressing these challenges?
30. If you had an opportunity to do something different about garbage or recycling collection, what would it be?
31. Is there anything more you would like to share about improving garbage and recycling collection to your tenants?
32. Would it be possible to ask some questions about recycling of select residents by going door-to-door? When is the best time to reach residents?

Appendix B

Table 3: Key to coding data

	Code	Definition	Explanation
Behavior	BHAV	Behavior	Tenant recycling practices such as participation in recycling, contamination of recycling, and other types of compliance and non-compliance with garbage and recycling rules
	EDUOUT	Educational and outreach	Information sharing methods included face-to-face interaction, printed materials, and digital information
	EDUMAT	Printed education and outreach materials	Paper-based information on how to use the garbage and recycling provided to tenants by property management, including letters, signage, resident handbooks, and other similar materials
	F2F	Face-to-face interaction	In-person interaction between tenants and property management and other staff, including orientations, meetings, and providing informal verbal information
	TPART	Tenant participation in recycling	Tenants show pro-recycling behavior and compliance
	-TPART	Tenant non-participation	Tenants do not recycle or engage in other negative behavior
	NONT	Non-tenant use of garbage and recycling	Individuals who do not live at property use the collection area
Collection	COL	Collection	Recycling and garbage collection service, collection areas and receptacle
	CA	Collection area	The location where garbage and recycling is taken to be disposed of by tenants and picked up by haulers
	SERV	Collection service	The pickup of garbage and recycling by a designated hauler
	CACH	Collection area change	Alteration of collection area
	COLCH	Collection service change	Alteration in frequency, volume, service provider, and other factors
	MATCH	Change in materials collected	Expanding or reducing types of recyclable materials collected
	ACC	Access	Use of collection area is unblocked and within reach of tenant

	Code	Definition	Explanation
	DON	Donation service	Collection of materials is performed by a non-profit which resells used furniture and other bulky materials
	FREQ	Frequency of service	The schedule of garbage or recycling collection
	CONV	Convenience	Collection area is easy to use, well-distributed, and nearby to where tenants live
	SAFE	Safety	Collection area is well-lit, secure, clean, sanitary, and tenants are unafraid to use it
	BWTEN	Self-haul bulky waste disposal	Bulky waste (couches, mattresses, large pieces of furniture and other items) is arranged by tenant
	BWPM	Property management bulky waste arrangement	Bulky waste disposal is arranged by the property management
	BWHAUL	Hauler bulky waste disposal	Bulky waste disposal is arranged by the hauler
	BW3P	Third party waste disposal	A for-profit organization that manages the collection area arranges bulky waste disposal
Policy	POL	Policy	Refers to legal elements around recycling including hauler franchise agreements and rental agreements
	PEN	Penalty	Negative consequence for incorrect disposal of recycling or garbage including verbal and written warnings, fines, and eviction
	WARN	Warning	Verbal and written notices for improper disposal of garbage and recycling
	FINE	Fine	Monetary negative consequences for disposal of garbage and recycling

Appendix C

Table 4: DEQ selected properties compared to American Community Survey distribution for Oregon

	DEQ		ACS	
	Percent	Number	Percent	Number
5 to 9	16%	12	27%	75,092
10 to 19	13%	10	22%	61,499
20 or more	71%	55	50%	136,981
Total	100%	77	100%	273,572

Appendix D

Table 5: Roles of property staff interviewed by DEQ

	Percent	Number
Property manager	78%	60
Maintenance or facilities manager	10%	8
Property owner	4%	3
Assistant manager	3%	2
Leasing or showing agent	3%	2
Plant engineer	1%	1
Waste management consultant	1%	1
Total	100%	77

Appendix E

Table 6: Information provided to tenants about using shared garbage and recycling collection

	Information at lease		Ongoing information		Contamination information	
Yes	88%	65	57%	39	59%	38
No	12%	9	43%	29	41%	26
Total	100%	74	100%	68	100%	64

Table 7: Methods for providing information as part of the lease signing or renewal

	Percent	Number
Face-to-face outreach	43%	28
Printed educational materials	31%	20
Did not specify	26%	17
Total	100%	65

Table 8: Methods for providing information on an ongoing basis

	Percent	Number
Printed educational materials	77%	30
Face-to-face outreach	15%	6
Did not specify	8%	3
Total	100%	39

Table 9: Methods for providing contamination information

	Percent	Number
Printed educational materials	28	85%
Did not specify	5	15%
Total	32	100%

Appendix F

Table 10: Frequency of contamination of recycling by tenants

	Percent	Number
Every week	26%	17
2-3 weeks each month	11%	7
Once a month	3%	2
4-8 times each year	8%	5
1-3 times each year	11%	7
Total	100%	66

Appendix G

Table 11: Adequacy of recycling and garbage collection service

	Garbage		Recycling	
	Percent	Number	Percent	Number
No	8%	6	14%	9
Yes	92%	71	86%	55
Total	100%	77	100%	64

Appendix H

Table 12: Bulky waste disposal arrangement

	Percent	Number
Tenant	71%	48
Property manager	29%	20
Total	100%	68

Table 13: Tenant bulky waste disposal arrangements

	Percent	Number
Self-haul	92%	44
Garbage collector	8%	4
Total	100%	48

Table 14: Property management bulky waste disposal arrangements

	Percent	Number
Self-hauler	72%	13
Garbage collector	22%	4
Third-party	6%	1
Total	100%	18

Appendix I

Table 15: What works best about the garbage and recycling system

	Percent	Number
Collection (includes service and collection area)	65%	51
Tenant behavior	13%	10
NA/don't know	10%	8
General positive response	8%	6
Unclear	4%	3
Total	100%	78

Table 16: What works best about collection

	Percent	Number
Collection service	73%	37
Collection area	37%	19
Total	100%	51

Table 17: What works best about the collection area

	Percent	Number
Number/distribution/convenience	53%	10
Receptacles	21%	4
Safety/security	16%	3
Signage	11%	2
Total	100%	19

Table 18: What interviewees indicated needed to change

	Percent	Number
Change to collection	49%	40
Change to behavior	21%	17
No changes	17%	14
N/A	9%	7
Do not know	2%	2
Unclear response	1%	1
Total	100%	81

Table 19: Changes to collection

	Percent	Number
Change to collection area	60%	26
Change to collection service	40%	17
Total	100%	43

Table 20: Changes to collection area

	Percent	Number
Receptacle	53%	16
Structure	23%	7
Safety/security	20%	6
Number of collection areas	3%	1
Total	100%	30

Appendix J

Table 21: Contamination of recycling by non-tenants

	Percent	Number
Yes	53%	40
No	47%	36
Total	100%	76

Table 22: Frequency of recycling contamination by non-tenants

	Percent	Number
Every week	25%	10
1-2 weeks each month	15%	6
Once a month	8%	3
4-8 times each year	18%	7
1-3 times a year	35%	14
Total	100%	40

Appendix K

Table 23: Recycling agreements between property manager and tenants

	Percent	Number
No	82%	56
Yes	13%	9
Don't know	4%	3
Total	100%	68

Appendix L

Table 24: Penalties for incorrect disposal of garbage or recycling

	Percent	Number
No	47%	34
Yes	53%	39
Total	100%	73

Table 25: Fees for incorrect disposal of garbage or recycling

	Percent	Number
Fee or fine used	62%	24
No fine or fee used	38%	15
Total	100%	39